The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, No. 13 — COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS — APRIL 1, 1939

THE TREATMENT OF DELIRIUM TREMENS

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Beyond the fact that delirium tremens occurs in habitually severe and chronic alcoholism and that it frequently follows injuries, operations and acute infections, little is known of the actual etiologic factors at play. Since this syndrome was adequately and accurately described as long ago as 1813,[1] it seems remarkable that no real attempt has been made to study the physiologic and chemical changes which accompany it. The more recent therapies,[2] which have included various means of dehydration and repeated spinal drainage, are all based on the observation that at autopsy persons with delirium tremens frequently show cerebral edema. Such therapy, however, takes no account of the generalized dehydration and manifest toxicity which all these patients show and, furthermore, ignores many pathophysiologic phenomena which not only exist in these patients but are probably of at least equal importance.

In the prodromal period of delirium tremens the patient often experiences a disgust for alcohol sufficient to cause abstinence for several days. The acute gastritis and hepatitis which so many patients have often makes it impossible for them to retain anything by mouth, including alcohol. It is this type of abstinence which has often been mistakenly considered a cause rather than a result of delirium tremens. The studies of Piker[3] showed conclusively that between 75 and 90 per cent of patients have delirium tremens while still drinking. The administration of alcohol, therefore, either to prevent delirium tremens or as a subsequent therapeutic measure has no basis in fact and, furthermore, often presents an unsurmountable psychologic barrier in the further treatment of such patients. As additional proof of the minor importance of abstinence in the production of delirium tremens it is noteworthy that in only a few of the 10,000 alcoholic addicts admitted each year does delirium tremens develop in the ward. It is our impression that, even in these few, toxic and infectious factors play a far more important part in the production of the delirium.

Restraints are gradually being abolished in the treatment of delirious patients.[4] It is our belief that mechanical restraints are usually not necessary in the treatment of delirium tremens unless the nursing personnel is too limited to protect the patient from possible injury. Then it may be necessary to use hand restraints for a short period until the patient is quiet. Otherwise, if the patient is restrained for a longer period, much of the dehydration and exhaustion which occur follows his thwarted attempts to free himself.

Sedative medication is usually necessary, but here again a warning must be issued—particularly against the use of morphine. Not only does this drug raise the intracranial pressure[5] but it frequently masks the signs of an associated intracerebral or intra-abdominal injury. It has been aptly said that morphine not only puts the patient to sleep but also puts the physician to sleep. If after a thorough physical examination it is felt that sedative medication must be given in the interests of either the patient or the ward, paraldehyde, 2 or 3 fluidrachms (7 to 11 cc.) given by mouth or rectum, in repeated doses if necessary, is the drug of choice. In agreement with Piker and Cohn[6] we believe that paraldehyde is the most innocuous, the most rapidly eliminated and the most uniformly effective of all sedative medicaments in the treatment of the alcoholic delirium. If a continuous tub is available and the patient's temperature is not too high, we advocate hydrotherapy as a valuable agent in the treatment of alcoholic delirious states.

When these preliminary details have been cared for, we are confronted with the problem of readjusting the deranged metabolism. It has now been repeatedly confirmed that alcohol markedly decreases the oxygen consumption of the brain,[7] presumably like all narcotics by displacing the metabolites present at the surface of the brain.[8] Ordinarily the brain tissue has a respiratory quotient of unity, indicating that the brain feeds essentially on dextrose.[9] That this normal nutritive material is not available to the brain in the alcoholic delirium is suggested by the fact that in alcoholic dogs the

Read before the American College of Physicians, New York City, April 6, 1938.

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respiratory quotient of the brain falls from unity to 0.8 or 0.9,[10] indicating either that carbohydrates are not available for use or that the brain by virtue of the insult suffered is unable to utilize available carbohydrate and must turn to other foodstuffs. At any rate, whatever the cause, it would seem important to make dextrose, the normal food of the brain, available. This carbohydrate may be supplied in any form, but orange juice, containing in addition vitamin C, is a readily digestible and easily obtained source of this material. Furthermore, alcoholic addicts seem to like it and are able to retain it. Recent unpublished work at Bellevue indicates that dextrose accelerates the elimination of alcohol and that, if insulin (average dose of 15 units) is added, alcohol disappears from the blood still more rapidly. In addition, it results in more rapid assimilation and utilization of carbohydrates. As there is evidence of hepatic dysfunction[11] in all cases of delirium tremens, administration of dextrose undoubtedly helps to remedy the deranged metabolic processes therein.

The empiric observations of Bowman and Keiser[12] revealed that disturbed alcoholic patients quiet down after the administration of sodium chloride, either by mouth or parenterally. Chemical studies[13] showed that the chloride content of the blood was either low or markedly diminished in these states. To remedy this defect, capsules containing 2 Gm. of sodium chloride are given every four hours to these patients. The administration of the substance serves two purposes: 1. It combats dehydration.[13] 2. Since the alcoholic delirium is associated with a marked acidosis resulting not only from accumulated lactic acid in the blood and spinal fluid[14] but also from retention[16] of carbon dioxide, there ensues a marked diminution in the alkali reserve of the body which is successfully combated by administration of the sodium ion.

Repeated feedings of a soft diet rich in vitamins is of inestimable value in the treatment of these patients. If possible, the diet should contain from 3,000 to 4,000 calories a day. It is now generally accepted that vitamins B and A play an important part in the normal metabolism of nervous tissue.[14] Furthermore, Jolliffe and Frank[15] demonstrated a high incidence of peripheral neuritis in alcoholic addicts admitted to the psychiatric department of Bellevue Hospital as a routine indicating a deficiency of vitamin B_1. Moreover, Wortis, Wortis and Marsh[16] have shown that patients in alcoholic delirium have subnormal amounts of vitamin C in the blood and cerebrospinal fluid, a defect not present in alcoholic addicts without neurologic or mental changes. Alcoholic pseudopellagra is a common occurrence in our wards. While no definite conclusions can be drawn from these facts, the observations emphasize the importance of nutritional factors in the production of the alcoholic delirium. In addition, there is reason to believe that vitamins A and C play an important part in preventing and combating infection.[17] Since it is complicating infections which make the prognosis bad in cases of delirium tremens, the importance of vitamin therapy in this respect should not be underestimated. All the vitamins are now available in concentrated form, and vitamins B and C may even be injected intravenously.

During the stage of active delirium patients are so toxic and dehydrated that any attempt to limit fluids because of the associated cerebral edema seems to us shortsighted. It has therefore been our practice to place these patients on a regimen of relative hydration, giving from 3,000 to 4,000 cc. of fluid a day.

Piker,[18] in a clinical evaluation of the use of fluids in delirium tremens, altered his original stand somewhat and suggested that fluids be given according to the patient's needs and not limited to less than 1,000 cc. a day, as he and Cohn[9] formerly suggested. We would go further than this and insist that unless general medical indications, such as edema, cardiac failure or nephritis, exist, fluids to the extent of 3,000 to 4,000 cc. a day be forced on all these patients. It has, in fact, been a not uncommon observation that the fluid itself acted as a sedative and that the patient immediately went to sleep, so that no further medication was necessary. High enemas should be given in a routine way both for the relief of chronic constipation, which is common in these cases, and for the definitely quieting effect they have on overactive, disturbed patients. They also provide additional fluids in dehydration.

Many alcoholic addicts have rigid pupils on admission. Failure to rule out syphilis may lead to serious consequences. At least 10 per cent of our patients with syphilis of the central nervous system are admitted to the hospital in an acutely alcoholic condition. Kennedy and Herman Wortis[19] have already stressed the importance of alcohol as a factor in the production of cranial injury. We wish therefore to make it clear that lumbar puncture performed on admission of these patients is for diagnostic purposes only and not for the specific treatment of delirium tremens.

The prognosis of delirium tremens is adversely affected by the presence of precipitating and complicating factors. It is therefore considered advantageous to work in close cooperation with the medical and surgical staffs of the hospital, and any patient who does not respond satisfactorily to our aforementioned treatment is seen in consultation with physicians on these services. The complications most usually encountered in delirium tremens are:

1. Cranial injuries, including fractures of the skull, contusions and lacerations of the brain and subdural and epidural hemorrhages. For these injuries we have found it inadvisable to use the routine dehydration therapy for head injuries[9] and have usually forced fluids. In cases of subdural and epidural hemorrhage, operation is of course necessary.[19]

2. Fractures, particularly of the extremities and ribs.

3. Infections of the lungs or of the upper part of the respiratory tract.

4. Focal infections which are often difficult to locate. The streptococcus is a frequent offending organism.

10. Himwich, H. E., Nahum, L. H., Rakieten, Nathan, Lazar, J. J., Du Bois, Delafield, and Calder, L. I.: The Metabolism of Alcohol, J. A. M. A. **100**: 651 (March 4) 1933.

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12. Bowman, K. M., and Keiser, Sylvan: Treatment of Disturbed Patients with Sodium Chloride Orally and Hypertonic Solutions Intravenously, Arch. Neurol. & Psychiat., to be published.

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14. Wortis, S. B.: Metabolism of Brain Tissue. Vitamins and Enzymes in Brain Tissue, Bull. Neurol. Inst. New York **4**: 588 (April) 1936. Wortis, Herman: Vitamins in Nervous Health and Disease, New York State J. Med., to be published.

15. Jolliffe, W., and Frank, P.: Unpublished data.

16. Wortis, Herman, Wortis, S. B., and Marsh, T. J.: Vitamin C Studies in Alcoholics, Am. J. Psychiat. **95**: 691 (Jan.) 1939.

17. Eddy, W. H., and Dalldorff, Gilbert: The Avitaminoses, Baltimore, Williams & Wilkins Company, 1937.

18. Piker, Philip: Clinical Evaluation of Use of Fluids in Treatment of Delirium Tremens, Arch. Neurol. & Psychiat. **39**: 62 (Jan.) 1938.

19. Kennedy, Foster, and Wortis, Herman: "Acute" Subdural Hematoma and Acute Epidural Hemorrhage: Study of Seventy-Two Cases of Hematoma and Seventeen Cases of Hemorrhage, Surg., Gynec. & Obst. **63**: 732 (Dec.) 1936.

5. Vasomotor collapse. The mechanism is not at all clear. Piker and Colm [6] suggested that the etiologic factor may be toxic myocarditis and digitalized their patients as a routine. This suggestion is worth further consideration.

While we agree that the chief factors contributing to the clinical picture of delirium tremens are the somatic ones, e. g. infections, a lowered chloride content of the blood, lowered vitamin reserves, increased lactic acid in the blood and spinal fluid, liver damage and so on, we feel it important not to disregard the psychogenic factors. It must be fully realized that the clinical picture can be considerably influenced by the personality of the patient. Since fear is usually the primary affect in these alcoholic delirious states, it is well to keep the patient in a neutral environment, to shift the nursing personnel as little as possible and to reassure the patient constantly concerning his fears and hallucinations.

It should be emphasized that our patients with delirium tremens were seriously ill and formed a group of the most violent patients who were treated in the disturbed ward of this psychiatric hospital. The sole fact that they had delirium tremens, whether with complications or not, determined our choice of patients for this study. In six months prior to the use of this treatment there were ninety-two cases of alcoholic delirium, with sixteen deaths, a mortality rate of 16 per cent. During a subsequent period of the same duration, among the sixty-five patients treated by this new method there were but three deaths, making a mortality of 4.6 per cent.

To date we have confined our treatment to patients in the disturbed ward of the psychiatric department of Bellevue Hospital. We are expanding this study to include patients suffering from delirium tremens in other parts of the hospital. These results we shall subsequently report.

In treating alcoholic delirium we emphasize the following procedures:

1. Withdraw alcohol abruptly.
2. Give sedative medication judiciously, paraldehyde being preferred and morphine condemned.
3. Omit restraints unless absolutely necessary.
4. Give carbohydrate in large quantities.
5. Administer sodium chloride in an attempt both to combat dehydration and to restore the normal acid-base equilibrium of the body.
6. Provide a high calory, high vitamin diet.
7. Force fluids.
8. Do lumbar punctures for diagnostic purposes only.
9. Treat complicating or precipitating factors with specific therapy.
10. Give individual psychotherapy according to the needs of the patient.

The Organic Basis of Crime.—Psychiatry has shed some light on the causation of crime, but it is baffled by the intangibility of psychological processes. If one could put his finger upon a mental defect as upon a wart, or could measure a subnormal mentality with a clinical thermometer, the task of the psychiatrist would, at least, be simplified. At present the diagnosis of mental disease and the determination of mental defect remain somewhat fuzzy, and subject to personal equation. . . . The absence of norms for mental states is partially due to the abstract quality of psychological processes.—Hooton, Earnest Albert: Crime and the Man, Cambridge, Mass., Harvard University Press, 1939.

THE PROGNOSIS AND SUBSEQUENT DEVELOPMENTS IN ACUTE RHEUMATIC PERICARDITIS

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There is a dearth of information concerning the subsequent developments and final outcome of cases of acute rheumatic pericarditis. Although this condition is frequently seen and has often been studied during its acute phases, the difficulty of tracing and following the same persons for long periods after the immediate recovery has occurred probably accounts for the lack of careful observations concerning its ultimate outcome. It is not our purpose here to ascertain the incidence of acute rheumatic pericarditis but rather to study the immediate mortality and the future course of this disease. Numerous and varied contentions have been made concerning these points, but there are very few critical data on this subject.

Carter [1] has indicated that pericarditis occurs in from 6 to 25 per cent of cases of acute rheumatic infections. The great variation in the incidence according to different authors no doubt depends on the fact that the clinical diagnosis can easily be missed if the friction rub is not heard and that studies limited to postmortem data will show a high incidence of pericardial involvement. This is clearly borne out by the study of Bland and Jones,[2] who found that 35 per cent of 135 patients who died of rheumatic fever had a pericardial friction rub during their terminal illness. On the other hand, 55 per cent of those examined post mortem showed evidence of acute pericardial inflammation. As to prognosis, White [3] properly emphasized the fact that "the immediate prognosis in acute pericarditis is good as a rule in the nonpyogenic infections in spite of well marked symptoms and signs." On the other hand, Findlay, Macfarlane and Stevenson [4] in a study of rheumatic pericarditis in childhood found that both the immediate and the remote prognosis are serious. Numerous investigations have been carried out on the prognosis of rheumatic fever in general, but little attention has been paid to the role that pericarditis, per se, might play in these cases.

MATERIAL FOR THIS INVESTIGATION

In this study all the cases of definite acute rheumatic pericarditis seen at the Peter Bent Brigham Hospital during the years 1913-1937 and those seen in consultation by one of us were investigated. There were 106 of the former and twenty-nine of the latter, a total of 135 cases. A few of the hospital patients had had acute pericarditis in the Children's Hospital and were subsequently under our care. In the main, the diagnosis rested on the finding of a typical to and fro pericardial friction rub, the presence of pericardial effusion and other stigmas of rheumatic infection.

In this series there were eighty-six males and forty-nine females. The predominance of males has also been

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2. Bland, E. F., and Jones, T. D.: Fatal Rheumatic Fever, Arch. Int. Med. **61**: 161 (Feb.) 1938.
3. White, P. D.: Heart Disease, New York, Macmillan Company, 1937, p. 470.
4. Findlay, Leonard; Macfarlane, J. W., and Stevenson, Mary M.: Rheumatic Pericarditis in Childhood, Arch. Dis. Childhood **5**: 1 (Feb.) 1930.

found in previous reviews. The youngest patient was 3 years old and the oldest was 57. The average age of the entire group was 19.6 years. The distribution in the various decades is indicated in table 1. The greatest incidence was in the second decade, in which more than half the cases occurred. The number of patients under the age of 12 years is less than would be obtained in a more comprehensive study, since patients under the age of 12 are not ordinarily treated at the Peter Bent Brigham Hospital.

It is well known that rheumatic fever may manifest itself without the presence of typical polyarticular rheumatism and in fact without any pains in the limbs at all. The symptoms of this disease may be entirely or mainly confined to the heart. It is true, however, that when such a situation arises very close questioning may uncover the fact that there have been mild aches or pains in the limbs. Of our entire series of 135 cases the acute pericarditis was accompanied by definite arthritis in 110 instances, in eleven of which the symptoms consisted mainly of mild pains in the limbs. Very painful joints were uncommon. In the remaining twenty-five cases, pains in the muscles or joints did not occur. One of these cases presented typical chorea with the acute pericarditis. Of the other twenty-four patients without either arthritis or chorea, seventeen had a past history of one or more attacks of rheumatic fever with or without residual valvular disease and the others had a history of frequent tonsillitis or a family history of rheumatic heart disease. To be sure, many of the patients who had arthritis with the acute pericarditis also had a past history of rheumatic infection. In fact sixty-nine patients, or 51 per cent of the entire series of 135, had such a past history. This included eight patients who had both rheumatic fever and chorea and four who had chorea alone.

TABLE 1.—*Age and Sex Incidence*

Decade	Cases		Sex	
	Number	Per Cent	Males	Females
0-9	15	11.1	10	5
10-19	76	56.3	49	27
20-29	23	17.0	15	8
30-39	14	10.4	10	4
40-49	5	3.7	2	3
50-57	2	1.5	0	2
Total	135	100.0	86	49

IMMEDIATE MORTALITY

The immediate mortality of the entire group was 16.3 per cent. The duration of the acute illness in these fatal cases varied from one to eighteen weeks, with an average of five weeks. There was a slight indication that the disease was more serious in the younger patients, for the average age of the fatal group was 16.3 years, in contrast to an average age of 20.2 years for those who recovered. Apart from this factor of age there did not seem to be any differences between the fatal and the nonfatal cases. The occurrence of pericardial effusion, presence or absence of rheumatic pains, the sex distribution and the past history of rheumatic fever seemed to be the same in the two groups of cases. Six of the patients who died during the acute attack were examined post mortem, and they all showed evidence of acute involvement of the pericardium and myocardium.

SUBSEQUENT DEVELOPMENTS

The problem that interested us particularly in this study was the subsequent progress and developments in those patients who recovered from the acute rheumatic pericarditis. Many of these patients had their acute infection a long time before. Despite this, follow-up notes were obtained as to the present status or ultimate outcome in 104 of the 135 cases. It was impossible to trace the subsequent history of thirty-one patients. Twenty-two patients died of the acute infection. This group has already been discussed. An additional twenty-five patients died a considerable time after recovering from the acute pericarditis. The average duration of life of this fatal group after the onset of acute pericarditis was 6.7 years, the interval varying from six months to seventeen years. Twelve of these patients died of heart disease, five of pneumonia, two of incidental illnesses and six of unknown causes.

It was possible to ascertain the subsequent subjective or objective status in eighty-two instances some years after the primary infection. In seventy of these, data obtained on careful physical examination were available. Of twelve additional patients only the general health was known. The average time elapsed between the acute pericarditis and the final examination or follow-up note was a little over seven years, the interval varying from one to seventeen years. The most striking fact that was learned in following these cases was that, after the twenty-five fatalities were eliminated, fifty-two of the fifty-seven remaining patients were in satisfactory condition and able to carry on essentially normal activities.

Even more impressive than the general feeling of good health that was present in most of the living patients was the frequency of only minimal evidence of organic heart disease on physical examination. Table 2 indicates the diagnoses of the valvular condition at the time of the last follow-up examination. The term potential heart disease is used only for those cases in which there were no symptoms of cardiac disability and either no murmurs whatever or only a faint grade 1 systolic murmur.[5] The seventy cases were divided into two groups: those with and those without a history of rheumatic fever or rheumatic heart disease previous to the acute pericarditis. There were thirty of the former and forty of the latter. It is interesting that twenty-five of these seventy patients were still regarded as having potential heart disease many years after the acute pericarditis; in fact fifteen of these twenty-five patients had no murmurs whatever and showed no signs or symptoms of heart disease. In ten additional patients there was a systolic murmur sufficiently loud to be classified as mitral insufficiency. Practically all of these patients were symptom free. The remaining thirty-five patients had major lesions of the mitral or aortic valves or both. Even most of these had a good cardiac reserve and were carrying on satisfactorily. Apart from the incidence of benign or insignificant valvular lesions in the group as a whole, it is noteworthy that a large number of patients without a previous history of rheumatic infection proved to have only potential heart disease. Whereas only five of the thirty cases with a previous history of rheumatic infection subsequently showed minimal involvement of the heart (potential heart disease or mitral insufficiency), thirty of the forty cases without such previous history fell into this group. It follows that even after a severe bout of rheumatic peri-

5. Freeman, A. R., and Levine, S. A.: The Clinical Significance of the Systolic Murmur, Ann. Int. Med. 6: 1371 (May) 1933.

carditis recovery can frequently be so complete that years later there may be no signs or symptoms of heart disease. This was found to be particularly true if there was no previous rheumatic infection.

ROLE OF ACUTE PERICARDITIS PER SE

An attempt was made in this study to investigate the role that pericarditis per se might play in the subsequent progress of those patients who recovered from the acute infection. For this purpose the conditions that were present in the heart before the acute pericarditis, those immediately after the acute infection and those detected years later were compared whenever such data were available.

TABLE 2.—*Valvular Lesion on Follow-Up Examination*

Diagnosis	Cases With History of R F.* or R H D.* Prior to the Acute Pericarditis		Cases Without History of R F. or R H D. Prior to the Acute Pericarditis		Both Groups	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Potential heart disease	1	3.3	21	60.0	25	35.7
Mitral insufficiency	4	13.3	6	15.0	10	14.3
Mitral stenosis with or without mitral insufficiency	0	0.0	3	7.5	12	17.1
Aortic insufficiency	1	3.3	3	7.5	4	5.7
Aortic insufficiency, mitral insufficiency	2	6.7	0	0	2	2.9
Aortic insufficiency, mitral insufficiency, mitral stenosis	6	20.0	3	7.5	9	12.9
Aortic insufficiency, aortic stenosis, mitral insufficiency, mitral stenosis	7	23.4	1	2.5	8	11.4
Total cases	30	100.0	40	100.0	70	100.0

* R F, rheumatic fever; R H D, rheumatic heart disease

There were seventy cases in which the valvular diagnoses made immediately after the subsidence of the acute pericarditis could be compared with the observations made in the follow-up examination performed years later. The anatomic diagnoses in these cases are indicated in table 3. It is very significant that twenty-two patients who were regarded as having potential heart disease after the acute pericarditis showed no more evidence of cardiac involvement in the follow-up study. In fact in three additional cases in which the systolic murmur was loud enough to merit the diagnosis of mitral insufficiency so little was heard in the heart in the follow-up examination that the diagnosis was changed to potential heart disease. There were also eleven cases of mitral insufficiency in which there was no change in subsequent years. There were twenty-two other instances presenting various types of valvular disease in which the condition remained stationary. It is interesting that of the twelve patients who had progressive lesions nine had recurrent rheumatic fever during the intervening years after the attack of pericarditis. There were therefore only three patients who showed further involvement of the valves of the heart that might be regarded as a natural progression of the original injury, without any obvious new infection occurring. In recapitulation it is evident that fifty-eight of the seventy cases did not show any progression (three of these, in fact, retrogressed) while evidence developed in twelve of new valvular involvement or stenosis of a valve previously insufficient.

The effect of the acute infection was further studied in a small group of cases in which the anatomic diagnosis was available before and directly after the pericarditis. There were nine such cases, all of which presented clearcut mitral stenosis and insufficiency. Five of these patients had aortic insufficiency in addition. Three of these nine patients had further involvement of the valves on follow-up study but all three had a subsequent attack of rheumatic fever. In only one instance was there evidence that a new lesion of the valve (aortic insufficiency) developed during the attack of acute pericarditis.

X-RAY EXAMINATIONS

In none of the patients who were examined years after the acute pericarditis was there any clinical evidence of constrictive pericarditis. This was rather striking, notwithstanding the fact that the eight patients who were examined post mortem (six who died during the acute attack and two who died in subsequent years) all showed either fibrinous or fibrous pericarditis. X-ray examination of the heart was made in six cases from one to sixteen years after the acute pericarditis. Careful fluoroscopic study and roentgenkymography were carried out. In none was there any calcification or other evidence of pericardial constriction. The x-ray appearances in the cases that presented valvular disease were those customarily seen with such lesions and in the two that presented no heart disease the roentgenograms were entirely normal. These results are in accord with previous observations [6] that rheumatic pericarditis is rarely if ever a cause of constrictive pericarditis.

ELECTROCARDIOGRAPHIC APPEARANCES

No attempt was made here to investigate the changes in the ventricular complex which accompany acute pericarditis. This has recently been carefully analyzed by Bellet and McMillan.[7] We were interested, however, in tracing what happens to the PR interval, which is so commonly involved. Of ninety instances in which electrocardiograms were taken in the acute attack, eighteen showed delay in the PR interval. Of thirty-one patients reexamined in this follow-up study, nine had delayed auriculoventricular conduction. Four of these nine had also had essentially the same degree of delayed conduction during the acute attack. Two of these four, how-

TABLE 3.—*Comparison of Valvular Diagnoses Made Immediately After Acute Attack and on Follow-Up*

Number of Cases*	Diagnosis Immediately After Attack	Diagnosis on Follow-Up
22	Potential heart disease	Potential heart disease
3	Mitral insufficiency	Potential heart disease
11	Mitral insufficiency	Mitral insufficiency
4 (2)	Mitral insufficiency	Mitral insufficiency, mitral stenosis
1 (1)	Mitral insufficiency	Mitral insufficiency, mitral stenosis, aortic insufficiency
1 (1)	Mitral insufficiency	Mitral insufficiency, mitral stenosis, aortic insufficiency, aortic stenosis
7	Mitral insufficiency, mitral stenosis	Mitral insufficiency, mitral stenosis
1 (1)	Mitral insufficiency, mitral stenosis	Mitral insufficiency, mitral stenosis, aortic insufficiency, aortic stenosis
4	Aortic insufficiency	Aortic insufficiency
2	Aortic insufficiency, mitral insufficiency	Aortic insufficiency, mitral insufficiency
2 (2)	Aortic insufficiency, mitral insufficiency	Aortic insufficiency, mitral insufficiency, mitral stenosis
6		Aortic insufficiency, mitral insufficiency, mitral stenosis
3 (2)		Aortic insufficiency, aortic stenosis, mitral insufficiency, mitral stenosis
3	Aortic insufficiency, aortic stenosis, mitral insufficiency, mitral stenosis	Aortic insufficiency, aortic stenosis, mitral insufficiency, mitral stenosis

* Number in parentheses indicates number of cases in which one or more attacks of rheumatic fever occurred in interval between the acute pericarditis and follow up examination when progression of valvular lesion occurred

6 White Heart Disease, p 237.
7. Bellet, Samuel, and McMillan, T M: Electrocardiographic Patterns in Acute Pericarditis, Arch Int Med **61**: 381 (March) 1938.

disease, and an additional 14 per cent had only mitral insufficiency. In the remaining cases aortic valvular involvement seemed to be more common than one would expect in an average group of rheumatic patients. Even after a desperately severe attack of acute pericarditis recovery was often complete, so that many cases showed subsequently neither subjective nor objective evidence of heart disease.

8. A comparison of the examinations made before, immediately after and many years subsequent to the attack of acute pericarditis showed that new involvement of the valves was uncommon unless another attack of rheumatic fever intervened.

9. Delayed auriculoventricular conduction on rare occasions persisted many years after an attack of acute pericarditis. Auricular fibrillation or flutter occasionally occurred as a transient phenomenon, and when the arrhythmia was persistent it was always associated with mitral stenosis.

10. X-ray or clinical evidence of constrictive pericarditis did not occur in any instance.

11. This study emphasizes the great importance of injury to the valves of the heart in the subsequent prognosis of acute rheumatic infections and the minor role that the heart muscle or pericardium plays after recovery occurs from the acute infection.

INHALATION THERAPY OF BRONCHIAL ASTHMA

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The possibility of obtaining relief of asthmatic symptoms by the direct application of a solution of epinephrine to the bronchial mucosa was reported by Ephraim [1] as early as 1910. Through the bronchoscope he first observed blanching of the mucous membrane after subcutaneous administration of epinephrine. Subsequently, epinephrine solution was sprayed directly into the bronchi through the bronchoscope with definite relief of asthmatic symptoms. In a later communication Ephraim [2] repeated these observations and commented on the beneficial effect of procaine hydrochloride alone, although he said that greater benefit resulted from the epinephrine. Thereafter, other authors reported the efficacy of the inhalation of epinephrine solutions for the relief of asthmatic symptoms. The earler of these were Krause,[3] Segel [4] and Zuelzer.[5]

In later years a number of reports have been made concerning this procedure, such as those of Grunwald,[6] Sachse,[7] Weiss and Magassy,[8] Camps,[9] Knipping, Lewis and Moncrieff,[10] Poras [11] and Lageder.[12] In Europe a number of epinephrine solutions have been marketed under patented names and various atomizers devised for use with them. Combinations of epinephrine with local anesthetics and other endocrine and drug preparations have been recommended by different authors. "Glycerinan," a solution of epinephrine in salt solution and glycerin, was used by Sachse,[7] Lageder [12] and others. "Tonolysin" was reported on by Weiss and Magassy [8] and "apneugene" by Camps.[9] "Bronchovydrin," a combination of pituitary extract, epinephrine and papaverine, was favorably reported on by Poras.[11] Inhalation periods varying from five to twenty minutes were apparently necessary with all these preparations, suggesting that the actual epinephrine content of the solution was low, probably in the 1 : 1,000 range. Both rubber bulb and motor-driven atomizers were used.

Lageder [12] was the only author who mentioned the use of a more concentrated epinephrine solution. In his studies on the effect of the inhalation procedure on lung ventilation he cited the occurrence of systemic effects following inhalation of a 1 : 200 solution of epinephrine. No comment was made, however, with regard to the use of the stronger solution in actual therapy.

The first report on the therapeutic value of inhalation of a more concentrated epinephrine solution (1 : 100) was made in 1935 by me.[13] Other reports have been made by Matzger,[14] Nielsen [15] and again by me.[16]

Subsequent observations have been made on patients using the 1 : 100 epinephrine solution for more extended periods. An attempt has also been made to work out more thoroughly the question of the most suitable dilution of epinephrine. Furthermore, certain comparisons have been made between the use of a 1 : 100 solution of epinephrine and the use of other drugs. These studies are the subject of the present report.

METHOD

The hand atomizer with the rubber bulb and the general technic previously described [17] were used. Atomizers of more than average efficiency from the point of view of volume and fineness of spray were selected. The patients chosen were all chronic sufferers having persistent symptoms. Before beginning the experiment all had been using the inhalation procedure for from several weeks to several months with varying degrees of success. Dilutions of the 1 : 100 epinephrine solution [18] were made with physiologic solution of sodium chloride. Several dilutions were given to each patient at one time, labeled in code, always including the 1 : 100 dilution. In some instances two atomizers were given to the patient so that immediate comparisons could be carried out without changing the solution in the atomizer. The dilutions given were changed frequently under different code numbers until the observations

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2. Ephraim, A.: Ueber die Wirkung des Adrenalin beim Asthma und bei der Chronische Bronchitis, Deutsche med. Wchnschr. **38**: 1453 (Aug.) 1912.
3. Krause, Robert A., in discussion on Ephraim.[1]
4. Segel, J.: Ein Beitrag zur Therapie des Asthma Bronchiale, Zentralbl. f. inn. Med. **31**: 569 (June) 1910.
5. Zuelzer, G.: Die Behandlung akuter Katarrhe der oberen Luftwege durch Inhalation von Nebennierenpraparaten, Berl. klin. Wchnschr. **48**: 285, 1911.
6. Grunwald, L.: Ein einfaches Verfahren der tracheobronchialen Injektion zur Asthmabehandlung, Munchen. med. Wchnschr. **60**: 1377 1913.
7. Sachse: Lokale Behandlung und parenterale Medikamentenzufuhr durch Inhalation von Glycerinan mit dem Electro-Atmos, Med. Klin. **22**: 777 (May) 1926.
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9. Camps, P. W. L.: Inhalation Treatment of Asthma, Guy's Hosp. Rep. **79**: 496 (Oct.) 1929.
10. Knipping, H. W.; Lewis, William, and Moncrieff, Alan: Ueber die Dyspnoe, Beitr. z. Klin. d. Tuberk. **79**: 1, 1931.
11. Poras, J.: Asthma-bronchiale-Behandlung, Schweiz. med. Wchnschr. **62**: 283 (March 19) 1932.
12. Lageder, Karl: Untersuchungen über den Einfluss inhalierten Adrenalins auf die Lungenventilation beim Asthma bronchiale und über dessen Allgemeinwirkung, Beitr. z. Klin. d. Tuberk. **83**: 605, 1933.
13. Graeser, J. B., and Rowe, A. H.: Inhalation of Epinephrine for the Relief of Asthm / **6**: 415 (July) 1935.
14. Matzger, Inhalation for Relief of Attacks of Bronchial As Med. **43**: 226 (Sept.) 1935.
15. Nielsen, Niels A.: Treatment of Asthmatic Attacks by Inhalation of Adrenalin, Lancet **2**: 848 (Oct. 10) 1936.
16. Graeser, James B., and Rowe, A. H.: Inhalation of Epinephrine Hydrochloride for Relief of Asthma in Children, Am. J. Dis. Child. **52**: 92 (July) 1936.
17. Graeser, footnotes 13 and 16.
18. All epinephrine solutions used in this study were furnished by Parke, Davis & Co.

reported by the patients assumed some degree of consistency. The extreme variation in the reports of results of the use of the same dilution on different occasions necessitated repeated trials over periods of several months. Salt solution alone was given in a number of instances.

RESULTS

The accompanying table summarizes the results of these experiments. The degrees of relief obtained were roughly graded as "excellent," "moderate" and "slight," and as recorded in the table represent the average of the reports submitted. "Excellent" results were not constantly so, but the term as used signifies that in attacks of average severity excellent results were obtained. Not infrequently during severe symptoms only "moderate" or "slight" relief would be obtained. "Slight" relief likewise signifies an average result. During very mild symptoms "excellent" relief might be obtained with the more dilute solution. Several patients reported good relief on some occasions from salt solution alone. Confusing evidence of this type is to be expected in evaluating a therapeutic procedure on a subjective basis in the treatment of a disease as variable as asthma. Some patients not included in the table submitted results so consistently inconsistent that they were discarded. The results summarized in the table, therefore, are averages of repeated trials of the several dilutions of epinephrine.

Degrees of Symptomatic Relief of Asthma Following Inhalation of Dilutions of Epinephrine, Ephedrine and Neosynephrin

Patient	1:100	1:50	1:50	1:60	1:50	Ephedrine, 10 %	Neosynephrin, 10 %
1. C. H.	Excellent	Slight	None	None	.	None	None
2. V. L.	Excellent	Excellent	Slight	None	. .	None	None
3. B. E.	Excellent	Moderate	Slight	Slight	Slight	.....	..
4. H. A.	Excellent	Moderate	Slight	None	None	None	None
5. H. E.	Excellent	Moderate	None	None	. .	None	
6. V. K.	Excellent	Excellent	Excellent	Slight	None	None	.
7. M. A.	Excellent	Slight	Slight	Slight	.. .	..	. ....
8. B. I.	Excellent	Excellent	Slight	Slight	...	None	.. ....
9. I. O.	Excellent	Moderate	Moderate	Slight	Slight	.	. ...
10. M. A.	Excellent	Moderate	Slight	Slight	Slight	. ...	. .....
11. S. I.	Excellent	Excellent	Slight	Slight	None	. ...	.....
12. B. O.	Excellent	Moderate	Moderate	None	None	.....	.....
13. M. E.	Excellent	Excellent	Excellent	Moderate	None	.....	.....
14. P. I.	Excellent	Moderate	Slight	None	. .	None	....
15. S. T.	Excellent	Moderate	Moderate	Slight	....	.....	.....
16. D. A.	Moderate	Moderate	Slight	Slight	Slight	....	None
17. S. C.	Excellent	Excellent	Moderate	Moderate	None	.....	.....
18. H. A.	Excellent	Excellent	Moderate	Slight	None	.....	None

From the table it is apparent that the 1:100 dilution of epinephrine proved to be the most effective of the solutions used under the conditions of the experiment. The patients did not always inhale the same number of breaths of vapor-laden air. The average time of inhalation, intermittent as it would necessarily be with the hand apparatus, varied between one and four minutes. Continuous inhalation with a motor driven apparatus, with inhalation through a mask, would probably have given the same results more consistently in less average time. With the motor-driven apparatus systemic effects from epinephrine are frequently obtained with continuous inhalation of the 1:100 dilution for two minutes, but such effects rarely occur when the hand apparatus is used for this length of time.

A 2 per cent solution, or a 1:50 dilution, of epinephrine was used by twelve different patients. With the same number of inhalations there were more frequent reports of systemic symptoms, such as headache, tremor and palpitation, without appreciably more relief of the actual asthmatic symptoms. Two of the twelve patients felt that the stronger solution was decidedly superior, but they likewise experienced systemic symptoms, though mild, much more often, whereas these rarely occurred with the 1:100 dilution. As a result of these observations it was felt that the stronger solution was not sufficiently advantageous for recommendation for general use, for in the mild or moderately severe paroxysms of asthma, for which inhalation of an epinephrine solution is the most effective, the 1:100 dilution was just as beneficial as the 1:50 dilution. Another consideration which of necessity must enter into this conclusion is the added cost of the stronger solution. Furthermore, when the 1:100 solution fails to relieve the attacks after several trials it is advisable to resort to hypodermic administration to obtain relaxation of the bronchi if the patient still responds to epinephrine. After relief is obtained the inhalation procedure often serves to abort subsequent severe paroxysms.

Epinephrine and Solution of Posterior Pituitary.—One of the preparations previously mentioned [11] contained these two substances. A solution of equal parts of 1:100 epinephrine solution and 1:1,000 solution of posterior pituitary was prepared and used in twelve cases. The results obtained were comparable to those recorded in the table from the use of a 1:200 dilution of epinephrine. No appreciable enhancement of effects occurred from the addition of the pituitary solution.

Ephedrine Sulfate.—A 10 per cent dilution in physiologic solution of sodium chloride was prepared and used under the conditions of this experiment. No benefit resulted even with more prolonged periods of inhalation. The patients complained of a bitter taste and dryness of the nasopharynx but not of the nervousness or palpitation.

Neosynephrin.—A 5 per cent solution was of no benefit in five instances.

Cocaine.—A 1 per cent cocaine solution was tried by ten patients. Two of these reported benefit comparable to that obtained with the 1:100 epinephrine solution. Six reported moderate benefit and four none. The relief was not as marked as with the epinephrine solution. A comparison was also made by six patients with a patent preparation containing a 1 per cent cocaine mixture with nitrites. The results were about the same as with the pure cocaine solution; that is, under the conditions of the experiment the preparation was definitely less efficient than the epinephrine solution.

Extended observations were not made with the preparations other than epinephrine. They were used simply to determine the possibility of obtaining relief of asthma by an entirely different type of drug.

COMMENT

To attain either a local effect on the mucous membrane or a general therapeutic effect from inhalation of drugs one must attain a minimal effective concentration on the membrane. This is dependent on at least three factors, namely the absorptive power of the bronchial mucous membrane, the density of vapor in the inhaled atmosphere and the actual amount of vapor deposited on the mucosa. Heubner and his co-workers [19] have conducted many animal experiments on inhalation of dye solutions under varying experimental conditions. By this means they were able to demonstrate widespread dissemination of dye throughout various organs of the body. Within the bronchial tree the largest concentra-

19. Heubner, W.: Ueber Inhalation zerstander Flüssigkeiten, Ztschr. f. d. ges. exper. Med. **10**: 269, 1920.

tion of dye, as shown by intensity of color, occurred at the carina and bifurcations of the larger and smaller bronchi. Penetration of the dye in the peribronchial mucosa was also noted. Very little is known, however, of the actual absorptive power of the different portions of the respiratory tract. It is generally assumed, though not definitely proved, that the lower portions have the higher absorptive power, but there is considerable divergence of opinion as to how deep into the bronchial tree vapor droplets are actually carried. This was discussed in detail by Heubner.[15] He demonstrated a definite relationship between the depth of respiration and the transport of droplets and expressed the opinion that vaporized liquid droplets can enter the field of the smaller bronchi if they are of suitable size and the vapor is of sufficient density. Clear demonstration of this penetration is difficult.

The density of vapor is dependent on the apparatus used for vaporization. A spray of high density is necessary for obtaining maximum results in inhalation therapy. Very few of the atomizers available for use with the epinephrine solution are efficient in this aspect. Furthermore, the droplets constituting the vapor must be of extreme fineness, for the reason that droplets below a certain size no longer respond to the force of gravity and so tend to follow freely the movements of the air currents in the bronchial tree.

Of importance also is the concentration of the drug solution vaporized. It must be much higher than that usually used for other routes of administration. Heubner stressed the fact that one need not fear the effect of inhalation of a concentrated solution of a drug if the vapor is of suitable fineness for few of the droplets inhaled actually to come in contact with the mucous membranes. Those actually adhering to the cell membrane are quickly diluted by tissue fluid and glandular secretion and spread widely, so that the final concentration of the drug on the mucous membrane is not at all comparable to the concentration of the solution vaporized.

The amount of the drug actually deposited depends on several factors. With deep inhalation a greater amount of the vapor will reach the smaller bronchi. Here more droplets are likely to be deposited, because of the more favorable relationship between the extent of the exposed mucous surface and the volume of vapor in the lumen of the bronchi.

It is probable also that the condition of the mucous membrane, that is, whether congested with blood, covered with mucus or atrophic, has a role in determining adherence of the droplets to the mucous membrane at the edge of the air current. Likewise the vehicle carrying the drug, i. e. salt solution, glycerin or oil, will vary its adhering qualities. Little is known concerning the latter factors.

It is obvious from this discussion that there is a great deal more to be learned concerning inhalation therapy. Continued experience with the inhalation of 1 : 100 epinephrine has demonstrated that the procedure is a valuable addition to the symptomatic therapy of asthma. The greatest benefit occurs when the symptoms are mild or moderately severe. During severe paroxysms its usefulness is limited because of the difficulty, as discussed, of obtaining penetration of the vapor deep into the bronchial tree. Failure of the procedure in many instances, however, is due to an inefficient atomizer and also to its incorrect use. Simple as the procedure is, many patients contrive to manipulate the instrument so awkwardly that very little of the vapor is actually inhaled. Too frequently the apparatus is prescribed but the patient is not instructed in its use. With small children whose cooperation is difficult to secure, to obtain some motor-driven mask apparatus, as previously described,[16] is necessary for maximum results.

In fully evaluating a procedure of this type one must keep in mind the possibility of deleterious effects from its continuous use. Such harmful reactions could be (1) increased frequency and severity of attacks resulting from irritation of the bronchial tract and (2) harmful general effects.

1. *Local Effects.*—Of a series of 162 patients using the inhalation procedure, two have been observed who became gradually but progressively worse and ultimately died. One of these patients is of particular interest, for he used the inhalation of epinephrine from three to twelve times daily from March 1935 until his death in November 1936. Both the hand atomizer and motor-driven pump were used. Attention was first called to the patient by the local pharmacist, who inquired concerning the advisability of furnishing him with such large quantities of the solution. Later the patient's dentist called attention to a rapidly developing erosion of the dentin of his teeth, which appeared about six months after he began the use of the spray and rapidly progressed. Unfortunately the patient had asthma most of the time, and, though no medication gave complete relief, the inhaled epinephrine was as effective as hypodermically administered epinephrine and much handier to use. Examination of the patient's lungs after death revealed nothing suggesting any harmful effects of the locally applied epinephrine. The other patient used inhalation much less often but frequently, nevertheless, for twenty-five months. The lungs after death gave appearances typical of asthma. Since progression of the disease in this manner has frequently been observed independent of the use of any particular drug or system of treatment, it would be incorrect to attribute the course of events entirely to the use of epinephrine.

It is not felt that the course of the disease is fundamentally altered by the use of inhaled epinephrine. Certainly many patients are made more comfortable because of the ease of obtaining relief by this means, but the asthma continues. However, no case has been observed in which it could be definitely proved that inhalation of epinephrine increased the severity of the asthma.

Some patients complain of tracheal and bronchial irritation and dryness of the throat from too frequent use. Patients vary extremely in tolerance in this regard. Those requiring inhalation frequently enough to cause uncomfortable tracheal irritation should at intervals resort to other forms of medication or to epinephrine hypodermically administered.

Increased cough is noted not infrequently immediately after inhalation. In most instances mucus is raised and the patient relieved. Similar coughing and expectoration of mucus may likewise occur after the hypodermic administration of epinephrine. The most probable explanation of this symptom is that the epinephrine (either inhaled or injected) causes relaxation of bronchial spasm or shrinkage of bronchial mucosa, which releases mucous plugs for expectoration. Inhaled smoke from the burning of stramonium preparations almost invariably causes paroxysms of coughing, usually with expectoration of more mucus than is expectorated after the use of the epinephrine spray. Several patients have been seen who for this reason still prefer stramonium preparations.

Only one patient has been seen who could not use the spray because of paroxysms of coughing resulting from tracheal and bronchial irritation.

2. *General Effects.*—As has been previously mentioned, there is a general absence of systemic symptoms such as tremor, headache and palpitation, which not uncommonly follow hypodermic administration of epinephrine. This is not invariable, however, and several patients have discontinued inhaling the 1:100 epinephrine because of severe headache. In both instances, however, a 1:200 dilution was used with moderate relief of asthma and without headache.

After observing for several years the use of this procedure and receiving queries regarding failures, I have noted no permanently harmful effects from the inhalation of the 1:100 epinephrine. One must keep in mind the possibility that continued use may not be without harm, but at present this has not become apparent from purely clinical observation.

CONCLUSION

Under average conditions the 1:100 dilution of epinephrine is the most practical for the inhalation therapy of bronchial asthma. It is definitely more efficient than the more dilute solution. In some instances a 1:50 dilution is more effective, and a 1:200 or lower dilution may be more suitable. Relief of asthmatic symptoms can also be obtained with a 1 per cent solution of cocaine, but no relief resulted from inhalation of 10 per cent ephedrine solution or a 5 per cent neosynephrin solution.

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OBSCURE LOW GRADE CHRONIC INFECTIONS OF THE ETHMOID SINUSES

USE OF THE PROETZ DISPLACEMENT SUCTION FOR DIAGNOSIS

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The diagnosis of chronic infection of the ethmoid sinuses is one of the difficult diagnostic problems in rhinology. It is particularly difficult in those low grade chronic infections of the ethmoid sinuses in which the nasal passages appear normal on one or more examinations and in which any symptoms pointing directly to the sinuses are so slight as to be almost nonexistent and yet in which there is sufficient systemic absorption from the ethmoid infection to cause very definite systemic symptoms. It is these cases of obscure low grade infection to which I wish to call attention because they are so frequently overlooked.

Until a few years ago the diagnosis of chronic suppuration of the ethmoid sinuses depended on the examiner seeing pus coming from the middle or superior meatus after the maxillary, frontal or sphenoid sinus had been excluded as the source of the pus. A moment's reflection on how many chronic infections of the maxillary sinus would be missed if the rhinologist could neither transilluminate, take roentgenograms nor irrigate for diagnosis but had to rely solely on observing pus coming from the ostium will suggest that many chronic ethmoid infections were probably overlooked when the physician relied solely on seeing pus coming from the ostium. The x-rays occasionally came to his aid, but more often than not the x-ray examination of the ethmoids is indefinite, so that while it is valuable and fairly reliable in the diagnosis of chronic infections of the antrum and the frontal and sphenoid sinuses it has not been of much help for the ethmoid sinuses. To be sure, there were a few rhinologists who believed that low grade chronic ethmoid infection was a common and generally overlooked condition. These rhinologists diagnosed and operated on many ethmoids that others had diagnosed as normal, basing their opinion more on the symptoms than on any positive clinical manifestations. Inevitably many normal ethmoids were opened, since the symptoms on which the diagnosis was made were usually very vague and indefinite. Nevertheless some patients whom the rest of us had passed up as normal because we could find no pathologic condition in the nose were undoubtedly benefited by having their ethmoids opened and undoubtedly had a low grade ethmoid infection.

Twelve years ago Dr. Arthur Proetz introduced the displacement principle of diagnosis and treatment, and at once the diagnosis of low grade ethmoid infection was placed on an entirely new plane of accuracy. With this the whole conception of the frequency of chronic suppuration of the ethmoid sinuses is changing so that now I believe that the ethmoid is the most frequent sinus involved in acute and in chronic infections.

In his original work Proetz stressed the use of iodized oil introduced by displacement suction for the diagnosis of infections of the ethmoid sinuses. I have used iodized oil comparatively little, partly because of the added cost to the patient of additional roentgenograms and partly because I have not been convinced of the reliability of failure to fill or of delayed emptying time for the diagnosis of infection. In my experience the value of the Proetz method has been in the promotion of drainage from infected ethmoid cells; in other words, if I can get pus from the ethmoid sinus I have made the diagnosis.

The procedure that I use is briefly as follows: The symptoms, of which I shall speak further in greater detail, suggest a possible low grade chronic ethmoid infection in spite of normal appearing nasal passages on posterior as well as anterior rhinoscopy on one or more occasions. A roentgenogram is taken to rule out infection of the maxillary, frontal or sphenoid sinuses, and if any of these appear infected they are irrigated. The nasal passages, vestibule and especially the nasopharynx are then carefully cleansed of any adherent secretions. With the patient's head hyperextended in the Proetz position, the nasal passages are filled with 0.25 per cent ephedrine in physiologic solution of sodium chloride. Alternate suction and release of suction is applied from four to six times in each nostril, and if frank mucopus is obtained or is blown out into the towel when the patient sits up the diagnosis of ethmoid suppuration is made. The importance of removing any mucopus from the nose, nasopharynx or maxillary sinus before carrying out the displacement suction is self evident. In certain cases there is no immediate escape of mucopus, but an hour or two later the patient will experience a nasal or postnasal discharge of a considerable quantity of frank mucopus, and this is equally diagnostic of a chronic suppuration of the ethmoid sinuses.

Since using displacement suction in this way for the diagnosis of chronic ethmoid infections, I have been

Read before the American Laryngological, Rhinological and Otological Society in St. Louis in January 1938.

impressed by the large number of low grade chronic suppurative ethmoid sinuses that would otherwise have been overlooked. I have also been impressed by the frequency of systemic symptoms in ethmoid infections as compared to infections of the other sinuses, owing perhaps to the larger area for absorption in the ethmoid sinus.



Fig. 1 (case 3).—Sinuses of normal appearance.

These cases of obscure low grade ethmoiditis fall into five groups according to the predominating or presenting symptom.

The largest group is that in which the patient's chief complaint is pain or headache. The pain of chronic ethmoiditis may be felt in the cheek, ethmoid region, forehead, parietal region or ear. Like any sinus pain, it is worse following acute head colds and worse on bending forward. These characteristics suggest a sinus origin for the headache and yet the nasal passages appear normal in all respects and there may be no nasal symptoms whatever, while the x-ray examination may be negative for sinus disease.

CASE 1.—Mrs. E. B., aged 35, residing in the Panama Canal Zone, complained of a persistent right parietal headache for three months following a severe head cold. There were no nasal symptoms and a roentgenogram of the sinuses was negative except for a small, poorly developed ethmoid sinus on the right. Displacement suction, carried out because of the history of onset following a cold and the absence of any other demonstrable cause for the headache, removed a small amount of definite mucopus from the right nostril. This was repeated five times in the next two weeks with complete and permanent relief from the headaches.

CASE 2.—Mrs. F. D. J., aged 50, complained of neuralgic pains in the frontal and parietal region with chronic fatigue for several years. Except for a slight chronic postnasal mucoid discharge for the same period, she had no nasal symptoms and the nasal passages appeared entirely normal. A roentgenogram was negative except for a questionable thickening of the ethmoids. Displacement suction removed a small clump of mucopus from the right side. This was repeated eight times in two months, with complete relief from the headaches and 80 per cent relief from the postnasal discharge. Because of a basal metabolic rate of —16 per cent, thyroid extract one-half grain (0.03 Gm.) a day was given. Many of these patients with low grade ethmoid infections show a slightly lowered metabolic rate which Mithoefer believes is a factor in causing the ethmoid infection. I am inclined to believe that the lowered metabolism is the *result, not the cause, of the infection and that the administration of thyroid extract is usually unnecessary.*

CASE 3.—Mrs. I. E. B., aged 43, complained of rheumatic pains in the arms, dizziness, headache and fatigue for three years with a postnasal discharge for about the same period. Roentgenograms of the sinuses were negative (fig. 1) and displacement suction of the ethmoid sinuses was normal, but an hour later the patient experienced a postnasal discharge of a large amount of frank mucopus followed at once by great relief from the headache. This treatment was repeated nine times in four months with complete relief from all the symptoms. There have been two recurrences of symptoms in a year and a half. Each recurrence was relieved after a few treatments.

In the second group of cases of obscure low grade ethmoid infection the presenting symptom was an infection in a remote organ, such as iritis, neuritis or arthritis:

CASE 4.—Mrs. A. C., aged 23, complained of an acute optic neuritis and iritis of three weeks' duration. There were no nasal symptoms whatever but a roentgenogram of the sinuses showed a thickening of the right ethmoid sinus. Because of this a series of neosilvol nasal packs had been carried out elsewhere without benefit to the eye condition. Displacement suction removed at once a large amount of mucopus from the right side. This treatment was repeated for five weeks until no further secretion was obtained. The eye condition began to improve after the second treatment and went on to complete recovery.

CASE 5.—C. F. A., a man aged 28, complained of optic neuritis of eight weeks' duration, not improved by removal of the tonsils three weeks before. For four years there had been a postnasal discharge and frontal headaches. A roentgenogram showed thickening of the left frontal and ethmoid sinuses (fig. 2). The nasal passages appeared normal but displacement suction removed thick white mucus from the left side. After

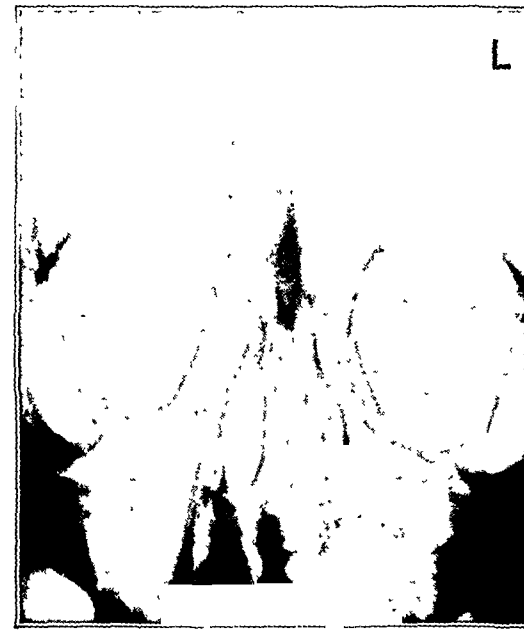


Fig. 2 (case 5).—Clouding of left ethmoid and frontal sinuses.

three weeks of this the eye condition improved but relapsed again two months later. A left intranasal ethmoidectomy, enlarging the ostium to the fronal sinus, was followed by complete freedom from the postnasal discharge and headaches for the first time in four years and by improvement in the optic neuritis.

While it may be objected that optic neuritis is often due to an undiagnosed multiple sclerosis and under-

goes a spontaneous remission, the presence of a low grade chronic ethmoiditis in these two cases cannot be denied while the close relationship between clearing up of the infection of the ethmoid sinuses and improvement in the eye condition is very suggestive of a causal relationship:

CASE 6.—D. D. P., a man aged 52, complained of tinnitus for one year. Hearing tests showed a high tone nerve deafness. For several years there had been a chronic postnasal discharge

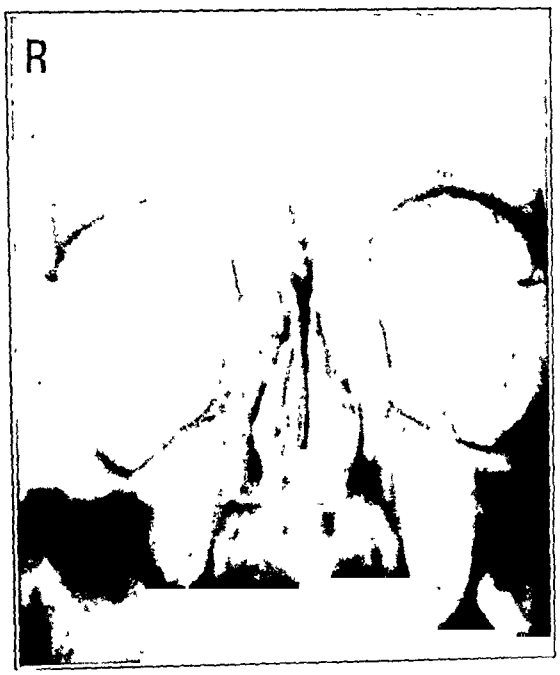


FIG. 3 (case 7).—Sinuses of normal appearance.

but no other nasal symptoms. A roentgenogram of the sinuses was negative and nasal examination was negative. Displacement suction was followed at first by an increased postnasal discharge, but after the third treatment the postnasal discharge, which had been present for several years, was entirely relieved and the tinnitus, which had been present constantly for one year, ceased.

CASE 7.—W. B., a man aged 35, had had an infectious type of arthritis for four years with a postnasal mucopurulent discharge, frequent nasal obstruction on the right and frontal headaches for the same period. Because of perfectly normal appearing nasal passages on repeated examinations both before and after the nasal mucosa was shrunk and the head was held forward, and because of negative x-ray examinations, he had been told that he did not have a sinus infection. The nasal symptoms and the arthritis continued, however, and no focus of infection for the arthritis could be found. Displacement suction removed a large clump of frank mucopus from the right ethmoid sinuses. With repeated displacement treatments the arthritis improved but the infection in the ethmoid sinuses did not clear up and mucopus was obtained each time. Finally an intranasal ethmoidectomy was followed by permanent disappearance of all arthritic symptoms one week later and permanent cessation of all nasal symptoms two week later.

The third group of patients with obscure low grade ethmoiditis complained of a chronic and persistent cough for which no cause could be found:

CASE 8.—C. D., a boy aged 10 years, had had a cough for three weeks without an antecedent cold. The previous winter he had had a similar cough for two months. A roentgenogram showed only a questionable clouding of the ethmoid sinuses, and the nasal passages appeared entirely normal. Displacement suction removed a small amount of yellow mucopus from the right side. The mucopus from the ethmoid cells and the cough disappeared after six treatments. A recurrence of cough two months later cleared up after two displacement treatments.

CASE 9.—M. S., a girl aged 10 years, had had frequent attacks of persistent bronchitis for several years. There were no nasal symptoms or abnormalities but an x-ray examination revealed clouding of the left ethmoid sinuses. Displacement suction was negative but was followed by a discharge of mucopus from the left nostril a half hour later. After five treatments the cough and the ethmoid infection cleared up. Two mild recurrences within the next four months each cleared up after one or two treatments, and since then (a year and a half) there has been no recurrence of the cough.

In the fourth group of patients the chief complaint was frequent head colds:

CASE 10.—Mrs. F. J., aged 46, complained of very frequent colds for eighteen months, coming on every few weeks and accompanied by fatigue and nervousness. Nasal examination and roentgenograms of the sinuses were negative. Displacement suction produced a moderate amount of definite yellow mucopus from the right side. After five treatments the symptoms were relieved. There have been three recurrences in a year and a half, each clearing up promptly after a few displacement treatments.

The last group of patients with obscure ethmoid suppuration had a fever of unexplained origin as the presenting symptom. This group is the most interesting to me because fever is rarely seen in chronic infections of the other sinuses:

CASE 11.—J. v. M., a girl aged 6 years, had been having an intermittent septic type of fever for six months, the temperature reaching 104 F. for about three days out of every week. Tests for undulant fever, typhoid, endocarditis, pyelitis and the like were all negative. There were no nasal symptoms, and the nasal passages appeared normal except for some redness and congestion of the mucosa. Displacement suction produced a moderate amount of mucopus from both sides. This treatment was repeated for two weeks with cessation of the fever and until no more mucopus was obtained. The fever has not recurred.

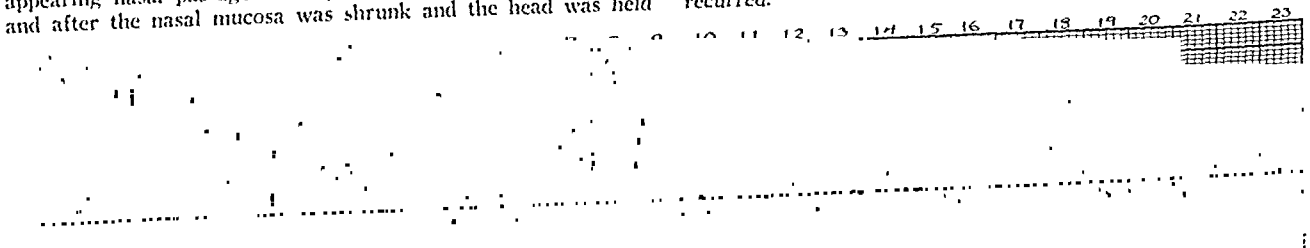


FIG. 4 (case 11).—Temperature chart during stay in hospital: *A*, mucopus from ... *D*, small, *E*, very small, amount of mucopus from ethmoids; *F*, trace of mucopus from ethmoids; *G*, only mucus from ethmoids; ... nothing removed from ethmoids.

CASE 12.—S. A., a woman aged 24, had been having a fever of from 99 to 100 F. every afternoon and evening for two and a half months for which no cause had been found. Five months before she had had a severe head cold and this had never entirely cleared up: there had been a nasal twang to the voice and an occasional sense of congestion at the base of the nose. The nasal passages appeared entirely normal and a roentgenogram of the sinuses was negative except for thickening of the left ethmoid bone. After displacement suction green mucopus appeared in the nasopharynx. After five treatments all symptoms cleared up and have not recurred.

CASE 13.—E. E. P., a man aged 41, had had a fever as high as 104 F. lasting one or two days and occurring every three or four weeks with the symptoms of a slight head cold. The nasal examination was negative; the roentgenogram showed a slight thickening of the left ethmoid sinus. Displacement suction removed a small amount of greenish mucopus from the left side. The treatment was repeated three times. There have been no further attacks of fever for one year.

CASE 14.—R. D. C., a man aged 25, complained of a low grade fever for one and a half years following a severe head cold. A window operation for a left maxillary sinusitis had relieved the fever only temporarily and there was a persistent mucopurulent discharge. Displacement suction was negative but was followed by relief from the postnasal discharge and fever. This relief, however, did not last, and a few displacement treatments would again be necessary. Finally, an intranasal ethmoidectomy was carried out and permanent relief from the fever was obtained.

CONCLUSIONS

1. The displacement method of promoting drainage from the ethmoid cells will establish a diagnosis in many cases of chronic low grade ethmoid suppuration that would otherwise be doubtful or missed entirely.

2. Displacement suction will clear up many but not all chronic ethmoid suppurations.

3. Chronic suppuration of the ethmoid sinuses may exist with slight or obscure local symptoms, the presenting symptom being headache of obscure etiology, systemic infection such as arthritis, iritis or neuritis, chronic cough, frequent head colds or fever of unknown origin.

122 South Michigan Avenue.

FUNGOUS INFECTIONS OF THE HANDS AND FEET TREATED BY IONTOPHORESIS OF COPPER

PRELIMINARY REPORT

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The large number of remedies in use for the treatment of fungous infections of the feet and hands is evidence that not one is entirely successful. It is probable that all these remedies will kill fungi in vitro, but most fail to do so when applied to the skin. The fungi are in the deep layers of the epidermis, and the fungicide does not reach them. The efficacy of compound ointment of benzoic acid, the remedy most extensively employed, is due to the presence of salicylic acid, which causes desquamation with consequent partial exposure of the fungi.

The ideal method of treating fungous infections would be the introduction of a fungicide into the skin without injury to the skin. This we have attempted to do by passing copper, which is highly fungicidal, through the skin by iontophoresis. The results obtained with this therapy, reported here, are distinctly favorable. The great majority of patients treated by this method were promptly relieved of all symptoms of dermatophytosis.

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Lowenfish[1] has reported the treatment of chronic dermatitis by cataphoresis with tap water. He mentioned an unsuccessful attempt to treat dermatophytosis by a method somewhat similar to the one we have used. Only nineteen patients with dermatophytosis were treated, and copper was only one of twelve chemicals used. It is possible that no extensive trial was given to copper. Lowenfish stated that a few patients showed clinical improvement but that fungi could still be found on the skin. Fungi, as has been shown, may be found on normal skin.[2] It is not the presence

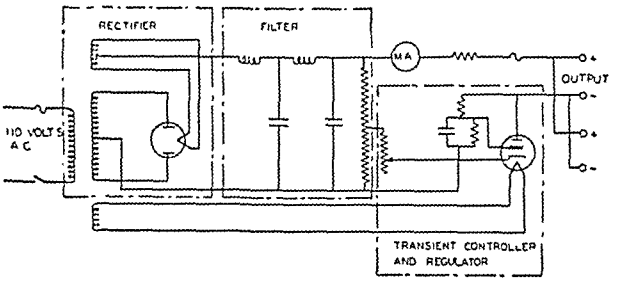


Fig. 1.—The circuit employed.

of fungi but the inflammatory process caused by them which constitutes dermatophytosis. Our results are based on the clinical changes occurring in patients whose dermatophytosis was treated by copper electrically introduced into the skin. Some of these patients may still have fungi on their feet, and probably most of them have come in contact with fungi from outside sources; but the fact remains that the majority have had relief from their symptoms and have remained clinically cured for a considerable period.

INTRODUCTION OF COPPER INTO THE SKIN

Copper was selected as the metal for iontophoretic introduction into the skin because of its well known fungicidal properties and its low toxicity. The supposition that copper could be introduced through the skin was confirmed by experiments on rats. The front legs of each rat were held in a small bath containing isotonic salt solution and the rear legs in a similar bath containing a 0.2 per cent copper sulfate solution. A copper electrode was immersed in each of the baths; that in the salt solution was connected to the negative and that in the copper solution to the positive pole of a source of direct current regulated to pass 6 milliamperes. As a control, rats were similarly immersed for twenty minutes but with no current flowing. The animals were killed and the rear legs washed thoroughly and skinned carefully to prevent any contamination from the copper solution. The legs were then incinerated in a porcelain crucible; the ash was dissolved in sulfuric acid, diluted with water, filtered and tested for copper. The determination of copper was made with a modification of the Benedict test ordinarily used for sugar. The solutions were prepared in the usual manner, except that the copper salt was omitted and dextrose added. In the presence of small amounts of copper the characteristic changes in color were obtained. This test was not sufficiently sensitive to cause a reaction from the normal copper content of tissues. The legs immersed in copper solution with no

1. Lowenfish, F. P.: Treatment of Chronic Dermatitis by a Cataphoretic Method, Arch. Dermat. & Syph. **37**: 797 (May) 1938.
2. Downing, J. G.; Nye, R. N., and Cousin, S. M.: Investigation of the Fungous Flora of Apparently Normal Skins, Arch. Dermat. & Syph. **35**: 1087 (June) 1937.

flow of current gave no reaction for copper. The legs immersed with the current flowing gave a strongly positive reaction for copper. A current flow of 6 milliamperes for twenty minutes should by calculation lead to the introduction of 2.37 mg. of copper. This copper after passing through the skin would be distributed throughout the body of the rats; the amount present in the legs was estimated from the tests to be about 0.5 mg.

APPARATUS USED FOR IONTOPHORESIS

In treating human beings the feet were immersed in rectangular enamel pans about 5 inches deep and the hands in bain-marie basins. Copper electrodes were used. The duration of treatment was twenty minutes. When the infection was on the feet, the hands were immersed in saline solution and the feet in 0.2 per cent copper sulfate solution; for infection of the hands the relations were reversed, and if both hands and feet were infected the solutions in the baths were changed at the end of twenty minutes and treatment was continued for an additional twenty minutes.

The positive pole of the source of current was attached to the electrode in the copper solution and the negative to that in the saline solution. Much smaller currents were used than in the experiments of Lowenfish;[2] instead of from 15 to 40 milliamperes we employed from 4 to 6 milliamperes if only one hand or foot was immersed and from 8 to 10 milliamperes if both were immersed. Early in the investigation a battery fitted with a rheostat was used as a source of current. This arrangement, as well as the apparatus used by Lowenfish, has serious drawbacks: The current can be gradually increased to prevent any shock,

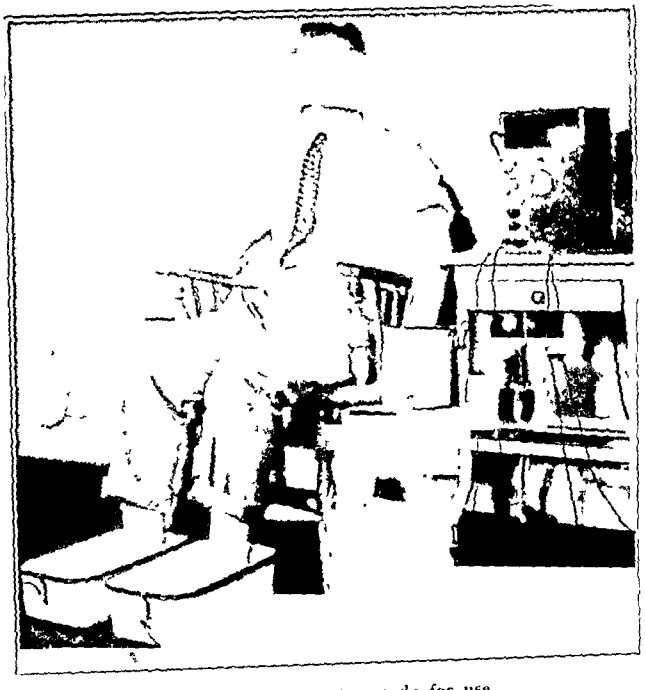


Fig. 2.—The apparatus ready for use.

but if the hands or feet are taken out and reimmersed the full strength of current is immediately received with a severe and unpleasant, possibly dangerous, shock. To avoid this occurrence it was necessary to watch each patient carefully during the entire period of treatment. To obviate the danger of shock, a special apparatus was developed for us by Prof. Albert G. Conrad of the Yale School of Engineering.[3] The circuit employed is shown in figure 1. The apparatus operates on 110 volt alternating current, which is rectified to direct current in the usual manner. The supply to the electrodes is regulated by a rheostat and read from a milliammeter. In this circuit the patient's

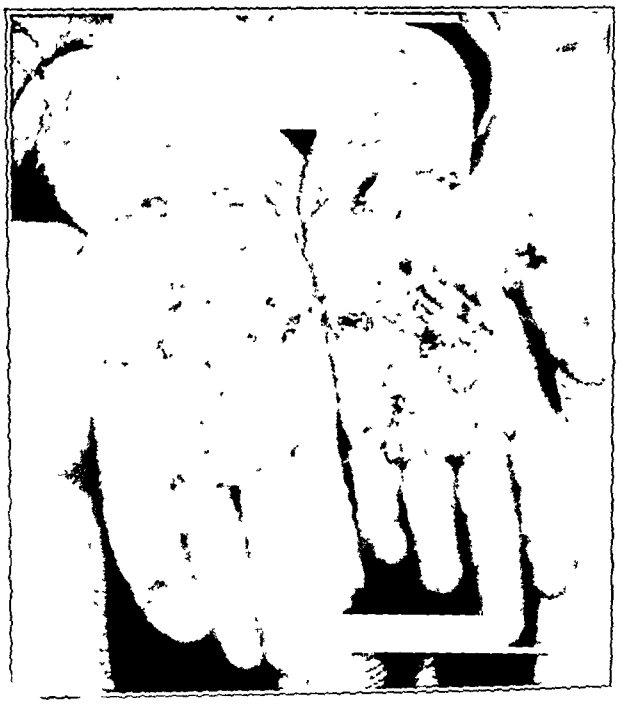


Fig. 3 (case 28).—The hands at the beginning of treatment

body acts as a switch, so that the flow of current is interrupted as soon as the hands or feet are withdrawn from the bath; it is established again when the hands are reimmersed, but the current, instead of rising instantaneously to the maximum, builds up slowly. This important feature does away with all possibility of unpleasant sensations and all dangers of serious shock; it also removes the necessity of carefully regulating the current on immersion and makes the treatment entirely safe. It has contributed materially to the facility of the method. Figure 2 shows the apparatus complete with baths for feet and hands.

PREPARATION OF THE PATIENT FOR TREATMENT

When possible each patient was treated two or three times a week. During the entire period no other treatment was used; in a few patients hydrous wool fat was applied to denuded areas to prevent the socks from sticking to the feet. The preparation of the hands and feet for immersion was found to be particularly important. The infected area was often covered with a greasy exudate which was resistant to the passage of current in precisely the regions where penetration was desired. A high resistance in these regions diverts the current and therefore the copper to the normal skin. To avoid any possible complicating factor, no means of cleaning the feet except mechanical removal of crusts and the use of soap and water was employed in the cases reported here. Since the completion of this series, however, a preliminary soaking of the feet or hands for a few minutes in a dilute solution of sodium hypochlorite has been found highly efficacious in preparing the skin for treatment.

3. The apparatus was assembled in a form suitable for clinical use by the Mine Safety Appliances Company of Pittsburgh.

RESULTS

Treatment was given to thirty-seven patients. The diagnoses of dermatophytosis were made clinically. Twenty of the patients had shown clinical signs of infection for more than a year and one for twenty-five years. The majority of the infections were severe and of long standing. Unquestionably in some patients with lesions on both feet and hands those on the hands may have been dermatophytides containing no fungi but appearing as an allergic manifestation. This possibility was ignored, and the hands were treated as well as the feet.

The accompanying table gives the clinical data concerning each patient and the results obtained from treatment. The types of eruption are designated as



Fig. 4 (case 28).—The feet at the beginning of treatment

erythematous, scaly, desquamating, denuded, macerated, fissured, hyperkeratotic, vesicular and pustular. The meaning of these terms is clear with the possible exception of desquamating and denuded. In this study the former term was used to denote what the patient called "peeling"; the latter, that condition in which the upper layers of the skin had separated, leaving large raw areas.

The results of treatment were most striking in those cases in which the infection was particularly active and showed bullae and vesicles. In most instances subjective symptoms disappeared within twenty-four hours after the first treatment and the vesicles flattened out without rupturing. One of the first results in nearly all cases was a lessening of the moisture in the skin; this fact was commented on by most of the patients. The cuticle about the nails, any loose scales and the tops of the bullae or vesicles became blue with each treatment. This coloration frequently disclosed the presence of vesicles which might otherwise have gone unnoticed. Healing took place beneath the bluish crusts, which eventually were desquamated, leaving

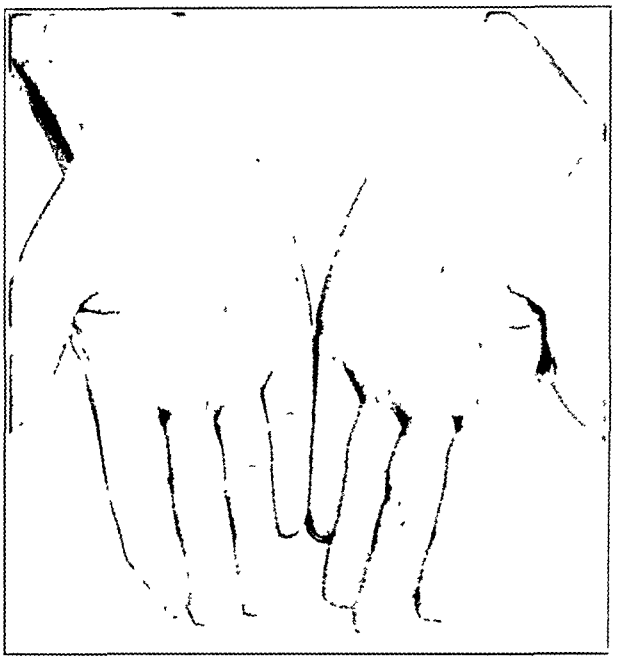


Fig. 5 (case 28).—The improvement of the hands

apparently normal skin. When the entire extremity showed dry, normal-appearing skin, the treatment was discontinued. Twenty-six, or 70 per cent, of the



Fig. 6 (case 28).—The improvement of the feet.

thirty-seven patients who were given treatment obtained a clinical cure; the remaining eleven are still under treatment.

The number of treatments necessary to attain a cure varied from four given over a period of two weeks

to eighteen given over a period of eight weeks. The average number of treatments was slightly more than six. Of the twenty-six patients discharged as cured, three have finished treatment so recently that follow-up has not been noted, but the other twenty-three have been followed for periods varying from three to six months. Of these, five suffered recurrences of some degree. Patients 1 and 7 reverted to a condition as severe as before treatment was started. Patients 6, 11 and 13 had mild recurrences.

Patient 28 gave a history of having had vesicles on his feet for twenty-five years. When first seen he had been walking with the aid of crutches for seven months and had been unable for the past few days to do even that because of blisters on his hands. The hands and one foot were literally covered with small thick-walled multilocular vesicles and large thin-walled pustules. Improvement was rapid and steady up to the point of almost complete clinical cure, when a relapse occurred; improvement followed further treatment. This has happened several times, but the patient is able to wear shoes, to walk without the aid of crutches and to follow his occupation. Patient 31, despite twenty treatments over a period of two months, has shown no improvement. Patient 34 has attained a clinical cure of the lesions on his feet (the lesions remaining healed for two and one-half months) but has persistent vesicles on his hands. Patient 35 has, in spite of fifteen treatments, considerable maceration in the fourth interspace of each foot. Patients 1, 10, 14, 22 and 29 presented, in addition to typical dermatophytosis, eczematoid lesions of the arms and legs. In three of these the eczematoid lesions disappeared while the feet were being treated. In the other two, 10 and 29, the lesions improved.

The data presented here are in the nature of a preliminary report. We have attempted so far to answer the question Does dermatophytosis of the hands and feet respond to iontophoretic administration of copper by the method described here? We find that in the majority of instances it does. The study has not, because of the demands of the patients, been extensively controlled. An attempt was made to treat only one foot when both were involved; in such cases only the treated foot responded. Saline solution used in both baths caused no improvement in the few cases in which it was tried. Similarly, soaking in copper sulfate solution without the application of current brought no relief.

We believe that the clinical cures obtained result from the action on the fungi of the copper driven through the skin by the electric current.

Summary of Cases

Patient	Duration	Degree	No. of Treatments Given	Length of Treatment, Weeks	Result	Recurrence or Reinfection	Clinical Type of Infection
1. M. B.	3 months	Moderate	10	4	Healed	Recurrence at 5 wks	Vesicles
2. J. C.	1 year	Severe	9	4	Healed	.. ....	Desquamation, maceration
3. D. C.	Few weeks	Moderate	16	8	Healed	No recurrence	Maceration, vesicles, erythema, scaling
4. R. F.	1 year	Moderate	4	2	Healed	No recurrence	Maceration, desquamation *
5. S. G.	Several years	Mild	11	7	Healed	No recurrence	Desquamation on feet, vesicles on hands
6. T. K.	4 months	Moderate	6	3	Healed	Fissures but no maceration	Maceration, desquamation
7. G. M.	6 months	Mild	8	4	Healed	Recurrence at 1 wk	Vesicles, maceration
8. J. P.	6 months	Mild	6	7	Healed	No recurrence	Maceration, fissures
9. O. R.	3 months	Moderate	10	7	Healed	No recurrence	Erythema, scaling, fissures
10. R. R.	Few weeks	Severe	9	7	Healed	No recurrence	Bullae and denuded areas
11. T. R.	2 years	Moderate	9	4	Healed	Recurrence at 1 mo	Maceration on feet, vesicles on hands
12. A. S.	Several years	Mild	7	4	Healed	No recurrence	Erythema, vesicles
13. P. S.	1 year	Mild	9	6	Healed	Mild recurrence	Vesicles
14. T. S.	3 months	Mild	6	2½	Healed	No recurrence	Maceration, vesicles
15. F. T.	2 months	Mild	13	6	Healed	No recurrence	Vesicles
16. D. W.	2½ years	Severe	8	5	Healed	No recurrence	Erythema, vesicles, desquamation
17. G. W.	Several years	Mild	6	4	Healed	No recurrence	Vesicles
18. J. W.	1½ years	Moderate	6	3½	Healed	No recurrence	Erythema, vesicles, scaling
19. S. N.	2 years	Moderate	7	3½	Healed	No recurrence	Maceration, desquamation
20. S. Y.	1 year	Mild	12	7	Healed	No recurrence	Erythema, scaling
21. B. S.	1 month	Severe	18	8	Healed	No recurrence	Bullae
22. L. H.	2 years	Severe	10	6	Healed	No recurrence	Erythema, vesicles
23. L. G.	1 year	Moderate	5	2	Healed	No recurrence	Vesicles
24. R. G.	1 year	Moderate	7	3½	Healed	.	Bullae
25. A. O.	2 months	Moderate	4	2	Healed	No recurrence	Bullae
26. G. Mc.	2 months	Moderate	6	3	Healed		
27. R. A.	18 months	Severe	4	4	Improved		Bullae, denudation
28. B. B.	25 years	Severe	10	14	Improved		Bullae, maceration, denudation, secondary infection
29. J. B.	Few weeks	Severe	7	4	Improved		Erythema, maceration, denudation
30. S. B.	5 years	Moderate	10	5	Improved		Vesicles, desquamation
31. R. C.	10 years	Severe	20	8	Poor		Vesicles and maceration on feet; eczematoid lesions and vesicles on hands
32. L. G.	Several years	Moderate	12	6	Improved		Vesicles, scaling, erythema on one palm only
33. A. M.	Few days	Severe	5	2	Improved		Maceration and denudation on feet; erythema, vesicles and fissures on hands
34. G. N.	1 year	Moderate	6	3	Feet healed; hands same		Vesicles on both feet and hands
35. J. T.	3 months	Moderate	15	7	Almost well		Maceration, fissures
36. H. W.	6 months	Moderate	11	8	Improved		Maceration between toes; erythema on dorsum of feet
37. J. P.	2 years	Moderate	12	12	Almost well		Eczematoid lesions

* Only one foot treated; other unchanged.

COCCIDIOIDAL OSTEOMYELITIS

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AND
CHARLES GILFILLAN, M.D.
LOS ANGELES

The surgical and pathologic aspects of bone and joint involvement in coccidioidal granuloma have received little attention in published articles. Twenty-four such cases have been studied and form the basis of this report. The condition is quite often misdiagnosed as either a pyogenic or a tuberculous lesion.

Wernicke[1] reported the first case of coccidioidal granuloma in 1892 from South America. Rixford and Thorne[2] reported two cases from California in 1894 and two years later Rixford and Gilchrist[3] gave a detailed report of these two cases and suggested the name Coccidioides immitis for the organism, which was later termed Oidium coccidioides and the disease coccidioidal granuloma by Ophuls[4] in 1905. The exact classification of the organism is still unsettled The North and South American strains of the disease have been presented by Jordon and Weidman.[5]

Numerous reports dealing with the condition to 1931 are listed by Carter[6] in a review of the subject and a discussion of the roentgenographic diagnosis.

GENERAL CONSIDERATION

The disease is caused by a specific fungus, Coccidioides immitis. The adult form of this organism in animal tissues is a spherule varying from 5 to 60 microns in diameter. It contains numerous endospores and has a doubly refractile capsule. The released endospores on rupture are capable of growing into adult spherules. These, if grown in culture mediums (Sabouraud's medium), will develop into mycelia. Hyphae of these undergo segmentation with the development of endospores, which may reproduce the organism either in mycelial form in culture or as spherules in animal tissues. Mycelia do not develop in animal tissues.

Although occurrences of the disease are occasionally reported in the eastern and midwestern sections of the United States,[7] a majority of the cases occur either in residents of California or people who have visited the state, and the San Joaquin Valley appears to be an endemic region. It is possible that cases occur and go unrecognized outside of California, being mistakenly diagnosed.

The organisms gain entrance to the body through the respiratory tract and the skin. Jacobson[8] considers that the mode of infection is by the bite of an insect. The disease has been produced in animals through the abraded skin by Ahlfeldt.[9] Gastrointestinal lesions are uncommon. Hence it is probable that this tract is not a frequent portal of entry. Transmission of the infection from patient to patient has not been established.

The dissemination is by blood and lymph streams and by direct extension. Multiple foci are more commonly seen in a patient than is a single focus. At autopsy it is not uncommon to find lungs, liver, spleen, meninges, subcutaneous tissue and bones involved.[10]

BONE AND JOINT INVOLVEMENT

Twenty-four patients with coccidioidal infections proved by demonstrating the organism either in culture or by microscopic section of bone and joint have been studied, of whom two were women and the others men. The average age of the patients was 32 years Thirteen of the twenty-four patients died, and each had an associated active pulmonary focus. Ten of these thirteen fatal cases showed multiple osseous lesions, while three presented only one demonstrable bony focus The eleven patients who survived were studied from a few months to seven years after discharge from the hospital, and only two of them had an infection of the lung; in both instances this was not marked and underwent healing. Five of the patients who survived had multiple bone or joint infections, while six had only a single lesion.



Fig 2.—Primary coccidioidal infection of the lower part of the humerus Bone destruction, some slight bony production, ossifying periostitis and evidence of joint invasion are present

There were four patients in the series younger than 20 years, of whom three survived.

Cutaneous infections, excluding those of draining sinuses overlying osseous infections, occurred as nodes or papules in six cases.

Owing to lack of space, this article is abbreviated here by the omission of several illustrations The complete article appears in the authors' reprints

From the Departments of Orthopedic Surgery of the Los Angeles County Hospital and the University of Southern California School of Medicine

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3 Rixford, Emmet, and Gilchrist, T C Two Cases of Protozoan (Coccidioidal) Infection of the Skin, Johns Hopkins Hosp Rep **1**: 209, 1896

4 Ophuls, Wilhelm Further Observations on a Pathogenic Mold Formerly Described as a Protozoon (Coccidioides Immitis, Coccidioides Pyogenes), J Exper Med **6**: 443 1905, Coccidioidal Granuloma, J. A M A **45**: 1291 (Oct 28) 1905

5 Jordon, J W, and Weidman, F D Coccidioidal Granuloma Comparison of the North and South American Diseases with Special Reference to Paracoccidioides Brasiliensis, Arch Dermat & Syph **33**: 31 (Jan) 1936

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8 Jacobson, H P Coccidioidal Granuloma: A Clinical and Experimental Review with Case Reports, Arch. Dermat. & Syph **21**: 790 (May) 1930

9 Ahlfeldt, F E Studies in Coccidioidal Granuloma Mode of Infection, Arch Path & Lab Med **2**: 206 (Aug) 1926, Special Observations on Morphology of Coccidioides Immitis, J. Infect Dis **44**: 277 (April) 1929

10 A general and more detailed study of the disease is contained in the publication of Special Bulletin 57 by the California State Department of Public Health in 1931, which in turn is supplemented to July 1, 1936, by a special report in California and Western Medicine (**46**: 282 [April] 1937)

Practically all bones of the body excluding those of the face were involved in this series. Those most commonly affected were the tibia, vertebrae, sternum, tarsal bones, humerus, skull, fibula and radius.

Bone and joint infections are considered secondary to a primary infection at the portal of entry, such as

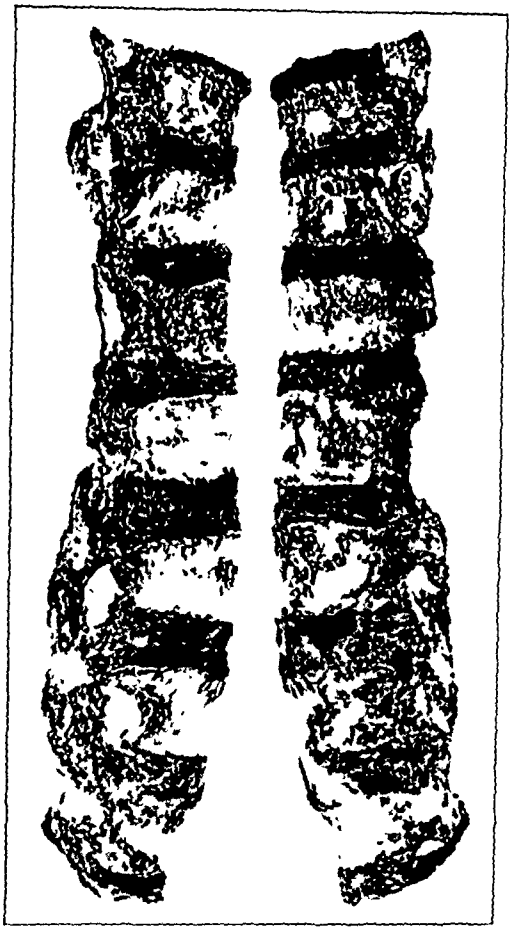


Fig. 4.—Gross specimen showing cavities of bone destruction, practically no collapse of the vertebral body and preservation of intervertebral cartilage. Large paravertebral abscesses were present.

the lung, mediastinal lymph nodes and skin, although as in tuberculosis of the bones and joints an active primary infection may not be demonstrable.

Four of the twenty-four cases studied exhibited primary localization in synovial membranes while the remainder were initially osseous in location. Some of the latter cases gave rise to joint infections by direct extension. Of the four cases of primary infection of the synovial membrane, one was of the ankle and secondarily invaded the ankle bones. Another was of the hip joint, giving rise to a spontaneous dislocation. The other two were of the knee joint.

Only four of the twenty-four cases occurred in children with open epiphysial lines. One of these four cases involved primarily a radial metaphysis while another occurred in a radial epiphysis. A third case exhibited initial localization in both a lower radial and a lower tibial epiphysis. The remaining infection was primary in the synovial membrane of the hip joint.

ROENTGENOGRAPHIC FEATURES

Almost all bones of the body excepting those of the face were involved in this series, and multiplicity of foci was common. The osseous lesions usually occurred in regions of cancellous bone either subperiosteal or central in the spongiosa. It is of interest that lesions in the long bones occurred near the ends. Shaft and medullary involvement was not noted except from direct extension. Short tubular bones, as the phalanges, exhibited what was interpreted as primary shaft lesions. The cancellous structure of vertebral bodies was the most common area of spinal involvement; however, cortical bone of the neural arches as well as spinous processes were in some cases initially infected. Flat bones, such as the sternum and the scapulae, showed destructive lesions usually associated with overlying soft tissue swellings. Primary localization occurred in both the metaphysis and the epiphysis.

Epiphysial cartilage, when present, offered no barrier to the spreading disease in some cases. Cortical bone overlying cancellous infections was at times destroyed from direct extension. Articular cartilage and cortex were invaded and destroyed by direct extension from a primary osseous lesion, while marginal erosion of these structures, which at times preceded ankylosis, occurred from primary infections of the synovial membrane.

The roentgenographic picture is somewhat dependent on the stage and virulence of the disease. Bony foci in the early and acute stages are primarily destructive, with hazy outlines, little if any surrounding bony production and usually no demonstrable periostitis.



Fig. 5.—End result of coccidioidal infection showing bony fusion between fifth and sixth cervical vertebral bodies as well as laminas and spinous processes. This patient was treated only by immobilization.

The more common chronic form of coccidioidal infection of bone exhibits a destructive type of lesion, with associated bone production and more often than not an overlying ossifying periostitis (figs. 1 and 2). Some of the osseous lesions will show an irregular margin with variable amounts of new bone formation. Others, however, will present a fairly sharply out-

lined wall about a cystlike cavity, being slightly suggestive of a bone cyst. At times these spaces may even show a tendency to trabeculation, giving a multilocular appearance.

Although epiphysial cartilage seems to offer no special barrier to the progress of the disease, interverte-



Fig. 7.—Bony ankylosis of tibio-astragalar joint following conservative treatment by immobilization in a plaster cast.

bral cartilage does not appear to be destroyed as early by coccidioidal granuloma as by a tuberculous infection (fig. 3). The vertebral body lesions tend to remain localized longer or to perforate through cortex forming paravertebral abscesses rather than destroying intervertebral cartilage, at least in the earlier stages. However, in the later stages of coccidioidal spondylitis, intervertebral cartilage is destroyed, which may lead to bony ankylosis if the patient survives (fig. 5).

Involvement of the skull occurs in both the outer and the inner tables and, as pointed out by Carter as well as by Abbott and Cutler,[11] presents small circumscribed punched out areas of destruction.

Carter mentioned that the disease has a special predilection for bony prominences such as the tibial tubercle, the malleoli, the condyles of the humerus, the olecranon and the styloid processes of the radius and ulna. These regions are not uncommonly involved in an essentially destructive lesion and if so are highly suggestive of coccidioidal infection (fig. 6).

The joints are both primarily and secondarily affected. In the former only the synovial membrane may be involved, in which case roentgenograms show only capsular thickening. However, a progression of this process will lead to marginal destruction simulating the changes seen in tuberculosis. A differential roentgenographic feature of coccidioidal arthritis compared to tuberculous arthritis is the less pronounced regional bony atrophy so characteristic of the latter. Joints are also secondarily invaded from adjacent bony infections, which are not halted in their spread by epiphysial or articular cartilage. The cartilage space of the joints is gradually narrowed, leading to bony ankylosis if the patient survives.

An ossifying periostitis overlying a bony focus is quite frequently present although not usually seen in the early stages (fig. 6). This feature is a diagnostic aid in differentiating a tuberculous infection in which an ossifying periostitis is infrequent, except in the rather rare tuberculous lesions of the shaft. The coccidioidal lesion is differentiated from chronic pyogenic osteomyelitis in which periosteal ossification occurs but in which there is usually much more sclerosis of cortical and cancellous bone than in coccidioidal lesions.

Infection of cancellous bone spreads by direct extension, usually causing erosion or destruction of overlying cortex. Rarely is cortical expansion seen. The process may progress directly through epiphysial cartilage and into the neighboring joints. Extension into the medulla or shaft occurs much less frequently.

Progressive healing of coccidioidal lesions by bony sclerosis is noted, as is healing of joint infections (fig. 7).

PATHOLOGIC CHANGES

The coccidioidal foci of bones of those patients who have died of the rather acute form of the disease show grossly necrosis and abscess. There is little if any evident production of tissue in the surrounding



Fig. 9.—Microscopic section (low power) showing coccidioidal granulation tissue producing lacunar absorption of bony trabeculae. Numerous giant cells of the foreign body and Langhans type are present.

bone. Cortex may be partially destroyed with an associated abscess of the soft tissue. Overlying periosteum may appear edematous and thickened or partially destroyed.

The osseous lesions of the chronic type of the disease reveal either an abscess or a cavity filled with

11. Abbott, K. H., and Cutler, O. I.: Chronic Coccidioidal Meningitis: Review of Literature and Report of Seven Cases, Arch. Path. **21**: 320 (March) 1936.

soft to firm granulation tissue or spongy bone with interstices filled with grayish granulation tissue (fig. 4). Bony "sand" is sometimes palpable in the regions of liquefaction necrosis. Occasionally larger sequestrums are seen. The surrounding bone may appear either hyperemic or irregularly sclerotic, and



Fig. 11.—Microscopic section (low power) of coccidioidal granulation tissue (ankle joint), showing marked similarity to tuberculous granulation tissue.

at times the region of destruction will appear cystic with varying degrees of bony sclerosis of the walls. The cortex overlying a cancellous lesion may be destroyed and an adjacent abscess in the soft tissue or a granulomatous mass noted. Adjacent to the region of cortical destruction a thickened periosteum is noted, which quite often will show ossification. These same periosteal reactions may be present overlying cancellous lesions, even though there is no apparent erosion of cortex.

Examination of infected joints shows a grayish thickened synovial membrane. Free fluid ranging from serous to seropurulent is also noted in some cases. Articular cartilage reveals marginal erosion by granulation tissue, which also usually involves articular cortex (fig. 8), and pannus may be seen. Segments of thinned articular cartilage may be separated from underlying cortex by hyperemic granulation tissue.

HISTOPATHOLOGIC CHANGES

Microscopic studies of the bony lesions in the acute form of the disease reveal necrosis and abscess, osteoclastic destruction of bone and very slight if any new bone formation. Coccidioidal spherules may be present.

The more common chronic bony lesions exhibit coccidioidal granulation tissue or abscess. The granulation tissue is composed of round cells, some polymorphonuclear leukocytes, histiocytes, vascular spaces, Langhans giant cells, occasionally typical "tubercle formation" and coccidioidal spherules. The latter either lie free in the stroma or are engulfed in a giant cell or lie in the center of a "tubercle." The spherules have a doubly refractile capsule and contain numerous small endospores. Trabeculae of bone, if adjacent to the granulation tissue, show as a rule serrated surfaces, and osteoclasts, more commonly of the mononuclear type but occasionally of the multinucleated type, occupy these lacunas (fig. 9). Partially or completely dead fragments of bone are seen. Some new bone formation from osteoblastic activity may be present.

Abscess or liquefaction necrosis shows a rather amorphous débris of cellular elements, serrated spicules of dead bone and coccidioidal spherules, some of which appear dead. The spherules are not present in all microscopic fields of either the granulation tissue (which may in some areas appear to be nonspecific) or abscess. The spherules should be searched for carefully, because if found they substantiate the diagnosis. If they are not found the diagnosis can be only presumptive.

The periosteal reaction shows usually only a nonspecific type of chronic inflammation and ossification.

Destruction of bone by coccidioidal granulation tissue appears to take place by osteoclastic activity, chiefly by mononuclear and to a lesser degree by multinuclear giant cells.

Cartilage is at times attacked and destroyed by the granulation tissue (fig. 10).

Coccidioidal synovitis, which may be either primary or secondary to a regional bony focus, shows thickening of the membrane, infiltrations of round cells, plasma cells and some polymorphonuclears, histiocytes, coccidioidal spherules and typical Langhans giant cells. The appearance may be strikingly similar to tuberculosis, necessitating a search for the diagnostic spherules (fig. 11). A spherule may be either loose in the stroma or engulfed in a Langhans giant cell (fig. 12) or present

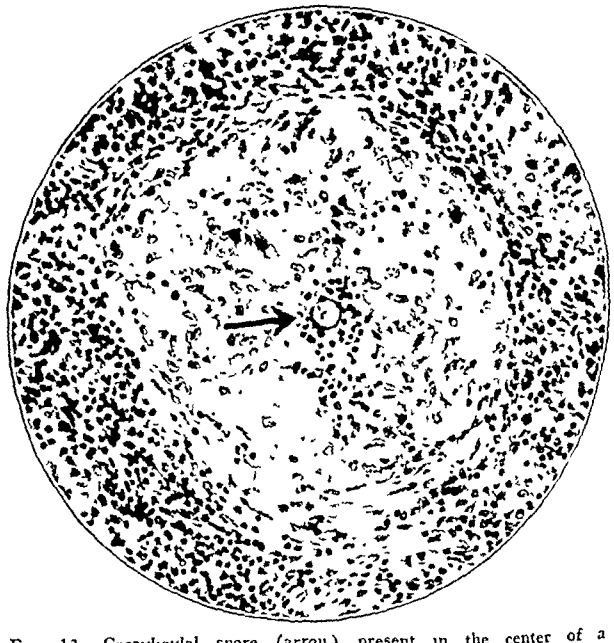


Fig. 13.—Coccidioidal spore (arrow) present in the center of a "tubercle."

in the center of a "tubercle" (fig. 13). Marginal erosion of articular cartilage and cortex occurs by direct extension from the infection of the synovial membrane. Subchondral invasion of granulation tissue, usually of a nonspecific nature tending to separate cartilage from underlying bone, may occur. The articular cartilage becomes thinned by action of the granulation tissue.

Pannus is usually present and may be either of a nonspecific nature or quite amorphous.

Microscopic evidence suggests that both bone and cartilage are destroyed by direct cellular activity of the granulation tissue. It is further assumed from microscopic studies that the coccidioidal pus has no direct destructive action on either bone or cartilage.

TREATMENT

The treatment of coccidioidal infections of bones and joints is of a general as well as of a local nature. If the patient has an associated active pulmonary lesion, this must receive special attention, for all such patients in our series died except two who had minimal pulmonary foci. General supportive measures as well as rest and immobilization of the involved bone or joint lesion are indicated. The latter measures are requisite to prevent metastatic spread of the disease, especially since the disease has a tendency to multiplicity of foci.

The question arises whether conservative or surgical procedures should be instituted in the handling of bone and joint lesions. There are cases in which involved parts have been immobilized with plaster of paris casts that have resulted in improvement and even apparent cures. This is probably the treatment of choice in the acute and severe general infections in which the patient is too ill to stand surgery.

Chronic infections in which bone abscesses are present should be treated by surgical drainage with saucerization of the area by removing the surrounding infected bone. The cavity is packed loosely with petrolatum gauze to allow for granulation from the bottom and the part immobilized in plaster of paris casts after the method of Orr.

Cures of infected joints appear to result only from ankylosis; hence treatment should be directed to this end. Prolonged immobilization of the infected part in casts in addition to general supportive treatment may accomplish this end if the patient does not succumb to the disease process during the interval. Operative arthrodesis in chronic joint infections, as for tuberculosis, seems indicated, with subsequent immobilization until ankylosis occurs. This applies to spinal as well as to peripheral joint lesions.

Amputations were performed in three cases, one of which was for an infected large toe and two were for diseased ankles. All three patients survived but none had active lung lesions. Since the mortality is rather high in this disease and the chance of multiple foci developing is common, removal of a peripheral, well advanced bone or joint infection by amputation should be considered and is at times indicated. This treatment should also be considered, even in cases in which there are associated pulmonary lesions, excepting perhaps the florid acute ones, for with amputation of a major peripheral infection the patient should have a better chance of overcoming the general toxemic effects of the disease.

In cases presenting multiple bone and joint lesions the treatment will depend on whether or not there is an active pulmonary lesion, which again, if present, must receive initial and vigorous attention. Conservative or surgical measures for the peripheral lesions will be determined by how far advanced the process is and by the general condition of the patient.

In addition to either conservative or surgical procedures in the treatment of bone and joint infections, whether single or multiple, general supportive measures and usually absolute bed rest are necessary. There appears to be no specific medication, although colloidal copper, antimony and potassium tartrate and iodides have been given with variable success. Jacobson has recently made and used a coccidioidal vaccine with which he claims to have had good success.

1930 Wilshire Boulevard.

DIAPHRAGMATIC FLUTTER WITH SYMPTOMS SUGGESTING ANGINA PECTORIS

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A clinical syndrome of diaphragmatic flutter with symptoms of angina pectoris occurring in a man of 57 was described under the foregoing title, in THE JOURNAL by Dr. W. B. Porter [1] of Richmond, Va., about two months before the same patient was admitted to the Colorado General Hospital under another name. Dr. Porter described the patient as a "deep sea diver."

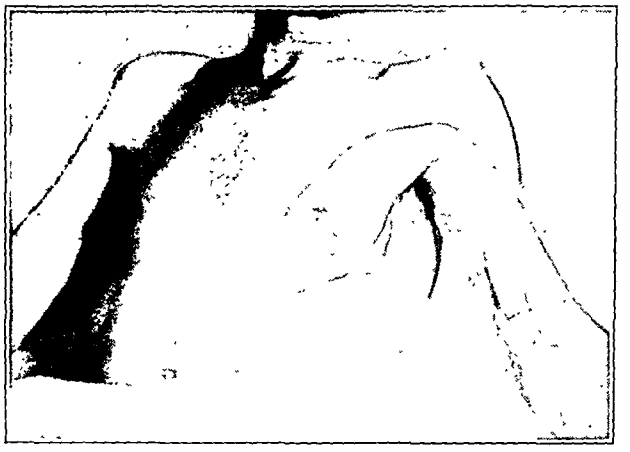


Fig. 1.—Distribution of pain.

To us he stated that he was a "trapper" from the high mountains and that he had been living and working as a trapper near Berthoud Pass—an average elevation of 13,800 feet above sea level. This report will serve as supplementary to that of Dr. Porter, presenting certain similarities, certain additional complaints and certain discrepancies. A telegram under date of Jan. 29, 1937, from Dr. William J. Kerr of San Francisco indicated that the same patient was in the Hospital of the University of California. A supplementary report from that institution is appended.

The patient was brought to the hospital May 20, 1936, in a police ambulance. At the time of entrance he complained of

From the Departments of Physiology and Pharmacology and Medicine, University of Colorado School of Medicine. With a supplementary report by John B. Lagen, M.D., Department of Medicine, University of California.

Dr. O. Leonard Huddleston of the Department of Physiology and Pharmacology made the oscillograph records. Dr. Bernard Grossman made many clinical observations. Miss Margaret Burnett, medical social worker, made the social studies.

1. Porter, W. B.: Diaphragmatic Flutter with Symptoms of Angina Pectoris, J. A. M. A. **106**: 992 (March 21) 1936.

extremely severe anginal pains over the precordium. These pains were said to extend up into the neck on the left side and down the inside of the left arm, and there was a tingling sensation in the last two fingers on the left hand. Frequently during this and subsequent attacks the patient complained of a cramping sensation in the second, third and fourth fingers of the left hand and there appeared to be spasm in these digits. In figure 1 is shown the pain distribution noted in this patient, which is quite typical of that observed in certain cases of

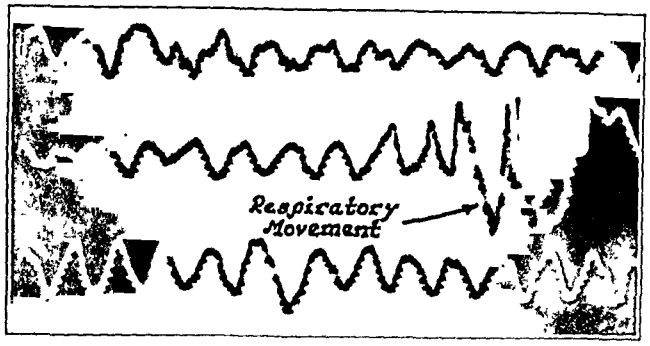


Fig. 2.—Sound record of extraneous respiratory sounds recorded from right base anterolaterally May 25, 11:15 a. m.

angina pectoris. He was breathing very slowly at the time of entrance. He stated that he had come down from the mountains and had a sudden attack of pain, following which he became unconscious. He described the pain as a "blocking of the heart." The family history, as stated, was essentially negative. The patient claimed that he had always been a miner and trapper and that he had worked in hard rock mines up until about ten years ago, at which time he was told that he had pneumoconiosis. He stated that he had left the mines at that time. The past history revealed that he was shot through the jaw at one time. He had malaria when a boy. He gave a history of having had ticks removed recently. The present illness began May 20, 1936, at about 7 p. m., as already described.

On physical examination the patient was sitting in bed in apparently extreme pain. The mouth was edentulous and the tonsils were injected. The chest was symmetrical and the expirations were equal and regular but diminished. The lungs were resonant to percussion; no rales or pleural rubs were heard. The heart was normal, the rate 64 and regular. Some tenderness was elicited at the left pectoral border in the fourth intercostal space. The blood pressure was 110 systolic, 80 diastolic. Abdominal examination was negative. There was no cervical or axillary adenopathy. There was a white linear scar at the hair line above the right forehead. The reflexes were physiologic.

One of us (C. T. B.) saw the patient May 21 in an attack of severe pain. The patient pounded the left side of the chest with his fist and in general manifested more theatricals than seemed consistent with an anginal attack. On auscultation a very peculiar sound was heard over the entire chest. This can best be described as a tick-tock with a 3 to 1 or 4 to 1 ratio to the heart beat. This tick-tock sound was of unequal intensity throughout the chest, being louder toward the lung bases. The patient breathed rather irregularly with periods of apnea. A regular, rapid, oscillating movement of the entire thorax was thought to have been seen by some, not confirmed by others. An electrocardiogram was taken at this time which showed a heart rate of about 60 per minute with a normal curve. Several subsequent electrocardiograms were normal. The patient was given amyl nitrite, which did not relieve the symptoms. He was then given one-fourth grain (0.016 Gm.) of morphine but continued to have attacks of pain throughout the day. A chest plate was negative. Barium sulfate showed nothing in the esophagus nor any obstruction or spasm. May 23, under the fluoroscope, it was found that both diaphragms were moving up and down rapidly and regularly and that this rapid motion was synchronous with the sounds previously described, and a diagnosis of diaphragmatic flutter was made. This was confirmed May 26, although the condition was not so pronounced at that time. The rectal temperature ranged from 99 to 103.8 F. (with the exception of two periods of hyperpyrexia to be mentioned later) with wide daily variations, but the pulse was above 100 only on one observation and it averaged from 50 to 64.

Laboratory examinations were unusual only in that the hemoglobin was 15 Gm. and the red cell count was 4,290,000, a finding not consistent with continued residence at an altitude of over 12,000 feet. The white cell count was not significant. The sedimentation rate at one-half hour was 6 per cent, at one hour 15 per cent. The blood Wassermann reaction was negative. A blood culture was negative. Agglutination was negative for B. proteus and the paratyphoid bacillus. The spinal fluid pressure was 325 mm., the cell count 2 small lymphocytes. A section of a portion of the left sternocleidomastoid failed to show trichinae.

During the succeeding days he complained of pain in varying degrees for which he was given opiates. During none of the attacks was there any color change or evidence of circulatory disturbance of any type. When opiates were denied him he became irascible and demanded release. In spite of objective evidence of diaphragmatic flutter it was evident that this did not explain the entire clinical picture and from this time on he was largely controlled with barbiturates.

An attempt was made to control the flutter with carbon dioxide and oxygen inhalation: 10 per cent carbon dioxide with 90 per cent oxygen was employed. Without carbon dioxide the oscillatory movement was 140 and the heart rate 64; with carbon dioxide, after one minute, the heart rate was 69 and the respiration regular. After the patient had received carbon dioxide and oxygen for about four minutes he reverted back to the former type of oscillatory respiration. Subsequent observations showed that the spasmodic movements were inconstant and suggest that the apparent effect of carbon dioxide and oxygen may have been coincidental. Later the left phrenic nerve was injected with 2 per cent solution of procaine hydrochloride. This caused very severe pain for about one minute, after which all the patient's pain was entirely relieved, the tick-tock sound stopped, and the breathing became normal and regular. For two days he did not complain of pain and there was no evidence of flutter. On the second morning after the procaine injection he was presented in the clinical amphitheater before a group of students. While there he sneezed and the flutter returned, at which time a bilateral flickering motion was easily seen and felt over the lower five intercostal spaces. Another possible etiologic factor in this attack may have been

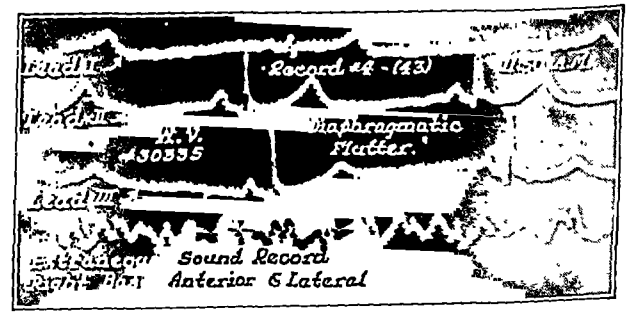


Fig. 3.—Electrocardiogram and sound record of extraneous respiratory sounds.

irritation at a remark of one of us to the effect that he was not very cooperative, since he was being presented in the hope that the flutter could be demonstrated. During this attack and during many subsequent attacks the flutter was transient, appearing at intervals of approximately forty seconds and lasting from four to seven seconds. Kymograph records to be discussed later were taken at this time. Recurring pain and flutter prompted reinjection of the left phrenic nerve. This gave relief for only a few hours. Injection of the right phrenic nerve likewise led to only temporary cessation of flutter and pain.

June 3 under sodium amytal and local anesthesia a left phrenicotomy was done followed by immediate cessation of the flutter. Resection was not attempted because of possible permanent effects.

The following day at 4 a. m. the temperature was reported as 112 F. This was checked by rectum, mouth and axilla with a nurse and a physician constantly in the room. At 8 a. m. the rectal temperature was 102 F. On the following day at 8 p. m. a temperature of 109.8 F. was observed. On this occasion especial precautions as to accurate thermometers and care that there should be no opportunity for malingering were observed. Several physicians and nurses were constantly with the patient at this time. If there was malingering it could not be demonstrated. To exclude a brain lesion as a cause for this hyperpyrexia, a roentgenogram of the skull was taken and showed no evidence of a pathologic condition. Later a request for an encephalogram to rule out further any brain disorder was refused.

About twenty-four hours after the left phrenicotomy, pain and flutter recurred, the flutter being visible throughout the entire chest at a rate of 100 per minute. Two days later the right phrenic nerve was crushed but no resection was attempted. This was followed by cessation of flutter for three days, when he again complained of violent pain. Flutter was not demonstrable as previously but, because of lack of cooperation on the part of the patient, fluoroscopy or kymographic tracings were not attempted; but it was believed that transient flutter was present.

Records of the adventitious respiratory sounds heard over the chest were made on several occasions by means of a cathode ray oscillograph and microphone. The first record (fig. 2) shows the character of the waves obtained on placing the microphone over the right base, anterolaterally. The records were taken successively. In the second record one sees how the sound record is modified by a respiratory movement. The other more regular waves were produced by the flutter of the diaphragm and possibly also the intercostals.

Figure 3 shows the three leads of the electrocardiogram, taken successively. These records show essentially a normal electrocardiogram. The lowest tracing is a record of the extraneous sounds taken from the right base, anterolaterally. It may be seen that these have a more rapid rate than the heart and could therefore not be circulatory in origin, since the rate of the extraneous sounds was about 200 per minute and the pulse rate was 74 per minute.

Figure 4 shows sound records made by placing the microphone over the mitral and tricuspid areas. Two places are marked where a heart tone could be identified. The other waves were produced by the flutter of the diaphragm and possibly also by the intercostals. The lowest curve of the record was obtained by placing the microphone over the right base at the anterior axillary line. The rate of flutter at this time was about 180 per minute.

Figure 5 is from a kymograph record obtained by placing a blood pressure cuff over the lower part of the thorax and fastening it on with a bandage. The bag was then slightly inflated and the rubber tube leading from the bag was connected to a tambour. The writing point of this was made to write on a revolving smoked drum. This record was made in the afternoon of the day on which procaine was injected in the region of the left phrenic nerve. The record shows considerable irregularity in the respiration, but the rate is too slow for "flutter." There is a tendency for the respiration to be Cheyne-Stokes in type during sleep (induced by barbiturate).

COMMENT

Much difference of opinion exists concerning the innervation of the diaphragm. Recently Strauss [2] studied the distribution of the phrenic nerves to the diaphragm in numerous animals and in man. He found a great deal of similarity in distribution in the different species. Fibers from one phrenic nerve were never observed to supply the opposite half of the diaphragm. The intercostals were never found to supply the diaphragm in any of the mammals studied or in man. He concluded that, with the exception of birds, all the animals studied possess the phrenic nerve as the only motor nerve to the diaphragm. Observations here and at California would suggest that in this patient either an accessory phrenic nerve supply existed or that a portion of the flutter may have been due to clonic contractions of the lower intercostals.

Besides the diaphragmatic flutter observed in this patient, the next most remarkable and puzzling symptom was the transient hyperpyrexia.[3] In considering the cause of the high fever we thought that hypothalamic involvement should be considered, but nothing in our

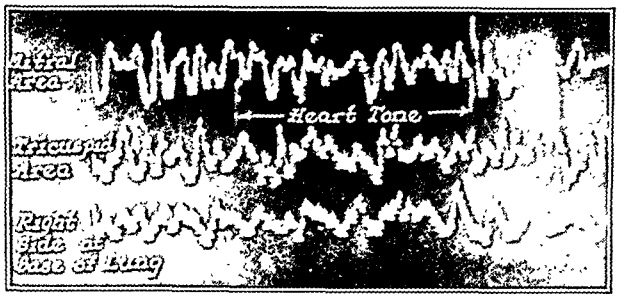


Fig. 4.—Adventitious respiratory sounds and heart tones, May 25, 11:40 a. m.

studies confirmed this idea. However, certain clinical and experimental observations [4] indicate that extreme degrees of alteration in the temperature control may result from lesions in the hypothalamus. A further important observation in this case may be correlated with work of an experimental nature involving the hypothalamus. It has been shown in animals that a state of "sham" rage occurs following the production of lesions in the hypothalamic region.[5] In animals so operated on, slight disturbances, such as by moving or by making noises in the vicinity, lead to all the manifestations of rage. It has been noted previously that our patient was very irascible and certain attacks of flutter appeared to be associated with emotional upsets. We regard it as distinctly possible that the emotional upsets and the hyperpyrexia may point to a lesion of the midbrain in this man. For confirmation of this of course a pathologic examination of the midbrain would be required. In retrospect, we regret that we did not perform tests designed to determine the stability of the vasomotor control, such as the response of the blood pressure to exposure to cold.[6] Likewise cutaneous temperature observations would have been valuable.

The ultimate diagnosis arrived at in this case as one of hysteria in a psychopathic inferior individual seems justified and was made only after numerous clinical consultations had failed to reveal the existence of a

2. Strauss, L. H.: Beitrag zur motorischen Innervation des Zwerchfelles Beim Menschen und bei Tieren, Ztschr. f. d. ges. exper. Med. **86**: 244 (Feb.) 1933.

3. In a letter from Dr. W. B. Porter of Richmond we are advised that he noted a temperature of 105 F., which he attributed to pulmonary infection.

4. Keller, A. D., and Hare, W. K.: Proc. Soc. Exper. Biol. & Med. **29**: 1069 (June) 1932. Davison, Charles, and Selby, N. E.: Hypothermia in Cases of Hypothalamic Lesions, Arch. Neurol. & Psychiat. **33**: 570 (March) 1935. Bazett, H. C.; Alpers, B. J., and Erb, W. H.: Hypothalamus and Temperature Control, ibid. **30**: 728 (Oct.) 1933.

5. Bard, P. A.: Diencephalic Mechanism for Expression of Rage with Special Reference to the Sympathetic Nervous System, Am. J. Physiol. **84**: 490 (April) 1928.

6. Brown, G. E.: Clinical Tests of Function of the Autonomic Nervous System, J. A. M. A. **106**: 353 (Feb. 1) 1936.

demonstrable neurologic lesion. The diagnosis of hysteria seems to fit in well with the transient nature of the diaphragmatic flutter and the fact that the temperature would reach such extreme degrees at times. It is not uncommon for hysteria to be associated with hyperpyrexia, and the literature contains reports of alterations of diaphragmatic function in this disorder.[7] Other functional nervous system disorders, such as epilepsy, may be associated with modifications in the contractions of the diaphragm.

This case is of further interest from the diagnostic standpoint. At first sight the patient presented somewhat typical symptoms of angina pectoris, which condition was definitely ruled out by clinical, electrocardiographic and fluoroscopic observations.

A point of some social interest is the conflicting statements made by the patient regarding his past history. A rather extensive inquiry established the fact that he had been treated in various hospitals, in several states and under different names, but for the same clinical syndrome. Data and fingerprints submitted to the U. S. Department of Justice resulted in a report from this department that the patient had already been traced to four different localities under four different names. He subsequently was admitted to Dr. Kerr's service in San Francisco under a sixth name. In these days, in which the cost of indigent medical care is being given much thought, it would be interesting to know what was the combined costs of care in the more than seven institutions which had received this patient within the period of about one year. If to this figure is added the estimated cost of the services of the various physicians who served gratuitously, there would seem to be some argument in favor of some form of registration of our transient population.

SUMMARY OF REPORT SUBMITTED FROM SERVICE OF DR. WILLIAM J. KERR, UNIVERSITY OF CALIFORNIA HOSPITAL, BY DR. JOHN B. LAGEN

This patient[8] was admitted to the hospital Jan. 28, 1937, under the name of Thomas Dawson, aged 67. The complaint was severe precordial pain of eight months' duration. He claimed perfect health until May 1936, when in his duties as a Texas deputy sheriff while chasing a bandit he was suddenly stricken with severe pain over the heart. The type of pain and its radiation were essentially as previously stated. He described his care in the University of Colorado Hospital and admitted great relief from pain and stated that he had returned to his duties as deputy sheriff, being troubled only by dyspnea. At the end of this time while again "bandit chasing" he had a recurrence of the pain. (Records show that he was hospitalized twice elsewhere for the same complaint.) All observers in many conferences noted that it was difficult to keep him from "chasing bandits" and make him stick to facts.

CLINICAL OBSERVATIONS[9]

Healed supraclavicular fossae phrenicectomy scars were observed. The peculiar sound was heard over the lower part of the chest, especially on the left. It was described as a rather loud, swishing, churning sound with a regular rhythm, independent of the heart sound, with a rate of approximately 240 per minute.

The area of hyperesthesia was identical with that previously described.

A lead 4 electrocardiogram showed faint superimposed diaphragmatic flutter waves.

OPERATION AND RESULT

Feb. 4, 1937, the left phrenic nerve was exposed under local anesthesia. The incision was made across the previous operative scar, and beneath the clavicular head of the sternomastoid muscle was found a resistant mass of scarred areolar tissue and muscular fascia. Beneath this the nerve was found in its usual position traversing the scalenus and was normal in appearance except for a small scarred area at one point in the nerve

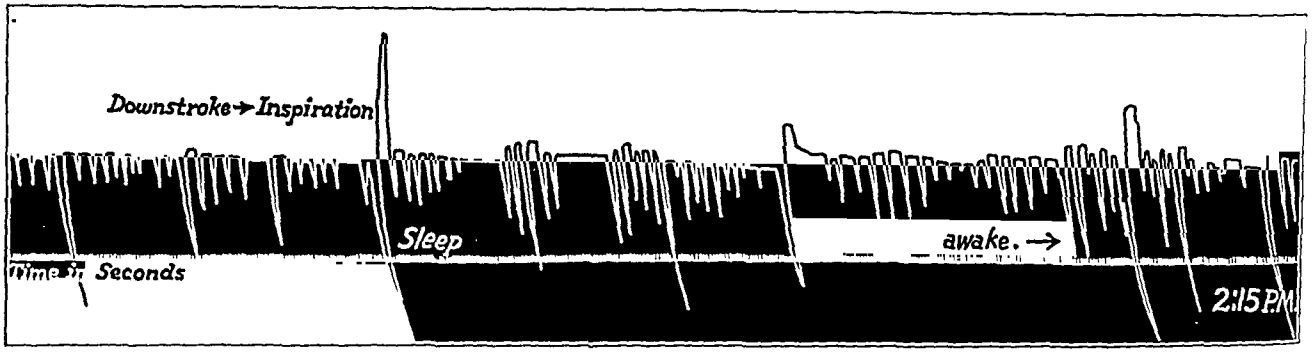


FIG. 5.—Respiration record, May 26, 10:45 a. m., after left phrenic nerve was injected with procaine hydrochloride.

sheath. The phrenic nerve was then retracted on two silk ligatures and a weak faradic current was applied directly to the nerve trunk by means of the usual electrode. During the course of the operation to this point the patient had been complaining bitterly of discomfort in general and his usual chest pain in particular. He was difficult to restrain and kept demanding that the operation, to which he had willingly agreed, now be immediately discontinued. The respirations were slow and of the deep, gasping type; the diaphragmatic flutter was audible as before.

On the application of the faradic stimulus the patient uttered a sharp cry, gave a jerk, twisted onto his right side in spite of restraint and then vomited.

In a minute or two he relaxed and there was a remarkable improvement in his demeanor. He stated that immediately following the electrical shock, which he felt travel down to his abdomen, there was complete cessation of his chest pain and discomfort. No flutter sounds could be heard on auscultation of the chest or abdomen. The patient was now moved to the x-ray department, and fluoroscopy revealed a slight paradoxical motion of the left leaf of the diaphragm with respiration. Flutter was not visible. There was a weak, undulating flutter through the right leaf of the diaphragm. Under the fluoroscope, faradic stimulation was again applied to the exposed left phrenic nerve, which caused a sharp, downward descent of the left leaf of the diaphragm. The patient was returned to the surgery, where the left phrenic nerve was infiltrated with procaine and avulsed, about 31 cm. being obtained.

7. Gill, W. Gordon, and McArdle, M. J.: Two Cases of Pseudo-Tympanites Caused by Hysterical Spasm of the Diaphragm, Guy's Hosp. Rep. 84:94 (Jan.) 1934.

8. Photographic comparisons prove the identity of the patient.

9. Clinical and laboratory observations made in California are given which are at variance with the preceding report. In addition, certain observations are included for emphasis.

The usual skin closure was made. The patient returned to the ward in good condition.

After the operation the patient had no further attacks of precordial pain; his respirations were normal in character with a rate of 20 per minute and no flutter sounds could be heard over the chest. The alteration in his general behavior was striking. He became alert, pleasant and cooperative. However, if too closely questioned concerning his past he still took refuge in fanciful stories.

All temperature observations were rectal. The preoperative temperatures reached daily from 100.8 to 104.3 F. Postoperative temperatures of 107, 103.8 and 102.9 F. were observed, not accompanied by proportional pulse or respiratory rate increase. At first these were not considered due to malingering but subsequently it was the opinion of the California observers that these temperature elevations were due to malingering.

The electrocardiogram after operation showed slightly improved R wave voltage and no diaphragmatic flutter waves. Chest fluoroscopy showed the left diaphragm immobile, high and relaxed, the right normal and without any evidence of flutter.

On the twelfth postoperative day the patient awakened at 2 a. m. complaining of typical precordial pain with left arm distribution. No flutter sound was audible. Because of pain he claimed inability to use the muscles of the left arm; by midafternoon he presented the picture of a left-sided hemiplegia involving the arm and leg but with the neurologic observations of malingering. On the following day he was seen to use both arm and leg when unconscious of observation. On the thirteenth postoperative day he again complained of severe precordial pain, also extending over the right lower part of the chest anteriorly. At this time the flutter-murmur was heard over the right lower part of the chest anteriorly and posteriorly and fluoroscopy revealed flutter of the right diaphragm.

Temporary relief from flutter was obtained by faradic stimulation over the right phrenic nerve through the skin, and response to carbon dioxide inhalations was as in the Denver observations. Avertin with amylene hydrate anesthesia also caused cessation of the flutter.

February 25, under local anesthesia, the right phrenic nerve was exposed through the previous scar. Beneath the area of the old scar were found remnants of a previously crushed phrenic nerve which were frayed out, separated and presented themselves as fine filaments scattered throughout the scar tissue. Only two fibers of the nerve could be definitely isolated, and these were sectioned. No specimens were taken. The patient was returned to the ward in good condition.

Just before the patient was taken to surgery, no flutter sounds could be heard over the right side of the chest. After return from surgery, repeated auscultation revealed no evidence of flutter. By February 28 the patient had become so unruly and so difficult to manage that he was permitted to sign a release slip and leave the hospital. On discharge of the patient there was no evidence of diaphragmatic flutter or of hemiplegia of the left side. The patient ostensibly left for Los Angeles, still having in his pocket an unused bus ticket for that destination.

March 6, 1937, a letter was received from the Ventura County Hospital stating that a patient named Timothy Dawson was admitted on the evening of March 3 complaining of severe pain over his heart and severe dyspnea. He stated that he had been in the University of California Hospital, where an operation was done. The patient had been found lying beside the road near Piru, Calif. At the time of entry the patient was found to have a recurrence of his diaphragmatic flutter. He was given morphine and felt quite well by the next morning. He remained five days in the hospital without recurrence of the flutter, then signed a release and left. One day later he was again brought in, this time with what was apparently a hysterical hemiplegia, which cleared rapidly. Ventura County Hospital authorities further stated that their social service department discovered that the correct name of the patient was Walter Urwiler and verified his residence in Tucson, Ariz. He was sent to Tucson on the train, March 11, 1937.

FRACTURE OF THE SHAFT OF THE ULNA

WITH DISLOCATION OF THE HEAD OF THE RADIUS

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When the ulna is fractured, what happens to the radius? Usually it is fractured also, but if not, what then? Almost invariably in the case of indirect violence, and frequently in the case of direct violence, if the radius is not fractured, the radial head is dislocated. Unless one is specifically looking for it (and particularly if the elbow joint is not included in the roentgenogram) a dislocated radial head can easily be overlooked until the patient's continuing disability two or three months later forces a readjustment of the surgeon's complacency that "only the ulna was fractured."



Fig. 1 (case 1).—Right elbow before reduction. The dislocation of the radial head can be clearly seen.

The dislocation of the radial head is overlooked largely because most physicians have not been trained to look for it. The ulnar fracture is frequently 3 or 4 inches (7.6 or 10 cm.) below the elbow; attention is immediately centered on the obvious lesion, and unless one's first reaction on seeing a fracture of the ulna is to find something amiss with the radius a dislocated radial head may or may not be discovered. Careful physical examination will usually discover the true situation, as the radial head is almost always palpable anterior to the lower end of the humerus, with a hollow over its normal location. Rotation of the forearm is painful and usually greatly limited.

For some reason, this combination of fractured ulna and dislocated radial head has not been stressed in the American literature, though it has been recognized for over a century. Two cases were reported by Monteggia in 1814, and almost a hundred years later Perrin [1] honored this early report by suggesting that the condition be called "Monteggia's fracture." This term is today universally used in the Continental literature. Possibly as a result of the long-distance collaboration

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1. Perrin, Jules: Les fractures de cubitus accompagnées de luxation de l'extrémité supérieure du radius, Thèse de Paris, Paris, G. Steinheil, 1909.

of these two Europeans, the subject is referred to rather frequently in the Continental journals, while its neglect west of the English Channel continues. During the four years 1934-1937, there was only one article in

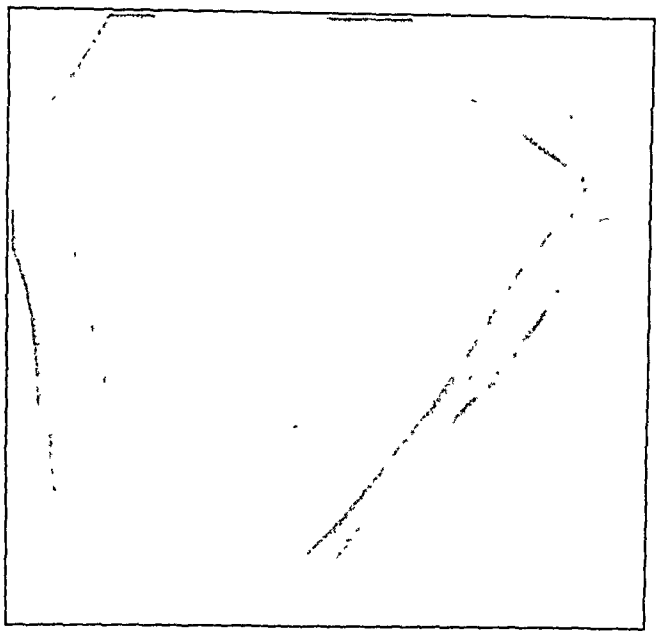


Fig. 2 (case 1).—Right elbow three and one half weeks after reduction. The radial head remains reduced and there is visible healing of the ulnar fracture.

English on the subject listed in the *Quarterly Cumulative Index Medicus*, four pages by Cunningham,[2] while foreign language journals published twelve articles, one of them thirty-eight pages long.

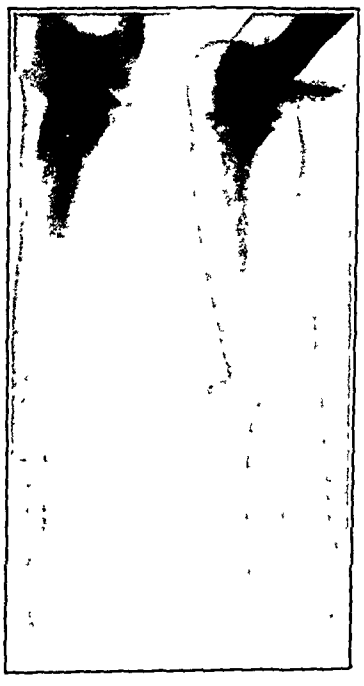


Fig. 3 (case 2).—Left elbow before reduction.

The textbooks of Speed [3] and Wilson and Cochrane [4] mention the lesion and discuss it briefly. My paper, however, is primarily addressed to the general practitioners, who see most of these cases first, for unless the condition is stressed more than it has been in the past a goodly percentage will continue to be missed. As Cunningham concludes, "neglected cases result in great loss of function and much deformity."

The cases are not as rare as their literary neglect would lead one to believe. Cunningham[2] had fourteen cases in a series of 257 consecutive fractures of the ulna, excluding fractures of the olecranon and styloid process. In other words, more than 5.4 per cent of all his fractures of the shaft of the ulna were accompanied by dislocation of the radial head.

2. Cunningham, S. R.: Fracture of the Ulna with Dislocation of the Head of the Radius, J. Bone & Joint Surg. **16**: 351-354 (April) 1934.
3. Speed, Kellogg: A Textbook of Fractures and Dislocations, ed. 3, Philadelphia, Lea & Febiger, 1935, p. 462.
4. Wilson, P. D., and Cochrane, W. A.: Fractures and Dislocations, Philadelphia, J. B. Lippincott Company, 1925, p. 222.

Granted that an orthopedic or fracture specialist wil have a higher percentage of complicated cases, the fac remains that this particular injury is common enough to warrant more attention than it has had. O the cases reported in this paper, the first two were admitted to a 200 bed general hospital within six days of each other.

It may be in order to review briefly the reasons why fracture of the ulna by indirect violence is almost always accompanied by some injury to the radius. The basic reason is that the radius and ulna form mutual splints each bound to the other at top and bottom by strong ligaments and attached almost throughout their full lengths by the strong interosseous membrane. As a consequence, it is difficult for any indirect violence to put enough stress on one of the members of this team to fracture it without previously or simultaneously blocking the other member out of the play. Usually, of course, there is no subtlety about the matter—both bones are broken—but occasionally the splinting and strengthening power of the radius is circumvented by the neat trick of knocking out the supporting prop. With the elbow in full extension, a sudden thrust upward through the radius tends to force it forward off the capitellum, and if the force is strong enough it will sometimes rupture the annular or orbicular ligament that surrounds the radial head and binds it to the ulna, thus allowing the head to slip forward and upward while its ulnar fellow is being fractured.



Fig. 4 (case 2).—Left elbow on Nov. 27, 1935, three months after reduction. Radial head in normal position. Very slight healing of the ulna.

For all practical purposes, injury to the ulna by indirect violence means injury to the radius also. Recognition of this not uncommon combined lesion is the sine qua non of its treatment, and its recognition often depends largely or entirely on the instinctive asking of the question "what is wrong with the other bone?"

In the case of direct violence, it is of course possible to fracture either radius or ulna without grossly damaging the other, but here, too, Monteggia's lesion must be kept in mind for, according to both Cunningham [2] and Wilson and Cochrane,[4] the commonest cause of the injury is a direct blow against the extensor surface of the forearm near the junction of the middle and upper thirds of the ulna. In this type of injury, the force first fractures the prominent ulna and then, if strong enough, carries forward against the radius, whereupon a triangular battle develops among the force, the bone and the annular ligament. The ligament fre-

quently proves weakest, tears and allows the head of the radius to slip forward and upward. A similar but reversed injury, with posterior dislocation of the radial head, has been reported but is rare.[5]

Once one's attention has been drawn to the region of the elbow, there is seldom any difficulty in recognizing the dislocation of the radial head. It is perfectly obvious if only one looks for it. It may be thought that in children with cartilaginous epiphyses, in whom these injuries occasionally occur, the lack of shadow at the upper end of the radius might offer serious diagnostic difficulty, but solution of this problem is simple if one keeps in mind the fact that the undamaged radius, no matter how little it may be ossified, will always point directly at the capitellum. Roentgenograms in two planes, therefore, will give the answer. If the radial diaphysis points toward the capitellum in both pictures, well and good; but if in either one of them it is pointing somewhere else than directly at the capitellum the epiphysis of the radial head is either dislocated or separated. This point is illustrated in case 1, in which the difference between the prereduction and postreduction appearance of the upper end of the radius is clearly seen (figs. 1 and 2).

Once the diagnosis has been made, what of treatment? These may be difficult fractures to treat, and the best orthopedic or fracture specialist available may well be consulted at the beginning rather than after several weeks of unavailing puttering. The difficulty is twofold: first, that closed reduction of the dislocated radial head involves insinuating it into place between the torn ends of the ruptured annular ligament and, second, that if the radius is reduced the forearm is restored to its normal length, whereupon it becomes something of an expert's job to get the ends of the ulna into apposition so that healing rather than nonunion will result. The first consideration, that is, reduction of the dislocated radial head, is often impossible without an open operation, and even if closed reduction is apparently obtained the forearm should be cautiously extended after from ten to fourteen days to see whether reduction is real or illusory. If the latter, the radial head will pop forward as soon as the forearm is extended, which means open operation, and the sooner the better. It is easy to see that an attempt to reduce the radial head might easily (and usually does) simply push the head back against the annular ligament, whereas for restoration of normal function the head must be encircled by the ligament.

If operation becomes necessary, the radial head should be replaced in its normal position and the torn ends of the annular ligament sutured together over it. Speed[3] suggests that "early operation with resection of the head in adults gives fairly satisfactory results," but this operation is probably indicated only if anatomic replacement is impossible.

As to the possibility of ulnar nonunion, nothing hard and fast can be laid down. The ulna is a notorious site of nonunion and many cases of the injury under consideration develop this complication. At least it may be said that it is better to have an ulnar nonunion with the radius restored to normal than to leave the patient with a dislocated radial head and no guarantee of ulnar healing. If operation to replace the radial head becomes necessary, as it often does, internal fixation of the ulna may be advisable.

5. Cioran, S., and Sima, C.: Monteggia Fracture with Posterior Dislocation of the Radius, Rare Case, Rev. san. mil., Bucuresti **32**: 622-624 (Dec.) 1933.

Late operations in neglected cases must be adjusted to the conditions present. In case 3 of the present series, which was first seen two and one-half months after injury, it was necessary to resect the radial head and perform a bone graft on the ununited ulna. In this case a procedure was used which has been found to be of value in certain cases of bone grafting and which will be the subject of a future report by Dr. Roger Anderson. After the graft had been fixed in place, Roger Anderson half-pins were inserted into the ulna above and below the graft and the projecting portions were incorporated into the plaster cast in order to effect complete immobilization of the fragments and graft. Use of this technic permitted the use of a short cast, reaching only to the upper third of the arm, with shoulder motion instituted immediately after operation and with excellent healing of the graft.

One final word concerns the radial nerve. In these, as in all fractures, the presence or absence of damage to the nerve should be ascertained before any treatment is undertaken. The deep radial nerve, the motor terminal branch of the radial nerve, passes in front of the lateral part of the elbow joint just where it can be easily injured by a dislocated radial head, and it is better to discover injury to this important nerve before rather than after manipulation or operation. Prompt reduction of the dislocation is usually the only treatment that a bruised radial nerve needs, but operation may be necessary to free it without adding to the injury if the radial head has come into particularly intimate contact with it.

CONCLUSIONS

1. Fracture of the ulna with associated dislocation of the head of the radius, the so-called Monteggia fracture, is a relatively common lesion.

2. The dislocation may be easily overlooked unless one is on the watch for it. In the presence of an ulnar fracture one should instinctively ask "what is wrong with the radius?"

3. If neglected, the injury will usually result in severe disability.

4. Treatment should be prompt. An attempt at closed reduction is permissible only if one realizes that apparent reduction of the radial head, with the forearm flexed, may be illusory and one takes precautions to make sure within a few days that the reduction is real. In these cases, the best specialist available may be cheapest.

REPORT OF CASES

Cases 1 and 2 are reported with the permission of Dr. Harry B. Slocum, chief of staff, Monmouth Memorial Hospital, Long Branch, N. J.

CASE 1.—R. P., a white boy aged 6 years, admitted to the Monmouth Memorial Hospital Aug. 16, 1935, had fallen on the right arm. The forearm and elbow were tender, and any motion of the elbow caused pain. Roentgen examination showed a greenstick fracture of the middle third of the ulna, with slight bowing to the palmar surface and toward the radius, as well as forward and lateral dislocation of the radial head.

Closed reduction of the fracture and dislocation was done under nitrous oxide anesthesia, and a posterior molded plaster splint was applied to hold the forearm flexed to an angle of 45 degrees.

Immediate postreduction roentgenograms showed apparent anatomic replacement of the radial head.

September 3 the splint was removed and the forearm was cautiously extended to 135 degrees without causing displacement of the radial head. Thereafter the splint was removed daily for guarded active motion. At the time of his discharge from the hospital, September 11, he had almost complete extension of the forearm.

Roentgen examination September 10 showed the radial head to be in good position with definite callous formation around the ulnar fracture.

CASE 2.—E. S., a Negro aged 51, admitted to the Monmouth Memorial Hospital Aug. 22, 1935, was struck across the left forearm with a stick during a fight. The left forearm was tender and deformed, with palpable dislocation of the radial head. Roentgen examination showed a comminuted fracture of the ulna, with a triangular loose fragment, and with dislocation of the head of the radius.

The fracture-dislocation was reduced by manual traction and manipulation and a sugar-tongs plaster splint applied with the forearm flexed to less than 90 degrees. Roentgenograms August 24 showed apparent reduction of the dislocation, with the fragments of the ulna in fair alinement, though not in contact.

On September 13 the forearm was cautiously extended, without recurrence of the dislocation. Roentgenograms at this time showed no callus around the ulnar fragments. On October 8, faint callus was visible.

Beginning October 24, the splint was removed for physical therapy but was reapplied after each treatment. Roentgen examinations on November 8 and 27 showed that the radial head was remaining in normal position but showed little increase in callus.

The Wassermann reaction of the blood was positive, and he received antisyphilitic treatment during his stay in the hospital.

He was discharged from the hospital December 10, still wearing a splint, and was almost immediately lost sight of, as he moved to the South. Whatever the ultimate outcome of the ulnar fracture, the radial head was still in normal position almost four months after his injury.

CASE 3.—R. D. A., a white man aged 63, was admitted to the U. S. Marine Hospital, Seattle, on March 16, 1937. Dec. 31, 1936, two and one-half months before admission, he was struck on the left forearm near the elbow by a piece of a stump that he was helping to blast out. The forearm was painful and useless and he was taken to a local physician, who manipulated his arm and applied a plaster cast, which was left on for five weeks and then replaced by another cast, which was left on until the latter part of February. After removal of the cast the elbow was stiff. The same physician manipulated it under anesthesia without benefit.

Examination, March 16, showed the left elbow to be enlarged and irregular. Elbow motion was from 90 to 135 degrees, with practically no rotation. The radial head was palpably dislocated forward and upward, lying in front of the lower end of the humerus. There was moderate atrophy of the muscles of the forearm and hand.

Roentgen examination March 16 showed a comminuted fracture in the proximal third of the ulna with some radial angulation at the site of fracture and no definite repair. The head of the radius was dislocated anteriorly.

The patient was treated with physical therapy for two months and then, as definite nonunion of the ulna was present, was operated on by Dr. Roger Anderson. The radial head was resected and an osteoperiosteal onlay graft from the right tibia was fixed to the ulna after the bone ends had been freshened. Roger Anderson half-pins were inserted into the upper and lower fragments of the ulna through the skin and were incorporated into the plaster cast, which was applied from the hand to the upper third of the arm.

The postoperative course was uneventful except for temporary tourniquet paralysis of the muscles of the left forearm and hand. August 18, the cast, pins and sutures were removed. Both operative wounds were well healed. Roentgenograms at this time showed incomplete bony union. A posterior molded plaster splint was applied which was removed two or three times a day for active motion and which was left off altogether except at night by September 1. He was discharged from the hospital September 7, with elbow motion of from 80 to 135 degrees, with slight rotation. He was seen again October 26, when he was found to have a range of elbow motion of from 60 to 150 degrees. Roentgenograms at this time showed complete bony union of the grafted ulna.

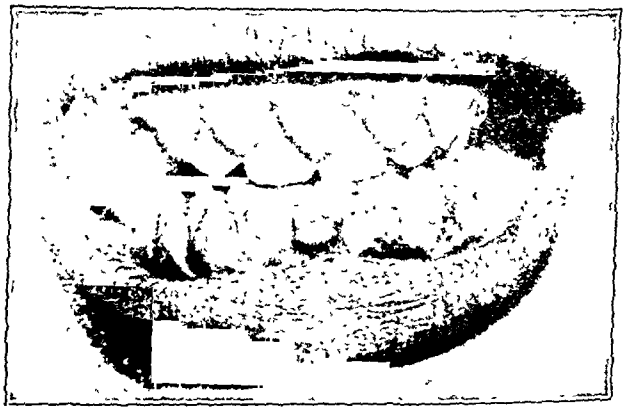
U. S. Marine Hospital.

THE TREATMENT OF EPILEPSY WITH SODIUM DIPHENYL HYDANTOINATE

O. P. KIMBALL, M.D.
CLEVELAND

During the first five months of 1938 a study was made of the treatment with sodium diphenyl hydantoinate (dilantin) of epileptic persons in the public schools of Detroit, where the Special School for Epilepsy had been established as an integral part of the public school system. This drug was considered the most powerful anticonvulsant drug that had been tried, and further use has only strengthened this belief. In view of the toxic effects, I felt that it should not be used except under the careful guidance of a physician.

Regarding the efficacy of sodium diphenyl hydantoinate in the control of seizures, recent observations correspond very closely with those of the aforementioned study and the study of Putnam and Merritt.[1] In twenty-three of the 152 cases under observation the drug has been used for less than three months. Of the remaining 129, the seizures have been entirely controlled in eighty-one, or 62.7 per cent, and definitely



Advanced hyperplasia of the gums.

alleviated in nineteen, or 14.7 per cent, and little or no benefit has been noted in twenty-nine cases, or 22.5 per cent. I wish to emphasize the fact that the general health, the mental state and the personality of the patient are so much better than before the use of sodium diphenyl hydantoinate that the treatment will be continued even though I am reporting some difficulties in this paper.

The development of a sore mouth in some cases in addition to dizziness and a staggering gait was noted, but these two conditions had not been associated. On further observation it was found that some patients had definite hyperplasia of the gums, and occasionally the hyperplasia had developed to such a degree that it suggested scurvy.

Of the 152 patients receiving sodium diphenyl hydantoinate, the majority of whom attend the Special School for Epilepsy, 119 have been reexamined for hyperplasia of the gums, and it is this condition which is emphasized in this report. The gums of fifty-one are normal and of sixty-eight show varying degrees

Dr. E. E. Ecker and Dr. Louis Pillemer made the determination of ascorbic acid in the cases discussed.

1. Merritt, H. Houston, and Putnam, Tracy J.: Sodium Diphenyl Hydantoinate in the Treatment of Convulsive Disorders, J. A. M. A. 111: 1068 (Sept. 17) 1938.

of hyperplasia. Seventeen patients have advanced hyperplasia like that shown in the accompanying illustration. As a matter of record fifty-seven per cent of the patients who have used this drug two months or more show changes in the gums to some degree. Some patients who have taken it continuously for eleven months show no change; others, who have taken it for as short a period as two months and in smaller doses, show definite hyperplasia associated with vitamin C deficiency. Some had a sore mouth and tender gums for a short period starting about two weeks after the beginning of therapy. The soreness cleared up and no further thought was given to this condition until the progressive hyperplasia was noted. In only four cases is the advanced hyperplasia associated with soreness and petechial hemorrhages on pressure, and in each of these there is an associated gingivitis. No patient who has employed good oral hygiene has any suggestion of sponginess or bleeding. The others show a smooth firm hyperplasia that does not bleed easily and is not particularly tender. Forty of the sixty-eight patients who show this peculiar hyperplasia of the gums have or have had dizziness associated with an unsteady swaying gait and spells of unusual weakness.

Ascorbic Acid Content of the Blood Serum

Group	Mg. per 100 Cc.
Normal	1.14
One plus	0.58
Two plus	0.55
Three plus	0.47

Beginning August 15, ascorbic acid was prescribed for one patient. With 300 mg. daily the condition of the gums was only slightly improved in three weeks. The use of a diet high in vitamin C was continued, yet on October 25 an analysis of the blood serum showed the ascorbic acid level to be 0.1 mg. per hundred cubic centimeters, which is about one tenth of normal. Because of this unusual observation, similar studies were made on thirty-four children in the Special School for Epilepsy. Those showing definite beginning hyperplasia were designated one plus, those with rather advanced hyperplasia two plus and those with extreme hyperplasia, as seen in the illustration, three plus. A group showing no changes in the gums was included. The physical condition of the patient was not known to the serologist at the time the blood studies were made. The amount of ascorbic acid found in the blood serum of these groups is indicated in the accompanying table, the amount given being the average for each group of eight patients.

No patient with normal gums showed a deficiency in ascorbic acid and, conversely, every patient with marked hyperplasia of the gums showed a definite deficiency of vitamin C. Therefore it is concluded that the deficiency of ascorbic acid parallels the degree of hyperplasia of the gums.

REPORT OF A TYPICAL CASE

A youth aged 18 had suffered from grand mal attacks since the age of 15. May 7, 1938, treatment with 0.4 mg. of sodium diphenyl hydantoinate daily was started, and, although he had averaged eight grand mal seizures a week for the previous two years, he did not have a seizure in six months during which he received this drug. Two weeks after the beginning of treatment he complained of soreness of the gums; this disappeared in about two weeks. By the first of July enlargement of the gums was evident to the patient and to his family. By August 1 it had progressed to such an extent that his dentist advised surgical removal of some of the tissue. Beginning August 15, 300 mg. of ascorbic acid was given daily for three weeks, with very little effect. September 7, use of the excessive amount of ascorbic acid was discontinued but a diet high in vitamin C was substituted. October 25 the ascorbic acid content of the blood serum was 0.1 mg. per hundred cubic centimeters. Also on this date the photograph accompanying this report was taken. Because of the parents' concern over the low vitamin C content, without my knowledge they resumed the treatment with ascorbic acid, 300 mg. daily. November 22 the ascorbic acid content of the blood serum was found to be 1.8 mg. per hundred cubic centimeters, a high normal value. At this date his gums showed some improvement. Because of the striking result in the control of seizures, improvement in the mental state and disposition, treatment with sodium diphenyl hydantoinate, 0.3 Gm. daily, was continued.

The usual symptoms of severe and prolonged vitamin C deficiency (scurvy), such as purpura, sore joints and extreme weakness, have not been seen. In general the patients are in a very satisfactory condition except for the gingival hyperplasia associated with vitamin C deficiency. As to this condition, it is known so far only that (1) there is a definite relationship between the changes in the gums and the low ascorbic acid level (the severity of the hyperplasia appears to parallel the decrease in vitamin C) and that (2) this condition seems to be associated with the treatment with sodium diphenyl hydantoinate.

Further studies are in progress, the results of which will be given in a later report.

940 Hanna Building.

Clinical Notes, Suggestions and New Instruments

HERNIA INTO THE PARADUODENAL FOSSA WITH OBSTRUCTION DUE TO LARGE BILIARY CALCULUS

I. A. ARNOLD, M.D., LOUISVILLE, KY.

Since I reported this case in December 1933, my attention has been called to the reports on paraduodenal hernia by Baumeister and Hanchett.[1] They report only on right paraduodenal hernia and have found but forty-four cases of this particular type of internal hernia. One was the case which I am now reporting. I have been able to find no other case in the literature in which the obstruction in the hernia was due to a large gallstone.

REPORT OF CASE

History.—Mrs. L. F., aged 70, white, was admitted to Norton Infirmary Jan. 29, 1933. Her present illness began seven days before admission to the hospital, immediately following a meal which had made her very sick. The symptoms began with vomiting accompanied by severe pain in the epigastric region which, however, subsided for a period of twenty-four hours, when she began to have intermittent cramps, pain and nausea. This condition lasted for a few hours and then subsided, only to recur on eating, after which she would invariably vomit her food in from one to three or four hours. She became progressively worse and at the time of her admission the vomiting was feculent. From the history obtained, she never at any time suffered the severe pain that one would be supposed to experience from an intestinal obstruction; neither was the distention of the abdomen marked. I was unable to obtain a past history that would tend to have any bearing on the present condition.

From the Surgical Clinic of the Norton Infirmary.

1. Baumeister, Carl, and Hanchett, McMicken: Right Paraduodenal Hernia, Arch. Surg. 37: 327 (Aug.) 1938.

Examination.—Physical examination revealed arcus senilis, generalized arteriosclerosis, slight cardiac hypertrophy, and a definite systolic murmur at the apex and aortic and pulmonic areas. The second sounds were weak. The blood pressure was 110 systolic, 66 diastolic. Pulmonary congestion was marked. The abdomen was slightly distended and markedly rigid. Peristaltic waves were detected but were not vigorous.

Urinalysis revealed a cloudy appearance, an acid reaction and a specific gravity of 1.020; tests for bile and urobilin were negative.

Microscopic examination revealed numerous squamous epithelial cells, mucous threads, many pus cells and an occasional red blood cell.

A blood count showed 4,530,000 red blood cells, 21,000 white blood cells, hemoglobin content 80 per cent (12 Gm.), color index 9, neutrophils 24 per cent, basophils 1 per cent, monocytes 6 per cent and lymphocytes 3 per cent.

A diagnosis of intestinal obstruction and probably carcinoma was made, and the patient was operated on immediately under spinal anesthesia preceded by one sixth grain (0.01 Gm.) of morphine and 1/200 grain (0.0003 Gm.) of scopolamine hydrobromide.

When the abdomen was opened through a right rectus incision in the upper part of the abdomen there was a pronounced discoloration and slight distention of the small intestine extending from the pylorus downward about 5 feet, where a loop of the intestine went through the opening formed by the ligament of Treitz and was twisted on itself. There was a large mass in the hernia which proved to be a gallstone. After the obstruction had been relieved and the stone had been removed from the small intestine the color gradually returned to the bowel above the obstruction. On examination of the gallbladder region there was found at the junction of the common duct to the duodenum a fibrous band, but no definite gallbladder could be made out. Owing to the desperate condition of the patient no further examination was deemed advisable. The abdomen was closed in the usual manner with four stay sutures.

At the time of the operation 1,000 cc. of 10 per cent dextrose and saline solution was given intravenously; a stomach lavage was also done. At first there was pure feculent matter; the lavage was continued until the fluid returned clear. She was very quiet through the operation; this we later attributed to coma, since she never rallied or regained consciousness.

AUTOPSY

The autopsy was performed by Dr. A. J. Miller. The body was well developed and well nourished. The abdomen was rotund but not distended. In the region of the upper right rectus there was a recent surgical incision.

The stomach was filled with gas and a small amount of fecal liquid and contained four faceted gallstones about 5 mm. in their longest diameter. In the right lateral wall of the second portion of the duodenum was an ulceration entirely through the wall of the duodenum and communicating with the lumen of the gallbladder. The gallbladder was shrunken and fibrous, surrounded by fat tissue. The cavity seemed to be limited to this fistula, which was about 2.5 cm. in diameter. An opening into the cystic duct was not demonstrated. Apparently the fistula between the duodenum and the gallbladder was formed by the erosion of a stone from the gallbladder into the digestive tract. The hepatic tract was patent, as demonstrated by gently milking it and expressing bile into the duodenum. The remainder of the tract was not opened. The duodenum and jejunum were dilated and hemorrhagic for a distance of about 4½ feet. Beyond this point the small bowel was collapsed and the large bowel also was not distended. At this point in the jejunum, about 4½ feet from the duodenum, there was a recent surgical incision opposite the mesenteric attachment. It is reported that a large gallstone was removed from this location and that this loop of the intestine was found at operation to be herniated under the ligament of Trietz. The ligament of Trietz was examined and found to be hemorrhagic, swollen and softened.

The liver was soft, light colored and blotched.

The pancreas contained a few small flecks, evidently the result of old fat necrosis.

The right kidney was light colored and soft but not dimpled.

The pelvic viscera were not remarkable, except for small calcified fibroids attached to the uterus.

In this case the fundus of the gallbladder had anastomosed itself to the duodenum just opposite the ampulla of Vater. An opening was formed by the pressure of a large stone and from the different colors of the ends of the stone it had been partially delivered into the duodenum for some time, as it showed evidence of having been acted on by the gastric juices. During the first siege of vomiting the delivery was completed. The stone passed down into the jejunum for about 5 feet and lodged where a portion of the intestine had gone into the left inferior paraduodenal jejunal fossa. This knuckle with the stone inside was twisted on itself and had gone downward, backward and outward for about 5 inches behind the peritoneum. A large mass could readily be felt posterior to the peritoneum. When the intestine was delivered from the hernial fossa this hard mass proved to be a large biliary stone. The intestine was incised and the stone removed.

It is difficult to describe as well as to demonstrate this hernia so that others may see how it can happen. When the colon and stomach are lifted to show the fossa, the greater portion of it disappears, but with the finger in the fossa and the intestine turned down in its normal position the fossa greatly increases. It is only then that one can visualize how this hernia occurs.

Sherrill, in his book on peritonitis, gives a graphic description of the anatomic conditions of the left duodenojejunal fossa, where these hernias not infrequently occur.

Moynihan[2] describes nine of these rudimentary fossae about the duodenojejunal flexure in which the internal hernia may be found. The most important are the superior and inferior paraduodenal folds and the fossae of Waldeyer and Landzert.

Steinke[3] in my opinion has made the best classification of paraduodenal hernias. He classifies them as right, left and duodenojejunal, superior and inferior. The one under discussion would come under the duodenojejunal inferior.

Hallock[4] presented a specimen of duodenojejunal hernia before the Chicago Surgical Society in 1917, and in his case it was found post mortem that the hernia went upward and backward, but in my case the hernia went downward and backward.

Dowdle[5] reports thirty-four cases of the right and 105 of the left that have been recorded in the literature. Of the thirty-four cases of right paraduodenal hernias, seventeen came to operation and seventeen were found at autopsy. Of the seventeen patients operated on there were six recoveries and eleven deaths. His case made the thirty-fifth reported, the eighteenth to come to operation and the seventh in which recovery occurred.

The latest data that I have been able to find on internal hernia are those of Steinke, quoting Short.[6] To date there have been 203 paraduodenal hernias, including forty-eight in the left duodenojejunal fossa, but in the record of these cases there is not a single case which shows the obstruction in the herniated intestine to be that of a gallstone, as in my case.

SUMMARY

The illness here reported evidently began as cholelithiasis. One of the large stones eroded its way through the gallbladder and duodenum, forming a cholecystoduodenal fistula. This stone became impacted in the jejunum 4½ feet from the duodenum, and this impacted loop became herniated beneath the inferior duodenal fold, resulting in complete obstruction of the small intestine.

The patient's death is attributed to complete obstruction of the jejunum. The small stones were evidently regurgitated from the duodenum into the stomach, having passed through the fistula.

626 Medical Arts Building.

2. Moynihan, B. G. A.: On Retroperitoneal Hernia, New York, William Wood & Co., 1906.
3. Steinke, C. R.: Internal Hernia, Arch. Surg. **25**: 909 (Nov.) 1932.
4. Hallock, Kenneth: Presentation of a Specimen of Duodenojejunal Hernia, Surg., Gynec. & Obst. **26**: 473, 1918.
5. Dowdle, Edward: Right Paraduodenal Hernia, Surg., Gynec. & Obst. **54**: 246 (Feb.) 1932.
6. Short, A. R.: Retroperitoneal Hernia, Brit. J. Surg. **12**: 456 (Jan.) 1925.

PNEUMOCOCCUS TYPE XIV PNEUMONIA IN TWINS; CONTRASTED TREATMENT

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Visiting Physician, Harlem Hospital and Willard Parker Hospital.

Opportunity to contrast the effect of two methods of therapy in human litter mates (identical twins) is sufficiently unusual to warrant this brief report:

Evelyn H., aged 17 months, had cough and coryza May 6, 1938, and on the following day an elevation of temperature. May 9 the swelling of the eyes and a facial rash appeared and the following day vomiting and fever. May 11 the rash was fading but a sore throat and some dyspnea developed. She was admitted to Willard Parker Hospital May 12, appearing acutely ill, with an elevation of temperature to 104.2 F., an increased respiratory rate and a faint maculopapular rash on the face and thighs, with macular staining behind the ears. The ear drums were normal, the conjunctivas slightly reddened and the eyelids swollen. The tonsils were large and moderately congested; there were no Koplik spots. The breath sounds were suppressed at the bases of both lungs; there were dulness, diminished voice sound and a few coarse rales at the base of the left lung. There was slight impairment at the base of the right lung posteriorly, with areas of bronchovesicular voice and numerous rales and rhonchi over both pulmonary fields. Hepatic dulness was slightly increased. The child cried constantly during the examination. Two hours after admission pneumococcus type XIV was recovered on a pharyngeal swab. After a negative cutaneous test, 57,000 units of pneumococcus type XIV rabbit serum with 5 minims (0.3 cc.) of epinephrine in 150 cc. of physiologic solution of sodium chloride was introduced into the external jugular vein. Three days later the child was well, although signs at the base of the left lung persisted for ten days after treatment. The blood culture was positive on admission. She was discharged May 31, nineteen days after admission, and has been well since.

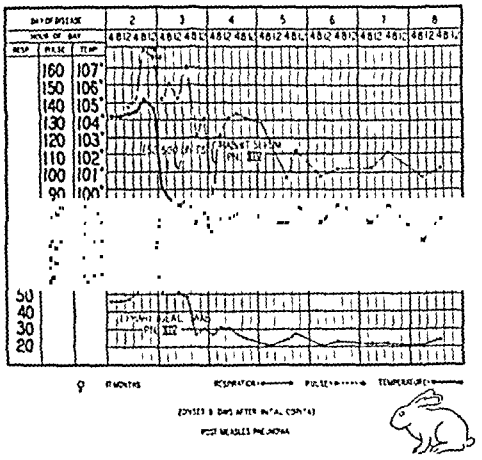


Chart 1.—Course of the twin who received serum therapy promptly.

Emily H., aged 17 months, who had coryza and a slight cough May 7, 1938, was admitted to Willard Parker Hospital May 12 with fever, a faint maculopapular rash, coryza, cough and conjunctivitis. There were no Koplik spots. The temperature was 101 F., the pulse rate 100 and the respiratory rate 24. The lungs were clear. The fever disappeared the next day; the pulse rate was 118 and the respiratory rate 30 on one occasion. The temperature ranged from 98 to 99 F.; pulse rate was below 100 and the respiratory rate 20 until May 20, at which time she was discharged in good condition. May 23 she was admitted to Harlem Hospital, where her mother stated that the patient had not been well since discharge from Willard Parker Hospital, a severe cough having developed that evening and continued to the next day. May 22 she was feverish and sweated and was restless. On admission there were rales scattered throughout the lungs. On the day after admission to Harlem Hospital, x-ray examination revealed an infiltration extending outward from both hilar regions. Pharyngeal culture yielded pneumococcus type XIV. Emily chanced to fall into the serum control group of type XIV, and accordingly no serum was at first given. Her course in the hospital was a stormy one; there were daily elevations of temperature to between 104 and 105 F. for eight days, with profound prostration and rapid pulse. During this time she deteriorated steadily, losing considerable flesh and strength despite removal to the atmosphere control room (oxygen) and excellent nursing care. On the tenth day of illness the blood culture yielded pneumococcus type XIV. Culture the next day was also positive. Because of the persisting bacteremia, it was decided to administer serum. Accordingly, 164,000 units of homologous rabbit serum was given intramuscularly and 68,250 units intravenously. There was an abrupt drop in temperature (chart 2) and only a slight rise during the subsequent two days, the temperature finally becoming normal on the third day after treatment. Blood culture on the day serum therapy was begun proved to be sterile. Whether this was evidence of permanent or only transitory improvement cannot be determined. According to my experience a single negative blood culture in non-serum treated disease due to pneumococcus type XIV is no guaranty against the recurrence of overwhelming invasion.

The course of the second child was in striking contrast to that of the twin sister treated immediately with homologous antipneumococcus serum, who was well within three days of treatment and escaped the hazards incident to prolongation of fever and to bacteremia.

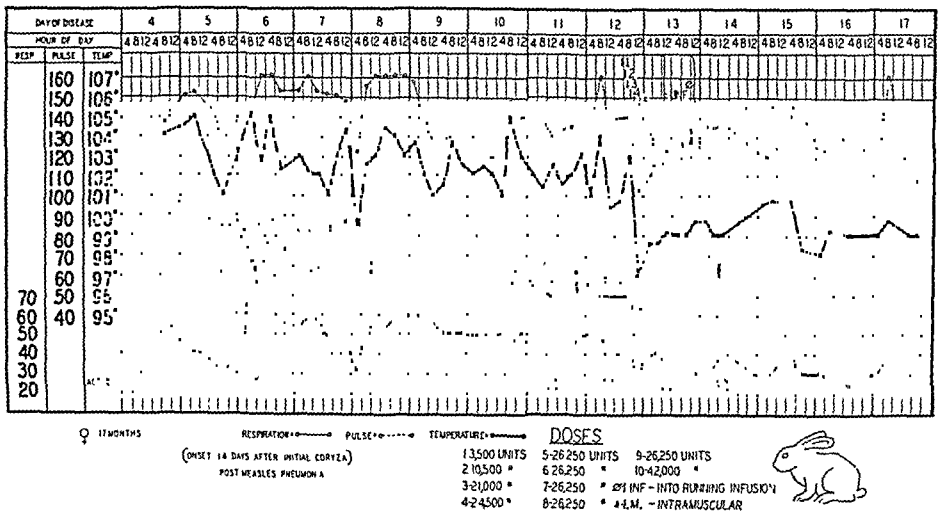


Chart 2.—Course of the twin from whom serum therapy was at first withheld.

SUMMARY

One of a pair of identical female twins with pneumococcus type XIV pneumonia complicating measles was treated immediately with homologous antipneumococcus serum, responded promptly and had a short course. The other twin, from whom serum was at first withheld, had a much longer, stormy course, with bacteremia, and then responded favorably to the administration of serum.

62 West Eighty-Seventh Street.

From the Willard Parker Hospital and the Harlem Hospital.
This study received financial support in part from the Littauer Pneumonia Research Fund of New York University College of Medicine, from the Metropolitan Life Insurance Company and from Mr. Bernard M. Baruch, Mr. Bernard M. Baruch Jr., Miss Belle N. Baruch and Mrs. H. Robert Samstag. The patient in Harlem Hospital was studied and treated with the permisson of Dr. Morris Gleich, director of pediatrics.

SPONTANEOUS FEVER THERAPY IN NEUROSYPHILIS

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Spontaneous generalized tetany and a rectal temperature of 106.4 F. in a case of neurosyphilis, followed by marked clinical improvement, are believed to be sufficiently unusual to merit recording.

REPORT OF CASE

A woman of 31, without known syphilitic history, whose mother was said to have committed suicide while insane, had been previously married from 1923 to 1929 and had one pregnancy, giving birth to a daughter, who was 13 at the time of examination and in apparent good health. The patient had been married to her second husband since 1929, with no pregnancies.

On the day of admission she got up at 5:30 a. m., cooked breakfast and did housework in her usual manner but was observed to be out of contact with her surroundings at 7:30 a. m. She did not know the time or place, did not recognize any one and talked incoherently. At 8 o'clock she became unconscious and within a few minutes had a severe convulsion with flexion and adduction of the upper extremities, extension of the lower extremities and opisthotonos. During that day she was never free from mild or severe spasm, did not regain consciousness and had involuntary micturition and defecation.

On arrival at the hospital at 8:30 p. m., she was unconscious, with the body rigid, the jaws tightly closed, the arms forcibly flexed at the elbows, the wrists and metacarpophalangeal joints flexed and the fingers extended, the thumbs flexed into the palms, the legs rigidly extended, the feet pressed downward at the ankles and the toes extended in dorsiflexion. With increase of the spasm she occasionally presented opisthotonos. Chvostek's and Trousseau's signs were readily elicited. Her head was retracted, the eyes closed and the eyeballs rolled so that the pupils could not be readily examined when the eyes were opened. The tendon reflexes were exaggerated, and patellar clonus was present bilaterally. Increased extension of the toes was caused by plantar stimulation, and Babinski's sign was marked on the right. Abdominal reflexes were not obtained. Breathing was rapid, with an expiratory groan of automatic character. The systolic blood pressure was 110 and the diastolic 60. Her weight was 108 pounds (49 Kg.).

Urine obtained by catheter was alkaline and contained albumin and granular casts. The blood count showed 13,000 white cells, with 79 per cent granulocytes. The spinal fluid was clear, dropped slowly and showed increased globulin and 39 white blood cells, of which 34 were lymphocytes. A report received later showed the Wassermann reaction to be 4 plus in all dilutions, including 0.2 cc.; the colloidal gold reaction was 5553100000. There were 4 plus Wassermann and Kahn reactions of the blood, the quantitative Kahn test being reported as showing 40 units. The carbon dioxide combining power of the blood was 84.4 cc., the nonprotein nitrogen content 30 mg. and the sugar content 66.6 mg. per hundred cubic centimeters.

The patient was given 10 cc. of 10 per cent calcium gluconate intravenously. (Two more injections of the same amount were given the next day.) The gastric contents were opaque and greenish blue. No poisons were discovered. The stomach was washed and 300 cc. of water allowed to remain.

The temperature on admission was 103.8 F. (axillary), the following day 102 F. (axillary) at 8 a. m., 104.4 F. (rectal) at noon and 105.4 F. at 4 p. m. The spasmodic state continued, although the manifestations were less severe, and the patient remained unconscious and incontinent. Ophthalmoscopic examination showed normal fundi. The carbon dioxide combining power dropped to 49 cc. and the nonprotein nitrogen content rose to 39.9 mg. and the sugar content to 166 mg. per hundred cubic centimeters. The calcium content of the blood was 6.2 and later 6.4 mg. By 11 p. m. the temperature had risen to 106.4 F. (rectal) and ranged from 104.6 F. at 6 a. m. to 105.4 F. at 4 p. m. on the third day. A fatal outcome was expected.

Tryparsamide 1 Gm. was given intravenously at 6 p. m. The temperature was 105.2 F. at 7 o'clock but fell to 101.4 F. by midnight. The patient was delirious, restless and screaming during the night but was quiet the next day, and her temperature did not rise above 99 F. Tryparsamide 1 Gm. was repeated. Vomiting was frequent but ceased after a saline purge. The patient was conscious and able to talk, and her muscles were relaxed. Although she was occasionally restless, disturbed and noisy during the next two nights, her condition rapidly improved, she took nourishment well and she had no recurrence of fever.

A third injection of 1 Gm. of tryparsamide was given two days after the second, followed by 2 Gm. five days later and another 2 Gm. after a three day interval. In three more days an injection of 3 Gm. of tryparsamide was given. This was repeated one week later, after which weekly injections of a bismuth preparation were begun.

The patient walked outdoors ten days after she came to the hospital and had no recurrence of spasm or mental symptoms, although she had no memory of the period of her acute attack. Neurologic examination gave entirely negative results except for a somewhat limited pupillary reaction to light. Seven weeks after the onset of acute symptoms the Wassermann and the Kahn reaction of the blood remained 4 plus, but the quantitative Kahn test showed a drop to 15 units. The spinal fluids showed 8 cells, a heavy trace of globulin, a Wassermann reaction still 4 plus in 1 cc., 0.7 cc. and 0.5 cc. but 3 plus in 0.2 cc., and a colloidal gold reaction of 4543100000.

COMMENT

High temperatures have been reported in cases of cerebral syphilis, but they have usually been associated with acute meningeal reactions and the presence of many cells in the spinal fluid. In the most acute stage this patient showed only 39 cells. Involvement of the hypothalamic centers is a possible explanation of the hyperpyrexia.

Rapid clinical improvement without residual mental symptoms is probably to be attributed to the spontaneous fever as well as to subsequent antisyphilitic medication.

From the Neuropsychiatric Section, Medical Service, William Beaumont General Hospital.

DYSPNEA DUE TO TWIN ABSCESSES AT THE SIDES OF THE LARYNX

VIRGIL J. SCHWARTZ, M.D., MINNEAPOLIS

Abductor paralysis of both vocal cords is, fortunately, a very unusual occurrence. Like unilateral abductor palsy, it is practically always due to organic disease. Thomson states that it is due either to bilateral pressure on the recurrent nerves or to a bulbar lesion, usually syphilitic, involving the recurrent centers in the medulla, which are situated in the floor of the fourth ventricle. If the cardiac inhibitory center is also involved, as evidenced by a rapid pulse without fever, and if other nearby cerebral centers are affected, such as those of the eyes, tongue and pharynx, the localization points rather definitely toward the medulla. If, however, these signs are not present, one concludes that there is simultaneous peripheral involvement of the two recurrent laryngeal nerves. This rare condition is illustrated by the following case:

G. E., a woman aged 30, was brought into the hospital complaining of extreme difficulty in breathing of only four hours' duration. Pain and swelling had appeared in the ankles and knees about eight days before; these became rapidly worse and spread to the wrists, elbows and shoulders, although the ankles were the most severely involved. These symptoms were accompanied by chills and fever. A few hours before admission the patient had noticed sudden inspiratory difficulty, and she was sent to the hospital. The past history contained nothing relevant.

At admission the temperature was 104.6 F. by rectum, the pulse rate 138, the respiratory rate 28 and the blood pressure normal. There were cyanosis and severe inspiratory difficulty with stridor. The joints of the toes, fingers, ankles, knees, elbows, wrists and shoulders were swollen, hot, tender, and discolored with bluish red patches. There were a number of pustular eruptions on the buttocks. The urine showed a 4 plus

reaction for albumin, a few granular casts and a few pus cells. The hemoglobin content was 88 per cent, the red cell count 4,300,000 and the leukocyte count 7,500.

Laryngoscopic examination showed abductor paralysis of both vocal cords. In fact, it soon appeared that almost every laryngeal nerve and muscle must be paralyzed. A tracheotomy was done, and the patient's respiration at once became free, corroborating what we had previously seen during bronchoscopic examination, namely that there was no pathologic change in the trachea or bronchi and that the dyspnea was due entirely to the paralysis of the vocal cords. The patient's other conditions, however, did not improve, and she died the following day.

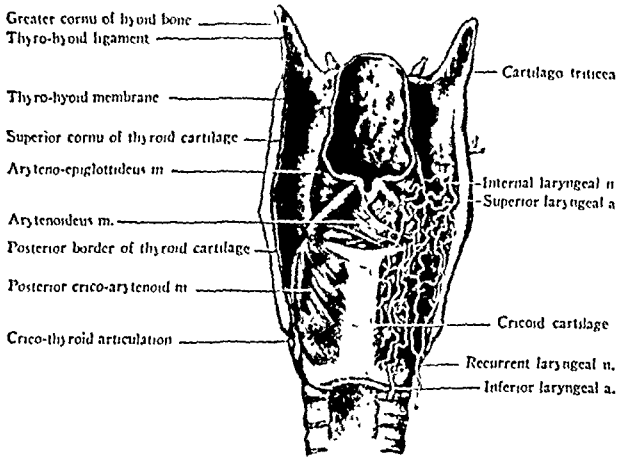


Fig. 1.—Posterior aspect of the larynx, showing nerves, vessels and muscles. Note particularly the course and distribution of the nerves and compare with figure 2. (From J. B. Deaver's "Surgical Anatomy"; reproduced by permission of P. Blakiston's Son & Co.)

At autopsy it was found that the left ankle joint was filled with creamy pus. The other joints contained a colorless serous fluid. The pathologist believed that bacteremia must have been present, although a blood culture was not made. During removal of the left lobe of the thyroid gland a small amount of thick pus escaped from the connective tissue posterior and lateral to the thyroid cartilage. On further inspection at the point where the pus had oozed out there was found an abscess about 2 cm. long and from 0.5 to 1 cm. wide posterior and lateral to the larynx. The pathologist then decided to inspect the opposite side, and he found there exactly the same sort of an abscess, localized in the same manner and apparently not connected in any way with the one on the left. In other words, these abscesses were probably metastatic, each one having developed independently by deposition of blood-borne bacteria, which doubtless came originally from the left ankle joint. The formation of one such abscess would be strange enough, but the development of two, one on each side, of exactly the same size and shape and in identical locations, causing pressure on the nerves entering and leaving the larynx so as to produce precisely the same type of pathologic change in the two sides, is a circumstance that could not have been more accurately executed if it had been deliberately planned.



Fig. 2.—Larynx of G. E., posterior aspect (same view as figure 1). The indicators (*x*, *x*) point to abscess cavities (dark areas) at each side of the larynx. These were the cause of the paralysis.

617-619 Medical Arts Building.

PELLAGRA WITH PSYCHOSIS AND MINIMAL PHYSICAL SYMPTOMS

VERNON L. EVANS, M.D., AURORA, ILL.

The prompt response of pellagra to nicotinic acid therapy, as recently reported by a number of writers,[1] affords an excellent therapeutic test and may show the presence of pellagra in many cases of hitherto undiagnosed disease. The following case is believed to bear this out:

REPORT OF CASE

A single woman aged 38 had been unable to work for eleven years owing to weakness, headaches, undernourishment and anorexia. There had been no ingestion of drugs. The patient had believed herself subject to disease of the stomach and gallbladder, and there were numerous physical complaints.

Aug. 1, 1938, she entered a general hospital for study and treatment. There were no "mental" symptoms at that time. While she was there, complete anorexia developed, and the patient became suspicious, hostile, disoriented and violent. When members of her immediate family came to see her she did not recognize them.

August 12 the patient was transferred to Mercyville Sanitarium. On admission she was disoriented, resistive and combative. She seemed to be having vivid visual hallucinations.

The patient was emaciated. She resisted every step of the examination. She had to be held on the scale, so that the determination of weight was only approximate, at about 73 pounds (33 Kg.); the height was 5 feet 1½ inches (156 cm.). The pulse was rapid but could not be counted accurately because of the continuous twisting and pulling of the patient. The temperature was normal and the blood pressure 130 systolic and 95 diastolic. The mucous membrane of the mouth and tongue was rather more red than normal but not markedly so. The extremities were thin and there were a few scattered bruises. There was no dermatitis. The patient flopped about in a haphazard manner and had to be forced to do nearly everything, but there was apparently no incoordination, as she struck at those about her with fair accuracy. The reflexes could not be tested, owing to the resistiveness and rigidity of the patient. The physical examination gave negative results otherwise.

The hemoglobin content was 12.8 Gm. (Sahli), the erythrocyte count 4,420,000 and the white blood cell count 7,400. Urinalysis gave negative results.

The patient refused all food and drink and required forced feeding.

August 15 she received 500 mg. of nicotinic acid in divided doses, placed in her feedings. This dose was given daily thereafter. The next day she took food voluntarily. The following day she conversed rationally but still was rather hostile and believed that she was being mistreated. She wrote a fairly intelligent letter home. At the end of four days she was perfectly rational in her conversation, became agreeable and cooperative and stated she was feeling much better.

1. Pellagra and Nicotinic Acid, editorial, J. A. M. A. **110**: 289 (Jan. 22) 1938. Spies, T. D.; Cooper, Clark, and Blankenhorn, M. A.: The Use of Nicotinic Acid in the Treatment of [illegible] (Feb. 26) 1938. Advances in the Treatment [illegible] Ann. Int. Med. **11**: 1760 (March) 1938.

Since then the patient has had the freedom of the building and grounds, and she has been friendly and cooperative. She has been eating well, and on Sept. 1, 1938, her weight was 85½ pounds (39 Kg.).

SUMMARY AND CONCLUSIONS

The case reported would probably have been classified as one of schizophrenia or toxic psychosis if it had not been for the therapeutic test afforded by the nicotinic acid. Drug intoxication was definitely ruled out. Careful inquiry failed to reveal any history of the taking of barbiturates or other sedatives prior to the onset of the psychosis. The only physical symptom of pellagra noted was the moderate glossitis and stomatitis. There was no diarrhea, and the patient after recovery reported only a tendency to constipation.

The clinical picture was of a patient who had suffered for several years from a psychoneurosis with anorexia nervosa and malnutrition. This had culminated in a severe psychosis, which promptly and dramatically responded to the administration of nicotinic acid, the antipellagra vitamin.

33 South Island Avenue.

Special Article

CONFERENCES ON THERAPY

TREATMENT OF CONVULSIONS

NOTE.—*These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students, and visitors.*

DR. HARRY GOLD: The subject of the conference today is the treatment of one of the most dramatic symptoms encountered in the practice of medicine, namely convulsions.

Two features characterize this symptom, and both have an important bearing on the problems of treatment. First of all, convulsions almost invariably present an emergency. Secondly, as a symptom the convulsion not only is a manifestation of disease but is in itself a menace to life; how serious a menace to life probably depends in part on the condition in the course of which the convulsions occur. In the pharmacology laboratory this fact can be readily demonstrated. For example, a fatal dose of camphor may cause convulsions during a period of many hours before death occurs. After a fatal dose of nicotine, however, death may occur following only two or three convulsions. That death is due in the latter case to the convulsions is clear from the fact that, if the convulsions are prevented or promptly arrested, the animal survives. It behooves us to give some thought to the question of how dangerous a convulsion in a given situation may be. Its treatment often involves heroic doses of drugs, and the danger of the treatment must be balanced against that of the convulsion itself. We need to consider therefore not only the general treatment of convulsive seizures but the special problems presented by the various and diverse clinical conditions in which convulsions occur. How some of these are managed and how the more important drugs are put to use most effectively in the treatment of convulsive states will be considered this morning.

I have here a list of the more common agents used in the management of convulsions, some of which will be discussed: ether, chloroform, chloral hydrate, paraldehyde, bromides, barbiturates, morphine, magnesium sulfate, calcium salts, hypertonic dextrose, vitamin D, parathyroid extract, dilantin and the ketogenic diet. Dr. Wolff will lead the discussion.

DR. H. G. WOLFF: The following remarks are based on the thesis that the convulsion is a symptom and should be treated as such. There are sixty or more known causes for the convulsion in man. We may therefore waive a discussion of the varieties and turn to the management of the convulsion itself. Most convulsions occur singly and the patient requires no further attention other than that which would be given to any one who has fallen to the ground and is having violent adventitious movements. This means protection from neighboring objects and protection of the tongue. It does not mean bruising the gums or knocking out teeth with instruments in an attempt to open the mouth. The patient should, when possible, be secluded from the crowd or family, often greatly disturbed by this dramatic incident. A dose of 60 mg. of soluble phenobarbital may be given intramuscularly. Commonly the patient will soon recover and be able to return to his home or go on with his work. If he does not he may be taken to a hospital to regain consciousness.

One warning: When planning in response to an urgent call for help to give an unconscious patient caffeine, see that it is not the unconsciousness that follows a convulsion, for under those circumstances it is obvious that the effect may be opposite from that desired.

Should convulsions occur in series, as they sometimes do in epilepsy, or in eclampsia or following drug intoxications, other steps must be taken. It is then desirable to put the patient in a dark quiet room and give intravenously from 180 to 300 mg. of soluble phenobarbital very slowly, so that the injection takes five minutes in all. If at the end of a half hour the patient is still quivering or having myoclonic jerks or has another seizure, an additional 60 mg. of soluble phenobarbital may be given slowly by the intravenous route. If necessary, the administration of 60 mg. doses may be repeated at half hour intervals until a total of 1.2 Gm. in twenty-four hours has been given. This may be considered the upper limit of safety.

As an alternate for the management of a series of convulsions, the following is suggested: a subcutaneous injection of 15 mg. of morphine sulfate and 0.5 mg. of scopolamine hydrobromide. As a second alternate ether anesthesia may be administered for one to two hours. However, the use of the barbiturates is in general preferred.

With regard to eclamptic convulsions some additional comments may be made. The management introduced by Stroganoff I will briefly outline. The patient in impending eclampsia, who has either had a convulsion or would seem to be about to have one, is placed in a dark quiet room and immediately given 15 mg. of morphine sulfate. One hour later the patient is given 2 Gm. of chloral hydrate by rectum if unconscious, in 100 cc. of physiologic solution of sodium chloride or, if alert, by mouth in an equivalent amount of milk. Three hours later 15 mg. of morphine sulfate is given once again; seven hours later 2 Gm. of chloral hydrate by mouth or rectum, thirteen hours later 1.5 Gm. of chloral hydrate, and finally, twenty-one hours later, 1.5 Gm. of chloral hydrate. This is an arbitrary program, and sodium bromide in equivalent amounts may be substituted for the chloral hydrate. It insures more

or less continuous sedation for about twenty-four hours, which is usually all that is needed.

Uremia usually offers the special problems of the treatment of nephritic patients, but the convulsions can be controlled when necessary by the procedures already outlined for the management of status epilepticus.

The prevention of convulsions is the second topic for consideration. I have mentioned before that there are many causes of convulsions, and after a careful search one is unfortunately often left with the diagnosis of idiopathic epilepsy or convulsions of undetermined origin. In such instances, or in case a cause is found that cannot be removed, one is obliged to proceed in a manner that will prevent or reduce the number of convulsions. How may this be done? The facts outlined in the accompanying table are true of convulsions in general.

What are the factors that increase the likelihood, and what are the factors that decrease the likelihood of convulsions? In this table those that prevent are on the left, and those that precipitate or increase the likelihood are on the right. Acidosis, produced by fasting, fat diet, ingestion of acids, such as mandelic acid, or acid-forming salts, such as ammonium chloride, breathing high carbon dioxide, low chloride, high calcium, normal sugar, low fluids reduce the likelihood; while high chloride, low calcium, hypoglycemia, and hydration increase the likelihood. Further, adequate sleep prevents, while inadequate sleep with fatigue acts as a precipitating factor; constructive emotions making for contentment prevent, while destructive emotions, tension, rage, resentment, frustration and boredom have the opposite effect. The factors of lesser clinical importance I will not discuss.

In the management of the patient the first five in the list are most important. If I were to guess about the relative value of the various factors in management I would say that the constructive emotions and sleep will rate about 40 per cent, attention to chemical factors including sedatives and water intake, perhaps 30 to 40 per cent, and all the other factors put together, about 10 per cent.

In the first place, patients who have only one or two convulsions a year are better off without sedation. Before drugs can be used with any satisfaction, three sets of facts should be known: The first concerns the problem of age: At what ages are convulsions most likely to occur? Most convulsions occur in the first twelve months of life. There is another peak in incidence at adolescence, and a third peak at age 60 or thereabouts. There are minor peaks at 7 and at 25. Second, when in the twenty-four hours in any given individual are convulsions most likely to occur? Fifty per cent of convulsions occur between 10 p. m. and 5 a. m., another 15 per cent between 5 a. m. and 9 a. m., and 35 per cent throughout the rest of the day. Also in this climate more convulsions occur in the darker or colder months than in the summer months. Lastly, in women convulsions are more apt to occur in association with menstruation, either before, during or after, than at other times.

We may now continue with the discussion of the management and prevention of attacks by the use of drugs. Phenobarbital may be given by mouth in amounts of 15, 30 or 60 mg. three times a day, no more being given than will keep the patient free or nearly free of convulsions. If phenobarbital cannot be tolerated, sodium bromide may be used in amounts of 0.3, 0.6 or 0.9 Gm. three times a day. Phenobarbital is best used in amounts not exceeding 60 mg. three times a day. If the patient is still having convulsions under those circumstances, it is recommended that sodium bromide be added to the evening or morning medication.

Sodium bromide has an advantage in that the amount of bromide may be easily determined in the blood. Because of the troublesome delirium that results from excessive ingestion of the drug, bromide should never exceed 125 mg. per hundred cubic centimeters of blood. Bromide has the disadvantage of producing an acne. Sometimes this can be overcome by the use of solution of potassium arsenite (Fowler's solution) given in amounts of 5 drops three times a day.

How to stop treatment: Sedative therapy should not be discontinued completely within two years of the time of the last convulsion. Moreover, it is important never to stop suddenly but always to reduce sedation gradually no matter what its nature.

DR. GOLD: Dr. Gordon will discuss some of the problems that arise in pediatric practice in connection with the treatment of convulsive states.

Convulsions

	Conditions Which May Tend to	
	Prevent Seizures	Precipitate Seizures
Acid-base equilibrium...	Acidosis by means of fasting, fat diet	
	Ingestion of acids or acid-forming salts	Alkalosis by means of ingestion of *alkali*
	Breathing high carbon dioxide	Hyperpnea "blowing off" carbon dioxide
Chemical constituents..	Low chloride	High chloride
	High calcium	Low calcium (tetany)
	Normal sugar	Hypoglycemia
Water balance.....	Dehydration	Edema
Sleep.....	Adequate (8-9 hrs.)	Inadequate—fatigue
Emotions.....	Contentment or satisfaction	Tension, rage, resentment, frustration, boredom
Oxygen.....	Rich supply	Poor supply
Permeability of tissues.	Decreased	Increased
Intracranial pressure...	Decreased	Increased
Intracranial circulation	Unimpaired	Impaired

DR. H. H. GORDON: If called over the telephone to treat an infant or child with convulsions, one may ask the mother to give her infant or child a warm tub bath. It is necessary that the room be warm and the infant may be carefully immersed in water at a temperature of approximately 90 F. for about five or ten minutes. The infant or child may then be taken from the tub and wrapped in warm blankets. There is a great deal of doubt concerning the efficacy of this measure, but it gives the frantic mother something to do while awaiting one's arrival. On arrival, if the infant or child is still having convulsions, it is advisable to administer some sedative, preferably after observing the nature of the convulsion. One may give chloral hydrate in a 5 to 10 per cent solution by rectum, administering from 0.2 to 0.3 Gm. for infants less than 6 months of age and from 0.3 to 0.6 Gm. for infants over 6 months of age, or one may give soluble phenobarbital hypodermically in doses of from 15 to 30 mg. as the initial dose. After administration of the sedative, information may be obtained from the mother and from physical examination which will give a clue to the etiology of the convulsions, and this in turn will guide further treatment.

Convulsions may be divided into several groups according to etiology. First are the convulsions that occur at the onset of acute infections. This represents

the largest group that are seen, and fortunately these convulsions tend to be self limited. As one might expect, it is in this group that one obtains the most salutary effect of the warm tub baths. In the treatment of these children a prominent pediatrician has recommended that the best method of procedure is to drive directly to the patient's home and then three times around the block before parking. By the time one arrives, the convulsion will have subsided. I think that until one learns to know those members of one's clientele that are apt to have convulsions at the onset of fevers it is probably more advisable to go directly to the scene and administer some therapy. Prompt use of antipyretics may prevent the high fevers which are frequently associated with convulsions. At the onset of a contagious disease, such as measles or with meningitis, convulsions may occur which last for three or four hours and do not respond to the customary doses of chloral hydrate or soluble phenobarbital. In such individuals one may have to resort to ether or occasionally to avertin with amylene hydrate given by rectum in doses of approximately 80 mg. per kilogram of body weight.

The second group of convulsions, tetany, are associated with a decrease in the ionized blood calcium. We see these convulsions in infants with rickets, particularly between the ages of 6 and 18 months. Tetany also occurs in younger infants—infants who are less than 3 months of age, and even in the newborn period. In this group there is usually no evidence of rickets, and because, in addition to a low calcium, a high blood phosphorus has been found, it has been suggested that these infants have transient hypoparathyroidism. Tetany occurs in association with alkalosis. When prolonged vomiting has taken place, with loss of chlorides, alkalosis may develop, with resultant decrease in ionization of calcium and symptoms of alkalotic tetany or "gastric" tetany. Finally there are the rare cases of spontaneous or postoperative hypoparathyroidism. In all these subjects the obvious remedy is to increase the blood calcium, and this can be done by the administration of calcium chloride. Usually it is given in a 10 per cent solution in milk, in an initial dose of from 2 to 4 Gm. for infants above 6 months of age, followed by from 1 to 2 Gm. every six hours thereafter. For infants of less than 3 months we give from 1 to 2 Gm. of calcium chloride as the initial dose, followed by 0.5 Gm. every six hours thereafter.

An occasional infant will vomit calcium chloride. One may then give calcium lactate. If calcium lactate is used, one has to give from one and a half to two times as much as of calcium chloride. This is for two reasons: In the first place, calcium lactate has less calcium per gram than calcium chloride. In the second place, calcium chloride is more effective in raising the ionized blood calcium. The chloride ion is absorbed more rapidly than the lactate, producing a tendency toward acidosis, and therefore to increased ionization of whatever calcium is available in the blood stream.

Occasionally one administers calcium parenterally, using calcium gluconate, 10 per cent solution, in doses of from 5 to 10 cc. intramuscularly. In small infants and infants with not very much adipose tissue it has been reported that parenteral calcium has left persistent hard nodules, so that parenteral calcium is not used unless oral administration is impossible because of incessant convulsions. The administration of vitamin D preparations in adequate amounts to prevent rickets has decreased the incidence of tetany. Tetany is now seen more rarely in association with rickets than previously, and more individuals are being reported with the disease in the group of younger infants.

Convulsions occur not infrequently in the newborn period. They may be associated with cerebral hemorrhage. Cerebral hemorrhage may be secondary to birth injury. Under such conditions sedatives are administered in the doses previously mentioned, and if a bulging fontanel exists a lumbar puncture may help reduce the frequency of convulsions. Intracranial hemorrhage may be a manifestation of hemorrhagic disease of the newborn, and if an infant shows a tendency toward bleeding anywhere else, a transfusion which stops the bleeding will stop the convulsions. Convulsions in the newborn may be in association with anoxemia due either to atelectasis or to congenital heart disease. In such infants the administration of oxygen will aid in stopping the convulsions.

In patients with congenital cerebral defects, convulsions may be recurrent, and in these the treatment will follow essentially the principles that Dr. Wolff has outlined for treatment of epilepsy.

Finally, there is one acute specific infection associated with convulsions in childhood, namely tetanus or lockjaw. In the treatment of tetanus excellent results have been obtained by the use of avertin with amylene hydrate in doses of from 80 to 100 mg. per kilogram of body weight, given as often as two or three times a day. Such treatment permits the peaceful administration of serum and parenteral fluids to an individual without inciting convulsions.

DR. GOLD: Dr. Milhorat will continue the discussion.

DR. ADE T. MILHORAT: I may first make a few remarks about some of the agents which have just been considered in the treatment of convulsions. There is a large group of barbituric acid compounds that are used in therapeutics. Their most important action is that of depression of the central nervous system. The degree depends on the size of the dose. Qualitatively their essential effects are similar. Some of the compounds, however, do show significant quantitative differences in potency. It takes more barbital than phenobarbital, for example, to produce similar effects. They also differ with respect to the duration of their action. Some of the barbiturates produce narcosis which may last as long as from twenty-four to forty-eight hours (barbital and phenobarbital); in the case of others, such effects may wear off within about a half hour. On the basis of safety there is little to choose between them, except that in the case of overdosage the more rapidly eliminated compounds provide an advantage. Barbital is eliminated from the body mainly by excretion in the urine. The other barbituric acid compounds that are generally available are, for the most part, broken down in the liver, none of the dose, or at most only a small part of it, being excreted in the urine. In their acid form the barbiturates are insoluble in water and are suitable only for oral administration. The sodium salts, however, are quite soluble and these are employed for intramuscular or intravenous injection. The Pharmacopeia describes the compound Soluble Barbital, which is barbital sodium, and Soluble Phenobarbital, which is phenobarbital sodium.

It should be remembered that the intravenous administration of these drugs is not without danger. Doses large enough to produce general anesthesia should be avoided. In general it would be wise not to exceed one

fourth of the anesthetic dose as the first injection, and additional smaller amounts may be given as necessary. Furthermore, an intravenous injection of these compounds should be made very slowly, since the rapid intravenous injection is likely to produce pronounced fall of the blood pressure. The danger in such cases is, of course, respiratory and vasomotor paralysis.

Ether is useful in controlling violent convulsions and has the advantage of the ease with which the depth of narcosis can be controlled. On the other hand, it requires such constant vigilance that its use becomes extremely difficult in cases in which pronounced depression is necessary over long periods of time.

The bromides have an interesting mode of action. They replace chlorides in all the tissues, which phenomenon appears to be of no particular significance to any but the tissues of the central nervous system. Their accumulation causes depression of the central nervous system, which varies with the dose. As one might expect, their excretion is hastened by the administration of chlorides. So it is well to limit chloride intake in order to maintain protracted bromide effects. There is no real difference between the sedative action of the various bromides, such as sodium, potassium or calcium bromide. On the whole, sodium bromide is perhaps preferable because the potassium ion is more toxic. One of the disadvantages of continued administration of the bromides is the rather frequent occurrence of acne.

Avertin with amylene hydrate is used by rectal instillation, has the advantage of being rapidly absorbed in that way, and in moderate doses of the order of about 40 mg. per kilogram produces fairly satisfactory and safe depressant effects. It is eliminated by the kidneys. This fact must be taken into account when its use is contemplated in patients with impaired renal function.

Chloral hydrate is among the older hypnotics and is not so popular at the present time. Its toxic effects are similar to chloroform and it is therefore unsuited for protracted administration. It is too irritant to be given in tablet form. Its solutions are also quite irritant and its taste is not pleasant. It is best given dissolved in a vehicle, such as aromatic elixir, and should be well diluted. It may also be given by rectum. It is eliminated by excretion in the urine in an altered form in combination with glycuronic acid.

In the short time remaining, I may say a few words regarding the treatment of convulsions due to poisoning by drugs, such as the local anesthetics, strychnine, camphor and picrotoxin. These all may cause death by paralysis of respiration, but the paralysis is not produced in the same way in all cases. We should keep this in mind in our treatment. The barbiturates can abolish the convulsions caused by cocaine, and this is useful because the convulsions have a damaging influence on respiration. It appears to be necessary to abolish the convulsions to afford protection. But it is an easy matter to do harm with the barbiturate because cocaine itself directly depresses the respiratory center and so do the larger doses of antidote. The case of strychnine convulsions is different. Strychnine causes increased reflex excitability, which fatigues the respiratory center as shown by Gold and Travell, and this hyperexcitability of the center rather than the convulsions plays the major role in causing cessation of respiration. Therefore depressant drugs, such as the barbiturates, ether or alcohol, can prevent the respiratory depression of strychnine even when they fail to abolish the convulsions. From the practical standpoint it is wise to maintain a state of moderate hyperexcitability in strychnine and cocaine poisoning so as to avoid overdosage with the depressant.

DR. GOLD: I am sorry to have to cut short the direct discussion. We should like to have as much time as possible for questions.

STUDENT: In a series of patients coming in with epileptic seizures, about what percentage have an organic lesion that can be demonstrated by the encephalogram or other diagnostic procedure?

DR. WOLFF: You are leaving out of consideration the group that have brain lesions that cannot be demonstrated by our available methods?

STUDENT: Yes.

DR. WOLFF: I am guessing, but I would say between 10 and 15 per cent have lesions that can be demonstrated with our available methods.

STUDENT: How effective is magnesium sulfate in the treatment of convulsions, particularly in the eclamptic?

DR. WOLFF: Very effective. I have left it out of my discussion because the agents I referred to probably have the most behind them in the way of experience. Magnesium sulfate is an excellent drug and may be used if you happen to like it. There is nothing against it.

STUDENT: Would you say something about the care of the tongue in convulsions?

DR. WOLFF: Most people do not need anything done to their mouths during a convulsion. The tongue usually falls back and out of the way of the teeth, yet it does not fall back far enough to cause asphyxia. As you look at the patient during a convulsion, keep "an eye" on the mouth, and color, but look especially for evidence that might be useful in localizing a lesion. Usually you are not called on to do anything more active than to sit at the side of the patient and prevent him from hurting himself, assuming the patient does not have a destructive or dangerous delirium. Moreover, you need seldom do anything about the tongue. It will take care of itself.

Was there some special aspect I did not touch on?

STUDENT: Yes, how about gags?

DR. WOLFF: The gag is a vicious instrument in my opinion. It is made of one or two tongue depressors held together with a piece of adhesive plaster on one end. The patient has this end put between the teeth, preferably between those in back. It is hoped that the teeth will close down on it. What often happens is that somebody has to force the jaws apart in order to get the gag in place. I do not think the apparatus is useful. If the tongue has already been caught between the teeth, the injury has been done.

DR. MILHORAT: May I ask Dr. Gold a question? What is your feeling regarding the use of paraldehyde in convulsions? The drug is used very little, yet it would appear to be a relatively safe drug.

DR. GOLD: Perhaps paraldehyde ought to be used more commonly than it is, although it does possess a very disagreeable odor. It can be given in large doses with safety. There are some interesting reports on the use of paraldehyde in obstetric analgesia; in one of these they used doses of the order of 8 drachms (30 cc.) of paraldehyde by rectal instillation together with 1.5 cc. of benzyl alcohol to reduce the effects of the irritant action of the paraldehyde on the rectum.

Smaller doses have been repeated as necessary during the day, and they appeared to be both effective and safe.

DR. J. E. DEITRICK: Is the action of paraldehyde by rectum as rapid as soluble phenobarbital intravenously? In a patient coming into an accident room with convulsions, isn't it difficult to insert a rectal tube and give paraldehyde in that way?

DR. GOLD: I quite agree. On the other hand is it not just as difficult to make an intravenous injection of soluble phenobarbital during convulsions? A subcutaneous or intramuscular injection is, of course, much easier but the effects are delayed.

DR. DEITRICK: I should like to ask another question about paraldehyde while we are on the subject. Would you recommend its being given intravenously? I had it given intravenously in two cases with striking therapeutic effects.

DR. GOLD: Paraldehyde has been used intravenously, and I see no reason why it cannot be given intravenously. One should be certain of its purity, since ordinary commercial samples often contain significant amounts of acetaldehyde. The dose is about 4 cc. in a 10 per cent solution of physiologic solution of sodium chloride.

Are there any other questions?

STUDENT: Should the occasion arise in a digitalized patient in which it is necessary to give large doses of calcium, is there any contraindication for its use?

DR. GOLD: No, there is no absolute contraindication, but it ought to be given more cautiously because of the possibility that a fully digitalized subject may be more susceptible to calcium. The fear of the combination arises chiefly from experiments in animals. These show a synergism between the two drugs when toxic doses of each are given. Recent experiments in our laboratory, however, show no serious effects of the combination when both drugs are given in amounts comparable to even the highest amounts used therapeutically.

STUDENT: I should like to ask Dr. Gordon what other procedures are used in children with laryngeal spasm during the convulsion.

DR. GORDON: Occasionally laryngeal intubation will be used, if the oral, intramuscular or intravenous administration of calcium has not relaxed the laryngospasm. This is very rare.

DR. MILHORAT: A great deal is said about the occurrence of skin rashes in patients who are given phenobarbital, but isn't it a fact that in the large series of patients with epilepsy who are treated in our neurologic clinic with continued administration of phenobarbital these have occurred only in probably one or two instances?

DR. WOLFF: Yes, cutaneous manifestations are uncommon in our series of patients with convulsions.

STUDENT: Could I ask Dr. Wolff about the present evaluation of ketogenic diets in epileptic seizures.

DR. WOLFF: They are expensive and inconvenient for the patient. There are instances in which the ketogenic diet is found to be useful.

STUDENT: You mean you would use it after trying the other methods?

DR. WOLFF: My own practice is to reduce the fluids to between 500 and 800 cc., to have the patients take a diet which approximates two calories of fat to one of carbohydrate, which is not a ketogenic diet, but one which is not so expensive or not so inconvenient. The total calories are 2,600. In addition, I give phenobarbital, starting with 15 mg. three times a day, and raise it 15 mg. per dose daily until I get the desired effect. In short, I use an eclectic method.

DR. GOLD: I believe it was stated here that the adult during a convulsion is given a dose of 60 mg. of phenobarbital, and Dr. Gordon gives an infant a dose of 30 mg. Infants may then receive as much as one half of the dose given to adults. If the weight of the infant is taken at about 30 pounds and Dr. Wolff's adult at about 150 pounds, the infant receives 2.5 times as much as the adult on the basis of their weights. Is the infant more tolerant to phenobarbital than the adult, or is the dose larger than necessary for infants? That is the first question. The second is: Why does phenobarbital receive preference over other barbituric acid compounds? Do you believe it more effective or safer?

DR. WOLFF: One assumes that patients will take some sedative drug for years. Certainly 60 mg. three times a day is probably not the limit of tolerance of a patient, but when you appreciate that the drug is going to be taken daily for years in amounts of 180 mg. it does seem to be about as much as should be given.

DR. GOLD: From experiences I have had, I believe children commonly receive excessive doses of sedatives. As to adults, suppose that 1 grain three times a day is not adequate to control the convulsions; is it not all right to give them 2 or even 3 grains?

DR. WOLFF: I dare say. If 60 mg. three times a day is inadequate, I prefer to supplement the drug with bromides, i. e. 60 mg. of phenobarbital three times, plus whatever additional bromide is necessary. From a toxicologic standpoint it would probably be reasonable to give greater amounts of phenobarbital if desired.

STUDENT: Why phenobarbital and not some other barbituric acid compound?

DR. WOLFF: It just happens to be one that has behind it a tradition of use. It is an agent that I happen to have more experience with than any other. It is a relatively inexpensive form of barbiturate, and its action is moderately prolonged. I think there is no other justification. I feel there are probably other barbiturates that would be quite as good if one happened to have a similar amount of experience with them.

DR. MCKEEN CATTELL: Doesn't your statement about the barbiturates apply to other sedatives as well? Isn't the selection of different sedatives in various conditions to a large extent a matter of fortuitous experience with certain compounds rather than a matter of superior merits of one over another?

DR. WOLFF: I think that is correct.

DR. GOLD: Are there any other questions?

Avertin with amylene hydrate was recommended for the control of convulsions in doses of from 80 to 100 mg. per kilogram. The literature reports deaths from avertin with amylene hydrate used in doses of the order of 120 mg. per kilogram, and I am wondering whether one is not likely to get into trouble from time to time with such doses as from 80 to 100 mg.

DR. GORDON: My experience with the use of avertin with amylene hydrate in doses of from 80 to 100 mg. has been limited to several patients with tetanus, to whom it was given for as many as fourteen continuous days without difficulty, and with great relief of symptoms. Further experience might make for more cautious recommendations.

Council on Physical Therapy

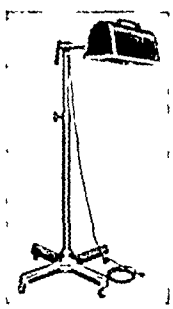
THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

HOWARD A. CARTER, Secretary.

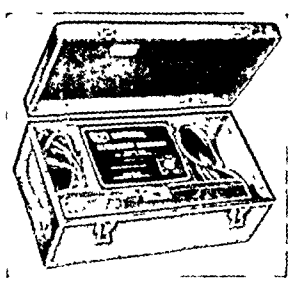
LIEBEL-FLARSHEIM GENERAL BODY QUARTZ LAMP AND ORIFICIAL ULTRA-VIOLET GENERATOR ACCEPTABLE

Manufacturer: The Liebel-Flarsheim Company, 303 West Third Street, Cincinnati.

The Liebel-Flarsheim General Body Lamp and Orificial Lamp are of the so-called "cold" type of mercury glow quartz ultraviolet generators. They are low pressure, low temperature



Liebel-Flarsheim General Body Quartz Lamp.



Liebel-Flarsheim Orificial Ultraviolet Generator

burners. One burner is intended for general body irradiation, the other a quartz tube for orificial application. The general body type has a self-contained head, including burner and transformer, and adjustable stand. It is finished in crinkled black lacquer with chrome plated metal trim. The detachable head is equipped with a handle for transportation. When used with the stand, it may be rotated through a circle or extended 18 inches toward the side and then rotated. It is adjustable in height from 34½ to 63½ inches. The head is spring counter-

Apparent Relative Photographic Intensity of L-F General Body Quartz Lamp No. V-101 June 9, 1938

Wavelength Angstroms	Log_{10} I	I
2,536	3.25	1,780
2,650	0.65	4.5
2,804	0	1.0
2,894	.40	2.5
2,967	1.05	11.2
3,022	.73	5.4
3,130	1 80	63.

balanced for ease of adjustment. The whole is mounted on rubber tired, ball bearing casters with supporting feet heavily weighted to prevent tipping.

The professional type burner is placed in front of the transformer in the hood. This avoids exposure of the patient to contact with high voltage leads. The transformer delivers 2,000 volts on open circuit. The current to the burner under full load is 18 milliamperes. A 5 foot quartz tube burner is arranged in rectangular grid, evacuated and filled with gas and liquid mercury. It will produce a first degree erythema after two minutes' exposure at a distance of 20 inches, according to the firm.

The Liebel-Flarsheim General Body Lamp has a 26 watt input at 115 volts, 60 cycles; after it is run for some time, until stable, it has 138 microwatts per square centimeter output at a distance of 20 inches measured from the centers of the tubes for all wavelengths less than 3,200 angstroms. Over 95 per cent of the energy is concentrated at 2,536 angstroms (measured in air).

The relative values of the intensity of the lines are given in the accompanying table. The absolute measurements were made with a calibrated thermopile.

The orificial unit is supplied in a keratol-covered carrying case, which houses the transformer and also accommodates the separate burner case, the orificial applicator and supply cable. It operates on 110 volt, 60 cycle, alternating current outlet. The orificial lamp consists of a quartz tube of a fairly orthodox shape and size, held in a molded bakelite handle. The transformer delivers about 2,000 volts on open circuit; on full load the current to the lamp is 10 milliamperes. An orificial applicator of universal size to facilitate treatments to accessible orifices is supplied.

The ultraviolet output is constant and capable of producing a first degree erythema in approximately ten seconds on contact application to the skin, according to the firm. On a patient with extremely hypersensitive skin this time is reduced to about five seconds.

The output of the orificial lamp at 1 inch distance with 1 inch of tube exposed and the rest covered is 3,280 microwatts per square centimeter. The input is 9 watts at 115 volts, 60 cycles, the lamp being run until stable before measuring.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Liebel-Flarsheim General Body Quartz Lamp and Orificial Ultra-Violet Generator for inclusion in its list of accepted apparatus.

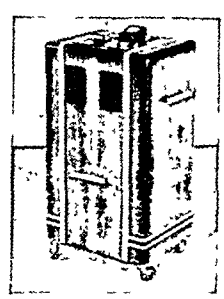
WESTINGHOUSE SHORT WAVE ENDOTHERM, MODEL 400, ACCEPTABLE

Manufacturer: Westinghouse X-Ray Company, Inc., Long Island City, N. Y.

The Westinghouse Short Wave Endotherm, Model 400, is recommended for medical and minor surgical purposes. It is housed in a dark walnut cabinet. Pad, cuff and cable electrodes and felt spacers are part of the standard equipment. A treatment drum with floor stand is available. Surgical accessories may be procured for minor surgical procedures commonly employed in office practice. The instrument panel has two separate controls, one for pad, cuff and surgical procedures and one for the coil technic. There are six patient outlets, a power output meter and main switch to operate tubes, and forced draft ventilating fan.

The tubes are employed in a tuned plate, tuned grid circuit. The wavelength is 22.4 meters. Both the cable and pad circuits are inductively coupled to the oscillator circuit. For surgery there is a separate terminal receiving its energy through a small fixed condenser. A voltage regulator is supplied to compensate for the variations in the voltage of the supply line.

After four hours of continuous operation, the temperature rise in the outside windings of the transformer was 50 C. The power input under full load showed a maximum of 1,140 watts. A power output of 400 watts by the lamp load method claimed by the firm was verified. The tubes are protected against overload by a safety regulator.

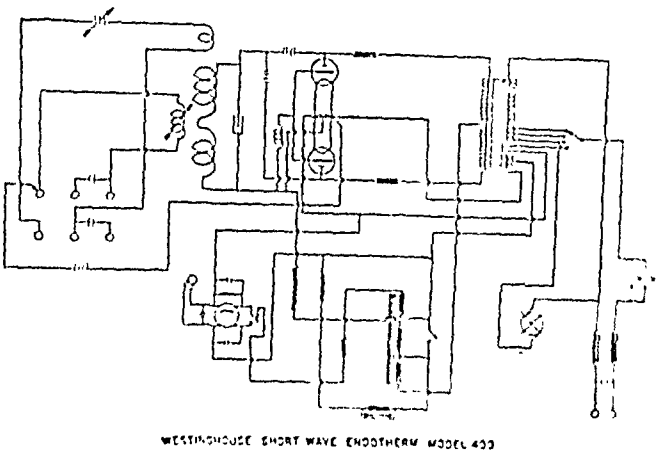


Westinghouse Short Wave Endotherm, Model 400.

In order to substantiate heating claims made for the unit, the firm submitted tests performed by a qualified investigator. Details are given here:

Two male subjects, weighing 190 and 195 pounds respectively, were used in these tests. Twelve observations were taken, six with the inductive method and six with the double cuff technic. The technical procedure for making the tests was that recommended by the Council. A cannula was introduced at the midpoint of the thigh and inserted for a distance of 2 inches or until the femur was encountered. Temperature readings were made by means of thermocouples inserted into the cannula and constructed of constantan and copper placed in hypodermic needles. The constant junction was kept at 0 C. by placing in a vacuum bottle filled with crushed ice. The couples were calibrated in a constant temperature oil bath against a mercury thermometer certified and

calibrated by the National Bureau of Standards. Potential differences were read from a Leeds and Northrup portable potentiometer of requisite sensitivity. The accuracy is within plus or minus 0.1 degree F.



WESTINGHOUSE SHORT WAVE ENDOTHERM MODEL 400

Schematic diagram of circuit.

For the coil technic three turns of the cable around the thigh were employed, equally spaced by a wooden holder. It was approximately 5 inches from the upper to the lower edge of the cable. A spacing between the cable and skin of three-fourths inch was achieved by felt and one layer of toweling. The cannula was spaced between the outside turns of the cable. Then the machine was operated to the tolerance of the patient.

When the cuff technic was used, these electrodes were 15 inches by 3¼ inches in diameter. They were applied equidistant above and below the cannula and averaged from 7½ inches to 9¼ inches center to center. Felt spacing, from one-half to three-fourths inch, was placed between the skin and the cuff.

Six tests were also run with the treatment drum technic. The electrode was applied over the thigh as close to the skin and nearly over the point where temperatures were read as the inserted thermocouples would permit. The patient's tolerance to heat on the skin was the control of intensity of current.

Orificial tests were run to indicate the amount of pelvic heating available with this unit. Temperatures were taken for this treatment with a large Chapman electrode. This was drilled through so that the thermometer could be passed and the mercury bulb brought into contact with cervical tissue. A large short wave pad was used as the dispersive electrode. This was spaced approximately 3 inches from the lower abdomen by means of a folded turkish towel. The thermometer was left in place throughout the treatment.

The unit was tried out clinically by a reliable investigator, who reported that it operated satisfactorily.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Westinghouse Short Wave Endotherm, Model 400, for inclusion in its list of accepted devices.

Average Temperatures of Six Observations, Coil Technic

Deep Muscle		Oral	
Initial	Final	Initial	Final
99.9	106.7	98.7	99.2

Average Temperatures of Six Observations, Cuff Technic

Deep Muscle		Oral	
Initial	Final	Initial	Final
100.4	104.7	98.8	99.1

Average Temperatures of Six Observations, Treatment Drum Technic

Deep Muscle		Oral	
Initial	Final	Initial	Final
98.5	105.4	97.9	98.3

Average Temperatures of Six Observations, Orificial Technic

Temperature at the following times:	
5 minutes	101.8
10 minutes	106.8
20 minutes	109.5
30 minutes	109.8

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

PAUL NICHOLAS LEECH, Secretary.

RACÉPHEDRINE (RACEMIC EPHEDRINE), RACÉPHEDRINE HYDROCHLORIDE (RACEMIC EPHEDRINE HYDROCHLORIDE) AND RACÉPHEDRINE SULFATE (RACEMIC EPHEDRINE SULFATE)

The manufacturer of a brand of synthetic racemic ephedrine hydrochloride asked the Council to adopt a nonproprietary name. The Committee on Nomenclature voted that the name Racéphedrine be recognized as a nonproprietary designation for the racemic ephedrine base and that Racéphedrine Hydrochloride be the name for racemic ephedrine hydrochloride. The Council voted to include Racéphedrine Hydrochloride in New and Nonofficial Remedies. The Council has under consideration Racéphedrine and Racéphedrine Sulfate.

DANGER OF INTRA-URETHRAL INJECTION OF SOLUTIONS OF LOCAL ANESTHETICS

The Council has again considered a report on local anesthetics, particularly in reference to the continued reports of severe reactions following the intra-urethral injection of solutions of various local anesthetics.

The Council has long warned against the danger of such procedures. In the report of the Committee for the Study of Toxic Effects of Local Anesthetics (THE JOURNAL, March 15, 1924, p. 876) it was pointed out that "Urethral injections constitute a special source of danger. Absorption does not take place readily from the bladder or bronchial mucous membrane." It was recommended that solutions of "local anesthetics should not be injected into the urethra when trauma or stricture exists." In spite of these warnings, however, the attention of the Council office is being called more or less frequently to recurrences of toxic effects due to intra-urethral injection of solutions of local anesthetics. It was pointed out in the Council consideration that in this type of tragic accident often the occurrence is wholly unexpected and it may follow the injection of a much smaller amount than the same patient had previously had without notable symptoms. It therefore seems advisable to repeat the warning as to the use of local anesthetics intra-urethrally.

The Council directed that all manufacturers of Council accepted local anesthetics which may be used for intra-urethral injection be required to include a suitable warning of the dangers of the intra-urethral injection in the presence of trauma, or where it is likely to occur at the time of injection, when the present advertising is reprinted, and in any event within one year of the date of notification.

PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

YELLOW BONE MARROW CONCENTRATE (THE ARMOUR LABORATORIES)

In 1934 Armour and Company presented Yellow Bone Marrow Concentrate, stated to be "a concentrated oily solution of the physiologically active substances which promote the formation of granulocytes and are present in the yellow bone marrow of cattle and other domestic animals used for food by man." It is proposed for use in agranulocytosis.

The firm submitted a number of case reports collected by the Sprague Memorial Institute and the Department of Pathology of the University of Chicago and stated that reports were being prepared for publication. Reference was made to the paper of Griffin and Watkins which appeared in THE JOURNAL, Aug. 23, 1930, page 587. At that time the firm was informed that the Council could not report satisfactorily on the product because of *the paucity of clinical evidence.*

Since that time the consideration was held in abeyance until the firm in 1938 reopened the matter and submitted reprints of two articles (Marberg, C. M., and Wiles, H. O.: Granulocytopoietic Fraction of Yellow Bone Marrow, *Arch. Int. Med.* **61**:408 [March] 1938 and Marberg, C. M., and Wiles, H. O.: Yellow Bone Marrow Extracts in Granulocytopenia, THE JOURNAL, Dec. 11, 1937, p. 1965).

The Council's referee reviewed this evidence carefully and summarized the situation as follows:

1. The beneficial effect of Yellow Bone Marrow Concentrate (The Armour Laboratories) has been evidenced in six cases of what seems to be true agranulocytic angina. Clinical improvement including increase in neutrophils followed the administration of this substance.

2. While this clinical evidence leaves something to be desired, it is recognized that the difficulty in securing cases is real.

The Armour Laboratories was asked to make certain revision of its proposed advertising for the product and did so. The Council felt, however, that the evidence was not sufficient to warrant acceptance at this time and voted to hold consideration in abeyance pending the development of future corroborative evidence for the place of Yellow Bone Marrow Concentrate in the treatment of agranulocytosis, meanwhile authorizing publication of the foregoing preliminary report.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

RACÉPHEDRINE HYDROCHLORIDE. — Racemic Ephedrine Hydrochloride. — *d-l*-Ephedrine Hydrochloride. — $C_{10}H_{17}ON.HCl$.

Action and Uses.—The same as those of l-ephedrine hydrochloride.

Dosage.—From 30 to 50 mg.

Racéphedrine hydrochloride (Synthetic racemic ephedrine hydrochloride) is a colorless, crystalline substance. The melting point of crystalline racéphedrine hydrochloride is 187-188 C. (microscopic heating stage). The solubility in water is 1 part of substance in 4 parts of water at 20 C; in alcohol, 1 part of substance in 25 parts of 95 per cent ethyl alcohol. The aqueous solution is neutral to litmus.

Weigh out, accurately, 0.2 Gm. of racéphedrine hydrochloride and transfer over phosphorus pentoxide in an Abderhalden dryer at 80 C., exhaust to 2 mm. of mercury vacuum and dry for five hours: the loss of moisture is not more than 2 per cent. Incinerate 0.2 Gm. of racéphedrine hydrochloride, accurately weighed, and previously dried to constant weight, as described: no residue remains. Dissolve approximately 0.5 Gm. in 20 cc. of water: the aqueous solution of racéphedrine hydrochloride does not show optical activity; the solution gives the test for chlorides, U. S. P. XI, page 449; on addition of ammonia water or sodium carbonate solution, no turbidity takes place. Slightly acidify 3 cc. of the solution with diluted hydrochloric acid (0.5 cc.): no precipitate occurs on the addition of barium chloride solution (0.5 cc.) *(sulfates).*

Dissolve approximately 0.02 Gm. of racéphedrine hydrochloride in 1 cc. of concentrated sulfuric acid: no color is formed. To approximately 0.2 Gm. dissolved in 1 cc. of distilled water add 2 cc. of 20 per cent sodium hydroxide solution: oily drops are formed. Extract the milky turbid mixture twice with 25 cc. of ether: the (racéphedrine) base crystallizes out on slow evaporation of the ether; after recrystallization from ether and drying at room temperature over phosphorus pentoxide in a slight vacuum, the racéphedrine melts at 76 C.

Dissolve approximately 0.2 Gm. of racéphedrine in 8 cc. of distilled water; add 1 drop of 2 per cent copper sulfate solution and 1 cc. of 20 per cent sodium hydroxide solution: a purple color is developed which, on shaking with ether, is partially dissolved in the ether layer; evaporate the ether layer: a pinkish residue remains. Place a drop of a 5 per cent solution of racéphedrine hydrochloride on a microscopic slide and introduce a small solid particle of potassium oxalate at an edge of the drop: a crystalline precipitate immediately appears. The form of the crystals allows the making of distinction between optically active and racemic forms of ephedrine hydrochloride. The former gives bundles of needles and prisms; the latter, thin plates.

Transfer 0.5 Gm. of racéphedrine hydrochloride, accurately weighed and previously dried over sulfuric acid for five hours, to a separator. Add 10 cc. of distilled water and 5 cc. of ammonia solution. Extract with 6 portions of ether, using 25 cc., 20 cc., 15 cc., 15 cc. and 15 cc., respectively. Collect the extracts in a beaker; evaporate the ether on a water bath to about 5 cc.; add 10 cc. of alcohol, previously neutralized to bromthymol blue solution with 0.1 normal hydrochloric acid. Titrate the excess acid back with 0.1 normal sodium hydroxide: the racéphedrine (base) found is not less than 80 per cent nor more than 82.5 per cent of the weight of racéphedrine hydrochloride. (One cc. of 0.1 normal hydrochloric acid is equivalent to 0.0165 Gm. of racéphedrine.)

IMMUNE GLOBULIN (HUMAN) (See THE JOURNAL, Nov. 5, 1938, p. 1767).

National Drug Company, Philadelphia.

Immune Globulin (Human).—Prepared by the method of McKhann from fresh, healthy human placentas; the globulin is reprecipitated to reduce the content of other tissue proteins and hemoglobin. Merthiolate 1: 4,000 is added as a preservative. Each lot is tested for sterility by the method of the National Institute of Health. Marketed in 2 cc. and 10 cc. glass syringes with chromium steel needles for parenteral use.

RABIES VACCINE (See New and Nonofficial Remedies, 1938, p. 402).

Medical Arts Laboratory, Inc., Oklahoma City.

Rabies Vaccine (Killed Virus): Also marketed in packages of seven vials, each vial containing 2 cc.

NICOTINIC ACID (See THE JOURNAL, July 2, 1938, p. 27, and the Revised Supplement to N. N. R. 1938, p. 22).

Mead's Nicotinic Acid Tablets, 20 mg.

Prepared by Mead Johnson and Company, Evansville, Ind. No U. S. patent or trademark.

Nicotinic Acid-Abbott.—A brand of nicotinic acid-N. N. R.

Manufactured by the Abbott Laboratories, North Chicago, Ill. No U. S. patent or trademark.

Nicotinic Acid Tablets, 50 mg.-Abbott.
Nicotinic Acid Tablets, 100 mg.-Abbott.

STOVARSOL (See New and Nonofficial Remedies, 1938, p. 100).

The following dosage forms have been accepted:

Stovarsol Tablets, 0.1 Gm.
Stovarsol Tablets, 0.05 Gm.

ESTRONE-ABBOTT (See THE JOURNAL, Oct. 1, 1938, p. 1301, and Revised Supplement to New and Nonofficial Remedies 1938, p. 12).

The following dosage form has been accepted:

Ampoules Estrone, 0.5 mg. in oil, 1 cc.: Each cubic centimeter contains estrone 0.5 mg. (5,000 international units) in sesame oil.

IODEIKON (See New and Nonofficial Remedies, 1938, p. 218).

The following dosage form has been accepted:

Iodeikon Emulsion Powder-Abbott.—Iodeikon 33.34 per cent in a vehicle composed of malt sugar 37.30 per cent, powdered cocoa 18.30 per cent, tartaric acid 8.25 per cent, vanillin 2.20 per cent, saccharine 0.54 per cent and menthol 0.07 per cent.

Prepared by the Abbott Laboratories, North Chicago, Ill.

DIGITALIN, "GERMAN" (See New and Nonofficial Remedies, 1938, p. 191).

Hypodermic Tablets Digitalin (German, Pure, Merck), 0.00065 Gm. 1/100 grain-Upjohn.

Prepared by The Upjohn Company, Kalamazoo, Mich. No U. S. patent or trademark.

OLD TUBERCULIN (See New and Nonofficial Remedies, 1938, p. 408).

Eli Lilly & Co., Indianapolis.

Tuberculin Ointment (Wolff)-Lilly.—A culture of human tubercle bacilli (H-37) of four weeks' growth in glycerin broth, sterilized, evaporated to one-fifteenth its original volume and triturated to a smooth mixture, to which 0.4 per cent of phenol is added as a preservative. *It is proposed for* use as a tuberculin test by the patch method. Marketed in packages of one 2 Gm. collapsible tube with a 2 Gm. control tube.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 1, 1939

A NEW DIETARY FACTOR

Failure of nicotinic acid to prevent pellagra-like symptoms in rhesus monkeys, and the successful prevention of rhesus pellagra by a wholly unknown nutritional factor, recently reported by Day,[1] Langston[2] and others of the University of Arkansas, call attention to the possibility that there may be more than one etiologic type of pellagra. About three years ago the Arkansas biochemists placed monkeys on a presumably adequate diet containing all known vitamins. This diet consisted of a mixture of casein, polished rice, ground whole wheat, cod liver oil, ascorbic acid, salt mixture and sodium chloride. All monkeys fed this diet developed anemia, leukopenia, gingivitis, diarrhea, anorexia and loss of weight. The ulcerations of the gum were apparently identical with the typical oral lesions in human pellagra. Death invariably occurred in from one to three months.

Following the well confirmed successes of nicotinic acid in preventing black tongue in dogs, nutritional panmyelophthisis in rats and human pellagra, the Arkansas investigators tested the effects of the addition of nicotinic acid to their routine deficiency diet. From 10 to 50 mg. of nicotinic acid was added to the daily diet. All normal monkeys whose deficiency diet was thus supplemented with nicotinic acid developed the characteristic oral lesions and nutritional cytopenia, the condition terminating fatally in the same period as that shown by control monkeys receiving only the deficiency diet. The nicotinic acid had no demonstrable effect on the pellagra-like oral lesions in these animals. In later tests the Arkansas physiologists found that 1 mg. of riboflavin added to the daily diet will not prevent the development of pellagra in monkeys, nor will a combination of nicotinic acid, riboflavin and thiamin appreciably affect the course of this deficiency disease. If the daily deficiency diet is supplemented by 10 Gm. of dried brewers' yeast, however, or by 2 Gm. of liver extract, normal body growth and a normal blood picture are maintained over long periods.

They conclude from these results that monkeys require some factor contained in yeast or in liver extract in addition to the factors commonly recognized as part of the vitamin B complex. For this unknown nutritional factor they tentatively suggest the name "vitamin M." Attempts to isolate and identify this new antipellagra "vitamin" are now in progress in their laboratory.

1. Day, Paul L.; Langston, William C., and Darby, William J.: Proc. Soc. Exper. Biol. & Med. **38**: 860 (June) 1938.
2. Langston, William C.; Darby, William J.; Shukers, Carroll F., and Day, Paul L.: J. Exper. Med. **68**: *923 (Dec.) 1938.*

THE TENTH PAN AMERICAN SANITARY CONFERENCE

The interest, enthusiasm and occasional criticism aroused by the eighth International Conference of American States at Lima, Peru, last December offer opportunity to point out that when effective Pan American cooperation in most matters was still a dream of statesmen and scholars it had already been achieved in the field of public health, largely under medical auspices. International cooperation of the American republics in this field began at the quarantine conference held in Washington in 1881. There Finlay first enunciated guardedly his hypothesis that the stegomyia mosquito was the vector of yellow fever, then causing one epidemic after another from the United States to Argentina and Chile. When finally this concept was confirmed in 1900 by the American army commission headed by Reed, control methods were revolutionized and yellow fever was eradicated from all its old foci at seaports.

The Pan American Sanitary Conferences[1] came into being as a result of the foresight of such physicians as Finlay himself, Wyman, Liceaga, Guiteras, Ulloa, Cruz and Moore. They were actually created by virtue of a resolution adopted by the second International Conference of American States in Mexico City (1901-1902). Permanent organization both of the conferences and of the Pan American Sanitary Bureau was effected at the first International Sanitary Conference of the American Republics in Washington in October 1902.

The aims pursued by the originators of these meetings are reflected in the remarks of President Theodore Roosevelt to the members of the second conference (1905):

> I believe that we on this hemisphere are going to teach all the world by an object lesson that separate nations can dwell together in absolute harmony and can unite in a common effort, as you are uniting here, for the betterment of the conditions affecting them all. In medical matters, in industrial, scientific, social, artistic matters, each of our countries has something to learn from the others, and I welcome you as colleagues and as teachers. Of course, I could not overstate the all-importance of the medical profession in modern life and, as it is now becoming, in modern international life. In the old days a plague that happened in one country was regarded as only concerning that country until it spread over into some other helpless nation to defend itself against it. Now we recognize that the stamping

1. *Publications on the history* and achievements of the Pan American Sanitary Conferences may be secured by addressing the Pan American Sanitary Bureau, Washington, D. C.

out of disease, the warfare against unhygienic conditions, must be done by the organized effort of the medical profession of all the countries joined together.[2]

At the tenth conference Dr. Hugh S. Cumming said that each of these conferences, held at different capitals of American republics, has left behind it a series of concrete accomplishments which have inevitably advanced the great cause which brought about their organization, namely the improvement of public health in all the American republics through international cooperation so far as this is practicable and advisable. The first Pan American Sanitary Conference (1902) set the standard for the succeeding ones and established the Pan American Sanitary Bureau; the second (1905) formulated the Washington Convention, which was in effect the first Pan American Sanitary Code; the third (1907), fourth (1909-1910) and fifth (1911) consolidated the territory gained and opened new paths for the future; the sixth (1920) provided for the publication of the *Boletín*, which has come to be one of the most important as well as one of the best known activities of the Sanitary Bureau; the seventh (1924) approved the Pan American Sanitary Code, a model international health charter enjoying the distinction of being the first Pan American treaty unanimously ratified by all the republics and of serving as a standard for subsequent international agreements on the same subject; the eighth (1927) and ninth (1934) charted new courses and expanded the functions of the Pan American Sanitary Bureau to the magnitude they have reached. The tenth maintained in full this splendid tradition, imposing new duties on the bureau and recommending new ways of Pan American cooperation.

The problems faced by international public health workers and discussed by them at sanitary conferences have been of pressing importance since the earliest days. Yellow fever was a grave problem confronting the 1881 conference; it was still a problem at the 1938 conference because, while stringent control measures have practically eliminated it from ports and cities and from the danger of maritime transmission, the presence of jungle yellow fever in certain areas combined with the increase of air travel renders this ancient enemy still a possible menace. As the great international scourges of former years—cholera, plague, smallpox, typhus—are brought under control, the importance of other problems comes to light. Malaria, venereal diseases, intestinal parasites, tuberculosis, leprosy, water supply and sewage disposal, milk supply, nutrition, mother and child welfare, social insurance, bacteriologic and biologic standards and similar matters now appear on the programs of the Pan American Sanitary Conferences and the Pan American Conferences of National Directors of Health, the latter also held under the auspices of the bureau.

The tenth Pan American Sanitary Conference was not only successful but also made history along several lines: through the completeness of its program; through the size and technical character of the delegations attending; through the presence for the first time of women delegates; through the extensive scientific reports submitted there both by the various countries and by the Rockefeller Foundation and the Pan American Sanitary Bureau, which permitted the formation of an exact idea of the developments which have taken place since the previous meeting and the progress already achieved or now under consideration;[3] through the enthusiasm which inspired those in attendance; through a health exhibition which so far had never been a feature of these assemblies; through the unanimity of sentiment on the part of the representatives of Pan American public health in the face of questions considered, some of them of the greatest importance; and through the sensible and very practical judgment which, as a rule, guided the discussions.[4] Only one republic (Paraguay) was unable to send representatives. The directors of health of the majority of the twenty-one republics were present, and with them professors of hygiene and experts on such varied themes as bacteriology and biology, venereology, dietetics, tropical medicine, pediatrics and puericulture, tuberculosis, maritime and aerial quarantine and, finally, public health teaching and health administration in general.

The Pan American Sanitary Bureau,[5] which has its headquarters in Washington, D. C., has been a constantly increasing force in international public health since its reorganization in 1920. It maintains traveling representatives, including physicians and sanitary engineers, who visit the various republics from time to time at the request of the national authorities to lend their advice and assistance in dealing with public health problems such as health administration, plague, water supply and sewage disposal, and mosquito surveys; it acts as a consulting agency, publishes a monthly bulletin of public health information with articles in the four official languages (Spanish, French, Portuguese and English), with a circulation of about 9,000 in Latin America, as well as weekly statistical reports and transactions of Pan American Sanitary Conferences, and has a library including more than 400 medical and public health journals from Latin America. The tenth Pan American Sanitary Conference approved several amendments to the constitution of the bureau, one of them recommending an increase in the maintenance quotas to permit the expansion of activities recommended by international public health interest as well as by the Conference for the Maintenance of Peace, Buenos Aires, 1936, and previous sanitary conferences. This increase

2. Transactions, Second International Sanitary Conference, Washington, 1905, p. 223.

3. Boletín de la Oficina Sanitaria Panamericana, January 1939, p. 29, February, p. 112.

4. See resolutions in the Boletín, January 1939, p. 11.

5. Cumming, Hugh S.: Development of International Cooperation Among Health Authorities of the American Republics, Am. J. Pub. Health **28**: 1193 (Oct.) 1938; M. Surgeon **83**: 1 (July) 1938; Report to Tenth Pan American Sanitary Conference; Annual Report of the Director, Pan American Sanitary Bureau, 1938.

was also recommended by the eighth International Conference of American States in December, and several countries have already ratified the proposal.

The director of the Pan American Sanitary Bureau, Dr. Hugh S. Cumming, Surgeon General, Retired, U. S. Public Health Service, who has served as director of the bureau since 1920, was present at the conference and for the fourth time was reelected to that position, heading the directing council, each member of which belongs to a different republic. The eleventh Pan American Sanitary Conference is scheduled to be held in Rio de Janeiro, Brazil, in about four years and will be preceded by the fourth Pan American Conference of National Directors of Health, to be held in Washington in 1940.

The American Medical Association lent effective and practical support to this movement through the publication of its Spanish Edition for a period of ten years (1918-1928).[6] Congress has now under consideration the recommendations made by an interdepartmental committee appointed by the President for extending Pan American cooperation, especially in cultural fields, including medicine and public health. Such cooperation does much to establish good will and to overcome prejudices founded on ignorance.

Current Comment

PREVENTION OF SERUM SICKNESS

The "induced erythema" reported by Voss and Hundt[1] of children's clinic in Heidelberg, Germany, is interesting. Blood was drawn from patients convalescent after the serum sickness which in their hands so often follows routine administration of diphtheria antitoxin. From 1 to 10 cc. of the resulting convalescent human serum was injected intravenously into diphtheria patients from one hour to eight days after routine administration of antidiphtheritic horse serum. The German investigators report that if the intravenous convalescent serum injection is made within the first twenty-four hours allergic symptoms are not noted. If the injection is delayed till the third or fourth day, however, an "inverse anaphylactic reaction" is produced, a generalized erythema, which usually disappears within a few hours. Delayed until the eighth day, i. e. until the end of the usual incubation period of spontaneous serum sickness, the "inverse anaphylactic reaction" is of "shocklike intensity." Following the induced erythema, the patients are completely desensitized to horse proteins. Spontaneous serum sickness does not develop in these desensitized children after completion of the usual incubation period. These results suggest that intravenous injection of convalescent human serum can be safely made on the third day following administration of diphtheria antitoxin and, thus given, may serve as a successful method of preventing serum sickness. The nature of the presumptive "secondary antibody" in the convalescent human serum, however, has not yet been determined. Fatalities have not thus far been reported from German hospitals as a result of this clinical research.

6. The former editor of the Spanish edition, Dr. A. A. Moll, is secretary of the Pan American Sanitary Bureau and editor of its bulletin.

1. Voss, A. E., and Hundt, O.: Ztschr. f. Immunitatsforsch. 94: 281 (Nov.) 1938.

SYPHILIS IN NORTH CAROLINA

According to a recent press release from the North Carolina State Board of Health, 4,000 new cases of syphilis are being reported from that state each month as compared with 6,000 annually before the control campaign was launched. It is concluded therefore that the estimate of 300,000 cases of syphilis in the state made by the survey method was probably not exaggerated. Since the population of North Carolina is approximately 3,500,000, about 9 per cent of all the people in the state on the basis of this statement are syphilitic. Apparently also according to this release 48,000 new cases of syphilis develop each year and are actually reported. Irrefutable evidence of this startling conclusion should be offered before it is made the platform on which to plead for additional federal funds.

DANGERS OF PREGNANCY AFTER LONG INTERVAL

The impression that women who have long intervals between pregnancies are especially prone to obstetric difficulties and complications induced Ballard[1] to study 100 unselected pregnant women who had not had a pregnancy for ten or more years. Ninety per cent of the cases were from the clinic group, and the other 10 per cent from the private practices of the clinic staff. There were fifty-six white and forty-four colored patients, approximately the reverse ratio of the white and colored patients on the service. Eighty-five were between 26 and 40 years of age and forty were between 31 and 35. The average interval between pregnancies was 12.38 years and in 80 per cent the elapsed period between the present and previous pregnancies was between ten and fourteen years. Two patients, however, reported intervals of twenty-one years. Altogether, these women had experienced 207 previous pregnancies, fifty had one prior pregnancy each and one woman had had nine previous pregnancies. Eighty-seven patients delivered full-term living children and there were twelve deliveries of premature children, including one set of twins. There was one therapeutic abortion for hyperemesis gravidarum, and one premature stillbirth attributed to prolapse of the uterus and acute gonorrheal infection. The average duration of labor of ninety-three patients who were allowed to go into labor was slightly over twelve hours. Sixty-two patients had labor of ten hours or less, while twelve had twenty-four hours or more of labor. There were sixty-eight normal spontaneous deliveries, six cesarean sections and seventeen forceps deliveries. The uncorrected fetal mortality was 7 per cent, and one mother died of embolism. It was also concluded that white women are more apt to have long intervals between pregnancies than colored women;

1. Ballard, Margaret B.: A Study of 100 Pregnancies Occurring Ten or More Years After the Last Previous Pregnancy, Bull. School of Medicine University of Maryland 23: 63 (Oct.) 1938.

there is no difference between the longer and shorter intervals as to labor complications; the number of full term living children is slightly increased; the average duration of labor is increased about one fourth; operative deliveries are increased more than three times; the ratio of male to female babies is increased over the average, and the complications of toxemia, cardiovascular disease, placenta praevia, abruptio placentae, prolonged labor, uterine inertia, cervical dystocia and secondary anemia are definitely increased. She concludes, therefore, that the woman who has not had a pregnancy for ten years or more should receive the best antepartum care and should be delivered in a hospital and under expert obstetric supervision.

ALLERGIC CAPILLARY IMPERMEABILITY

The recent demonstration that in certain allergic conditions endothelial permeability is so reduced as to prevent the mechanical removal of colloidal irritants from local tissues introduces unsuspected complexity in theories of allergy. Direct microscopic study of capillary permeability was made possible by the synthesis of numerous relatively nontoxic colloidal dyes of known molecular size. If these dyes are injected intravenously into laboratory animals the rate of diffusion through the capillary endothelium is readily followed microscopically through a transparent window inserted in the skin or macroscopically by placing a drop of liquid petrolatum on the skin so as to make it semitransparent. Joyner and Sabin [1] of the Rockefeller Institute applied the latter technic to a study of the rate of outward diffusion of dyes or dye removal by capillary absorption after endermic injection. They found that if 0.025 cc. of a 2.5 per cent solution of pontamine sky blue, for example, is injected intracutaneously into a normal guinea pig the injected dye rapidly spreads outward through the regional lymphatics and interstitial tissue spaces. Rapid absorption by the local capillaries evidently takes place, since the color is soon demonstrable on all mucous surfaces. If the same volume of dye solution is injected endermically into a guinea pig during the allergic stage of experimental tuberculosis, however, this rapid outward diffusion and capillary absorption do not take place. The blue remains sharply localized for several hours and the mucous surfaces are not colored. The rate of local lymph formation is apparently markedly reduced. A similar though less pronounced reduction in endothelial permeability was demonstrated in guinea pigs during the allergic stage of streptococcic infection. During the late nonallergic or moribund stage of experimental tuberculosis the injected dye spreads outward more rapidly than in normal controls. There would seem therefore to be a terminal breakdown in the acquired allergic capillary impermeability. That injected antigens are localized at the site of injection in allergic animals was first emphasized by Opie,[2] who interpreted this localization as due solely to specific antibody reactions. The nonspecific mechanical factor demonstrated by the Rockefeller Institute physiologists, therefore, may lead to a reinterpretation of this conclusion. The strict localization of nonspecific irritants at the site of injection may conceivably lead to misleading local diagnostic inflammatory reactions.

1. Joyner, A. L., and Sabin, F. R.: J. Exper. Med. **68**: 325 (Sept.) 1938.
2. Opie, Eugene L.: J. Immunol. **17**: 329 (Oct.) 1929.

RIBOFLAVIN DEFICIENCY IN MAN

Sebrell and Butler,[1] by means of a daily ration similar to that used by Goldberger and Tanner, succeeded in producing a cheilosis in ten of eighteen women in from ninety-four to 130 days after the beginning of the experiment. The diet consisted of cornmeal, cowpeas, lard, casein, flour, white bread, calcium carbonate, tomato juice, cod liver oil, syrup, and syrup of iodide of iron. On the eighty-sixth day of the experiment all were started on a weekly supplement of 30 mg. of crystalline ascorbic acid and 3.3 mg. of crystalline thiamin chloride. The lesions began as a pallor of the mucosa of the lip in the angles of the mouth without involvement of the buccal mucosa. Maceration and superficial transverse fissures appeared within a few days. These lesions resembled those described as perlèche. Four of the ten women with cheilosis were treated with daily doses of 1 or 2 mg. of synthetic crystalline riboflavin for from three to ten days, after which the dose was changed to 0.025 mg. per kilogram of body weight. All lesions completely disappeared after five, six, twenty and forty-seven days of treatment respectively. Another four women with cheilosis were treated for five days with 100 mg. of nicotinic acid daily. At the end of five days the lesions in all four were definitely worse and treatment with riboflavin was started. The lesions completely disappeared in three of the women after twelve, thirteen and twenty-four days of treatment but were so much more serious in the fourth that after forty-nine days the daily dose of riboflavin was increased to 0.05 mg. per kilogram of body weight. Thereafter the symptoms receded rapidly. One woman was treated with 100 mg. of nicotinic acid for forty-three days, at the end of which time, the lesions still being present, riboflavin was added to the diet followed by complete healing within ten days. The remaining woman developed the typical skin lesions of pellagra beginning thirty-six days after the experiment began and they were allowed to progress for forty days longer. After thirty days on 30 mg. of nicotinic acid daily these lesions were completely healed, although the cheilosis remained twenty-one days after the skin lesions of pellagra had completely healed and was not controlled until after riboflavin had been administered. These interesting observations, while preliminary in nature, indicate that a specific clinical syndrome can be experimentally produced and that the early developing cheilosis can be alleviated by the administration of small doses of crystalline synthetic riboflavin but not by nicotinic acid. The authors therefore believe that the condition may be considered a manifestation of riboflavin deficiency and suggest that the term ariboflavinosis be added to the nomenclature of vitamin deficiency diseases as a designation for the clinical condition due to deficiency of this vitamin.

1. Sebrell, W. H., and Butler, R. E.: Riboflavin Deficiency in Man, Pub. Health Rep. **53**: 2282 (Dec. 30) 1938.

ORGANIZATION SECTION

GRADUATE MEDICAL EDUCATION

A PROGRESS REPORT OF THE FIELD STUDY ON GRADUATE MEDICAL EDUCATION IN THE UNITED STATES BEING CONDUCTED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

PENNSYLVANIA

The Medical Society of the State of Pennsylvania is committed to its responsibilities to keep its members who live away from medical centers abreast of the progress of medicine. In 1933, when Dr. Donald Guthrie was president of the state society, postgraduate seminars were planned by the society and conducted by instructors of the medical schools in Pennsylvania. County medical societies desiring to organize classes of not less than twenty-five physicians communicated with the chairman of the committee on postgraduate education. In 1934 this committee consisted of six members with the former president of the state society as chairman, and he continues to act in this capacity.

Physicians who registered for the seminars indicated their preference of subjects for discussion. A series of six seminars given one day each week for six consecutive weeks was the usual plan. A registration fee of $10 was charged, which included the cost of a luncheon or dinner. Each instructor was allowed an honorarium of $25 as well as railroad fare. The state medical society agreed to absorb unavoidable deficits. Each county society which elected the plan was responsible for local organization, registration and other arrangements.

During 1934 six postgraduate seminars were held in medicine, gynecology and obstetrics, and roentgenology. In addition a course in physical therapy was presented over five successive days. Total registration for these seminars was 592. Six counties participated during the first year.

After this preliminary experience a definite procedure was established for securing the interest of county medical societies throughout the state. It was recommended that a seminar committee be appointed in each county society and also a subcommittee responsible for assigning subjects to teachers, for financial arrangements and for other local particulars. The state society committee listed the names of several hundred faculty members of the medical schools in Pennsylvania who were available for extension teaching. From this list county societies selected appropriate subjects and instructors. It was recommended that each seminar consist of three parts: a clinical ward class, didactic instruction and round table discussion. When more than twenty-five physicians subscribed for a course, it was possible to extend the series for more than six seminars. Hospitals were used as meeting places whenever possible. Graduate programs were not designed to take the place of regular county medical society meetings.

In 1935 approximately 640 practicing physicians participated in various seminars held throughout the state. In every section the program proved to be successful and no expense was incurred for the state medical society.

In 1936 the Pennsylvania State Department of Health offered, in cooperation with the state medical society, postgraduate institutes in obstetrics and pediatrics for practicing physicians. The state medical society's commission on maternal welfare and committee on pediatric education cooperated with the health department in making arrangements. Institutes in obstetrics and pediatrics were organized in forty-five towns throughout the state. These were financed with federal funds, and honorariums of $50 were paid instructors from the medical schools of Pennsylvania, in addition to travel expenses. The choice of subjects and speakers and many of the details connected with this program were arranged by the health department, which notified physicians that full day sessions would be held with three speakers on obstetrics or three on pediatrics. Lectures were mimeographed in pamphlet form and distributed to physicians who had enrolled. Three institutes were given in pediatrics and three in obstetrics. No registration fees were charged.

In 1937 the educational program in obstetrics and pediatrics was continued in several sections of the state. The general plan and arrangements for instruction were as noted for 1936 with the exception that only county medical societies which requested the programs were included, and six lectures were given on one day on both subjects. Approximately 300 practicing physicians received some graduate training in pediatrics and obstetrics during the year.

The chairman of the state society's commission on maternal welfare, Dr. James S. Taylor, has attempted during the past year to determine the number of hospitals in the state in which 500 or more obstetric patients are delivered annually. In hospitals with adequate clinical teaching material, conferences of members of the staff with other practicing physicians review maternal mortality statistics and other related data. These conferences are open to all physicians in the community and are designed for the purpose of determining the cause of each maternal and infant death. There are now eight centers throughout the state where such conferences are held. Obstetric conferences were begun in Philadelphia approximately three years ago, where meetings have been held once each month.

In December 1937 Dr. Thomas H. A. Stites was engaged as field secretary for the committee on graduate education of the state medical society. He visits officers of each county medical society in order to stimulate the interest of practicing physicians in graduate medical education, attends regular meetings of each county medical society and discusses the state society's program with members of local committees concerned with medical education. Whenever a county medical society does not have a sufficient number of members to warrant engaging instructors to give a series of lectures and clinics, it is urged to join with another county society in a cooperative program. When a county has shown sufficient interest in graduate education to organize a course, all further details concerning it are left entirely to local physicians.

Since the work of the field organizer began, courses have been given in twenty counties of the state outside of Allegheny, Dauphin and Philadelphia counties. Approximately 857 practicing physicians have participated and about 300 more in seven other sections of the state are planning to attend graduate seminars this year. Subjects that have been demanded most frequently are cardiology, obstetrics, pediatrics, cardiovascular-renal disease, neurology, gastro-enterology, internal medicine, syphilis, allergy, dermatology and diabetes. The graduate program has been largely self supporting and there have been few deficits for the state medical society.

The Medical Society of the State of Pennsylvania supports a library with a librarian in attendance in the building of the society at Harrisburg. An exchange has been set up with other state medical societies, so that journals and proceedings may be obtained as well as reprints for distribution to physicians practicing throughout the state. Approximately 60,000 reprints are available. For the year that ended in August 1938 there was a total of 319 loan packages distributed to physicians.

The Philadelphia County Medical Society organized its first postgraduate institute in 1936. Since then one has been held annually in a local hotel during March or April. Dr. Rufus S. Reeves is chairman of the committee on postgraduate institute. Every year one or two subjects are chosen for complete

discussion by instructors of the medical schools of Philadelphia and invited speakers. As many as seventy speakers sometimes participate in one institute. Cardiovascular-renal disease, diseases of the chest and respiratory tract and diseases of the digestive tract have been considered. The next annual program will be devoted to the blood dyscrasias and metabolic diseases. Scientific and technical exhibits are a part of the institute.

The institute was attended in 1936 by 564 individuals from thirteen states, in 1937 by 715 from seventeen states and two foreign countries, and in 1938 by 1,787 from thirty-six states and eleven foreign countries. A registration fee is charged, excepting for members of the Philadelphia county society; 802 of the 2,360 members of the society registered in 1938. There were 107 other Pennsylvania physicians who attended.

A library is maintained by the Philadelphia County Medical Society in its building. This library, which now contains 3,549 volumes and seventy-seven periodicals, has a librarian in attendance and is available not only to physicians practicing in Philadelphia but also to graduate students, medical students and nurses as well. During 1937 and 1938 there were 2,545 visitors.

In 1926 the Allegheny County Medical Society started a series of graduate courses of the extension type, patterned after those of the Kings County Medical Society of Brooklyn. A committee on graduate education consisting of five members was appointed to arrange and supervise graduate courses, to determine the fee for each course, to prepare and distribute announcements with the aid of the society's executive secretary and to make these activities self supporting. Allegheny's program for graduate medical education has been described by Dr. W. H. Robinson in the *American Medical Association Bulletin* (**29**:20 [Feb.] 1934).

Intensive courses were conducted also in which clinical material available in Pittsburgh was used, so that practicing physicians in the vicinity might have the opportunity to learn by actual experience and demonstration. Subjects which have been presented include neurology, pediatrics, roentgenology, ophthalmology, obstetrics, urology, pharmacology, physical therapy, gynecology and various aspects of internal medicine. From 1926 to 1934 six series of from six to eight courses each were given in local hospitals with a total registration of 314.

The Committee on Graduate Education of the Allegheny County Medical Society now consists of six members, two from the University of Pittsburgh School of Medicine and four from the county medical society, as well as two ex officio members. Since 1934 fifty or more practicing physicians have registered each year for graduate training. In 1938 sixty registered for the course of instruction in pneumonia. Courses which have proved most popular are pediatrics, ophthalmology, proctology, gynecology, obstetrics, physical therapeutics and gastro-enterology. Whenever possible, bedside teaching is emphasized and practicing physicians are given the opportunity to examine patients. Instructors are selected from the membership of the county society. Approximately 2,500 announcements are mailed to physicians in western Pennsylvania.

A cooperative postgraduate course in industrial hygiene was given at the University of Pittsburgh School of Medicine in October 1938 under the auspices of the county society and the medical school's department of industrial hygiene. Dr. T. Lyle Hazlett, director of the course, was assisted by five lecturers and other guest speakers. Subjects included traumatic surgery, toxicology of solvents, physiologic effects of industrial gases and metals, dermatoses and occupational health hazards. Three industrial plants in the vicinity of Pittsburgh were studied. There were thirty-three physicians registered, representing nineteen industries. A fee of $50 was charged. A mimeographed copy of the lectures was provided for each registrant.

During 1939 courses will be offered by the Allegheny county society in neurosurgery, clinical electrocardiography, proctology, gynecology, diseases of the ear, nose and throat, endocrinology and genito-urinary disease. Registration is limited in some courses. The registration fee for each is $10. Illustrated lectures, clinical demonstrations and, in some, laboratory instruction are included.

The Harrisburg Academy of Medicine has held a postgraduate medical assembly in Harrisburg each May for the past five years. The membership of the academy is approximately 160, and the attendance at each annual meeting varies from 150 to 500. Usually six guest speakers conduct the one day program. They are provided with travel expenses. A registration fee of $1 is charged each physician, and a copy of the proceedings of the medical assembly is given each registrant. Subjects of current interest are selected. In twelve sections of the state outside of the metropolitan areas similar one day graduate programs are provided.

The University of Pennsylvania Graduate School of Medicine, in addition to long courses in basic clinical studies, offers short personal courses in several subjects. These include cardiology, parasitology and tropical medicine, allergy and diabetes mellitus for practicing physicians, and neuropathology, clinical psychiatry, clinical biologic neurology and psychiatry, slit lamp microscopy and ophthalmic pathology for special students. Each course has limited registration and a fee. The course in clinical biologic neurology and psychiatry is designed for the members of the medical staffs of mental hospitals in Pennsylvania. It was given during October, November and December 1938. Registration was limited to ten.

During July 1938 the Pennsylvania Hospital of Philadelphia conducted a graduate course which included clinics, ward rounds, lectures, demonstrations and discussions on the various services of the hospital. A registration fee of $150 was charged, which allowed members of the staff who gave instruction honorariums of $5 or $10.

During 1938 one week of intensive courses in syphilis was given in Philadelphia for practicing physicians, in cooperation with the Pennsylvania State Department of Health. Facilities of the Hospital of the University of Pennsylvania and of the Pennsylvania Hospital were used. Discussions of the pathogenesis and laboratory and clinical aspects of syphilis, technic and interpretation of treatment, and methods of controlling the disease were included.

The Mercy Hospital, Philadelphia, has given a five day series of lectures each April since 1933. The series is designed for Negro physicians, dentists, medical students and graduate nurses. In April 1938 such subjects as pediatrics, neurology, obstetrics, otology, odontology, syphilis, otolaryngology and a symposium on diabetes were included. Members of the Philadelphia County Medical Society assist in the program each year. At the last session there were approximately sixty registrants.

The Pennsylvania Tuberculosis Society is cooperating with the Medical Society of the State of Pennsylvania in an effort to develop an organized program for continuing the education of the profession and of the public in tuberculosis. Tuberculosis committees are being organized in county medical societies throughout the state. A physician is provided by the tuberculosis association to visit county medical societies to discuss laboratory tests and the clinical aspects of the disease. A motion picture sound film on "Diagnostic Procedures in Tuberculosis" has been utilized by medical societies in several sections of the state. Scholarships are offered to physicians for graduate study in tuberculosis.

Of the 13,205 physicians in the state, 9,040 are members of the Medical Society of the State of Pennsylvania. The society is notably generous in its policy of providing, without cost to its component societies, speakers representing its various disease control committees, such as cancer, pneumonia, diabetes, appendicitis, syphilis and maternal mortality.

STATE MEDICINE IN WASHINGTON

The Bellingham Eagles Lodge in the state of Washington has announced its intention to undertake a campaign for a state medicine act involving the "passage of a law providing medical treatment for citizens of the state at state expense." The Bulletin of the King County Medical Society for June 6, 1938, expresses the opinion that:

> While it is doubtful if the type of medical service which has so long been sponsored by the Eagles' organization will ever be in very wide demand, nevertheless, this movement on the part of this one organized group should be watched carefully.

THE IMPORTANCE OF POSTGRADUATE MEDICAL EDUCATION

Abridgment of an address read by George Morris Piersol, M.D., Philadelphia, at the ninetieth anniversary of the Philadelphia County Medical Society, Jan. 27, 1939.

It is eminently fitting that we should direct our attention to the question of postgraduate medical education on this, the ninetieth, anniversary of the Philadelphia County Medical Society. Long aware of the importance of postgraduate study, our society has been a pioneer in this field of activity, which at present is engaging the interest of medical educators and medical societies throughout this country. The practical problem which is an outstanding challenge to the medical profession and medical education today is how to devise effective methods which will afford practicing physicians the opportunities for adequate postgraduate study and, having provided such facilities, to induce physicians to utilize them. In this way and in this way alone can we hope to make available to the people of this country the ever increasing benefits of modern medical knowledge.

Without legislative coercion or even the advice of economists, the various medical groups, on their own initiative, have set up properly constituted boards for the certification of specialists. This movement had its inception in such highly specialized groups as the ophthalmologists, the otolaryngologists and the neuropsychiatrists and within the last few years has been extended so as to embrace all clinical subdivisions of medicine, including now the internists and the general surgeons. The requirements laid down by these certifying boards are so exacting that those who seek special certification must present satisfactory evidence of adequate training in the medical sciences as well as in their particular field.

Weekly Roster and Medical Digest 34: 781-783 (Feb. 11) 1939.

In the past there has been a tendency to regard postgraduate medical education as something detached and apart from the broad question of medical training. From an educational point of view the different phases in the training of a physician should be looked on as a coordinated whole. Every step in the sequence of a medical education, premedical studies, the medical school, the years in a hospital as an intern and later as a resident or fellow, on through the period of general practice and postgraduate training, leading in some instances to specialism, should have as its objective one underlying and dominant aim, namely the proper and continued training of physicians well qualified to cope successfully with the health needs of the country. The more widespread such a concept of medical education becomes and the more uniformly such a program is adopted, the greater will be the improvement in the quality of medical service furnished by us. When, as the result of further progress in all aspects of medical education, the medical care of the people of this country is placed on a more satisfactory and efficient basis, many of the criticisms that are sometimes leveled at the medical profession will be silenced.

It is important for a society such as ours, which rightfully undertakes to guide and influence medical thought, to be ever mindful that the basic factor underlying continued confidence in the medical profession is education sufficiently broad in scope to include graduate as well as undergraduate training. Therefore in developing an adequate educational program every consideration should be given to postgraduate medical education, opportunities for which should be made readily available to the practicing physician through the well organized efforts of medical schools, hospitals and medical societies.

OFFICIAL NOTES

ADDRESSES BY OFFICIAL STAFF

DR. MORRIS FISHBEIN:

April 1—*University of Illinois Students*, Y. M. C. A., Chicago.
April 2—Phi Delta Epsilon, Knickerbocker Hotel, Chicago.
April 3—Vanderbilt University School of Medicine, Nashville, Tenn.
April 4—Nashville Academy of Medicine, Nashville, Tenn.
April 12—Columbia University, New York.
April 13—Princeton University, Princeton, N. J.
April 14—Yale Political Union, New Haven, Conn.
April 15—American Association for Social Security, New York.
April 15—Consumer Institute, Scarsdale, N. Y.
April 16—Phi Delta Epsilon, Cleveland.
April 18—Chicago Dental Society, Chicago.
April 19—Foreman's Club, Dayton, Ohio.
April 21—Virginia Medical Society, *Richmond*, Va.
April 23—Frances Shimer Junior College, Mount Carroll, Ill.
April 25—Sight Saving Council, Cleveland.
April 25—Western Reserve University Medical School, Cleveland.

MR. JACK LAUX:

April 26—Temple Isaiah Israel Seniors Forum, Chicago.

DR. R. G. LELAND:

April 6—Women's Bar Association of Illinois, Chicago.
April 14—Seventh Councilor District Medical Society Meeting, Williamsport, Pa.
April 17—Garfield Park Business Men's Association, Chicago.

DR. W. W. BAUER:

April 1—Tenth District Ohio Field Army, Columbus, Ohio.
April 5—Woman's Club, Charleston, W. Va.
April 11—Huntington College, Montgomery, Ala.
April 12—Federation of Women's Clubs, Dothan, Ala.
April 13—Polytechnic Institute, Auburn, Ala.
April 20—Lions Club, Chicago.
April 24, 25—Conference State and Territorial Health Officers and Officers of Public Health Service, Washington, D. C.

DR. PAUL A. TESCHNER:

April 2—Woman's Auxiliary, Will-Grundy County Medical Society, Joliet, Ill.
April 12—Vocational Conference, DeKalb, Ill.
April 12—Sixth Street Parent-Teacher Association, Geneva.
April 17—Delano School Parent-Teacher Association, Chicago.
April 18—Indiana Tuberculosis Association, *Indianapolis*.

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 2 p. m. eastern standard time (1 p. m. central standard time, 12 noon mountain time, 11 a. m. Pacific time).

Changes in this time will be necessary to take into consideration daylight saving time. Announcement of this change will appear in advance in THE JOURNAL. Owing to network conflicts the Chicago broadcast will not occur at 1 p. m. on Wednesday but there will be a rebroadcast from a recording over Station WENR at 8 o'clock each Monday evening. The program broadcast each Monday will be identical with the network program of the preceding Wednesday.

It has been necessary to curtail the length of the series by omitting the last two programs, which would have been broadcast June 14 and June 21. The series, therefore, will end with the broadcast scheduled for June 7.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

April 5. Don't Believe Everything!
April 12. Learning to Live.
April 19. "Accidents Don't Just Happen—"

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Change in Status.—S. 795 has been reported to the Senate, without amendment, with a recommendation that it pass, proposing to authorize an appropriation of $11,580,000 annually to enable each state to establish, extend and improve services for educating children who are crippled, blind, partially seeing, deaf, hard of hearing, defective in speech, cardiopathic, tuberculous or otherwise physically handicapped, and who for their education require an expenditure of money in excess of the cost of educating physically normal children.

Bills Introduced.—S. 1843, introduced by Senator Bailey, North Carolina, contemplates the assignment of medical officers of the Public Health Service for duty on vessels of the Coast and Geodetic Survey and provides that all commissioned officers, ships' officers and members of the crews of the vessels of the United States Coast and Geodetic Survey, including those on shore duty and those on detached duty, whether on active duty or retired, and all dependent members of families of such personnel shall be entitled to medical, surgical and dental treatment and hospitalization by the Public Health Service in the same manner and to the same extent as are now or may hereafter be provided by law and regulations for officers and enlisted men of the United States Coast Guard and their dependents. S. 1899, introduced by Senator Harrison, Mississippi, provides that there shall be in the Public Health Service a commissioned medical officer to be known as the Assistant to the Surgeon General and who shall perform such duties as the Surgeon General may prescribe and shall act as Surgeon General during the absence or disability of the Surgeon General. The Assistant to the Surgeon General, while serving as assistant, shall have, it is proposed, a rank in the Public Health Service which shall correspond to that held by a brigadier general in the United States Army. H. R. 5026, introduced by Representative Reece, Tennessee, proposes that all acts conferring compensation and hospitalization benefits on veterans of the World War shall be extended to include veterans who served on the Mexican border as members of the Regular Army or National Guard from June 1916 to April 1917 and who received honorable discharges. H. R. 5038, introduced by Representative Terry, Arkansas, proposes, among other things, to authorize an annual federal appropriation of such amount as may be necessary to enable each state to furnish financial assistance to needy incapacitated individuals.

DISTRICT OF COLUMBIA

H. R. 5221, introduced by Representative Bolles, Wisconsin, provides that retired members of the police and fire departments of the District of Columbia shall receive necessary medical or surgical services, medicines and hospitalization for illnesses or disabilities reasonably calculated to be the outgrowth of injuries received or disease contracted in line of previous active duty. H. R. 5238, introduced by Representative Nichols, Oklahoma, proposes to regulate the practice of optometry in the District of Columbia. The practice of optometry is defined to be the "application of optical principles through the use of mechanical methods and devices in the examination of the human eye for the purpose of ascertaining visual defects, and the determination of proper lenses for the aid and relief thereof."

STATE MEDICAL LEGISLATION

Illinois

Bills Introduced.—S. 241 proposes to limit licensure in the healing arts to citizens of the United States. H. 498 proposes that whenever in a civil or criminal proceeding issues arise on which the court deems expert evidence desirable, the court may, on the request of either party to the proceeding, appoint one or more experts, not exceeding three on an issue, to testify at the trial. Either party to the proceeding, however, may call expert witnesses provided reasonable notice is given the adverse party of the name and address of the experts to be called.

Michigan

Bills Passed.—The following bills passed the house March 23: H. 145, proposing to authorize the organization of corporations to operate nonprofit hospital service plans whereby hospital service may be provided by any hospital or group of hospitals with which such corporations have contracts to such of the public as become subscribers to the plans entitling each subscriber to stated hospital care; and H. 215, proposing to authorize the organization of corporations to establish, maintain and operate nonprofit medical care plans, whereby medical care is provided at the expense of the corporation to such persons or groups of persons of low income as become subscribers to such plans under contract which entitle each such subscriber to definite medical and surgical care, appliances and supplies, by licensed physicians in their offices, in hospitals and in the home.

Minnesota

Bill Passed.—H. 853 passed the house March 22, proposing to prohibit, except on the written prescription of a licensed physician, dentist or veterinarian, the retail sale or distribution of barbital, veronal, propanol, ipral, dial, neonal, sandoptal, amytal, phenobarbital, phanodorn, noctal, allonal, medinal or any preparation, mixture or other substance containing any of the aforementioned substances.

Missouri

Bills Introduced.—H. 658, to amend the osteopathic practice act, proposes that "The system, method or science of treating diseases of the human body, commonly known as osteopathy, and as taught and practiced in *any school of osteopathy recognized and approved by the American Osteopathic Association,* is hereby declared not to be the practice of medicine and surgery" within the meaning of the medical practice act and not subject to its provisions. The present law has, in place of the words italicized "the American School of Osteopathy of Kirksville, Missouri." H. 662, to amend the food and drug act, proposes to repeal that section of the act prohibiting the manufacture, production, sale or possession of any article of food or drug which is adulterated or misbranded and to substitute for it a provision requiring all drugs, except those described in original, nonrefillable, hand-written prescription, signed by a licensed physician or veterinarian, to be labeled with the true English name, together with a statement as to the danger and sometimes untoward effects of the drug in question and to give the names of at least two active antidotes printed on the label in a type as large as any used thereon.

New Jersey

Bills Introduced.—S. 210, to amend the law granting a lien to a licensed physician treating a person injured through the negligence of another, proposes to deprive the attending physician of the lien if, without the consent of his patient, he makes any report whatever concerning the nature of the injuries to the person whose negligence is alleged to be responsible for the injury or to that person's insurance carrier. S. 214 proposes to require any county prosecutor who receives information as to the existence of any marihuana weed in his county to notify the State Department of Health of the fact and to require the department on receipt of such information to investigate concerning the existence of the weed in that location. The department is then to certify to the county prosecutor as to the existence of the weed and the prosecutor is then empowered to destroy the weed if it is present. A. 464 proposes that at least one member of the State Board of Health shall be a registered pharmacist. A. 493 proposes to permit any person more than 21 years of age, of good moral character, a citizen of the United States, who has received a license to practice chiropractic in this state and who has completed a course of study of not over [sic] one thousand hours of physiotherapy, including dietetics, in a medical or professional school or a special course designated and approved by the state board of medical examiners, to be admitted to an examination in physiotherapy and dietetics to be given by the board for a license to practice physiotherapy and dietetics.

New York

Bills Passed.—The following bills passed the assembly March 22: A. 1428, proposing that a license to practice osteopathy shall entitle the holder thereof to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics and biological products; and A. 1433, proposing to

prohibit except on the written prescription of a licensed physician, dentist or veterinarian, the retail sale or distribution of barbital, sulphonethylmethane (trional), diethylsulphor diethylmethane [sic] (tetronal), carbromal, chloral or chloral hydrate, or chlorbutanol.

Bills Introduced.—S. 1492 proposes to limit licensure in medicine to citizens of the United States. The present law limits licensure to citizens of the United States or persons who have declared their intention of becoming such citizens. S. 1510 proposes to prohibit the manufacture, distribution or advertising of adulterated and misbranded foods. S. 1545 and A. 2042 propose to declare the policy of the state that the manufacture and sale of adulterated or misrepresented foods, drugs and cosmetics are matters of state concern and to create a temporary state commission to recommend to the legislature a comprehensive program for the regulation and prevention of the manufacture and sale of adulterated or misrepresented foods, drugs and cosmetics and to submit proposals designed to prevent and eliminate false and misleading advertising relating to the products named. A. 2028 proposes to repeal the law granting liens to hospitals treating persons injured through the negligence of others.

North Carolina

Bill Introduced.—S. 336 proposes to enact a separate naturopathic practice act and to create a board of naturopathic examiners to examine and license persons applying for licenses to practice naturopathy. The bill states that naturopathy is "defined to mean the use and practice of natural methods as taught in standard colleges of Naturopathy and as defined and enacted by Congress February 16, 1931 [as a matter of fact no such law was ever enacted by Congress], embracing the physiological, mechanical and material health sciences to aid in purifying, cleansing and normalizing the human organism, for the preservation or restoration of health, according to the fundamental principles of anatomy, naturopathic physiology and applied psychology, as may be required." The bill specifically proposes to permit such licentiates to practice "nonsurgical gynecology" and "midwifery" but prohibits its licentiates from practicing "materia medica, radium therapy, medicine or surgery." Aside from the practices prohibited specifically, licentiates apparently will be able to practice without restriction.

Oklahoma

Bill Introduced.—H. 496, to amend the medical practice act, proposes to require all licensed physicians to register annually with the board of medical examiners on or before July 1 and to pay at that time an annual registration fee of $3.

Pennsylvania

Bill Introduced.—H. 565 proposes to enact a separate practice act for persons practicing the natural healing arts and to create a board of examiners to examine and license applicants for such licenses. The board, apparently, is to be authorized to issue two sorts of licenses: (1) a license permitting the treatment of the body by any movements, adjustments and manipulations performed by the hands or nonsurgical instruments or appliances and (2) a license conferring the rights just stated and, in addition, permitting the use of any physical forces, such as air, light, water, heat, cold, electricity or any of their derivatives, phytotherapy, dietetics and exercises, or any other system or systems of therapeutics correlated with the foregoing therapeutic measures.

Rhode Island

Bills Introduced.—S. 198 proposes to enact a separate naturopathic practice act and to create a board of examiners in naturopathy to examine and license applicants for licenses to practice naturopathy. The bill states that "the practice of the profession of naturopathy is hereby designated as non-medical and drugless, and is defined as a science dealing with the diagnosis and treatment of disease through natural therapeutics. It shall embrace and include physiological, mechanical and dietetic sciences, such as mechano-therapy, electro-therapy, use of diet and herbs including powdered and dehydrated foods and fruits, and other methods as taught in the various recognized schools of naturopathy, excepting, however, surgery and the prescription of compounded drugs." H. 884, to amend the osteopathic practice act, proposes that "The acceptance of any federal law or regulation or the application thereof by any department or bureau of this state which affects medical practice or the control of public health or medical care of state dependents, shall apply equally to practitioners of osteopathy and practitioners of medicine." H. 913 proposes to prohibit the sale or distribution of appliances, condoms, drugs or medicinal preparations intended or having special utility for the prevention of venereal diseases and/or used in gynecologic hygiene or treatments except by places duly registered by the division of narcotics and pharmacy or by licensed physicians.

Wisconsin

Bills Introduced.—S. 288 and A. 519 introduced at the request of the Wisconsin Hospital Association, Conference of Catholic Hospitals and the Wisconsin Medical Society, propose to authorize the formation of corporations to establish and operate nonprofit hospital service plans whereby certain hospital service may be provided by participating hospitals to persons who may become subscribers to such plans. The term "participating hospital" refers to any hospital which has a contract with a nonprofit hospital service membership corporation to render hospital service to subscribers to the hospital service plan. The bill proposes that members of such corporation shall be (1) three nonmedical persons designated by each participating hospital, at least two of whom shall be directors or be active in the operation of such participating hospital; and (2) a number of persons equal to the number of participating hospitals.

WOMAN'S AUXILIARY

Arizona

Dr. J. D. Hamer spoke, at a recent meeting of the auxiliary to the Maricopa County Medical Society held in Phoenix, on the special autumn meeting of the House of Delegates of the American Medical Association.

Michigan

The board of directors of the auxiliary to the Michigan State Medical Society met in Detroit November 18. Mrs. P. R. Urmston, president, gave a report on the meeting of the board of directors of the auxiliary to the American Medical Association, which was held in Chicago November 11. Proceeds from a rummage sale held by the auxiliary to the Bay County Medical Society amounted to $75. William J. Burns, executive secretary, Michigan State Medical Society, spoke before the auxiliary in November on the national health program.

The auxiliary to the Calhoun County Medical Society has donated seven wheel chairs to the new Community Hospital.

The auxiliary to the Jackson County Medical Society was addressed by Dr. Philip A. Riley on the pending legislative measures that were approved at the recent state medical meeting in Detroit. Dr. Riley discussed the measures based on socialized medicine, stating that Jackson, Calhoun and Washtenaw counties have far more hospital beds than are needed at present.

Oregon

The auxiliary to the Multnomah County Medical Society presented its first hobby show last September. There were seventy-four exhibits. In October the auxiliary was addressed by Dr. Charles E. Sears, Portland, on "What the Medical Association Can Do to Provide Better Medical Aid to the People," and Dr. Robert L. Benson, Portland, on "The National Health Conference."

Virginia

The auxiliary to the Mid-Tidewater Medical Association met in January at West Point. Dr. Wright Clarkson of Petersburg spoke on cancer work. Mrs. Joseph Bear, Richmond, also spoke on the work of the woman's field army of the American Society for the Control of Cancer.

The auxiliary to the Norfolk County Medical Society met January 11. Mrs. Hawes Campbell, president of the auxiliary to the Medical Society of Virginia, spoke on health problems.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

State Medical Meeting in Phoenix.—The Arizona State Medical Association will hold its forty-eighth annual meeting in Phoenix April 13-15 with headquarters at the Hotel Westward Ho. Dr. Harold W. Rice, Bisbee, is president. The guest speakers will include:

Dr. John C. Jones, Los Angeles, Extrapleural Pneumothorax in the Treatment of Phthisis.
Dr. Frank T. Hogeland, Sonora, Mex., The Medical Control of Silicosis.
Dr. Edward William Alton Ochsner, New Orleans, Thrombophlebitis.
Dr. Norman F. Miller, Ann Arbor, Mich., Common Lesions of the Cervix and Their Treatment.
Dr. Webb W. Weeks, New York, Eye Diseases in Their Relation to General Medicine.
Dr. Lewis F. Morrison, San Francisco, Impaired Nasal Ventilation in the Adult.
Dr. Edward H. Cary, Dallas, Texas, Federal Trends in Medical Care and Health Legislation.
Dr. Frederick Kellogg, Long Beach, Calif., Recent Advances in Syncope or Medical Shock.

The speakers from Arizona will include:

Dr. Dermont W. Melick, Williams, Artificial Pneumothorax: 1. Its Application to the Ambulatory Patient.
Dr. Leslie B. Smith, Phoenix, Diabetes Mellitus and Observations with Protamine Zinc Insulin.
Dr. Lyle A. Condell, Safford, Undulant Fever and Its Treatment with Sulfanilamide.
Dr. Robert E. Hastings, Tucson, Low Back Pain with Sciatic Radiation.
Dr. John W. Pennington, Phoenix, Enuresis.
Dr. Howard C. James, Tucson, Metabolism in Pregnancy.
Dr. Zenas B. Noon, Nogales, Differentiation of Parietal and Intra-Abdominal Pain.
Dr. Joseph Bank, Phoenix, Diagnostic Value of and Indications for Gastroscopy.

The woman's auxiliary will meet at the Westward Ho Thursday, April 13-14. Speakers will include Drs. Jack B. Eason, Phoenix, director, maternal and child health, state department of public health, on "Role of the Auxiliary in Maternal and Child Health Program," and Dr. Miller.

CALIFORNIA

Lectures for the Public.—The fifty-seventh course of popular medical lectures will be offered by Stanford University School of Medicine, San Francisco, in Lane Hall as follows:

Dr. Edwin L. Bruck, April 7, Pneumonia and Its Treatment by Recent Serums and Drugs.
Dr. Harold A. Fletcher, April 21, Electrical Engineers Come to the Aid of the Hard of Hearing.
Claude A. Shull, M.A., May 5, What Are the Movies Doing to the Emotional Stability of Our Children?
Dr. Paul A. Gliebe, May 19, Emotions and Physical Diseases.

CONNECTICUT

Hospital News.—A building program is under way for Mount Sinai Hospital, Hartford, to permit the renovation and construction of an east wing, thus increasing the bed capacity to more than 100. It is hoped to secure $250,000 in a campaign for funds which was to begin in February.

New Chief of Crippled Children Division.—Dr. Louis Spekter has been appointed chief of the division of crippled children of the Connecticut State Department of Health, Hartford, succeeding Dr. Russell V. Fuldner, resigned. Dr. Spekter graduated at the University of Rochester School of Medicine, Rochester, N. Y., in 1933.

Committee to Aid Yale's Program of Development.—A committee of physicians and laymen has been appointed to aid Yale University in the development of its program in medicine and public health, it was announced at a meeting of medical alumni in the Sterling Hall of Medicine, New Haven, February 23. Dr. Harvey Cushing, Sterling professor of neurology emeritus and director of studies in the history of medicine, will be general chairman. An executive committee is composed of the following: Dean Stanhope Bayne-Jones, chairman; Fuller F. Barnes, Bristol, Conn.; William McCormick Blair, Chicago; George Parmly Day, New Haven; Thomas W. Farnam, New Haven; Dr. Norman E. Freeman, Philadelphia; Harry C. Knight, New Haven; Dr. Fred T. Murphy, Detroit; Charles-E. A. Winslow, Dr.P.H., New Haven, and Dr. Milton C. Winternitz, New Haven. The committee is to assist in making better known among the alumni and friends of the university the work of Yale in medicine and public health. Large sums, contingent on the receipt of further gifts, have been pledged for the development of this work.

GEORGIA

Personal.—Dr. John L. Elliott, Savannah, has been elected coroner of Chatham County.——Dr. Young H. Yarbrough, Milledgeville, has been appointed assistant superintendent of the Milledgeville State Hospital.——Dr. James A. Thrash, Columbus, health officer of Columbus and Muscogee counties, has been elected superintendent of the Muscogee County Tuberculosis Hospital.——Dr. Clarence M. Sharp, formerly of Lake Kushaqua, N. Y., has been appointed superintendent of the state tuberculosis sanatorium at Alto.

ILLINOIS

Society News.—Dr. Leonard T. Furlow, St. Louis, discussed "Acute Head Injuries" before the Sangamon County Medical Society, Springfield, February 2.——Dr. Lee C. Gatewood, Chicago, addressed the Will-Grundy County Medical Society at Joliet March 24 on "Jaundice—Its Causation and Clinical Study."

Chicago

Dr. Lord Will Discuss Pneumonia.—Dr. Frederick T. Lord, clinical professor of medicine emeritus, Harvard Medical School, Boston, will lecture at a joint meeting of the Chicago Medical Society and the Institute of Medicine of Chicago April 5 on "The Serum Treatment of Pneumonia." A sound film "The New Day" will also be shown.

The Gehrmann Lectures.—Dr. Herbert C. Clark, director, Gorgas Memorial Institute of Tropical and Preventive Medicine, Inc., Panama, Canal Zone, will deliver the Gehrmann Lectures for 1938-1939 of the University of Illinois College of Medicine in the Medical and Dental College Laboratories Building, 1853 West Polk Street. His subjects are:

April 12, Malaria. Its Effect on Labor Efficiency in the Tropics.
April 13, Amebiasis, Clinical and Nonclinical.
April 14, Modern Factors Favoring Spread of Diseases.

Branch Meetings.—Dr. James B. Collip, professor and head of the department of biochemistry, McGill University Faculty of Medicine, Montreal, Canada, will discuss "Results of Recent Laboratory Studies on Anterior Pituitary Hormones" before the North Side Branch of the Chicago Medical Society April 6. A symposium on diseases of bones will be presented before the North Shore Branch April 4; Dr. Arthur Steindler, Iowa City, will discuss "Fracture Deformities and Contractures" and Dr. Charles F. Geschickter, Baltimore, "Malignant Tumors of Bones."

INDIANA

Emeritus Staff Members Honored.—A new division of emeritus members was recently created at Deaconess Hospital, Evansville, to honor older staff physicians. The following twelve physicians have been designated charter members: Walter H. Coleman, Earl Conover, George C. Dunlevy, William H. Field, Charles B. Harpole, Charles W. Hartloff, Bleeker J. Knapp, William E. McCool, Henry Nenneker, Marcus Ravdin, Olen C. Stephens and William P. Woods. The group was honored at a dinner February 21, the forty-seventh anniversary of the hospital.

Society for the History of Medicine.—The Indiana Association of the History of Medicine was organized at a meeting February 15 in the library of Eli Lilly & Co., Indianapolis. Dr. Edgar F. Kiser was chosen president. The next meeting will be held May 17 at the same place. It is planned to hold quarterly meetings, and application for membership has been made to the American Association of the History of Medicine. Additional information may be obtained from Mrs. Irene Strieby, library, Eli Lilly & Co. Dr. William N. Wishard Jr., Indianapolis, addressed the recent meeting on the life of Edward Jenner.

Personal.—Mr. Rollen Waterson, Whiting, has been appointed executive secretary of the Lake County Medical Society, a recently created position. Temporary headquarters have been set up in the Hammond City Hall. The society recently became incorporated.——Dr. Philip H. Becker, Crown Point, has been appointed superintendent of the Lake County Tuberculosis Sanatorium, succeeding the late Dr. James O.

Parramore; he formerly served as assistant. According to the state medical journal, a new wing providing 100 beds is about to be opened, and a new chapel is to be named in honor of Dr. Parramore.——Drs. Oliver V. Schuman and Nathan I. Kithcart, Columbia City, were recently voted honorary membership in the Whitley County Medical Society.

MARYLAND

New Physician-in-Chief of Baltimore City Hospitals.—Dr. John T. King, associate in medicine, Johns Hopkins University School of Medicine, Baltimore, was recently appointed physician-in-chief of the Baltimore city hospitals, filling the vacancy caused by the death of Dr. Thomas R. Boggs. Dr. King graduated at Johns Hopkins in 1914.

Graduate Week in Medical History.—"Medicine in the Renaissance" will be the theme of the second graduate course in medical history at the William H. Welch Medical Library, April 24-29, under the auspices of the Institute of the History of Medicine, Johns Hopkins University, Baltimore. The course will precede the annual meeting of the American Association of the History of Medicine in Atlantic City, N. J., April 30-May 1, so that members of the course can proceed directly from Baltimore to Atlantic City. A registration fee of $5 will be charged. The speakers will be:

Dr. Henry E. Sigerist, director of the institute, Economic, Social and Political Foundations of the Renaissance.
Ludwig Edelstein, Ph.D., Ancient Traditions in Medieval and Renaissance Thought.
J. Ben Robinson, D.D.S., dean, University of Maryland School of Dentistry, Influences Exercised by Conventional Medicine on the Beginning of Autonomous Dental Education.
Ruth Musser, M.S., and John C. Krantz Jr., Ph.D., department of pharmacology, University of Maryland School of Medicine, The Friendship of Christopher Wren and Robert Boyle.
Dr. Owsei Temkin, The Physician in the Renaissance.
Dr. Sanford V. Larkey, Hygiene and Public Health in the Renaissance.
Dr. John Rathbone Oliver, The Oxford of Anthony Wood.

The subjects of the seminars planned for each afternoon are "The Concept of the Renaissance," "Bibliographic Problems of Renaissance Literature," "Some Biological Problems of the Renaissance," "Diseases Prevailing in the Renaissance and Their Interpretation" and "Medical Literature in the Vernacular: English, German, French, Italian." Isaiah Bowman, LL.D., president, Johns Hopkins University, will open the course and Dr. Alan M. Chesney, dean of the school of medicine, will deliver the closing address. Applications to attend the course should be addressed to the Institute of the History of Medicine, 1900 East Monument Street, Baltimore, before April 10.

MICHIGAN

Undulant Fever at State College Traced.—Defective plumbing combined with the use of a faulty sterilizer in the bacteriology laboratory was the cause of an outbreak of undulant fever which caused the death of one student and the illness of forty-eight others at Michigan State College, East Lansing (THE JOURNAL, February 18, p. 653). According to the state department of health, back-siphonage of contaminated water from a sink in the basement of the undulant fever laboratory and its spread through the bacteriology building's distributing system to all outlets on the second and third floors has been demonstrated. Glassware used in growing undulant fever cultures was washed at this sink after being removed from a steam sterilizer. Tests indicated that living germs were present on the glassware after it had been in the sterilizer for one hour. This had been considered ample time to kill the germs if the apparatus had functioned properly, it was said. Immediate causes of the outbreak have been corrected.

Society News.—Dr. Jerome R. Head, Chicago, presented a "Survey of Thoracic Surgery" before the Muskegon County Medical Society February 17.——Dr. Robert L. Schaefer, Detroit, addressed the Calhoun County Medical Society, Battle Creek, February 7 on "Diagnosis and Treatment of Gonadal Immaturity."——Dr. Edward F. Sladek, Traverse City, addressed the Northern Michigan Medical Society in Petoskey February 9 on latest trends in state legislation concerning organized medicine.——Dr. Carl F. Schmidt, Philadelphia, discussed "New Drugs—How They Are Discovered and Introduced" before the Wayne County Medical Society and the Detroit Retail Druggists Association February 27.——The Detroit Dermatological Society was addressed February 21 by Drs. Arthur E. Schiller on "The Industrial Nurse"; William T. Krebs, "The Plant Physician"; John Ewart Caldwell, "The Interpretation of the Michigan Industrial Disease Law," and Mr. L. B. Case, "The Plant—Its Equipment and Chemistry."

MINNESOTA

Clarence M. Jackson Lecture.—The Clarence M. Jackson Lecture is under the auspices of the Phi Beta Pi Fraternity of the University of Minnesota and not the Hennepin County Medical Society as stated in THE JOURNAL March 11, page 1005.

Harold S. Boquist Lecture.—Dr. Henry C. Sweany, medical director of research, Chicago Tuberculosis Sanatorium, Chicago, will deliver the annual Harold S. Boquist Lecture at the University of Minnesota Medical School, Minneapolis, April 4, on "Study of the Pathogenesis of Tuberculosis by Correlating Age and Morphology of Primary Tubercles."

MISSOURI

State Medical Meeting at Excelsior Springs.—The Missouri State Medical Association will hold its annual session in Excelsior Springs April 10-12. The speakers will include:

Dr. Alexis F. Hartmann, St. Louis, Clinical Use of Sulfanilamide and Its Derivatives.
Dr. Jennings C. Litzenberg, Minneapolis, The Conduct of Normal Labor and Its Abuses.
Dr. William M. Ketcham, Kansas City, The Male Sex Hormone.
Drs. John J. Boucek, Charles E. Gerson and Andrew C. Henske, all of St. Louis, Pneumoperitoneum in the Treatment of Pulmonary Tuberculosis.
Dr. Warren H. Cole, Chicago, Surgical Aspects of Peptic Ulcer.
Dr. Goronwy O. Broun, St. Louis, Clinical Studies of Vitamin K.
Dr. James Archer O'Reilly, St. Louis, The Crippled Child in Missouri.
Dr. Idys Mims Gage, New Orleans, Acute Trauma of the Abdominal Viscera (Subcutaneous Injury of the Abdomen); Surgery of Acute Cholecystitis.
Dr. George Wilse Robinson Jr., Kansas City, Treatment of Depressions and Melancholias.
Dr. Sumner L. S. Koch, Chicago, The Worker's Hand.
Dr. Raymond O. Muether, St. Louis, Recent Developments in the Treatment of Lobar Pneumonia.
Dr. Fred M. Smith, Iowa City, Diagnosis and Treatment of Coronary Thrombosis.
Dr. Drew W. Luten, St. Louis, The Heart.
Dr. Jacob Kulowski, St. Joseph, The Modern Approach to the Problem of Acute Hematogenous Osteomyelitis.
Dr. Evarts A. Graham, St. Louis, Accomplishments of Modern Chest Surgery.
Dr. William Malamud, Iowa City, Modern Trends in the Treatment of Schizophrenia.
Dr. Byrl R. Kirklin, Rochester, Minn., The Value of X-Ray Diagnosis as It Pertains to the Physician in General Practice.
Dr. Alfred W. Adson, Rochester, Minn., The Status of Sympathectomy for Hypertension.
Dr. Walter M. Whitaker, Quincy, Ill., Pneumonia in Childhood.
Dr. Frederick J. Taussig, St. Louis, The Role of the Ellis Fischel State Cancer Hospital in the Control of Cancer in Missouri.
Dr. Paul F. Cole, Springfield, Missouri Cancer Survey, 1938.
Dr. Carl F. Vohs, St. Louis, Prepayment Medical and Hospital Care.

Drs. Bernard W. Hays, Jackson, and James R. McVay, Kansas City, will deliver addresses as president and president-elect respectively.

NEW YORK

Course on General Medicine.—Members of the Columbia County Medical Society attended a course on general medicine at the Hudson City Hospital in recent weeks. The lecturers, all of New York, were:

Dr. William Goldring, Physiological Interpretation of the Clinical Manifestations in Renal Diseases and Hypertension, January 10.
Dr. Samuel H. Geist, Practical Endocrinology, January 24.
Dr. Ralph G. Stillman, Significance of Laboratory Tests and Methods in the Practice of Medicine, February 7.
Dr. Alexander B. Gutman, Dehydration, Acidosis and Shock, February 21.
Dr. Edward M. Livingston, Abdominal Pain, March 7.

Society News.—Dr. Abraham H. Aaron, Buffalo, addressed the Medical Society of the County of Westchester March 21 on "Treatment of Selected Gastrointestinal Conditions from the Viewpoint of the General Practitioner."——Drs. Edward C. Reifenstein and Fred L. Ritter addressed the Onondaga County Medical Society, Syracuse, March 7 on "Recent Advances in Pneumonia Therapy" and "Diverticulitis with Perforation" respectively.——Dr. Perry G. Goldsmith, Toronto, Ont., addressed a joint meeting of the Syracuse Academy of Medicine and the Syracuse Ear, Nose and Throat Club March 21 on "Diseases of the Upper Respiratory Tract with Hoarseness as a Symptom."——Dr. John E. Deitrick, New York, addressed the Dutchess County Medical Society February 8 at the Hudson River State Hospital on "Failure of the Peripheral Circulation."

New York City

Personal.—Dr. George K. Meynen, Jamaica, was recently honored with a testimonial dinner given by about 200 friends and colleagues of Jamaica Hospital. Dr. Meynen has prac-

ticed medicine in Queens for fifty-two years; he was one of the founders of Jamaica Hospital and its first surgeon, according to a bulletin from the hospital.

Symposium on Venereal Disease.—Under the auspices of the department of urology of New York Medical College and Flower-Fifth Avenue and Metropolitan hospitals, the New York City Department of Health and the Social Hygiene Committee of the New York Tuberculosis and Health Association, a symposium on "the human side of the venereal diseases" was presented February 8 at the Meinhard Health Center and the East Harlem Health Center.

Meeting on Heart Disease.—At a scientific session of the New York Heart Association March 28 the speakers included Drs. Harold E. B. Pardee, on "Uniform Criteria for the Diagnosis of Heart Disease and a Discussion of Special Features of the New Edition of the Criteria"; Clarence E. de la Chapelle, "The Anatomical Changes Produced by Heart Disease," and Charles E. Kossmann, "The Contribution of Electrocardiography to Heart Disease."

Medical Service in Vocational Schools.—The vocational school division of the public school system has established a complete medical unit in each of the twenty-four trade and industrial schools, according to the New York *Times*. Forty physicians and as many nurses have been assigned to watch the health of 55,000 students in these schools. Each child is to have a thorough physical examination and a follow-up system is to check on remediable ailments. Students who cannot afford private treatment are sent to clinics. One physician and one nurse will be on duty as long as classes are in session. The new arrangement is an expansion of previous service. Last year, although not every school had a complete medical staff, 42,000 pupils were examined. Only 10,000 were found to be free from defects. More than 3,500 defects were corrected. Twenty thousand pupils were examined to discover whether they had chosen a vocation to suit their physical capacities; 6,000 were found to be in work unsuited to them. In some the impairments were corrected, but in 1,500 the defects could not be remedied and these children were directed into other fields, it was said.

OKLAHOMA

Society News.—Dr. Philip M. McNeill, Oklahoma City, addressed the Okfuskee-Okmulgee County Medical Society, Okemah, January 18 on pneumonia.——Dr. E. Rankin Denny, Tulsa, addressed the Tulsa County Medical Society, Tulsa, March 13 on "Physiology of Oxygen Want and Clinical Use of Oxygen" and Mr. J. I. Banash, consultant engineer, Chicago, "Methods of Administering Oxygen."

PENNSYLVANIA

Society News.—Drs. William J. Fetter and William L. Mullins, Pittsburgh, addressed the Jefferson County Medical Society, Punxsutawney, March 9 on "Biliary Tract Problems" and "Clinical Aspects of Coronary Artery Disease" respectively.——Dr. Charles Howard Marcy, Pittsburgh, addressed the Mercer County Medical Society, Grove City, March 8 on "Modern Treatment in Tuberculosis."——Dr. George Harlan Wells, Philadelphia, addressed the Delaware County Medical Society, Chester, March 9 on "Comparative Value of Antipneumococcic Serum and Sulfapyridine in the Treatment of Pneumonia."

Philadelphia

The Samuel D. Gross Prize in Surgery.—The Philadelphia Academy of Surgery announces that essays will be received in competition for the Samuel D. Gross Prize of $1,500. According to the conditions, this prize is awarded every five years "to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice founded on original investigations, the candidates for the prize to be American citizens." The competitor who receives the prize shall publish his essay in book form and he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery. Essays must be written in English by a single author. Each essay must be typewritten, distinguished by a motto and accompanied by a sealed envelop bearing the same motto, containing the name and address of the writer. The committee will return the unsuccessful essays if reclaimed by the writers or their agents within one year. The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize. The entries should be addressed to the Trustees of the Samuel D. Gross Prize of the Philadelphia Academy of Surgery, care of the College of Physicians of Philadelphia, 19 South Twenty-Second Street, Philadelphia, on or before Jan. 1, 1940.

Pittsburgh

Society News.—Dr. Leo H. Criep addressed the Pittsburgh Otological Society March 6 on "The Relationship of Allergy to Ear, Nose and Throat."——Dr. William F. Braasch, Rochester, Minn., addressed the Pittsburgh Urological Association March 13 on "Unusual Urographic Data."——Speakers before the Allegheny County Medical Society March 21 were Drs. Oliver C. Wenger of the U. S. Public Health Service on "Opportunity for the Physician in a Syphilis Control Program"; Harry I. Miller, "Newer Concepts in the Management of Peripheral Vascular Disease"; Herbert Frankenstein, "Spontaneous Subcutaneous Rupture of the Stomach," and Lawrence Wechsler, "Hematemesis: Problems in Diagnosis and Medical Treatment."

SOUTH CAROLINA

State Medical Meeting at Spartanburg.—The ninety-first annual meeting of the South Carolina Medical Association will be held in Spartanburg April 11-13 at the Hotel Cleveland. The preliminary program includes the following speakers:

Dr. Marion H. Wyman, Columbia, You Can't Socialize a Doctor's Mind.
Dr. Carl B. Epps, Sumter, Shall We Be Leading Pioneers or Driven Slaves?
Dr. Frank Philip Coleman, Columbia, Surgical Management of Pulmonary Tuberculous and Nontuberculous Chest Diseases.
Dr. Keitt H. Smith, Greenville, The Use of Sulfanilyl-Sulfanilamide in the Treatment of Specific Urethritis and Urinary Infections.
Dr. Irwin Grier Linton, Charleston, Vaginal Hysterectomy.
Dr. Sol B. McLendon, Columbia, Epilepsy and Its Management.

Round table conferences will form part of the program. The program lists discussions of deficiency diseases, conducted by Dr. Virgil P. W. Sydenstricker, Augusta, Ga.; roentgenology, Dr. William M. Sheridan, Spartanburg; surgery, Dr. Frederick E. Kredel, Charleston; allergy, Dr. Foster M. Routh, Columbia, and obstetrics, Dr. Robert E. Seibels, Columbia.

TENNESSEE

State Medical Meeting in Jackson.—The annual meeting of the Tennessee State Medical Association will be held in Jackson April 11-13 at the New Southern Hotel under the presidency of Dr. Tom R. Barry, Knoxville. At an evening meeting Tuesday April 11 Dr. Barry will deliver his official address and Dr. Rock Sleyster, Wauwatosa, Wis., President-Elect of the American Medical Association, will discuss "Medical Problems of the Day." Other guest speakers will be:

Dr. James B. McLester, Birmingham, Ala., Pellagra and Its Modern Treatment with Special Emphasis on the Borderline States.
Dr. Fred W. Rankin, Lexington, Ky., Combined Abdominoperineal Resection of the Rectum (talking motion picture in color).
Dr. Clarence H. Crego Jr., St. Louis, Operative Correction of Lower Extremity Length Inequality.
Dr. Leon J. Menville, New Orleans, Breast Cancer: Technic of Examination and Preoperative Radiation.

Tennessee physicians on the program will include:

Dr. Joseph P. Gilbert, Nashville, Epilepsy; Diagnosis and Treatment.
Dr. Henry B. Brackin, Nashville, Metrazol Treatment of Dementia Praecox, or More Frequently Now Called Schizophrenia.
Dr. Horace Barton McSwain, Paris, Auscultation in the Diagnosis of Surgical Diseases of the Abdomen.
Dr. Alfred M. Goltman, Memphis, Manifestations of Allergy Other Than Asthma.
Dr. Robert H. Williams, Nashville, Sulfanilamide Pyridine in the Treatment of Pneumonia.
Lt. Col. George W. Reyer, Medical Corps, U. S. Army, Nashville, The Necessity for Medical Military Preparedness.
Dr. Willis H. Thompson, instructor for the graduate course in pediatrics, formerly of Minneapolis, Feeding Problems in Infancy.

TEXAS

Personal.—Dr. William L. Brown, El Paso, was recently made an honorary member of the Southwestern Medical Association, of which he was a founder twenty-five years ago.——Dr. William S. Terry Jr., Jefferson, was recently appointed health officer of Marion County.——Dr. John C. Blair, Kerens, was recently elected chairman of the state board of education, it is reported.——Dr. Otho C. Bowmer, Corsicana, was recently elected health officer of Navarro County.

District Meetings.—The Twelfth (Central Texas) District Medical Society met in Waco recently. The speakers included Drs. Lewis W. Pollok, Temple, on "Surgical Treatment of Uterovaginal Prolapse"; Harry H. McClellan, San Antonio, "Is Insanity an Inherited Defect or an Acquired Delirium?"; Herbert E. Hipps, Marlin, "A New Surgical Procedure in Acute Arthritis," and Howard R. Dudgeon Jr., Waco, "Primary Thrombocytopenic Purpura Haemorrhagica."——The Tenth District Medical Society in cooperation with the state department of health sponsored a two day graduate course in obstetrics and pediatrics in Lufkin February 9-10. The lecturers were Drs. Calvin R. Hannah and Hugh Leslie Moore, Dallas.

WISCONSIN

State Board Appointments.—Drs. George R. Reay, La Crosse, and Henry W. Howe, Racine, have been appointed to the state board of medical examiners. They succeed Drs. Alvin G. Koehler, Oshkosh, and Henry O. McMahon, Milwaukee.

New Chairman of Cancer Committee.—Dr. Marcos Fernan-Nunez, professor of pathology and bacteriology, Marquette University School of Medicine, Milwaukee, has been appointed chairman of the cancer committee of the State Medical Society of Wisconsin. He succeeds Dr. William D. Stovall, Madison, who recently resigned after ten years of service.

Society News.—Speakers at a meeting of the Milwaukee Pediatric Society February 8 were Drs. John Lester Reichert, Chicago, "Treatment of Nonspecific Vaginitis in Children"; Elmer L. Sevringhaus, Madison, "Endocrine Changes in Adolescence," and John Dale Owen, Milwaukee, "The Physiology of the Vaginal Tract."——Dr. Jacob Arnold Bargen, Rochester, Minn., addressed a joint meeting of the Milwaukee Academy of Medicine and the Milwaukee Gastroenterological Society February 21 on "Regional Enteritis: Pathology, Diagnosis and Clinical Observations."——Speakers before the Medical Society of Milwaukee County February 10 were Dr. Rock Sleyster, Wauwatosa, President-Elect of the American Medical Association, on "Medical Problems of the Day"; Mr. J. C. Gamroth, state compensation officer, Madison, "The U. S. Compensation Act for Injuries to WPA Workers," and Mr. J. George Crownhart, secretary, State Medical Society of Wisconsin, Madison, on "Sickness Insurance."

GENERAL

Special Society Election.—Dr. Samuel W. Hartwell, Buffalo, was elected president of the American Orthopsychiatric Association at its annual meeting in New York in February. Dr. Norvelle C. La Mar, New York, was reelected secretary. The 1940 meeting will be held in Boston.

Warning—Fraudulent Instrument Man.—The American Surgical Trade Association reports that a swindler is operating among Ohio physicians claiming to represent surgical supply houses and collecting in advance for surgical instruments. The firms he claims to represent are nonexistent and the physicians are being swindled, according to the association. Physicians are warned not to pay money in advance to unknown persons.

American Institute of Nutrition.—A symposium on "Fortification of Foods with Vitamins and Minerals" will form the program of the annual meeting of the American Institute of Nutrition in Toronto, Canada, April 26. Speakers in the symposium will be Agnes Fay Morgan, Berkeley, Calif.; Lydia Roberts, Ph.D., Chicago; Dr. William H. Sebrell Jr., U. S. Public Health Service; E. M. Nelson, Ph.D., U. S. Department of Agriculture, Washington, D. C., and Dr. Alonzo E. Taylor, Stanford University, Calif.

April Is "Cancer Control Month."—President Roosevelt has issued the annual proclamation as provided by a law passed in 1938 designating April as "Cancer Control Month" and inviting governors of the states, territories and possessions of the United States to similar action. The proclamation invites all agencies interested in a national program for the control of cancer to unite during April "in a concerted effort to impress upon the people of the nation the necessity for this program and the importance of constant vigilance in this fight for humanity."

Conference of Radiologists.—The American College of Radiology held its ninth annual conference with the Conference of Teachers of Clinical Radiology under the auspices of the commission on education of the college February 12 in Chicago. At an afternoon meeting Dr. Walter F. Donaldson Pittsburgh, spoke on "Medical Economics and the National Scene" and Mr. Mac F. Cahal, executive secretary, The Inter-Society Committee for Radiology, reported on a survey of the economics of radiologic practice. An evening meeting was devoted to discussion of refresher courses for radiologists.

Symposium on Temperature.—The American Institute of Physics announces plans for a symposium on "Temperature and Its Measurement in Science and Industry" to be held this fall. Those interested in taking part in such a symposium should communicate with the institute at an early date, giving information about their field of work and the subject of the contribution that they wish to make. The purposes of the symposium are to (1) coordinate the treatment of the subject in the sciences and branches of engineering, (2) review principles and bring up to date the record of recent work, (3) accumulate contributions for a comprehensive text to be published as soon as possible after the symposium is held, (4) reveal the subject as an important branch of physics and (5) supply schools with the information required for the improvement of curriculums. Among members of the committee arranging the symposium is Dr. Eugene F. DuBois, professor of medicine, Cornell University Medical School, New York. Information may be obtained from the institute at 175 Fifth Avenue, New York. Henry A. Barton, Ph.D., is director.

Meetings at Richmond April 5-7.—The American Association for Cancer Research will hold its thirty-second annual meeting at the Medical College of Virginia, Richmond, April 5-6. Among those who will present papers are:

Dr. Shields Warren, Boston, The Prognostic Value of the Response to Radiation in Carcinoma of the Cervix.

Dr. Kenneth M. Lynch, Charleston, S. C., Carcinoma of the Lung in Asbestosilicosis.

Dr. George O. Gey, Margaret K. Gey and Margaret R. Lewis, Baltimore, Continuous Cultures of Blood Cell Tumors and Their Transplantability.

Wilton R. Earle, Ph.D., and Carl Voegtlin, Ph.D., Washington, D. C, Further Observations on the Mode of Action of Methylcholanthrene on Cultures of Normal Tissues.

The American Association of Pathologists and Bacteriologists will have its thirty-ninth annual meeting April 6-7 at the college. Among more than fifty papers on the program are the following:

Dr. Dale Rex Coman, Philadelphia, Experimental Peritonitis: Alteration of the Leukocytic Response After Repeated Injection of Physiologic Saline.

Drs. David Goldstein and Irving Graef, New York, The Influence of Sulfanilamide upon the Evolution of Experimentally Induced Pneumococcus Pneumonia in Rats.

Dr. Walter Schiller, Chicago, Concepts of a New Classification of Ovarian Tumors.

Dr. Harry Goldblatt, Cleveland, Experimental Observations on the Pathology and Pathogenesis of Essential Hypertension.

Drs. Irvine H. Page, Indianapolis, and Irving Graef, New York, Hypertension Following Experimental Perinephritis Induced by Cellophane.

Drs. Edwin F. Hirsch and Russell H. Morgan, Chicago, The Causal Significance to Traumatic Ossification of the Fibrocartilage in Tendon Insertions.

Dr. Alvin J. Cox Jr., San Francisco, Vitamin A Storage in Active and Arrested Liver Cirrhosis.

The American and Canadian section of the International Association of Medical Museums will hold its thirty-second annual meeting April 5. The program will include a symposium on photographic methods as applied to museum technic and discussions on technical methods and cardiovascular and other anomalies.

FOREIGN

Medical Meetings in Germany.—Announcement is made of medical meetings to be held in Germany within coming months, as follows:

German Ophthalmological Society, Heidelberg, September 4-6.
German Society for Digestive and Metabolic Disorders, Vienna, in September.

Ophthalmologic Tour to the United States.—The North of England Ophthalmological Society is sponsoring an "ophthalmologic tour" to the United States. Visits will be made to New York, Philadelphia and Washington. The group will leave Southampton on the *Nieuw Amsterdam* April 22, arriving in New York April 30, will be in Philadelphia May 5-7 and in Washington May 8-9 and will leave New York on the *Queen Mary* May 10.

Personal.—Dr. James R. Learmonth, regius professor of surgery in the University of Aberdeen, Scotland, has been appointed professor of surgery at the University of Edinburgh

to succeed the late Sir David P. D. Wilkie. Dr. Learmonth received a scholarship from the Rockefeller Foundation in 1924 and spent a year at the Mayo Clinic, Rochester, Minn. After a period in Scotland he returned to Rochester as a member of the surgical staff of the clinic in 1928 and remained there until 1932, when he went to the University of Aberdeen.——William D. Coolidge, Ph.D., director of the research laboratory of the General Electric Company, Schenectady, N. Y., has been awarded the Faraday Medal by the British Institution of Electrical Engineers. Dr. Coolidge is known for his development of the x-ray tube that bears his name, for the production of high voltage cathode rays outside the generating tube, for his work on modern x-ray generating apparatus, measurement of the dielectric constant of liquids and conductivity of aqueous solutions of high temperatures and on ductile tungsten. He has previously received the Hughes Medal of the Royal Society of Arts and Sciences and numerous American awards.

Deaths in Other Countries

Dr. Charles Cyril Okell, editor of the *Journal of Hygiene;* at one time assistant editor of the *Journal of Pathology and Bacteriology,* professor of bacteriology at the University of London College Hospital, died in Cambridge February 9, aged 50.——**Prof. Vaclav Libensky,** professor of medicine and director of the Polyclinic at Charles University, Prague, Czechoslovakia, president of the Czechoslovakian Society of Cardiology, died Dec. 10, 1938.

Government Services

Annual Report on the Health of the Army

For the fifth successive year, automobile accidents have been first in the list of causes of death in the United States Army. According to the annual report of the surgeon general, during the calendar year 1937 of 611 deaths, 329 were caused by disease and 282 by external causes. The death rate, 3.48 per thousand, was the lowest in eleven years. The leading causes were: automobile accidents 102, suicides 59, pneumonia 56, diseases of the coronary arteries and angina pectoris 41, airplane accidents 27, appendicitis 25, drowning 23, cancer and other malignant tumors 22, tuberculosis 17 and homicides 14.

The strength of the army in 1937 was 175,624, about 10,000 more than in 1936. The average officer strength was 11,706.

There were 108,756 admissions to sick report, a rate of 619 per thousand strength of personnel, somewhat lower than the 1936 rate. The infectious diseases proper and common respiratory diseases account for approximately 40 per cent and injuries 20 per cent of the admissions. Five causes, influenza, tonsillitis, bronchitis, injuries due to athletics and gonorrhea, produced 24.4 per cent of all illness in the army. For the army as a whole, the highest incidence of illness was among white enlisted men in Panama, the lowest among Filipinos, but the rate for Negro enlisted men exceeded that for Filipinos only slightly.

Gonorrhea headed the list of causes for loss of time, as it has every year since the World War, accounting for 194,973 days lost; the next in order was athletic exercises, with 68,790 days lost. Communicable diseases and injuries produce nearly half the noneffectiveness. The daily noneffective rate has remained about the same for many years; for 1937 it was 29.7 per thousand of strength.

Retirements and discharges for physical disability were responsible for the separations of 2,651 persons from the service in 1937: seventy-five officers and warrant officers, twenty nurses and 2,556 enlisted men. Officers retired for disability averaged 50.5 years of age and 23.7 years of service, but a large percentage of the enlisted men were young and had served only a short time. In 91.4 per cent of the enlisted men the disability existed prior to enlistment. The leading cause of discharge as for several years past was dementia praecox. The tendency to this disease is inherent in many persons, but a satisfactory method of preventing them from enlisting in the army has not yet been devised, the report comments. As much may be said of tuberculosis and constitutional psychopathic states, which were third and fourth on the list of causes for discharge. In the case of flat foot, however, which was second on the list, it would seem that the standards of physical examinations should be more rigidly adhered to at the time of enlistment, in the opinion of the surgeon general.

Venereal diseases are costing the army more than a million and a half dollars a year for treatment and are responsible for 18 per cent of the noneffectiveness due to disease. Although conditions with respect to these diseases have improved greatly, no reason is seen for relaxation of control measures; rather they should be strengthened, the report said.

Pneumonia was the leading cause of death among diseases, as it was in 1936. There were 871 cases. Influenza increased, as it has each year since 1933; in 1937 there were 7,226 admissions for this cause. Admissions for tuberculosis reflect the downward trend in the general population, it was pointed out; there were 271 admissions, 170 discharges for disability and 17 deaths in 1937. An abrupt increase in typhoid was noted, fourteen cases compared with four cases in 1935 and 1936. There were no cases of rabies, anthrax, tetanus or smallpox.

Diseases of the digestive system caused more admissions to sick report than any other. Tonsillitis and pharyngitis are included in this group and caused 40 per cent of the admissions. Appendicitis showed the highest admission rate in ten years, with 2,224 admissions, 2,100 appendectomies and twenty-three deaths.

More than 900 men were absent from duty each day, on the average, during 1937 because of injuries. This amounted to 18 per cent of all admissions to sick report and 19 per cent of the noneffectiveness. Athletics, falls and automobiles were responsible for 43 per cent of the cases. The report predicted that as the use of motor vehicles increases in the army injuries and deaths caused by them will increase. Military vehicles were involved in only eleven of the 102 deaths, but the number was twice as large as in 1936, it was pointed out.

It is believed that carelessness is the chief factor in automobile accidents and falls. Lack of care in selection of athletes, in provision of equipment and in the maintenance of playing fields may contribute to athletic injuries, the report suggested.

The number of persons invalided home from overseas garrisons was 840, twenty-one of whom were officers. Diseases of the circulatory system were responsible for one third of the cases among officers; among enlisted men the principal causes were flat foot, venereal diseases, dementia praecox, constitutional psychopathic states, psychoneurosis and tuberculosis.

The patient-day cost for the fiscal year 1938, computed on figures furnished by Walter Reed, Fitzsimons, Letterman, Army and Navy and William Beaumont General hospitals and the station hospital at Fort Sam Houston, Texas, was $5.09. The number of beds available and occupied in general hospitals June 25, 1938, was 5,359.

With the addition of fifty medical officers authorized by Congress in 1937, the present commissioned personnel is 1,083. The enlisted strength of the medical personnel as of June 30, 1938, was 8,291. The Medical Department Reserve Corps had a strength of 15,061 June 30.

Recent efforts to modernize the equipment of the medical department have been directed toward development of a mobile surgical hospital. Four semitrailers with van type bodies have been procured. Two of these are being fitted as operating room vans, one as a sterilization unit and one as a kitchen. It is hoped to add an additional van to complete a basic operating unit in order that the complete equipment may be demonstrated at the International Congress of Military Medicine and Pharmacy in May in Washington and later at the New York World's Fair.

During the year of this report a new main hospital building was completed at Fort Sam Houston at a cost of $1,347,400. A fund of $200,000 was appropriated for a hospital of 116 beds and barracks for the medical detachment at Fort Knox, Kentucky.

A section on syphilis was established in the professional service division of the surgeon general's office, with Major L. L. Gardner in charge. The Army Medical Museum reported 4,491 accessions during the year, an increase over previous years. The report says that the museum has taken its place as one of the popular sights of Washington and 100,781 persons visited it in the year. Loan sets of slides from the registry of pathology in the various specialties are in constant demand, especially by physicians preparing for the examinations of the boards of medical specialties. The Army Medical Library added 4,104 bound volumes to its collection and finished the third volume of the fourth series of the Index Catalogue. The fourth volume containing literature catalogued under the letter D was reported to be under way. Congress authorized construction of a new building for the museum and the library, but funds were not appropriated.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 1, 1939.

Report of the Medical Research Council

Twenty-five years ago the government decided to promote medical research by setting up the Medical Research Committee, which in 1920 became the Medical Research Council. The report for 1937-1938 refers to the great increase in medical investigation in this period, to which is due an improved level of health. The whole trend of medicine in the present century has been toward study of the basic factors of disease, and many maladies can now be cured or controlled by specific remedies. But there is often delay in the application of discoveries.

THE PREVENTION OF DIPHTHERIA

A striking example is the lack of public recognition of the value of preventive inoculation against diphtheria, which is the commonest single cause of death among children. In 1937 there were 61,339 cases in England and Wales, with 2,963 deaths, nearly all in children between the ages of 1 and 15 years. Yet since 1929 preventive inoculation has proved increasingly successful and in parts of America diphtheria has practically disappeared. In Hamilton, Ont., with a population of 175,000, diphtheria has not been diagnosed once in the past five years, while in Quebec, where inoculation was not used, the deaths from diphtheria were even more numerous in 1936 than in 1927. In New York City inoculation has reduced the mortality for diphtheria in children to 2.1 deaths per hundred thousand persons, while the figure was 31.8 in England and Wales.

CHRONIC PULMONARY DISEASE AMONG COAL MINERS

In recent years it has become apparent that coal miners are subject to disabling chronic pulmonary disease that does not come within the accepted definition of silicosis, which it resembles clinically but from which it differs radiologically. In silicosis the lungs, on radiologic examination, show shadows indicating distinct nodulation, but in the condition referred to this appearance is absent and instead there may be a variety of other shadows, the significance of which, in relation to the occurrence and progress of disability, is not clearly understood. Apart from the disabling character of the disease, the matter is of economic importance, for compensation is given for silicosis but not for other forms of pulmonary disease. The council has undertaken to investigate the subject for which it has chosen the anthracite coal field of South Wales. The problem is difficult, for pulmonary disease among coal miners cannot easily be related to particular working conditions, as there are so many factors which vary from place to place. The council is gratified to be responsible for a fine example of team work, which involves the cooperation of physicians, chemists, physicists, statisticians, geologists and mine inspectors.

THE RADIUM TREATMENT OF CANCER

Until recently the only ways to apply radium were interstitially or to the surface. A newer method, known as radium beam therapy or teleradium therapy, consists in the use of rays from a large mass of radium situated at a distance from the patient. In 1933 the council cooperated with the Royal Colleges of Physicians and Surgeons, the National Radium Commission and the Radium Institute in forming the Radium Beam Therapy Research. During the first four years of the research the use of the method was restricted to the treatment of cancer of the mouth, tongue, pharynx and larynx, in which the results have been encouraging. These sites were selected for the preliminary observations because they are accessible to radium therapy and, being comparatively superficial, permit the local effects of radium to be observed readily. In most of the cases the condition was advanced and the results compare favorably with the results of surgical intervention. On the other hand, the treatment produces a period of discomfort. New technical methods have been evolved through the cooperation of physicists and clinicians. It is clear that the method is capable of destroying accessible primary growths, and the main problem is a method for insuring the destruction of secondary growths. After a course of irradiation with a 5 Gm. unit, secondary growths usually disappear from the neck but, if present in the chest, escape destruction. In order to meet the situation work has recently been begun with a 10 Gm. unit. It is proposed to make a comparative study of the radium beam therapy and the high voltage roentgen therapy of cancer. Meanwhile there is already looming in the distance the therapeutic effect of neutrons and of temporarily radioactive substances, such as radiosodium. It is possible that both radium and the x-rays will be superseded by the cyclotron in the treatment of cancer by radiation and radioactive substances. Dr. F. G. Spear of the council's staff is at present in California, working with Professor Lawrence on the biologic effects of neutrons.

Ophthalmologic Congress

The annual congress of the Ophthalmological Society of the United Kingdom will begin April 20. Ophthalmologists from abroad are invited to all the meetings. Immediately preceding the congress, meetings will be held at the Royal Society of Medicine, 1 Wimpole Street, London, by the International Association for the Prevention of Blindness and the International Organization Against Trachoma. The International Association for the Prevention of Blindness will convene on April 19 at 2 p. m., and the application of the Credé method for the prevention of ophthalmia neonatorum in various countries will be discussed by speakers from home and abroad, including Dr. Conrad Berens of New York. The International Organization Against Trachoma will meet on April 19 at 4:30 p. m. to discuss the incidence and clinical type of trachoma in Europe and North and South America, that is in countries commonly considered to be nontrachomatous, and the treatment of trachoma by sulfanilamide and its congeners. Members of the congress are invited to these meetings.

A War Time Hospital Organization

Britain entered the great war without any military preparations for a catastrophe of that magnitude. If unhappily she should have to defend herself against aggression, she will be found to have made every possible preparation, especially for air attacks on the civilian population. The minister of health, Dr. Walter Elliot, has issued to all hospital authorities a memorandum explaining a comprehensive emergency scheme for a wartime hospital organization. In the course of the next few weeks every hospital will receive a notification explaining what part it is to play. The minister has been assisted by specialists appointed in accordance with the advice of the presidents of the Royal Colleges of Physicians and Surgeons. The basis of the scheme is the division of hospitals into different classes according to their intended uses. Room is to be made for the reception of casualties in one wing or block of most of the mental hospitals in the country, and a few mental hospitals are to be completely cleared of their ordinary patients, who will be transferred to other institutions, so as to provide some major units for the reception of casualties from the largest cities. It is proposed to link up casualty hospitals to each other in the more vulnerable areas and to selected hospitals farther out. The casualty hospitals would include the leading London hospitals, which would be denuded of their ordinary patients. Some of the institutions which are to act as base hospitals are to receive part of the valuable equipment now concentrated in the cities.

There are 371,500 hospital beds in England and Wales, not including 130,000 in mental hospitals. As these beds are almost

always fully occupied with the ordinary civilian sick, they would have to be substantially increased in the event of an emergency. At the outset there will be sent home all patients for whom institutional treatment is not essential except those whose homes are in areas to be evacuated. It is estimated that this would free from 30 to 50 per cent of the existing beds. In addition, patients in the danger areas would be transferred to outer areas and additional beds would be introduced into selected hospitals and institutions. Arrangements for distributing 80,000 beds are already in hand. If necessary, accommodation can be found by putting beds closer together in wards or by setting up others in ancillary buildings within hospital precincts. The effect would be to provide 300,000 beds for casualties, of which 200,000 would be available in the first twenty-four hours. But the minister appreciates that this may not be sufficient, and the government is exploring the possibility of using additional buildings for the expansion of hospitals in the danger areas and erecting huts on land adjacent to hospitals elsewhere.

Under the affiliation scheme the medical staffs of groups of affiliated hospitals will be divided into surgical teams and teams to be assigned to the appropriate hospitals. There are to be mobile surgical teams to deal with exceptional pressure wherever it may come. Where personnel is required beyond what can be given by affiliated hospitals, requests are to be made to the ministry of health and the Central Emergency Committee of the British Medical Association, which has already established a register of all physicians available. In advance of an emergency, individual doctors will be allotted to particular hospitals or groups of hospitals.

The Cancer Bill: Quack Advertising to Be Checked

In the House of Commons the minister of health, Dr. Elliot, stated that he proposed to appoint a subcommittee of the medical advisory committee to advise him on general principles with regard to the treatment of cancer. This subcommittee would consist of experts in surgery, medicine, gynecology, radium therapy, pathology and public health administration. A member moved amendments to strengthen the clause against the advertising of remedies for cancer. The prohibitory clause in the bill applied only to the person offering treatment and not to those who aided or abetted by the advertising. As pointed out in the *Times*, a quack residing outside the jurisdiction of English courts could order an advertisement by post and no one would be liable. All reputable newspapers had long refused to publish such advertisements and the others should be compelled to do so. For this reason the Newspaper Society had expressed complete approval of the amendments. These were passed by the house.

PARIS

(From Our Regular Correspondent)

Feb. 25, 1939.

The French League Against Rheumatism

The annual meeting of the French League Against Rheumatism was held in Paris Dec. 3, 1938. At the morning session operations for chronic rheumatic arthritis of the hip and gonorrheal rheumatism were demonstrated by Professor Mathieu and Dr. Padovani, who also showed a color film of arthroplastic resection of the hip.

At the afternoon session, papers were read on chronic gonorrheal rheumatism. The first of these was presented by Prof. Henri Gougerot, Florent Coste and Pierre Durel, who said that the chronic forms were not as well known as the acute forms. A striking feature of the chronic forms was that the relation between former gonorrhea and the arthritis was not always apparent. Frequently the existing arthritis seemed to be more directly related to acute nonspecific articular rheumatism, an intestinal infection, syphilis or tuberculosis.

In the second paper, Dr. F. Layani called attention to the nonspecific character, in general, of the treatment. For severe polyarthritis, drugs which act by raising the temperature are indicated, whereas for the subacute forms, preparations containing gold, as well as the neoarsphenamines, acridine salts and subcutaneous bacteriotherapy, have given satisfactory results. The use of the sulfanilamides has not been encouraging. Chronic gonorrheal rheumatism can never be controlled until local foci have been eliminated. If this can be accomplished by using the sulfanilamides and artificial heat, the affected joints should be massaged and given the benefit of early mobilization.

In a third paper, Drs. J. Surmont and G. Michon outlined the various types of physical therapy. For the localized forms of chronic gonorrheal arthritis, radiotherapy to combat the inflammatory reaction should be given. For the more generalized forms with acute or subacute onset, pyretotherapy with a temperature to 41 C. (105.8 F.) is indicated. When the onset has been more chronic, either irradiation in high doses or short wave treatment, also in high doses, gives the best results. In general the various forms of physical therapy should be employed.

In a fourth paper, Dr. Marcel Boppe said that before any operative correction of ankylosis was contemplated it was essential to eliminate a persisting urogenital or arthritic infection. Arthroplasty, especially of the knee, has been followed by excellent functional results, even though the radiographic changes, such as those of a degenerative hypertrophic osteoarthritis, are demonstrable postoperatively.

Jacques Forestier and Mlle. Certonciny reported having found evidences of a preceding gonorrheal infection in 44 per cent of fifty cases of spondylo-arthritis.

Dr. M. Pellet stated that, from the radiologic standpoint, gonorrheal arthritis fails to show any characteristic changes. One must consider rarefying osteitis, with hyperostosis and osteophytosis and numerous other changes in relation to the clinical history and laboratory observations.

Dr. Graber-Duvernay recommended the use of calcium gluconate for chronic gonorrheal coxitis. Several series are given of fifteen injections of 10 cc. of a 10 per cent solution, at the rate of five injections a week. After four or five such series no additional injections are given for a month.

Electrocardiographic Changes Due to Barometric Depression

The experimental study of the effects on the cardiovascular system of lowering of the atmospheric pressure as encountered by aviators at high altitudes is being carried out on an extensive scale at several of the aviation centers near Paris. Animals are placed in pneumatic caissons and the oxygen tension is lowered as needed so as to reproduce as closely as possible the atmospheric conditions met in aviation. At the Jan. 17, 1939, meeting of the Académie de médecine of Paris, the three cardiologists Prof. Charles Laubry, Dr. Jean Walser and Dr. Louis Deglaude reported their observations on dogs and rabbits on the electrocardiographic changes incident to atmospheric conditions at different altitudes. Their results differ in some respects from those published by other investigators.

At high altitudes, modifications of the monophase wave type as reported by Koch were never observed. After exposure to conditions similar to those found at altitudes of 10,000 meters, Cluze and his co-workers reported total cardiac fibrillation. This could not be corroborated by Laubry and his co-workers, who believe that their observations differ from those of the other investigators cited in the form and dose of the anesthetic which was employed and in the duration of the exposure to various altitude conditions.

The artificially produced electrocardiographic changes provoked by the same alterations of pressure under identical conditions are inconstant. The variations of the T wave are more constant. At an altitude of 1,500 meters, there is a slight increase of amplitude, which usually diminishes at altitudes between 4,000 and 8,000 meters, to increase when an altitude of 10,000 meters is reached. It then increases to such an extent that it can exceed in amplitude that of the R wave. The heart appears to possess a remarkable adaptability to sudden changes in atmospheric pressure as observed in almost vertical upward flight. The more important alterations of the electric curve are observed in experimental depressions which correspond to altitudes above 8,000 meters (about 25,000 feet), especially when an airplane is obliged to remain at that altitude for a prolonged interval.

Birth Rate Continues to Decrease

The population of France showed a sharp decline during the first nine months of 1938 according to official statistics. Deaths exceeded births by 27,365, while in 1937 there were eleven more births than deaths. The number of marriages decreased from 202,811 in the first nine months of 1937 to 200,160 in the same period of 1938. The number of deaths increased from 471,139 in the first nine months of 1937 to 494,107 in the same period of 1938. This increase in mortality is chiefly responsible for the decrease in the natality rate, i. e. relation of births to deaths, because there were 471,150 births in the first nine months of 1937, as compared with 466,742 births in the same period of 1938.

BERLIN

(From Our Regular Correspondent)

Feb. 13, 1939.

Effects of Alcohol, Coffee and Tobacco on Motorists

Among motorists it is frequently assumed that the harmful effects of alcoholic beverages can be abolished by the drinking of coffee. Professor Dr. Mueller, director of the Institute of Forensic Medicine of Heidelberg University, has determined from numerous experiments that this opinion is completely wrong. The persons submitting to the tests drank substantial quantities of beer and then partook of very strong coffee (40 Gm. of coffee beans of superior quality in 400 cc. of boiling water, allowed to stand for fifteen minutes). Subsequent tests in no instance disclosed any change in the alcoholic content of the blood. However, further observation of the subjects showed an alleviating influence on the subjective and objective effects of alcohol. This was manifested from fifteen to thirty minutes after ingestion of the coffee; the subjects no longer felt fatigued, the gait was steadier and indistinct speech had disappeared. Then too the reaction time, namely the interval between the observation of a circumstance and the necessary response, was diminished, although the normal interval was not reached. However, later on after the consumption of coffee, the subjects experienced a pronounced feeling of relaxation and uncertainty, which rendered them unfit for further experimentation. According to these tests the drinking of coffee produced only a rather brief recovery. If the subject was accustomed to coffee drinking, the diminution of the sobering effect was remarkable. By and large, if coffee sobered an erstwhile intoxicated person, the sobriety was of brief duration and was followed by such pronounced relaxation that, as Mueller says, one can by no means assume the responsibility for permitting drivers of motor vehicles to indulge freely in alcoholic beverages on the assumption that they can be sobered by subsequent drinking of coffee. The sobering effect of coffee may be explained as due to the contraction of the cerebral vessels and consequent diminished blood perfusion of the brain and the central nerve cells.

Whereas caffeine produces a remission of the signs of alcoholic intoxication, the nicotine contained in tobacco seems to exacerbate the effects of alcohol. The basis for this circumstance is assumed to be a dilatation of the cerebral vessels, and this in turn, on account of the concomitant increase in blood perfusion, leads to a concentration of alcohol in the nerve cells. If coffee drinking after consumption of alcohol is accompanied by the smoking of cigarets, the sobering effect of the coffee will be in large part offset by the nicotine.

The Pharmacology of Short Waves

Fritz Hildebrandt, professor of pharmacology at Giessen, conducted investigations of the pharmacology of short waves. Previously only an increased thermic effect in the tissue was demonstrated. Since it is to be assumed that chemical processes are also produced, the author first examined the histamine content of the blood after treatment with the short wave apparatus according to Schliephake's method (wavelength 3.5 meters). These experiments were performed on dogs; the thorax was exposed to the short wave current for from one half to one hour. At various intervals within the next twenty-four hours, specimens of blood were taken and the histamine content was determined. In some of the animals an increase of several hundred per cent was observed to take place directly and a return to normal would occur within the next two to four hours. In others the histamine value was not elevated immediately, but rather the maximum was reached after some two hours and the return to normal value then ensued gradually in the next few hours. Diathermic tests yielded virtually the same results. Accordingly the influence of the histamine content of the blood must be attributed to the pronounced thermic effect of the short wave current. The histamine values should be rather large, since tests in which single injections of histamine were used in doses of 0.1 mg. per kilogram of body weight disclosed that the histamine had disappeared quantitatively from the blood at the end of five minutes.

Regulation of Radioactive Waters

New legislation provides for strict regulation of the advertising of the products of those medicinal springs which are entitled to be termed "radiumbäder" (radium baths). Proprietors of such springs are required to measure the radioactivity of all spring water and other medicinal products which are advertised as radioactive. These tests must be made at regular quarterly intervals corresponding to the seasons of the year. All advertising matter published since Jan. 1, 1939, relative to radioactive therapeutic substances must contain exact numerical data on the radioactivity of the products. The proper figure should be reckoned as the average of at least four measurements made within a certain year and at all seasons of the year. Thus it is not permissible to furnish numerical data with regard to medicinal springs which, although literally accurate, fail to take into account the natural variations in radioactivity.

Professor Schoen Called to Göttingen

As previously reported, Prof. Hermann Straub, Göttingen ordinarius of internal medicine, died suddenly of heart disease while traveling. Now called to succeed him is Prof. Rudolf Schoen, Leipzig ordinarius and director of the university policlinic of internal medicine. Professor Schoen is 47 years old and has had a distinguished training. He is a pupil of pathologist Borst, pharmacologist Wieland, internist Ernst von Romberg and, in particular, internist Morawitz. When the last named left Würzburg for Leipzig, Schoen went with him. Schoen's works deal with pharmacologic-clinical topics, for example problems of sleep, as well as with studies in pathologic physiology. As the director of the clinic at Göttingen has always been a distinguished internist, the choice of Schoen represents a signal recognition of his achievements.

The Number of Cremations

In the German reich during 1937, a total of 78,332 cremations took place in 117 crematories. This means that the cadavers of 9.9 per cent of all persons dying in that year were incinerated.

Professor Weygandt Is Dead

Wilhelm Weygandt, for many years a psychiatrist in Hamburg, died at the age of 68 at Wiesbaden, where he had lately resided. When Weygandt decided to devote himself to psychiatry he had already acquired an unusually broad educational background, for he had been a student of theology, philosophy, psychology, languages and art. From 1896 he specialized in psychiatry and contributed importantly to this field. After extensive travel in connection with his studies, he became extraordinary professor in Würzburg in 1904 and in 1908 became director of the great Hamburg-Friedrichsberg hospital. At the foundation of Hamburg University in 1919, Weygandt was appointed to the chair of psychiatry. He concerned himself with many problems of his special field and published numerous works, some of which extended into other domains. He was most highly regarded abroad for his work on juvenile feeblemindedness.

BUCHAREST

(From Our Regular Correspondent)

Jan. 23, 1939.

Plethora of Physicians in Sofia

Sofia, the capital of Bulgaria, has a population of 250,000 and there are 800 registered practicing physicians. Accordingly the proportion of physicians to population is 1 : 311. Since there is a shortage of physicians in the rural districts, the government contemplates having one district physician, paid by the state, in each area with a radius of 23 miles.

The System of Medical Chambers

The Albanian legislature has drafted a bill which regulates medical practice and which is destined to introduce into Albania the system of medical chambers. Formerly the quacks, here called "hodjas," could operate freely, but the new law proposes imprisonment and fines ranging from $25 to $100.

Doctor Honoris Causa

At the university of Bordeaux Nov. 29, 1938, Constantin Daniel, member of the Scientific Academy of Paris and Rome, received the degree of doctor honoris causa. Professor Daniel is of Rumanian origin and is well known in France as a surgeon whose literary work aroused great interest in the entire medical world. On this occasion he lectured on scientific cooperation between France and Rumania and between the Bordeaux and Bucharest universities. He also gave an address on the influence which French medical science has had on medical science in Rumania.

Registration of First Year Medical Students

A matriculation certificate is necessary for admission to medical courses, and a foreign certificate is valid only when the minister of public instruction finds it equivalent to the domestic certificate, which embraces the subjects taught in the Rumanian secondary schools. Admission to the first year is temporary, as this year is regarded as a trial year. To qualify for admission the applicant must hand to the dean of the faculty (1) a birth certificate, (2) a certificate of citizenship, (3) a certificate of matriculation, (4) in the case of those under age, the written approval of parents or guardians, (5) a health blank issued by the hygienic institute of the faculty, and (6) the choice of curriculum as well as Bucharest address and three photographs. Admission is preceded by examinations, conducted by a committee of three members appointed by the council of the faculty, in physicochemistry, zoology, botany, anatomy, the physiology of man and general biology, but only from the material prescribed for the upper classes of the secondary schools. These examinations are written and oral. For the written examinations two hours is allowed. Those who pass are admitted only if there are accommodations, as the number of first year students is limited. The examination fee is 100 lei (about $1). Recently a number of families returned from America with sons who were born in the United States and had attended grammar and secondary schools there. Such young men need to learn perfect Rumanian before applying for admittance.

Colon Bacillus Infections of the Urinary Passages

In the experience of the Cluj urologic clinic, mandelic acid has been found highly efficacious against the colon bacillus. Recovery has taken place in 85 per cent of the cases. Among twenty-three cases, treatment of from three to four days was sufficient in seventeen cases, of five days in four cases and of eight days in two cases until the subjective symptoms completely and the objective symptoms almost entirely abated. The patients tolerated ammonium mandelate much better than calcium mandelate. Prior to taking the medicine it is advisable to eat a piece of bread or biscuits, as the drug on an empty stomach is likely to cause discomfort in the stomach. Given in milk or cocoa the drug is not only more palatable but is much better borne. The dose employed at the clinic in general is 12 Gm. daily, but even 9 Gm. a day has proved efficacious. An implicit requirement is limitation of fluids. The period of treatment can be decidedly shortened by reducing the daily quantity of urine to from 500 to 800 cc. In the experience of the chief urologist, mandelic acid therapy is harmless. Renal conditions affecting the renal parenchyma with limitation of renal function contraindicate the use of mandelic acid.

Marriages

JEREMIAH W. KERNER, Jersey City, N. J., to Miss Jeannette V. Hermann of Omaha in Los Angeles, January 20.

COLUMBUS HASSELL PORTER, Memphis, Tenn., to Miss Mary Katherine Ashley at Marion, Ark., Dec. 13, 1938.

WILLIAM HENRY TURNLEY, Stamford, Conn., to Mrs. Hetia Hoffman Stanhope at Riverside, March 2.

LAWRENCE SHINABERRY, Fort Wayne, Ind., to Miss Isabelle McMahan of Alexandria, Nov. 30, 1938.

FRANCIS H. KEHLNHOFER, Wauwatosa, Wis., to Miss Mildred Moldenhauer of Lake Geneva, January 7.

THOMAS ALEXANDER PETERSON, Savannah, Ga., to Miss Ruth Houston of Slyvester, Dec. 3, 1938.

LANDON BOYCE SNAPP, Bristol, Tenn., to Miss Jennie Wood Meade of Mendota, Va., February 18.

HAROLD O. SCHNEIDER, Monroe, Wis., to Miss Frances Louise Warner of Lincoln, Neb., January 7.

CLEMENT E. LOCKWOOD, Holly, Mich., to Mrs. Elsie Knisley of Romeo, in Fenton, Nov. 5, 1938.

ROBERT L. ARMINGTON to Miss Maryanna Loidl, both of Anderson, Ind., Nov. 10, 1938.

JESSE M. SHACKELFORD to Miss Bertha Bowles, both of Martinsville, Va., February 9.

ROY M. PEACOCK, Mobile, Ala., to Miss Mary Belle Forrest of Baltimore, Dec. 20, 1938.

MARY ELLEN NEVILLE to Mr. Edward Bielefeld, both of Milwaukee, Dec. 31, 1938.

JACK MCKITTRICK to Miss Mary Seal, both of Washington, Ind., Nov. 20, 1938.

CHARLES N. LEWIS to Miss Mildred Lee, both of Madison, Wis., Dec. 30, 1938.

Deaths

Daniel Percy Hickling ⊕ Washington, D. C.; Georgetown University School of Medicine, Washington, 1884; professor of psychiatry and neurology and formerly clinical professor at his alma mater; an Affiliate Fellow of the American Medical Association; member of the American Psychiatric Association, Washington Society for Mental and Nervous Diseases, National Psychopathological Association and the Washington Academy of Sciences; member of the committee on arrangements of the International Congress of Mental Hygiene; alienist for the District of Columbia, 1914-1933; professor of medical jurisprudence, National University Law School; formerly attending specialist, neuropsychiatric service, U. S. Veterans Bureau; served as contract surgeon for the U. S. Army; aged 75; served in various capacities on the staffs of the Providence Hospital, Gallinger Municipal Hospital, St. Elizabeths Hospital and the Georgetown University Hospital, where he died, January 10, of pneumonia, following the amputation of a leg.

Elwood Emerson Downs ⊕ Woodbury, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1913; representative of the Section on Radiology to the Scientific Exhibit of the American Medical Association; past president and secretary of the Gloucester County Medical Society, and in 1938 received the society's medal of honor for his contributions as poet laureate of the physicians of Gloucester County; fellow of the American College of Radiology; past president of the Philadelphia Roentgen Ray Society and the Radiological Society of New Jersey; member of the American Roentgen Ray Society and the Radiological Society of North America; president of the board of education; radiologist to the Underwood Hospital, Woodbury; Jeanes Hospital, Philadelphia, and the Salem (N. J.) County Memorial Hospital; author of numerous articles; aged 48; died suddenly, March 18, of embolism following an appendectomy.

George Van Ness Dearborn, Maplewood, N. J.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893; member of the American Psychiatric Association, American Philosophical Society, American Psychological Association and other scientific societies; in 1899 assistant in physiology at the Harvard University Medical School, Boston; at various times professor, and director of the laboratory of physiology, Tufts College Medical and Dental schools; consulting psychologist to the Forsyth Dental Infirmary for Children, Boston; served during the World War; on the staffs of various veterans administration facilities; at one time on the staffs of the Boston City Hospital and the Augusta (Me.) State Hospital; author of "Textbook of Human Physiology," 1908; editor of "Psychological Index"; aged 69; died, Dec. 12, 1938, in New York.

Carl Boettiger ⊕ Flushing, N. Y.; Cornell University Medical College, New York, 1903; member of the House of Delegates of the American Medical Association in 1935-1936; fellow of the American College of Physicians; member of the Society of American Bacteriologists and the American Society of Clinical Pathologists; past president of the Medical Society of Queens County; served during the World War; clinical professor of medicine at the New York University College of Medicine; member of the city board of health; visiting physician to St. John's Long Island City (N. Y.) Hospital and the Mary Immaculate Hospital, Jamaica, N. Y.; visiting physician and director of the medical service, Queens General Hospital; aged 59; died, February 1, at his home in Forest Hills of coronary thrombosis.

Donald Maclean ⊕ Reno, Nev.; University of Edinburgh Faculty of Medicine, Edinburgh, Scotland, 1898; fellow of the American College of Surgeons; past president of the Washoe County Medical Society; veteran of the Spanish-American War; surgeon for the Leadville, Colo., mines, 1900-1905; chief medical advisor of the Nevada Industrial Commission, 1913-1927; physician to the Nevada State Prison, 1910-1923; surgeon for the Nevada State Orphans' Home; chief of the staff of St. Mary's Hospital; member of the board of trustees of the Washoe General Hospital; aged 66; died, January 4, of coronary thrombosis.

Ellison Lloyd Ross ⊕ Waukegan, Ill.; Northwestern University Medical School, Chicago, 1918; professor of otolaryngology at his alma mater; member of the American Academy of Ophthalmology and Oto-Laryngology and the American Otological Society; fellow of the American College of Surgeons; attending otolaryngologist to the Passavant Memorial Hospital, Chicago, and Veterans' Administration Facility, North Chicago; on the staffs of the Victory Memorial and St. Therese's hospitals, Waukegan; aged 57; died, Dec. 21, 1938, of heart disease.

Byron Ulysses Richards ⊕ Pawtucket, R. I.; Dartmouth Medical School, Hanover, N. H., 1893; an Affiliate Fellow of the American Medical Association; formerly commissioner of health, state registrar and executive secretary of the Rhode Island State Board of Health; past president of the Federation of State Medical Boards of the United States; formerly vice president of the State and Provincial Health Authorities of North America; for many years police surgeon and city physician; aged 72; died, February 15, of mitral insufficiency.

William Cosgrove Hunsicker, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1895; clinical professor of urology at his alma mater; fellow of the American College of Surgeons; director of health of Philadelphia; for many years member of the state senate; urologist to the Hahnemann Medical College and Hospital, St. Luke's and Children's hospitals, Philadelphia, Homeopathic State Hospital, Allentown, and consulting urologist to the Pottstown (Pa.) Homeopathic Hospital; aged 65; died, January 10, of heart disease.

Harry Stearns Willard ⊕ Paterson, N. J.; New York Homeopathic Medical College and Hospital, New York, 1896; fellow of the American College of Surgeons; past president of the Passaic County Medical Society; for many years member of the board of education of Ridgewood; ophthalmologist to the "Bergen Pines," Oradell; Paterson General Hospital and Paterson Eye and Ear Infirmary, Paterson, and Good Samaritan Hospital, Suffern, N. Y.; aged 62; died, Dec. 11, 1938, at his home in Ridgewood of chronic myocarditis.

Ephraim Roland Mulford ⊕ Burlington, N. J.; University of Virginia Department of Medicine, Charlottesville, 1903; member of the House of Delegates of the American Medical Association, 1929-1937; past president of the Medical Society of the State of New Jersey and the Burlington County Medical Society; was surgeon to the Pennsylvania Railroad in his district; on the staff of the Burlington County Hospital, Mount Holly; aged 58; died, March 10, of coronary occlusion while visiting friends in Charlottesville, Va.

Joseph Manuel Rector ⊕ Jersey City, N. J.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893; attending gynecologist to the Jersey City Medical Center; connected with the Jersey City Hospital since 1893; member of the state board of medical examiners; consulting surgeon gynecologist to the North Hudson Hospital and New Jersey State Hospital at Greystone Park; served during the World War; aged 71; died, January 10, of arteriosclerotic heart disease.

Lyman Augustus Brewer, Toledo, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887; member of the Ohio State Medical Association; fellow of the American College of Surgeons; at one time dean and professor of surgery, Toledo Medical College; served during the World War; chief of staff, Mercy Hospital; consulting surgeon to the Women's and Children's Hospital; on the staff of St. Vincent's Hospital; aged 72; died, January 16, of heart disease.

Mary O'Malley, Buffalo; Niagara University Medical Department, Buffalo, 1897; fellow of the American College of Physicians; past president of the Medical Women's National Association; associate in psychiatry at the George Washington University School of Medicine, 1922-1929; formerly clinical director in charge of the women's service at St. Elizabeths Hospital and consultant in psychiatry at the Gallinger Municipal Hospital; aged 71; died, January 30, of cerebral hemorrhage.

Leopold Jaches ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1903; formerly a lawyer; clinical professor of radiology at his alma mater; member and past president of the American Roentgen Ray Society; member of the Radiological Society of North America and American College of Radiology; served during the World War; aged 65; on the staff of the Mount Sinai Hospital, where he died, January 23.

Martin E. Sargeant ⊕ Ticonderoga, N. Y.; University of Vermont College of Medicine, Burlington, 1908; at various times health officer of the towns of Putnam, Hague and Ticonderoga; health examiner in the local schools, and also acted in a similar capacity in the schools at Putnam and Hague; formerly on the staff of the Moses Ludington Hospital; aged 53; died, Dec. 30, 1938, of pulmonary tuberculosis and diabetes mellitus.

Louis Franklin ⊕ Jersey City, N. J.; Columbia University College of Physicians and Surgeons, New York, 1903; fellow of the American College of Surgeons; surgeon to the Margaret Hague Maternity Hospital and co-founder and president of staff of the Fairmount Hospital, Jersey City; president of the staff of the Hudson County Hospital, Secaucus; aged 56; died, Dec. 20, 1938, of heart disease and hypertensive nephritis.

Ralph Dumphry Simons ⊕ Gardiner, Maine; Medical School of Maine, Portland, 1899; past president of the Kennebec County Medical Society; member of the board of registration of medicine; formerly member of the state legislature; for many years school physician; aged 61; on the staff of the Gardiner General Hospital, where he died, Dec. 25, 1938, of intestinal obstruction due to adhesions.

Edward S. Newell ⊕ Pelham Manor, N. Y.; University of the City of New York Medical Department, 1892; on the courtesy staff of the Mount Vernon (N. Y.) Hospital since 1910, and on the attending staff from 1890 to 1910; for many years on the associate staff and attending staff of the New Rochelle (N. Y.) Hospital; aged 70; died, Dec. 12, 1938, of coronary thrombosis.

Michael Simon Granelli, Hoboken, N. J.; Jefferson Medical College of Philadelphia, 1906; member of the Medical Society of New Jersey; veteran of the Spanish-American and World wars; school physician; on the staff of St. Mary's Hospital; aged 57; died, Dec. 22, 1938, in the Bayonne (N. J.) Hospital of postoperative pneumonia and carcinoma of the bladder.

William James Adams ⊕ Omaha; Creighton University School of Medicine, Omaha, 1924; instructor in surgery and at various times assistant in anatomy and instructor in medicine at his alma mater; on the staff of the Creighton Memorial St. Joseph Hospital; served during the World War; aged 40; died, Dec. 21, 1938, of hypertension and cerebral hemorrhage.

Frank Joseph Savage ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1928; demonstrator in medicine at his alma mater; on the visiting staffs of the Deaconess Hospital, Grace Hospital and St. Vincent Charity Hospital; aged 38; died, Dec. 10, 1938, of adynamic ileus, partial intestinal obstruction and ulcerative colitis.

Levi Franklin Wagner, Reading, Pa.; University of Vermont College of Medicine, Burlington, 1888; Medico-Chirurgical College of Philadelphia, 1890; member of the Medical Society of the State of Pennsylvania; formerly county coroner and prison physician; aged 75; died, Dec. 14, 1938, in the Reading Hospital of cardiac decompensation.

Byron Coleman Meacher, Portage, Wis.; Rush Medical College, Chicago, 1880; member of the State Medical Society of Wisconsin; fellow of the American College of Surgeons; chief of staff, St. Savior's General Hospital; associate member of the staff, St. Mary's Hospital, Columbus; aged 81; died, Dec. 15, 1938, of Parkinson's disease.

Henry G. Chritzman ⊕ Greencastle, Pa.; Jefferson Medical College of Philadelphia, 1926; on the staffs of the Washington (Pa.) County Hospital, Waynesboro (Pa.) Hospital and the Chambersburg (Pa.) Hospital; member of the school board; aged 37; died, Dec. 10, 1938, in the Jefferson Hospital, Philadelphia, of carcinoma.

Edgar Quinby Bullock, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1905; member of the Medical Society of Delaware; formerly secretary of the Delaware Homeopathic Board of Medical Examiners; on the staff of the Homeopathic Hospital; aged 57; died, February 8, of coronary thrombosis.

Lewis Olds Tayntor ⊕ Conneaut Lake, Pa.; University of Maryland School of Medicine, Baltimore, 1926; formerly connected with the Maryland State Health Department as deputy state health officer of three counties; on the staff of the Meadville (Pa.) City Hospital; aged 53; died, Dec. 28, 1938, of cerebral hemorrhage.

William Reid Thompson, Mackville, Ky.; Kentucky University Medical Department, Louisville, 1905; member of the Kentucky State Medical Association; past president of the Washington County Medical Society; bank president; aged 62; died, Dec. 24, 1938, in the A. D. Price Memorial Hospital, Harrodsburg.

Robert Roy Robinson, Hallsville, Mo.; University of Missouri School of Medicine, Columbia, 1901; member of the Missouri State Medical Association; at one time health officer of Grant County, New Mexico, and Boone County, Mo.; aged 59; died, Dec. 23, 1938, in the Barnes Hospital, St. Louis, of tuberculosis.

Edward Gager Fox, Wethersfield, Conn.; University of the City of New York Medical Department, 1883; member of the Connecticut State Medical Society; health officer for fifty years; formerly physician to the state prison; aged 79; died, Dec. 26, 1938, of cerebral thrombosis, arteriosclerosis and diabetes mellitus.

William Truman Stone, Park Rapids, Minn.; Hahnemann Medical College and Hospital, Chicago, 1882; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; at various times member of the state legislature; aged 83; died, Dec. 26, 1938, of angina pectoris.

Walter C. Ashworth ⊕ Greensboro, N. C.; College of Physicians and Surgeons, Baltimore, 1892; past president of the Guilford County Medical Society; on the staff of the Glenwood Park Sanitarium and formerly owner; aged 70; died, Dec. 16, 1938, in the Wesley Long Hospital of carcinoma of the bladder.

Willard Clark Sanford ⊕ Chicago; Chicago Medical College, 1890; formerly associate professor of surgery, University of Illinois College of Medicine; fellow of the American College of Surgeons; on the staff of St. Elizabeth's Hospital; aged 73; died, Dec. 12, 1938, of coronary thrombosis and hypertension.

Henry M. Ogilbee, Manitou Springs, Colo.; Western Reserve University Medical Department, Cleveland, 1882; member of the Colorado State Medical Society; at various times mayor; aged 82; died, Dec. 6, 1938, in the Beth El Hospital, Colorado Springs, of carcinoma of the urinary bladder.

Maly Emanuel Renner, Lagro, Ind.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1881; member of the Indiana State Medical Association; aged 78; died, Dec. 12, 1938, in the Wabash County Hospital, Wabash, of injuries received when struck by an automobile.

Arey Covington Everett ⊕ Rockingham, N. C.; University of Maryland School of Medicine, Baltimore, 1897; secretary and past president of the Richmond County Medical Society; for many years a member of the county board of health; aged 65; died, Dec. 26, 1938, of coronary thrombosis.

Thomas McCullough Maxwell ⊕ Butler, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1903; for many years member of the board of health and school board; formerly on the staff of the Butler County Memorial Hospital; aged 60; died, Dec. 7, 1938, of cerebral hemorrhage.

John Kavanaugh Bullock ⊕ Jackson, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1926; member of the American Academy of Pediatrics; formerly vice president of the Mississippi State Pediatric Society; aged 39; died, Dec. 26, 1938, of cerebral hemorrhage.

David William Van Camp, Plainfield, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; past president of the Cumberland County Medical Society; on the staff of the Carlisle (Pa.) Hospital; aged 67; died, Dec. 30, 1938, of arteriosclerosis and hypertension.

Edward Loring Marr ⊕ Melrose, Mass.; Tufts College Medical School, Boston, 1911; veteran of the Spanish-American War; formerly school physician; on the staff of the Melrose Hospital; aged 61; died, Dec. 17, 1938, in the Middlesex County Sanatorium of pulmonary tuberculosis.

Maggie Letitia McCrea, Sterling, Kan.; Northwestern University Woman's Medical School, Chicago, 1891; member of the Kansas Medical Society; past president of the Rice County Medical Society; aged 74; died, Dec. 19, 1938, in the Sterling Hospital of carcinoma of the stomach.

Joseph Irwin France ⊕ Port Deposit, Md.; College of Physicians and Surgeons, Baltimore, 1903; formerly state senator and United States Senator; at one time secretary of the Medical and Chirurgical Faculty of Maryland; aged 65; died, January 26, of chronic myocarditis.

George McClelland Scott, Waynesburg, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1891; member of the Medical Society of the State of Pennsylvania; for several years member of the school board; aged 73; died, Dec. 9, 1938, of diabetes mellitus and pancreatitis.

Edward Whitfield Tolley, Grand Rapids, Mich.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; member of the Michigan State Medical Society; aged 68; died, Dec. 17, 1938, in St. Mary's Hospital of cerebral hemorrhage.

Marion Whitacre ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1899; formerly clinical instructor in medicine at his alma mater; served during the World War; for many years on the staff of the Christ Hospital; aged 67; died, Dec. 3, 1938, of myocarditis and arteriosclerosis.

Lenus Albert Carl, Newport, Pa.; Baltimore Medical College, 1907; member of the Medical Society of the State of Pennsylvania; formerly secretary of the Perry County Medical Society; aged 60; died, Dec. 1, 1938, in the Harrisburg (Pa.) Hospital of coronary thrombosis.

Charles Edward Holleman, Winston-Salem, N. C.; Jefferson Medical College of Philadelphia, 1932; member of the Medical Society of the State of North Carolina; on the staff of the City Memorial Hospital; aged 34; died, Dec. 20, 1938, of pulmonary tuberculosis.

James J. Cavaney, Milwaukee; Rush Medical College, Chicago, 1879; member of the State Medical Society of Wisconsin; formerly on the staffs of the Milwaukee County Hospital and the Misericordia Hospital; aged 85; died, Dec. 30, 1938, of arteriosclerosis.

Ulysses Irenaeus Tope, Lamartine, Ohio; Ohio Medical University, Columbus, 1895; member and past president of the county board of health and member of the local board of education; aged 68; died, Dec. 15, 1938, following an operation for sarcoma of the sacrum.

Clarence William Weller, Austin, Texas; University of Texas School of Medicine, Galveston, 1913; member of the State Medical Association of Texas; served during the World War; aged 55; died, Dec. 5, 1938, of peritonitis following intestinal obstruction.

John Nicholas Baskett, Hannibal, Mo.; Bellevue Hospital Medical College, New York, 1879; member of the Missouri State Medical Association; on the staff of the Levering Hospital; at one time mayor; aged 85; died, Dec. 29, 1938, of coronary thrombosis.

Grover Cleveland McCormack, Joplin, Mo.; St. Louis College of Physicians and Surgeons, 1910; served during the World War; aged 49; died, Dec. 21, 1938, in the Veterans Administration Facility, Fayetteville, Ark., of pulmonary edema and nephritis.

George W. Pfromm ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1894; formerly assistant professor of therapeutics at his alma mater; consulting physician to the German Protestant Home; aged 69; died, Dec. 4, 1938, of carcinomatosis.

Robert Allen Cavitt, Morrison, Okla.; St. Louis College of Physicians and Surgeons, 1896; member of the Oklahoma State Medical Association; county health officer; formerly member of the state legislature; aged 67; died, Dec. 24, 1938, in a hospital at Pawnee.

Emery Trekell, Wellington, Kan.; Northwestern University Medical School, Chicago, 1910; member of the Kansas Medical Society; county health officer; aged 61; died, Dec. 8, 1938, in the Hatcher Hospital of peptic ulcer, cerebral hemorrhage and uremia.

Frederick Snow Canedy, Wellfleet, Mass.; Boston University School of Medicine, 1891; member of the Massachusetts Medical Society; formerly member of the school committee; aged 70; died, Dec. 12, 1938, of cerebral arteriosclerosis and uremia.

Alpha John Wedel, Hesston, Kan.; University Medical College of Kansas City, Mo., 1910; member of the Kansas Medical Society; aged 56; died, Dec. 25, 1938, in the Bethel Deaconess Hospital, Newton, of lobar pneumonia and cerebral hemorrhage.

William Amos Trivette ⊕ Hamptonville, N. C.; Medical College of Virginia, Richmond, 1916; served during the World War; medical director and superintendent of the Trivette Clinic; aged 50; died, Dec. 20, 1938, of lobar pneumonia and influenza.

Clarence Banjay Wasson, Bellevue, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; member of the Michigan State Medical Society; also a minister; aged 73; died, Dec. 6, 1938, of senility.

George Edwin Lewis, Rockville, Md.; Southern Homeopathic Medical College, Baltimore, 1901; veteran of the Spanish-American and World wars; aged 69; died, Dec. 30, 1938, of arteriosclerosis, hypertension and myocarditis.

John Boyd McKeown, Great Falls, S. C.; Medical College of the State of South Carolina, Charleston, 1909; member of the South Carolina Medical Association; aged 52; died, Dec. 23, 1938, of myocarditis and pulmonary infarction.

Calvin Grant Stookey, Mechanicsville, Iowa; Illinois Medical College, Chicago, 1895; member of the Iowa State Medical Society; aged 73; died, Dec. 12, 1938, in St. Luke's Hospital, Cedar Rapids, of hypostatic pneumonia.

George Seibert Lesher, Eastport, Idaho; University of Pennsylvania Department of Medicine, Philadelphia, 1890; acting assistant surgeon, U. S. Public Health Service; aged 76; died, Dec. 16, 1938, in Spokane, Wash.

Arthur Glenn Davis, Senath, Mo.; St. Louis University School of Medicine, 1928; member of the Missouri State Medical Association; aged 34; died, Nov. 25, 1938, in a hospital at Paragould, Ark., of gastric carcinoma.

Jasper William Coller, Wellsville, N. Y.; Long Island College Hospital, Brooklyn, 1880; past president of the Allegany County Medical Society; for many years health officer; aged 86; died, Dec. 29, 1938, of myocarditis.

William Emerson Tucker, Ipswich, Mass.; Long Island College Hospital, Brooklyn, 1870; formerly member of the school committee; aged 89; died, Dec. 3, 1938, of carcinoma of the stomach and arteriosclerosis.

Lucius Sherman Nichols ⊕ Geneva, Ala.; Medical College of Alabama, Mobile, 1897; secretary of the Geneva County Medical Society; formerly county health officer; aged 66; died Dec. 20, 1938, of pneumonia.

Clarence Mansur Westerman, St. Louis; Barnes Medical College, St. Louis, 1906; served during the World War; aged 52; died, Nov. 23, 1938, in the Veterans Administration Facility, Jefferson Barracks, Mo.

William Eli Morris, Georgiana, Ala.; Medical College of Alabama, Mobile, 1897; member of the Medical Association of the State of Alabama; aged 70; died, Dec. 6, 1938, of uremia.

Phebe Russell Norris ⊕ Washington, D. C.; Columbian University Medical Department, Washington, D. C., 1891; aged 78; died, Dec. 11, 1938, of chronic arthritis and myocarditis.

James C. Harris, Oakfield, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1904; aged 56; died, Dec. 5, 1938, in the Phoebe Putney Memorial Hospital, Albany.

Harry Cordover ⊕ New York; University and Bellevue Hospital Medical College, New York, 1934; on the staff of the Morrisania City Hospital; aged 30; died, Nov. 29, 1938.

David Ulysses Surface, Grand Rapids, Minn.; Sioux City (Iowa) College of Medicine, 1896; aged 70; died, Dec. 2, 1938 of myocarditis, hypertension and arthritis.

Martha V. Thomas, South Bend, Ind.; Hahnemann Medical College and Hospital, Chicago, 1896; aged 83; died in December 1938 of heart disease and hypertension.

Joseph Eli Bird ⊕ New Albany, Ind.; Hospital College of Medicine, Louisville, Ky., 1897; on the staff of St. Edward's Hospital; aged 68; died, Dec. 8, 1938.

James Henry Thomason, Guntersville, Ala.; University of Tennessee Medical Department, Nashville, 1907; aged 56; died, Dec. 4, 1938, of heart disease.

John Edgar Tidwell, Andrews, N. C.; Chattanooga (Tenn.) Medical College, 1903; aged 72; died, Dec. 3, 1938, of cerebral hemorrhage and pernicious anemia.

Fred Harvey Bly, *Red Bluff, Calif.; Northwestern University Medical School, Chicago, 1911;* aged 72; died, Nov. 12, 1938, of endocarditis.

Calvin F. Moranville, Hemingford, Neb. (licensed in Nebraska in 1891); aged 88; died at Bayard in November 1938 of senility.

John Henry George Youell, Aylmer (West), Ont., Canada; University of Toronto Faculty of Medicine, 1892; died, Nov. 28, 1938.

Leslie Roy Aiken, Courtright, Ont., Canada; Western University Faculty of Medicine, London, 1913; aged 51; died, Nov. 16, 1938.

Rosaire Georges Matte, Quebec, Que., Canada; Laval University Faculty of Medicine, Quebec, 1884; aged 77; died Oct. 30, 1938.

Frank William Ramsey, Somerville, Mass. (licensed in Massachusetts in 1901); aged 61; died, Nov. 28, 1938, of heart disease.

George William Stiffler, Denver; Missouri Medical College, St. Louis, 1887; aged 80; died, Nov. 17, 1938, of heart disease.

Andrew Jackson Farley, Irondale, Ala.; Atlanta Medical College, 1890; aged 82; died, Nov. 24, 1938, of cerebral hemorrhage.

Eugene Manigault Baker Jr., Patterson, Ga.; Jefferson Medical College of Philadelphia, 1926; aged 38; died, Nov. 2, 1938.

Garrett White, Chapel Hill, Tenn.; University of Tennessee Medical Department, Nashville, 1889; aged 73; died, Nov. 29, 1938.

Samuel Jacob Morris, Mount Elgin, Ont., Canada; Western University Faculty of Medicine, London, 1900; died, Nov. 5, 1938.

James G. Merrison, Sarnia, Ont., Canada; Faculty of Medicine of Trinity College, Toronto, 1878; died, Nov. 24, 1938.

Herman F. Ratte, Los Angeles; Missouri Medical College, St. Louis, 1886; aged 74; died, Nov. 21, 1938, of myocarditis.

Melville Wright Staples, Pleasant Plains, Ill.; St. Louis Medical College, 1884; aged 88; died, Dec. 8, 1938, of uremia.

Martin G. Fox, Thurmont, Ind.; University of Medicine, Indianapolis, 1898; died, Dec. 1, 1938.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Anogen.—Anogen, Inc., New York. Composition: Essentially furfural. Fraudulently represented as a cure for delayed menstruation.—[*N. J. 27226; October 1937.*]

Bacon's Ferretone Tonic.—Max E. Bacon, trading as Ferretone Co., Wichita, Kan. Composition: Chiefly powdered iron, chalk, phosphates, plant extractives, strychnine and a phenolic compound. "System purifier" and tonic," etc. Fraudulent therapeutic claims.—[*N. J. 27135; August 1937.*]

Big-Chief Herbs.—Spors Co., Le Center, Minn. Composition: Essentially plant material including lavender flowers and oil of mustard. For headaches, sinus, catarrh, hay fever and asthma. Fraudulent therapeutic claims.—[*N. J. 27538; January 1938.*]

Cadum Ointment.—Omega Chemical Co., New York. Composition: Essentially zinc oxide (20.4 per cent), sulfur (4.6 per cent), salicylic acid and oil of cade, in a petrolatum and wax base. Proportions of zinc oxide and sulfur falsely stated on label. Fraudulently represented to cure skin diseases, hemorrhoids, etc.—[*N. J. 27364; December 1937.*]

Cal-O-San Stomach Tablets.—G. Brewerton, Fort Browning, Mont. Composition: In each tablet, bismuth subcarbonate (10½ grains), chalk (6 grains), baking soda (10½ grains), starch and peppermint oil. For stomach ulcers, etc. Fraudulent therapeutic claims.—[*N. J. 27142; August 1937.*]

Corley's (Dr.) Cor-Lax.—Buren L. Corley, trading as Dr. Corley's Products, San Francisco. Composition: Essentially plant material including senna and peppermint leaves, cascara bark and fennel seed. Fraudulently represented as a cure for excess acid, upset stomach, congested liver, cancer, tuberculosis, diabetes, kidney and heart trouble, etc.—[*N. J. 27267; October 1937.*]

Corley's (Dr.) Health Broth.—Buren L. Corley, trading as Dr. Corley's Products, San Francisco. Composition: Essentially plant material, including alfalfa leaf and stem, okra, tomato, red pepper, celery seed, onion, potato starch, plant tissue resembling Irish moss, starchy material, and small amounts of stem, leaf and root tissues lacking in diagnostic tissue elements. Fraudulently represented as a cure for mineral and vitamin deficiency diseases, such as stomach gas and ulcers, all digestive upsets, skin ailments, depleted blood, all forms of rheumatism, etc.—[*N. J. 27267; October 1937.*]

Davis (G. W.) Inflammatory Extirpator.—Charles L. Isherwood & Sons, Fall River, Mass. Composition: Essentially alcohol (69.2 per cent), red pepper, a gum, water, and volatile oils including turpentine and camphor. Fraudulently represented as a remedy for external and internal pain, coughs, asthma, croup, headache, urinary diseases, rheumatism, etc.—[*N. J. 27146; August 1937.*]

Dunlap's Antiseptic Liniment.—Morna Wright Medicine Co., and Dunlap Medicine Co., Memphis. Composition: Essentially alcohol (78 per cent), water, and small amounts of chloroform, extracts of plant drugs, ammonia, and volatile oils including sassafras and eucalyptol. For rheumatism, toothache, headache, diarrhea, colic, etc. Fraudulent therapeutic claims.—[*N. J. 27534; January 1938.*]

Elco-Rub.—Erie Laboratories, Cleveland. Composition: Essentially petrolatum, oils of eucalyptus, wintergreen and turpentine, with camphor, menthol and guaiacol. For sore throat, croup, whooping cough, rheumatism, catarrh, etc. Fraudulent therapeutic claims.—[*N. J. 27360; December 1937.*]

Essential Food Minerals.—H. C. Roberts Co., Sioux City, Iowa. Composition: "Essential Food Minerals" was chiefly milk sugar (97.1 per cent), with traces of potassium, sodium, calcium, magnesium, iron, manganese, copper and silicon compounds, chlorides, phosphates and sulfates; "Special Gland Food Essential Food Minerals" was chiefly milk sugar (95.6 per cent), with traces of sodium, potassium, calcium, magnesium, iron, manganese, copper and silicon compounds, chlorides, phosphates, sulfates and iodides; "Special Iodine Containing Essential Food Minerals" was chiefly milk sugar (98.2 per cent), with traces of sodium, potassium, calcium, magnesium, iron, manganese, copper and silicon compounds, chlorides, sulfates, phosphates and iodides. Fraudulently represented for "tonic" and "building-up" purposes and as remedies for numerous ailments.—[*N. J. 27258; October 1937.*]

Ferretone Eye Lotion.—Max E. Bacon, trading as Ferretone Co., Wichita, Kan. Composition: Boric acid, menthol and a yellow color. Fraudulently represented to cure all ordinary eye affections, excessive secretion of tears, fatigued vision, ulcerated eyelids, etc., and to prevent "serious and lamentable diseases and loss of sight."—[*N. J. 27135; August 1937.*]

Foot Pal.—Spors Co., Le Center, Minn. Composition: Essentially small amounts of sodium salicylate, glycerin and pine needle oil in water, colored with a green dye. Fraudulently represented as an antiseptic and a cure for blisters resulting from nail wounds.—[*N. J. 27538; January 1938.*]

Geba.—Vitamin Products Research Foundation, Inc., Chicago. Composition: Protein, starch, sugars and compounds of calcium and magnesium, phosphates and carbonates, with approximately 2 U. S. P. units of vitamin A per tablet. Adulterated because not up to the standard of vitamin A represented for it; misbranded because fraudulently indicated to promote health, a vigorous, robust mind and body, disease resistance, sexual impotence, etc., and to combat infections, prevent anemia and cure irritability, listlessness and beriberi.—[*N. J. 27353; December 1937.*]

Grandma's Medicinal Herbs.—Park Laboratory Co., Inc., San Antonio, Texas. Composition: Essentially senna and small amounts of couch grass, American saffron, caraway seed, anise seed, licorice root, sassafras bark, lavender flowers, bearberry leaves and cinnamon bark. Fraudulent therapeutic claims for its alleged "cleansing" properties.—[*N. J. 27236; October 1937.*]

Hain Vegetable Accessory Reducing Food.—Hain Pure Food Co., Los Angeles. Composition: An appreciable amount of seaweed material, plus some nondescript vegetable tissues. Fraudulently represented as a food for the underweight and overweight, and as supplying dietary minerals.—[*N. J. 27527; January 1938.*]

Harosma.—Erie Laboratories, Cleveland. Composition: Essentially phenacetin (2.5 grains), aspirin (2.7 grains) and caffeine (1/7 grain), in each capsule. Adulterated and misbranded because each capsule did not contain 4 grains of phenacetin, as labeled; misbranded, further, because fraudulently represented as a cure for rose fever, rhinitis, la grippe, weeping eyes, etc.—[*N. J. 27234; October 1937.*]

He-She Antiseptic Vaginal Suppositories.—Helm Co., Benton Harbor, Mich. Composition: Essentially coco butter and boric acid, with small amounts of salicylic acid and quinine. Fraudulently represented as a preventive of leucorrhea and a germicide, and as being prescribed by eminent physicians.—[*N. J. 27275; October 1937.*]

Hygem.—Bloomfield Laboratories, Bloomfield, N. J. Composition: Viable micro-organisms to the amount of not less than 7 million per tablespoonful; no acidophilus bacilli found, though the label described the stuff as "The Mineral Oil Emulsion With Acidophilus." This misrepresentation constituted misbranding, as did the statement "Contains no Drugs nor Cathartics." Other claims were declared fraudulent.—[*N. J. 27388; December 1937.*]

Ice-Mint.—United Sales and Mfg. Co., Binghamton, N. Y. Composition: Essentially water, borax, camphor and menthol, in an ointment base. For nervous headache, sore muscles, corns and calluses, burns, "piles," etc. Fraudulent therapeutic claims.—[*N. J. 27237; October 1937.*]

Kayan.—Allied Laboratories, New York. Composition: Essentially phenolphthalein (about 1.2 grains per teaspoonful); a gum, sugar and starch. Fraudulently represented as a remedy for constipation, intestinal fermentation, toxemia, autointoxication, etc.—[*N. J. 27139; August 1937.*]

Kelement.—Lee Kelpodine Co., Inc., New York. Composition: Tablets consisting simply of kelp. Fraudulently represented as containing medicinal agents which, used as a food accessory, would be beneficial in mineral-salt deficiencies, soft and decayed teeth, pyorrhea, anemia, goiter, nervousness, insomnia, diabetes, frigidity, sterility, etc.—[*N. J. 27127; August 1937.*]

Kelpodine.—Lee Kelpodine Co., Inc., New York. Composition: Tablets consisting simply of kelp. For anemia, goiter, rickets, obesity, asthma, arthritis, dyspepsia, sterility, etc. Fraudulent therapeutic claims.—[*N. J. 27129; August 1937.*]

Kopp's.—C. Robert Kopp, Inc., Hellam and York, Pa. Composition: Morphine sulfate (1/6 grain per fluidounce), flavoring oils including anise oil, with alcohol, sugar and water. Fraudulently represented as a safe and appropriate remedy for babies and infants, whereas it contained morphine, a poison.—[*N. J. 27264; October 1937.*]

Kroup Monia Cough Syrup.—W. D. Taylor & Co., Bessemer, Ala. Composition: Essentially sugar, water, ammonium chloride, glycerin, alcohol, chloroform (1.3 minims per fluidounce), menthol and extracts of plant materials including pine. Fraudulently represented as a safe and effective treatment for croup, whooping cough, etc.—[*N. J. 27384; December 1937.*]

Lawrence's Liniment.—Crain's Corner Drug Store, Longview, Texas. Composition: Essentially glycerin, carbolic acid, iodine, alcohol (2.8 per cent by volume) and chloroform (27 minims per fluidounce). Fraudulently represented as a cure for croup, soreness of lungs, etc.—[*N. J. 27371; December 1937.*]

Lifsey's Vim Herb.—A. P. Durham, Anderson, S. C. Composition: Plant extractives and one or more emodin-bearing drugs. For stomach, kidney, liver and blood disorders, etc. Fraudulent therapeutic claims.—[*N. J. 27149; August 1937.*]

Menard's French Croup Suet.—Menard & Watson, Macon, Ga. Composition: Essentially creosote and volatile oils including camphor, incorporated in a fat. Fraudulent therapeutic claims.—[*N. J. 27372; December 1937.*]

Mentho-Korchlet.—*Rieser Co., Inc., Shamokin, Pa.* Composition: Essentially tissue paper, impregnated with menthol and other perfumes. Fraudulently represented as a remedy for sinus trouble, hay fever, etc.—[*N. J. 27272; October 1937.*]

Miller's Antiseptic Oil.—Herb Products Medicine Co., and Herb Juice Medicine Co., Jackson, Tenn. Composition: Essentially kerosene, with small amounts of red pepper and volatile oils including those of turpentine, wintergreen and sassafras. Fraudulently represented to contain no injurious substances and to be a remedy for muscular rheumatism, burns, scalds, diarrhea, cramps, etc.—[*N. J. 27249; October 1937.*]

Minnehaha Indian Herbs.—Spors Co., Le Center, Minn. Composition: Essentially plant material including senna leaves, gentian root, bearberry, triticum, and unidentified plant substances. Fraudulently represented to cure constipation and its results, such as rheumatism, kidney trouble, stomach disorders, etc.—[*N. J. 27538; January 1938.*]

Munyon's Tona Spaf.—*Munyon Remedy Co., Scranton, Pa., and Sunshine Co., New York.* Composition: Essentially an iron and phosphorus compound, with a small amount of an arsenic compound, plus alcohol, water and flavoring material. Fraudulently labeled as a blood purifier and remedy for la grippe, anemia, insomnia, diabetes, etc.—[*N. J. 27256; October 1937.*]

Naco Nature's Aid.—Naco Co., Jackson, Miss. Composition: Essentially iron sulfate and water, with small amounts of aluminum, calcium, magnesium, manganese, sodium, potassium and phosphorus compounds. Not a germicide, as claimed. Fraudulently represented as a remedy for sores, burns, rheumatism, kidney pus, dysentery, etc.—[*N. J. 27143; August 1937.*]

Nash's Carbolic Salve.—Nash Bros. Drug Co., Jonesboro, Ark. Composition: Essentially petrolatum, with small amounts of carbolic acid, camphor, rosin and boric acid. For salt rheum, tetter, eczema, felons, etc. Not antiseptic, as represented. Fraudulent therapeutic claims.—[*N. J. 27535; January 1938.*]

Nash's Pain-Go.—Nash Bros. Drug Co., Jonesboro, Ark. Composition: Essentially kerosene, with small amounts of volatile oils such as turpentine and sassafras. Fraudulently represented as a "snake oil" and an "antiseptic."—[*N. J. 27535; January 1938.*]

Ourine Nasal Balm and Ourine Application for the Ears.—Aurine Co., Chicago. Composition: "Nasal Balm," essentially mineral oil with small amounts of menthol, wintergreen, and green color; "Ourine Application for the Ears," essentially glycerin, boric acid, extracts of plant drugs and volatile oils, including lavender. Fraudulently represented as remedies for nose and ear troubles.—[*N. J. 27400; December 1937.*]

Picot Compound Tablets.—Picot Laboratories, Inc., Wilmington, Del. Composition: Essentially sodium salicylate, sodium benzoate, potassium nitrate, magnesium carbonate, bearberry and oil of juniper. Fraudulently represented as a cure for rheumatism, an aid to stomach and kidneys, and a blood purifier.—[*N. J. 27375; December 1937.*]

Picot Grape Flavored Salt.—*Picot Laboratories, Inc., Wilmington, Del.* Composition: Essentially baking soda, cream of tartar and tartaric acid, with small amounts of sugar and saccharin. No grape-like taste or odor detected. Fraudulently represented as a remedy for rheumatism.—[*N. J. 27375; December 1937.*]

Ra-Ed-O Pile Suppositories.—Helm Co., Benton Harbor, Mich. Composition: Essentially coco butter, with small amounts of quinine, salicylates, iron compounds and sulfates. "For all forms of piles—bleeding, itching and protruding . . ." Fraudulent therapeutic claims.—[*N. J. 27275; October 1937.*]

Radiumized Health Pad.—Radiumized Applicator Co., Inc. (address not given). Composition: 53 millimicrograms of radium per gram of ore, or 1,695 millimicrograms of radium per pad. Fraudulently represented to insure health and to cure kidney or bladder trouble, constipation, high blood pressure, goiter, skin diseases, etc.—[*N. J. 27259; October 1937.*]

Radiumized Water Revitalizer.—Radiumized Applicator Co., Inc. (address not given). Composition: Radium emanation (radon) in the proportion of 165 millimicrocuries of radon per U. S. quart. Fraudulently represented to "revitalize," to prevent illness, and to be a remedy and cure for chronic ailments, such as rheumatism, arthritis and gout.—[*N. J. 27259; October 1937.*]

R-P 60 Bladder and Gland Remedy.—Helm Co., Benton Harbor, Mich. Composition: Essentially water and extracts of plant drugs (including a laxative), with a small amount of salicylate. Misbranded because fraudulently represented for disorders of the kidney, bladder, rectum and spinal cord, among other things.—[*N. J. 27275; October 1937.*]

Rozel Douche Powder.—Rozel Laboratories, Chicago. Composition: Boric acid, common salt, ammonium alum, and small amounts of carbolic acid and menthol. Fraudulently represented as a cure for inflammations, irritations, leucorrhea, "feminine hygiene," etc.—[*N. J. 27363; December 1937.*]

Rozel Effervescent Cones.—Rozel Laboratories, Chicago. Composition: Essentially tartaric acid, baking soda, talc, starch and a small amount of a chlorine-liberating compound. Not a germicide for vaginal use, as represented. Fraudulent therapeutic claims.—[*N. J. 27547; January 1938.*]

Rx 333.—Eric Laboratories, Cleveland. Composition: Essentially aspirin and sodium salicylate. For the pains of rheumatism, neuralgia, gout, arthritis, lumbago, etc. Fraudulent therapeutic claims.—[*N. J. 27374; December 1937.*]

Rx 333 for Females.—Foundation Laboratories, Inc., Chicago. Composition: Essentially water, alcohol (34 per cent) and small amounts of phosphates, magnesium compounds, protein and perfume. Fraudulently labeled as effective for many female disorders, including certain types of sterility.—[*N. J. 27385; December 1937.*]

Rx 444 for Males.—*Foundation Laboratories, Inc., Chicago.* Composition: Water, alcohol (40 per cent) and small amounts of phosphates, magnesium compounds, protein and perfume. Fraudulently represented as a remedy for prostate and bladder troubles, backache, rheumatism, impotence, etc.—[*N. J. 27385; December 1937.*]

Sasa Scalp and Skin Aid.—Sasa Distributors, Portland, Ore. Composition: Essentially water and alcohol, with small amounts of borax, arsenic, caramel and oil of cinnamon. For dandruff, falling hair, eczema, etc. Fraudulent therapeutic claims.—[*N. J. 27366; December 1937.*]

Scheidemann Remedy Tea.—Scheidemann Remedy Co., Inc., Milwaukee. Composition: Essentially ground wood, twigs and needles, with juniper berries. Fraudulently represented as a remedy for diabetes, kidney disorders, etc.—[*N. J. 27235; October 1937.*]

Six-ine Pills.—Kells Co., Inc., Newburgh, N. Y. Composition: Essentially an iron compound, quinine, strychnine, starch and chalk. Fraudulently represented as a remedy for nervous exhaustion and depression.—[*N. J. 27532; January 1938.*]

Stark's Headache Powders.—Stark's & Co., Midway, Ky., McKesson-Peter-Neat Co., Louisville, Ky., and Kells Co., Newburgh, N. Y. Composition: Essentially acetanilid (averaging 6.75 grains per powder), caffeine and baking soda. Fraudulent therapeutic claims.—[*N. J. 27354; December 1937.*]

Tabletas Marca Vida Para Los Ninos.—*Mexican Medicine Co., Los Angeles.* Composition: Essentially compounds of bismuth, calcium, sodium, potassium, carbonates, nitrates, starch, and extracts of plant drugs including emodin. Fraudulently represented as a cure for numerous disorders in infants.—[*N. J. 27134; August 1937.*]

Urisептin.—Gardner Laboratories, Chicago. Composition: Methenamine, water, glycerin, and extracts of plant material including corn silk, with small amounts of alcohol and salts of sodium, potassium and lithium. Fraudulently represented as a cure for Bright's disease, cystitis, rheumatism, gout, pneumonia, gonorrhea, etc.—[*N. J. 27367; December 1937.*]

Vegetrates.—Health Foundation of California, Los Angeles. Composition: "B. F. 1," essentially vegetable substances including rice bran, cinnamon, cranberry, kelp and leafy vegetables, as well as senna leaves and rhubarb; "B. F. 1" (in tablet form), also contained lime; "Formula H. F. C. No. A-45" (for arthritis), "D-44" (for diabetes), "A-417" (for hay fever and asthma), and "H-410" (for high blood pressure) were reported to consist essentially of unidentified root, stem and leaf material. All were declared misbranded because fraudulently represented to be "health builders" and to cure various disorders.—[*N. J. 27263; October 1937.*]

Vi-Go-Ra Olive Oil Hair Tonic.—Vi-Go-Ra Co., Providence, R. I. Composition: Essentially alcohol (about 77 per cent by volume), castor oil, a sulfonated oil, water and a coloring material. Misbranded because not more than a trace of olive oil was present, if any, and quantity or proportion of alcohol present was not declared on the label; misbranded, further, because of fraudulent claims that it would stop itching scalp instantly, check falling hair, and relieve eczema.—[*N. J. 27399; December 1937.*]

Vita-Mil.—Vita-Mil Co., Charleston, W. Va. Composition: Essentially epsom salt (about 20 per cent) and extracts of plant drugs, including a laxative, with small amounts of sodium benzoate, sugars, saccharin, caramel, flavoring material and water. Adulterated because not a herbal compound, as represented, but a mixture consisting largely of a mineral drug, epsom salt. For stomach and liver troubles, etc. Fraudulent therapeutic claims.—[*N. J. 27380; December 1937.*]

Wah-Poo-Sah Kee-Kee-Kee.—MacDonald Medicine Co., Detroit. Composition: Essentially water and alcohol, with small quantities of plant drugs, including a laxative. Fraudulently represented as "activating the muscle of the bowels" and as containing "no drugs of any kind."—[*N. J. 27248; October 1937.*]

Wil-Du Rheumatism and Gout Medicine.—Wil-Du Medicine Co., Woodbury, N. J. Composition: Essentially alcohol (67 per cent by volume), water, and extracts of plant drugs including senna. Fraudulent therapeutic claims.—[*N. J. 27398; December 1937.*]

World's Wonder System Builder.—World's Wonder Medicine Co., Inc., Detroit. Composition: Essentially epsom salt, extracts of plant drugs including a laxative, with sugar and water. Misbranded because represented to contain chiefly horehound, prickly ash, red clover, red puccoon, black root and pokeroot. Fraudulently represented as a cure for indigestion, scrofula, skin and blood diseases, kidney trouble, chronic rheumatism, etc.—[*N. J. 27540; January 1938.*]

Zonalife.—Zonalife Distributors, St. Louis. Composition: Essentially epsom salt and water, with small amounts of iron and sodium compounds, salicylic acid, wintergreen and saccharin. Fraudulently represented as a cure for headaches, sluggish kidneys, rheumatism and high blood pressure.—[*N. J. 27245; October 1937.*]

Correspondence

THE STATUS OF RETICULOGEN

To the Editor:—The communication from Dr. William P. Murphy, which appeared on page 169 of the January 14 issue of THE JOURNAL, in which he discussed the value of reticulogen, calls for a reply and word of explanation from the U. S. P. Anti-Anemia Preparations Advisory Board.

According to Dr. Murphy, Eli Lilly & Co. has stated in certain advertising literature that "Reticulogen contains 20 units of anti-pernicious anemia principle per cc." Eli Lilly & Co. have not, however, submitted Reticulogen for consideration by the U. S. P. Anti-Anemia Preparations Advisory Board. Consequently the board has made no statement of the potency of this product in terms of U. S. P. units. Moreover, on page 629 of the August 1938 issue of the *Journal of the American Pharmaceutical Association* the board stated that "it will not for the present assign to any preparations of injectable liver extract a strength greater than fifteen units per cubic centimeter." Finally, the U. S. P. advisory board has not published any standards for hemopoietic responses to which Eli Lilly & Co. could refer. Indeed, data concerning hemopoietic responses are only a part of the information which is considered by the board in the assignment of unitage to satisfactory products. Thus it should be entirely clear that the claim of Eli Lilly & Co. does not refer to U. S. P. units but can relate only to units of an entirely unofficial character.

The U. S. P. advisory board is the only agency for assigning U. S. P. units to liver and stomach preparations. Therefore, if any manufacturer labels a product in terms of units other than U. S. P. units, they are units devised merely by that manufacturing house and must not be identified with U. S. P. units. It is most regrettable that the use of such unofficial units should exist and thus lead to confusion. If one manufacturer determines his own units, so may all, and thus the work of the advisory board in securing uniformity of labeling would go for naught.

The board, therefore, took the matter up with the manufacturers of Reticulogen, pointing out the difficult situation which had arisen, and asked them whether they would not change their labels and advertising literature by withdrawing the term "unit" and in this way help to clarify the situation. It is pleasant to report that Mr. Eli Lilly, president of Eli Lilly & Co., has informed the board that in the future on its labels and in its advertising literature it will describe the potency of its product in another way than by the term "unit."

A final word of explanation concerning the definition of a U. S. P. unit should be made. It will be recalled that the first publication of this board, made Feb. 14, 1938, defined the term "U. S. P. unit" as "that amount of material which, when given daily to patients with pernicious anemia, has produced a satisfactory hematopoietic response." It is perhaps desirable to point out that such a definition of a U. S. P. unit does not imply that it represents the minimal amount of effective material which might result in a satisfactory response but merely that particular amount of material which has in fact produced such a response.

Thus if a manufacturer submits at a later time data indicating that a smaller amount of material than that originally tested will give a response satisfactory to the board, a greater unitage for a given amount of the same preparation will be officially assigned. It should therefore be understood that U. S. P. units are not necessarily interchangeable from one product to another. Nevertheless, from the point of view of the patient and the physician it is of far greater practical importance that the official U. S. P. unit should indicate that amount of material which will assuredly possess the potency just defined.

UNITED STATES PHARMACOPEIAL ANTI-ANEMIA
PREPARATIONS ADVISORY BOARD.
By C. W. EDMUNDS, Chairman.

MAGNESIUM SULFATE IN PAROXYSMAL TACHYCARDIA

To the Editor:—In THE JOURNAL, Dec. 17, 1938, page 2275, is a discussion by William Dressler on the use of magnesium sulfate in paroxysmal tachycardia. In *Klinische Wochenschrift* (**14**:1429 [Oct. 5] 1935) was reprinted my research: Ueber die Magnesiumwirkung auf das Herz (The Influence of Magnesium Sulfate on the Heart). This paper was abstracted in THE JOURNAL, Nov. 23, 1935, page 1727. I was the first to report the use of magnesium sulfate in paroxysmal tachycardias and ventricular fibrillation. About the same time was published an experimental study on the effect of magnesium on tachycardia produced by barium and strophanthin (Rothberger, C. J., and Zwillinger, L.: Ueber die Wirkung von Magnesium auf die Strophantin- und die Barium-tachycardie, *Ach. f. exper. Path. u. Pharmakol.* **181**:301, 1936). Dr. Dressler learned this use of magnesium sulfate from me in Vienna. Therefore I was astonished to read that he did not name me as the author of this work.

L. ZWILLINGER, M.D., Prostějov, Czechoslovakia.

CERTIFICATION OF STAINING SOLUTIONS

To the Editor:—In a recent note in THE JOURNAL (Sept. 24, 1938, p. 1239), attention was called to the work that is being done by the Commission on Standardization of Biological Stains, and the question was raised as to whether it would not be possible for this organization to be of more assistance to physicians if its duties were broadened so as to include the approval of satisfactory staining solutions as well as stains in the solid form. In this earlier note the difficulties of doing this were discussed, and the article ended with a query as to who are the chief purchasers of stains in solution form and as to which particular staining solutions give the most trouble at present.

Considerable comment concerning this article has been received, and it is felt that, to a certain extent, the questions asked have been answered. It has been concluded from the comments received that physicians are, as was suspected, the chief purchasers of staining solutions. It also appears that the biggest demand is for the blood stains and that solutions of this type apparently give the most trouble if purchased from an unreliable source. The physician or technician who has to make a blood stain himself but is not equipped to make up the necessary solution or for some other reason finds it inconvenient to do so usually cannot take time to write to some supply house in a distant city in order to obtain the solution already prepared. There is no question but that it would be of assistance to such a physician if some local dispensary of known reliability was available to him from which he could purchase the staining solution he needed.

Since publication of the previous article, the commission has had its attention called to a group of technicians here, a private laboratory there and some individual somewhere else who are disinterestedly trying to supply local physicians in a semi-commercial way with reliable staining solutions. It is felt that there must be other organizations, such as clinical laboratories, or persons endeavoring to do the same sort of thing in other places. Undoubtedly the Stain Commission could be of assistance to any one who is sincerely trying to do this. It could help by seeing that the best ingredients, proper formulas and approved methods of preparation are employed, by arranging to test the products without prohibitive expense to those who prepare the solutions and finally by adopting some plan to assure the purchaser of the reliability of the stains thus prepared.

This note is published in the hope that any persons or organizations who are trying to supply superior staining solutions to physicians and who would welcome the cooperation

of the Stain Commission will get in touch with the chairman at the address given. It is felt that some practical plan can be worked out; but before putting any such plan into operation, we must have a little clearer idea than at present how widespread will be the cooperation we can have in the project. Physicians reading this article can be of assistance in calling it to the attention of some one in their locality who they think might be fitted to cooperate with them and with us in such an undertaking.

H. J. Conn, Ph.D., Geneva, N. Y.
Chairman, Biological Stain Commission.

Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

CRITERIA OF CURE IN NEUROSYPHILIS

To the Editor:—What tests and observations are of the greatest importance in the examination of the spinal fluid to determine whether a cure of syphilis has been effected? What tests in a neurologic examination are most important in determining whether a patient has been cured?

M.D., Kentucky.

Answer.—This question cannot be answered without a brief discussion of the criteria of "cure" in syphilis. The word "cure" may be applied in three different senses: (*a*) biologic, (*b*) serologic and (*c*) symptomatic. Biologic cure implies that the last remaining spirochete has been eradicated from the patient's body, that he is rendered susceptible to reinfection with syphilis and usually that he is simultaneously "cured" from serologic and symptomatic standpoints. So far as is now known, biologic "cure" is attainable only when treatment is begun in the early stages of syphilitic infection, probably within the first six months. It cannot, so far as is known, be accomplished in patients with late syphilis.

Serologic "cure" implies that all serologic reactions of the blood and spinal fluid are rendered negative and remain so. This type of "cure" is not necessarily synonymous with biologic cure, since serologic "cure" is attainable in some instances of late as well as of early syphilis; nor is it synonymous with symptomatic "cure," since clinical progression or relapse may take place in the face of persistently negative serologic reactions.

Symptomatic "cure" implies that the patient is relieved of symptoms or lesions caused by syphilis, that he is restored to normal health, is maintained in normal health for the duration of his lifetime and is rendered noninfectious for others. Symptomatic "cure" is synonymous with neither biologic nor serologic "cure," since symptomatic "cure" may be attained both in early and in late syphilis without complete eradication of the infection and with positive serologic reactions of the blood or spinal fluid, or both, persisting. For example, symptomatic "cure" is even attainable in dementia paralytica, though in such patients both foci of organisms, positive serologic reactions of the blood and spinal fluid and neurologic abnormalities may persist.

Strictly speaking, therefore, neither the examination of the spinal fluid nor a neurologic examination can be used as a definite criterion of "cure" of syphilis, either biologic, serologic or symptomatic. It is, however, true that in early syphilis examination of the spinal fluid should be employed as a routine as (*a*) a determinant of the type and amount of desirable treatment and (*b*) a criterion for the complete cessation of treatment. For the former purpose, examination of the spinal fluid should be performed as a routine at about the sixth month after the institution of treatment. If at this time the spinal fluid is normal, treatment may proceed by standardized routine methods. If, on the other hand, the spinal fluid is abnormal, alterations in the treatment system are frequently necessary to provide for the contingency of asymptomatic neurosyphilis. For the latter purpose, i. e. as a determinant of "cure," examination of the spinal fluid should be repeated in all patients with early syphilis at the end of a post-treatment year of probation and regardless of whether the original spinal fluid was normal or abnormal. If at the time of this last examination of the spinal fluid abnormalities are found, treatment should be resumed.

In late syphilis, i. e. of more than two years' duration, a whether or not the patient has symptoms or physical signs poi ing to involvement of the nervous system, the spinal fluid sho be examined before any treatment is given or as early as p sible in its course. If the original examination of the spi fluid of a patient with late syphilis is negative it need not repeated, since in persons in whom immunity has been esta lished a normal spinal fluid is a practical guaranty against t subsequent development of syphilis of the central nervous syste If, however, in late syphilis the spinal fluid is abnormal at t original examination, reexamination of the fluid during a after treatment is essential in order to estimate the effectivene of treatment, to provide for alterations in its type if necessa and to gage the optimal amount of treatment desirable.

The tests obligatory in the examination of spinal fluid at a stage of syphilitic infection are (*a*) cell count, which must performed within one hour after the fluid has been withdraw (*b*) protein estimation, preferably by a quantitative technic, (Wassermann test on graduated amounts of fluid ranging fro 0.1 to 1 cc. (flocculation tests on spinal fluid are less satisfacto than complement fixation tests) and (*d*) a colloidal gold, mast or benzoin test.

Like examination of the spinal fluid, results of a neurologi examination, whether negative or positive, can be used as criterion of "cure" in syphilis only in the light of the discussio of "cure" briefly given. In patients with early syphilis it ma be taken for granted that at the start of treatment neurologi abnormalities are absent (excepting the rare instance of acut syphilitic meningitis or the contraction of syphilitic infection b a patient with some other neurologic disease). If the patie with early syphilis is normal from the neurologic standpoint, h should remain so not only during the period of treatment an the post-treatment year of observation but also during yearl periodic recheck examinations for the duration of his life.

In patients with late syphilis, however, and even in those wh have neurologic abnormalities present at the start of treatment symptomatic cure may often be attained. In this case the impor tant feature of recheck examinations from the neurologic stand point is not the disappearance of abnormalities which were originally present but instead the absence of progression in these abnormalities or the nondevelopment of fresh ones.

It is impossible in the brief confines of such a reply as this to outline the steps of complete neurologic examination. Assuming the absence of gross neurologic abnormalities, however, the most important features of recheck examination of treated syphilitic patients are the state of the pupillary reactions both to light and in accommodation; examination of the optic fundus as to the appearance of the optic disks and also a test of visual acuity and at least gross tests of the visual fields; the presence or absence of conduction deafness; tests of the deep and superficial reflexes, especially knee and ankle jerks; tests of deep pain sense by squeezing the achilles tendon and the gonads; tests for vibratory sense in the lower extremities, particularly over the malleoli and tibias; tests for ataxia, including not only such gross tests as the Romberg, the knee-heel, the finger-nose and the finger-finger, but also more delicate tests such as position sense in the great toes, and sensory examination for abnormalities of light touch and pain, particularly in zonelike distribution over the thorax or in patchy distribution over the fronts of the shins.

DIAPER RASH

To the Editor:—Would you please outline a proper course of dietary and local management for a severe case of ammoniacal dermatitis.

M.D., Wisconsin.

Answer.—Ammoniacal dermatitis is an erythematous dermatitis occurring in the napkin area of infants. It is an intertrigo caused by friction of the diaper or by uncleanliness. Ammonia is formed in the wet diaper in situ by the growth of a saprophytic bacillus which splits the urinary urea into ammonia. This bacillus, according to Cooke (The Etiology and Treatment of Ammonia Dermatitis of the Gluteal Region of Infants, *Am. J. Dis. Child.* **22**:480 [Nov.] 1921), is derived from the intestinal contents and infests the diaper as a result of soiling by feces. The best treatment is prophylactic. The diaper should be washed with scrupulous cleanliness, rinsed thoroughly several times in clear water and then put through a final rinsing of boric acid solution. The use of soap and water on the affected parts should be avoided and the skin cleansed with olive oil or liquid petrolatum. A soothing lotion such as zinc oxide 12 Gm., talcum 8 Gm., glycerin 6 cc., sodium borate 6 Gm. and solution of calcium hydroxide to make 240 cc. may be used, or the following ointment: purified tar 3 Gm., zinc oxide 8 Gm., starch 8 Gm. and simple ointment to make 30 Gm.

DOG BITES AND RABIES

To the Editor:—In connection with the prevention of human rabies, would you kindly discuss the following questions: Is it a fact that the patient's skin wound must be of subcutaneous depth before the Pasteur treatment is indicated (assuming that cauterization has previously been performed)? If no bite has been incurred but the skin has been in contact with the saliva of a rabid animal, is treatment indicated? Do the presence of small superficial breaks in the skin, such as scratches, partially healed cuts and pimples indicate treatment if the patient has had contact with a rabid animal? JOHN M. COLLINS, M.D., Seattle.

ANSWER.—There are many thoughtful persons who deplore the cauterization treatment of dog bites or any other open wounds. They believe that such methods are only a repetition of the hot oil treatment of wounds, which was considered proper treatment in the days of Ambroise Paré but which thinking persons have abandoned just as did Paré.

Some believe that if the patient is seen immediately after a wound or bite has been sustained the most effective method of treatment is careful, patient and prolonged cleansing of the wound with soap and water and subsequent irrigation of the wound with warm salt solution. The depth of the wound would have no influence in modifying this treatment except that an irregular wound should be opened or enlarged sufficiently to make sure that every portion of it is reached by the soap and water and salt solution. When the wound resulting from a bite is treated immediately and carefully in this fashion the administration of antirabies serum is not advocated in all instances. On the other hand, if the wound is not seen promptly after the injury has been sustained and so there has been opportunity for the virus to enter the deeper tissues, it should still be cleansed as carefully and thoroughly as possible and this cleansing should be followed with the Pasteur treatment.

ISOLATION OF TUBERCULOUS PATIENTS IN GENERAL HOSPITALS

To the Editor:—The county medical society requested a tuberculosis survey. This survey was recently published and under Institutional Care is found the statement: "The county needs additional beds for the tuberculous. The attitude of the local hospitals is commendable in admitting and caring for the tuberculous for limited periods of time, but the necessary prolonged period of bed rest is not possible and thus far in *these hospitals the isolation of the tuberculous has not been accomplished.*" The last clause has caused considerable discussion, so I am coming to you for an answer to the following question: What precautionary measures should be employed when tuberculous patients are confined to a general ward in a hospital? EXECUTIVE SECRETARY, COUNTY SOCIETY.

ANSWER.—There is excellent support for opening a general hospital to tuberculous patients. As early as 1895 Dr. Lawrence Flick of Philadelphia made a provision for such use of general hospitals. In 1908 the International Congress on Tuberculosis urged general hospitals to provide beds for the tuberculous. In 1912 and 1924 the National Tuberculosis Association adopted resolutions in favor of using general hospitals for tuberculous patients. In 1920 and 1921 the American Medical Association and the American Hospital Association adopted such resolutions. Probably the most recent action on this subject was by the National Tuberculosis Association and the American Hospital Association. In June 1938 a committee of the National Tuberculosis Association with Dr. Charles Hatfield of Philadelphia as chairman made a report strongly recommending the use of general hospitals for the tuberculous. The manuscript for a bulletin on this subject has recently been prepared by Dr. W. H. Oatway of the University of Wisconsin for the American Hospital Association. This is the most complete presentation of the subject that has been made to date. It not only gives the reasons for the use of general hospitals for the tuberculous but also presents a procedure which should be carried out in every hospital that admits tuberculous patients.

Already a good many general hospitals in this country have established tuberculosis services. In fact in 1935 the American Medical Association presented the report of an extensive survey which showed that 418 hospitals in the United States have tuberculosis services and that in a single year approximately 37,000 patients were admitted to them.

The modern treatment of tuberculosis is such that removing patients to isolated places is no longer necessary. Any general hospital that is adequately equipped or can be so equipped is satisfactory for the treatment of this disease, provided nurses and physicians well informed and qualified in the treatment of this disease are in charge. In other words, a division of the hospital can be operated with the same effectiveness in the treatment of tuberculosis as a sanatorium.

The contagiousness of tuberculosis was clearly recognized and discussed nearly 2,500 years ago. The experimental work of Villemin, Colnheim, Koch and the epidemiologic studies of Budd and others proved beyond doubt that tuberculosis is contagious. This fact probably accounts for the statement in the report of the survey in question to the effect that the isolation of the tuberculous has not been accomplished. Recently careful observations have proved beyond doubt that tuberculous patients in hospitals and sanatoriums transmit tubercle bacilli to members of the personnel. Moreover, there is no reason to doubt that they transmit bacilli to other patients. In seeking appropriations for the building of sanatoriums in this country, one of the main arguments was and still is that the tuberculous patient who has the disease in the contagious stage should be removed from his home in order to prevent the spread of tubercle bacilli to the members of his family and other associates. It is ridiculous to consider that a disease which is contagious while the patient remains in the home is not equally contagious when the patient is transferred to a hospital.

The control of tuberculosis in many parts of the world has been so effectively conducted that at present more first infections occur in adult life than in the earlier years of life. For example, Heimbeck of Oslo found that approximately 50 per cent of the students of nursing reacted to the tuberculin test on entrance but that on graduation, after having taken a tuberculosis service, 100 per cent reacted to the test. In this country Geer found that 30 per cent of the entering students under his observation reacted to tuberculin, while 100 per cent of the same group reacted on graduation. These students were subjected to exposure to tuberculosis in a special service for this disease in a general hospital. Boynton found that the rate of tuberculosis infection is a hundred times greater among student nurses in a general hospital service than among students in a college of education and 500 times greater among student nurses in a special tuberculosis service than among students in a college of education. Moreover, when students of nursing and medicine become infected with tubercle bacilli, in a considerable number pulmonary lesions develop demonstrable by x-ray examination; in some clinical tuberculosis, such as pleurisy with effusion, develops, and a few die soon of acute forms of the disease, such as pneumonia, meningitis and miliary tuberculosis. Ross of Manitoba has reported 135 students or graduates in nursing who have been treated in his institution. He says: "Scores of students of nursing lose health and life through hospital-contracted tuberculous infections. Practically all students become tuberculin-positive during their course, showing that they have become infected even if disease should not follow. The hospital cannot avoid responsibility for the infection of nurses until the utmost of medical and nursing science has been used to prevent it."

In Saskatchewan Ferguson found that twelve times as many students or recent graduates in nursing fall ill with tuberculosis as other persons in the general population and eight times as many as among normal school students of about the same age as the nurses.

Heimbeck of Oslo has reported the highest percentage of student nurses falling ill with tuberculosis during training in a general hospital with a tuberculosis service.

Myers, Diehl, Boynton and others have recently called attention to the fact that in 9.6 per cent of medical students who took a tuberculosis service and became infected, so as to react to the tuberculin test, lesions developed in the lungs which could be demonstrated by x-ray films or which caused illness during the brief period of their observations. Among students of nursing who took a tuberculosis service and became reactors to tuberculin, such lesions developed in approximately 11 per cent. In addition to those in whom demonstrable lesions developed within a few months or a few years, all others who became infected have primary tuberculous complexes in their bodies and therefore are potential tuberculosis patients.

With this evidence and much more that might be cited, the time has arrived when one can no longer afford to treat tuberculous patients in general hospitals without making adequate provision for the protection of the personnel. In addition to the responsibility that every hospital should assume for the health of its personnel, there is a legal aspect which is looming large in this country and has become a serious reality. In several states tuberculosis has been placed on the occupational disease list and in others such action is being contemplated. Awards have been drawn by industrial commissions for a good many members of hospital personnel during the past few years.

In the earlier resolutions adopted by various organizations with reference to general hospitals admitting tuberculous patients, the danger to the personnel was minimized or ignored. How-

ever, the recent evidence of the spread of tuberculosis to members of hospital personnel has been so overwhelming that a definite account was taken of the dangers in the 1938 report of the Committee of the National Tuberculosis Association and the recent *Bulletin of the American Hospital Association.*

BACKACHE, MERALGIA PARAESTHETICA AND POSSIBLE SYMPATHETIC NERVOUS SYSTEM TRAUMA

To the Editor:—A married white woman aged 27 first experienced an attack of low back pain, acute and cramping in nature with radiation down the right thigh, at 19. She attributes the attack to lifting. It subsided in a few days with bed rest and local heat. The only previous trauma she can recall was a fall from a tree at the age of 14, the fall not being followed by disability. At the time of the first attack two orthopedists recommended spine fusion for tropism of the articular facets of the fifth lumbar vertebra. The operation was not performed. Following this attack and for the next six years she experienced similar attacks recurring at intervals of roughly three months. Precipitating factors were unusual strain as in lifting, golf or tennis, although at other times she could perform these acts with impunity. The duration of the attacks varied from a few days to two weeks, usually responding to time, bed rest and local heat. When conservative measures failed she submitted to osteopathic maneuvers, which seemed to give relief. She found it advisable to sleep with a 1 inch plank under the mattress. The last attack began in January 1937. While sitting in a theater her back suddenly began to hurt and on attempting to arise she found that pain prevented her from straightening. The low back area seemed cramped into a knot and all trunk and thigh movements were painful. At this time there was no sciatic radiation. Passive flexion of the thighs and pelvic rocking resulted in pain in the low back area and this area was tender to deep pressure. Her most comfortable position was lying with the legs flexed on the thighs and the thighs flexed on the trunk. Conservative measures were tried for four weeks but were unsuccessful and the patient was then hospitalized. Physical and neurologic examinations were negative except as noted and absent ankle jerks. Gynecologic examination was negative. The blood count was normal, urinalysis negative, blood Wassermann reaction negative, blood sugar 95 mg. per hundred cubic centimeters, nonprotein nitrogen 25 and cholesterol 150. Spinal fluid pressure was 70 mm. of water, protein not elevated, gold curve flat, cells 5, Wassermann reaction negative. Reversed Queckenstedt showed that no block was present. X-ray examination showed faulty articulation of the articular facets of the fifth lumbar vertebra with the sacrum. The low back pain subsided after two days on a Bradford frame although straight leg raising still caused pain in the low back area. A modified Albee spine fusion was then done, the graft being taken from the left iliac crest, splintered and laid in the bed. The wounds healed by first intention. During the postoperative period she did not complain of pain in the operative site as much as pain in the anterolateral aspect of the right thigh in an area about 2 inches below Poupart's ligament nearly to the knee. This pain was burning, sticking, tearing and digging in nature. It was quite constant although worse at night. On neurologic examination this painful area was found to correspond to the distribution of the lateral femoral cutaneous nerve. The area was hyperesthetic and firm touch was painful. The patient described it as the kind of pain produced by pressing on a carbuncle. Even light pressure, as from clothes, could not be tolerated long. Paresthesias were present in this area. Outside this area there were no neurologic changes except for the absence of ankle jerks bilaterally. Muscle tone and strength were equal and normal. A diagnosis of meralgia paraesthetica was made and in September 1937, the right lateral femoral cutaneous nerve was interrupted at its exit from the fascia, a piece excised and the proximal stump injected with absolute alcohol. For the next four days there was nearly complete relief except for occasional shooting pains similar to those experienced before the operation. Histologically the excised nerve showed "degenerative changes." Five days after the operation the entire picture recurred with pain as constant and severe as before. Two subsequent operations were performed peripherally. In October 1937 the nerve was interrupted in the right iliac fossa with no effect on the pain. In January 1938 the stump of nerve left at the first operation was found tightly bound down as it passed through Poupart's ligament. The end was bulbous. It was freed and cut back as far as possible with no effect on the pain. I might add that the first and third nerve operations were done only after procaine blocking had shown that they should be successful. During this entire period the patient had been experiencing constant pain in the low back area and stereoscopic roentgenograms showed that fusion was not complete. In March 1938 studies with iodized oil showed no block. Alcohol injections into the lumbar dorsal roots were attempted but the nerves could not be reached because of the presence of the fusion. Epidural injections gave no relief. In May 1938 typhoid vaccine fever therapy resulted in exacerbation of the pain. The patient was taking 3 grains (0.2 Gm.) of codeine and 2 grains (0.13 Gm.) of morphine daily without marked effect. She was going downhill physically. In July 1938 spinal anesthesia stopped the pain for its duration. Laminectomy over the lumbar roots was performed and the nerves were found to be normal except for a few arachnoidal adhesions, which were cleared. The patient experienced moderate relief for about one week. In August 1938 a high thoracic chordotomy was performed. Since then the patient has had no pain in the right thigh or the low back area. About one week after the operation, however, she began to experience constant burning pain in the palm of the right hand. The pain was digging, tearing and crushing in nature. Exposure to cold air made the hand cyanotic; exposure to warm air caused it to become red and swollen. All movements are painful, although they could be performed. The area is hyperesthetic. The only relief that can be obtained is by immersion in cool, not cold water. The skin is macerated. There is no vesiculation or ulceration and the nails appear normal. The dorsum of the hand is not affected. Application of a tourniquet to obstruct the venous return increases the pain. Obstruction of the arterial supply does not increase the pain but it does not relieve it. The patient readily agreed that she could not continue to take narcotics and although she experienced the usual withdrawal symptoms she stopped immediately without having to taper off. Barbiturates at night are her sole medication. Thiamin chloride, 3,000 units daily, is being given. Incidentally there are no neuropsychiatric determinants in this case and a psychiatric diagnosis is untenable. If this is causalgia could it have been caused by traumatism to the nerve roots at the time of the chordotomy? From the literature I have the impression that this condition is produced only by lesions more peripherally. If the damage is to the nerve roots would alcohol injections into these dorsal roots be more rational than stellectomy? Is stellectomy or destruction of the stellate ganglion by alcohol always followed by a Horner's syndrome and if this syndrome intervenes is there any possibility of its being severe enough to impair vision? What would be the order of investigation and procedure which would be least likely to injure or mutilate this patient without unduly prolonging her pain? Is periarterial sympathectomy as described by Leriche still being used? If this is not causalgia would you give the differential diagnosis and outline of therapy? M.D., New York.

ANSWER.—The detailed history, with extensive and apparently accurate clinical and laboratory studies, leaves little that can be recommended from the standpoint of further examination.

The initial complaint of low back pain with sciatic nerve radiation following a strain from lifting, and with subsequent attacks which were often precipitated by lifting, golf or tennis, could best be explained on a mechanical basis, such as retropulsion of an intervertebral disk, without actual rupture of the posterior fibers of the annulus fibrosus. Symptoms may be relieved under these circumstances when the muscle spasm resulting from impingement of the bulging disk on a nerve root is relieved, permitting the fibrocartilaginous disk to reassume its normal contour. It now seems probable that in a considerable proportion of the cases in which there is intermittent backache with sciatic pain the pathologic condition is that which has been described. The presence of a few arachnoidal adhesions about the lumbar nerve roots may be explained as secondary to this intermittent mechanical irritation.

It is more difficult to explain the subsequent symptoms and signs of lateral femoral cutaneous nerve irritation and the painful manifestations in the right upper extremity. The onset of the so-called meralgia paraesthetica within a few days after an operation which was predicated to cure the low back pain and the occurrence of acute pain and vasomotor phenomena in the right hand following the thoracic chordotomy, which apparently resulted in relief of pain in the areas of which the patient had previously complained, does definitely suggest neuropsychiatric factors in spite of the fact that they are so definitely denied. Addiction to morphine must be considered as a possible motive for influencing the mind in the development of a series of painful symptoms which might entitle the patient to receive a drug which her system may have demanded. The possibility that she may be obtaining morphine although it is no longer administered to her by those in attendance cannot be ignored without exhaustive attempts to determine this fact.

If there has been no mistake in interpreting the symptoms and signs which have been supplied, the painful phenomena of the right hand can be explained as a result of traumatism to the sympathetic nervous system. The symptoms described may be those of an atypical erythromelalgia or Raynaud's disease. Attacks of similar painful phenomena have been observed following surgical sections of sympathetic nerve trunks and have been attributed to the development of small neuromas at the cut end of the sympathetic nerve fibers. The chordotomy must have involved some of the tracts of the sympathetic nervous system in the upper thoracic spinal cord, and contraction of scar tissue about sympathetic nerve fibers may be responsible for the symptoms.

Any treatment which can be recommended would be largely hypothetic. Excision of the stellate ganglion has frequently resulted in relief from symptoms such as those described. Accurate selection and removal of this ganglion is followed by the development of some degree of enophthalmos, narrowing of the palpebral fissure and contraction of the pupil of the eye on the operated side. This Horner's syndrome is not sufficient contraindication to the operation if removal of the ganglion offers a reasonable prognosis for symptomatic relief. If the patient is willing to permit the isolation of the stellate ganglion with local anesthesia, a therapeutic test should be carried out before undertaking its excision. After the ganglion has been injected with procaine hydrochloride, the hand may be exposed to cold air or water and subsequently to heat to determine whether or not the procaine block has prevented the recurrence of pain and of the vasomotor phenomena. In the event that such an injection does relieve these symptoms, it would appear logical to proceed to remove the ganglion. Periarterial sympathectomy as described by Leriche has for the most part been discontinued as a therapeutic measure.

CHILDBIRTH AFTER THIRTY—INFANTILE UTERUS—FEAR OF PREGNANCY

To the Editor:—1. What is the present tendency in scientific thought relative to the prognosis of pregnancy in a physically healthy woman after the age of 30 years? I have felt that such a woman with normal measurements and satisfactory obstetric care would have only slightly if any less chance of giving birth to a normal, healthy child than a woman younger. There seems to be a tendency, however, to discourage pregnancy after the age of 30 or 35 unless the conditions are absolutely ideal. Some of the childless marriages appear to be explained adequately in the minds of laymen by the diagnosis of "sterility" without tangible evidence of the condition. 2. Would a physician's diagnosis of "infantile uterus" without other evidence of pelvic disorder be a possible indication for endocrine therapy? 3. Should a woman who appears to have no other contraindication to pregnancy in her thirties except for fear of labor be allowed to adopt a child? Would it not be better to give endocrine treatment where indicated as well as help for unsatisfactory attitudes with the hope that such a woman can have her own child? On the other hand, should a woman who has such a fear of pregnancy and who is so far removed from satisfactory obstetric care that her condition in labor might be hazardous be allowed to rationalize her supposed biologic deficiency?

M.D., Nebraska.

ANSWER.—1. A physically healthy woman, after the age of 30 years, if her husband is potent, can have as many babies as she desires and her chances of giving birth to normal healthy offspring are just as good as in a younger woman. Women after 40 have had healthy children with relatively simple labors, although it must be said that complications are a little more common after this age. Such complications, however, are amenable to modern obstetric treatment and fear of them should not restrain women from bearing children.

2. The treatment of infantile uterus, at the present time, is unsatisfactory with and without endocrines. Conflicting reports are on record regarding the results in the use of estrogen with or without progestin or gonadotropic substance. Recently there has been reported some success in increasing the blood supply of the ovaries by making omental grafts on them, thus establishing a collateral circulation. The better blood supply, it is said, developed the uterus.

3. In the first place, proper education of a woman who has tocophobia will almost always succeed in removing groundless fears. Modern obstetrics has made so much progress that no woman should fear having a baby. In the second place, the adoption of a child is a mutual benefit. Both the mother and the child receive the greatest possible good, and it is probable in this case that the presence of one child may remove the unnatural apprehension of the mother. Distance from available obstetric service should not form any part in the discussion of the indications for obstetrics. Good roads, the automobile and the generosity of the profession serve to handle the situation satisfactorily.

SYPHILIS AND PULMONARY TUBERCULOSIS

To the Editor:—What is the current opinion on the treatment of syphilis complicating pulmonary tuberculosis? Are there any comprehensive articles on the subject?

M.D., Virginia.

ANSWER.—A recent report by Smith (*Am. J. Syph., Gonor. & Ven. Dis.* **22**:72-81 [Jan.] 1938) as well as one by Padget and Moore (*Am. Rev. Tuberc.* **33**:10 [Jan.] 1936) should be consulted.

In the past there has been a tendency to be conservative in treating syphilis in a tuberculous subject. Apparently this point of view is changing. Some investigators think that carefully controlled treatment of syphilis is even beneficial to a concomitant tuberculosis. Smith found that progressive tuberculosis is not more frequent in the treated syphilitic patient than in similar groups of nonsyphilitic tuberculous patients. The treatment of syphilis seems to lessen the frequency of progressive tuberculosis. Padget and Moore feel that the question is not entirely settled. It probably is well to use extreme care in treating a syphilitic patient with concomitant tuberculosis. Any remedy likely to set up reactions would be contraindicated. Either neoarsphenamine or mapharsen would be preferred for the arsenical. A bismuth salt causing little physical inconvenience is preferable, provided at the same time it furnishes an adequate antisyphilitic effect with little or no deleterious effects. For a hospitalized patient such a preparation would be an aqueous solution of sodium bismuth tartrate 2 cc. administered intramuscularly in the buttocks three times a week. For the ambulatory patient a weekly injection of a 10 per cent suspension in oil of bismuth subsalicylate is indicated. Neither preparation causes inconvenience, and each employed over a period of ten weeks would give an adequate bismuth effect for a course. The arsenicals in moderate sized doses could likewise be used in weekly injections for a term of ten weeks if no untoward contingencies arise. Probably three or four such alternating courses of the arsenicals and of the bismuth could be safely used, employing continuous treatment. Iodides are contraindicated in tuberculosis because of a possible danger of absorption of protective connective tissue walls formed around tuberculous foci.

SALINIZING AND CHLORINATING SWIMMING POOL

To the Editor:—What is the feasibility of salinizing an outdoor swimming pool to make the water isotonic or slightly hypertonic? The pool has a standard chlorinating filtration plant. Will you let me know if the water could be salinized without interfering with the chlorinization, and if so about what concentration of salt would be advisable?

AIDAN M. MULLETT, M.D., Colorado Springs, Colo.

ANSWER.—It is feasible, but fairly expensive, to salinize fresh swimming pool water. Normal sea water contains about 3 per cent of sodium chloride in solution or about 12½ tons per hundred thousand gallons. It is probable that a smaller amount would be more desirable in a swimming pool, depending of course on the clientele served.

Normal sea water can be effectively chlorinated for disinfection by the same methods used for fresh water, assuming that reasonably accurate chlorine control equipment is used and that proper tests are made for residual chlorine in the water to permit the operator to govern the rate of application of the chlorine. Another method of disinfecting sea water is by electrolysis.

PROBABLE PSYCHOGENIC SYNDROME

To the Editor:—A white man aged 25, an engineering student, weight 165 pounds (75 Kg.), height 5 feet 9 inches (175 cm.), complains of frontal headache, a sensation of pressure above the hard palate, fatigue and occasional nervousness. The headache has been present continuously for the past four years (it began in the second year of college), interfering tremendously with his ability to concentrate and making him so uncomfortable at times that he has little desire to see any one, although he is quite a good mixer and extremely cheerful ordinarily. There has never been any loss of weight, and the patient eats and sleeps well. During his schooling he had been troubled with financial worries but is now over this. He does not smoke or drink. The past history reveals an appendectomy ten years ago and a tonsillectomy two years ago. The personal history shows a tendency to worry, but there is no occasion for it at present. He does not take part in any physical activities at present. Physical examination revealed septal deviation of the nose causing a slight breathing obstruction. The lung fields were clear; the heart showed no abnormalities; the blood pressure was 135 systolic, 85 diastolic; the abdomen was normal. Neurologic examination revealed nothing of significance. The erythrocytes numbered 5,100,000 and leukocytes 8,500 with a normal differential count. The content of hemoglobin was 90 per cent. The urine was negative for albumin and sugar. The basal metabolic rate in three tests was —13.0, —11.5 and —12.0. The Wassermann reaction of the blood was negative. He has been on one-half grain (0.03 Gm.) desiccated thyroid three times a day for the past two months without any demonstrable change in his condition. Kindly make recommendations as to future therapy.

M.D., Pennsylvania.

ANSWER.—None of the symptoms described, singly or in combination, may be considered as due to any specific etiology. In fact, in many such cases there is a multiple etiology. As a whole, the case strongly suggests that the major etiologic agent is psychogenic. Because of its nonspecific nature and the suspicion of a psychic disturbance, the immediate approach is one aimed at exclusion of the more common organic causes.

Nothing about the case suggests migraine. In the absence of cranial trauma, a post-traumatic syndrome may be excluded. A thorough otologic investigation is imperative, and it should not be forgotten that such a syndrome may be caused by defective sinus drainage without active infection (Parkinson, S. N.: *Arch. Otolaryng.* **23**:344 [March] 1936, and **24**:594 [Nov.] 1936; THE JOURNAL, Jan. 21, 1939, p. 204). Any operative procedures on the sinuses should be avoided unless unequivocal pathologic changes are found.

A thorough ocular and oculomotor examination is essential, including emphasis on the activity of the intrinsic as well as the extrinsic eye muscles. A complete neurologic examination is indicated, including visual fields and cranial roentgenography to exclude intracranial tumor. A lumbar puncture is perhaps to be avoided because of the probability of postpuncture reaction in this patient. If, however, anything in the examination suggests an intracranial lesion, a lumbar puncture then becomes imperative.

After exclusion of organic causes, the psychic status of the patient should be investigated. This requires first of all an estimate of the personality basis and secondly an investigation of the immediate causative factors. The latter may after four years be somewhat obscured. The patient's symptoms now may be a habitual reaction to earlier incompatibilities. Often a combination of stresses will be found in the social, sexual, economic, intellectual and other spheres. As tact, skill, experience and

patience are necessary for such an investigation, a specialist in this field should conduct it. Often the revelation of the cause acts as a cure when understood and accepted by the patient. Prognosis will depend largely on the personality basis of the patient.

Sedatives per se are contraindicated as well as opiates and analgesics. Thyroid is of little or no value.

INTELLIGENCE QUOTIENT

To the Editor:—Have enough mass tests of the intelligence quotient by the Stanford-Binet and other methods been made to estimate the approximate number and percentage of the higher intelligence levels throughout the country or in New York? Can you tell me the approximate percentage, ratio or number of persons, or children alone, with intelligence quotients at levels of every 10 points including and above 160? What is the highest intelligence quotient recorded? At what age can the intelligence quotient first be considered as relatively stable for the rest of the child's testable age?

EMIL ROTHSTEIN, M.D., Brooklyn.

ANSWER.—Although many data have been collected concerning the Stanford-Binet intelligence tests, there are no complete data available of the approximate ratio or number of persons with intelligence quotients at every level. This would be possible only if the entire population were tested. The reports by Terman, Gesell and Pintner are informing. Most psychologists believe that an intelligence quotient of 190 is extremely rare. The relatively most stable period of establishing the intelligence quotient by the Stanford-Binet test is between the ages of 6 and 10 years.

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Gesell, Arnold: Infancy and Human Growth, New York, Macmillan Company, 1928.

SOAP LAKE WATER FOR THROMBO-ANGIITIS OBLITERANS

To the Editor:—Do you have any information regarding the treatment of Buerger's disease at Soap Lake, Wash.? Presumably the patients are given baths of this water and also take water internally. I understand the government has built a hospital there for patients with this disease. We would appreciate any light thrown on the subject.

J. I. CHALEK, M.D., Minneapolis.

ANSWER.—A good deal has been written about the curative effects of water of Soap Lake for patients with thrombo-angiitis obliterans, or Buerger's disease. Several months ago one of the journals for the members of the American Legion carried an extensive article in which extravagant claims were made for the curative power of the water of Soap Lake. As far as known there has been no expert estimate by a physician of the beneficial effects of treatment of thrombo-angiitis obliterans at Soap Lake. Articles written by persons who are not physicians indicate an extreme lack of knowledge about the disease on which they write so freely.

DUCK SHOT IN EYE

To the Editor:—Have there been any reports of the effect or results following the introduction of duck shot into body tissue, duck shot at the present time being made of magnesium or an alloy of magnesium? I have a patient in whom such shot have been embedded in the orbital tissues.

PAUL G. MOORE, M.D., Cleveland.

ANSWER.—There are no reports on the effect of the introduction into the tissue of the orbit of shot composed of magnesium or its alloy. The presence of a foreign body produces well known effects, but whether or not the composition of such foreign bodies has a chemical effect on the tissue is not known.

CYSTOSCOPES

To the Editor:—What make and type of cystoscope would you advise for general diagnostic and therapeutic use in male and female?

M.D., Pennsylvania.

ANSWER.—There are many types of cystoscopes for special purposes. There are but a few that can be called universal in that they give satisfactory performances for observation, ureteral catheterization and operative cystoscopy. For general use, including the three mentioned, the Ravich universal cystoscope, which is a No. 21 French instrument, is satisfactory.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Fifth Annual Meeting, held in Chicago, Feb. 13 and 14, 1939

(Continued from page 1189)

DR. J. H. MUSSER, New Orleans, in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

FEBRUARY 14—MORNING

The Program of the National Committee for Mental Hygiene

DR. CLARENCE M. HINCKS, New York: For thirty years the National Committee for Mental Hygiene, thanks to the support of philanthropic citizens and great foundations, has been enabled to conduct surveys, to support research, to set up experimental demonstrations and to be active in the field of health education. There was organized three years ago the Mental Hospital Survey Committee. Dr. Samuel W. Hamilton, Dr. Grover Kempf and others connected with the group conducted studies in forty states, affecting 169 hospitals, and made surveys in three Canadian provinces.

A number of mental hospitals have attained creditable standards and compare favorably with the better general hospitals of the country, but there are institutions with arrangements that are utterly inadequate and that are a discredit to present day civilization. The average ratio of medical personnel to patients in mental hospitals of the United States is 1:259 as against the accepted standard of 1:150, and the hospitals are understaffed in relation to nurses and other personnel. Only two states are free from overcrowding in mental institutions. To make provision for the hospitalization of persons requiring institutional care but not now receiving it, there are needed approximately 130,000 additional mental hospital beds in the United States. The number of beds for all classes of mental patients varies from 175 to 688 per hundred thousand in the various states. Political interference involves the personnel of hospitals with every change of administration in fourteen states and occurs occasionally in at least eight more. This circumstance constitutes a greater threat to sound administration than shortage of personnel and equipment. The average expenditure in the United States for the treatment of the mentally ill is 7.02 per cent of the states' income, with a range of from 2.83 per cent to 18.49 per cent. One state spends $1.10 a day per patient for mental hospitalization, with another appropriating only 31.03 cents a day. The latter sum prohibits of course any genuine attempt to provide scientific and humanitarian services.

These facts are disconcerting and present a challenge to the nation to place essential services for the mentally ill on a basis in line with acceptable scientific standards. The situation demands the rating of mental hospitals to furnish the medical profession and the public with an indication of the status of institutional facilities in their particular state or locality.

The time has come, perhaps, for a reshaping of mental hospital arrangements. To meet the requirements of the aged and other groups, there are needed institutions with distinct hospital groupings, with various units specially designed, located and staffed for their specific purposes, with separate budgets, but with activities correlated and administered by a medical superintendent and his assistants.

While the national committee has had a profound interest in adequate hospitalization, its major concern has always been the prevention of mental disorders. We know that, in connection with the younger generation, 4 per cent will at some period in their lives enter mental hospitals as patients afflicted with insanity; that 2 per cent are mentally deficient, with insufficient capacity to compete on equal terms with their fellows; that 1 per cent will become delinquent, and that at least 8 per cent will be handicapped because of marked emotional instability, because of twists and distortions of personality and because of

nervous breakdowns and other forms of maladjustments. In other words, there are more than 5 million children in our schools today whose outlook is dark indeed because of precarious mental health, 5 million children who, in the absence of preventive measures, will ultimately cost this country hundreds of millions of dollars in the upkeep of mental institutions, jails and relief agencies and who are destined to add greatly to the sum total of human unhappiness and inefficiency.

Prevention can be fostered through cooperative undertakings with the teaching profession and through the activities of physicians in the education of patients and the public in mental health matters. There is presented here a challenge to medical men in the extension of their educational efforts with the public, to include matters relating to mental as well as physical hygiene.

The national committee is appreciative of the fact that trained personnel is requisite for all mental hygiene undertakings. It has given attention to the training of nurses, social workers and teachers. There is need for the continued activities of the Council on Medical Education and Hospitals of the American Medical Association in connection with internships in mental hospitals and related efforts. Of fundamental importance is the conduct of educational work to reach the men who are now actively engaged in medical practice throughout the country.

The problems presented by mental disorders will become more and more acute unless adequate arrangements are made for the prosecution of research to point the way to more effective programs of prevention and treatment. The national committee has been sensitive to this need for research and, through annual grants from the Scottish Rite Masons of the Northern Jurisdiction of the United States, is subsidizing eighteen research projects in dementia praecox. In addition a study has been made of the present status of research and the possibilities for further development in the publicly supported mental hospitals of the country. It was found that twenty of the 273 public institutions were well organized and staffed for investigatory work and that an additional thirty-two hospitals offered distinct possibilities for research. However, too little attention has been devoted to research activities in this domain. It is interesting to note that, in the field of industrial research, there are in this country 40,000 workers in 1,600 laboratories involving an annual expenditure of 300 million dollars. Psychiatric research has less than 1 per cent of such resources and personnel. What a contrast, and what a challenge to effect a more even balance in our civilization!

Fundamentals of Industrial Hygiene

DR. T. LYLE HAZLETT, Pittsburgh: Industrial hygiene may be defined as the application of medical science to health and its preservation among the working population with the object of establishing the most healthful environment for the worker. Medical service in industry can be divided into three cycles. The first cycle was prior to 1910, when such service was practically unknown. Employees injured while at work were sent to the office of the nearest physician, and the management gave little thought to the surgical care and rehabilitation of injured employees. The second or surgical cycle was predominant from 1910 to 1925, during which years came the development of the group system of production, with an increased concentration of workers. The greatest source of traumatic injuries during these years was in industry, and the result was the enactment of compensation laws. It became apparent in 1913 that many injuries could be prevented, and in that year the National Safety Council came into existence. The third cycle, which began in 1925, can be termed the medical-engineering cycle, since it became evident that many conditions existed in industry that had some bearing on the health of employees. During the last few years more attention has been given to the working environment in its relation to the well-being and conservation of health among workers. Thus there has been opened a new field of preventive medicine, with an industrial application. This requires active participation by physicians working in cooperation with engineers to determine actual measurements of existing conditions so that adequate control measures may be instituted. Recently some twenty-one states have added occupational disease acts to their compensation laws and there seems to be a gradual tendency to increase the number of so-called occupational diseases. In addition, many cases are being carried to the civil courts and are a subject of much concern.

In 1936 an industrial hygiene department was established at the University of Pittsburgh School of Medicine with the object of providing undergraduate and graduate instruction in industrial medical problems and establishing facilities for research on specific industrial problems as they pertain to the health and well-being of workers. In conjunction, an analytic laboratory has been established and hospital facilities are available for the investigation of occupational diseases, together with fellowships for graduates who desire to do such research work on industrial medical problems. An intensified graduate course of one week was offered last year and was well received.

Perhaps 90 per cent of the medical graduates have in the first years of practice some industrial or insurance contacts which bring them into the compensation field. Consequently there has arisen the necessity for extending the curriculum in our medical schools to provide instruction in industrial hygiene in its application to industrial life and to preventive medicine in industry. This can be done only by making this subject an entity in present day medical education. The part the physician should take and the responsibilities he should assume may be presented under four captions: 1. Safeguarding the health of the industrial workers in relation to their working environment. This includes air hygiene, lighting, noise, fatigue syndrome, sanitation, and placement of workers both from a mental and from a physical standpoint; making periodic examinations, especially of workers in known health hazards, and making definite recommendations to the management for the elimination of any unhealthful practices. 2. Medical care of occupational injuries and diseases and emergency medical care of nonoccupational illnesses occurring while the worker is on duty. 3. Research work. The constant development of new processes, new materials and new combinations of materials and their effects on the human body present to the graduate in medicine today his greatest opportunity in the study of occupational environment and in exploring new frontiers. 4. Health education. Much can be accomplished in an educational manner on the subjects of tuberculosis, heart disease and syphilis, for no group is more easily accessible or more desirous of knowing simple health facts than the industrially employed. If physicians do not realize the value of this avenue of transmitting worthwhile medical knowledge they will be acting contrary to the concepts of preventive medicine in its fullest extent.

It behooves them to assume the responsibility of guiding industry in its intra-industrial medical problems. Medical teaching institutions must give serious consideration to additional instruction so that the students may be able to assume their place in this age of complex and changing relationships in industrial life.

The Relation of Anesthesiology to Medical Education

DRS. RALPH M. WATERS, H. R. HATHAWAY and W. H. CASSELS, Madison, Wis.: This paper will be published in full in THE JOURNAL.

Tenure of Members of the Faculties in the Medical Schools

A. J. CARLSON, PH.D., Chicago: A questionnaire was mailed to the deans of the eighty-seven medical schools in the United States and Canada. Returns came in from eighty-five. This nearly 100 per cent response, I believe, stands as a record, and to it any merit in my summary and comments is largely due.

It appears on the returns that in fifteen medical schools indefinite tenure obtains at all ranks. I do not believe this is true. There must have been carelessness in checking. There should not, in my opinion, be initial indefinite tenure at the instructor rank. One should have a probationary period of from three to six years, during which time the instructor demonstrates his capacity in teaching and research. The large

number of schools, thirty-four, listed as having annual or biannual appointments of all ranks is also misleading. This group includes the medical schools in state universities, where state laws stipulate this kind of tenure. Actually, even on these faculties the full professor and in some cases the associate and assistant professor have, by practice, indefinite tenure. Indefinite tenure is accorded in eleven schools only to the full professors, in seventeen schools to the associate professors and in twelve schools to assistant professors also.

Apart from the importance of freedom and tenure for the highest performance in teaching and research, annual, biannual or term appointments, after the period of apprenticeship has passed, result in a less careful scrutiny of the performance of staff members by such responsible officers as chairmen of departments and deans. Also the failure to reappoint is a too ready and tempting door of exit in case of personal jealousy and prejudice, which one does not like to drag into the open, as would be done if discontinuance of service had to be preceded by a real hearing on the quality of performance.

Dismissal is accomplished by faculty vote in three schools, after recommendation of a committee of the faculty in twenty-two, on recommendation of the chairman of the department in eighteen and after a hearing before a committee in six. Forty-eight schools make no provision for a hearing.

Over half of the medical schools report that no provision for a genuine hearing exists in the statutes, by-laws or traditional administrative procedures of their school. I do not think that the majority of the executive officers (chairmen, deans, presidents, trustees) are that arbitrary. I think at least some of the deans made an error in checking on this item. But there are the figures. Twenty-five schools report that there is action by the faculty or a committee of the faculty prior to dismissal. This usually implies some form of a hearing for the party under accusation. In the case of the eighteen who dismiss on recommendation of the chairman alone, the accused party may or may not have a chance to be heard. Such hearings as are afforded are a matter largely of generosity and good sense rather than of requirement by the legal setup of the school, whether public or private. Trustees or governing boards are the legal entities of the school, and these legal entities usually have the power, under state laws or articles of incorporation, to dismiss a staff member at any time, without hearing and without giving any reasons for the dismissal, just as in a business corporation. The administration of a medical school worthy of the name must be above suspicion. Star chamber methods are out. Even a professor is entitled to be judged by his peers.

In the evolution of more efficient administrative procedures in medical schools these primary elements in the problem must be kept in mind: Real teaching and high grade research are most difficult tasks. Men with the high and rare powers involved can be neither driven nor commanded. Their performance flows from within, from the light and power of the individual. The essential administrative problem is the creation and maintenance of a milieu most suited to the labors of such men. It is slowly being learned, what should have been clear without experiment, that full time service on a medical faculty, despite its significance for research, is no cure-all as regards poor teaching. Not enough clearly superior men have been attracted to the profession to staff the faculties of medicine. What is to be done, in justice to the students, with those staff members who, because of sickness, premature senility, laziness or other misfortunes, fail to perform according to the promise of their earlier years? I think that the schools should act in their cases more frequently and objectively than they do. Throwing these men out does not seem a satisfactory answer, especially if the school has used what gifts they have until they are past 40. If there is going to be some such thing as an equity in one's post in relation to performance and time, it would seem that a person who has served society to the best of his ability even for five or ten years has earned part of the financial compensation due him after a service of thirty or forty years.

(To be continued)

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 20-22. Sec., Dr. J. N. Baker, 517 Dexter Ave., Montgomery.

ARIZONA: Phoenix, April 11-12. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Medical (Regular).* Little Rock, June 8-9. Sec., State Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, 317 State Line, Texarkana. *Medical (Eclectic).* Little Rock, June 8-9. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Written examinations.* San Francisco, July 10-13, and Sacramento, Oct. 16-19. *Oral examinations* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, August 7, and San Francisco, Nov. 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, April 5-7. Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, June 10. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven.

DELAWARE: Dover, July 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 26-27. *Medical.* Washington, July 10-11. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 19-20. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Honolulu, April 10-13. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

IDAHO: Boise, April 4-7. Address, Dir., Bureau of Occupational License, Rm. 355, State Capitol Bldg., Boise.

ILLINOIS: *Chicago, April 11-13, June 20-22, and* Oct. 17-19. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 20-22. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, April 11. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, State Department of Health, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 13-14. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, June 7-9. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MARYLAND: *Medical (Regular).* Baltimore, June 20-23. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, June 20-21. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 14-16. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, April 4-5. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, April 18-20. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: Helena, April 4-5. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: *Basic Science.* Omaha, May 2-3. *Medical.* Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, May 1-3. Sec., Dr. John E. Worden, Capitol Bldg., Carson City.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, April 10-11. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York, and Syracuse, June. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, State Education Department, Albany.

NORTH CAROLINA: Raleigh, June 19. Sec., Dr. William D. James, The Hamlet Hospital, Hamlet.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OKLAHOMA: *Basic Science.* Oklahoma City, May 15. Sec. of State, Hon. C. C. Childress, State Capitol, Oklahoma City. *Medical.* Oklahoma City, June 14. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Corvallis, July 8, and Portland, Oct. 28. Sec. State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, 400 Education Bldg., Harrisburg.

RHODE ISLAND: Providence, April 6-7. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 27. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 18-19. Director, Medical Licensure, Dr. G. J. Van Heuvelen, State Board of Health, Pierre.

TEXAS: June. Sec., Dr. T. J. Crowe, 918 Mercantile Bldg., Dallas.

VERMONT: Burlington, June 14-16. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 21-23. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WISCONSIN: Milwaukee, June 27-30. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, March 25, page 1189.

Maine November Examination

Dr. Adam P. Leighton, secretary, Maine Board of Registration of Medicine, reports the written examination held in Portland, Nov. 8-9, 1938. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Ten candidates were examined, five of whom passed and five failed. Three physicians were licensed by reciprocity and three physicians were licensed by endorsement after an oral examination. The following schools were represented:

School	Year Grad	Per Cent
PASSED		
Boston University School of Medicine	(1938)	88
Tufts College Medical School	(1937)	79
Jefferson Medical College of Philadelphia	(1937)	81
University of Vermont College of Medicine	(1937)	80
McGill University Faculty of Medicine	(1937)	91
FAILED		
Medizinische Fakultat der Universitat Wien	(1936)	73
Friedrich-Wilhelms Universitat Medizinische Fakultat, Berlin	(1919)	70
Georg August Universitat Medizinische Fakultat, Göttingen	(1924)	70
Rheinische Friedrich Wilhelms-Universitat Medizinische Fakultat, Bonn	(1933)	69
Regia Universita degli Studi di Roma Facolta di Medicina e Chirurgia	(1935)	74

School	Year Grad	Reciprocity with
LICENSED BY RECIPROCITY		
Univ of Michigan Department of Med and Surgery	(1899)	Michigan
University of Michigan Medical School	(1928)	Michigan
University of Virginia Department of Medicine	(1931)	Virginia

School	Year Grad	Endorsement of
LICENSED BY ENDORSEMENT		
Tufts College Medical School	(1932)	N B M Ex.
Cornell University Medical College	(1934), (1936)	N B M Ex

North Carolina Reciprocity and Endorsement Report

Dr. W. D. James, secretary, North Carolina State Board of Medical Examiners, reports fifteen physicians licensed by reciprocity and two physicians licensed by endorsement after an oral examination held at Raleigh, Dec. 12, 1938. The following schools were represented

School	Year Grad	Reciprocity with
LICENSED BY RECIPROCITY		
University of Louisville Medical Department	(1911)	Kentucky
University of Buffalo School of Medicine	(1918)	New York
University of Rochester School of Medicine	(1930)	Maryland
Duke University School of Medicine	(1932)	W. Virginia
University of Cincinnati College of Medicine	(1931)	Ohio
University of Pennsylvania School of Medicine (1936)	(1935)	S Carolina, Pennsylvania
Medical College of the State of South Carolina	(1921)	S Carolina
Meharry Medical College	(1937)	Tennessee
Medical College of Virginia. (1931), (1935),	(1936)	Virginia
Univ. of Virginia Department of Med (1927), (1933),	(1936)	Virginia

School	Year Grad	Endorsement of
LICENSED BY ENDORSEMENT		
Duke University School of Medicine	(1934), (1936)	N. B M. Ex

Ohio Reciprocity and Endorsement Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports twenty-six physicians licensed by reciprocity and four physicians licensed by endorsement Oct. 4, 1938. The following schools were represented.

School	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
University of Colorado School of Medicine	(1936)	New York
Indiana University School of Medicine	(1936, 2)	Indiana
University of Kansas School of Medicine	(1934)	Kansas
University of Louisville School of Medicine	(1937)	Kentucky
Tulane Univ of Louisiana School of Medicine (1932),	(1937)	Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons	(1930)	New York
Detroit College of Medicine and Surgery.	(1927)	Michigan
University of Michigan Medical School (1930), (1934), (1936, 2)	(1933),	Michigan
St Louis University School of Medicine (1936),	(1938)	Missouri
Jefferson Medical College of Philadelphia	(1933)	Penna
Temple University School of Medicine	(1932)	New Jersey
Meharry Medical College	(1921)	Missouri
University of Pennsylvania School of Medicine	(1932)	Penna.
University of Vermont College of Medicine (1936),	(1937)	Vermont
Medical College of Virginia.	(1937)	Virginia
Marquette University School of Medicine	(1937)	Wisconsin
Laval University Faculty of Medicine	(1933)	New York
Magyar Kiralyi Pazmany Petrus Tudomanyegyetem Orvosi Fakultasa, Budapest	(1929)	New York

School	Year Grad	Endorsement of
LICENSED BY ENDORSEMENT		
Georgetown University School of Medicine. (1934),	(1937)	N. B. M Ex.
Harvard University Medical School	(1936)	N B M Ex
Duke University School of Medicine.	(1936)	N B. M. Ex.

Book Notices

Our Common Ailment. Constipation: Its Cause and Cure. By Harold Aaron, M D, Medical Consultant to Consumers Union of United States. Cloth Price, $1.50. Pp 192, with 2 illustrations. New York: Dodge Publishing Company, 1938.

In his position as medical consultant to the Consumers' Union of the United States, Dr. Aaron has had occasion to acquaint himself with the composition of most of the laxatives, purgatives and gummy preparations which are now offered to the American people for the relief of constipation. All physicians can read the chapter on this topic with much interest and profit. Dr. Aaron has familiarized himself with the physiology of the colon so far as it is known; also the pathologic physiology of constipation. His pronouncements are unusually sane, and he is doing a service by showing people how much buncombe there is in much of what they have been told about the bowel. The book should help to clear people's minds of fear with regard to such things as intestinal autointoxication, acidosis and ptosis of the colon. It will tell them that most of what is called colitis today should not be called colitis and is not to be worried about, because it is not associated with any true inflammation or ulceration of the bowel. In these cases the bowel itself appears to be normal, but it tends to contract spasmodically and to excrete an excessive amount of mucus because of excessive stimulation by the patient's jangling nerves. Although the book was written primarily for a lay audience, it is decidedly worth reading by medical men and even by gastro-enterologists of some experience. For many patients a book like this could be useful. It will answer many of their questions and will give them many suggestions for the solution of their problem.

Allergic Diseases: Their Diagnosis and Treatment. By Ray M Balyeat, M A, M D, F A C P, Associate Professor of Medicine, University of Oklahoma Medical School, Oklahoma City, Oklahoma Assisted by Ralph Bowen, B A, M D, F.A A P., Chief of Pediatric Section, Balyeat Hay Fever and Asthma Clinic, Oklahoma City. Fifth edition Cloth Price, $6 Pp. 547, with 145 illustrations. Philadelphia: F. A Davis Company, 1938

The first edition of this book was written for the instruction of the public. The fifth edition is primarily for the general practitioner. Unfortunately the gradation from the lay to the medical textbook has been incomplete. The information included is much too detailed for any lay reader and too little for the physician The organization is poor. It is directed too much to arouse interest in scattered but practical questions rather than to give a coherent, well balanced discussion of allergy. The greatest fault probably lies in an almost complete lack of discussion of the theory of allergy, especially of the pathology and the pathogenesis of the allergic conditions. A general discussion of immunology is completely omitted. The book gives one the impression that allergic conditions of all types are in a large proportion of cases diagnosed by various types of cutaneous tests. Even in the chapters on urticaria and migraine this technic is almost completely relied on. Dietary studies through diaries and elimination diets are not given or discussed in these chapters. They are left for a brief final chapter, which is devoted primarily to recipes for wheat, egg and milk free preparations. These are excellent, but for their proper use the reader would have to consult a more thorough reference book The chapter on allergic dermatoses is weak. It is devoted largely to case reports rather than to a thorough discussion of the pathology and clinical pictures of infantile eczema, atopic dermatitis and contact dermatitis. In the chapter on treatment of intractable asthma and bronchiectasis most of the thirty-eight pages are devoted to a discussion of the technic and benefits of iodized oil instillation. All references to this are from sources favorable to this therapy. Unfavorable criticism, as the review of the literature and the work by Criep and Hampsey, is completely ignored. Because of the brevity of theoretical discussion, erroneous impressions are given through such a statement, under the brief discussion of the chemistry of pollen (page 92), as "However, it is definitely shown that the substance to which patients develop a specific sensitivity is not protein." This conclusion is not accepted by most workers. Another error, which is serious from a practical rather than an academic point of view, is the statement (page 117) that horse sensitive patients

have symptoms from furniture containing horsehair. This material as prepared for such use is not capable of producing symptoms because of the processes used (usually boiling in alkalis and soaking in solution of formaldehyde). The pollen charts of various regions are numerous and excellent. The other illustrations are often unnecessary and meaningless (the pictures of a horse, cows, hogs, sheep, rabbits, common vegetables, a bag of flour, a loaf of bread and a labeled package of cereal, all to emphasize common causes of allergy). A few well chosen words supported by statistics would serve the intelligent reader to a greater purpose.

Heart Disease and Pregnancy. By Crighton Bramwell, M.A., M.D., F.R.C.P., Physician, Manchester Royal Infirmary, and Edith A. Longson, M.B., Ch.B., D.P.H. With a Foreword by Sir Ewen Maclean, M.D., F.R.C.P., LL.D. Cloth. Price, $3. Pp. 194, with 57 illustrations. New York, London & Toronto: Oxford University Press, 1938.

This small book contains considerable information, both pertinent and irrelevant; many of the illustrations and much of the text, however, present merely the fundamentals of heart disease and might well be omitted.

The authors give a valuable analysis of the data on 350 cases of their own and compare them with series already published by McIlroy and Rendel in 1931 (200 cases), Carr and Hamilton in 1933 (500 cases) and Watson in 1933 (240 cases). Of the authors' series 89.7 per cent were rheumatic, 4 per cent were congenital and 6.3 per cent were miscellaneous. Ninety-five patients had a trivial to slight amount of heart disease and three of these (3.2 per cent) died. These were called class 1. The other 284 had more severe heart disease, and of these twenty-two (7.8 per cent) died. These were called class 2. Thus there was a total mortality of twenty-five of the 379, or 6.6 per cent. There were 156 primigravidas; two of forty-four of class 1, or 4.9 per cent, died and eleven of 112 of class 2, or 10 per cent, died, making a total death rate among the primigravidas of 8.6 per cent (thirteen of 156). There were 223 multiparas; of fifty-one belonging to class 1 one died (1.9 per cent) and of 172 belonging to class 2 eleven died (6.4 per cent), making a total death rate among the multiparas of 5.3 per cent (twelve of 223). There were twenty-four patients with auricular fibrillation in the whole series of 379 cases. The death rate among these was 29.2 per cent as compared with the total mortality of 6.6 per cent.

As the result of their observations the authors were inclined to modify their previous opinion and to believe that "although auricular fibrillation does undoubtedly add considerably to the risk of pregnancy it does not constitute a bar to pregnancy provided the patient can be kept under observation and receive adequate treatment." Their case 113 is of interest in this respect:

> A working-class woman who was in the Manchester Royal Infirmary, with rheumatic heart disease, at the age of 16 in 1913 came under our care with auricular fibrillation, mitral stenosis and great cardiac enlargement, following her third confinement in 1923. Normal rhythm was restored with quinidine and was maintained for two years in spite of a further pregnancy with a normal confinement in 1924. In 1925 fibrillation recurred, and we therefore terminated her fifth pregnancy. Between 1926 and 1930 another pregnancy was terminated, and she had two natural abortions. In 1931 she again became pregnant but felt so fit that she begged us to allow pregnancy to continue. With much reluctance and no slight misgiving we ultimately gave our consent. She was delivered by cesarean section. Convalescence was uneventful. Six years have since elapsed and there is no evidence that her cardiac condition has been aggravated by this confinement. This woman is able to look after her home and three children single handed. To our knowledge she was fibrillating fourteen years ago and has been fibrillating continuously for twelve years. During that time she has given birth to two healthy children in addition to having two therapeutic and two natural abortions.

The authors have never used quinidine in the treatment of fibrillation in pregnant women, partly because of the danger of producing abortion but chiefly because the type of case with which they were dealing was not thought suitable for quinidine. With respect to congestive heart failure they write:

> Twenty-six of the patients in our series exhibited evidence of heart failure with venous engorgement and edema at the time they first came under observation. Of these, ten died prior to or soon after confinement and four others are known to have died within the next six years, giving a total mortality of 53 per cent. Expressed in another way, out of fifteen of our patients who died from cardiac causes, either prior to or within six months of confinement, ten had exhibited signs of congestive heart failure when first seen. These figures speak for themselves.
>
> The prognosis, however, is not always unfavorable, for five of our patients who developed congestive heart failure, during the later months of pregnancy, responded satisfactorily to treatment. Success in treatment depends chiefly on the early recognition of signs of failure. For this reason we wish to emphasize the importance of adequate ante partum supervision, especially with a view to detecting heart failure in its initial stages.

Of 312 patients with valvular disease, 260 had mitral stenosis alone. The others had mostly aortic valve disease alone, of which there were six, or aortic complicating mitral. The mortality was highest in the uncomplicated mitral stenosis cases, with twenty deaths in 260 cases. There were only two deaths in the other fifty-two cases.

The authors disagree entirely with the statement expressed by Donovan in 1936 that congenital heart disease constitutes a contraindication to pregnancy. Only one of the sixteen cases caused them any anxiety and that case, Fallot's tetralogy, was not fatal. There were in the total series only five cases of thyrotoxic heart disease, and only twenty with a systolic pressure of 140 mm. or higher. Not a single case was diagnosed as cardiovascular syphilis. Their experience with therapeutic abortion they summarize:

> Termination of pregnancy will not cure heart disease. It should only be performed when treatment of the heart condition has failed and when the continuance of pregnancy endangers life or entails grave risk of producing a permanent aggravation of the cardiac disability. In other words, in patients with heart disease the indications for therapeutic abortion are identical with the contraindications to pregnancy. When such patients are seen during the first three months, emptying the uterus is a relatively safe procedure. After the end of the third month the risk is greatly increased, in view of the danger from shock and hemorrhage. Then the wisest course is to allow pregnancy to continue until the child is viable, and to deliver by cesarean section.
>
> Therapeutic abortion was performed in twenty-four of our cases (7 per cent), in eight on account of auricular fibrillation, in two for heart failure and in the other fourteen on account of the poor general condition of the patient or the fact that they manifested increasing respiratory distress, which did not respond to treatment. Two of these patients died (patients 175 and 260).

In this country there is a belief that cesarean section is to be avoided in most cases.

At the end of the book the authors write: "Taking all aspects into account, we consider that it is usually unwise for a woman with a slight heart lesion to have more than two children, and when the lesion is of moderate severity she should be content with one."

Manual of Diets, Montefiore Hospital, New York City. Third edition. Paper. Pp. 33. New York, 1938.

Although considerations of diet and nutrition are important in the management of any disease, not many hospitals have a formal committee on nutrition. The Montefiore Hospital of New York has such a committee, and for the guidance of physicians and other members of the staff this committee compiled a manual of diets, now appearing in the third edition. The manual sets forth a series of standard dietary prescriptions. Each diet appears in outline form, usually on a single page or less, and the information provided includes a list of indications, characteristics, foods allowed, foods to be avoided and a typical menu for one day. It might be well if future editions of this useful manual were to include menus for several days. Probably this isn't necessary, but such information would be useful to practitioners who desire to give suitable instructions for patients in the home. There are no data provided on the cost of special diets but it is mentioned that the average cost of a special diet is approximately 50 per cent greater than the average cost of a general or routine diet.

Electrotherapy and Light Therapy. By Richard Kovács, M.D., Clinical Professor and Director of Physical Therapy, New York Polyclinic Medical School and Hospital, New York. Third edition. Cloth. Price, $7.50. Pp. 744, with 308 illustrations. Philadelphia: Lea & Febiger, 1938.

The publication of the third edition of this textbook within five years is an indication of its popularity and usefulness. An examination of the extensive revision and enlargement of this edition also reveals that the author has included many of the recent advances in the rapidly growing field of physical therapy in general and electrotherapy and light therapy in particular. There are enlargements of sections on newer methods in electrical treatment, with two new chapters on short wave diathermy and a new chapter on artificial fever by electrical means, as well as revision of the whole volume. While the book was primarily intended to present that part of modern physical therapy which practicing physicians may themselves carry on in their office, the scope is so broad that

it should be of value to students interested in a nonmathematical survey of the physics of electricity and radiant energy and the physiologic principles involved in the production or use of electrical and radiant energy in the body. The book begins with basic electrophysics, avoiding a complicated mathematical approach, and leads up to the physics of various electromedical currents and radiant energy, along with a description of the devices producing them and their physiologic effects. The description of the basic physiology of electrical stimulation and the theories of bio-electric currents is more detailed than that in most physiology textbooks. There is a valuable new chapter, for instance, correlating electrophysiology with electrotherapy and an expansion of many chapters on general theory such as those on galvanic current, electrophoresis and chronaxia. The last section of the book is devoted more particularly to applied electrotherapy and light therapy for the guidance of the physician. These details of clinical application seem quite complete, and they correlate the use of simpler methods of physical therapy with the more complicated electrical ones. Among the most important aspects of the book seem to be the well rounded discussions of various methods and theories, as well as the many references and the expanded glossary included.

Diseases of Women. By Ten Teachers under the direction of Clifford White, M.D., B.S., F.R.C.P. Edited by Sir Comyns Berkeley, Clifford White and Frank Cook. Sixth edition. Cloth. Price, $6. Pp. 492, with 158 illustrations. Baltimore: William Wood & Company, 1938.

In this edition the section on the physiology and disorders of menstruation has been completely revised. These data in their new form are lucid, helpful and as accurate as a simplified version can be. The volume presents fewer of the homely old British usages, such as the brisk purge for any and all contingencies, the rather loose application of dilation and curettage, the tardy adoption of the intravenous route for the administration of fluids and the uterine injection of hot glycerin for acute endometritis. One might say that the book has been considerably polished up. Most important in this connection is a complete capitulation to the argument for the conservative versus the radical surgical management of acute and subacute pelvic infection. The former volume was to be strongly criticized for its obvious lack of conviction in this connection. In general the book is amazingly consistent, considering its compilation by diversified authors. No doubt the open critical analysis of each in relation to the work of the others contributes to this evenness. The book is sound, authoritative, simple and consistently helpful in spite of minor discrepancies.

Health In Middle Life. By Ethel Browning, M.D. Needs of To-Day Series No. 21, edited by W. E. Boardman. Cloth. Price, 3s. 6d. Pp. 249. London: Rich & Cowan, Ltd., 1938.

As more and more human beings survive middle age, the number of books of advice for people in this period increases. The reason is, of course, that the transition period is attended by many symptoms of a special type and that the average person has not been suitably informed as to the normal character of the changes that occur. This book, written by a British woman physician, opens with a discussion of the effects of middle age, particularly on the glands and on resistance to disease. It discusses the physical character of the man and woman of 40; then the transition period, and next the program to be followed after the transition period. It is a sane, dependable book of advice.

The British Encyclopaedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects. Under the General Editorship of Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D. Volume IX: Mumps to Pneumothorax, Spontaneous. Cloth. Price, $12. Pp. 752, with 127 illustrations, including 10 plates. London & Toronto: Butterworth & Co. (Publishers), Ltd., 1938.

In this volume articles of special interest are concerned with the usual topics that would fall in the alphabetical classifications, but there are other special articles on such topics as professional negligence, edema (because the British spell it oedema), pain, paralysis, disputed paternity, the pituitary gland and pneumonia. Peptic ulcer is discussed by Dr. Thomas Hunt, edema by Jonathan C. Meakins of McGill University, thus far apparently the only Canadian to be selected as a contributor. This volume is well up to the standard of the previous items in this system of medical practice.

Medical Occupations Available to Boys When They Grow Up. By Leo M. Klinefelter, B.S., M.A. Cloth. Price, $2. Pp. 287, with 68 illustrations. New York: E. P. Dutton & Company, Inc., 1938.

The young man who is interested in learning some of the various ways in which medicine has extended its scope and something about the innumerable opportunities which now exist in fields closely associated with the practice of medicine will find in this guide book the necessary information. The author discusses the route by which one enters the practice of medicine and then has individual chapters dealing with the various technical specialties such as physical therapy, the clinical laboratory, and the x-rays; also chapters on dentistry, nursing, optometry, pharmacy and veterinary medicine. The book is written in the form of a conversation between a boy and a doctor. It is nicely illustrated and should be a most useful work for any boy finishing high school and ready to choose an occupation in the medical field.

Rheumatism. By Bertam S. Nissé, M.D., M.R.C.P., Hon. Physician, British Red Cross Clinic for Rheumatism, Peto Place, London. Cloth. Price, 5s Pp. 168. London: John Bale Medical Publications, Ltd., 1938.

This little book is a simple attempt to describe briefly the differential diagnosis and principal aspects of treatment of so-called rheumatism, including rheumatic fever, fibrositis, arthritis and gout. There is possibly some oversimplification in presentation, and the list of useful methods of treatment, especially for rheumatoid arthritis, would require careful selection for the individual patient. The general practitioner whose knowledge of these diseases is extremely fragmentary would find this volume helpful, but it can scarcely be considered comparable to some of the other more complete and more scientific recent books on or reviews of the subject.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Revocation of License for Procuring Abortions.—The medical practice act of New York authorizes the board of regents of the University of the State of New York to revoke the license of any physician who undertakes or engages "in any manner or by any ways or means whatsoever to procure or to perform any criminal abortion." By authority of this act the board of regents revoked the license of the petitioner, a physician, whereupon he appealed to the supreme court of New York, appellate division, third department.

The evidence presented before the board of regents, said the supreme court, showed that three female special investigators of the state department of education visited the petitioner's office on separate occasions and that on the occasion of each visit the petitioner made a vaginal examination of the investigator, advised that a condition of pregnancy existed, stated that he was willing to perform an abortion and fixed a date for the performance of it. The evidence further showed that he charged a fee of $5 for each examination and agreed to perform the abortion in each case for a fee of $100 and an additional $10 for the administration of the anesthetic. In the opinion of the court, the board of regents was justified in finding that the act in question had been violated. Accordingly, the court affirmed the action of the board of regents in revoking the petitioner's license.—*Kahn v. Board of Regents of University of State of New York (N. Y.), 4 N. Y. S. (2d) 233.*

Malpractice: Removal of Uvula and Soft Palate During Tonsillectomy.—The plaintiff, a minor, by his guardian ad litem sued the defendant for malpractice, alleging that during a tonsillectomy performed on him by the defendant the uvula and a portion of the soft palate were removed and the anterior and posterior pillars of the throat were injured. At the conclusion of the plaintiff's testimony, the trial court directed a verdict in favor of the defendant and the plaintiff appealed to the district court of appeal, second district, division 1, California.

The physician contended that the trial court properly directed a verdict in his favor because there was no medical testimony

adduced at the trial with respect to the propriety of his conduct In this case, said the district court, the evidence revealed a situation which clearly takes it out of that class of cases in connection with which expert testimony is indispensable The court then quoted from *Evans v Roberts*, 172 Iowa 653, 154 N W 923, as follows

> While it may be true that, had the operation upon the adenoids been unsuccessful and disappointing, no inference of negligence or want of skill would arise therefrom, it does not follow that this rule applies with the same force to an injury done by him to sound and undiseased parts of the plaintiff's person, which he was not called upon to treat and did not pretend to treat If a surgeon, undertaking to remove a tumor from a person's scalp, lets his knife slip and cuts off his patient's ear, or if he undertakes to stitch a wound on the patient's cheek, and by an awkward move thrusts his needle into the patient's eye, or if a dentist in his haste, leaves a decayed tooth in the jaw of his patient and removes one which is perfectly sound and serviceable, the charitable presumptions which ordinarily protect the practitioner against legal blame where his treatment is unsuccessful, are not here available "It is a matter of common knowledge and observation that such things do not ordinarily attend the service of one possessing ordinary skill and experience in the delicate work of surgery It does not need scientific knowledge or training to understand that, ordinarily speaking, such results are unnecessary and are not to be anticipated, if reasonable care be exercised by the operator"

The court also quoted from *Ilse v Ryan*, 8 Calif (2d) 82, 64 P (2d) 409, as follows

> Where the thing is shown to be under the management of the defendant or his servants, and the accident is such as in the ordinary course of things does not happen if those who have the management use proper care, it affords reasonable evidence, in the absence of explanation by the defendant, that the accident arose from want of proper care

It would appear, continued the district court of appeal, to be a matter of common knowledge that the removal of a portion of the soft palate and of the uvula is no part of a tonsillectomy The location of the tonsils is a matter easily observable to anyone, and the location and function of the uvula and soft palate are matters of common knowledge and of which a court can take judicial notice Therefore there was evidence in the record, at the time the motion for a directed verdict was granted, sufficient to support a verdict for the plaintiff had such verdict been returned The trial court, therefore, erred in directing the verdict, the jury should have been permitted to determine the matter of the defendant's negligence The judgment in favor of the defendant was accordingly reversed and the cause was remanded.—*Thomsen v Burgeson (Calif) 79 P (2d) 136*

Society Proceedings

COMING MEETINGS

American Medical Association St Louis May 15 19 Dr Olin West, 535 North Dearborn St, Chicago, Secretary

Alabama, Medical Association of the State of, Montgomery, April 18 20 Dr D L Cannon, 519 Dexter Ave, Montgomery, Secretary

American Academy of Tuberculosis Physicians, St Louis, May 13 14 Dr Arnold Minnig, 638 Metropolitan Bldg, Denver, Secretary

American Association for the Study of Goiter Cincinnati, May 22 24 Dr W Blair Mosser, 133 Biddle St, Kane, Pa, Secretary

American Association for the Study of Neoplastic Diseases, Detroit April 6 8 Dr Eugene R Whitmore 2139 Wyoming Avenue N W, Washington, D C, Secretary

American Association for Traumatic Surgery, Hot Springs, Va, May 8 9 Dr Ralph G Carothers, 409 Broadway, Cincinnati, Secretary

American Association of Anatomists Boston Apr 6 8 Dr E R Clark University of Pennsylvania School of Medicine, Philadelphia, Secretary

American Association of Genito Urinary Surgeons, Williamsburg Va May 24 26 Dr Charles C Higgins, 2050 East 93d St, Cleveland Secretary

American Association of Pathologists and Bacteriologists, Richmond, Va Apr 6 7 Dr Howard T Karsner, 2085 Adelbert Rd, Cleveland Secretary

American Association of the History of Medicine, Atlantic City, N J, April 30 May 1 Dr Henry E Sigerist, 1900 Monument St, Baltimore, Secretary

American Association on Mental Deficiency, Chicago, May 3 6 Dr E Arthur Whitney, Washington Road, Elwyn, Pa, Secretary

American Dermatological Association, Montebello, Canada, May 31 June 3 Dr Fred D Weidman, University of Pennsylvania Medical Laboratories, Philadelphia, Secretary

American Gastro Enterological Association, Atlantic City, N J, May 1 2 Dr Russell S Boles, 1901 Walnut St, Philadelphia, Secretary

American Gynecological Society, White Sulphur Springs, W Va, May 22 24 Dr Richard W TeLinde, 11 East Chase St, Baltimore Secretary

American Heart Association, St Louis May 12 13 Dr Howard B Sprague, 50 West 50th St, New York, Secretary

American Laryngological Association, Rye N Y, May 24 26 Dr James A Babbitt, 1912 Spruce St, Philadelphia, Secretary

American Laryngological, Rhinological and Otological Society Chicago May 10 11 Dr C Stewart Nash, 277 Alexander St, Rochester, N Y, Secretary

American Medico Legal Association Chicago, May 12 13 Dr Michel Pijoan, 124 Commonwealth Ave, Boston, Secretary

American Otological Society, New York May 22 23 Dr Thomas J Harris, 104 East 40th St, New York, Secretary.

American Pediatric Society, Sky Top Pa, Apr 27 29 Dr Hugh McCulloch, 325 North Euclid Ave, St Louis, Secretary

American Physiological Society, Toronto Canada, Apr 26 29 Dr A C Ivy, 303 East Chicago Ave Chicago, Secretary

American Psychiatric Association Chicago May 8 12 Dr Arthur H Ruggles, Butler Hospital, Providence, R I Secretary

American Society for Clinical Investigation Atlantic City N J May 1 Dr Isaac Starr, University of Pennsylvania Hospital Philadelphia Secretary

American Society for Experimental Pathology, Toronto Canada April 26 29 Dr Paul R Cannon, Dept of Pathology, University of Chicago, Chicago Secretary

American Society for Pharmacology and Experimental Therapeutics Toronto, Canada Apr 26 29 Dr G Philip Grabfield 319 Longwood Ave Boston, Secretary

American Society of Anesthetists, New York Apr 14 Dr Paul M Wood, 745 Fifth Ave, New York, Secretary

American Society of Biological Chemists Toronto Canada Apr 26 29 Dr C G King, Univ of Pittsburgh, Dept of Chemistry, Pittsburgh, Secretary

American Society of Clinical Pathologists St Louis May 12 14 Dr Alfred S Giordano, 531 N Main St, South Bend Ind, Secretary

American Surgical Association Hot Springs, Va, May 11 13 Dr Charles G Mixter, 319 Longwood Ave, Boston, Secretary

American Therapeutic Society, St Louis May 12 13 Dr Joseph F Elward 1726 Eye St N W Washington D C, Secretary

American Urological Association White Sulphur Springs W Va May 29 June 1 Dr Clyde L Deming, 789 Howard Ave, New Haven Conn, Secretary

Arizona State Medical Association Phoenix, Apr 13 15 Dr D F Harbridge, 15 East Monroe St, Phoenix Secretary

Arkansas Medical Society Hot Springs National Park May 8 10 Dr W R Brooksher, 602 Garrison Ave, Fort Smith, Secretary

Associated Anesthetists of the United States and Canada St Louis May 15 Dr F H McMechan, 318 Hotel Westlake, Rocky River Ohio Secretary General

Association for the Study of Internal Secretions, St Louis May 13 14 Dr F Kost Shelton, 921 Westwood Blvd, Los Angeles, Secretary

Association of American Physicians Atlantic City, N J May 2 3 Dr Hugh J Morgan, Vanderbilt University Hospital Nashville Tenn., Secretary

Association of Military Surgeons of the United States Washington D C, May 8 10 Dr H L Gilchrist, Army Medical Museum, Washington, D C, Secretary

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Florida Medical Association Daytona Beach, May 1 3 Dr Shaler Richardson, 111 W Adams St, Jacksonville, Secretary

Georgia, Medical Association of Atlanta, Apr 25 28 Dr Edgar D Shanks 478 Peachtree St N E, Atlanta Secretary

Illinois State Medical Society, Rockford, May 2 4 Dr H M Camp 224 S Main St Monmouth Secretary

Iowa State Medical Society Des Moines Apr 25 27 Dr Robert L Parker, 3510 Sixth Ave, Des Moines, Secretary

Kansas Medical Society, Topeka, May 1 4 Mr C G Munns, 112 W 6th St, Topeka, Executive Secretary.

Louisiana State Medical Society, Alexandria, Apr 24 26 Dr P T Talbot, 1430 Tulane Ave, New Orleans, Secretary

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr 25 26 Dr Walter Dent Wise, 1211 Cathedral St, Baltimore, Secretary

Minnesota State Medical Association, Minneapolis, May 31 June 2 Dr B B Souster, 11 West Summit Ave, St Paul, Secretary

Mississippi State Medical Association, Gulfport, May 9 11 Dr T M Dye, McWilliams Bldg, Clarksdale, Secretary

Missouri State Medical Association, Excelsior Springs, Apr 10 12 Dr E J Goodwin, 634 North Grand Blvd, St Louis, Secretary

Nebraska State Medical Association, Grand Island, May 2 4 Dr R B Adams, 414 Federal Securities Bldg, Lincoln, Secretary

New Mexico Medical Society, Gallup, May 11-13 Dr L B Cohenour, 219 W Central Ave, Albuquerque, Secretary

New York, Medical Society of the State of, Syracuse April 24 27 Dr Peter Irving, 2 East 103d St New York, Secretary

North Carolina, Medical Society of the State of, Cruise to Bermuda, May 9 14 Dr T W M Long, Roanoke Rapids Secretary

North Dakota State Medical Association, Fargo, May 8 10 Dr Albert W Skelsey, 20½ North Broadway, Fargo, Secretary

Ohio State Medical Association, Toledo, May 3 4 Mr C S Nelson, 79 E State St, Columbus Executive Secretary

Oklahoma State Medical Association Oklahoma City, May 1 3 Dr L S Willour, Third and Seminole, McAlester, Secretary

Society for the Study of Asthma and Allied Conditions Atlantic City, N J, Apr 29 Dr W C Spain, 116 E 53d St, New York, Secretary

South Dakota State Medical Association, Aberdeen, Apr 24 26 Dr Clarence E Sherwood, Madison, Secretary

Tennessee State Medical Association, Jackson, Apr 11-13 Dr H H Shoulders, 706 Church St, Nashville, Secretary.

Texas, State Medical Association of, San Antonio May 8 11 Dr Holman Taylor, 1404 West El Paso St, Fort Worth Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1928 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (*6 cents if one and 18 cents if three periodicals* are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

8: 233-272 (Jan.) 1939

The Spastic Colon. J. O. Finney, Gadsden.—p. 233.
Management of Hypertension and Pregnancy. B. H. Boyd, Atlanta, Ga. —p. 237.
Anorectal Pain: Its Clinical Significance. J. E. Linn, Birmingham.—p. 242.
Exploring the Possibilities of Afebrile Brucellosis. E. Thames, Mobile. —p. 245.

American Journal of Cancer, New York

35: 1-158 (Jan.) 1939. Partial Index

Mesonephroma Ovarii. W. Schiller, Chicago.—p. 1.
Some Transitional Gliomas. G. Levin, New York.—p. 22.
*Association of Silicosis and Carcinoma of the Lung. M. O. Klotz, Toronto.—p. 38.
Urine Extractives in Cancer. H. Sobotka and Edith Bloch, New York. —p. 50.
Occasional Neutralization of the Active Agent of Filtrable Fowl Tumors by Fluid Mediums from Tissue Cultures. R. J. Ludford, London, England.—p. 63.
Comparative Activity of Some Carcinogenic Hydrocarbons. J. M. Twort and C. C. Twort, Manchester, England.—p. 80.
Relation of Nursing to the Extrachromosomal Theory of Breast Cancer in Mice. J. J. Bittner, Bar Harbor, Maine.—p. 90.
Note on Production of Sarcomas in Hamsters by 3: 4-Benzpyrene. W. E. Gye and L. Foulds, London, England.—p. 108.

Silicosis and Carcinoma of Lung.—Klotz reviews fifty cases of silicosis observed from 1925 to 1936 in the department of pathology and bacteriology of the University of Toronto. Twenty-five of these are from the necropsy files of the department, while in twenty-five the material was submitted by the department of health of Ontario for examination. Among these fifty cases, nine instances of carcinoma of various organs were found. This figure may possibly be too low, as the material submitted by the department of health consisted in most cases of only the thoracic organs. Four of the nine tumors were primarily bronchogenic. In 4,500 necropsies performed on patients dying in the Toronto General Hospital, 808 carcinomas of all organs were found. Of these, fifty-three were primarily bronchogenic. Both these figures are considerably lower than those of the first group. The average age incidence of those showing primary lung cancers in this larger series was 52 years and nearly all were laborers. Nine had given their occupation as miners, three as metal workers and two each as laborers, gardeners, gas company employees, engineers and laundry men. Among those describing themselves as miners, only one showed evidence of silicosis. Fourteen can be considered to have pursued occupations necessitating the inhalation of air containing either dust or other foreign matter. Though it is not entirely accurate to compare a selected group of fifty cases with a control group numbering 4,500, a comparison of the figures suggests that the incidence of carcinoma of the lung in silicosis may greatly exceed that among the population at large. The symptoms exhibited by the four patients with carcinoma of the lung found in the fifty cases of silicosis were not atypical for carcinoma of the lung. Dyspnea, cough, substernal pain, hemoptysis and loss of weight and strength were the prominent complaints. The duration of symptoms varied from three weeks to four years, with an average of twenty-five months. In case 4 the respiratory complaints were masked by those produced by metastatic destruction of various bony structures. In cases 1 and 3 bloody pleural fluid was obtained on thoracocentesis. In no instance was an x-ray diagnosis made, though all the patients had been subjected to such an examination. The average age of these patients was 48 years and with one exception (five years) all had been exposed to silica for a period exceeding twenty years. In case 1, in which the exposure was only five years, the lungs showed the most advanced degree of fibrosis and on analysis yielded the highest percentage of silica (33.98 per cent). The remaining cases showed only a minimal or slight degree of fibrosis attributable to the siliceous deposits. Case 2 alone presented evidence of tuberculosis and here the infective process had taken the form of a tuberculous bronchopneumonia. All the tumors were hilar in position, arising from the main bronchi on the left in three cases and on the right in one.

American Journal of Diseases of Children, Chicago

57: 245-488 (Feb.) 1939

Sternal Marrow of Children in Normal and in Pathologic States. P. Vogel and F. A. Bassen, New York.—p. 245.
Tests of Function of Vegetative Nervous System in Acrodynia. R. Day, J. R. Smith and W. O. Klingman, New York.—p. 269.
*Extrasystoles in Children. R. A. Lyon and Louise W. Rauh, Cincinnati. —p. 278.
Gonorrheal Vaginitis of Children: Report of an Autopsy. R. A. Benson, A. Steer and F. D. Speer, New York.—p. 291.
Relation Between Plasma Protein Level and Edema in Nephrotic Children. L. E. Farr and D. D. Van Slyke, New York.—p. 306.
Congenital Enlargement of the Extremities. M. Cooperstock, Marquette, Mich.—p. 309.
*Prophylactic Use of Parental Blood Serum Against Contagion in a Pediatric Ward. L. H. Barenberg, D. Greene and M. J. H. Grand, New York.—p. 322.
Circulatory Function in Anemias of Children: II. Measurements of Blood Oxygen Content, Circulation Time and Venous Pressure. C. G. Parsons, Birmingham, England, and F. H. Wright, New York.—p. 330.
Experimental Poliomyelitis in Monkeys Lacking Olfactory Nerve Connections with Central Nervous System Produced by Intravenous Injection of Virus. J. A. Toomey, Cleveland.—p. 338.
*Distribution of Vitamin D in Body After Administration of Massive Doses. H. Vollmer, New York.—p. 343.

Extrasystoles in Children.—Lyon and Rauh detected extrasystoles in thirty-five of 782 children attending children's cardiac disease clinics, in three of 5,114 newborn infants, in forty of 1,782 school children selected by the physicians of the schools from a school population of about 85,000 as having some cardiac abnormality, and in seven of 709 children in a single elementary school. Of 2,672 children with normal hearts, extrasystoles occurred in fifty-nine (2.2 per cent); of 468 patients with cardiac lesions the irregularity was observed in twenty (4.3 per cent). In some instances rheumatic fever, diphtheria, congenital heart disease or emotional or nervous instability seemed to be a predisposing cause of the condition, but usually no evident cause of the extrasystoles could be determined. According to the electrocardiograms of twenty-two children, the extrasystoles were ventricular in origin in sixteen, nodal in three and auricular in three. In only one patient was the origin multifocal. In a series of forty-two patients who were observed for periods of from one month to ten years the extrasystoles occurred at only one examination in thirteen instances and for from one to five months in fourteen others, from six to eleven months in four, from twelve to twenty-three months in six and more than two years in the remaining five. There was no evidence that the presence of extrasystoles, by themselves, either caused any impairment of cardiac function or retarded the growth and development of the child.

Parental Serum Against Contagion.—Barenberg and his associates used parental blood serum regularly in an active pediatric ward as a prophylactic measure against measles, diphtheria and scarlet fever. Each child admitted to the medical pediatric ward received from 20 to 30 cc. of parental blood serum. The serum was readily absorbed without any untoward effects. The surgical ward served as a control. The use of parental serum maintained a constantly open ward free from outbreaks of contagious disease, preventing the spread of these disorders among already sick children. This prophylactic measure also decreased the number of hospital days in the medical pediatric ward.

Distribution of Vitamin D in Body.—Vollmer determined the vitamin D content of the organs of a child who died of tuberculous meningitis and miliary tuberculosis. Three and a half days before he died the child was given 600,000 U. S. P. units of vitamin D orally. At this time he was still in a condition which probably allowed the absorption of most of the vitamin. Most of the vitamin was stored in the skin, liver and brain. The kidney contained less vitamin. No appreciable amounts of the vitamin were found in the lungs, spleen or bones.

American Journal of Medical Jurisprudence, Boston

2:1-72 (Jan.) 1939

Police Crime Prevention Activity. O. W. Wilson, Wichita, Kan.—p. 1.
Determination of Compensation Liability: The Physical Examination and Collateral Medicolegal Factors. L. H. Childs, Flint, Mich., and C. D. Selby, Detroit.—p. 9.
The Technical Investigation in Cases of Electrical Injury. A. W. Weeks, Boston.—p. 12.
Carbon Monoxide, Chlorides in Drowning, Alcoholism. F. Stratton, Boston.—p. 21.
Crime and Justice. S. Glueck, Boston.—p. 25.
The Lay Roentgen Laboratory: Responsibility of Referring Physicians. I. S. Trostler, Chicago.—p. 37.
The Business Problems of the Medical Profession. J. A. Slaughter, San Francisco, and L. S. Trigg, Los Angeles.—p. 39.
The "Buck" Kelly Case. L. L. Stanley, San Quentin, Calif.—p. 45.
Mental Disorders in the Course of Bullet Wounds of the Brain: Their Medicolegal Relationship. M. Rinkel, Brookline, Mass.—p. 49.

American J. Obstetrics and Gynecology, St. Louis

37:1-182 (Jan.) 1939. Partial Index

Incidence of Anovulatory Menstruation Among Patients of Low Fertility. J. Rock, M. K. Bartlett and D. D. Matson, Brookline, Mass.—p. 3.
*Degree of Normal Menstrual Irregularity: Analysis of 20,000 Calendar Records from 1,500 Individuals. L. B. Arey, Chicago.—p. 12.
*Retinal Examinations: Guide in Management of Toxic Hypertensive Syndrome of Pregnancy. R. D. Mussey and B. J. Mundell, Rochester, Minn.—p. 30.
Effects on Blood from Injections of Endocrine Principles in the Female. C. A. Hill, Pittsburgh.—p. 47.
Effect of Quinine-Calcium on Uterine Motility. J. R. Johnson, Brooklyn.—p. 94.
Routine Roentgen Pelvimetry in 600 Primiparous White Women Consecutively Delivered at Term. H. Thoms, New Haven, Conn.—p. 101.
Role of Hysterectomy in Production of Menopausal Symptoms. A. L. Dippel, Baltimore.—p. 111.
Endometrial Patterns in Dysmenorrhea. J. Kotz and Elizabeth Parker, Washington, D. C.—p. 116.
Effect of Pregnancy and Corpus Luteum on Vesical Muscle. O. R. Langworthy and C. B. Brack, Baltimore.—p. 121.
Hematometra. P. Bernstein and R. Walter, New York.—p. 126.
*Insulin Treatment of Dysmenorrhea. Edna Watt Schrick, Lincoln, Neb.—p. 146.
Effect of Irradiation on the Function of the Ovary in Young Girls. I. I. Kaplan, New York.—p. 158.
Treatment of Vaginal Moniliasis with Silver Picrate. H. A. Shelanski and F. M. Kern, Philadelphia.—p. 161.

Normal Menstrual Irregularity.—Some 20,000 calendar records of menstrual cycles from about 1,500 women and girls, as given in twelve different studies, have been assembled, corrected and analyzed by Arey. The commonest length of 8,462 cycles (furnished by 585 persons) is twenty-eight days both for puberal girls and for adult women. The average length of all cycles is 33.9 days for girls and 28.4 days for women. The commonest length of 17,652 cycles (the grand mode of the individual modes of 1,265 persons) is divided between thirty and thirty-one days for puberal girls and is twenty-seven days for adult women. The mean length of cycle, based on individual averages, is 33.6 days for girls and 29.5 days for women. The maximal departures of individuals from their means extends from one to sixty-nine days in adults and from six to 211 days in puberal girls. In several hundred adults more than 21 years old, a fluctuation of about ± 2.5 days with respect to the mean expresses the limits of variability which contain two thirds of all cycles. Expressed differently, an average adult woman must expect one third of all her cycles to depart more than two days from her mean cycle length. The amount of variability shown by adults is greater than is ordinarily credited. Cycles ranging from two or three weeks to seven or more weeks appear in all of the groups (17 to 49 years) from which data have been collected. In the records of more than 500 women, 27 per cent never showed their own means during the observation period, which averaged eleven cycles. Only 20 per cent experienced their own mean in at least one third of their recorded cycles. The adults, reported in detail by eleven investigators, represent all ages from late adolescence to approaching menopause. They include American, Canadian, British, German and Hungarian subjects and various grades of society. In no instance did perfect menstrual regularity appear over any significant period of time; this is all the more noteworthy since many individuals had previously declared themselves to be the acme of invariability. It seems improbable that menstrual regularity, in any true sense of the word, ever will be encountered over significant periods of time. Certainly, not the slightest evidence pointing toward perfect regularity has so far been produced for even a single exceptional individual. Should such a person be found at some future time, she will constitute a true medical curiosity. Studies on the monkey and chimpanzee disclose menstrual irregularity comparable to that of the human being.

Retinal Examinations.—Mussey and Mundell point out that the weight of evidence indicates that acute late toxemia of pregnancy presents a hypertensive syndrome, characterized by generalized spasm of the smaller arteries. The degree of the spasm appears to parallel the height and duration of the blood pressure and the severity of the toxemia. Examination of the arterioles of the retina reveals changes which apparently manifest the degree of angiospasm throughout the body. In addition to hypertension and other symptoms, the presence and persistence of noticeable retinal vascular spasm is a guide in the management of late toxemia. This often indicates the need of avoiding further generalized and, perhaps, permanent vascular damage by terminating pregnancy when the condition of the patient permits. On the contrary, retinal changes of comparatively mild degree, or their absence, may indicate that pregnancy may be allowed to continue in the hope of obtaining a living infant without unduly jeopardizing the health and life of the mother.

Insulin Treatment of Dysmenorrhea.—Schrick gave regular insulin for from two to three months to ten college students from 16 to 29 years of age with dysmenorrhea. The insulin was given for from three to five days before each menstrual period. The menstrual periods of these women were regular and normal in all respects except for the association of pain of varying degrees of severity. Eight of the ten patients were benefited subjectively while under treatment, and three have had several menstrual periods free from pain without the use of insulin. The author has succeeded in relieving the cramplike pains of dysmenorrhea with a single injection of from 5 to 7 units of regular insulin given during the attack of dysmenorrhea with a supply of carbohydrate to counteract the antidiabetogenic effect of the insulin. This corroborates Altschul's observations. At present the author believes that insulin therapy in functional dysmenorrhea is successful because of its effect on the ovaries. The insulin treatment of this common complaint appears of value, but the subject needs further investigation.

Archives of Pathology, Chicago

27:1-200 (Jan.) 1939

Aplastic Anemia, with Special Reference to the Significance of the Small Lymphocytes. H. E. Jordan, Charlottesville, Va.—p. 1.
Membrane Formation at Lipoid-Aqueous Interfaces in Tissues. G. M. Hass, Boston.—p. 15.
Argentaffin (Carcinoid) Tumors of Small Intestine: Report of Eleven Cases and Review of the Literature. I. M. Ariel, New York.—p. 25.
Malignant Cells in Serous Effusions. J. R. McDonald and A. C. Broders, Rochester, Minn.—p. 53.
Negative Chemotropism in Leukocytes. M. McCutcheon, D. R. Coman and H. M. Dixon, Philadelphia.—p. 61.
*Pituitary Fibrosis with Myxedema. B. Castleman and S. Hertz, Boston.—p. 69.
Walker 256 Rat Mammary Carcinoma in Vitro: Further Observations. W. R. Earle, Washington, D. C.—p. 80.
Use of Strip-Shaped Explants in Tissue Cultures. W. R. Earle, Washington, D. C.—p. 88.
Malignant Tumor of the Great Omentum Simulating a Glomangioma. J. D. Kirshbaum and S. L. Teitelman, Chicago.—p. 95.
Production of Renal Calculi in Guinea Pigs by Feeding Them a Diet Deficient in Vitamin A. M. Steiner, B. Zuger and B. Kramer, Brooklyn.—p. 104.
Inflammation: XVII. Direct Effect of Changes in the Hydrogen Ion Concentration on Leukocytes. V. Menkin, Boston.—p. 115.
Cardiac Muscle in Idiopathic Hypertrophy of the Heart in Infancy and in Normal Growth. G. J. Dammin and R. A. Moore, New York.—p. 122.
Estrogens in Carcinogenesis. W. U. Gardner, New Haven, Conn.—p. 138.

Pituitary Fibrosis with Myxedema.—Castleman and Hertz cite a case of pluriglandular insufficiency without cachexia, clinically believed to be a case of myxedema. Except for the absence of cachexia, all the postmortem observations (fibrosis of the anterior lobe of the pituitary and atrophy of the thyroid, parathyroid, adrenal, ovary and uterus) are characteristic of Simmonds' disease. Pathologic and experimental evidence is presented which establishes primary disease of the anterior lobe of the pituitary in the pathogenesis. It is important to recognize that chronic pituitary insufficiency may exist.

Such a condition should be suspected in all cases of typical myxedema or in cases of myxedema in which earmarks of other endocrine deficiencies are present A negative thyrotropic assay of blood or urine in the untreated state of myxedema should suggest a primary deficiency of the pituitary

Connecticut State Medical Society Journal, Hartford

3: 51 104 (Feb) 1939

Mesenteric Cysts R L Dunne, Hartford —p 54
*Testosterone for Treatment of the Eunuchoid State K W Thompson, New Haven —p 59
What Should Be the Position of the Medical Profession in the Modern State? D P Griffin, Bridgeport —p 61
Sciatic Neuralgia B S Brody, New Haven —p 66
Technic, Physiology and Results in the Application of Therapeutic Hyperpyrexia I Kopp, Boston —p 68
Bromide Intoxication P W Preu, New Haven —p 75

Testosterone for Treatment of the Eunuchoid State.—Thompson states that the greatest success with testosterone has been obtained in eunuchoid patients who have either failed to attain normal sexual development or who have been castrated by accident or surgical necessity The optimal dosage for a eunuchoid adult is approximately from 50 to 75 mg of testosterone propionate weekly, divided in two or three doses After a preliminary saturation with the compound the maintenance dose may be lowered Some patients develop a tolerance to the drug, so that later the maintenance dose has to be raised The patients are instructed to make the injections and they adjust the dosage to their needs Beneficial effects are observed from two to ten days after the injections are begun Excessive doses have produced priapism, an increase in body weight and a generalized puffy edema, acne of the face and trunk and precordial pain The latter symptom was so pronounced in one patient that the treatment had to be abandoned No other untoward results have been reported, but more time must pass in order to evaluate the results and the dangers of the treatment The drug is an effective therapeutic agent the clinical application of which deserves further study It may prove to be an indispensable natural form of therapy in cases of primary deficiency of the testes In other disorders having a psychic or constitutional origin, in which the testes are either secondarily or only apparently involved, the results may be harmful or ineffective This drug is now being sold in many drug stores, at which it can be purchased without a prescription At present the cost of this material and the lack of public knowledge of its action temporarily serve to prevent its unsuitable exploitation New and cheaper methods for its synthesis will probably be developed and this with the public's knowledge of its psychic, emotional and physical effects may bring about the necessity for controlling its sale The principles of therapy with testosterone are not sufficiently well established to recommend its use by the physician in general practice For a time, at least, it should continue to be studied in the clinic having the guidance of physicians who have had experimental and clinical experience with the endocrine glands and the advice of a psychiatrist, whose aid may be needed to solve the many psychic problems which confront these patients

Georgia Medical Association Journal, Atlanta

28: 1 46 (Jan) 1939

Maternal Mortality S S Smith, Athens —p 1
Some Practical Points in Meeting Poor Surgical and Anesthetic Risk in Surgical Diseases T J Collier, Atlanta —p 4
*Classification and Treatment of Obesity J K Fancher Atlanta —p 7
Dissecting Aneurysm of the Aorta Report of Case T S Claiborne, Atlanta —p 12
Surgical Treatment of Gallbladder Disease J C Patterson Cuthbert —p 13
Value of Aschheim Zondek Test in Diagnosis of Chorionepithelioma M T Benson Jr Atlanta —p 16
Encroachments on Physicians' Rights A A Rayle, Atlanta —p 18
Odd Allergic Cases M A Ehrlich, Bainbridge —p 20

Classification and Treatment of Obesity.—Fancher classifies obesity as exogenous, endogenous or mixed Insufficient function of the thyroid, pituitary and ovaries may cause obesity Hyperinsulinism is also a cause of overweight Diets based on ideal and not actual weight are valuable People are fully conscious of the value of a trim figure, though they may desire it more from the standpoint of beauty rather than from the standpoint of comfort and health Men are more lax than women in their attention to girth control and yet, as the chief wage earners, they should be the ones most vitally interested in this life-lengthening factor There is just as much adipose tissue stored within the body around the vital organs as there is under the skin Frequently a man will consult his physician for shortness of breath and a choking sensation on exertion or after a full meal, when the trouble is not primarily cardiac in origin but due to an excessive accumulation of adipose tissue about the heart and lungs and within the abdomen A definite reduction in weight brings about a prompt and refreshing relief from the dyspnea and choking

Journal of Immunology, Baltimore

36: 1 82 (Jan) 1939

Serologic Studies of the Reptilia I Hemagglutinins and Hemagglutinogens of Snake Blood G C Bond Lawrence, Kan —p 1
Id II The Hemolytic Property of Snake Serum G C Bond and N P Sherwood, Lawrence, Kan —p 11
Acquired Specific Supersensitivity (Allergy) to Simple Chemicals IV Method of Experimental Sensitization, and Demonstration of Increased Susceptibility in Individuals with Eczematous Dermatitis of Contact Type M B Sulzberger and A Rostenberg Jr, New York —p 17
Simple and Inexpensive Apparatus for the Desiccation of Biologic Materials from the Frozen State H W Scherp and T P Hughes —p 29
Nonspecific "Desensitization" Through Histamine L Farmer, New York —p 37
Quantitative Relation of Fibrinolysin and Antifibrinolysin B F Massell, J R Mote and T D Jones Boston —p 45
Factors Affecting Quantitative Relation of Fibrinolysin and Antifibrinolysin J R Mote, B F Massell and T D Jones, Boston —p 59
Differences in Hemolytic Streptococcus Antifibrinolysins J R Mote, B F Massell and T D Jones, Boston —p 71

Journal-Lancet, Minneapolis

59: 37 84 (Feb) 1939

Nonparasitic Cysts of the Liver F F Attix, Lewistown, Mont —p 38
Limitations of the Nonpadded Plaster Cast J A Evert, Glendive, Mont —p 42
Impalement of the Rectum J H Garberson, Miles City, Mont —p 44
*A Safer Technic in Cholecystectomy T L Hawkins, Helena, Mont —p 47
Intravenous Urography as an Aid to Surgery Improved Method for Better Visualization of the Upper Urinary Tract L L Howard, Great Falls, Mont —p 49
Postgraduate Surgical Study in Edinburgh W A Wright, Williston, N D —p 51
Ectopic Pregnancy C W Schoregge, Bismarck, N D —p 54
Penetrating Foreign Body Wounds of the Knee Joint C J Glaspel, Grafton, N D —p 56
Pseudocysts of the Pancreas R E Weible, Fargo N D —p 58
*Accurate Determination of Compatible Blood for Transfusion A L Cameron, Minot, N D —p 60
Treatment of Ruptured Duodenal Ulcer S A Donahoe, Sioux Falls, S D —p 63
Actinomycosis of Head and Neck Pathology, Diagnosis and Treatment O S Randall, Watertown, S D —p 64
The Prone Position for Gravity Drainage of the Abdomen T F Riggs, Pierre, S D —p 68
Educational Opportunities in Student Health Programs C E Shepard, Palo Alto, Calif —p 70

Cholecystectomy.—Hawkins enters a plea for a more or less routine procedure for cholecystectomy by downward dissection He states that this procedure may be slower and, if the cystic artery is not previously clamped, more bloody, but he feels that these objections are negligible if such a procedure will lessen the number of inadvertent injuries to the common and hepatic ducts After the abdomen is opened and the gallbladder is brought into the field, the liver may be manually rotated or the falciform ligament clamped and used as a retractor to tip the under surface of the liver to a more unobstructed view The fundus of the gallbladder is grasped with rubber covered forceps and traction is applied upward An elliptical incision is made about the grasping forceps through the peritoneal covering of the gallbladder With small forceps the peritoneum is grasped and held by an assistant The initial incision is continued down the inferior surface of the gallbladder and on to the cystic duct Blunt dissection with small forceps is continued to free the gallbladder from the liver, and any troublesome bleeding points are cut and clamped Gauze dissection is not used at any time As the dissection proceeds downward, another rubber covered forceps may grasp the gallbladder lower to bring the cystic duct more directly in the operative field The cystic artery should be ligated separately and for as long as possible so that

its ligated end may be finally closed over with peritoneum. When the junction of the cystic duct with the common duct is clear and distinct the cystic duct is doubly clamped, severed with a cautery and doubly ligated with chromic ligature. Stones may be palpated or the common duct explored at this time, a complete change of abdominal moist packs being inserted as a quarantine. If there is no jaundice present, the common duct is of normal size, no stones are palpable and aspiration reveals clear light colored bile further exploration is not necessary. The peritoneal flap resected from the gallbladder and cystic duct is sutured continuously over the stump of the duct and the ligated cystic artery along the bed of the liver, so that complete peritonealization of the gallbladder area is obtained. The abdomen in the absence of common duct drainage is closed without drainage, the only exception being when the gallbladder has been torn inadvertently. In draining the common duct there are several pitfalls to be avoided: the incision in the duct need not be larger than to permit the insertion of a folded T drain or the removal of stones. Meticulous attention should be given to the condition of the rubber T tube. It should be thoroughly tested and inspected before insertion to ascertain that the rubber is vital and that no leaks are present.

Compatible Blood for Transfusion.—Cameron outlines the technic used at Trinity Hospital for the determination of the compatibility of blood for transfusion. The technic is a modification of the Landsteiner test tube method. Preliminary typing is carried out in order to reduce the number of compatibility tube tests necessary for selecting a donor. The typing and cross matching are not directly involved in this final determination, which concerns only the reactions seen in the test tubes. Ten test tubes are arranged in numerical order in a rack. Into the first five tubes is placed 0.1 cc. of a 5 per cent saline suspension of the donor's erythrocytes. To tubes 1, 2 and 3 is added the recipient's serum in the following amounts respectively: 0.1, 0.2 and 0.4 cc. and 0.4 cc. of the donor's serum is added to tube 4. Into tubes 6, 7, 8, 9 and 10 is placed 0.1 cc. of a 5 per cent saline suspension of the recipient's erythrocytes. To tubes 6, 7 and 8 is added the donor's serum in the following amounts, respectively: 0.1, 0.2 and 0.4 cc. and 0.4 cc. of the recipient's serum is added to tube 9. Physiologic solution of sodium chloride is added to the ten tubes in amounts sufficient to make the content of each equal to 1 cc. In tubes 1, 2, 3, 6, 7 and 8 occur the cross reactions between the serum of both the donor and the recipient in three different dilutions and their erythrocytes. In tubes 4, 5, 9 and 10 occur control reactions between serum and erythrocytes of the same origin in saline solution and between the saline solution and the erythrocytes alone of both the donor and the recipient. After preparation, the tube mixtures are allowed to stand for one and one-half hours, as delayed reactions are not uncommon. In approximately 4 per cent of tests between bloods of the same group incompatibility is found which is usually due to agglutination but occasionally to hemolysis. If the macroscopic evidence of agglutination is at all doubtful a microscopic examination is carried out. The author states that this test tube method has been relied on at Trinity Hospital for more than 1,200 transfusions performed during the last six years. No reactions of incompatibility have occurred. The extra time and effort which the test requires is fully justified by its incomparable superiority as a laboratory procedure on which life depends.

Journal of Nervous and Mental Disease, New York

89: 133-272 (Feb.) 1939

Notes on the Psychology of Metrazol Treatment of Schizophrenia. P. Schilder, New York.—p. 133.
Cerebral Mechanisms. J. W. Papez, Ithaca, N. Y.—p. 145.
Postural Alterations in the Upper Extremity, with Some Comments on the Pyramidal Tract and Human Erect Posture. A. M. Rabiner, Brooklyn.—p. 160.
Hereditary Word-Blindness as a Defect of Selective Association: Case Report. W. Marshall, Appleton, Wis., and J. H. Ferguson, Ann Arbor, Mich.—p. 164.
*Vitamin B Deficiency and Nervous Diseases. F. H. Lewy, Philadelphia. —p. 174.

Vitamin B Deficiency and Nervous Diseases.—The epitome that Lewy presents on the relation of nervous disease and vitamin B deficiency is as follows: 1. Changes in the electrical irritability of the peripheral motor nerves apparently are the first clinical signs of a B avitaminosis. 2. At the same time the pyruvic acid increases in the blood and urine, indicating a gradual vitamin B deficiency. 3. Simultaneously also the ketone bodies increase in the blood and urine, indicating a gradual exhaustion of glycogen. 4. The neuropathy can be cured by the administration of vitamin B as well as by the reconstruction of the glycogen stocks through the administration of carbohydrates supplemented by insulin. 5. The liver is the greatest storehouse of vitamin B and of glycogen. 6. The liver loses four fifths of its vitamin B stock in the first week of a diet deficient in vitamin B. 7. The liver proves to be severely damaged pathologically in such diseases in which a neuropathy or myelopathy is present. 8. After exhaustion of the "mobile" liver vitamin, its "fixed" depot in the nervous system begins to decrease. At this moment the nervous symptoms appear. 9. Clinical, pathologic and experimental experience suggests strongly that in diseases of the spinal cord, of the basal ganglions and of the hemispheres a vitamin B deficiency may also play a part. Considering these facts, it seems difficult to overlook the central position of the liver in the mechanism of the occurrence of certain nervous diseases. The liver harbors and eventually loses not only vitamin B but also A, C, D and others. For example, in lead poisoning one finds—in addition to the nervous signs which alone attract one's attention—paradontoses and final loss of the teeth due to an A avitaminosis, a tendency to hemorrhages producing the severe pains in the calves known from vitamin C deficiency and eventually an increased fragility of the bones. The neuropathies and myelopathies usually do not appear as accompaniments of the basic disease but after an interval of weeks, months and even years, as in the postencephalitic parkinsonism. They represent the metanosic type of disease, in other words an after-disease. The problem of the origin of nervous diseases should not be oversimplified by creating a new collection box labeled "B avitaminosis."

Medical Annals of District of Columbia, Washington

8: 1-30 (Jan.) 1939

Comments on the Interpretation of Blood Pressure Measurements. L. B. Laplace, Philadelphia.—p. 1.
Lunacy Procedure Under the New Law. A. E. Marland, Washington. —p. 6.
Injection Treatment of Hernia: Results in 239 Cases. R. J. Carbo, Washington.—p. 10.
Roentgenkymogram in Cardiologic Diagnosis. G. L. Weller Jr., Washington.—p. 13.
Second Annual Report of Diabetic Camp. S. Benjamin, E. C. Rice, K. H. Mish, B. Manchester and Ella Fraser, Washington.—p. 15.

New England Journal of Medicine, Boston

220: 85-128 (Jan. 19) 1939

*Treatment of Gonorrheal and Rheumatoid Arthritis with Sulfanilamide. H. C. Coggeshall and W. Bauer, Boston.—p. 85.
Peptic Ulcer Considered from a Surgical Point of View. A. W. Allen and C. E. Welch, Boston.—p. 103.
Syphilitic Hepatitis with Jaundice: Report of Case. L. E. Parkins, Boston.—p. 106.
Note on Drainage of the Prevesical Space. R. Chute, Boston.—p. 108.
Streptococcic Disease. C. S. Keefer, Boston.—p. 109.

Treatment of Arthritis with Sulfanilamide.—Coggeshall and Bauer treated fourteen cases of proved and four of probable gonorrheal arthritis, two cases of gonorrhea and two cases of proved and two of probable gonococcic prostatitis with sulfanilamide. Sulfanilamide administered in large doses for two or more weeks appeared to be a specific chemotherapeutic agent for certain strains of gonococci because: 1. Infected synovial fluids can be sterilized in from forty-eight to seventy-two hours after the institution of therapy. 2. In seventeen of the eighteen cases in which a proved genito-urinary focus existed, no gonococci were found after the third day of treatment. These cases remained clinically cured during the follow-up periods. 3. The gonococcus complement fixation test failed to become positive in three cases of gonorrheal arthritis in association with infected synovial fluids. In nine of the remaining eighteen cases the complement fixation test became negative. 4. Nine of the proved and two of the probable cases of gonorrheal arthritis showed striking clinical improvement in from forty-eight to seventy-two hours after therapy was begun. 5. The end results in the fourteen proved and the four probable cases of gonorrheal arthritis were more satisfactory and took place in shorter periods of time than occurs with other forms of therapy. The toxic manifestations resulting from the administration of large doses of

sulfanilamide do not represent serious complications (except for the hematologic changes) and are corrected promptly when the drug is discontinued. A slow, progressive, subclinical hemolytic anemia occurred in thirteen of the twenty-eight cases. Leukopenia was observed in two cases. The erythrocyte sedimentation rates fell rapidly in the cases of gonorrheal arthritis showing striking and immediate relief.

New York State Journal of Medicine, New York

30: 101-190 (Jan. 15) 1939

Surgery in Hyperthyroidism. F. H. Lahey, Boston.—p. 108.
*Kidney Function in Hyperthyroidism. E. C. Bartels, Boston.—p. 117.
Concerning Oxygen Want in Pilots Flying at 12,000 Feet Altitudes. A. L. Barach, New York.—p. 121.
Report of Case of Boeck's Sarcoid with Constitutional Symptoms, Eye, Glandular, Pulmonary and Skin Lesions. L. F. Frissell and W. T. Medl, New York.—p. 124.
Drug Therapy in Some Common Otolaryngologic Conditions. R. Almour, New York.—p. 128.
"Status Thymicolymphaticus": Unusual Clinicopathologic Observations. T. C. Wyatt, Syracuse.—p. 132.
"Get Them Back"—Surgical Lessons from the War. C. W. Cutler Jr., New York.—p. 141.
Outline of Treatment for Syphilis: Methods and Technic Followed in the Department of Dermatology of the Vanderbilt Clinic: Part II of a Series. A. B. Cannon, New York.—p. 145.
Is the Practice of Medicine Becoming Too Scientific? W. A. Groat, Syracuse.—p. 157.

Renal Function in Hyperthyroidism.—Bartels states that hyperthyroidism, no matter how severe, does not affect or alter renal function as determined by the urea clearance test. In only six of twenty-three cases was the urea clearance test below the range of normal. This was of a minor degree; since five of the six occurred in patients more than 50 years of age, this change can be explained as some minor vascular renal disturbance common to patients of this age. No relationship was found between the urea clearance and the type of hyperthyroidism (either exophthalmic or adenomatous goiter), duration of disease, loss of weight, level of the basal metabolic rate or severity of the disease as indicated by the type of operative procedure employed. Patients with hyperthyroidism in the absence of cardiac failure or preexisting nephritis tolerate an abundance of fluid intravenously. The results also probably disprove the presence of a hepatic-renal syndrome, for, in spite of severe degrees of changes in hepatic function which have been found in cases studied at the Lahey Clinic, the kidney has escaped alteration in its function.

Psychiatric Quarterly, Utica, N. Y.

13: 1-202 (Jan.) 1939

Electro-Encephalography. F. Lemere, Seattle.—p. 5.
The Therapeutic Promise of Foster Family Care for the Mentally Ill: Some Observations on Technic, Results Obtained and Potentialities, with Brief Case Summaries. N. J. T. Bigelow and Eva M. Schied, Utica, N. Y.—p. 16.
*Thyroid Therapy in a Series of Epileptics. G. J. Doolittle, Sonyea, N. Y. —p. 33.
The Involutional (Mental) Syndrome. G. M. Davidson, New York.—p. 42.
Pellagra: Report of Two Cases in Psychotic Patients. Alma Freeman, Poughkeepsie, N. Y.—p. 83.
Prostigmine Treatment of Myasthenia Gravis. F. M. Miller Jr., Utica, N. Y., and H. H. Dodds, Marcy, N. Y.—p. 90.
Technic of Insulin Shock and Metrazol Treatments. L. L. Bryan, Marcy, N. Y.—p. 96.
Results of Metrazol Therapy in Schizophrenia. N. Beckenstein, Brooklyn. —p. 106.
Insulin and Metrazol Therapy in Identical Twins. J. M. Murphy and H. Luidens, Willard, N. Y.—p. 114.
Subsequent Course in Series of Fifty-Five Insulin-Treated Patients. D. Ruslander, Buffalo.—p. 123.
Treatment of Schizophrenia with Sympathomimetic Drugs: Benzedrine Sulfate. E. Davidoff and E. C. Reifenstein Jr., Syracuse, N. Y.—p. 127.
Literacy and Mental Disease. B. Malzberg, Albany, N. Y.—p. 145.
*Comparative Study of Psychoses Among Negroes and Whites in the New York State Prisons. S. C. Karlan, Dannemora, N. Y.—p. 160.
Are Mental Diseases on the Increase? The Problem of Determination. H. B. Elkind, Boston.—p. 165.

Thyroid Therapy in Epilepsy.—In order to determine the primary effect on seizures and the secondary effects on basal metabolism, blood sugar, weight, tremor, blood pressure or pulse rate, Doolittle gave at first 0.032 Gm. and then 0.065 Gm. of thyroid extract to forty-seven patients with epilepsy. During administration the number of attacks increased in 53 per cent of the patients, decreased in 36 per cent and did not change in 10 per cent. In twenty-one patients the number of seizures increased for the three months following the withdrawal of the drug, and thirteen of these returned to the pretreatment level nine months after withdrawal. An increase in the basal metabolic rate was observed in 91 per cent of the patients, an increase in blood sugar in 63 per cent, a loss of weight in 64 per cent, only 36 per cent showed tremor and 93 per cent showed a decrease in blood pressure; 84 per cent of the patients in whom a disproportionate fall of diastolic pressure was observed had increased attacks and 65 per cent showed increase in pulse rate. There seemed to be no relationship between the rapidity of the pulse and the number of attacks. About half of the patients were receiving phenobarbital. This sedation seemed to have no influence on the frequency of attacks under thyroid extract. The author feels that an improvement with respect to the number of attacks while under thyroid treatment was evident in from 35 to 40 per cent of the patients. From 60 to 65 per cent appeared to be made worse by the drug. Approximately the same percentages existed in correlating seizures with changes in basal metabolic rate, blood sugar, weight, blood pressure or pulse rate, and with incidence of tremor. A patient subject to unstable diastolic blood pressure or a diastolic blood pressure easily decreased by thyroid extract should not be given this drug.

Psychoses Among Negroes and White Persons in Prisons.—Karlan investigated all the first admissions to the Dannemora State Hospital from the New York State prisons from June 30, 1928, to June 30, 1938. These included 687 white persons and 188 Negroes. During these ten years there were 25,538 white and 5,494 Negro commitments to the institutions of the New York State Department of Correction. From his observations the author concludes that the incidence of psychoses in the general population is higher in Negroes than in white people. In the New York State prisons, Negroes and white prisoners are in a similar cultural and economic environment. The incidence of functional psychoses among Negro inmates is about the same as that among white prisoners. Negroes have therefore no racial predisposition to mental disease. The high incidence of mental disease among them is probably due to cultural, social and economic causes. The incidence of psychoses among prison inmates is from five to ten times as high as that of the general population. This is mostly due to the inherent constitutional instability of the criminal group.

Public Health Reports, Washington, D. C.

54: 59-94 (Jan. 20) 1939

Basal Metabolism Tests on Disturbed Patients. C. K. Himmelsbach and Othilia T. Mertes.—p. 63.
Do Case Records Guide the Nursing Service? M. Derryberry.—p. 66.

54: 95-148 (Jan. 27) 1939

Studies in Chemotherapy: VIII. Some Toxic Effects of Repeated Administration of Sulfanilamide and Sulfanilyl Sulfanilamide ("Disulfanilamide") to Rabbits and Chickens. S. M. Rosenthal.—p. 95.
Histopathologic Changes in Hens and Rabbits Following Administration of Sulfanilamide and Sulfanilyl Sulfanilamide (Disulfanilamide). A. A. Nelson.—p. 106.

Review of Gastroenterology, New York

6: 1-78 (Jan.-Feb.) 1939

Relation of Traumatism to Peptic Ulcer. E. L. Kellogg and W. A. Kellogg, New York.—p. 1.
Studies on Humans with a New Secretogogue Meal. R. Upham and F. Spindler, New York.—p. 12.
Effect of Banana Feeding on Intestinal Flora and on Constipation in Children and Adults. L. Weinstein and M. Bogin, New Haven, Conn. —p. 21.
Food Allergy of the Digestive System. J. S. Smul, New York.—p. 26.
Angina Pectoris: Introduction. A. S. Hyman, New York.—p. 35.
Treatment of Angina Pectoris. J. B. Wolffe, Philadelphia.—p. 36.
Relation of Gastrointestinal Disorders to Angina Pectoris and Other Acute Cardiac Conditions. W. A. Swalm and L. M. Morrison, Philadelphia.—p. 41.
Cardiovascular Factors in Angina Pectoris. V. A. Digilio, Philadelphia. —p. 46.
Pharmacology and Bio-Assay of Insulin-Free Pancreatic Extracts. J. C. Munch, Philadelphia.—p. 50.
Hepatic Insufficiency. M. E. Binet, Vichy, France.—p. 53.

Virginia Medical Monthly, Richmond

66: 65-128 (Feb.) 1939

Washington's Predilection for Doctors and Doctoring. W. A. Wells, Washington, D. C.—p. 65.
Recollections of a Country Doctor. M. O. Burke, Richmond.—p. 68.
Experience with Prostatic Resection. E. W. Kirby and J. H. Neff, Charlottesville.—p. 73.
Hemochromatosis: Study of Three Cases. N. Bloom, Richmond.—p. 79.
Treatment of Painful Lesions of Anorectum in General Practice. G. W. Ault, Washington, D. C.—p. 86.
Psychiatric Aspects of Physical Illness. J. R. Blalock, Marion.—p. 92.
Hydatid Mole: Case Report. W. P. Barnes, Richmond.—p. 94.
Correlation Between Pediatrist, Psychiatrist and Psychologist. W. B. McIlwaine, Petersburg.—p. 96.
The Blood Smear in Differential Diagnosis. J. H. Scherer, Richmond.—p. 99.
Herniation of the Intervertebral Disk: Report of Two Cases. J. T. Rountree, Front Royal.—p. 103.
Review of Literature on Mesenteric Adenitis. J. M. Emmett, M. Fliess and F. H. Yorkoff, Clifton Forge.—p. 105.
Leukopenic Index in Pediatric Allergy. P. Hogg, Newport News.—p. 108.
What Our Patients Think. A. J. Russo, Baltimore.—p. 109.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

47: 1-54 (Jan.) 1939

*Pituitary Gland in Relation to Metabolism. J. B. Collip, Montreal.—p. 1.
*Influence of Pituitary in Thyroid Disease. W. O. Thompson, Phebe K. Thompson, S. G. Taylor 3d and Lois F. N. Dickie, Chicago.—p. 4.
Malignant Tumors of Thyroid Gland: Study of Eighty-Eight Cases. H. Welti and R. Huguenin, Paris, France.—p. 10.
Perforated Peptic Ulcer. H. G. Willard, Tacoma, Wash.—p. 23.
Leiomyosarcoma of Stomach: Perforation. C. J. Baumgartner, Los Angeles.—p. 27.
The Surgical Approach to Hypertension: Division III. F. M. Findlay, San Diego, Calif.—p. 31.

Influence of Pituitary in Thyroid Disease.—Two years ago the Thompsons and their collaborators reported that in about 50 per cent of patients showing various levels of thyroid function a temporary increase in basal metabolism could be produced by pituitary extracts containing the thyrotropic factor. They now extend and confirm these observations. Out of 123 courses of injections to 106 patients of all types, the basal metabolism was increased by 10 points or more in fifty-six instances. Considering only the initial series of injections, an increase was observed in fifty-one instances. The response was always temporary in spite of continued administration. The observations suggest that the maintenance of normal thyroid activity depends to some extent on factors outside the thyroid, among which the function of the anterior lobe of the pituitary plays an important part. They are consistent with the hypothesis that hypothyroidism may be of two types, primary and secondary. In the primary type the hypothyroidism is the result of loss of thyroid tissue by operation, atrophy or infection. It is seen in patients with marked myxedema, who show characteristic and complete improvement with the administration of desiccated thyroid. The secondary type is caused by lack of adequate stimulation of the thyroid, notably by the anterior lobe of the pituitary, and is seen in patients suffering from hypofunction of this gland, in Simmonds' disease and in certain pituitary tumors associated with a low basal metabolism. Hyperthyroidism, like hypothyroidism, may be secondary to a corresponding state in the anterior lobe of the pituitary. In twelve patients with myxedema and basal metabolism varying from minus 31 to 47 per cent, no increase in basal metabolism was produced by the administration of anterior pituitary extracts containing the thyrotropic factor. In about half of ninety-four other patients showing various levels of thyroid function from moderate hypothyroidism to marked hyperthyroidism, increases in basal metabolism of from 10 to 53 points were produced. The magnitude of the response appeared to be related to the level of metabolism before treatment was started, being greatest in the patients with mild hypothyroidism and least in the patients with hyperthyroidism. In nineteen patients with basal metabolic rates of from minus 29 to plus 8 per cent the rate was raised as high as 36 per cent above normal, and various manifestations of hyperthyroidism were produced: tachycardia, nervousness, tremor, emotional disturbances, weakness, ease of fatigue, loss of weight, increase in perspiration and increase in the size of the thyroid.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 51-96 (Jan. 14) 1939

Outbreak of Psittacosis at the London Zoological Gardens. A. G. Troup, R. Adam and S. P. Bedson.—p. 71.
The "Medical Appendix" in Children and Adults. R. Miller.—p. 56.
Treatment of Gonorrhea by Uleron: Review of 120 Male Cases. C. H. Wilkie.—p. 57.
*Treatment of Sterility: Report on Sixty-Two Cases. Margaret Moore White.—p. 62.
Auricular Fibrillation and the Thyroid. E. G. Slesinger.—p. 65.

Treatment of Sterility.—Between August 1937 and June 1938, sixty-two women who attended an outpatient department for sterility were observed and treated by White. Forty-seven of them complained of absolute sterility, nine of one child sterility, one that she could not become pregnant with a second husband (although she had had four children by the first husband) and five that they had had one or more miscarriages. By September 1938, twenty-two patients were pregnant—that is, 47.8 per cent of those in whom pregnancy was possible, since sixteen patients either had nonpatent fallopian tubes or their husbands were known to be sterile. Of the twenty-two who became pregnant seven miscarried, but two are now pregnant again. Of the remaining twenty-four women who have not yet become pregnant it is assumed that in 21 per cent the husband is sterile, judging from the result of the thirty-nine whose semen was examined; but this still leaves a number of women in whom so far pregnancy has not occurred though study of both partners has been favorable. Iodized poppyseed oil by itself has a therapeutic value in that it opens up the fallopian tubes. It would seem to be of greater use than air insufflation, because the latter ceases to distend as soon as the pressure is reduced. Forty patients injected with the oil received no glandular therapy and thirteen became pregnant. There was tubal occlusion or sterility of the husband in fourteen of these forty cases, so that a 50 per cent success can be attributed to the injection of the oil alone. It is known that the failure of many patients to conceive is due to failure of ovulation, and it is claimed that ovulation is more likely to occur after suitable administration of endocrine products. Dihydroxyestrin benzoate given in two weekly doses of 20,000 international benzoate units in the two weeks directly following the menstrual period, or as a larger dose of 50,000 international benzoate units about the twelfth day of the menstrual cycle, appears to have had some value. In cases in which the uterus is undersized, nidation of the fertilized ovum is more likely to occur if further development is brought about by more regular and prolonged glandular therapy. Failure of the fertilized ovum to embed is one of the causes of sterility. Investigation on the pregnandiol (excretion product derived from the corpus luteum) content in the urine at the time of ovulation in sterile patients is being undertaken. Insufficiency of the latter substance may be dependent on an insufficiency or an unbalanced output of anterior pituitary hormones. Sterility may depend on an incorrect balance between the follicular and luteinizing factors of the anterior pituitary gland. It is hoped that in time one may be able to isolate the hormones from the gonadotropic substance present in the urine of pregnant women and inject them into sterile women. Thyroid insufficiency (in both parties) may account for sterility, since Lawrence and Rowe (1928) have shown that 39 per cent of a series of patients with some degree of thyroid insufficiency were sterile. The treatment of as many as possible of the existing causes of sterility at the same time raises the fertility level and renders pregnancy more likely.

Edinburgh Medical Journal

46: 1-60 (Jan.) 1939

Surgery of Malignant Disease of the Colon. D. Wilkie.—p. 1.
Cancer. J. J. M. Shaw.—p. 17.
Medical Education and Hospital Policy in Edinburgh. L. S. P. Davidson.—p. 29.
Intracranial Tuberculoma. N. M. Dott and E. Levin.—p. 36.
Some Observations on the Practice of Medicine. H. Douglas-Wilson.—p. 42.
Some Biochemical Factors of Influenza and Other Viruses. M. Copisarow.—p. 46.

Lancet, London

1: 69-128 (Jan. 14) 1939

New Bones for Old. E. W. H. Groves.—p. 69.
Intestinal Stricture and Megalocytic Anemia. J. F. Brock.—p. 72.
*The Case for Prophylaxis with Sulfanilamide and Sulfapyridine. E. D. Hoare.—p. 76.
Dermatomyositis. A. W. Hendry and T. E. Anderson.—p. 80.
Acute Dermatomyositis Associated with Reticulo-Endotheliosis. J. H. Sheldon and Freida Young, histologic findings by S. C. Dyke.—p. 82.
Tetany in a Suckling with Latent Osteitis Fibrosa in the Mother. C. Friderichsen.—p. 85
Spinal Leptomeningioma: Restoration of Function After Operation. R. M. Hill and J. Prentice.—p. 87.

Prophylaxis with Sulfanilamide Compounds.—Hoare records experimental data which appear to justify clinical trial of sulfanilamide derivatives in the prophylaxis of hemolytic streptococcus infections. Prophylactic immunization may be indicated under certain circumstances in maternity work, in association with tonsillectomy in a patient known to be a carrier of hemolytic streptococci and possibly to avert a dangerous extension of infection when operating on the mastoid or other acutely infected tissues. The possibility of prophylactic immunization in obstetric practice does not in the least warrant any abandonment of antiseptic or aseptic technic in the conduct of labor. The author found that mice can be protected against an infection by hemolytic streptococci (from 100 to 1,000 minimal lethal doses intraperitoneally) by the subcutaneous injection of a single dose of sulfapyridine within the previous forty-eight hours. With sulfanilamide a single subcutaneous prophylactic injection has but little effect, owing to its greater solubility, but good protection is obtained if, in addition to the prophylactic dose, the drug is given orally twice a day for three days after the infection by hemolytic streptococci. Repeated administration is necessary after infection if sulfapyridine is given orally. A high bactericidal power was demonstrated in the blood of uninfected patients during the puerperium, three under treatment with sulfapyridine and six with sulfanilamide. The suggested dosage is 1 Gm. of sulfanilamide or of sulfapyridine orally three times a day, beginning as soon as labor starts and continuing for three or four days.

Practitioner, London

141: 693-804 (Dec.) 1938

Modern Treatment of Pneumonia in General Practice. G. E. Beaumont.—p. 693.
Management of Chronic Bronchitis in the Winter. F. H. Young.—p. 700.
Clinical Aspects of Influenza. J. G. Scadding.—p. 712.
Vaccines and the Common Cold. D. Embleton.—p. 725.
Winter Diarrhea in Infants. S. Graham.—p. 733.
*Skin Diseases in the Winter. H. D. Haldin-Davis.—p. 741.
Diet in Health and Disease: XVIII. Diet in Winter and Summer. V. H. Mottram.—p. 747.
Treatment of Pain in Severe Injuries. H. Balme.—p. 757.
Some Pains of Significance to the Surgeon. H. Dodd.—p. 765.
External Diseases of the Eye in School Children. A. Furniss.—p. 771.
Industrial Eye Injuries. J. Minton.—p. 782.
Prevention and Control of Puerperal Sepsis. W. C. W. Nixon.—p. 785.
Note on an Outbreak of Gastro-Enteritis at Haslemere, Surrey. J. E. Haine.—p. 789.

Cutaneous Diseases in the Winter.—Haldin-Davis considers the cutaneous diseases of winter under three divisions: the effects produced by cold alone, the results of exposure to conditions of cold and damp and the effects of cold on pre-existing dermatoses. Frostbite is due to the action of cold, especially of dry cold, and its effects are often increased by the wind. Three degrees of severity are described: hyperemia and damage to the cutaneous capillaries, edema of the dermis and an infiltration of leukocytes, and complete thrombosis of the blood vessels of the subcutaneous tissue and necrosis through the whole depth of the skin. Foremost among the results of exposure to cold and damp are trench foot, chilblains and erythrocyanosis crurum puellarum. Most preexisting cutaneous troubles are aggravated by exposure to cold. This is noticeably true of ichthyosis, psoriasis, most forms of eczema and allergic conditions, and also lupus erythematosus. On the other hand, acne vulgaris tends to improve during the cold weather.

Journal de Chirurgie, Paris

53: 1-160 (Jan.) 1939

*Spontaneous Hemoperitoneum in Men. H. Mondor and C. Olivier.—p. 1.
Several Failures of Gastro-Enterostomy Treated by Separation of Gastro-Enterostomy and Gastrectomy in One Session. J. Sénèque.—p. 14.
Five Cases of Gastrojejunocolic Fistulas: Operation in Two Stages; Surgical Technic. G. Lœwy.—p. 30.
Case of Fatal Tetanus Following Provoked Abortion Apparently Beginning by Luxation of Jaw. G. Desbonnets.—p. 49.

Spontaneous Hemoperitoneum in Men.—Mondor and Olivier say that for a long time spontaneous hemoperitoneum was regarded as peculiar to women in that it is usually traceable to extra-uterine pregnancy. Spontaneous hemoperitoneum in men was regarded as extremely rare but the authors show that it does not deserve this reputation of extreme rarity. A review of the literature revealed more than 400 cases of spontaneous hemoperitoneum. This number includes those observed in men and those of nongenital origin in women. Classification of these according to their causes reveals that 251 were of splenic origin (rupture of the spleen in malaria, typhoid, recurrent fever, leukemia, tumor, infarct and so on); 122 were of vascular origin (rupture of aneurysm of the splenic artery, rupture of the hepatic artery, of the abdominal aorta, of the vessels of the stomach, of the splenic vein, of the superior mesenteric artery and so on); forty-four were of hepatic origin (rupture of the liver or of a hepatic tumor or aneurysm) and fifteen cases were of obscure origin. The authors show that the clinical diagnosis of spontaneous hemoperitoneum is not impossible if it is thought of. They discuss the symptomatology and the methods of examination that may prove helpful in detecting it but admit that in many instances the discovery of the hemoperitoneum is still a surgical surprise. In this event it is necessary to explore first the splenic region and, if this exploration proves negative, the liver and the other possible sites of the hemorrhage must be investigated. Favorable surgical results are possible, particularly if the blood comes from the spleen or from an artery of the stomach.

Presse Médicale, Paris

47: 121-136 (Jan. 25) 1939

Animated Bases of Pulmonary Suppurations and Their Spasmogenic and Vasomotor Action. M. Loeper, M. Perrault and J. L. Herrenschmidt.—p. 121.
*Use of Sulfanilamide in Urinary Infection with Colon Bacilli. C. J. Gessler and A. Lippens.—p. 124.

Sulfanilamide in Urinary Infection with Colon Bacilli.—Gessler and Lippens report therapeutic experiences with paraminophenylsulfamide in thirty-eight cases of urinary infections with colon bacilli. The patients presented clinical symptoms, not merely colibacilluria. In nineteen of the patients the disorder was acute, in the others it was chronic. The authors give brief clinical histories of each of the patients. In all acute cases the oral administration of the paraminophenylsulfamide produced cure within several days. The fever and the disturbances of micturition often disappeared from the second day of the treatment, whereas the urine became normal again several days later. The authors recommend the administration of 3 Gm. a day during the first forty-eight hours and 2 Gm. daily thereafter for a period of from five to eight days. In one of the nineteen acute cases a relapse occurred which, however, could be readily counteracted by a new series of treatments with sulfanilamide. In some of the patients with chronic urinary infection the disorder had proved refractory to other therapeutic methods, but in only one of them did the urinary infection prove resistant to the sulfanilamide therapy. The dosage in the chronic cases is practically the same as in the acute cases; that is, the patients are given 3 Gm. for two days and then 2 Gm. daily until the urine becomes normal. After that the medication is continued for a few days with 1.5 Gm. In this connection the authors point out that some observers advise interruption of the treatment after two weeks so as to prevent the development of a resistance to the medicament in the micro-organism. Because the efficacy of the sulfanilamide seems to be improved by an alkaline milieu, the authors administer with each dose 0.5 Gm. of sodium bicarbonate; this is the more advisable because the sulfanilamide tends to produce acidosis. The patient

should not drink too much during the treatment, so that the concentration in the urine does not drop too low. The authors conclude that sulfanilamide is highly effective in urinary infections with colon bacilli.

47: 137-152 (Jan. 28) 1939

*Attempt to Treat Arterial Hypertension of Renal Origin by Surgical Vascularization of the Kidney (Nephro-Omentopexy). P. Abrami, M. Iselin and R. Wallich.—p. 137.
Treatment of Burns by Infra-Red Rays. J. Gautier.—p. 139.

Revascularization of Kidney in Arterial Hypertension.—Abrami and his associates point out that numerous surgical attempts have been proposed to cure or to improve progressive chronic arterial hypertension. This multiplicity of interventions suffices to show their slight value, whether the intervention is a unilateral or a bilateral section of the splanchnic nerves, a unilateral adrenalectomy, a renal decapsulation or an enervation of the renal and adrenal pedicles with or without ablation of the first and second lumbar aorticorenal ganglions. All these technics, whether employed alone or in combination, produce only temporary and inconstant improvements. After discussing factors that are probably responsible for the failure of these treatments, the authors cite investigators who have proved that renal ischemia plays an important part in the pathogenesis of certain forms of hypertension. This renal ischemia seems to be independent of nervous factors, for it may appear even after enervation of the kidney; that is, the vascular factor is the decisive one. To combat the renal ischemia efficiently, surgical interventions, different from those heretofore employed, seem necessary. A procedure which creates a new vascular plexus in the kidney appears to be the solution for this problem of renal ischemia. The authors point out that the revascularization of an ischemic organ has already been successfully carried out. In this connection they cite the work on the revascularization of the ischemic myocardium carried out by Beck in America and by O'Shaugnessy in England. Heymans and his collaborators in Ghent transferred the experiences made on the heart to the sphere of the kidney. They demonstrated on dogs that by an artificial revascularization, obtained by a renoperitoneal anastomosis, it is possible to counteract the hypertension that is brought on by renal ischemia. The authors resorted to this measure for the first time in two human subjects. They designate their intervention as nephro-omentopexy. They expose the kidney by a lateral transverse incision; they decapsulate it, open the peritoneum and draw a well vascularized portion of the omentum through a window in the posterior parietal peritoneum. They lightly scarify the antero-external surface of the kidney and suture the omentum to it. They report two cases in which they employed this procedure. They gained the impression that the operation had been made too late and that, in order to produce results, nephro-omentopexy must be performed on both sides. However, in spite of failure at the onset, the authors conclude that this method is not only possible in human subjects but easy to perform and not harmful.

Sang, Paris

13: 1-112 (No. 1) 1939

Leukemic Reticulosarcoma. Š. Váradi.—p. 1.
*Employment of Venin of Bothrops Atrox as Hemostatic. C. J. Hanut.—p. 21.
Multiple Myeloma. J. R. Grosgurin.—p. 30.

Venin of Bothrops Atrox as Hemostatic.—Following a review of the literature on the use of venins for hemostatic purposes, Hanut describes his studies with a dry venin of Bothrops atrox and with an antibothropic serum prepared with the aid of the venin of Bothrops jararaca. On the basis of his studies he reaches the following conclusions: 1. The venin of Bothrops atrox can be used in hemophilic subjects either in dilute solutions or mixed with an appropriate dose of antibothropic serum. Under these conditions it is deprived of its coagulating toxicity and it does not produce secondary incoagulability. On the contrary, it preserves a slight coagulating action for at least six hours. It is to be recommended especially before a surgical operation on hemophilic subjects. 2. The venin of Bothrops atrox is useless and contraindicated in the majority of hemorrhagic disorders without disturbances of the coagulation, because it is either without effect on the time of bleeding or else it even prolongs it. 3. Because of the thrombinic action of the venin of Bothrops atrox in vitro, which transforms the fibrinogen into fibrin without interfering in the normal mechanism of coagulation, it appears that the employment of the venin of Bothrops atrox as a local hemostatic should be given serious consideration.

Rassegna Internazionale di Clinica e Terapia, Naples

22: 45-92 (Jan. 31) 1939

Senile Involution of Appendix and Sclerotic Atresia in Chronic Appendicitis. L. Sanguigno.—p. 47.
Benign Lymphocytic Meningitis: Case. G. Ceruti.—p. 57.
*Venous Septicemia. C. Cantieri.—p. 63.

Venous Septicemia.—According to Cantieri, venous septicemia is a clinical entity which includes not only subacute forms which have been heretofore described but also benign and acute forms. The condition is due to an early selective location of bacteria in the venous system. Phlebitis develops successively at different segments of the veins of the extremities or of the viscera in the course of recurrent attacks of fever and of a pulmonary disease with small foci of pneumonia or bronchopneumonia. The evolution of the condition depends on (1) the intensity of the general infection which causes septicemia, (2) the extension of the vascular lesion, (3) the segment of a vein which is involved (whether peripheral or visceral and superficial or deep) and (4) the intensity of the consequent circulatory disturbances. The condition is restricted to small septic foci and spreads by small foci. Mild forms involve predominantly the veins of the limbs and subside at resolution of phlebitis after two or three recurrences of moderate intensity. Subacute forms may show predominant pulmonary or vascular peripheral symptoms. They follow a long evolution and may be complicated by acute forms. Periphlebitis or thrombophlebitis in periarticular veins is grave. Acute forms are rapidly fatal from the first attack. The most important forms are those of the monoplegic, quadriplegic and phlegmatic types, as well as the type of pulmonary infarct which causes hemoptysis and those which develop with either bronchopneumonia or pleurisy or in the course of pulmonary tuberculosis. The author gives examples of each of the different types. The differential diagnosis of these forms is of importance, as subacute forms can derive benefit from an opportune surgical treatment.

Archivos de Medicina Infantil, Havana

8: 1-82 (Jan., Feb., March) 1939. Partial Index

Treatment of Erysipelas in Infants with Sulfanilamide and Its Derivatives. G. Cardelle y Penichet.—p. 34.
Treatment of Purulent Meningitis with Sulfanilamide. G. García Montes, A. J. Aballí and F. Hernández Calzadilla.—p. 45.
*Treatment of Gonococcic Vulvovaginitis in Little Girls with Sulfanilamide. A. J. Aballí, J. G. Cabrera Calderín and J. M. Labourdette Scull.—p. 64.

Sulfanilamide in Treatment of Vulvovaginitis.—Aballí and his collaborators made a comparative study of the results of sulfanilamide and other different treatments on a group of thirty girls ranging in age from 3 to 9 years who were suffering from gonococcic vulvovaginitis. The infection was at about the same stage of acuteness in all cases. All the patients were hospitalized. Sixteen of the patients were given sulfanilamide orally in three daily fractional doses up to a total daily dose of from 0.6 to 1 Gm. for each 10 pounds (4.5 Kg.) of body weight. The drug was given in series of seven or eight consecutive days followed by periods of rest lasting from three to seven days. The course of treatment consisted of two series and in rare cases three series. No other treatment was given except in one case. The patient was given santonin for intestinal parasitism in the course of the treatment. Acute jaundice followed. Recovery was obtained in twelve of the sixteen cases in an average of twenty-five days. One patient had spontaneous regression six months after failure of the treatment, which failed in three cases. Fourteen patients were given one or several of the following treatments: vaginal antiseptic irrigations, local application of bactericidal substances including fuchsin, vaccines, pyretotherapy or injections of estrogenic substances. Four of the patients recovered in an average of ninety-six days. The treatment was of no benefit to the rest of the patients of the group. The author therefore concludes that sulfanilamide in the proper dosage is of value in the treatment of vulvovaginitis in little girls. The treatment is well tolerated. The administration of any other drug in the course of the treatment is contraindicated. The patients who are going to obtain satisfactory

results show a prompt favorable reaction, which consists in diminution of the clinical symptoms and rapid disappearance of the vaginal discharge. It is advisable to continue the treatment for at least one or two complete series regardless of early satisfactory results. Rest is a factor of importance. Some patients, in the proportion of one to four, do not respond to the treatment. If satisfactory results are not obtained in the course of the first, second or even the third series, the treatment should be discontinued.

Kinderärztliche Praxis, Leipzig

10: 53-100 (Feb.) 1939. Partial Index

*Characteristic Syndrome of Infection with Influenza Bacilli. H. Kleinschmidt.—p. 53.
Congenital Cystic Bronchiectases During Early Childhood. Matheja and Schäfer.—p. 58.
B_1 Avitaminosis (Beriberi) in Nursling: Case. T. Varga.—p. 63.
Uliron in Treatment of Gonorrhea in Children. O. Ammermann.—p. 66.
Functional Test of Heart and Electrocardiography. P. Laurentius.—p. 69.
Prophylaxis of Rickets in Nurslings. Goebel.—p. 77.

Characteristic Syndrome of Infection with Influenza Bacilli.—Kleinschmidt directs attention to a characteristic syndrome of infection with influenza bacilli, which was first brought to his attention in 1930. The syndrome begins with laryngeal stenosis; then follows a suppurating pericarditis and pleuropneumonia. In one of the cases observed by the author and in two cases that were reported by Baumeyer a suppurating meningitis developed. These cases terminated in death. Recently the author observed the aforementioned syndrome in a boy aged 6½ years. In this case, however, the process remained localized; the suppurating meningitis, which is due to bacteremia, did not develop. The syndrome was restricted to laryngeal stenosis, bronchopneumonia, suppurating pericarditis and pleural empyema on the right side. This patient was cured. The author says that he described these cases not in the interest of rare casuistics but rather because the syndrome is characteristic and recurs in an analogous manner. It is caused by a pharyngeal infection with influenza bacilli, which apparently spreads by way of the mediastinum. Exact and systematic bacteriologic tests are essential in this disorder.

Klinische Wochenschrift, Berlin

18: 41-72 (Jan. 14) 1939. Partial Index

*Influence of Insulin on Glycogen Formation from Dextrose in Normal Animals. C. Brentano.—p. 42.
*Liver and Elimination of Vitamin A in Urine. W. Thiele and S. Seedorf.—p. 51.
Pathologic Physiology of Resected Stomach. F. Brauch.—p. 53.
Anterior Lobe of Hypophysis and Metabolic Function. M. Reiss.—p. 57.
Specificity of Widmark's Method of Determination of Alcohol in Blood. J. Gutschmidt.—p. 58.
Immunobiologic Evaluation of Active Vaccination of Children Against Diphtheria by Alum Toxoid. G. Paschlau.—p. 60.
Gel of Blood Plasma as Culture Medium. R. Bucher.—p. 62.
Increasing Activity of Gonadotropic Substance by Ascorbic Acid. B. Giędosz.—p. 63.

Influence of Insulin on Glycogen Formation.—Brentano says that it was recently observed that the capacity to produce glycogen from dextrose is impaired not only during pancreatic and starvation diabetes but also in all disorders that are accompanied by creatinuria. Thus it was proved that a metabolic disorder heretofore regarded as specific for diabetes mellitus is not always the result of an insulin deficiency. The author decided to investigate whether insulin is capable of improving this impairment in the glycogen formation, even if it is not directly traceable to insulin deficiency. He investigated the glycogen formation in the musculature and liver after rabbits had been starved for twenty-four hours and then had been given 10 Gm. of dextrose for each kilogram of body weight. This quantity of dextrose was divided in half, and in order to insure a better resorption the second half was given two hours after the first half. The dextrose was given either alone or in combination with insulin. The glycogen content was tested five hours after the administration. Summarizing, he says that if 0.5 unit of insulin is administered for each gram of dextrose the glycogen content of the musculature is approximately 38 per cent greater and that of the liver is 20 per cent smaller than if the dextrose is given alone. If the insulin dose is reduced, the difference between the glycogen content of musculature and liver is much less pronounced. If the quantity of insulin is reduced to 0.01 unit for each gram of dextrose, there is hardly any difference from the exclusive administration of dextrose. In the concentration in which the insulin still exerts an influence on the glycogen formation, it never increases but always decreases the glycogen storage in the liver.

Liver and Elimination of Vitamin A.—Thiele and Seedorf point out that studies on the elimination of vitamin A in the urine have demonstrated that the normal organism does not eliminate this vitamin in the urine and that the diseased organism does this only under certain conditions. After citing investigators who detected vitamin A in the urine of patients with cancer, tuberculosis, general infections, lobar pneumonia, renal disorders and particularly hepatic disturbances, the authors say that, in studies on the causes of the urinary elimination of vitamin A, liver and kidney have always been regarded as having an important part. It cannot be doubted that the liver is important in the vitamin A exchange, for in the healthy as well as in the diseased organism vitamin A is found chiefly in the liver. Although the results of some investigations have directed attention to the importance of the reticulo-endothelial system in the elimination of vitamin A, the authors decided to investigate, on clinical material, under what conditions the impaired liver causes the elimination of vitamin A in the urine and to what extent the elimination of vitamin A can be utilized diagnostically. In the search for a suitable test method they found that the Carr-Price reaction is the most reliable, provided sufficiently large quantities of urine are used. In single tests vitamin A often fails to appear in spite of the fact that there is occasional elimination. Surveying the results of their studies, the authors conclude that the elimination of vitamin A is not pathognomonic for hepatic disturbances as such, for it may occur even in the presence of an intact hepatic function. Thus conclusions regarding the condition of the liver cannot be drawn from the outcome of the vitamin A reaction in the urine. However, the authors point out that experimental studies on animals have directed attention to the reticulo-endothelial system and that their own clinical observations suggest that an impairment of the reticulo-endothelial system might be the cause of the elimination of vitamin A.

Zeitschrift für urologische Chirurgie, Berlin

44: 305-400 (Dec. 12) 1938

Densely Disseminated Deposits of Calcium Salts in Indurated Scar Tissue in Tuberculosis of Renal Pelvis. J. Račić and B. Gruber.—p. 305.
Manometry of Urinary Bladder (Cystometry). H. Heusser.—p. 312.
Roentgenologic Visualization of Seminal Vesicles in the Living. M. Martini.—p. 326.
*Rehberg's Functional Test of Kidney. G. Klurfeld.—p. 340.
Role of Eosinophil Cells in Diseases of Prostate with Especial Consideration of Its Inflammatory Processes. N. Vondra.—p. 357.
Extravesical Orifice of Ureter. H. U. Gloor.—p. 363.

Rehberg's Functional Test of Kidneys.—Klurfeld directs attention to the functional test of the kidneys that was described by Rehberg in 1926. He reviews the filtration-reabsorption theory on which Rehberg based his functional test of the kidneys. According to this theory the glomeruli extract from the plasma by ultrafiltration a fluid which, with the exception of the plasma proteins, contains all substances in the same quantities as does the blood plasma. In the course of its passage through the tubules this preliminary urine undergoes essential changes which are the result of two functions of the cells of the tubules. 1. The cells of the tubules have an active resorptive capacity for substances that are vitally important for the organism; for instance, chlorides and dextrose. 2. Substances that are of less importance for the organism are diffused through the cells of the tubules. In Rehberg's functional test, creatinine is employed because it has the highest concentration index; that is, it is excreted by the kidneys in maximal quantities and apparently is not reabsorbed. The author shows that by determinations of the creatinine contents of the blood and urine and by measuring the quantity of urine it is possible to compute (1) the index of concentration, (2) the quantity of filtrate from the glomeruli and (3) the quantity of resorbent retained by the tubules. After discussing the technic of Rehberg's test, which is used for theoretical purposes, the author shows that for practical purposes the method can be somewhat simplified. The person whose

renal function is to be tested has to refrain from eating or drinking beginning with the evening of the day preceding the test. At 8 a. m. 2 Gm. of creatinine is given in 500 cc. of water. This comparatively large quantity of water is given in order to maintain an adequate diuresis. At 9 a. m. the bladder is evacuated either spontaneously or by catheterization and a specimen of blood is withdrawn. After another forty minutes has elapsed, the bladder is once more evacuated and blood is again withdrawn from the cubital vein. The quantity of urine is measured in order to determine the filtration per minute. After small quantities of potassium oxalate and of sodium fluorite have been added to both of the blood specimens, they are centrifuged and, of the quantities of plasma thus obtained, equal amounts are combined and mixed and then are examined for the creatinine, urea and sodium chloride content. The author is convinced that with Rehberg's functional test of the kidneys results can be obtained which cannot be realized by other means.

Ugeskrift for Læger, Copenhagen

101: 59-114 (Jan. 19) 1939

In memory of Professor V. Bie

Fight Against Diphtheria and Ramon's Vaccination Against Diphtheria. K. Bojlén.—p. 59.

*Vaccination of 1,000 Student Nurses Against Diphtheria with Investigation of Relation Between Antitoxin Content of Blood and Morbidity. P. Plum.—p. 67.

*Comparative Investigations on Primary Serous Meningitis and Paralytic Poliomyelitis. H. C. A. Lassen.—p. 73.

*Poliomyelitis in Denmark in 1937, with Special Regard to Epidemiologic Relation and Localization of Pareses. H. C. A. Lassen.—p. 80.

*Pfeiffer's Meningitis Treated with Sulfanilamide (Streptamide). A. Eldahl.—p. 88.

Vaccinia Generalisata. A. Eldahl.—p. 89.

*Eosinophil Leukemia. S. Thomsen and P. Plum.—p. 90.

*Bunnell Reaction in Infectious Mononucleosis. S. Thomsen.—p. 98.

Pneumococcic Endocarditis (Three Cases, Two Localized Exclusively to Tricuspid Valves). H. C. A. Lassen.—p. 99.

Metabolism and Minute Volume in Normal Children and in Children with Diphtheria. P. Plum.—p. 104.

Vaccination of Nurses Against Diphtheria.—Plum says that in this vaccination at Blegdam Hospital the best method proved to be one subcutaneous injection of 1 cc. of purified anatoxin with the addition of 10 volumes per cent of aluminum hydroxide, containing from 35 to 50 precipitation units of anatoxin, followed four, five and six weeks after the injection by the application of five drops of purified anatoxin in each nostril, in all twenty-five precipitation units each time. A local reaction was absent in 8 per cent, slight or moderate in 66 per cent and marked in 26 per cent. A general reaction was absent in 64 per cent, slight or moderate in 20 per cent and marked in 16 per cent. The more antitoxin in the blood before vaccination, the more marked the local and general reactions. Of 603 not vaccinated student nurses, 57 per cent had no diphtheria antitoxin in the blood, 23 per cent had between 0.0005 and 0.10 unit per cubic centimeter and 20 per cent had 0.10 unit or more per cubic centimeter. The antitoxin content of the blood before vaccination was 0.10 unit or more per cubic centimeter in 12 per cent of 160 students; after vaccination the blood contained this amount or more in 91 per cent of the number and more than 1 unit per cubic centimeter in 58 per cent. In the six year period before vaccination was introduced eighty-four student nurses had diphtheria, with a total of 2,698 days of illness; sixteen cases were grave, one of these fatal. In the subsequent six year period, after vaccination, only eighteen cases of diphtheria occurred, with a total of 566 days of illness; four cases were grave but without noteworthy complications. The author considers the antitoxin titer a measure of immunity; in his opinion an antitoxin content in the blood of 0.1 unit per cubic centimeter probably protects against diphtheria.

Primary Serous Meningitis and Paralytic Poliomyelitis.—Lassen finds that endemic clinical paralytic poliomyelitis agrees with endemic primary serous meningitis in the apportionment as to age, sex and the different social classes and most of the symptoms and objective signs before and during hospitalization. While no certain differences between the two groups appear, the endemic cases of poliomyelitis are more seasonal than the primary serous meningitides and have an average higher cell count in the spinal fluid at the clinical start of the disease, with even decrease of the cell count from this time. In the primary serous meningitis the cell count does not reach its maximum until from the seventh to the ninth day. There is a greater tendency in the paralytic cases to increased albumin globulin and sugar values in the spinal fluid. The majority of primary serous meningitides in Denmark are at present regarded as most probably of poliomyelitic etiology.

Poliomyelitis in Denmark in 1937.—Lassen states that the highest incidence of poliomyelitis to date in Copenhagen was in 1937. The disease was not endemic in the schools. One hundred and twenty-six paralytic cases and sixty cases of primary serous meningitis, believed to be of poliomyelitic origin were treated at Blegdam Hospital. In at least 80 per cent of the patients with pareses the first signs of certain paresis occurred within the first six days of the disease. If after the first indications of paresis there is an interval of two or three days without progression, extension of the paresis is unlikely. About half of the paretic patients showed symptoms of disorder of the bulbopontile portion of the central nervous system. 44 per cent had paralysis of a nerve of the brain, in two thirds of these there was disorder of the facial nerve and in one sixth of the abducent nerve, and about one fourth of the patients had respiratory difficulty. Nineteen of these were treated in the respirator and two with artificial manual respiration. In two fifths of the cases there was complete restitution on discharge or complete restitution later was probable, in one fifth restitution was doubtful and in one fifth it was considered improbable. After-examination a year later in the main confirmed the prognosis. One fifth of the paretic patients died, the highest mortality being in the age group over 20. In eighteen cases death was due to respiratory paresis with complications, in seven to hyperpyrexia or bulbar paresis with respiratory difficulty. In twenty-one cases death occurred before the tenth day. In all the fatal cases bulbar symptoms were more or less prominent. Of the nineteen patients given respirator treatment six survived. The real field for the respirator, the author says, is for patients with spinal respiratory paralysis without bulbar symptoms. Most of the patients who died in the respirator showed increasing cyanosis without definite signs of circulatory insufficiency and in spite of apparently sufficient ventilation. It is suggested that in cases in which swallowing or coughing is impossible the respirator by its inspiration suction aspirates secretion from the upper respiratory passages into the smaller bronchi, thus compromising the arterial oxygen saturation.

Pfeiffer's Meningitis Treated with Sulfanilamide.—Eldahl reports that from 1920 to 1938 there were twenty-eight cases of meningitis due to Pfeiffer's bacillus, all in children, at Blegdam Hospital. In 1920 one patient recovered spontaneously; from 1921 to 1937 the mortality was 100 per cent. Of the four cases in 1938 three were treated with sulfanilamide, with recovery in two of these and transient effect in the third, fatal, case, in which the inflammation was particularly violent.

Eosinophil Leukemia.—Thomsen and Plum consider the case here reported of special interest because of the transition from typical eosinophil leukemia to a pure myeloblast leukemia, which, they say, supports the conception of this symptom complex as a special form of myeloid leukemia, and because of the microscopic establishment in the bone marrow of a cell type not described in the cases previously published. The nucleus is relatively small with sharply defined boundary, the structure close, often vacuolized and without nuclei, the protoplasm colorless or faintly blue, with a peripheral zone containing fine blue-green kernels. In some of the cells there were also eosinophil kernels like those seen in the eosinophil leukocytes in the peripheral blood. The cells in question constituted 40 per cent of the bone marrow cells on the first sternal puncture. The authors are inclined to consider them the parent cells of the abnormal eosinophil cells in the blood. Some eosinophil cells of normal structure were found in the blood and corresponding to them a number of normal eosinophil myelocytes in the bone marrow. The normal eosinophil cells are believed not to be included in the leukemic changes. Several cases of eosinophil leukemia are cited from the literature.

Bunnell Reaction in Infectious Mononucleosis.—Thomsen finds that the Bunnell reaction is a useful aid in the diagnosis of infectious mononucleosis, especially when combined with absorption according to Davidsohn, but that it fails in a not inconsiderable number of cases and a negative reaction therefore does not exclude infectious mononucleosis.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, NO. 14 — CHICAGO, ILLINOIS — APRIL 8, 1939

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THE CAUSE OF CHILLS FOLLOWING INTRAVENOUS THERAPY

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In the field of therapy there are at present no more valuable agents than those administered intravenously. Physiologic solution of sodium chloride, dextrose, arsphenamine and countless others are given daily in every hospital in the country. From the time these agents were first introduced, reactions consisting usually of fever and chills have followed their use. The cause of these reactions has been sought assiduously and every possible factor has been suspected. Extensive experiments have been carried out which resulted in the discovery of the cause and the elimination—in the laboratory—of these reactions. These results, unfortunately, have uniformly been published in journals dealing with the preclinical phases of medicine and have escaped the attention of the majority of those using intravenous medications in their daily practice. I believe that these results should be brought to the attention of the therapist, and accordingly I plan to summarize the results of others and to add further proof of a clinical nature to what is already proved in the laboratory.

The factors most generally considered to be the cause of reactions are (1) extremes in the temperature of the solution, (2) the amount of solution, (3) the rate of flow, (4) the concentration of the solution, (5) the glass and tubing used, (6) the p_H and (7) the water used in the preparation of the solution. Countless other possibilities have been mentioned, but those cited are held to be the usual offenders.

The first five of these factors were eliminated as a cause of chills in the following experiment: During the three and one-half month period from Sept. 15, 1935, to Jan. 1, 1936, a record was kept of every venoclysis given in the Hospital Division of the Medical College of Virginia, the record including the temperature of the solution taken by a thermometer at the wrist through which the solution flowed, the amount of solution, the rate of flow, the gage of the needle, the concentration of the solution, and the presence or absence of chill. The tubing used was pure gum rubber prepared by soaking in 4 per cent sodium hydroxide for six hours, then scrubbing and rinsing with green soap and water which was, in addition, passed through the tubing by syringes. The tubing was then boiled for ten minutes and tap water was run through it for twenty-four hours. Following this, distilled water was run through it three times and finally it was allowed to dry. The flasks used were hard glass thoroughly washed prior to autoclaving.

During this period a total of 680 venoclyses were given with eighty-two chills occurring either during or immediately after administration of the fluid, an incidence of approximately 12 per cent. The results are given in the accompanying table.

From these figures it will be seen that our percentage of chills was reduced from 28 to less than 3 during the period under consideration. Yet no one of the factors mentioned showed a consistent change. The method of preparation of the flasks and tubing had not been changed. Physiologic solution of sodium chloride or 5 per cent, 10 per cent or 15 per cent dextrose in either distilled water or physiologic solution of sodium chloride was still being used. The rates of flow still varied from 250 to 3,000 cc. an hour, the needles ranged from gage 18 to 22 and the temperature varied from 85 to 122 F. Tremendous amounts of fluids given rapidly would produce no chill, yet the following day, under the same conditions and with the same type of fluid, a small amount would cause an intense reaction.

Since there was no consistent change in any of these factors, although the percentage of chills decreased from 28 to less than 3 during this period, and since a careful check of the record of each chill revealed that no one factor or combination of factors was uniformly present when a chill occurred, it appears that they can be ruled out. This does not eliminate entirely the possibility that the glass and tubing used were the cause of occasional chills, since our records did not show which venoclysis set was employed when chills occurred, but it does rule out the possibility that they were the cause of the majority of the reactions.

With regard to the p_H, experiments have been performed on rabbits in which the p_H was varied from 4.6 to 8.0 without any reaction. This work was first done in 1923 by Seibert [1] and was repeated in 1934 by Banks.[2] It had been previously stated by Williams and Swett [3] that saline and dextrose solutions with a p_H of less than 6.5 produced chill and prostration. Our work neither refutes nor confirms this, since the p_H of our solutions was not determined. However, if we accept the rabbit as a suitable experimental animal, there can be no doubt from the work cited that the p_H is not a causative factor. That the rabbit is a suitable animal was shown both by Seibert and by Banks. The rabbit's normal range of temperature is known and also the usual fluctuations caused by environmental changes or by handling. Anaphylactic reactions are difficult to

This work would have been impossible without the active cooperation received from the administrative department of the hospital group of the Medical College of Virginia and from the Department of Physiology, and especially from Mr. George Snyder of the Department of Bacteriology.

1. Seibert, Florence B.: Am. J. Physiol. **67**: 90-104 (Dec.) 1923.
2. Banks, H. M.: Am. J. Clin. Path. **4**: 260-291 (May) 1934.
3. Williams, J. R., and Swett, Madeleine: Hydrogen Ion Concentration Studies, J. A. M. A. **78**: 1024 (April 8) 1922.

produce. In addition, the reaction of chill-producing solutions is constant, consisting of a marked abrupt rise in temperature which usually persists from three to four hours. Unfortunately chills are not produced; but solutions that cause chills in human beings give this febrile reaction, and solutions giving this febrile reaction produce chills in human beings.

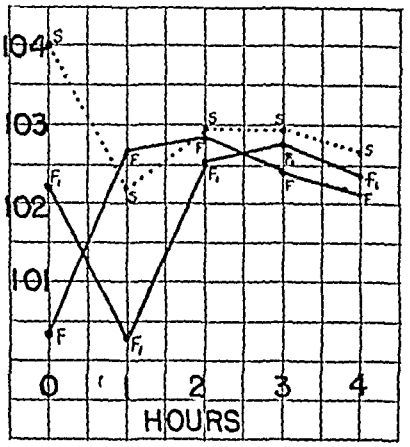


Chart 1.—This is self explanatory. It shows merely that the solutions used are nonreactive and that old saline solution is nonreactive if the proper precautions are taken. It also shows the normal temperature range of the rabbit. *F* and F_1 indicate fresh physiologic solution of sodium chloride. *S* indicates the solution 5 days old, autoclaved one hour after distillation.

In addition to eliminating the possibility of the p_H as a factor, Seibert at the same time showed that hemolysis, the absorption of atmospheric gases and the preponderance of various ions—potassium, sodium and the like—could be of no importance; the reader is referred to her articles for complete details.

This narrows the elimination down to the water used in preparing the solutions. During the period in which our percentage of chills was so abruptly reduced, only one factor of all those mentioned was changed. A new still was installed the latter part of October. As the table shows, two weeks later our percentage of chills was 3.3. It can be reasonably inferred that the majority of the chills were caused by distilled water either improperly distilled or contaminated after distillation.

Three and One-Half Month Record of Venoclyses Given in the Hospital Division of the Medical College of Virginia

Date	Venoclyses	Chills	Per Cent
Sept. 16-30	128	36	28.0
Oct. 1-15	121	19	15.0
Oct. 16-31	77	12	16.0
Nov. 1-15	86	8	9.0
Nov. 16-30	119	4	3.3
Dec. 1-15	71	1	1.4
Dec. 16-31	78	2	2.6

In an effort to determine the time of contamination, a series of 120 hypodermoclyses was run. Hypodermoclyses were chosen for several reasons; the type of reaction was familiar, the dextrose factor could be eliminated, reactions were more constant and less awe inspiring than with venoclyses, and the experiments could be readily controlled. Physiologic solution of sodium chloride was used in each instance and two different saline solutions were used, the first being the saline solution ordinarily sent down from the operating room and the second being a special saline solution made from water taken directly from the still, carried to the operating room, filtered, and immediately autoclaved. The method of preparing the ordinary saline solution was as follows: To water taken directly from the still sufficient chemically pure sodium chloride was added to make a physiologic solution. This solution was taken to the operating room and stored in a 5 gallon bottle from which, as needed, it was decanted, filtered into 1,500 cc. flasks and autoclaved. The bottle usually had to be replenished at the end of from forty-eight to seventy-two hours.

In this experiment 750 cc. of each solution, the special and the ordinary, was given on the lateral aspect of each thigh, the solutions being run in through different sets and with different tubing. The sets were taken at random from the hospital supply and consisted of one 1,000 cc. flask, a length of rubber tubing, an adapter and a needle. No effort was made to keep separate those used for the special saline solution. Twenty-four hours after the hypodermoclysis was administered the thighs were compared both subjectively and objectively. In 93 per cent of the cases the thigh receiving the ordinary saline solution showed a local reaction consisting of tenderness, redness, swelling and local heat, while the opposite thigh showed no reaction other than an occasional slight tenderness. The reactions suggested a severe, acute, superficial infection but in no case was there any formation of pus or any true cellulitis.

From this experiment it becomes apparent that saline solution freshly distilled and autoclaved is nonreactive, while a reactive factor develops in that allowed to stand without autoclaving. That it is not aging of the saline solution alone which produces the factor was proved by the special saline solution being allowed to stand for as long as five days after autoclaving and then being administered without causing a reaction. Supplementary proof is also obtained that the sets are not the cause of reaction, since we had no reactions with the special saline solution although the sets were chosen at random from the hospital supply.

Since immediate autoclaving prevents reactions, it follows that growth of some type must be occurring in and contaminating the ordinary saline solution. Accordingly, cultures were taken from the bottle from the operating room and the following organisms were found: Escherichia coli communior, Bacillus alcaligenes faecalis and Monilia albicans. We had previously considered algae as a possible contaminant, but these were ruled out by the discovery that water from the storage tank of the still was reactive while that taken directly from the still was not. No sunlight, necessary to the growth of algae, reached the storage tank.

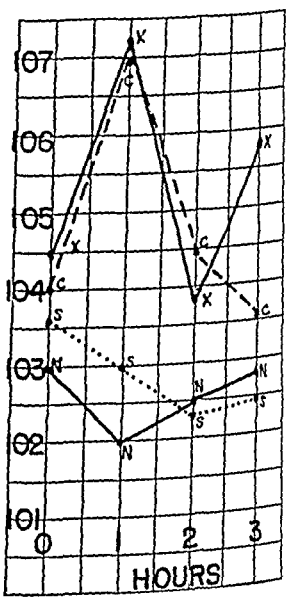


Chart 2.—The result of seeding distilled water with reactive organism and allowing growth to occur at room temperature for thirty six hours before autoclaving. One animal is included in which no injection was made, to show the curve produced by handling alone. *X* indicates B alcaligenes faecalis; *C*, Escherichia communior; *S*, physiologic solution of sodium chloride, and *N*, no injection.

It was thought probable that these organisms or their growth products were the cause of the chills and, in order to prove this, experiments were performed on rabbits. The following technic was used: Hundred cc. flasks were carefully washed with tap water, rinsed with freshly distilled water, partially filled with water taken directly from the still, taken to the operating room and autoclaved immediately. These flasks were then seeded with the organisms by removing a loopful of growth from the

agar slant and washing it in the flask. Broth cultures could not be used because of the possibility that the broth itself contained a reactive factor. The flasks were then recapped and allowed to stand at room temperature for periods varying from one to seven days, when they were again autoclaved. Not all the flasks were seeded, some being used for controls. Sufficient chemically pure sodium chloride was added to 10 cc. from each flask to make a physiologic solution and these solutions were injected into the ear veins of rabbits, separate syringes and needles being used for each solution. The temperature of the rabbits was taken at hourly intervals and graphs were made from these readings. A few of the graphs are shown here.

From these graphs and from others not included here it can be seen that on intravenous administration B. alcaligenes faecalis always produces fever and that Monilia albicans and uncontaminated saline solution never produce fever. It is also shown that the same contaminated water which produces fever in rabbits causes chills and fever in human beings.

Escherichia coli communior was included in only one study, because it was shown in 1911 by Hort and Penfold [4] that this organism —B. coli at that time— when injected into rabbits produces a febrile reaction. In their paper, one of the earliest on febrile reactions, they also include as reactors Bacillus typhosus, B. pyocyaneus, B. subtilis, Brucella melitensis, Bacillus pestis, Micrococcus catarrhalis, Staphylococcus albus and citreus, B. influenzae, the gonococcus, Corynebacterium acnes, the cholera vibrio and mallein. As nonreactors they list Staphylococcus aureus, pneumococci, streptococci, B. diphtheriae, B. anthracis, B. tetanus and tubercle bacilli. Seibert [5] in her later work added many other organisms to both groups. She divided them into four chief divisions: those which cause no reaction, those which cause only a slight elevation of temperature, those which cause a marked elevation of temperature —with this group she produced chills in human beings —and those which cause immediate prostration and death. The last group is quite possibly the cause of the terrific reactions which occasionally follow venoclyses and which are referred to in the literature as "speed shock." [6] To the already imposing list of reactors Banks added Pseudomonas scissa and Pseudomonas ureae, chromogenic bacteria common to most water supplies. Banks goes so far as to claim that the Pseudomonas organisms are the only producers of reactions as seen in venoclyses, basing his conclusions on the type of temperature curve seen in rabbits. He states that both pathogenic and other nonpathogenic organisms produce reactions, but they are delayed in appearance and with them the animal is much more prostrated than with the abrupt rise and fall of temperature seen in reactions produced by water seeded with Pseudomonas organisms. It seems to me that there is no necessity to limit these reactions to the activity of one group of organisms, since in our hands B. alcaligenes faecalis produces almost identical temperature graphs with those shown in Banks's paper and, in addition, I have shown that this organism will cause chills in human beings. Any organism which is capable of elaborating a pyrogenic substance which thrives at room temperature and which is a common contaminant may be the offender. No organism will ever be the offender if the distilled water is taken directly from the still— most storage tanks are contaminated by backflow of air when the still cools— and autoclaved immediately. Nor will chills occur except in isolated instances, and these not the result of venoclyses.

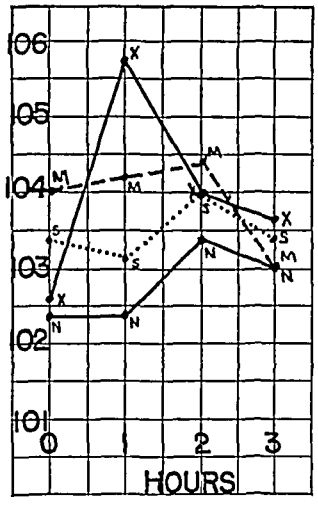


Chart 3.—Showing that a thirty-six hour culture of Monilia albicans is nonreactive. *X* indicates B. alcaligenes faecalis; *M*, Monilia albicans; *S*, physiologic solution of sodium chloride, and *N*, no injection.

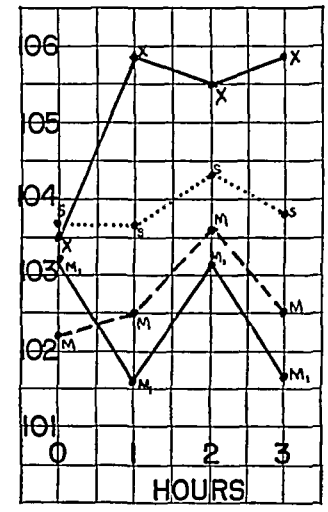


Chart 4.—Showing that a seven day culture of Monilia albicans in which the growth was so profuse that the water was turbid is also nonreactive. *X* indicates B. alcaligenes faecalis; *M* and M_1, Monilia albicans, and *S*, physiologic solution of sodium chloride.

It may be well at this point to summarize the known characteristics of the reaction-producing substance.

1. The substance is a product of bacterial growth.[7] It is not due entirely to the bacterial bodies themselves, since filtration through a Berkefeld filter does not render a reactive water nonreactive.[8]

2. It is heat labile. Boiling for six hours will produce a nonreactive water. Autoclaving, if sufficiently prolonged (from three to four hours) will also destroy the factor. The usual period of sterilization however tends to increase its activity.[8]

3. It is water soluble. A nonreactive solution placed in a dry sterile flask which has contained pyrogenic water and which has not been thoroughly washed will become reactive.[1] To digress for a moment, it is for this reason that the tubing and flasks may occasionally

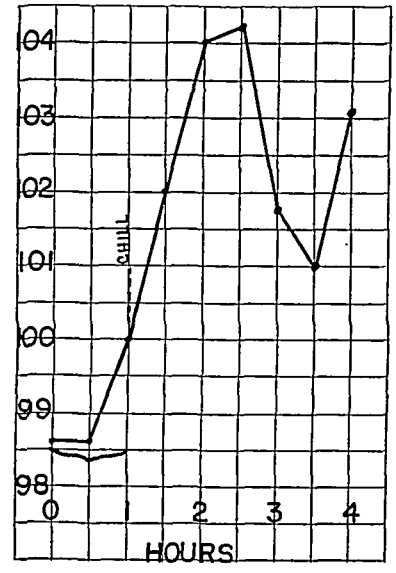


Chart 5.—The temperature of a patient with dementia paralytica who was given a solution of 5 per cent dextrose in distilled water. The dextrose was the 50 cc. ampule of 50 per cent dextrose offered for sale by almost all drug houses. The water was freshly distilled and autoclaved immediately, seeded with B. alcaligenes faecalis and allowed to stand at room temperature for twenty-four hours, when it was again autoclaved. Five hundred cc. was used.

4. Hort, E. C., and Penfold, W. J.: J. Hyg. **12**: 361, 1912.
5. Seibert, Florence B.: Am. J. Physiol. **71**: 621-651 (Feb.) 1924.
6. Milbert, A. H.: Am. J. Surg. **23**: 479-485 (Dec.) 1934.
7. Hort, E. C., and Penfold, W. J.: Proc. Roy. Soc. Med. (Path. Sec.) **5**: 131, 1912. Seibert.[1] Banks.[2]
8. Seibert.[1] Banks.[2]

be the cause of reactions, the pyrogenic substance being picked up as the solution passes through the set. If the tubing is prepared according to the method outlined earlier in this paper and any nonreactive water, distilled or otherwise, is passed through it three times prior to immediate autoclaving, this tubing will be nonreactive. Similar care must be exercised in the preparation of the flasks, funnels and storage bottles.

4. The substance is particulate in nature. It is held back by the pores of a 200 second Zsigmondy ultrafilter and passes through those of a 42 second filter.[9]

SUMMARY

Certain factors commonly thought to be influential in producing reactions to venoclysis are eliminated.

Another organism, B. alcaligenes faecalis, is added to the list of those known to cause reactions. At the same time Monilia albicans is eliminated.

Reactions to hypodermoclysis have value as a simple means of determining the presence or absence of pyrogen in the ordinary saline solution used in hospitals.

Further proof is added in support of the already proved statement that reactions to venoclysis are the result of bacterial contamination of the distilled water used in the preparation of the solutions.

805 Professional Building.

THE FATE OF CHILDREN WITH PRIMARY TUBERCULOSIS

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It was unfortunate that the discovery of the tubercle bacillus occurred during an era in which the causative organisms of so many other diseases and, even more important, so many preventive measures came to light. Thus tuberculosis, as soon as it was found to be due to a bacillus, was relegated to the general category of "infectious diseases." For many of the other infectious diseases, a vaccine or an antitoxin was found within a few years after the causative organism was discovered. Hence the unceasing effort toward finding an antidote or an immunizing substance overwhelmed the minds of the medical scientists from the tuberculin of Koch in 1890 to Calmette's BCG. Tubercle bacilli in various forms, types of products and amounts were tried with varying results.

Naegeli in 1900 found that the majority of people have traces of tuberculous infection in their bodies. Von Behring in 1903 showed that tuberculous infection in childhood is followed by a recrudescence of lesions in adult life. In 1907, with a tuberculin test that was an improvement on Koch's, Pirquet found that tuberculous infection is very prevalent. Subsequent work by other investigators showed that the higher the incidence of infection the higher also are the morbidity and mortality rates for the community, which fact in itself shows that an infection not only is not a protection from tuberculous disease but is a liability.

Much effort and work have been devoted to proving the immunizing property of the tubercle bacillus. It seems true that this bacillus does produce a certain amount of immunity. It also seems indubitable that primary infection, dormant for a time, can and does give rise to the so-called reinfection type of lesion in later life. Thus Rich and McCordock showed that tuberculous meningitis in the majority of cases originated from old foci of infection in or adjacent to the central nervous system. In the prevention of tuberculosis the question, then, is Which of the two factors is more preponderant, the immunity that a tuberculous infection produces or the subsequent hazard from such an infection?

One proposition is universally accepted: Without tubercle bacilli there can be no tuberculosis.

The history of the eradication of bovine tuberculosis is instructive. In one country all obviously diseased cattle were condemned; in another all infected cattle, those with a positive reaction to tuberculin were condemned. In the former country the number of tuberculous cattle was not appreciably reduced in ten years, while in the latter it was reduced to one tenth of the original figure.

This communication deals with a ten year follow-up of 446 children with positive reactions to tuberculin and 772 children with negative reactions. These children are from those observed in the first eight years (1921-1928) at the Lymanhurst Health Center, of

TABLE 1.—*Age Distribution*

Age, Years	Positive Reactors	Negative Reactors
0-1	9	26
1	14	32
2	26	57
3	37	61
4	44	61
5	35	59
6	62	83
7	56	84
8	46	75
9	26	47
10	29	52
11	18	41
12	17	22
13	13	23
14	14	16
15	7	15
16	5	3
17	2	1
18	0	1
19	2	0

	Total Years	Total Children	Average Age
Positive reactors	5,122	446	7
Negative reactors	5,094	772	6.6

TABLE 2.—*Length of Follow-Up*

Years of Follow-Up	Positive Reactors	Negative Reactors
0-1	1	..
1	3	..
2	2	..
3	2	..
4	1	..
5	1	..
6	3	..
7	1	..
8	3	..
9	6	4
10	146	344
11	94	252
12	68	95
13	62	30
14	30	24
15	18	14
16	4	3
17	1	..

	Total Length of Follow-Up, Years	Total Number of Children	Average Length of Follow-Up, Years
Positive reactors	5,024	446	11.3
Negative reactors	8,450	772	10.95

9. Co Tui; McCluskey, K. L.; Schrift, M. H., and Yates, A. L.: Proc. Soc. Exper. Biol. & Med. 35: 297-300 (Nov.) 1936.

From the Department of Hygiene and Public Health, Union Medical College, Peiping, China, and the Lymanhurst Health Center, Minneapolis.

whom the total number was just under 6,000. No selection was made. If a patient was followed up for ten years or more he was included. Naturally those in whom tuberculosis developed at any time during the survey were included. Those who came with well developed tuberculosis, in some of whom the condition was proved by later examinations, were excluded; there were twenty-six of these. The majority of the children were either suspected of having tuberculosis or had been in contact with tuberculous patients, living or dead. In most cases the tuberculous patient was removed from the home as soon as was feasible after he was recognized as such. The sanatorium facilities are good in the community. This does not necessarily mean, however, that the contact was severed, as many of the sanatoriums allow their patients out for short intervals and all of them allow visitors over 14 years of age without giving them special care. Some patients refused to go to a sanatorium or remained there for only a short period. The exact amount of exposure is impossible to estimate, but the general impression is that there is no material difference between the two groups.

TABLE 3.—*Results of Survey for the Positive Reactors* *

	Primary Lesions					Reinfection Lesions				
								Patient Died		
	Lesion Improved or Disappeared	No Change	Calcification in Hilus	Ghon's Lesion	Fibrosis	Pleural Change	Pulmonary	Extra-pulmonary	Pulmonary	Extra-pulmonary	Total
Normal	..	157	24	34	1	6	14	2	3	1	242
Primary lesion	2	..	..	25	8	..	3	..	1	1	40
Hilar changes	9	14	16	10	..	..	6	..	7	3	65
Ghon's lesion	..	61	..	..	..	..	13	1	1	2	78
Fibrosis	..	4	..	..	..	..	2	..	..	..	6
Pleural effusion	..	..	..	1	..	..	3	..	2	..	6
Pleural changes	..	4	..	3	..	..	1	..	1	..	9
Total	11	240	40	73	9	6	42	3	15	7	446

* Two patients with pleural effusion, one with Ghon's lesion and one with "marked calcification" had negative Pirquet reactions at first, but as their reactions soon became positive and they had such definite x-ray evidence it is considered justifiable to include them in the group with initial positive reactions.

All the tuberculin tests were done by the Pirquet technic except the follow-up tests done since 1930. When a test was recorded as "slightly positive" or the wheal described as one-sixteenth or one thirty-second inch in diameter it was judged by the results of subsequent tests. Early and subsequent roentgenograms were likewise correlated before a definite diagnosis was made.

The age distribution of the children is shown in table 1.

The positive reactors were regularly followed up; for most of them roentgenograms were taken at intervals of six months to a year and, when clinical tuberculosis was suspected, every one or two months. Of the 772 negative reactors 412 were located in a survey by the public health nurses, who saw the child if possible or else obtained information from such reliable persons as the parents, the family physician or the school teacher. The remaining 360 children were examined in the center by tuberculin testing or roentgenograms or both. The length of follow-up is shown in table 2.

The twenty-three positive reactors followed up less than ten years are those in whom the disease developed; of these twenty-one have died and two have been institutionalized or have disappeared. The four negative reactors are in sanatoriums.

COMMENT

It is evident from the figures in the tables that the infected children had roughly nine times the chance of getting clinical tuberculosis within ten years as did the originally noninfected children. With 15 per cent of the children who reacted positively to the tuberculin test and

TABLE 4.—*Results of Survey for Negative Reactors* *

Case Number	First Examination: Year	Age	Roentgenogram	Year of Last Negative Reaction	Year of First Positive Reaction	Year Lesion Was Discovered	Extrapulmonary Lesion	Pulmonary Lesion	Year Last Seen
1	1922	12	Normal	?	?	1929	..	..	1934†
2	1922	4	Normal	?	1926	1927	+	..	1934
3	1922	13	None	1924	?	1932	..	+	1932
4	1922	11	None	?	?	1934	..	+	1934
5	1922	12	Normal	1924	?	1937	..	+	1934
6	1923	7	Normal	?	?	1933	..	+	1933
7	1923	13	Normal	?	?	1934	..	+	1934
8	1924	4	Normal	?	1932	1936	..	+	1938
9	1925	2	Normal	1931	?	1937	..	+	1937
10	1925	7	Normal	?	?	1934	..	+	1934
11	1925	8	Normal	?	1929	1934	..	+	1935
12	1928	9	Normal	?	1933	1934	..	+	1937
13	1928	9	Normal	?	1934	1936	..	+	1937
Total							1	11	

* Most of the patients were institutionalized when it was discovered that they had the disease. Patient 8 was given pneumothorax treatment.
† Died.

had no other clinical evidence of disease falling ill within approximately the next ten years, it is obvious that a tuberculin reaction in a child is of far more significance than was formerly believed. If the morbidity and mortality rates continue for these children throughout life as they have begun, clinical tuberculosis will be as frequent among them as tertiary syphilis among persons with positive Wassermann reactions. This would seem to be sufficient evidence to dispel any great enthusiasm for immunity produced by the primary tuberculosis complex. Indeed, by the old criteria these are the persons who should have been immunized by reason of infections in childhood. One might maintain that the remaining 85 per cent have been immunized, but any argument in this direction at present would be nothing more than speculation; only time will tell, and since no such observations have previously been made it would be futile to venture an opinion. Suffice it to say that 15 per cent is a large toll to be exacted in so short a time.

TABLE 5.—*Summary of Survey*

	Total Number of Cases	Reinfection Type of Disease: Patient Died: Pulmonary	Extrapulmonary	Pulmonary	Extrapulmonary	Total	Percentage
Positive reactors	446	42	3	15	7	67	15.02
Negative reactors	772	11	1	1	0	13	1.68

Another useful fact obtained from these observations is that clinical pulmonary tuberculosis rarely appears until adult life. The average age at which these persons were first found to have the primary tuberculosis complex, as manifested by the reaction to tuberculin, was 7 years, but the average age at which they were found to have clinical tuberculosis was 18.9 years. Treatment of children with the primary complex has not been found to afford any more protection against

the clinical type of tuberculosis in adult life than similar treatment would be expected to provide against tertiary syphilis years later for persons with primary syphilis.

As there is no method of destroying tubercle bacilli once foci are set up in the human body, no method of artificial immunization has proved effective, and since years or decades after the initial attack lesions may become communicable, one is forced to use a method of control based on prevention of the initial infection. After all, this is fundamental.

SUMMARY

Four hundred and forty-six children with positive reactions to tuberculin but without clinical pulmonary lesions and 772 children with negative reactions were followed up for ten years. The average age at the first examination for the former was 7 years and for the latter 6.6 years. The average number of years of follow-up for the former was 11.3 and for the latter 10.95. At the end of the follow-up period it was found that sixty-seven of the positive reactors (15.02 per cent) were sick with the reinfection type of disease, while of the negative reactors only thirteen (1.68 per cent) were sick. Thus there were nine cases of tuberculosis in the positive reactors to one in the negative reactors. The ratio between the mortality for the positive reactors and that for negative reactors is 38 to 1.

VITAMIN A DEFICIENCY IN NORMAL AND TUBERCULOUS PERSONS

AS INDICATED BY THE BIOPHOTOMETER

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Löhr's [1] investigations of the wound-healing properties of cod liver oil have stimulated many clinical studies. Of special interest is the work of Banyai,[2] who successfully treated lupus with topical applications of cod liver oil. In our laboratory the healing effect of cod liver oil applied topically to experimental tuberculous ulcers of the skin of guinea pigs has been demonstrated, and similar favorable results with certain fractions, obtained in the attempt to isolate the active substance, have been reported by Getz.[3] Since the fractions most active in the healing of tuberculous lesions are those containing the greatest amounts of vitamin A, the queries arise Are tuberculous individuals deficient in vitamin A? Will tuberculous human beings respond favorably to increased amounts of vitamin A? Are "normal" persons deficient in vitamin A? To answer these questions, the study here reported was conceived.

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This work was supported in part by a grant from the Wisconsin Alumni Research Foundation.

Read in part before the North Central Branch of the Society of American Bacteriologists in Minneapolis, May 21, 1938

Part of this work was submitted as a thesis for the M S degree by Mr. Hildebrand and part as a thesis for the M.D degree by Dr. Finn.

1. Lohr, Wilhelm: Wundheilung, Leipzig, Johann Ambrosius Barth, 1937.

2 Banyai, Andrew L . Personal commun cation to the authors in 1935; Topical Application of Cod Liver Oil in Tuberculosis, Am. Rev. Tuberc. **36:** 250 (Aug) 1937.

3 Getz, Horace R.: Cod Liver Oil Therapy in Experimental Tuberculosis, Proc. Soc Exper. Biol & Med *38: 543 (May)* 1938

The work of Jeans, Blanchard and Zentmire [4] and later that of Jeghers [5] suggested the biophotometer [6] as a satisfactory instrument for the measurement of vitamin A deficiency, although Palmer and Blumberg [7] have disputed its value. Our study of several hundred normal persons was done preliminary to testing tuberculous subjects to note any changes when the vitamin A deficient persons were placed on an adequate vitamin A intake and to obtain a basis for comparison.

METHOD

The technic used was similar to that of Jeans.[4] In all cases the subject was placed in a dark room and allowed to remain ten minutes with the eyes closed before beginning the test. After a reading of the minimum light threshold had been taken, the bright light was turned on for three minutes. The next reading was taken as near as possible to twenty seconds after the bright light was shut off. It was almost never taken as much as thirty seconds after the bright light was extinguished; if so, the time of the reading was recorded. In taking the reading, the rheostat was turned so that the test light was dimmer than that which the subject could see. Then it was turned back slowly to the end point, the point where the center dot in the quincunx was just visible. This technic was rigidly followed throughout the work. Both the reading after the bright light and the curve of regeneration of the visual purple made with the two subsequent readings were used to adjudge the status of the subject. The pathologically deficient group (as defined by Jeans) included those who had a minimum light threshold after the bright light above 1 millifootcandle and subsequent readings that were correspondingly high The normal group included those who similarly had a minimum light threshold less than 0.6 millifootcandle and the lowest subsequent readings. The group classed as showing borderline deficiency gave readings between those obtained for the normal and the pathologically deficient group.

BIOPHOTOMETRIC RESULTS WITH NORMAL PERSONS

Of the 500 healthy persons tested, 300 were used as controls for comparison with tuberculous patients; 229 were medical students from all four classes and seventy-one were home economics juniors. The rest of the 500 were deemed unsuitable as a control group, since they had requested the test because of a suspected deficiency The data for the control groups are presented in table 1.

A history was taken of each medical student before the test was made, and the significant data are presented in tables 2 and 3.

4 Jeans, P. C · Vitamin Deficiency in Childhood, Minnesota Med **16:** 688 (Nov) 1933. Jeans, P. C., and Zentmire, Zelma Prevalence of Vitamin A Deficiency Among Children in Iowa, Am J Dis Child **48:** 928 (Oct) 1934; A Clinical Method for Determining Moderate Degrees of Vitamin A Deficiency, J A M A **102:** 892 (March 24) 1934, The Prevalence of Vitamin A Deficiency Among Iowa Children, ibid **106:** 996 (March 21) 1936 Jeans, P. C ; Blanchard, Evelyn, and Zentmire, Zelma· Dark Adaptation and Vitamin A, ibid **108:** 451 (Feb 6) 1937

5 Jeghers, Harold· Night Blindness Due to Vitamin A Deficiency A Consideration of Its Importance in Traffic Problems, New England J. Med **216:** 51 (Jan 14) 1937; Night Blindness as a Criterion of Vitamin A Deficiency. Review of the Literature with Preliminary Observations of the Degree and Prevalence of Vitamin A Deficiency Among Adults in Both Health and Disease, Ann Int Med **10:** 1304 (March) 1937, The Degree and Prevalence of Vitamin A Deficiency in Adults with a Note on Its Experimental Production in Human Beings, J. A M A **109:** 756 (Sept 4) 1937.

6 Manufactured by the Frober Taybor Company, Cleveland

7. Palmer, Carroll E., and Blumberg, Harold. The Use of a Dark Adaptation Technic (Biophotometer) in the Measurement of Vitamin A Deficiency in Children, Pub Health Rep **52:** 1403 (Oct 8) 1937.

RESULTS OF THERAPY

At first only persons with marked deficiency culled by the instrument were given treatment. Since 20,000 units of vitamin A per day in halibut liver oil [8] produced little or no change in six persons in two or three weeks, the dose was raised to 90,000 units a day. Some persons showed prompt response to this dose but others showed no change; 200,000 units of vitamin A daily in halibut liver oil did, however, initiate a response in fifty of the most deficient subjects in as short a period as two weeks. Usually the patients received this high dose until a favorable response was noted; then the dose was reduced to 100,000 units or less. All patients put on this treatment showed a reduction in their minimum light threshold, and only a few have failed to reach normal limits in two months.

TABLE 1.—*Results of Biophotometric Tests of Students*

	Pathologically Deficient, %	Borderline Deficient, %	Normal, %
229 Medical Students (November 1937)	6.55	12.22	81.22
71 Home Economics Juniors (February 1938)	11.27	15.49	73.24

In contrast, the response of five patients with borderline deficiency and two normal persons to 100,000 or more units of vitamin A was more prompt. In three weeks the minimum light threshold for all of these was reduced, and the persons with borderline deficiency had become normal. One of the persons showed, after the exposure to bright light, a reduction in his minimum light threshold from 0.36 to less than 0.05 millifootcandles. This would indicate that the state of vitamin A nutrition of the biophotometrically normal persons can be improved. That this may be of physiologic significance is suggested by the results of tests done with Dr. R. C. Herrin of the physiology department. Two persons with normal biophotometric readings and one with borderline deficiency were given 100,000 or more units of vitamin A daily in halibut liver oil, and urea clearance was determined before and after several weeks of treatment. Herrin and his associates [9] have reported that the urea clearance was almost doubled in these cases.

TABLE 2.—*Significant Data from Histories of Medical Students at the Time of the Biophotometric Test*

	Pathologically Deficient (15), %	Borderline Deficient (28), %	Normal (186), %
Frequent (more than 4 per year) or chronic colds	60.0	35.71	21.50
Postnasal drainage	53.3	39.29	25.27
Burning eyes	26.6	28.56	13.92
Acne	6.6	32.14	25.81
Dry skin	26.6	14.28	11.29
Early fatigue of eyes with night driving	33.3	35.71	16.66

The effect of single massive doses (2,000,000 units) on one normal person and on three with borderline deficiency are given in table 4. All subjects taking the massive doses of halibut liver oil experienced dull headaches but no other untoward symptoms.

All four subjects receiving the halibut liver oil showed a decrease in minimum light threshold, even subject 2 who had values consistently high in the normal range before the test. The peak was reached approximately four and one-half to five hours after consumption of the oil, and the next day the readings were back to the former level. Subject 5 was the same person as subject 4, tested five days later, when his readings had returned to the previous level. The change was so slight with carotene that it could well have been within the limits of normal daily variation, although this subject had never previously shown so large a change in one day.

RESULTS OF BIOPHOTOMETRIC TESTS OF TUBERCULOUS PERSONS

One hundred and ninety-seven mostly fever-free and ambulatory tuberculous patients, comprising all the persons with minimal disease available for testing and a representative group of those with moderately advanced and far advanced tuberculosis in three sanatoriums [10] in southern Wisconsin were tested during December 1937 and January 1938. Fifty-three per cent were found to be pathologically deficient (table 5). The stage of tuberculous involvement was not known to the biophotometric observer, but later the patients were grouped according to the standards of the National Tuberculosis Association by the chief resident physician in each sanatorium. The biophotometric results in each group are given in table 6.

TABLE 3.—*Dietary Habits of Medical Students at the Time of Testing*

	Pathologically Deficient (15), %	Borderline Deficient (28), %	Normal (186), %
Eat in restaurants	26.6	50.0	45.16
Cook and eat in living quarters	26.6	10.71	25.27
Eat in boarding house	46.6	39.29	29.57
Eat three complete meals per day	46.6	39.29	51.61
Eat two complete meals per day	26.6	39.29	36.02
Eat only one complete meal per day	26.6	21.42	12.37

RESULTS

It is impossible to tell whether the difference (table 1) between the medical students and the home economics juniors was due to seasonal variation, age, sex or group selection, but seasonal variation seems the most probable since the latter series was tested in February. The medical students were almost all males, and the home economics juniors were all females. The number deficient in each group is higher than one would expect; only 53 per cent of the deficiences could be explained on a dietary basis.

In comparing the data on the control groups with those for the tuberculous group one notes that 53 per cent of the latter group showed deficiency, as contrasted to 6.5 and 11 per cent of the normal controls. The tuberculous persons were somewhat older than the control subjects (table 5), although none were older than 50 and most of them were between 20 and 35. The number of persons with red hair was too small for the percentages to be of value, but the number of blonds may be sufficient. The fact that the percentage of blonds was twice as high in the deficient group as in the normal group seems important, since it is generally thought that they do not utilize carotene as effectively as do brunets. The favorable results obtained with

8. Supplied by Dr. Warren M. Cox Jr. of Mead Johnson & Co.
9. Herrin, R. C.; Nicholes, H. J., and Siebecker, K. L.: The Influence of Vitamin A upon Renal Clearance in Dog and Man, Am. J. Physiol. 123: 98 (July) 1938.
10. Muirdale Sanatorium, Wauwatosa, Wis.; Lakeview Sanatorium, Madison, Wis., and Wisconsin State Sanatorium, Statesan, Wis.

heliotherapy may be partly accounted for by selection of subjects to receive the treatment. The very sick persons are not given radiation. The data on subjects treated by pneumothorax are not particularly important but are included to give an indication of the clinical history. The figures on subjects given apicolysis and thoracoplasty imply that the sickest persons are the most deficient, since the milder lesions are not treated by apicolysis and thoracoplasty.

Again, in table 6 the results indicate that the persons with far advanced disease are most apt to be deficient. The increase in percentage of deficiency seems to be parallel with the increase of the tuberculous involvement, except that the frequency in the group with minimal tuberculosis was much higher than in the group with moderately advanced disease. This may be due to the fact that because of the small number, every person with minimal involvement was tested, and we may have tested many that were more intoxicated by their infection than were the persons with moderately advanced disease. The fact that the percentage of borderline deficiency with minimal tuberculosis is correspondingly low would seem to justify this assumption (table 6). Of particular import is the decrease in the frequency of normal vitamin nutrition as the tuberculous involvement increases.

Whether the tuberculous persons are deficient because of their infection or whether chronic infections develop because they have less vitamin A is still unanswered. One can only imagine what the percentage of deficiency would be in association with very active infection, for most of the subjects tested were ambulatory, fever free and not confined to "bed rest." The diets of the subjects seemed to contain amounts of vitamin A adequate for healthy persons. Forty per cent received additional vitamin A in fish liver oil although none received more than 30,000 units a day. This amount as a therapeutic dose is insufficient, as judged by our tests on nontuberculous persons. A preliminary study of the response of tuberculous persons to adequate vitamin therapy is under way.

TABLE 4.—*Effect of Massive Doses of Vitamin A*

Subjects 1, 2, 3 and 4 received 50 cc. of halibut liver oil (2,000,000 or more units of vitamin A), Subject 5 (subject 4 retested) took 2,000,000 units of vitamin A as carotene.*
Millifootcandle readings after exposure to the bright light.

Time		Subject Number				
Hours	Minutes	1 (PG)	2 (BA)	3 (WS)	4 (HG)	5 (HG)
0	0	0.65	0.08	0.65	0.53	0.45
1	25	....	....	....	0.39	....
1	45	....	....	....	....	0.39
2	10	....	0.06	....	....	....
3	5	0.39	....	0.538	0.37	....
3	35	....	0.059	....	....	....
4	10	0.327	....	0.48	....	....
4	20	....	....	....	....	0.41
4	40	....	0.056	....	0.26	....
5	15	0.29	....	0.39	0.21	....
5	30	....	....	....	0.26	....
8	0	....	....	....	....	0.37
8	25	....	0.059	....	....	....
9	0	0.327	....	0.53	....	....
17	30	....	....	....	0.36	....
30	0	....	....	....	....	0.36

* Supplied by W. O Frohring, S. M. A. Corporation, Cleveland.

TABLE 5.—*Results of Biophotometric Tests of 197 Ambulatory Patients from Three Sanatoriums in Southern Wisconsin*

	Pathologically Deficient (105)	Borderline Deficient (46)	Normal (46)
Percentage	53.2	23.35	23.35
Average age	28.4	26.73	25.04
Months of tuberculosis	50.5	44.01	20.73
Percentage of females	58.65	57.45	43.48
Color of Hair:			
Red	1.92%	2.13%	4.34%
Blond	15.36%	14.89%	8.69%
Brown and black	82.69%	82.97%	86.96%
[illegible]	8.65%	4.26%	28.26%
[illegible]	54.81%	57.45%	43.48%
Thoracoplasty	18.27%	17.02%	10.87%
Apicolysis	5.77%	2.13%	0.00%

COMMENT

The exact merit and significance of the various methods for determining vitamin A deficiency are still undetermined. Some workers have adapted the original Jeans technic to suit themselves, and others [11] have advocated changing the interpretation of the minimum light threshold so that fewer persons would be considered deficient in vitamin A. From our results it is suggested that many in the borderline group might be benefited by therapy. What may be a nonpathologic level of vitamin A nutrition for one person may give rise to symptoms in another, depending on factors not understood at present. We have presented data to show that the minimum light threshold may be lowered

TABLE 6.—*Patients Grouped According to Standards of National Tuberculosis Association as to Their Stage of Tuberculosis at the Time of the Test*

	Number of Cases	Pathologic Deficiency, %	Borderline Deficiency, %	Normal Level, %
Primary	8	37.50	12.50	50.00
Minimal	26	57.69	3.84	38.46
Moderately advanced	102	47.06	28.43	24.51
Far advanced	56	60.71	23.00	16.28

even in the so-called normal persons and that such a change affects the basic physiology of the kidney. Just what is the optimum amount of vitamin A for adults is unknown, but it would seem to be much more than has been previously recognized. The amount which was just sufficient to prevent xerophthalmia was once thought to be normal. Since the biophotometer has been developed it is recognized that a subclinical deficiency exists in many so-called normal persons. It is suggested that even normal persons according to the biophotometer might be benefited by more vitamin A. We must think of the optimum amount for the body and not the amount that will just prevent xerophthalmia or just prevent subclinical night blindness.

We have used the Jeans interpretation in spite of the fact that we have presented data to show that the normal level can be changed by intensive vitamin A treatment. The original interpretation must be adhered to in order that results obtained by different workers may be somewhat comparable. The whole curve of regeneration should be used to judge a person deficient and not merely the reading taken immediately after exposure to the bright light, since this reading is the hardest to take accurately.

The evaluation of the method should not be confused by the finding of vitamin A deficiency in what seems to be a perfectly normal person consuming a diet judged to be adequate. That individual differences in absorption, utilization and demand for the vitamin exist should

11. Corlette, Marvin B.; Youmans, John B.; Frank, Helen, and Corlette, Mildred G.: Photometric Studies of Visual Adaptation in Relation to Mild Vitamin A Deficiency in Adults, Am. J. M. Sc. 195: 54 (Jan.) 1938.

be apparent. Furthermore, it is probable that some persons on a large intake of vitamin A may not use it economically and may store comparatively little; when these persons are forced suddenly to live on a diet much lower in vitamin A but adequate for normal persons they show a shift toward the deficient range and then gradually return to a more normal reading. We have noted this in four subjects receiving from 150,000 to 200,000 units of vitamin A daily in halibut liver oil. This agrees with the observations of Davies and Moore,[12] who fed cod liver oil to rats until the livers showed stores of vitamin A which should have been adequate to last them more than a hundred years, but when the animals were put on a vitamin A-free diet the vitamin A content of the liver dropped precipitously.

There is no reason to doubt that the minimum light threshold is intimately related to the state of vitamin A nutrition and can be lowered with vitamin A therapy. That the biophotometer does measure or indicate changes in the state of vitamin A nutrition is also apparent from our data. Some authors have failed to draw similar conclusions because of insufficient dosage and inadequate periods of treatment; others have become confused by the influence of learning factors and daily variations in the subject's response to the test. The poor or slow absorption of carotene may have contributed to the confusion. Our figures with carotene, while for only one subject, agree with those of Clausen[13] and of Drummond, Bell and Palmer,[14] who concluded that preformed vitamin A is absorbed more rapidly. Even with 200,000 units of vitamin A in halibut liver oil it takes almost two weeks to get a significant therapeutic response in some persons. We have noticed this especially in subjects who had a minimum light threshold above 3.98 millifootcandles, the limit of our instrument. This immediately suggests the existence of other factors affecting the utilization.

CONCLUSIONS

1. The biophotometer gives an indication of the state of vitamin A nutrition of adults.

2. Normal healthy persons (college students) are not infrequently deficient in vitamin A. Pathologic deficiency on the basis of Jeans's interpretation of the biophotometric readings existed in 6.5 and 11 per cent of two control groups.

3. All persons with a high minimum light threshold adjudged deficient in vitamin A benefited from treatment with halibut liver oil in that their light threshold was lowered.

4. Previously advocated therapeutic doses of vitamin A in halibut liver oil were found grossly inadequate as judged by the response shown by the biophotometer. Larger doses (up to 200,000 units daily) gave a response reasonably prompt in pathologically deficient and very prompt in borderline subjects.

5. In 53 per cent of the tuberculous persons tested there was a deficiency in vitamin A.

6. The vitamin A deficiency paralleled the severity of the tuberculosis.

12. Davies, A. W., and Moore, Thomas: Vitamin A and Carotene: The Elimination of Vitamin A from the Livers of Rats Previously Given Massive Doses of Vitamin A Concentrate, Biochem. J. **29**: 147, 1935.
13. Clausen, S. W.: Limits of the Anti-Infective Value of Provitamin A (Carotene), J. A. M. A. **101**: 1384 (Oct. 28) 1933.
14. Drummond, J. C.; Bell, M. E., and Palmer, E. T.: Observations on the Absorption of Carotene and Vitamin A, Brit. M. J. **1**: 1208 (June 15) 1935.

CONTRACEPTIVE METHODS

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Medical literature records that contraceptive methods have been used since about 2000 B. C.,[1] and evidence is at hand to the effect that even preliterate societies were familiar with such practices. The latter were confined chiefly to abortion and infanticide as a means of birth control, but magic rites were also performed by the medicine men. Primitive peoples also made tampons of roots, seaweed, rags or chopped grass and pills of tannic acid or opium, which they inserted as contraceptives; seed pods were used by them to serve as female condoms.

Among the earliest Egyptian records, notably in the Petri papyrus (1850 B. C.), prescriptions compounded as contraceptive aids contained "crocodile dung and ant paste, and honey." In the Ebers papyrus, prolonged lactation was encouraged for proper spacing, and the first reference to the use of a lint tampon for prevention of conception is to be found. A prescription for acacia tips, honey and lint to be inserted into the vulva is also recorded there.

Coitus interruptus and the use of sponge are referred to in Talmudic writings and in Aristotle's "Historia Animalium" (2 B. C.), the use of oil of cedar, ointment of lead or frankincense commingled with olive oil smeared on the cervix is described. Medicated pessaries of peppermint and honey inserted before coitus and pepper introduced afterward were methods advised by Dioscorides. Soft wool inserted into the cervical canal was one of many methods described by Soranos. Vinegar, one of the most widely used of the present day household remedies, was first mentioned in the literature of the sixth century in connection with astringent preparations such as alum, pomegranate and nutgall for prevention of conception.

Among the Chinese "Complete Collection of Valuable Prescriptions for Women," first published in 1237, quicksilver, gadfly and medicinal leeches taken internally were recommended both for contraception and for the production of abortion. A pill made of quicksilver fried a whole day in oil and taken on an empty stomach was said to result in permanent sterility without incurring bodily injury. A preparation of white lead was given prostitutes each month to suppress the menses and prevent impregnation.

In India a number of methods were used, varying from the practice of coitus obstructus to the drinking of sour rice water on certain days of the month and the precoital insertion of rock salt dipped in oil. There also one finds reference to the postmenstrual fumigation of the vagina with neemwood smoke to prevent pregnancy, and smearing it during menstruation with Palasha seeds mixed with honey and ghu.

Condoms probably had their origin in Japan, and examples of both hard and soft sheaths (tortoise, horn and thin leather) have been preserved to our day. Rubber condoms were introduced in Japan in 1871 after the process of the vulcanization of rubber became known. Women, chiefly prostitutes, inserted bamboo tissue paper tampons or disks of oiled paper into the vagina for contraception.

Islamic methods included along with many medicinal prescriptions for both male and female the practice of

1. Himes, N. E.: Medical History of Contraception, Baltimore, Williams & Wilkins Company, 1936; J. Contraception **2**: 99 (May) 1937.

coitus interruptus (withdrawal) and also the use of the "safe period." The latter, however, was a reversal in time of the present day theory. The use of suppositories of doe rennet or of elephant dung and honey were also among their methods.

In all sections of the world during the Middle Ages, various magic methods were in practice, but Himes

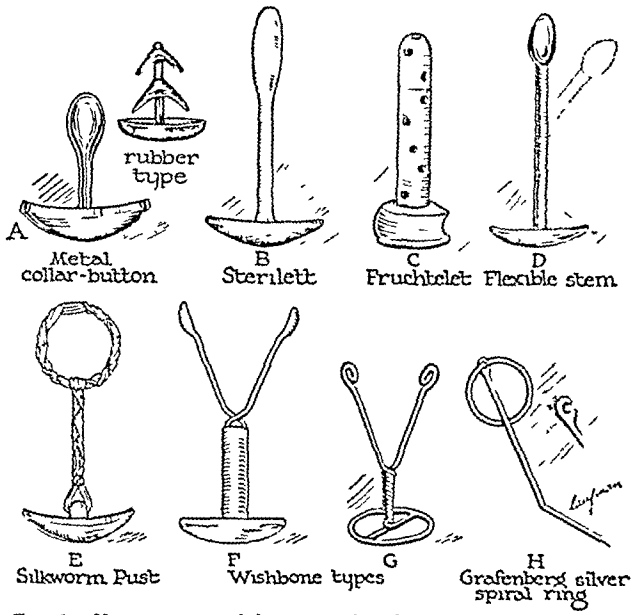


Fig. 1.—Various types of intracervical and intra-uterine contraceptive devices (adapted from Dickinson and Bryant and modified)

says that their effectiveness was probably very limited. It was a common belief that the seeds of fruitless trees, used medicinally, produced fruitlessness, the analogy being quite obvious.

In England, a year before the epochal essay of Malthus was published (1797), Bentham advised the use of the sponge tampon for contraception in order to reduce the British poor rates.

Many physicians feel that the present interest in contraception is either a temporary wave of reform or a social and economic problem peculiar to the tempo of modern times. But it is obvious from the foregoing that contraception was known and practiced by every race and civilization, from primitive savages who depended on tabus, magic and infanticide, down through the ages to the twentieth century. It now becomes our task to evaluate the methods which have persisted and those which have been evolved in our day. There is a definite need to inform the medical profession of the facts.

In this communication, purely physical methods will be considered. Various types of mechanical contraceptives have been developed. For intra-uterine use there are such devices as stems and rings, and as intracervical contraceptives there are buttons, stems and tubes, and combinations of rings and stems have been employed for many years. In addition, there are cervical caps and cups, vaginal occlusives, such as diaphragms, tampons and sponges, condoms or sheaths of both male and female types, and glans condoms. Some methods of contraception combine the use of some of the physical contrivances mentioned with chemical agents such as jellies, suppositories, tablets, powders and douches. The latter may also be used alone. For the purposes of this contribution, discussion will be limited to those methods which are to be condemned as contraceptives because of their possible harmful effects.

INTRACERVICAL AND INTRA-UTERINE DEVICES

Stem Pessaries.—Intracervical and intra-uterine stem pessaries used for contraceptive purposes claim the advantage of requiring but a single introduction by the physician and may be left for months or years. They are intended for long protection and do not require the cooperation of the patient. They need be removed only in case of bleeding or purulent discharge, pain or fever, and in the event of pregnancy.

The stem pessary had its origin in a device known as a "uterine elevator" (1863) for the correction of retroversion. This pessary was soon replaced, however, by a stem or tube calculated to facilitate conception by straightening the uterine canal and thus aiding the passage of spermatozoa to the fallopian tubes. Subsequently a split spring stem was developed for intra-uterine use in order to discourage implantation of the ovum. These contraptions, according to Dickinson,[2] while successful in skilled hands, resulted in many infections and in occasional deaths. The vaginal corrective pessary gradually replaced the "elevator" in the treatment of retroversion, and long uterine stems were shortened and modified in an attempt to obviate the inflammatory complications which attended their use.

Stem pessaries are made of heavy metal, such as gold and silver, and also of aluminum alloy, hard rubber, bone and even glass (Baldwin) and are chiefly employed by physicians for the treatment of sterility, dysmenorrhea, acute anteflexion of the uterus and hypoplasia.

At first, stems were held in place by means of a vaginal pessary and later were attached to caps or buttons which fitted over the external os. Some stems were split into Y or V shapes so as to be more effectively retained. The types of stems in use are often designated as collar-button, mushroom, butterfly, wish-

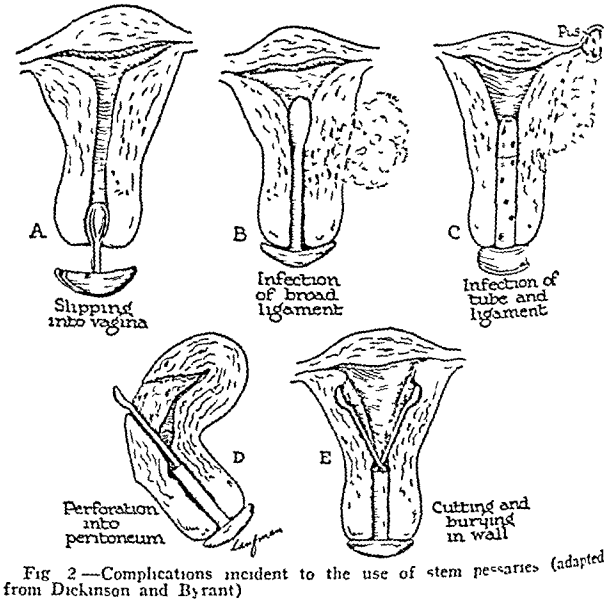


Fig. 2.—Complications incident to the use of stem pessaries (adapted from Dickinson and Byrant)

bone or Y-shaped stems, and specific instruments were known as the Sterillett, Fruchtelet and the Pust pessary; the latter consists of a ring of silk worm gut twisted into a stem which is attached to a glass button. The various types mentioned are illustrated in figures 1 and 2.

Although the use of the stem pessary has been largely discontinued by the medical profession because of

2. Dickinson, R. L., and Bryant, L. K.: Control of Conception, Baltimore, Williams & Wilkins Company, 1931.

uterine injury and pelvic infection (7 per cent according to Rawls [3]), there still appear to be some champions of these devices. Weir,[4] for example, reported recently a satisfactory experience of more than fifteen years' employment of the stem for the cure of dysmenorrhea. He did not use it as a contraceptive, however, as he believes that there are more satisfactory and less risky methods available. Weir inserted the stem pessary in 318 patients, in 91 per cent of whom the instrument was left for at least six months. While no complication appeared in the majority of cases, twenty-five patients had to have the pessary removed because of bleeding, cramps or both, one because of vaginal irritation and two for apparent pelvic infection. One of his patients became pregnant while wearing the stem and continued satisfactorily for two months after its removal, when abortion occurred after a fall. Kennedy, in discussing Weir's paper, stated that he has discontinued the use of the intra-uterine stems since he was obliged to operate on two patients for tubal infection following the insertion of the stem pessary for dysmenorrhea. Gellhorn [5] stated that he had used intra-uterine stems in hundreds of cases for relief of obstructive dysmenorrhea and sterility, and also for infantilism, with good results. However, these reports are counterbalanced by an increasing number of histories of serious pelvic infection and quite a few deaths resulting from this practice. Robert Frank [6] is of the opinion that carcinoma as well as uterine and cervical infection may be traced to the use of these devices and reports that Neugebauer collected reports of six cases in which neglected pessaries caused irritation on which cancer developed. Of course there is no proof that the pessary was the direct cause of the malignant condition.

In my own experience, operation was required in a patient for a unilateral tubo-ovarian abscess which resulted from the use of a Y-shaped silver stem inserted by a physician one year previously as a contraceptive. When bleeding and fever developed, the physician removed the stem. The pelvic inflammatory disease continued and an abscess formed, necessitating surgical intervention.

According to Curtis [7] the metal cervix pessary causes endometritis and obstruction to drainage, resulting in widespread pelvic infection. He also states that pelvic cellulitis may develop from a lost stem, which frequently works its way upward into the uterus and produces a foreign body infection. Furthermore, stems may perforate the uterine wall or become embedded and so create a pathway for the ascent of bacteria into the uterus. Sussex [8] reported a case in which hysterectomy was required because of perforation by a gold stem pessary. Cooper,[9] after discussing the use of various intra-uterine stems and stating their disadvantages, warns that numerous infections and some deaths have been reported. Warner [10] also stresses their dangers.

Pregnancy may occur in the presence of an intracervical pessary and, according to Norman Haire,[11] if such a device remains longer than one month it is likely to cause abortion; such abortions are often accompanied by sepsis. He describes a variety of pessaries which are utilized for contraception and particularly condemns the use of the Fruchtelet. All these devices, he says, exert a centrifugal pressure on the uterine walls, which after some time produces necrosis and ulceration. He regards the stem as a dangerous instrument, for he has never seen a case in which its presence was not accompanied by a pathologic condition. Abscess of the uterus and tubes and fatal peritonitis have been observed. In a case in which the "gold pin" had ulcerated through the wall of the uterus, hysterectomy was required.

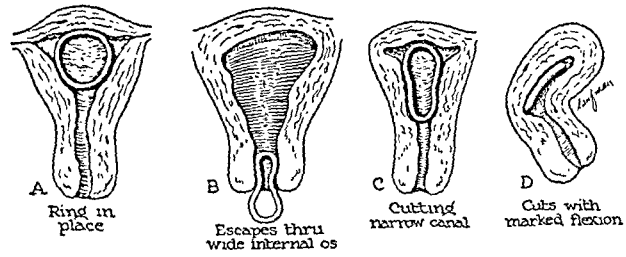


Fig. 3.—Gräfenberg intra-uterine contraceptive ring (adapted from Dickinson and Byrant).

Siddall [12] comments that it is not uncommon for a physician to be called to treat an illness resulting from the use of the intra-uterine pessary. He described a case in which he had difficulty in removing one of these pessaries because the cervical tissue had grown into the openings of the button. The patient was two weeks overdue when severe bleeding associated with high fever occurred. He mentions the cases reported by Rübsmen and Richter and by Royston, who removed pessaries during early pregnancy for like reasons, and states that in Kehrer's opinion if a stem pessary is inserted (accidentally?) during early pregnancy and is left for one week it may cause endometritis, resulting in salpingitis, parametritis, pelvic peritonitis and even death.

According to Dickinson and Bryant,[2] the two types of stem pessary which are chiefly responsible for the inflammatory complications and deaths are the "Sterillett" and the "Fruchtelet." These authorities have collected statistics on the morbidity and mortality incident to the use of such devices and report that, among others, Gummert collected records of ninety-two pregnancies which supervened in spite of the presence of the stem. Abortion occurred in seventy-eight cases, 80 per cent of which were septic; there were thirty-seven cases of peritonitis and seven perforations. They also quote D. P. Smith, who recorded two deaths from general sepsis resulting within two weeks of the insertion of wishbone pessaries by a general practitioner. Reist collected reports of 381 cases in which there were seventeen deaths from general peritonitis or sepsis, eight of which, however, were from stems deliberately inserted to produce abortion. Among the complications noted were nine perforations, forty-four cases of peritonitis and sixty-two septic abortions.

Intra-Uterine Rings.—A type of intra-uterine device, known as the Gräfenberg ring (fig. 3), has been extensively employed abroad for a number of years as a contraceptive. Three types of rings were utilized—a star of silkworm gut, a circle of silkworm gut and, finally, a spiral silver ring. The ring is inserted into

3. Rawls, R. M.: Am. J. Obst. & Gynec. **1**: 499 (Feb.) 1921.
4. Weir, W. H.: Am. J. Obst. & Gynec. **33**: 291 (Feb.) 1937.
5. Gellhorn, George: Gynecological and Obstetrical Monographs, New York, Appleton-Century Company, Inc. **14**, 1931.
6. Frank, Robert: Gynecological and Obstetrical Monographs **12**: 128, 1931.
7. Curtis, A. H.: Textbook of Gynecology, Philadelphia, W. B. Saunders Company, 1930, pp. 52, 293; Obstetrics and Gynecology, W. B. Saunders Company **2**: 550, 1933.
8. Sussex, L. T.: Penetration of the Uterus by Gold Stem Pessary, J. A. M. A. **100**: 1490 (May 13) 1933.
9. Cooper, J. F.: Technique of Contraception, Day-Nichols, 1928.
10. Warner, M. P.: Dangers of Gold Stem Pessaries, M. Rec. **142**: 69 (July 17) 1935.
11. Haire, Norman: Birth Control Methods, London, George Allen & Unwin, Ltd., 1936.
12. Siddall, R. S.: Am. J. Obst. & Gynec. **8**: 76 (July) 1924.

the uterine cavity after dilation of the cervix to number 5 or 6 Hegar, and the presence and location of the ring must be checked up from time to time by means of the uterine sound or by x-ray examination. The occurrence of bleeding or pain necessitates removal of the ring, a procedure more difficult than its introduction. On the other hand, the ring may slip out accidentally and unobserved by the patient, thus entirely defeating its purpose. It may become displaced. In its presence normal pregnancy rarely occurs, but ectopic pregnancy is in no way prevented by the ring.

According to Robert Meyer, who examined the endometrium of fifteen patients who wore the ring one year or longer, no inflammatory change is produced by its presence. Stefko and Lurié [13] have shown that when pregnancy does occur with the ring in the uterus the embryo may be injured, resulting in deformed children. Leunbach [14] of Copenhagen at first reported favorably on the use of the silver Gräfenberg ring but in 1930 withdrew his endorsement. In 12 per cent of his patients, bleeding and pain required its removal.

Gräfenberg,[15] the originator of the ring, who has used it for many years, had ninety-nine bad results in 1,081 cases, but less in the case of the silver ring than when silkworm gut was used. Thirty-one pregnancies occurred in his series, four of which took place while the ring was in the uterus and twenty-seven after the ring had been lost. Thus failures occur in about 3 per cent of patients. Inflammation occurred in seventeen patients; furthermore, replacements had to be made in 408 cases from one to eight times, a total of 1,390 instances. No mention is made in the literature of malignant conditions resulting from the use of these intra-uterine devices. In cases in which inflammation occurs, one would expect sterility as a sequel.

Green-Armytage [14] reported a case in which pregnancy took place in the presence of the ring, which had been inserted six months previously; the ring became embedded in the chorion, causing pain, discharge and fever. Cregan [15] observed a patient who became pregnant while wearing a Gräfenberg ring; septicemia developed following otitis media, and abortion ensued. Andrews,[16] in an article entitled "Migrating Gräfenberg Ring," was required to perform vaginal hysterotomy when the patient was four months pregnant for removal of the ring, which had become embedded in the wall of the cervix beneath the bladder reflection. Murphy [17] found a Gräfenberg ring in the broad ligament during laparotomy; a normal pregnancy was present at the time. Carleton and Phelps [18] experimented with Gräfenberg rings on rabbits and concluded that the devices should be made of gold rather than of silver, since the latter become brittle and are liable to break owing to the slow formation of silver sulfide. They observed no hypertrophy or inflammatory changes in the endometrium due to the presence of the ring but they did note flattening and irregularity in the shape of the cells in the grooves in which the ring lay, accompanied by pressure atrophy of the adjacent glands.

The Gräfenberg ring has not enjoyed extensive popularity in this country, and Dickinson has shown that in order to use such a device intelligently one must first have an accurate picture of the uterine cavity such as may be obtained by x-ray examination after instillation of iodized oil or other contrast mediums, for there are many variations in size and shape of the uterine cavity in the normal individual.

There are very few justifiable uses for the stem pessary at the present time, one of these being its insertion following cervical amputation, to prevent stricture. In this instance, however, the necessity for its use is limited to but a few weeks. In spite of the satisfactory experiences of Weir, Gellhorn and others, its use for other conditions, such as dysmenorrhea, has been largely discontinued by gynecologists. The use of intra-uterine and intracervical stem pessaries for contraceptive purposes is to be condemned, since it has been shown by the numerous reports quoted that not only do failures occur but serious damage frequently results to the pelvic organs. Cases of endometritis, parametritis, salpingitis, perforation and peritonitis are cited, and even deaths have occurred.

In the case of the intra-uterine ring complications are less likely to occur, but repeated observations are required to ascertain the proper location of the ring, either by means of x-ray examination or by intra-uterine instrumentation. Pregnancy has occurred in its presence and complications have been reported from this source. Bleeding and cramps may require removal, which at times is somewhat difficult owing to the flexibility of the device.

310 South Michigan Boulevard.

13. Cited by Dickinson and Bryant.[2]
14. Green-Armytage, V. B.: Brit. M. J. **1**: 13 (Jan. 2) 1932.
15. Cregan, G. T.: Brit. M. J. **1**: 237 (Feb. 6) 1932.
16. Andrews, C. J.: Migrating Gräfenberg Contraception Ring, J. A. M. A. **107**: 279 (July 25) 1936.
17. Murphy, Margaret C.: Lancet **2**: 1369 (Dec. 16) 1933.
18. Carleton, H. M., and Phelps, H. J.: J. Obst. & Gynaec. Brit. Emp. **40**: 81 (Feb.) 1933.

INTRAVESICAL ROENTGEN THERAPY OF CANCER OF THE URINARY BLADDER

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During the past decade, x-ray therapeutists in this country have been especially interested in the development of supervoltage roentgen therapy. In Germany, however, where the cost of radium is prohibitive, physicists and radiologists have devoted some attention to the construction of low voltage x-ray machines for therapy in attempts to approximate the same conditions obtained in radium treatment. The superior value of radium as it is generally used in the treatment of cancer cannot be attributed to a more selective action of the gamma rays than of x-rays on cancer cells but rather to the fact that the radium-skin distance is short and that most of the energy is absorbed in the tumor and tumor bed. Radium has given excellent results in the treatment of superficial cancers because of this characteristic distribution of the dose in tissues. The effect obtained from interstitially placed radium element needles or radon seeds in proper dosage has approached the ideal requirement, namely the destruction of all cancer cells with the least destruction of the normal surrounding tissues. With interstitial radium or radon seeds the source of the radiation is in the tumor itself, and because of the inverse square law there is a rapid

From the Josephine Lendrim Tumor Clinic, Paterson General Hospital, Paterson, N. J.

decline in the effect of the dose, and the surrounding tissues are damaged only slightly. The use of radium, however, involves expense and complicated technic in application and presents some difficulties in the protection of surrounding normal tissues. These disadvantages have stimulated the attempts to find an x-ray

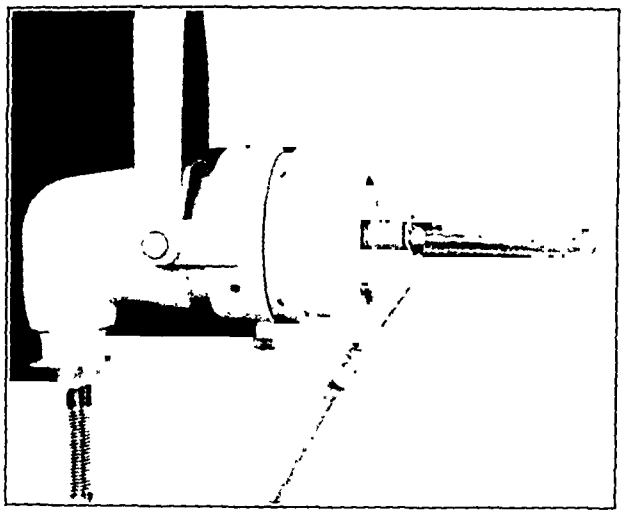


Fig. 1.—Chaoul x-ray tube for low voltage contact or short distance roentgen therapy.

tube which would combine the advantages of radium dose distribution and the economy, efficacy and convenience of the x-rays.

DESCRIPTION OF CHAOUL ROENTGEN APPARATUS

Special x-ray tubes furnishing a dose distribution similar to radium were designed many years ago and then abandoned because of technical difficulties concerned with the prevention of shock to the patient. These difficulties were subsequently overcome and the short distance or contact x-ray method was developed.

Schaefer and Witte of Göttingen, Germany, experimented in 1929, using a Lenard tube and cathode rays only; they later added a metal filter over the tube opening which did not permit the emergence of the cathode beam and served as the anode. They were interested in the radiation therapy of gynecologic neoplasms, which are usually situated deeply, so they designed an apparatus operating with 90 to 100 kilovolts and 4 milliamperes. The thin copper filter or transmission anode was plane, planoconcave or planoconvex to modify the shape and focal sharpness of the emergent beam.

Chaoul of the Charité surgical clinic, Berlin, designed an apparatus for low voltage, short distance or contact roentgen therapy. This apparatus is essentially limited to a voltage range of 50 to 60 kilovolts with a filtration of 0.2 mm. of copper. The anode is so placed that the tube operates at contact or at from 3 to 5 cm. target-skin distance. It has applicators or cones of various sizes and shapes to place against the cancers to be treated. These attachable cones are small and can therefore be placed in the various cavities of the body. The Chaoul x-ray machine is necessarily shock proof.

PRINCIPLES OF CONTACT OR SHORT DISTANCE ROENTGEN THERAPY

The short distance or contact x-ray treatments make possible the delivery of doses to the tumor sufficient to disintegrate tumor cells and yet spare the healthy surrounding tumor bed by using small fields sharply localized about the tumor. It furnishes limitation of depth effect by producing a steep energy gradient. The latter is obtained by decreasing the target-skin distance and the voltage delivered to the tube. With this apparatus a soft x-ray beam is utilized, and these rays are absorbed in the superficial tissues. For contact application the dosage rate is approximately 800 roentgens per minute; for a target-skin distance of 3 cm. it is approximately 88 roentgens per minute, and for a target-skin distance of 5 cm. it is approximately 36 roentgens per minute. The intracavitary beam of low voltage x-radiation is restricted to the desired areas with an accuracy that is not possible even with radium. It obviates the necessity of all the unsatisfactory protective devices necessary when radium is used. This apparatus, of course, does not take the place of radium for all types of applications. It has only a specialized usefulness. Chaoul recommends contact therapy for any superficial tumor. The use of this method has been extended to include all tumors that could be made accessible by a surgical procedure.

PRINCIPLES OF INTRAVESICAL ROENTGEN THERAPY (AUTHORS' METHOD)

Heretofore the routine method in the treatment of carcinoma of the bladder has been cystotomy, endotherm excision with a snare of the tumor if it is papillary and interstitial implantation of radon seeds into the base of the cancer. This was followed usually by external high voltage roentgen therapy.

The authors conceived the idea that this scheme of treating bladder carcinomas might be improved on by making the cancer of the bladder accessible not for a short time but over an extended period and by treating the cancer thus exposed by repeated fractionated doses

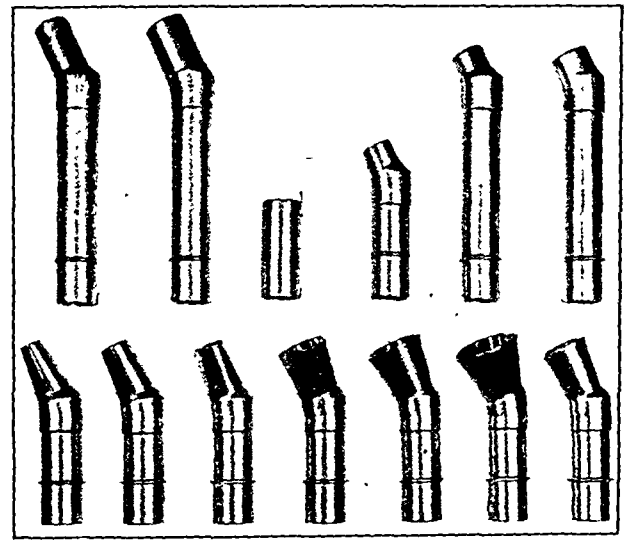


Fig. 2.—Cone attachments showing ports of various sizes and shapes. These cones may be sterilized and placed in position before the x-ray tube is inserted.

of low voltage x-rays applied at short distances. By use of the Chaoul low voltage x-ray outfit, a maximum amount of radiant energy is delivered directly to the cancer with the least amount of injury to the adjacent healthy bladder. This method further obviates the intense reaction and damage to the skin which results from the use of external high voltage x-rays. The method of treatment devised by us consists of (*a*) marsupialization of the bladder, (*b*) endotherm excision

of the bulk of the cancer when possible and (*c*) maintenance of an opening into the bladder so that the low voltage Chaoul tube may be repeatedly inserted against the cancer at the base of the bladder. Our brief experience with this method has convinced us that it has many advantages and no apparent contraindications or disadvantages.

ADVANTAGES OF INTRAVESICAL ROENTGEN THERAPY IN CANCER OF THE BLADDER

The advantages of intravesical roentgen therapy in cancer of the bladder are the following:

1. Ease and accuracy of application.
2. That the dosage delivered is almost the amount of dosage received by the tumor itself, in contradistinction to other methods of irradiation.
3. Sharp limitation of radiation effect to the cancer.
4. Minimum damage to surrounding healthy tissues.
5. That accessibility of the cancer can be maintained for an indefinite time, thereby allowing constant observation of the cancer and the degree of regression, permitting changes in the upper limits of dosage.
6. Freedom from radiation sickness.
7. Quicker and more comfortable convalescence.
8. Reduction of incidence of bladder infection and, because of the exposure, more satisfactory treatment of the infected bladder.

TECHNIC OF MARSUPIALIZATION OF THE URINARY BLADDER

The technic of marsupializing the bladder is as follows: A midline incision, starting about one-half inch above the symphysis pubis and extending for about



Fig. 3.—X-ray tube in position in urinary bladder through a marsupialized cystostomy.

4 inches toward the umbilicus, is made through the skin and fascia. The rectus muscles and fascia are separated in the midline and the bladder, which has previously been distended with water, is approached. The peritoneum is reflected by means of the index finger of the right hand, covered with wet gauze, from its lowermost attachment up to the highest point possible in the front of the bladder. The peritoneum and prevesical space as well as the sides are covered with moist laparotomy pads and retractors placed over them, giving a good exposure of the bladder. The bladder wall is grasped by two Allis clamps at a point just below the reflected peritoneum. A trocar is then intro-

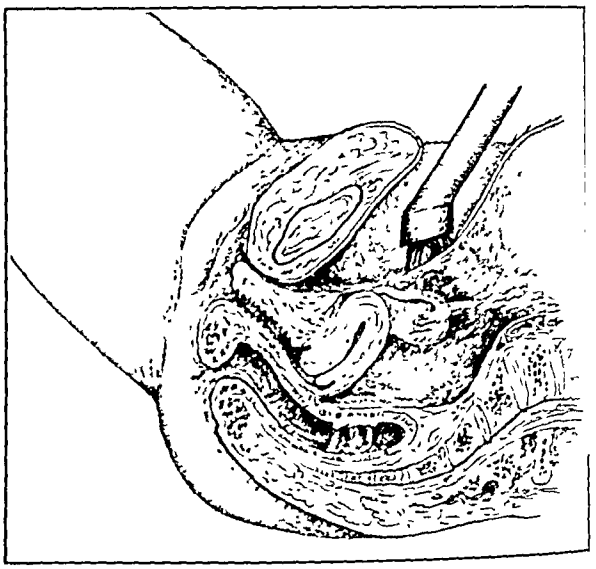


Fig. 4.—Diagrammatic sagittal view of x-ray cone in position

duced into the distended bladder and most of the contained fluid drained. The edges of the opening made by the trocar are now grasped by Allis clamps, which hold the mucosa as well as the muscle. An aspirating tube is then introduced through the cystotomy opening to withdraw the remaining fluid in the bladder. The opening in the bladder is now enlarged downward and wire retractors are inserted so that the interior of the bladder can be well visualized. At this time, if it is possible and the tumor is bulky, it is excised at its base by the cutting current of an endotherm snare. The bleeding is stopped by bipolar endotherm coagulation. The edges of the opening in the bladder are now sewn to the skin and rectus fascia by chromic catgut sutures. A large Marion drain 28 mm. in diameter, about which is wrapped sterile gauze moistened with sterile olive oil, is left in the marsupialized bladder. A thick dressing is then applied to the wound to absorb any excessive moisture. Petrolatum gauze is placed around the wound to protect the skin. The Marion drain is then connected with a rubber tube leading to a sterile bottle attached to the bed.

Four or five days is now allowed to elapse to insure a definite anchoring of the bladder wall to the abdominal wall. The patient is now ready for the intravesical insertion of the Chaoul x-ray tube.

TECHNIC AND DOSAGE OF INTRAVESICAL ROENTGEN THERAPY

The patient is given one-fourth grain (0.015 Gm.) of morphine sulfate one hour before the treatment is begun. For the first few treatments until the wound is well healed this narcosis may be supplemented by small doses of sodium evipal or avertin with amylene hydrate administered rectally. The wound on the abdominal wall is draped, and sterile precautions are taken. The Marion drain is now removed. Sterile gloved fingers are then inserted into the bladder and the cancer is

carefully palpated. A cone is chosen which will adequately cover the entire cancer. The cones to be attached to the Chaoul tube permit a target-skin distance of from 3 to 5 cm.; the selection of one or the other depends on the thickness of the cancer. It should be remembered here that not only the attached cones are within the bladder cavity but also the x-ray tube itself; the roentgen rays in fact are generated in the tube within the bladder at a distance of only 3 to 5 cm. from the cancer. The cone is placed in the desired position and the tube stand is manipulated so that the anode end of the tube can be slipped into the open end of the cone. The treatment is now ready to begin. The optimal fractional doses have not yet been found, but 2,500 roentgens have been given every other day. The bladder is kept open and the cancer is palpated at the time of each treatment in order to determine the degree of regression. It has been found that nine or ten treatments over a period of eighteen or twenty days for a total dosage of 22,500 or 25,000 roentgens has caused satisfactory regression. The total dose will naturally depend on the degree of regression observed.

At the conclusion of the roentgen treatments the marsupialization is maintained for frequent palpation of the bladder wall. When it is definitely decided that sufficient radiation has been delivered to the tumor area and the patient's condition warrants it, a secondary operation is performed for the replacing of the bladder in its normal position and closure of the wound of the abdominal wall.

The technic for this secondary operation is as follows: The marsupialized bladder is separated from the skin and rectus fascia and dropped down into the pelvis. The bladder wound is sewn about a mushroom catheter. The abdominal wall is now repaired as for a hernia. The suprapubic tube is left in the bladder until the patient voids. After the eighth day the suprapubic tube is clamped; after the patient voids for twenty-four hours with the tube clamped, the tube is removed.

REPORT OF ILLUSTRATIVE CASE

A woman aged 67 came to the clinic complaining of hematuria of several weeks' duration. A cystoscopy was done and a specimen for biopsy was obtained. Pathologic examination of the tissue removed revealed epidermoid carcinoma, grade 3. A granular, friable, fungating tumor was found on the left side of the bladder wall near the trigon. It measured about 2 by 2 cm. in diameter. Shortly after cystoscopy the bladder was marsupialized and the fungating bulk of the tumor was removed by an endotherm snare. After adequate anchorage of the bladder wall, intravesical roentgen therapy was begun. The low voltage roentgen treatments were given every other day with a target-skin distance of 3 cm., 0.2 mm. copper filtration, and 60 kilovolts. Twenty-five hundred roentgens was given with each treatment. The time for each of these treatments was twenty-nine minutes. Nine such treatments were administered for a total dosage of 22,500 roentgens. The induration of the bladder wall subsided steadily and at the time of the secondary closure of the bladder, two months after the first operative procedure, no evidence of the tumor could be found. The patient has since been kept under careful supervision and is symptom free except for slight frequency of urination.

SUMMARY

In recent years Schaefer,[1] Witte and Chaoul [2] have developed efficient shock-proof apparatus for low voltage roentgen therapy which can be given at the relatively short target-skin distances of 3 and 5 cm. or, if desired, by actual contact of the tumor with the anode or target that transmits the beam. Chaoul has extended the applicability of this method from accessible cancers, e. g. the oral cavity, the skin and cervix uteri, to cancers of the rectum made accessible by surgical procedures. One of us (G. T. P.) conceived the idea of applying this principle to the treatment of carcinomas of the bladder. The principle of marsupialization of the bladder over an extended time to permit fractionated doses of low voltage x-rays to be applied through intravesical cones is new. Although the experience with this method is necessarily limited and the time after treatment is too short to evaluate its curative value, it seems at this time to offer a distinct improvement over the previous methods of treating carcinomas of the bladder.

1. Schaefer, Walter: Zentralbl. f. Gynak. **61**: 22-24 (Jan. 2) 1937.
2. Chaoul, Henri: Strahlentherapie **53**: 202 (June 29) 1935.

CEREBRAL COMPLICATIONS FOLLOWING LIGATION OF THE CAROTID ARTERY

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Ligation of the carotid artery has been used over a considerable period as a therapeutic measure for a variety of serious craniocerebral conditions. Originally it was used as an emergency measure in an effort to control severe hemorrhage following lacerations of the great vessels of the neck and head (Pilcher and Thuss [1]). During the middle years of the nineteenth century it was attempted for the purpose of relieving the then incurable cerebral disorders, as for example intense trifacial neuralgia and chronic epilepsy. However, the mortality was high and the permanent residual symptoms of recovered patients serious. Consequently the operation was discarded.

In the past thirty years, with the increasing safety of surgical measures, the procedure has been reintroduced, particularly in the treatment of arteriovenous aneurysms, either anomalous or traumatic (Campbell and Martin,[2] Gutmann [3]). In certain instances ligation of the vessels has been carried out for peritonsillar (Greenfield [4]) and nasal hemorrhage. Frequent cranial trauma leads to occasional arteriovenous communication between the external carotid artery and the cavernous sinus, and the resulting pulsating exophthalmos becomes the most common indication for carotid ligation (Kolodny [5]).

The seriousness of carotid ligation was stressed by Pilcher and Thuss, who concluded from their extensive review of the literature that in from 20 to 25 per cent of patients who survive the operation cerebral complications develop. Matas [6] found but 11 per cent

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A preliminary report of this paper was read before the Cleveland Neurologic Society, Wednesday, March 17, 1937.

1. Pilcher, Cobb, and Thuss, Charles: Cerebral Blood Flow: Cerebral Effects of Occlusion of the Common and Internal Carotid Arteries, Arch. Surg. **29**: 1024 (Dec.) 1934.
2. Campbell, J. L., and Martin, J. D.: Pulsating Exophthalmos: Treatment by Partial Ligation of Internal Carotid, J. A. M. A. **99**: 1683 (Nov. 12) 1932.
3. Gutmann, J. H.: Surgical Aspects of Pulsating Exophthalmos, Internat. J. Med. & Surg. **48**: 259 (July-Aug.) 1935.
4. Greenfield, S. D.: Ligation of the External Carotid Artery for Peritonsillar Hemorrhage, Laryngoscope **43**: 929 (Nov.) 1932.
5. Kolodny, Anatole: Pulsating Exophthalmos, Am. J. Ophth. **15**: 327 (April) 1932.
6. Matas, Rudolph, in discussion of Dandy.[7]

showing serious cerebral sequelae. Dandy[7] urges caution in this procedure with any patient over 30 years of age.

Recently we have had the opportunity of studying the neurologic complications following such ligation, to observe the clinical course and ultimately to examine the brain post mortem. Our data may be of interest.

REPORT OF CASE

History.—K. L., a man aged 37, was admitted to the wards of Lakeside Hospital in November 1936, because of right hemiplegia of three months' duration. In 1924 he had undergone appendectomy for a gangrenous appendix. At that time also he had had several inches of his ileum removed because of tuberculous enteritis.

The present illness occurred abruptly in February 1936 when a profuse nasal hemorrhage from his left nostril developed during shaving. No known cause for the bleeding could be found. Despite intranasal packing and local applications, the bleeding continued. He was hospitalized, and although he received five transfusions in seven days the hemorrhage continued and his condition became critical. When all other measures had failed and the red blood cell count had fallen to 1,300,000, both the external and the internal carotid arteries on the left side were ligated. Two and a half hours after this procedure flaccid right hemiplegia with difficulty of speech and swallowing was noted.

The clinical course thereafter was that of chronic disease. He was unable to use his arm or leg, he could not express himself, and three months later convulsions developed.

Examination.—At the time of his first admission the patient appeared poorly nourished and apathetic looking. The significant abnormalities were entirely neurologic. There was complete right hemiplegia, with marked spasticity, muscular atrophy and hyperactive reflexes and associated confirmatory signs of involvement of the pyramidal tract. Sensory tests revealed diminution in pain, in temperature and in touch, with astereognosis on the right. There was marked aphasia. The blood pressure was 114 systolic and 64 diastolic, and laboratory tests, including a platelet count and determination of bleeding and of clotting time, gave normal results. Spinal puncture revealed normal fluid with an initial pressure of 120 mm. of water and a total protein value of 23 mg. per hundred cubic centimeters. The visual fields showed partial right homonymous hemianosia, affecting chiefly the lower quadrant.

It was felt that the patient had diffuse left cortical atrophy subsequent to his operation. His treatment was symptomatic, with physical therapy to the affected parts.

He was readmitted to Lakeside Hospital Sept. 13, 1937, because of weakness and loss of weight of four months' duration. He had had no return of function in his extremities, and atrophy of the muscles of the right shoulder girdle had developed. His speech, however, had improved somewhat and his convulsions become less frequent. The physical status on this admission was unchanged, with the exception of observations consistent with general loss of weight. All studies of the blood again gave normal results.

*Encephalographic study performed at this admission by Dr. Claude Beck was recorded as follows by Dr. Eugene Freedman: "The roentgenograms show a tremendous dilatation of the left lateral ventricle, which is approximately four or five times normal" (figs. 1 and 2). The diagnosis was marked atrophy of the left side of the cranium.

A battery of intelligence tests were given by our psychologist, Margaret R. Barnes. The results were as follows:

"Arthur point performance scale: chronologic age adult; mental age 8 years; intelligence quotient 53. Achievement Tests: (1) Metropolitan achievement test (primary I, form A grade equivalent): Word picture 2.1, word recognition 1.5, number concept 2.7. (2) Stanford achievement test (advanced examination form A): arithmetic: computation, educational age 9 years 5 months; grade placement 3.6.

"Comments: The Arthur scale rates the patient as having a low moron grade of feebleminded intelligence. He is handicapped on this test to the extent that some patients speed up their time scores by using both hands. Also he now uses his left hand, whereas he is normally right handed. However he has been using his left hand for about two years and should have reached maximum efficiency by this time.

"The school achievement tests were attempted for some indication of how much of his old learning he had retained. His ability to manipulate verbal concepts is decidedly limited. The word picture test asks that the patient connect the printed word with a picture. This he can do as well as a beginning second grader. The word recognition tests require that the patient pick out from several words very much alike one which is presented orally. This he does as well as a child beginning 1A grade. The third verbal test requires that he underline all the words among several which belong to a given category. He did not fail in this because he did not understand the directions as the trial tests were worked out correctly although with much more difficulty than is ever experienced with the normal first grade child. During the actual test he failed completely. It is interesting to note that with the ascent of probable abstractness of the task the patient failed progressively. The same tendency showed itself in the test of number concepts, although his retention has been better in this than in the verbal field.

"The Stanford achievement test was given first, and it was found that the patient has lost all memory of what the conventional symbols mean. When they were explained, he did computational problems as well as a child beginning 3A grade.

In considering the serious intellectual impairment which this test revealed, it is important to remember that prior to the ligation this patient had been a keen, active, successful business man of at least average intelligence.

Course.—Several months later a serious intestinal ailment developed, characterized by nausea, hiccups and diarrhea. The roentgenograms revealed a granulomatous lesion in the colon proved after resection to be tuberculous. He died on his second postoperative day of this condition, which was independent of the major neurologic disorder.

*Postmortem Examination (performed by Dr. C. H. Evans of the Institute of Pathology of Western Reserve University, with neuropathologic study by Dr. A. T. Steegman).—The cause of death as revealed by the autopsy was generalized acute peritonitis, with tuberculous foci in the peritoneum and lungs.

The brain weighed 1,400 Gm. Over the left frontal and parietal lobes an indentation in the cerebral cortex extended 11.5 cm. and averaged 2.5 cm. in width, running parallel and superior to the sylvian fissure and extending anteriorly to a point 3.5 cm. from the median longitudinal fissure. Over the indentation a cystic structure fluctuated with any motion of the organ. Transverse coronal section of the fixed brain (fig. 3) showed the ventricles to be uniformly dilated, but the left lateral ventricle was much larger than the right. An area of necrosis in the distribution of the left external portion of the sylvian artery extended forward almost to the left frontal lobe and involved three frontal convolutions; posteriorly it extended to the occipital lobe. Both white and gray matter were destroyed, but the cystic structure had not ruptured into the lateral ventricles. The temporal lobe was spared. Part of the outer portion of the caudate nucleus had been destroyed with extension to the external capsule. Posteriorly the region of the supramarginal gyrus was involved, with extension to the intermedial lateral aspect of the occipital cortex.

Degeneration of the secondary nerve tract was evidenced by marked reduction of the superior lateral aspect of the thalamus, the left side of the left peduncle and pons, the left inferior portion of the medulla and the right lateral columns of the upper cervical segment of the cord (fig. 4). In the circle of Willis, the left posterior communicans artery was entirely absent. The right posterior communicans artery was less than 1 mm. in diameter. The vertebral arteries were dilated, and a few atheromatous plaques were present over the intima. The lumen of the left internal carotid artery had been obliterated. The stump of the right showed moderate arteriosclerosis (fig. 5).

7. Dandy, W. E.: The Treatment of Carotid Cavernous Arteriovenous Aneurysms, Ann. Surg. 102: 916 (Nov.) 1935.

COMMENT ON THE OUTSTANDING CLINICAL SYMPTOMS

Personality and Mental Status.—According to the available history the patient had previously been a successful, well adjusted business man, well liked socially and loved at home. After the catastrophe he became moody, morose and irritable. Everything in the household upset him; the playing of his children disturbed him; situations in the home aroused him to outbursts of anger. On one occasion he made a gesture at suicide. In contrast to the difficult behavior at home, for the most part he smiled cheerfully at the hospital, cooperated well and acted pleased with his environment. He made friends with other patients and took cognizance of the activity in the ward. In the course of the neurologic examination he would observe keenly his reflex responses and the success or failure of various tests. At times he would make a gesture of disgust when he failed in certain performances. More frequently, however, he was inclined to ready laughter and appeared easily amused by certain remarks and procedures.

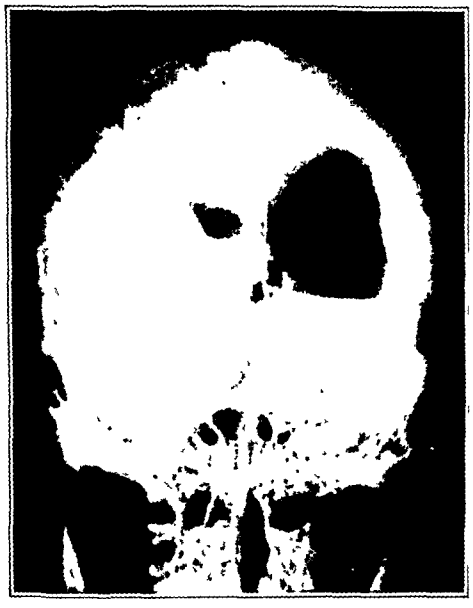


Fig. 1.—Anteroposterior encephalogram showing the tremendous dilatation of the left lateral ventricle, with slight displacement to the left. The picture shows clearly the "hydrocephalus ex vacuo."

Though unable to express himself, inner thinking appeared to harmonize with the situation. His mimicry and gestures were consonant with his apparent understanding of success and failure.

This general behavior would indicate a better mental capacity than was revealed by the intelligence tests. It is likely that these tests, which are dependent on verbalization, yielded a result lower than the deportment and conduct would indicate; also it is possible that emotional responses and cooperation may take place even with serious intellectual impairment.

The contrast between the serious personality disorder manifest at home and the apparently winsome personality in the hospital indicates the profound influence of the environment on behavior. It shows also that the deficit in what is expected may decide the behavior response. At home the patient, though an invalid, was still the head of the house; he could see difficulties and problems, or they were brought to his notice. As head of the house, he was expected to correct and supervise. Unable to perform this function, he would express disgust and explode angrily at the children. Such outbursts were the external evidence of being exasperated with his own helplessness. In the hospital his maximum duty was to take orders and cooperate. As he could perform this duty well, he was looked on as an ideal patient. His ability to perform what was expected evoked self satisfaction and made him a contented patient.

The rather free emotional display referred to as hyperpathy by Schilder [8] has been ascribed to a lesion in the pathways between the frontal lobe and the supramarginal gyrus.

The serious loss of intelligence revealed by the psychologic tests is explained by the total amount of brain tissue damaged plus the fact that the atrophy was in the dominant left hemisphere. As Weisenburg [9] has pointed out, patients who have had cerebral vascular accidents in the left hemisphere show more intellectual loss than those who have suffered a corresponding lesion in the right hemisphere. Apparently that portion of the brain entrusted with the responsibility of speech control has developed a more important intellectual function.

Many of the symptoms of this patient were similar to those in a case reported by Wortis.[10] However, his patient was confused and disoriented.

The Aphasia.—The most serious handicap which this patient presented was his inability to use language as a tool of thought. He would attempt to express himself in response to a question, but at first he would emit a sound which might be translated as "petee peton—petee, peton." Whatever he had intended to say was expressed only by the constant repetition of the words "petee, peton." The exact meaning of these sounds never came to light. The difficulty was not only with speaking; there was a corresponding inability to read and write; for example, if a simple command was written on a card, such as "raise your hand," he would



Fig. 2.—Lateral encephalogram. The markedly dilated left ventricle can be seen superimposed on the smaller right ventricle.

8. Schilder, Paul: Localization of the Body Image, A. Research Nerv. & Ment. Dis., Proc. **13**: 466, 1932.
9. Weisenburg, T. H.: The Study of Aphasia, Arch. Neurol. & Psychiat. **31**: 1 (Jan.) 1934.
10. Wortis, Herman: Ligation of the Common Carotid Artery, Arch. Neurol. & Psychiat. **36**: 894 (Oct.) 1936.

glance at the letters, run his fingers across them, smile and perhaps utter his usual "petee, peton" but would not understand the order. He was able to see, and did not show a primary visual defect, for he could recognize familiar objects; for example, if he was shown a picture of a street scene or instructed to point to an automobile, a tree or a child, he would do so promptly,



Fig. 3—Coronal section of the brain, showing severe atrophy of the left half with compensatory dilatation of the left lateral ventricle. Severe necrosis can be seen in the lower portion of the cortex at the island of Reil.

correctly and with a joyous expression at his successful performance. Writing was markedly restricted. He was able to write only his own name and a few numbers. Although he showed this serious expressive impairment, the receptive side of speech was better preserved. If he was asked a simple question, he would understand it and reply with a gesture of his head. If a written command, such as "raise your hand," was ignored and then spoken, he would respond quickly.

The preservation of the understanding of the spoken word has an anatomic basis, as can be seen in figure 3. The temporal lobe is little affected. The first temporal convolution (Heschl) is the center for the understanding of the spoken word. The intactness of this convolution in our case may be ascribed to the fact that some blood, sufficient to supply the superior temporal convolution, had reached this region by way of the anterior communicating artery to the middle cerebral artery. Also, as pointed out by Davison, Goodhart and Needles,[11] the function of the temporal convolution may have been maintained through an adequate collateral blood supply by the anastomotic branch of the posterior cerebral artery. Apparently the blood supply to this region was sufficient. The serious loss of the ability to read (alexia) is ascribed to damage of the angular gyrus. The agraphia was probably due to the general cerebral damage.

It may be interesting to point out that though the patient had marked difficulty in understanding words he seemed to enjoy melodies. His chief activity was to listen to the radio, and he would show by gestures that he enjoyed certain familiar arias.

Another explanation for the striking difference between his ability to understand the spoken word and his utter failure to comprehend the written word may be on a learning basis. A child learns the meaning of spoken words early, whereas it is not until the age of 6 years or later that he begins to read. Apparently learning to read is a more complex mechanism and requires a more developed cortex than is present at the age of 1 or 2 years. On the basis of the development it would be logical to expect that certain damage to the brain may cause alexia without producing sensory aphasia. This theory may be appropriate for our problem, though the observation is not uniform in other cases of aphasia. This view is explained in the thesis of Weisenburg[12] "In some patients the relatively simple *expressive mechanism* or receptive function seemed to be more disturbed than the higher and more complicated aspects of the language process." The problem as to whether the difference in the understanding of the written and the spoken word is due to a focal or a mass lesion is reflected in the literature on the subject. The opinion was expressed by Orton[12] that the entire brain is concerned in the production of speech, and he discouraged the tendency to exact localization. This concept was well explained by Schilder, who emphasized the view that function may be the result of the *total action of the brain, whereas a loss of function* may result from a single focal lesion. A homely and simple parallel may be offered in a study of the function of a chain. Obviously the actual pulling power of a chain is dependent on the total action of all the links. Yet the loss of a single link may completely disturb the entire function.

The attempt was made to improve the patient's speech through training, and some progress was made. In the course of months the patient learned to count 1, 2, 3, to pronounced the vowels a, e, i, o, u and to say O. K. However, after having reached this stage in the first six months, he did not achieve further advances. Apparently the amount of brain substance lost could not be compensated for.

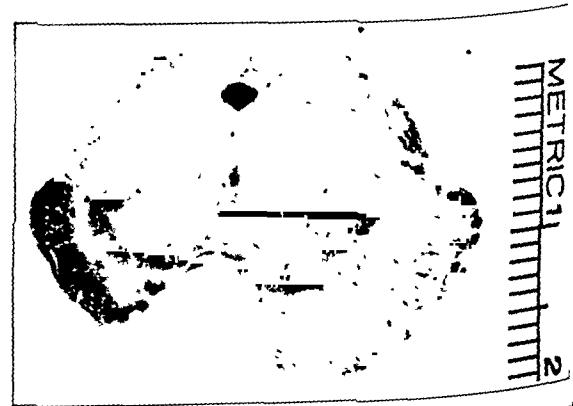


Fig. 4.—Section through the brain stem at the level of the aqueduct of Sylvius. Note the marked asymmetry of the cerebral peduncle secondary to the brain lesion.

The Convulsions.—A third serious symptom was epilepsy. *The patient had never suffered* attacks prior to the ligation but had some six convulsive seizures afterward. As well as one could determine these were generalized, and the patient gave no sign to indicate an aura nor was there a typical sequence, as occurs in jacksonian epilepsy. After treatment was started the patient was given phenobarbital, with a reduction in

11. Davison, Charles; Goodhart, S. P., and Needles, William: Cerebral Localization in Cerebrovascular Disease, A. Research Nerv. & Ment. Dis., Proc. **13**: 435, 1932.

12. Orton, S. T.: Some Studies in Language Function, A. Research Nerv. & Ment. Dis., Proc. **13**: 614, 1932.

the number of seizures. The occurrence of epilepsy shows that not one focus but a mass lesion may serve as a trigger area for attacks.

MECHANISM RESPONSIBLE FOR THE CEREBRAL SYMPTOMS

The clinical symptoms are the result of a loss of function of the left cerebral hemisphere, particularly the frontal and parietal lobes, with serious damage to the precentral and postcentral gyri. The involved area receives its blood supply from the middle cerebral artery entirely. We may reasonably conclude that a sudden loss of circulation resulted in cerebral anemia and subsequent encephalomalacia.

Dorrance,[13] in a comprehensive report dealing with ligation of the great vessels of the neck, mentions four possible mechanisms to explain cerebral catastrophes following the procedure:

1. *Anomalies and Variation in the Circle of Willis.*—The occurrence of cerebral anemia from an occlusion of a large vessel raises the question of the integrity of the anastomotic pathways of the circle of Willis. Theoretically one might postulate that, were the collateral blood supply adequate, no such anemia should result. There are many reports in the literature on the frequency of the peculiarities in the makeup of the blood vessel branches that compose this circle. Among 700 cases, Fawcett and Blackford [14] found a complete symmetrical circle in seventy-three, a complete but asymmetrical circle in thirteen and an incomplete circle in four. Windle,[15] among 200 cases, found a complete circle in eighty-three and an incomplete distribution in seventeen. Busse,[16] in the examination of 400 brains, found no instance in which the anterior communicating artery was missing and stated that when the posterior communicating artery was absent it was usually compensated for by other anastomoses. Homans [17] was unable to find in the literature any instance of death following ligation of the carotid artery in which an anomaly of the circle of Willis was present.

Animal experiments tend to show fairly free anastomosis in the brain. Friedemann and Elkeles [18] perfused dye materials through each of four nutrient arteries of the dog's brain while three others were tied and found all parts of the brain uniformly stained. Pilcher and Thuss used differences in arteriovenous oxygen tension to determine the effect of ligation of the great vessels on the cerebral flow of blood in dogs. They found no great differences until both carotid arteries were nearly occluded.

With reference to the intactness of the circle of Willis, it may be stated that the branches are of markedly different size. Whereas there is anatomic continuity between the vessels, the marked angularity and the different caliber of the vessels may be responsible for a reduced flow of blood in certain fractions of the brain; for example, the lumen of the middle cerebral artery appears as a direct continuation of the internal carotid artery. The posterior communicating artery is frequently a narrow vessel joining the middle cerebral artery at right angles. The amount of blood which could enter the large middle cerebral artery may be inadequate, particularly in a person whose effective blood volume has already been seriously reduced by hemorrhage. The volume which could enter the cortical substance, therefore, by a collateral route may not be sufficient, as the circle of Willis resembles a hexagon of vessels of different caliber.

2. *Thrombosis and Embolism.*—Retrograde thrombosis or embolism from the side of ligation is another possibility which has been mentioned. In certain cases



Fig. 5.—The dissected circle of Willis, showing the obliterated lumen of the left internal carotid artery, the thickening of the right internal carotid artery and particularly the absence of the left posterior communicating artery. The basilar artery is larger than usual (compensation).

a progressive advance of a clot along the occluding vessel may be responsible for anemia of the cortex.

3. *Stimulation of the Cervical Sympathetic Trunks.*—Ligation of the common carotid artery necessarily causes stimulation of the vasoconstrictor fibers accompanying this vessel. The possibility also exists that a sudden vasospasm results in cerebral anemia.

4. *Stimulation of the Carotid Sinus.*—Another contributing factor is the disorder resulting from stimulation of the carotid sinus. This area in the bifurcation of the common carotid artery is extremely sensitive to intravascular pressure. Compression of the sinus or a rise in intravascular tension causes vagal impulses which reflexly may produce slowing of the heart rate, fall in blood pressure or direct sinocerebral impulses leading to a reduction in the cortical flow of blood. Stimulation of the carotid sinus in the normal person often leads to sudden syncope (Weiss and Baker [19])

In our case many factors were present, any one or a combination of which may have contributed to the

13. Dorrance, G. M.: Ligation of the Great Vessels of the Neck, Ann. Surg. **99**: 721 (May) 1934. (The article contains a comprehensive review of the literature.)
14. Fawcett, E., and Blackford, J. V.: The Circle of Willis, J. Anat. & Physiol. **40**: 65, 1905-1906.
15. Windle, B. C. A.: On the Arteries Forming the Circle of Willis, J. Anat. & Physiol. **22**: 289, 1887.
16. Busse, O.: Virchows Arch. f. path. Anat. **229**: 178, 1921, cited by Dorrance.[13]
17. Homans, J.: Accidents and Precautions in Ligation of the Common Carotid Artery, Ann. Surg. **71**: 707 (June) 1920.
18. Friedemann, U. S., and Elkeles, A.: Experimental Interruption of Blood Circulation in the Brain, Klin. Wchnschr. **10**: 2249 (Dec. 5) 1931.
19. Weiss, Soma, and Baker, J. P.: The Carotid Sinus Reflex in Health and Disease, Medicine **12**: 297 (Sept.) 1933.

serious sequelae of the ligation. These factors include the severe anemia resulting from sustained hemorrhage, the low blood pressure with mild shock prior to operation, the lack of time to perform preoperative compression of the carotid arteries, the absence of the posterior communicating artery on the affected side and the mild arteriosclerosis of the larger cerebral vessels. It is our opinion that the loss of cerebral function resulted from sudden anemia due to tying of the artery, with two causes responsible for the insufficient anastomotic blood supply. The basic defect was structural—the general arteriosclerosis with narrowing of the lumen and the absence of the posterior communicating artery—the contributing physiologic factors were the severe anemia and the low generalized blood pressure.

PRACTICAL SUGGESTIONS

In view of the high immediate mortality and the possibility of serious cerebral complications subsequently, ligation of the carotid arteries constitutes a most hazardous procedure even in the severest forms of nasal hemorrhage. From a neurologic point of view we would emphatically endorse the practice recommended by *Johnson and Foster* [20] and by Strauss,[21] of ligation of the external carotid artery only. They based their procedure in the control of severe intractable nasal hemorrhages on the fact that the major blood supply to the nose comes only from branches of that artery. The small anterior and posterior ethmoid branches of the ophthalmic vessels and perhaps a few slight twigs perforating the cribriform plate come from the internal carotid artery. Thus, from the theoretical standpoint as well as from the neurologic aspect such a procedure promises best results with a minimum of danger. That this point of view is sound may be inferred from Jackson's [22] report of ligation of the external carotid artery in thirty-eight cases, with effective control of hemorrhage and without cerebral complication. In cases of intracranial arteriovenous aneurysm Dorrance and Houdenslager [23] recommended tying of the common carotid artery as a better procedure than ligating the internal. They pointed out that there ultimately may be a collateral supply from the external carotid artery.

CONCLUSIONS

Following ligation of the left external and internal carotid arteries the major symptoms were hemiplegia, hemianesthesia, aphasia, convulsions and impairment of intelligence. The anatomic basis for the symptoms was marked atrophy of the left hemisphere, particularly in the parietal areas and the structures supplied by the middle cerebral artery. For the physiopathologic basis of the cerebral lesion several factors were found, including arteriosclerosis, absence of the posterior communicating artery and severe general anemia prior to ligation.

This case offers strong support to the practical suggestion that in cases of intractable nasal hemorrhage otherwise uncontrollable only the external carotid artery be ligated.

10465 Carnegie Avenue

20. Johnson, M. C., and Foster, M. E.: Ligation of the External Carotid Artery for Traumatic Nasal Hemorrhage, Ann. Otol., Rhin. & Laryng. **42**: 588 (June) 1933.
21. Strauss, Abraham: Epistaxis in Pregnancy Requiring Ligation of the External Carotid: Review and Case Report, Ann. Otol., Rhin. & Laryng. **42**: 230 (March) 1933.
22. Jackson, Chevalier, cited by Strauss [21]
23. Dorrance, G. M., and Houdenslager, P. E.: The Physiological Considerations in the Treatment of Pulsating Exophthalmos, Am. J. Ophth. **17**: 1099 (Dec.) 1934

THE CEMENT BURN

ITS ETIOLOGY, PATHOLOGY AND TREATMENT

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AND
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In the past few years the importance of the subject of cement burns has again been forcibly brought to attention as a result of the vast building enterprises that have been undertaken.

In projects that involve the use of large quantities of concrete the medical profession, the employer and the employee are constantly confronted with the problem of the cement or concrete burn.

The lesion is an important one because of the economic loss to the employer and the employee. The literature contains but meager information concerning this type of burn. This is true not only as to its etiology and pathology but likewise as to its treatment, which in some instances is predicated on hazy or even erroneous fundamental chemical principles.

The composition of Portland cement and of concrete is shown in table 1.

It is shown that, in these percentage compositions of cement and concrete, calcium oxide or lime forms by far the major portion of cement, and it is this substance with which we are primarily concerned. When cement is mixed with sand, gravel and water to form concrete, the alkaline reaction is diluted only by the bulk of the other relatively inert substances. As determined colorimetrically,[1] the p_H of these samples of cement in solution varies between 11.5 and 12, which is well on the alkaline side.



Fig. 1.—Human skin twelve hours after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 7 diameters.

PATHOLOGIC CHANGES

In general, in the action of corrosives [2] destruction of tissue is preceded by an inflammatory reaction. Pathologically, chemical cauterization shows three distinct

From the Department of Surgery, Stanford University School of Medicine.
1. *Determinations were made by Maurice Tainter*, Department of Pharmacology, Stanford University School of Medicine.
2. Sollmann, Torald: A Manual of Pharmacology, ed. 4, Philadelphia W. B. Saunders Company, 1932, pp. 186-187.

areas: (1) an area of inflammation and hyperemia at the periphery and in the depth of the involved tissue; (2) a layer of necrosis which follows the inflammatory action; (3) a layer in which the chemical cauterization results in a solution of the cells already killed by the inflammatory process. These three—hyperemia,

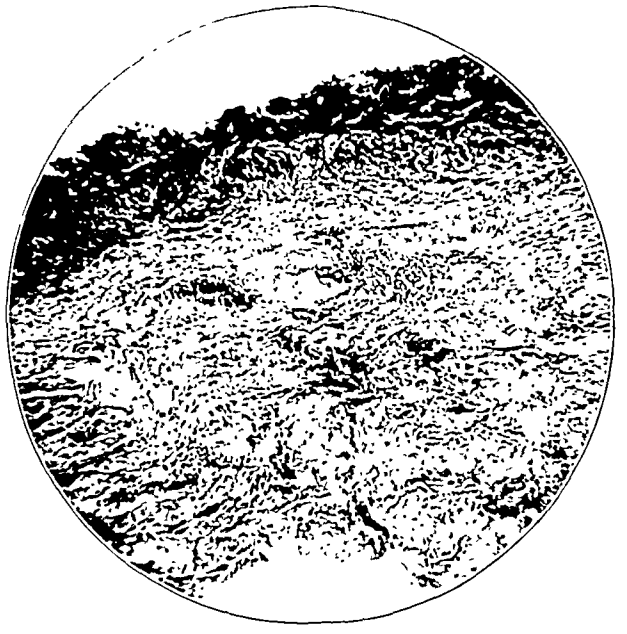


Fig. 2.—Human skin twelve hours after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 80 diameters.

inflammatory necrosis and chemical solution—are to be considered as successive stages of the same action.

A scab is formed after corrosion by the coagulation of the inflammatory exudate and by the chemical products (mostly albuminates) resulting from the interaction of the corrosive agent with this exudate and with killed cells. Alkaline corrosives combine with the tissues to form chiefly alkaline albuminates or with fats to form soaps and in this way produce tissue destruction. These corrosives are very hygroscopic and withdraw water from the cells. This further contributes to the necrosis.

Peculiar to alkalis the scab formed is soft, since the resulting compounds are soluble and thus the chemical readily further penetrates into the tissues, spreading and extending deeply.

In the case of cement we are dealing with five definite factors in the production of the burn:

1. Abrasive action of the concrete.
2. Friction made by wearing apparel and the rubbing of contiguous anatomic parts.
3. Heat of solution while slaking, which, however, is a minor factor.
4. The hygroscopic action of lime with its consequent cellular destruction.
5. Its corrosive action as an alkali. Since the alkaline albuminates are soluble in the alkalis, they are redissolved and reprecipitated so that destruction continues until the alkali is dissipated. In contradistinction, acid burns are practically self limiting, since the acid albuminates formed are insoluble in acids.

The pathologic picture of the cement or concrete burn is clearly shown in the accompanying illustrations. These biopsies were made at intervals of approximately twelve, forty-eight and seventy-two hours after the patient had been burned with concrete.

In figure 1, twelve hours after exposure to concrete, one sees a loss of epithelium down to the corium with some edema of the subcutaneous fibrous tissue. A portion of normal skin is also shown.

Figure 2, a higher magnification of figure 1, shows the marked cellular infiltration about a sweat gland. Note the extent of the subcutaneous edema even after

TABLE 1.—*Definitions or Composition of Portland Cement and of Concrete*

Portland cement:	
Silica (SiO_2)	22 %
Alumina (Al_2O_3)	7½ %
Iron oxide (Fe_2O_3)	2½ %
Lime (CaO)	62 %
Magnesia (MgO)	2½ %
Sulfur trioxide	1½ %
Loss on ignition	2 %
Concrete (all proportions are by weight):	
Sand	29 %
Gravel	55 %
Water	8 %
Cement	8 %

so short a time. There is one area of round cells around a hair follicle, but most of the infiltration follows along the sweat glands to their bases.

The epithelium, which has been destroyed down to the corium, has been replaced by a pseudodiphtheritic membrane in which are found inclusions of amorphous substances, supposedly calcium.

Figure 3 is a still higher magnification of figure 1, showing the necrotic pseudomembrane with amorphous

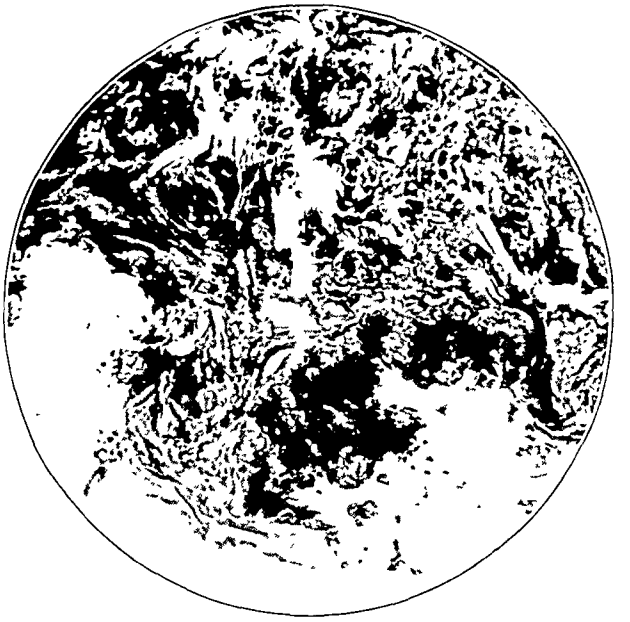


Fig. 3.—Human skin twelve hours after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 450 diameters.

material on the surface and needle-like crystals extending into the necrotic tissue.

Figure 4 shows the formation of a bleb beneath the pseudodiphtheritic membrane, approximately two days after exposure to concrete. The necrosis is extending deeper into the corium and there is a small abscess about a sweat gland.

Figure 5 shows the effect of concrete on human skin three days after exposure. Note how the necrosis has spread so that it now extends into the subcutaneous tissue. The black isolated and conglomerate areas to

the left are calcium deposits. Note the depth at which these lie and the halos of necrosis about them. To the right the calcium deposits with their areas of necrosis can be seen extending into the subcutaneous tissues.

Figure 6 is a higher magnification of a portion of figure 5, showing these amorphous calcium deposits surrounded by necrosing round cell infiltration. We



Fig. 4.—Human skin two days after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 15 diameters.

believe from their location and configuration that these deposits are probably in the sweat glands.

Figure 7 is an oil immersion view of the calcium deposits deep in the tissues.

ANALYSIS OF CASES

In a period of approximately a year and a half sixty cement burns have come under our care. These cases are analyzed in table 2.

It is seen that a relatively long interval elapses between the onset of symptoms and the time of application for medical treatment. The symptom that eventually brings patients with this condition to the doctor's office is pain. This latent period in the manifestation of pain is typical of burns even from concentrated alkalis. Once the caustic action has begun, the persistence of pain is likewise typical of these burns.

The usual site of such cement burns is the dorsum of the feet, the malleoli, the popliteal spaces, the wrists, the hands and the contiguous surfaces of the fingers. Since cement workers usually wear high boots and gloves, such burns occur most frequently at the sites of friction, proving that the abrasive action of the concrete is by no means a negligible factor in the production of the lime burn.

Attention is called to the relatively high incidence of infections (20 per cent) complicating cement burns. The time that elapses between the onset of symptoms and the application for treatment apparently plays no part in deciding ultimately whether infection will take place or not.

It is a well known fact that a common cause of disability among cement workers is furunculosis, far outranking all the other disabling cutaneous diseases in this industry. Such infections are caused primarily by a clogging of the sweat glands with lime. Dust, body débris and bacteria are then rubbed into the sweat glands, secondarily producing an infection. An ideal culture medium for such bacteria located deep within the sweat glands is furnished by the products resulting from the corrosive action.

As a result of the warmth furnished by the bandaging of such burned areas and as a result of the sweating that takes place beneath these bandages, it is not unusual to have furuncles develop in neighboring hair

TABLE 2.—*Analysis of Sixty Cases*

Number of cases	60
Average interval between onset of symptoms and application for medical treatment (longest interval 7 days, shortest 8 hours)	3 days
Disability	642 days
Average per case	10 days
Treatment period	857 days
Average per case	14 days
Number of cases requiring hospitalization	7
Average stay in hospital per case	8 days
Percentage of total cases requiring hospitalization	11
Number hospitalized due to infection	6
Number of cases infected	13
Percentage of total cases infected	20

follicles while the patient is under treatment. Particularly is this true when the bandage is held in place by the ill advised use of adhesive plaster against the skin in the dressing of such wounds.

TREATMENT

Such burns are preventable, but it is difficult to preach prophylaxis to employers other than on a dollars

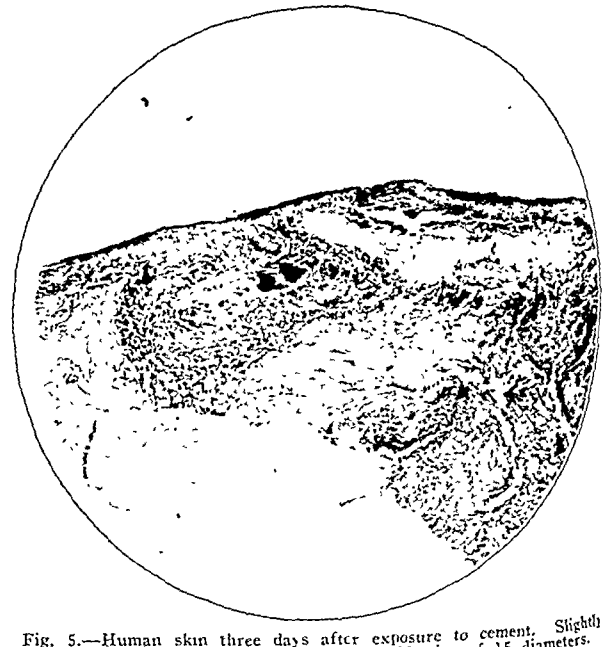


Fig. 5.—Human skin three days after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 15 diameters.

and cents basis. The sixty cement burns that we have treated in the past year and a half involved a total loss of time of 642 working days with an average disability of ten days per case. The average total cost per case approximated $50.

Smearing of the parts most frequently exposed with petrolatum has been shown by experience to be somewhat unpractical though effective. It is especially effective when the dry cement is being handled. Clean

dry boots and gloves, frequently changed, reduce considerably the morbidity caused by these lesions.

The installation of showers and compulsory bathing by men coming off a shift would be most desirable. Such lavage would abort many of the cases entirely, and in those cases in which corrosion has already started it would greatly decrease the depth and extent

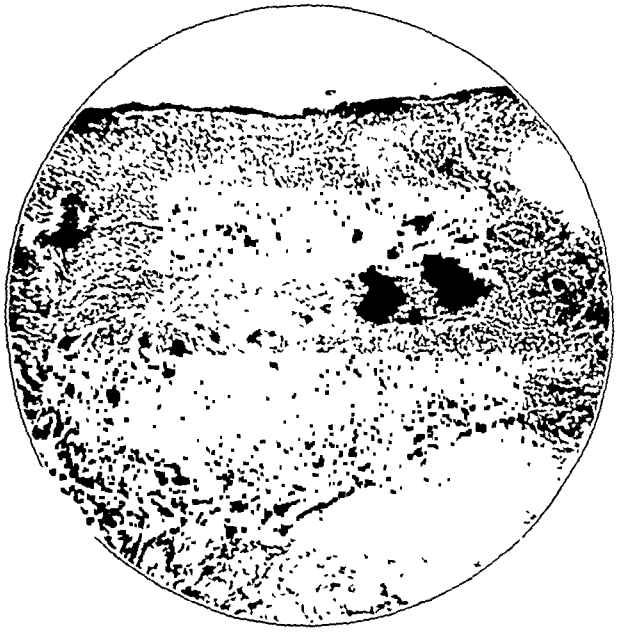


Fig. 6.—Human skin three days after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 80 diameters

of the burn and probably call the lesion immediately to the patient's attention.

After the symptoms have begun to manifest themselves one would imagine the ideal immediate treatment to be the chemical neutralization of the offending agent. Ample proof to the contrary is furnished by the experimental work of Davidson.[3]

One lower extremity of a group of rats was exposed to both strong acids and strong alkalis. In control rats untreated after exposure typical corrosive burns shortly developed at the exposed site, with loss of function of the extremity, and the rats died. Others treated by chemical neutralization shared the same fate, the clinical picture and course of the burn differing only slightly from those which were untreated. Possibly the heat of chemical neutralization is as damaging to the tissues as is the irritant action of the offending agent.

A third group of rats similarly exposed to acids and alkalis were simply treated by thorough lavage with water. These animals showed a minimum of gross pathologic changes. No disability of the extremity ensued and all survived.

The first requisite for immediate treatment then is lavage with water. Practically, however, this principle is not applicable except prophylactically. By the time these patients present themselves to the surgeon an elastic grayish brown crust has already formed, covering an ulceration varying in extent and depth depending on the quantity of cement to which the skin has been exposed. By the third day, when these cases are usually first seen, this scab is extremely tenacious and firmly adherent to the underlying tissue.

3. Davidson, E. D.: The Treatment of Acid and Alkali Burns, Ann Surg. 85: 481 (April) 1927.

Even after an elapsed interval of three days, necrosis undoubtedly continues further, as shown in figure 5. Theoretically it would be desirable to cleanse the burned areas by vigorous scrubbing in order to remove the collection of cellular débris, coagulated serum and cement which constitute the scab. This is not practical since the necrosed areas, though isolated and usually not covering an area greater in size than 2 square inches, are in most cases multiple. Such mechanical scrubbing, however desirable, would require general anesthesia even in the case of small single burns, since infiltration with a local anesthetic in such potentially infected areas is contraindicated. We have tried topical application of procaine hydrochloride, cocaine and the like but have found them ineffective, since these solutions do not penetrate the scab.

These lesions are not amenable to the tannic acid, gentian violet or silver nitrate treatment which has been so generally applied to the thermal burn. In would be undesirable to seal over such areas with a crust not only because of the danger of infection but also because the offending chemicals would be further sealed in the tissues. Serious toxic symptoms have not developed in our cases, since the burned areas, though multiple, did not cover large areas.

The application of a soothing ointment usually loosens the crusts within twenty-four hours, leaving a fairly clean, ragged ulcer. In truth, at the time that such cases come to our notice we are confronted not so much with a burn as we are with an acute ulcer.

Further treatment following removal of the scab then involves the treatment of a simple, acute ulcer, provided

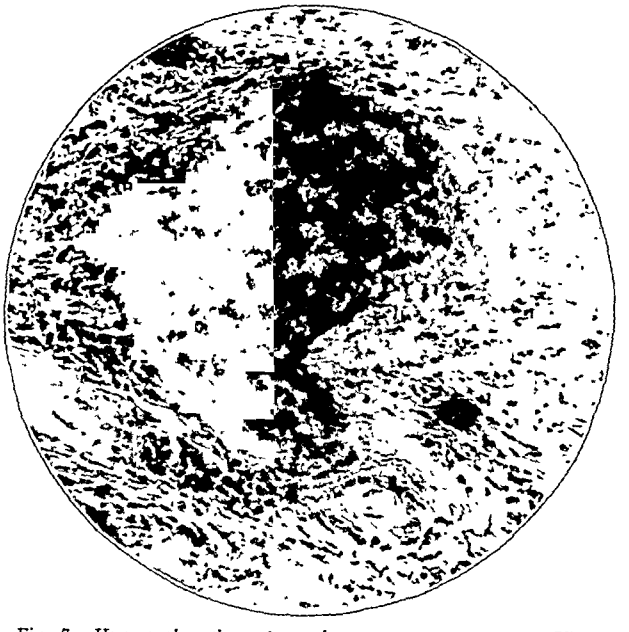


Fig. 7.—Human skin three days after exposure to cement. Slightly reduced from a photomicrograph with a magnification of 960 diameters.

infection does not supervene. Once clean granulations appear, the use of cod liver oil in an ointment has proved satisfactory.

CONCLUSIONS

1. Cement burns are theoretically preventable.
2. Sixty cement burns were treated in the past year and a half, resulting in a loss of 642 working days.
3. Cement burns differ markedly from thermal and acid burns from the standpoint of the symptoms,

pathologic changes and treatment in that the alkaline albuminates are soluble in the alkalis and are thus redissolved and reprecipitated; the chemical meanwhile penetrates and extends deeply into the tissues until it is entirely dissipated.

4. In 20 per cent of our cases infection developed, showing a marked susceptibility to this complicating factor in such lesions.

5. After the removal of the thick, tenacious crust, further treatment involves the care of the resulting simple acute ulcer.

6. Prophylaxis consists in thorough lavage of the exposed parts with water immediately following exposure to cement or concrete and the smearing of the frequently involved parts with a heavy petrolatum ointment.

350 Post Street.

CYSTITIS FOLLICULARIS

WITH A DISCUSSION OF THE OTHER PROLIFERATIVE LESIONS OF THE BLADDER AND REPORT OF FOUR CASES

W. CALHOUN STIRLING, M.D.

WASHINGTON, D. C.

Among the more rare types of inflammatory lesions in the chronic cystitis group is the proliferative lesion which presents sufficient vesical manifestation to warrant a careful report of the cystoscopic and microscopic observations. It is of general clinical interest, owing to the fact that hematuria is so outstanding.

CLASSIFICATION

In cystitis follicularis the mucosa of the bladder is studded with nodules of various sizes, containing lymph follicles with germinal centers. Hinman and his associates [1] gave an excellent description of these proliferative lesions and divided them into six groups: granular, glandular, follicular, cystic and emphysematous cystitis and bullous edema. Prior to this classification little attempt had been made to group properly these unusual lesions of the bladder. Livermore,[2] quoting White and Martin, classified these epithelial cysts clinically as large and small. He reported a case in which the cyst had assumed a rather large size. Despite Hinman's [1] broad classification, some present day writers are still prone to group these lesions under confusing headings. Redewill [3] expressed the belief that many lesions formerly diagnosed as bullous edema and cystitis cystica were minute gas cysts, i. e. cystitis emphysematosa. Levin [4] reported a case of gas cysts in the bladder resulting from Bacillus welchii in a diabetic patient. Sanes and Doroshow [5] reported two cases of similar involvement, one that of a diabetic person. In all of these cases of gas cysts Bacillus coli was found, and Nowicki [6] said this organism is the cause of cystitis emphysematosa. Paschkis [7] was one of the first to point out that pyelitis follicularis and pyelitis granulosa were separate disease entities. He described two types, the first containing actual lymph nodes with all their characteristics and the second showing aggregations of round cells of inflammatory origin. (Having made similar observations in two of my cases, I can substantiate this point.) Zuckerkandl [8] also described a true and a false type. In the former the lymph follicles are rounded, the peripheral cells being closely crowded together in rows with typical germinal centers. The second form is cystitis pseudofollicularis, with no germinal centers and the cellular arrangement widely distributed and showing no palisading of cells at the periphery. Colonel Ash and I recently saw some specimens removed at biopsy in a case in which a diagnosis of malignant growth of the bladder had been made elsewhere, and our study showed a histologic picture not unlike that of cystitis pseudofollicularis. Several nodules were observed in the mucosa of the bladder and on biopsy were seen to contain a large number of lymphocytes, with no evidence of the typical cellular arrangement of cystitis follicularis or of germinal centers.

Another and more destructive form of cystitis is the gangrenous type, characterized by total destruction of the mucosa of the bladder. Two cases of this type were observed and reported by Hopkins and me [9] in 1934.

This study comprises four cases of proliferative lesions of the bladder, in the first one of which there

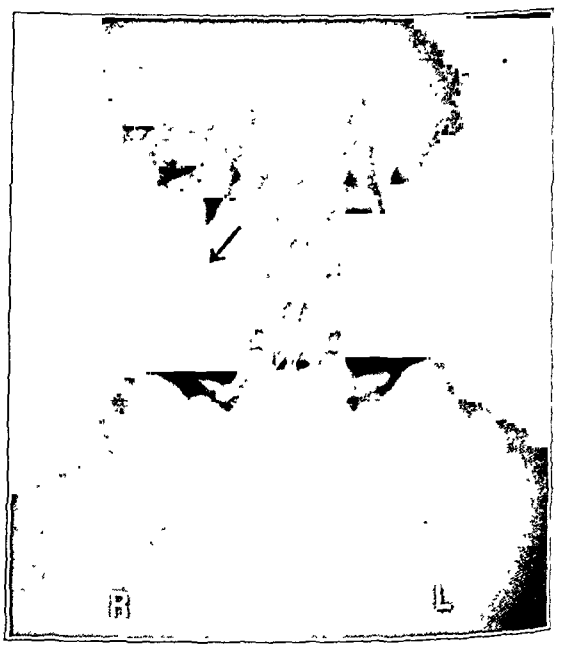


Fig. 1 (case 1).—Intravenous urogram showing a filling defect below the right ureteropelvic junction. This was a constant observation on every pyelogram. A nest of gallstones appears just above and lateral to the upper right calix.

was a unique histologic picture of cystitis follicularis, cystitis cystica and cystitis glandularis concomitant with pyelo-ureterocystitis follicularis. The second case was one of primary cystitis follicularis without apparent involvement of the kidneys or ureters. (These observations, to my mind, refute the statement of Baetzner [10]

Drs. Ash, Cajigas and Jarman gave valuable assistance in the study of the cases reported.

1. Hinman, Frank; Johnson, C. M., and McCorkle, J. H.: Pyelitis and Ureteritis Cystica, J. Urol. **35**: 174-189 (Feb.) 1936.
2. Livermore, G. R.: Cyst of the Bladder, Tr. Am. A. Genito-Urin. Surgeons **28**: 209-215, 1935.
3. Redewill, F. H.: Cystitis Cystica Emphysematosa, Urol. & Cutan. Rev. **38**: 537-543 (Aug.) 1934.
4. Levin, H. A.: Gas Cysts of Urinary Bladder, J. Urol. **39**: 45-52 (Jan.) 1938.
5. Sanes, S., and Doroshow, G. D.: Cystitis Emphysematosa, J. Urol. **32**: 278-286 (Sept.) 1934.
6. Nowicki, W.: Ueber Hamblasenemphysem, Arch. f. path. Anat. **205**: 126, 1914.
7. Paschkis, R.: Beitrage zur Pathologie des Nierenbickens, Folia urolog. **7**: 55, 1912.
8. Zuckerkandl, O.: Ueber die sog. Cystisis cystica und über einen Fall von cystischen Papillom der Hamblase, Monatsb. f. urol. **7**: 521, 1902.
9. Stirling, W. Calhoun, and Hopkins, G. A.: Gangrene of the Bladder: Report of Two Cases, J. Urol. **31**: 517-525 (April) 1934.
10. Baetzner, W.: Beitrag zur Kenntnis der Pyelitis granulosa, Ztschr. f. urol. Chir. **1**: 285-294, 1913.

that the process is always initiated in the renal pelvis and extends downward through the ureters to the bladder.) The third case presents an interesting histologic study of lesions of the bladder, in that cystitis follicularis and cystitis glandularis were found present in the same specimen. The fourth was an instance of cystitis granulosa simulating a vesical neoplasm.



Fig. 2 (case 1). Cystoscopic appearance of the bladder, showing the distribution of the nodules in cystitis follicularis. Just below the left ureteral orifice is seen the larger nodule (A) representing cystitis cystica.

In 1913 Kretschmer [11] reported a case of pyelitis follicularis. Hundley and Carson [12] in 1929 reported three additional cases. In two of these the diagnosis was made after the kidneys had been removed for tuberculosis, and in the third it was made at necropsy. They mentioned prolonged intermittent hematuria as an outstanding symptom. I have reviewed the literature since that time and have found but ten cases, in all of which diagnosis was made either after the kidney had been removed because of bleeding or at necropsy.

Before Hinman and Cordonnier [13] presented their report in 1935, but little had been written on this subject. Since that time I have been unable to find any reports of similar involvement in the literature. A total of only eleven cases of pyelitis follicularis are on record. Loewenhardt [14] and Kretschmer [11] were the first to report single cases of cystitis follicularis. In 1935 Hinman and Cordonnier [13] reported five cases in which the diagnosis was made from specimens removed for biopsy from the mucosa of the bladder. This made a total of eight cases of proved cystitis follicularis on record. In the cases reported by Loewenhardt,[14] Kretschmer [11] and Hundley and Carson,[12] in which the bladder was involved, similar lesions were seen also in the kidneys.

ETIOLOGY

The cause of this type of lymphoid hyperplasia of the bladder is still unknown, although it is probably the result of a long-standing infection. Loewenhardt [14] mentioned syphilis as a factor, whereas Baetzner [10] expressed the belief that typhoid is responsible in some cases. Von Frisch [15] expressed the opinion that gonorrhea must be considered. Symmers [16] described their formation as a response of the tissues to a toxic irritant and cited tuberculosis as a good example of toxic lymphoid hyperplasia. None of these diseases were present, however, in my four cases. The colon bacillus was found in urine from the bladder in all of the cases reported in the literature and was also present in my cases. Alexander [17] mentioned cystitis resulting from stone, from stricture and from tuberculosis as capable of producing lymphoid tissue in the bladder. Other observers have found similar lesions in the renal pelvis after the removal of a stone. Cystitis granulosa is seen more often than any other proliferative lesion and is the result of a long-standing irritation of the bladder.

SYMPTOMS

Disturbance of urination is the only characteristic symptom observed in this condition. Frequency, urgency or burning on urination is present, and pain over the bladder is constant. The vesical tenesmus is as severe as that seen in tuberculosis or interstitial cystitis. Massive hematuria has been a symptom in all but one of the cases of pyelitis follicularis, as well as in most of those of cystitis emphysematosa reported, but was present in only one of the cases of cystitis follicularis reported by Hinman.[1] It was present in but two of my cases, one in which the renal pelvis and ureters were involved and the other the case of cystitis granulosa which had become ulcerated.

Pain in the costovertebral angle and bilateral ureteral pain simulating the passage of blood clots was observed in one case. Women are more prone to this condition than men (6 to 1), owing probably to the frequency of cystitis in women. It occurs during every decade, though most often during the fourth.



Fig. 3 (case 1).—Bilateral retrograde pyelogram showing the same filling defect in the right ureter as seen in figure 1. These defects are indicated by the arrow. Other filling defects may be noted in the lower part of the right ureter, as indicated by the smaller arrows. Marked ureterectasis is present in the middle third.

DIAGNOSIS

Cystitis follicularis cannot always be differentiated from the other proliferative types of cystitis clinically, and the possibility of two distinct lesions of a similar etiologic background in the same patient must always

11. Kretschmer, H. L.: Pyelitis Follicularis, Tr. Am. Urol. A. **7**: 94-104, 1913.
12. Hundley, J. M., Jr., and Carson, W. J.: Pyelitis Follicularis, J. Urol. **21**: 341-351 (March) 1929.
13. Hinman, Frank, and Cordonnier, Justin: Cystitis Follicularis, J. Urol. **34**: 302-308 (Oct.) 1935.
14. Loewenhardt, F. Cystitis Follicularis, Arch. f. Dermat. u. Syph. **84**: 395, 1907.
15. von Frisch, A.: Kongress zu Berlin, Verhandl. d. Deutsch. Gesellsch. f. Urol., April 1909.
16. Symmers, Douglas: Relationship of Toxic Lymphoid Hyperplasias to Lymphosarcoma and Allied Diseases, Arch. Int. Med. **21**: 236 (Feb.) 1918.
17. Alexander, S.: Some Observations Respecting Pathology and Pathological Anatomy of Nodular Cystitis, J. Urol. & Genito Urin. Dis. **11**: 245, 1893.

be considered. Mills [18] said: "Cystitis cystica and granulosa have been confused both clinically and as viewed through the cystoscope. Lautenschlager reported a case as cystitis emphysematosa which later proved to be cystitis granulosa at necropsy." Redewill [3] said that air cystograms are helpful in detecting the presence of general emphysema of the wall of the bladder. The

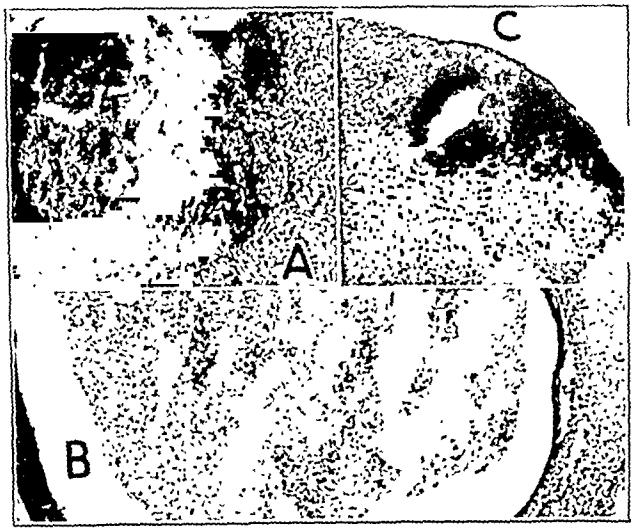


Fig. 4.—Sections showing cystitis follicularis (*A*), cystitis cystica (*B*) and cystitis glandularis (*C*) in the same biopsy specimen. This represents the atypical nodule (*A*) seen in figure 2 (× 70).

final diagnosis must obviously rest on an examination of the specimen removed for biopsy. Cystoscopic examination in cystitis follicularis shows the mucosa of the bladder covered with nodules of varying size, rather closely packed together and of a red-grayish color. They are firm on pressure, whereas in cystitis cystica they are more uneven in size and appear translucent. Cystitis glandularis, on the other hand, rarely presents a distinct cystoscopic picture. The gas filled cysts in cystitis emphysematosa are more translucent than those filled with fluid, and the nodules can be seen best if the bladder is only partially filled with fluid, the nodules appearing in bas-relief. Cystitis granulosa and cystitis polyposa are more easily recognized, owing to the "cluster-like" arrangement of the granulation tissue. Ulceration may occur, as happened in my case, and thus simulate a new growth in the bladder. Newformed capillaries are prominent throughout the loose areolar tissue.

REPORT OF CASES

I wish to analyze briefly four of my cases:

CASE 1.—Mrs. W. D. H., 35 years of age, admitted to Garfield Hospital on June 1, 1937, complaining of intermittent hematuria and pain in the back, had had painless hematuria lasting one week fourteen years before. No further symptoms were noted until two years later, when a similar attack occurred. Since that time she had had intermittent attacks of pain and hematuria three or four times each year. May 31, 1937, the patient had a severe attack of bleeding, with pain on urination and passage of large clots of blood. She consulted her family physician at this time and was sent to the hospital, where she was seen by me for the first time.

A catheterized specimen of urine was grossly bloody, with a large number of clots. A complete study of the blood was done, revealing a moderate degree of anemia with a nonprotein nitrogen content of 65 mg. per hundred cubic centimeters of blood. No blood dyscrasia was present. After evacuation of many blood clots, cystoscopic examination revealed blood coming from the right ureteral orifice. The capacity of the bladder was found to be 400 cc. Urine from the right kidney showed many red and a few white blood cells, and culture showed Staphylococcus albus anhaemolyticus and Staphylococcus aureus anhaemolyticus. The left kidney showed a few white blood cells and an occasional red blood cell. Culture revealed Staphylococcus aureus anhaemolyticus. Intravenously administered indigo carmine was recovered in normal concentration from both sides, with a slight delay on the right. A retrograde pyelogram of the right kidney showed none of the skiodan in the renal pelvis but did show marked dilatation of the upper part of the right ureter. Intravenous pyelographic study was done later and showed some filling defects in the wall of the upper part of the ureter on the right side. A nest of gallstones appeared just above the superior calix (fig. 1). These stones produced so much biliary colic that a cholecystectomy became necessary and was successfully performed.

A second cystoscopic examination November 12 was more satisfactory, as the bleeding had stopped. The entire mucosa of the bladder (fig. 2) was covered by numerous nodules from 1 to 3 mm. in diameter. They were solid and more numerous on the posterior wall. The mucous membrane showed generalized capillary injection. About 1 cm. below and mesial to each ureteral orifice was a group of nodules, different in appearance from those previously described. These were larger, opaque and whitish. Cultures of material from each kidney were negative, although culture of material from the bladder revealed the colon bacillus. The nonprotein nitrogen content of the blood at this time was 45 mg. per hundred cubic centimeters. An intravenous test of renal function was done, with normal appearance time and output on both sides. A retrograde pyelogram (fig. 3) showed moderate pyelectasis on the right side, with marked dilatation and tortuosity of the right ureter. There was some kinking of the ureter just below the right ureteropelvic junction, with a constant filling defect in this area, suggestive of a solitary lymph follicle. Other filling defects were noted in the wall of the lower part of the right ureter. A pyelogram of the left side was normal. The upper part of the ureter, however, appeared slightly irregular.

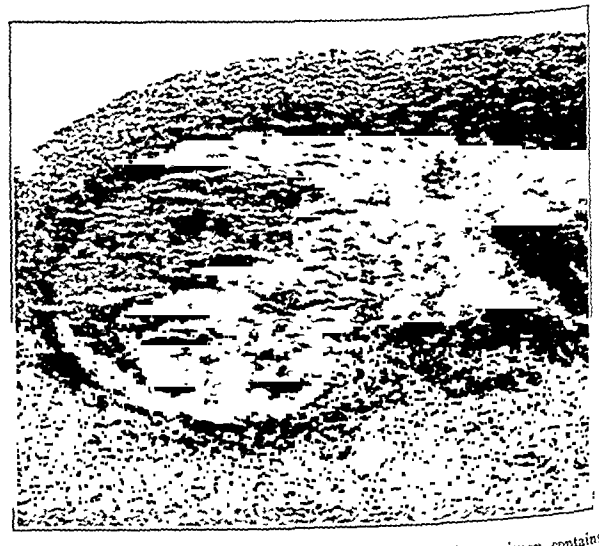


Fig. 5 (case 1).—Section of a typical nodule. This specimen contains four lymphoid follicles; × 75.

The atypical nodule (fig. 4) located 1 cm. below and medial to the left ureteral orifice revealed a large cystlike area covered with intact epithelium. Adjacent to the cyst were a solitary lymph follicle and a gland lined with columnar epithelium. The stroma was made up of densely packed deeply stained small lymphocytes. The center of the nodule appeared less densely packed, with much lighter staining young lymphocytes resembling the typical germinal center seen in the

18. Mills, R. G.: Cystitis Emphysematosa, J. Urol. 24: 217-231 (Sept.) 1930.

lymphatic structures. Examination of one of the typical nodules (fig. 5), which were numerous, revealed four distinct lymphoid follicles, all of which were covered by mucous membrane. None of these showed evidence of ulceration. The diagnosis was cystitis follicularis associated with cystitis cystica and cystitis glandularis (Col J E. Ash and Dr. Tomas Cajigas).

CASE 2.—Mrs. B. A., aged 40, first seen Dec. 21, 1937, complaining of frequency, urgency and burning on urination,

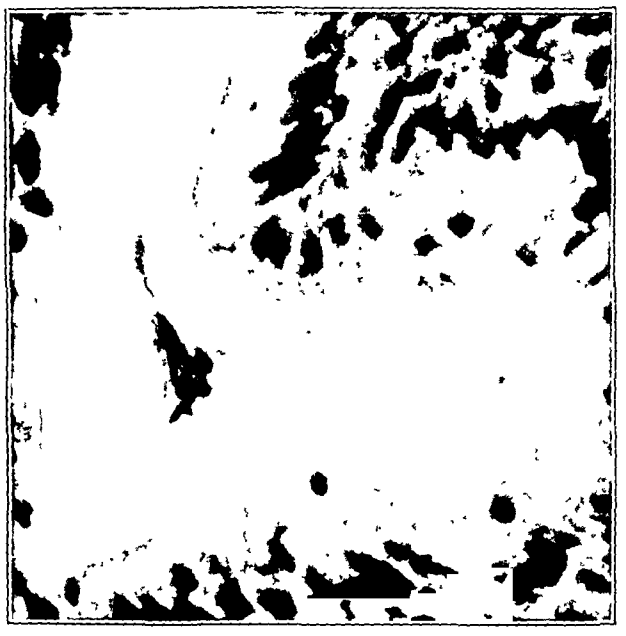


FIG. 6.—High power enlargement of a typical gland lined by columnar epithelium. The gland is filled with mucus and degenerated leukocytes.

had undergone myomectomy for uterine bleeding in October 1937. A month later she began having pain and burning on urination, which had continued to the time of examination. She had not passed any blood in the urine, had had no previous similar attacks and had entirely recovered from the operation. The menstrual history was normal, and she had never been pregnant. The past history was irrelevant. An excretory pyelogram showed a normal concentration of the dye in each kidney, with no abnormalities. The ureters were well outlined, and no cystic changes were seen in the walls of the ureters. The function of the kidneys was equal and within normal limits.

Complete study of the blood, including a Wassermann test and a determination of nonprotein nitrogen, showed no abnormality.

A catheterized specimen of urine showed Bacillus coli in pure culture, with an occasional pus or red blood cell. The capacity of the bladder was 360 cc.

Cystoscopic examination revealed several small cysts in the vesical orifice, extending well around the circumference. They appeared solid and reddish. They did not give the typical cystoscopic picture of cystitis cystica but did resemble the follicular lesions seen in the first case. The entire trigon was covered with a large number of small solid nodules. There was an area of leukoplakia just medial to the left ureteral orifice. The rest of the bladder was congested but showed no nodules. No evidence of bleeding or ulceration was noted. The clinical diagnosis was cystitis follicularis. Biopsy confirmed the cystoscopic diagnosis. The remaining nodules were destroyed by fulguration, including those situated in the vesical orifice. It was believed that all the cysts were thus destroyed.

A microscopic examination of the removed nodule showed it to be covered with transitional epithelium, under which there were two lymph follicles supported by loose connective tissue of moderate vascularity. The germinal centers showed moderate hyperplasia. No evidence of malignancy was noted. The diagnosis was cystitis follicularis (Capt. Elbert DeCoursey).

CASE 3.—Mrs. N. B., aged 48, white, admitted to Georgetown Hospital Sept. 7, 1938, complained of severe pain in the region of the bladder, with frequency and urgency on urination. The present attack had begun about six weeks before, with severe pain over the region of the bladder at the end of urination. The symptoms increased in severity until she was voiding every thirty minutes during the twenty-four hours. No blood was passed and no previous similar attacks had been experienced. Her general health, weight and appetite were normal.

A catheterized specimen of urine contained many pus and a few red blood cells. Cultures showed Bacillus coli of the Aerobacter strain. A preliminary roentgenogram gave negative results, as did routine study of the blood. An intravenous pyelogram showed the upper part of the urinary tract to be normal. The cystogram showed many small, irregular defects along the superior margin of the bladder, suggestive of small papillomas (Dr. F. O. Coe).

A cystoscopic examination showed the trigon and posterior wall of the bladder to be covered by discrete rounded reddish nodules from 1 to 3 mm. in diameter. They appeared solid and were not ulcerated. A cystoscopic diagnosis of cystitis follicularis was made. Five nodules removed for microscopic study showed typical lymph follicles with germinal centers. One section of the specimen revealed the presence of two typical glands in addition to the lymph follicles (fig. 6). The diagnosis was cystitis follicularis and cystitis glandularis (Col. J. E. Ash).

CASE 4.—Mrs. L. H., aged 56, seen Nov. 16, 1938, complaining of hematuria and frequent and painful urination, stated that she had had pain in the region of the bladder with the passage of blood clots for four months. The pain was confined to this region and came on at the end of urination. She had nocturia (six or eight times). The bleeding usually

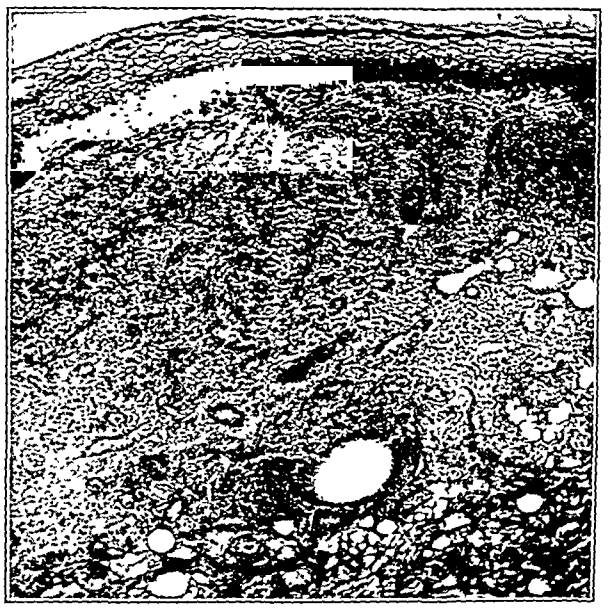


FIG. 7 (case 4).—Section showing cystitis granulosa. There is metaplasia of the vesical epithelium, and the lymph follicles are absent; × 70.

came on at the end of urination and was intermittent, though it had gradually increased in amount during the preceding week. She had not lost any weight and her general health had been excellent. Her past history revealed no similar attack, and aside from the usual diseases of childhood she had not had any severe illness. She had three children living and well and her menstrual history had been normal, including a normal menopause.

A catheterized specimen contained a large number of pus and red blood cells. Culture showed Bacillus coli. A preliminary roentgenogram was normal, as were the results of complete study of the blood. A cystoscopic examination under gas anesthesia on November 21 revealed a circumscribed group of polyps in the trigon; these were approximately 1 cm. in diameter. Ulceration was present and numerous small blood vessels could be seen, one of which was producing the bleeding. The remainder of the bladder was free from any similar lesions, though generalized cystitis was present. A biopsy specimen was taken from the granuloma and on microscopic examination showed metaplasia of the vesical epithelium. The underlying structures consisted of granulation tissue which was fairly vascular, with numerous typical fibroblasts. There was considerable infiltration with lymphoid and pus cells. There was no evidence of malignancy (fig. 7). The whole area was thoroughly fulgurated with a resectoscope. The patient had no further bleeding or pain other than that incidental to the vesical instrumentation. The diagnosis was cystitis granulosa (Drs. Cajigas and Ash).

Summary of Cases of Pyelitis Follicularis

Author	Age	Sex	Chief Complaint	Diagnosis	Cystoscopic Observations	Microscopic Observations	Treatment	Result
1. von Frisch..... (1906)	36	♂	Profuse intermittent hematuria	Pyelitis follicularis	Not stated	Granular pyelitis, solitary follicles	Nephrectomy, left	Cured
2. von Frisch..... (1907)	30	♂	Gross bloody urine	Pyelitis follicularis	Not stated	Pyelonephritis, lymph follicles found in kidney	Nephrectomy, right	Cured
3. von Frisch..... (1907)	37	♀	Bleeding from kidneys	Pyelitis granulosa follicularis	Not stated	Entire kidney degenerated	Nephrectomy, right	Cured
4. Lowenhardt..... ... (1905)	33	♀	Strangury, hematuria, frequency	Pyelitis, cystitis follicularis	Bladder, nodular region, trigon	Nodules in bladder were lymph follicles	Nephrectomy, right	Cured for a time but recurred
5. Taddei..... (1907)	23	♀	Hematuria, four weeks' duration	Pyelitis follicularis	Blood coming from left kidney	Renal pelvis contained many lymph follicles	Nephrectomy, left	Cured
6. Soleri and Zanelli.. ... (1905)	42	♀	Profuse hematuria, frequency, urgency	Pyelitis follicularis	Blood from left kidney, bladder normal	Pelvis filled with sandlike excrescences, lymph follicles	Nephrectomy, left, after cystotomy	Cured
7. Kretschmer..... (1912)	36	♀	Albuminuria, chills, fever, pyuria, frequency of urination	Pyelitis follicularis, pyonephrosis	Pus in right kidney, normal left; bladder normal	Renal pelvis showed lymph follicles with germinal centers	Nephrectomy, left	Cured
8. Stirling..... (1937)	35	♀	Gross hematuria, dysuria, pain, frequency of urination	Pyelo-ureterocystitis follicularis, cystitis cystica	Bladder studded with nodules and cysts	Large number of lymph follicles with germinal centers, also cysts of cystitis cystica	Renal lavage, dilatation of ureter, fulguration of bladder cysts	Improved
9. Baetzner..... (1913)	34	♂	Hematuria, pyuria, pain and burning urination	Pyelo-ureterocystitis follicularis	Many diffuse nodules covering trigon	Nodules containing lymph follicles with germinal centers	Nephrectomy, left	Cured
10. Hundley and Carson... (1923)	40	♀	Hematuria, pain in right side for many years	Pyelitis follicularis, hydronephrosis, hydroureter	Bladder inflamed and ulcerated	Lymphoid hyperplasia of pelvis	Ureteral dilation, renal lavage, nephrectomy on right	Cured
11. Hundley and Carson... (1923)	30	♀	Pain in left kidney, frequency, dysuria, hematuria for several months	Pyelitis follicularis, tuberculosis of kidney suspected	Bladder normal x-ray showed calcareous renal deposit	Kidney contracted, contained many nodules of lymphoid cells	Nephrectomy on left for chronically infected functionless kidney	Cured
12. Hundley and Carson... (1925)	45	♂	Admitted unconscious; no history	Pyelitis, cystitis follicularis	Not performed	Diffuse lymphoid hyperplasia of kidneys, ureters, bladder	....	Died

TREATMENT

Eradication of the long-standing vesical infection, chiefly by the Bacillus coli group, should be attempted by elimination of any focus of infection, such as the teeth, tonsils, gallbladder, colon and rectal crypts. Oral therapy with either sulfanilamide or mandelic acid should be tried. Fulguration of individual nodules has been of value in some cases and was successful in all my cases. Ureteral dilation, renal lavage and the establishment of free drainage are essential. Nephrectomy is usually contraindicated in pyelitis follicularis, as the two renal pelves are similarly affected. Two of my patients have now been symptom free for several months and the third is responding well to similar measures. The fourth patient has been seen recently and has had no recurrence of pain or bleeding. The frequency of urination has also lessened.

COMMENT ON CASES

Whether lymphoid tissue is a normal constituent of the mucosa of the urinary tract remains unsettled, though most writers agree that it may be found occasionally. Ash [19] said "Lymphoid tissue may occasionally be present in the mucosa of the bladder, although it is very uncommon." Ewing [20] stated that "lymphoid tissue is very rare in the normal bladder, but as in all other mucous membranes, mild grades of chronic catarrhal inflammation are often associated with the development of small lymph cell collections. In such cases it is difficult to determine whether such bladders are normal or pathological." He concluded that "well formed lymph follicles with germinal centers are so very rare in the normal bladder that their presence would raise a suspicion of a pathological state." Chiari [21] and Przewoski [22] expressed the opinion that its presence in this location is pathologic. Stoerk [23] was unable to find it in the bladder of the newborn.

Cystitis emphysematosa, cystitis granularis and cystitis cystica, on the other hand, are seen and diagnosed

19. Ash, J. E.: Personal communication to the author, 1938.
20. Ewing, James: Personal communication to the author, 1938.
21. Chiari, H.: Ueber das Vorkommen lymphatischen Gewebes in der Schleimhaut des harnleitenden Apparates des Menschen, Med. Jahrb., 1881, p. 9.
22. Przewoski, E.: Ueber noduläre oder folliculäre Entzündung der Schleimhaut der Harnwage, Arch. f. path. Anat. **116**: 516, 1889.
23. Landsteiner, K., and Stoerk, O.: Beitr. z. path. Anat. u. z. allg. Path. **36**: 131, 1904.

much more frequently than the follicular type, sixty cases of cystitis cystica having been reported by Morse.[24]

Strachstein[25] found the renal pelvis and ureters involved in two of 3,000 autopsies. It has been suggested that cystitis cystica represents a later stage of cystitis glandularis, owing to rupture and opening of the cysts, and thus accounts for mucus issuing from an organ without mucous glands (Hinman[1]). Giani[26] reported the accidental production of cystitis cystica by introduction of gelatin-coated capsules containing tubercle bacillus into the bladder of rabbits. Other writers ascribed their presence to "cell nests," as described by von Brunn.[27]

Aschoff,[28] Reisman[29] and other early writers said that true glands are not found in the bladder, whereas Zuckerkandl,[8] Ash[10] and Cajigas[30] have found true glandular tissue in the normal bladder, especially in the region of the vesical outlet.

In reviewing the literature on these proliferative lesions, I have not found any mention of the concomitant presence of cystitis cystica, cystitis follicularis and cystitis glandularis. In Kretschmer's[11] case both cystitis follicularis and cystitis glandularis were present. Mills[18] reported a case of cystitis cystica with cystitis emphysematosa. It would not be surprising, however, to find such an association, in view of their supposed common source.

In the first case the diagnosis of pyelo-ureterocystitis follicularis was based on the history of repeated attacks of bilateral renal bleeding, and urographic evidence of filling defects in the kidney and ureter. Cultures of material from both pelves were positive. In the other three cases there was no evidence of renal involvement.

ANALYSIS OF CASES

A critical histologic study of the four cases reported herein as well as the ones reported by other recent writers discloses the fact that in few instances does cystitis present a pure type of lesion. Two or more proliferative lesions may be present simultaneously. Thus the diagnosis would rest on the predominance of a certain type of lesion.

CONCLUSIONS

Four cases of cystitis follicularis were observed. In the first the condition was associated with cystitis cystica and cystitis glandularis, with lesions in the kidneys and ureters. In the second case the picture was uncomplicated, in the third cystitis glandularis was present and in the fourth cystitis granulosa.

The treatment in general should be limited to eradication of foci, oral therapy and cystoscopic destruction of the local lesions. Nephrectomy is usually contraindicated, owing to bilateral involvement of the renal pelves in the pyelitis group. In cases of unexplained hematuria a careful search should be made of the mucosa of the bladder as proliferative cystitis is not as rare as the scarcity of cases would seem to indicate. Biopsy of any suspicious lesion, followed by fulguration, should be the rule.

24. Morse, H. D.: The Etiology and Pathology of Pyelitis Cystica, Ureteritis Cystica and Cystitis Cystica, Am. J. Path. **4**: 33-50 (Jan.) 1928.
25. Strachstein, Abraham: A Case of Pyelo-Ureteral Cystitis Cystica, J. Urol. **36**: 22-25 (July) 1936.
26. Giani, K.: Neuer Experimenteller Beitrag zur Entstehung der Cystitis Cystica, Zentralbl. f. allg. Path. u. path. Anat. **17**: 900-902, 1906.
27. von Brunn, A.: Ueber drusenahnliche Bildungen in der Schleimhaut des Nierenbeckens der Ureters und der Hornblase beim Menschen, Arch. f. mikr. Anat. **41**: 294-302, 1893.
28. Aschoff, Ludwig: Ein Beitrag zur normalen und pathologischen Anatomie der Schleimhaut der Harnwage und ihrer drusigen Anhage, Arch. f. path. Anat. **138**: 119-161, 1894.
29. Reisman, B.: American Text Book of Pathology, p. 994.
30. Cajigas, Tomas: Personal communication to the author, 1938.

Clinical Notes, Suggestions and New Instruments

ECHINOCOCCUS CYSTS OF THE LIVER OF FIFTY-SIX YEARS' DURATION

THEODORE C. LAWSON, M.D., OAKLAND, CALIF.

Although echinococcus cysts are not of common occurrence in the United States, they are of sufficient interest always to be considered in the differential diagnosis of tumors of the liver. They grow slowly, but it is not often known for exactly how many years a patient has harbored the parasite. Magnusen[1] has reported a case under observation for forty years, and Holmes[2] reported a case in which the parasite was present for forty-six years. It is rare that one has positive proof of the length of duration of the infestation, and when one has, the case is sufficiently interesting to be worthy of a report.

F. T., a man aged 67, an Englishman, was admitted to the Alameda County Hospital Aug. 2, 1937, complaining of an intermittent pain in the lower dorsal and upper lumbar part of the back and the upper part of the abdomen, which he had had since 1926. At that time he was hospitalized and his condition was attributed to a spinal disorder, and subsequent treatment proved ineffective. Two years before the pain had begun to be more severe in the abdomen than in the back, particularly over the right half of the upper part of the abdomen, radiating into the right flank. This pain was sharp and stabbing, frequently lasting three or four days without remission, with a three or four month interval of complete relief between episodes. Such bouts were so severe that the patient was confined to bed and required from ten days to two weeks for recovery. The pain had no relation to food; he had had no hematemesis, bloody stools, jaundice, flatulence, nausea or vomiting. Constipation had always been troublesome. He had lost about 13 pounds (6 Kg.) in the last two years.



Fig. 1.—The wound, with two small cysts which have just been extruded from the liver.

Prior to entry he had called in his physician, who thought the pain was possibly arising from the right kidney and referred him to a urologist. A pyelogram revealed a normal right kidney, but a mass in the right upper part of the abdomen was palpated and he was referred to the hospital.

The patient was born in England and was a storekeeper by trade. He used considerable alcohol in his youth. He mentioned that he used to swim a good deal in a farming district. In 1882, when he was 11 years old, his abdomen enlarged and he was admitted to St. Bartholemew's Hospital, London, where his abdomen was tapped and his condition diagnosed as "hydatid cyst" of the liver. The abdomen filled again in twenty-four hours, and the next day the cyst was removed surgically. He made a complete recovery. He left England when he was 13.

1. Magnusen, G.: Two Hundred and Fourteen Echinococcus Operations, Arch. f. klin. Chir. **100**: 293, 1912.
2. Holmes, H. I.: Hydatid of the Liver of Many Years' Duration, M. J. Australia **1**: 704 (May 25) 1929.

Except for appendicitis, for which an appedectomy was performed in 1933, he had had no other complaints.

Examination showed that the patient was well developed and well nourished. He did not appear acutely ill. The teeth were in poor condition, with gingivitis present. The tonsils were mildly injected. The heart was enlarged and the apex beat palpable in the fifth interspace about 2 cm. outside the midclavicular line. There were occasional extrasystoles. The blood pressure was 128 systolic, 88 diastolic. A nonfixed, tender, discrete mass was felt in the abdomen, presumably the liver, four fingerbreadths below the right costal margin. Below this main mass two other masses were felt, one in the region of the gallbladder, measuring about 10 by 6 cm., and the other just to the left of the midline in the epigastrium, measuring about 6 by 4 cm. Postoperative scars were present in the right upper and the right lower part of the abdomen. The reflexes and the extremities were normal. Proctoscopic examination gave negative results. Examination of the blood showed 80 per cent hemoglobin, 4,420,000 red cells and 10,200 white cells, with 77 per cent polymorphonuclears, 18 per cent small lymphocytes, 1 per cent monocytes and 4 per cent eosinophils. A second count showed 1 per cent eosinophils. The Wassermann reaction was negative. The urine and feces were normal.

A plain roentgenogram of the abdomen showed evidence of an enlarged liver, with some flaky spots of calcification in the right upper quadrant in the region of the liver. Roentgen examination after a barium sulfate enema revealed no intrinsic lesion of the colon. The transverse colon was displaced downward by an enlarged liver. A gastrointestinal series showed the entire second portion of the duodenum to be pushed down and compressed by a large mass, which was palpable in that area and appeared to be continuous with the liver.

Intradermal injection of 0.7 cc. of echinococcus antigen produced an immediate wheal formation, which subsided in six hours.

The preoperative diagnosis was echinococcus cyst of the liver.

The operation was performed Aug. 27, 1937. With the patient under ether anesthesia, the abdomen was opened through an upper right rectus incision. The liver at first appeared to be enormously enlarged, but on closer inspection it was found that it contained a large cyst and that what was left of the liver was stretched tightly over this, the parenchyma being stretched to a thickness of about one-third inch around the circumference of the cyst. On palpation, hydatid fremitus was felt. A cystic

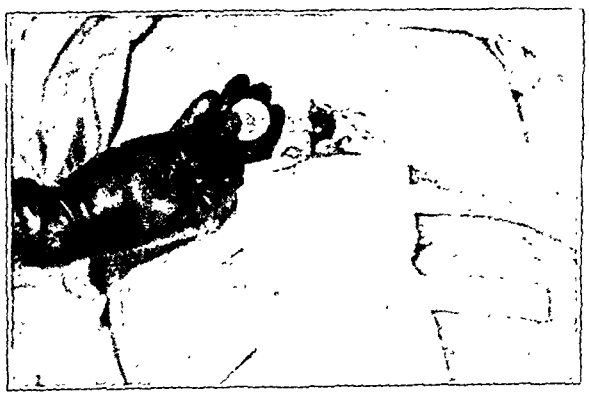


Fig. 2.—The wound, with several cysts being extruded.

mass hanging down from the lower border of the right lobe and a projection of the left lobe downward were the two masses palpated preoperatively. Obviously it was impossible to remove the entire cyst from within the liver. No free fluid was present. The intestine and colon were matted together with numerous though not dense adhesions, and interspersed between the coils were several cysts varying in size from 1 to 5 cm. in diameter. One of the larger of these cysts and the cystic mass attached to the right lobe of the liver were removed. It was impossible to open and drain the liver from its inferior border without spilling its contents within the peritoneal cavity, and, as numerous dense adhesions were felt between the superior-anterior aspect of the right lobe and the dome of the liver to the diaphragm and upper part of the peritoneum, it was thought best to drain the cyst in this area, for it was already extraperitoneal. The peritoneum and fascia were closed, and a new 3 inch incision was made above this incision through the fascia until the dome of the liver was encountered. Two per cent solution of formaldehyde was injected into the hepatic cyst. With an electrocautery the liver shell was punctured through and the opening enlarged to about 3 cm. in diameter. Much clear fluid, numerous collapsed cyst walls and fewer intact cysts were removed. The wound was packed open with gauze, and the patient returned to his bed in good condition.

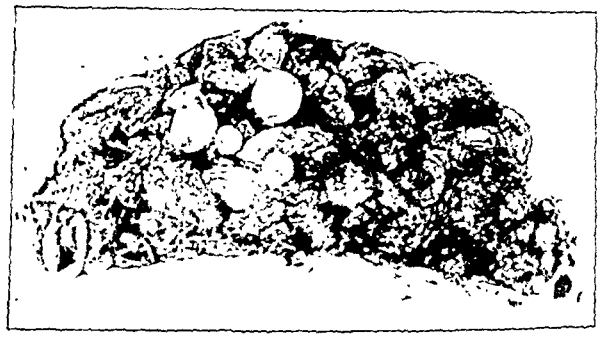


Fig. 3.—The cysts, some collapsed and others intact, immediately after the operation.

The marsupialized wound discharged many cysts and collapsed cyst walls daily. For three weeks the temperature was between 100 and 104 F. The patient appeared to be improving for one week after the operation; he then began to get listless, somnolent and mentally confused, with euphoria, had an increase in pulse rate with a drop in blood pressure, cold clammy sweating and moderate conjunctival icterus and appeared critically ill. A diagnosis of hepatic insufficiency was made, and fluids, including adequate amounts of dextrose and sodium chloride, administered intravenously, were given daily. The recovery thereafter was slow but steady. On the twenty-fifth postoperative day the patient was transferred to Fairmont Hospital for chronically ill patients. He continued to get stronger, ate well and improved. The drainage from the wound lessened, though there was a discharge of one or two cysts on the dressings daily for a month after his transfer, after which no more cysts were expelled and the wound began to granulate in. He left the hospital Thanksgiving day 1937. Subsequent to his return home he gained in weight and strength, was able to return to his occupation as a grocer and had no return of the severe abdominal pains previously complained of. In February 1938 his wound broke open and two cysts were discharged; after three days it healed again. At present he feels well and has no complaints. His incision is firm and nontender and the liver cannot be felt.

The future health of this patient is problematic. It would appear that, since he has harbored the parasite for fifty-six years, he has become partially immunized against it. As he has had time to establish a defensive reaction against the echinococcus he will no doubt continue to exercise it for years to come and will probably succumb to some other causative factor. Death from this parasite is not from a toxic reaction but from complications such as the growth and extension of the cysts into the vital parts of the body by pressure, rupture and secondary infection, with resultant toxemia. This patient has been fortunate in not having an infestation of a vital organ other than the liver, and the reparative powers of the liver are well known. At operation it was judged that only one fifth of the normal amount of hepatic tissue was present. The tissue has probably since regenerated to a greater amount, as evidenced by the clinical improvement to apparently normal health. Mann[3] has shown experimentally, with dogs, that after removal of as much as 70 per cent of the liver the organ is repaired in twelve weeks not only by hypertrophy but by hyperplasia of the remaining hepatic cells. In man the regenerative capacity is probably the same when the cells are normal. The intrahepatic pressure of the slowly enlarging cyst in this case was

3. Mann, Frank C.: The Effects of Complete and of Partial Removal of the Liver, Medicine 6: 419 (Dec.) 1927.

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so great as to leave a shell of hepatic tissue averaging about one third inch, so that the hepatic cells could not have been functioning normally; consequently the regeneration must have been even slower than if they had been normal. The intrahepatic and intracystic pressure gradually increased over a long period; hence the finding that the major portion of the contents of the cyst was ruptured walls of daughter cysts and only a comparatively small portion were intact daughter cysts. Lyon[4] has shown that in cases of hepatic insufficiency, in addition to dextrose given intravenously, dehydrocholic acid given daily by the intravenous route furnishes a distinct support to the liver and hastens the reparative powers of the hepatic and especially of the Kupffer cells. Had it been available it would have been given in this case and no doubt would have hastened the recovery from hepatic insufficiency.

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TUBERCULOSIS OF THE MYOCARDIUM

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No organ of the body is safe from infection by tuberculosis, but the relative immunity of muscle tissue in general and heart muscle in particular excites interest and speculation. Although reports of myocardial tuberculosis have appeared in the literature with increasing frequency in recent years, positive proof of the causation is often lacking and the pathologic appearance varies greatly. In the case reported, tubercle bacilli were demonstrated in sufficient numbers to identify the lesion beyond question and the mode of entrance into the heart muscle was clearly not extension from the pericardium in the usual manner. The gross and histologic characteristics were definitely those of tuberculosis.

J. M., a white youth aged 19, was admitted March 3, 1937, to the White Haven Sanatorium in the service of Dr. Edward Bixby of Wilkes-Barre, Pa. Examination revealed extensive



Fig. 1.—Section through mass in wall of right ventricle, showing necrotic center with processes extending into the myocardium. Note that the epicardium and the heart wall just beneath are free from involvement.

bilateral pulmonary tuberculosis complicated by laryngeal tuberculosis. The patient's clinical course was one of continuous regression punctuated by two episodes of severe hemoptysis, the first shortly after admission and the second one month before death. No signs or symptoms of cardiac disease were manifest at any time.

At necropsy the body showed marked pallor and emaciation. There was edema of both ankles, especially the left. The pericardium held 25 cc. of straw-colored fluid containing two small flakes of fibrin. Its inner surface was smooth and glistening and presented no adhesions or other gross evidence of tuberculosis. The heart was normal in size and weighed 300 Gm. Its muscle was pale and soft. The left ventricle measured

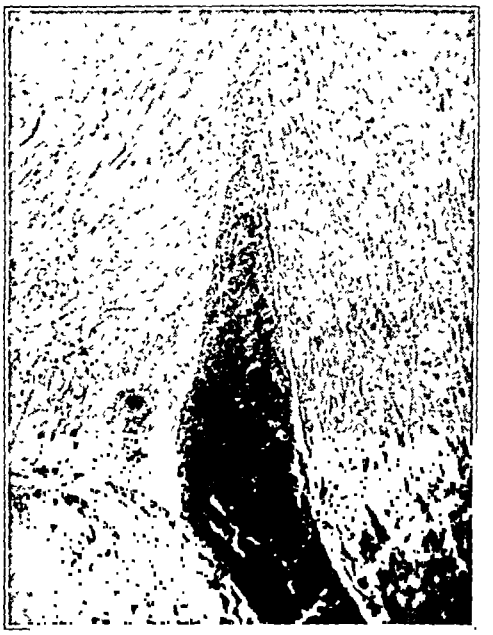


Fig. 2.—Wedge-shaped area of exudate and hemorrhage extending into myocardium. Note the relatively normal muscle tissue immediately adjacent to the inflammation.

1.5 cm. and the right 1 cm. in thickness. The mitral valve was 9 cm. wide, the tricuspid 11 cm., the aortic 7 cm. and the pulmonic 8 cm. When the right ventricle was opened a large round mass, measuring 1.5 cm. across, was seen protruding into the chamber between the trabeculae near the apex (fig. 1). Adjacent to this were four smaller nodules. The large mass had a caseous center with processes extending into the surrounding heart muscle. None of these reached the epicardium, however. The endocardium over the nodules seemed to the naked eye to be intact, although antemortem thrombi were adherent to its surface near the interventricular septum and between the papillary muscles. There was no macroscopic evidence of tuberculosis of the coronary vessels, which were patulous and did not contain clots. No lesions were found elsewhere in the heart.

The pleura was thickened and adherent to the chest wall and diaphragm. On section both lungs showed extensive tuberculosis with cavitation and but slight attempt at fibrosis. There were anthracosis and tuberculosis of the hilar lymph glands but nothing to suggest that the myocardium was directly infected by the disease in the nodes.

Examination of the abdominal organs was not permitted.

Histologic examination revealed that in the center of each nodule was a mass of cellular detritus, and surrounding this area was a zone of small, round endothelial cells. No giant cells were seen. As many as three or four tubercle bacilli to a field were seen in sections from the caseous areas stained by the Ziehl-Neelsen method. The inflammation extended into the adjacent myocardium in the form of finger-like processes parallel to and separating muscle fibers into bundles. There was frequently seen in advance of the exudate a hemorrhagic area which appeared to produce pressure atrophy, and in places complete necrosis, of the muscle fibers. Thus weakened, the myocardial tissue apparently became more susceptible to the advancing disease (fig. 2). The pericardium and subepicardial tissues were normal. The endocardium was broken through by the infection in several places. The most likely portal of entry appeared to be the right coronary artery. Although there

4. Lyon, B. B. V.; Swalm, W. A.; Bartle, H. J., and Sterner, R. F.: The Therapeutic Effectiveness of Dehydrochloric Acid in Liver and Biliary Tract Disease, M. Rec. **139**: 123 (Feb. 7) 1934.

Read before the Laennec Society, Philadelphia, April 26, 1938.

were no tubercles in any of its branches, slight intimal thickening and perivascular infiltration were observed near the caseous masses.

In reviewing the literature we found that a total of sixty-four examples of tuberculosis of the myocardium were found in 14,493 tuberculous patients by different observers reporting large series of cases,[1] an incidence of 0.44 per cent. During the last nine years we have discovered the condition only once in 400 cases in which autopsy was performed. The reason for this relative immunity of the heart muscle remains problematic. The factors responsible in the present case are not clear unless it is assumed that the patient's existence for several weeks in a semimoribund state so lowered his general resistance that the local resistance also was affected.

Clinically, tuberculosis of the myocardium has been diagnosed rarely, although it was suspected in several cases reported by Gouley, Bellet and McMillan[2] in which an ectopic rhythm appeared during the course of known tuberculous pericarditis. Prognostically it is unimportant, as it occurs only with far-advanced disease. There is of course no treatment.

COCCIDIOIDAL GRANULOMA SIMULATING BRAIN TUMOR IN A CHILD OF FOUR YEARS

B. P. Storts, M.D., Tucson, Ariz.

The following case report is of interest because of the relative rarity of coccidioidal granuloma and because it simulated brain tumor.

M. E. H., a girl aged 4 years, first seen Oct. 4, 1937, had been "losing ground" for six months and had had headaches for four months, nausea and vomiting for two months and an unsteady gait for one month. The family history was not important. She had measles at 2 years and a tonsillectomy at 3.



Fig. 1.—Single coccidioidal lesion in right lung.

The headaches had been periodic and mostly frontal. The vomiting had been frequent, usually in the mornings. The unsteadiness of gait, with the child staggering to the left, had grown progressively worse. She had occasional pains in both legs. Mentally she had been alert.

At examination her height was found to be 40 inches (102 cm.) and her weight 31 pounds (14 Kg.). The frontal bosses were prominent and there was a high pitched percussion note over the calvarium. Moderate stiffness of the neck was present. The circumference of the head was 51 cm. There was marked choking of both optic disks. The Romberg sign was present. A roentgenogram of the skull revealed marked widening of all suture lines.



Fig. 2.—Coccidioidal tubercles.

A blood count showed 80 per cent hemoglobin, 4,740,000 red cells and 10,400 white cells. A differential count showed 41 per cent polymorphonuclears, 35 per cent small lymphocytes, 8 per cent monocytes, 1 per cent eosinophils and 15 per cent stab cells. The Mantoux test with 0.1 cc. of a 1:1,000 solution injected intradermally was negative. The sedimentation rate was 48 mm. in sixty minutes. Kolmer and Kahn tests were negative. Examination of the urine and stools gave negative results. A tentative diagnosis of cerebellar tumor, probably a medulloblastoma, was made and the patient referred to Dr. C. W. Rand, Los Angeles.

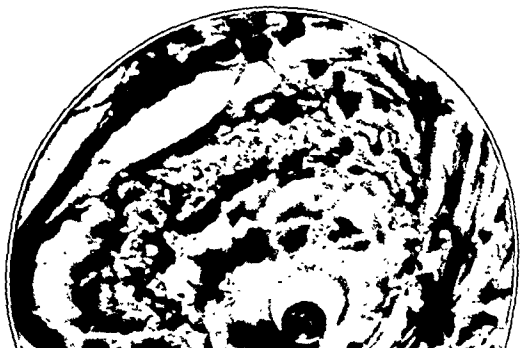


Fig. 3.—Coccidioides immitis in a giant cell.

An exploratory operation by Dr. Rand disclosed a large cyst in the cisterna magna, with thickened arachnoid. Dr. Rand stated that the picture was unusual. The posterior wall of the cisterna magna, which is ordinarily covered by arachnoid

1. Norris, G. W.: Am. J. M. Sc. **128**: 649, 1904.
Horn, Henry, and Saphir, Otto: Am. Rev. Tuberc. **32**: 492 (Nov.) 1935.
Cited by Horn and Saphir:
Raviart, G.: Arch. de méd. expér. et d'anat. path. **18**: 141, 1906.
Valentine, G.: Thesis, Paris, 1894, No. 46.
Willigk, G. A.: Vrtljschr. f. d. prakt. Heilk. **44**: 86, 1854.
2. Gouley, B. A.; Bellet, Samuel, and McMillan, T. M.: Tuberculosis of the Myocardium, Arch. Int. Med. **51**: 244 (Jan.) 1933.

of a spider web transparency, was covered by a white opaque membrane about 1 or 2 mm. thick. This entirely dammed back the spinal fluid and caused a large cyst.

Microscopic studies of the membrane by Dr. C. M. Hyland revealed lymphoid infiltration and numerous concentric masses of cells. The periphery of these concentric masses was composed of dense, almost hyalinized, fibrous tissue, and the center was occupied by a large foreign body giant cell or a group of epithelioid cells. Within the body of the giant cells and in the crevices of some of the epithelioid cells there were spherical bodies with a double contoured highly refractile capsule. The diagnosis was coccidioidal granuloma.

The child was somewhat better for several weeks after the operation. As sulfanilamide has been suggested as a possible cure for this condition, rather large doses were given subcutaneously and intravenously in 0.8 per cent physiologic solution of sodium chloride. However, the course of the disease continued to be hopeless, and the child died December 7.

An autopsy performed by Dr. Ludwig Lindberg revealed a recurrence of the membranous lesion at the base of the brain and the formation of fibrous adhesions to the brain substance. The cerebellum had been pushed down into the area surrounding the foramen magnum. The lower portion of the upper lobe of the right lung contained a small hard nodule consisting of caseous material and simulating a Ghon tubercle. This single, sharply circumscribed nodule, 1.5 cm. in diameter, was the only lesion in the lungs. Sections showed coccidioidal tubercles and Coccidioides immitis.

COMMENT

Coccidioidal granuloma was first described in this country by Rixford in 1895. Afterward many reports appeared, chiefly from California. Recently cases have been reported from other portions of the United States. In California, especially in the San Joaquin Valley, the disease is well known. Dickson [1] described a condition called valley fever and characterized by a cold or bronchopneumonia, often with a relatively high fever and the appearance of painful erythema nodosum. This he said was the primary acute infection with coccidioides. Many writers have stressed the similarity of the disease to tuberculosis. In this instance the similarity is consistent. The disease is rare in children. California [2] reported that since the initial case, in 1895, to July 1, 1936, a total of 450 cases with 224 deaths had occurred. Twenty patients were under 4 years of age and thirty-four under 10. Duckett and Fredeen [3] reported an instance in which coccidioides infection in a boy aged 5 years probably precipitated hydrocephalus and at autopsy extensive meningeal involvement was seen. (This instance would bring the reported total to twenty-two patients under 5.) Rand [4] reported two cases in which the condition in adults simulated tumor of the spinal cord. In one, operation proved beneficial. The treatment is unsatisfactory. Tomlinson and Bancroft [5] expressed the opinion that the use of antimony and potassium tartrate in addition to roentgen therapy is of value. Jacobson [6] emphasized colloidal copper. Surgical excision may prevent spread of the condition.

One wonders why this child should have had a coccidioidal infection. She had lived her entire life in Tucson, Ariz., and her case is the first reported in which the disease originated in this locality. It is of interest that her father maintains a cleaning and pressing establishment and the child frequently rode with him in the delivery wagon, using dirty clothes as a cushion. Mycotic diseases are said to be more common among workers engaged in this type of work.

4 East Congress Street.

1. Dickson, Ernest C.: "Valley Fever" of the San Joaquin Valley and Fungus Coccidioides, California & West. Med. **47**: 151 (Sept.) 1937.
2. California State Department of Public Health: Coccidioidal Granuloma in California in 1934-1935, California & West. Med. **46**: 282 (April) 1937.
3. Duckett, Thomas G., and Fredeen, Robert C.: Coccidioidal Granuloma, J. Kansas M. Soc. **38**: 111 (March) 1936.
4. Rand, Carl W.: Coccidioidal Granuloma: Report of Two Cases Simulating Tumor of the Spinal Cord, Arch. Neurol. & Psychiat. **23**: 502-511 (March) 1930.
5. Tomlinson, C. C., and Bancroft, Paul: Granuloma Coccidioides: Further Observations *on the Use of Antimony* and Potassium Tartrate and the Roentgen Rays in Treatment, J. A. M. A. **102**: 36 (Jan. 6) 1934.
6. Jacobson, H. P.: Coccidioidal Granuloma, California & West. Med. **29**: 392-396 (Dec.) 1928.

Special Article

CONFERENCES ON THERAPY

USE OF DRUGS IN THE TREATMENT OF ALLERGIC CONDITIONS

NOTE.—*These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors.*

DR. EUGENE F. DU BOIS: The problems connected with the treatment of allergic conditions are increasing in importance. The question arises whether the advances in therapy have kept pace with the increase in the number of patients. Dr. Gold will start the discussion with a brief outline of the objectives in the treatment of asthma and other allergic conditions.

DR. HARRY GOLD: The rational use of drugs in the treatment of allergic conditions requires that we not merely look at these conditions as clinical entities but focus our attention on the physiologic disturbances which are responsible for the symptoms. At least eight major abnormalities are encountered in cases of bronchial asthma: (1) spasm of the bronchial muscle, (2) hypersecretion of the glands, (3) capillary dilatation, (4) increased permeability of the capillary wall, (5) edema of the mucous membrane and possibly also of the muscle of the bronchi and the bronchioles in the more advanced stages, (6) diminished elasticity of the lungs, (7) emotional unrest, anxiety and nervousness, and (8) asphyxia.

Not all cases present these factors in the same proportions, and it has been doubted whether some of these factors are ever present in some cases. There is a view that bronchial spasm plays but a little role in human bronchial asthma, although in the anaphylaxis of the guinea pig that appears to be the chief factor. The consensus, however, is, I believe, that all these factors, or at least most of them, play some role in most cases of bronchial asthma.

The result of most of these factors is, first, to impair the movement of air through the pulmonary tree and, second, to interfere with the diffusion of gases.

The innervation of the bronchial tree is a matter of some importance and is probably well known to you. Both the vagus and the sympathetic exercise control. The vagus supplies the constrictor fibers to the bronchial muscles and also the secretory fibers to the glands, and the sympathetic supplies fibers which when stimulated relax the smooth muscle of the bronchioles. The sympathetic also supplies the vasoconstrictor fibers and possibly some vasodilator fibers to the blood vessels of the bronchi.

Here is a list of the drugs by classes that are generally employed in the treatment of patients with bronchial asthma as well as other forms of allergic disorders:

1. Epinephrine, ephedrine and other related amines, generally in the form of their salt.
2. Atropine; stramonium.
3. Theophylline preparations, papaverine, nitrites.
4. Calcium salts.

5. Barbital and barbital derivatives, morphine, codeine.
6. Helium.
7. Iodides.
8. Iodized oil.
9. Anesthetics: ether, avertin with amylene hydrate.

The sympathomimetic amines like epinephrine, ephedrine and other related compounds produce effects similar to stimulation of the sympathetics, causing relaxation of the bronchial musculature and constriction of the blood vessels. The members of the belladonna group, atropine and stramonium, block the parasympathetics and thereby reduce the secretions and relax bronchial muscle. Among the agents which act directly on smooth muscle to cause relaxation are theophylline, caffeine, papaverine and the nitrites. The calcium salts reduce capillary permeability. The actions of the general depressants, such as the barbital derivatives, morphine and codeine, are well known. How some of these substances are best put to use in the treatment of bronchial asthma and other allergic conditions will be considered this morning. In the course of the discussions we hope that it may be possible to bring out some of the details of the pharmacologic actions of these compounds.

Dr. Horace S. Baldwin: Bronchial asthma is primarily a functional disorder involving the bronchial tree. When the asthmatic paroxysm is over, the bronchi and lungs return to their previous state. With continued attacks, however, the asthmatic state becomes associated with definite pathologic changes such as emphysema, chronic bronchitis, bronchiectasis, pulmonary arterial hypertension and failure of the right side of the heart. I emphasize these points at the start because, whereas drugs in the treatment of bronchial asthma may for a time give spectacular relief, it is of paramount importance that the fundamental background of sensitivities, respiratory infection and neurogenic factors be carefully studied and adequately handled so that the use of drugs may not be necessary.

From the standpoint of the clinical use of the drugs which Dr. Gold has mentioned, I will proceed according to the outline he gave. Epinephrine, of course, is the drug that gives the most dramatic effect in asthma. It has no effect when given by mouth. When given subcutaneously its effect appears very quickly. I might state here that epinephrine does not usually need to be given in large doses. A dose of 0.25 or 0.5 cc. of a 1 : 1,000 solution of epinephrine hydrochloride is usually adequate. A dose of 1 cc. may often cause considerable tachycardia and nervousness, although it may not affect the asthmatic state any more favorably than 0.25 cc. The drug may be given three or four times a day, sometimes more often if necessary. Solution of epinephrine hydrochloride 1 : 100 may be given by a specially devised vaporizer and inhaled into the trachea. It has to some extent supplanted the administration of solution of epinephrine hydrochloride by hypodermic injection. It is very useful, but we have to beware of the possibility that so much epinephrine taken intratracheally may cause irritation.

Dr. Henry B. Richardson: How long do they inhale it?

Dr. Baldwin: They inhale it until they get a therapeutic effect, which is usually a matter of fifteen or twenty seconds.

In the course of time epinephrine may lose its effect That presents a problem in the treatment of status asthmaticus. I will attempt to touch on it later in the course of my brief remarks.

Ephedrine produces several effects similar to those of epinephrine, and it is potent when given by mouth. The dose of ephedrine is from 0.025 to 0.050 Gm. The effect of ephedrine is less intense and less dramatic than that of epinephrine, but it is very useful in the milder cases of asthma. It may also cause tachycardia nervousness, insomnia and bladder disturbances. In view of this, ephedrine is best given in combination with a sedative, such as phenobarbital or amytal. A useful combination is ephedrine, 0.025 Gm. and phenobarbital 0.03 Gm. In that way the nervous effects of the ephedrine are reduced, whereas the therapeutic effect is not impaired.

We have not been greatly impressed with the value of atropine in asthma. I think the reason is that large doses are needed for therapeutic effect, and these cause disagreeable side effects, with dryness of the mouth visual disturbances and other signs of atropine overdosage.

During the past year we have used theophyllin frequently and we have had some very interesting experiences with it. We give it in the form of aminophyllline. We find that the ordinary oral doses of 0.1 to 0.2 Gm. are not very effective and also that its oral administration in adequate dosage is often complicated by gastrointestinal difficulties. However, when we give it intravenously in doses of from 0.25 to 0.5 Gm. the effects have been very satisfactory. Those individuals in whom epinephrine "fastness" has seemed to develop those in whom epinephrine does not seem to be any longer effective, often secure satisfactory relief in an attack of asthma from aminophylline given intravenously.

The calcium salts have offered attractive theoretical possibilities for the treatment of allergic conditions but I have not been impressed with their value in asthma.

The barbitals find their greatest usefulness in the treatment of the nervous symptoms of the asthmatic patient and in the control of the nervousness caused by epinephrine or ephedrine.

Morphine deserves a very important place in a discussion of this sort. Morphine sulfate to an asthmatic patient in doses of one-eighth grain (0.008 Gm.) or even less by hypodermic injection may be useful. However, it is a very dangerous drug for a good many asthmatic patients. Morphine stimulates the parasympathetic system, and some asthmatic patients are apparently more easily so stimulated by morphine than others. A good many deaths have been due to the indiscriminate use of morphine. The effect of morphine, besides that on the parasympathetic, is to depress the respiratory center and to diminish the ciliary action of the tracheal and bronchial mucous membrane. With too frequent repetition of the dose the patient may drown in his own secretion. I want to emphasize the extreme caution that should be used with the administration of morphine in bronchial asthma. Added to that is the fact that morphine is a habit-producing drug, a real source of danger in the asthmatic patient whose condition tends to recur over a period of years.

Helium offers interesting possibilities, particularly in the treatment of status asthmaticus. A mixture of

ut 75 parts of helium and 25 parts of oxygen is ıter than air, has a greater inherent motility and can breathed with much less effort. It has been used a ·at deal in the Medical Center uptown by Dr. Barach, o developed it. It is particularly applicable in some the very severe cases of status asthmaticus. In this spital, however, where we see a good many cases of ·ere status asthmaticus, we have seldom felt it neces-·y to resort to this method of therapy, which is so pensive. We do however use oxygen alone, pref-ably in the tent, in a good many of these cases. Its e is very important and may be life saving.

Iodides are a very important part of our drug arma-entarium in the treatment of chronic bronchial asthma. ıe bronchial secretion is very tenacious in a great any asthmatic patients. We believe that the favorable fluence of the iodides consists in making the mucus ore liquid and thus facilitating its expectoration. .any proprietary preparations depend for their effect ı the iodides and ephedrine.

The instillation of "iodized oils" is a therapeutic pro-·dure for asthma that is fast losing ground. The more e see it used the more impressed we are with its ıngers, namely localized lipoid pneumonia and the ıronic irritation and chronic infection set up about the ɔint where the iodide in oil remains in the bronchial ·ee.

The various anesthetics, ether and avertin with mylene hydrate are not being used very much. In ɔvere cases of status asthmaticus rectal instillation of qual parts of ether and olive oil, 3 cc. per kilogram of . ody weight, or anesthesia by means of avertin with mylene hydrate, sometimes interrupts a vicious cycle. Their mechanism of action is not understood.

Dr. Du Bois asked me to say something about urti-aria, angioneurotic edema and serum sickness. The lrug treatment for urticaria and angioneurotic edema ·esolves itself into first aid measures while attempts ıre being made to ascertain the etiology. As to these irst aid measures, epinephrine may be given subcu-.aneously in the doses I have indicated. In my experi-ɔnce it is much more effective than ephedrine given by mouth. Calcium therapy given intravenously and by mouth may also be helpful, and when there is low free hydrochloric acid in the stomach the administration of the dilute acid is particularly indicated.

Local measures, such as lukewarm baths of sodium bicarbonate or cornstarch, are also used with benefit.

With regard to serum reactions, one has two phases to consider: The first phase is the matter of anaphy-lactic shock due to the injection of a foreign protein to which the patient may be sensitive. Here prevention is certainly much better than cure, and if adequate cutaneous testing and conjunctival testing are done with the particular serum before it is given, the immediate anaphylactic type of reaction may be avoided. In any case, when a foreign serum is given it is wise to have epinephrine handy in a hypodermic syringe and give it promptly should the symptoms of acute anaphylaxis occur. The second phase is the matter of serum sick-ness occurring usually within ten days to two weeks after the administration of a foreign serum. It is con-trolled in large measure by the same means that we use for the treatment of urticaria and angioneurotic edema. Epinephrine may be given subcutaneously. Ephedrine may be used. Certain calcium compounds may be given intravenously and by mouth. Cool compresses to the itching swollen areas are much better than hot ones.

DR. DU BOIS: How about the use of acetylsalicylic acid?

DR. BALDWIN: Acetylsalicylic acid is a two-edged sword. In serum sickness acetylsalicylic acid may be very useful. On the other hand, you must remember that one of the most common causes of hives and angio-neurotic edema that we generally encounter is acetyl-salicylic acid. If you are going to give it in acute serum sickness it is well not to continue it very long, part-ticularly if the patient continues to have urticaria during its use.

TREATMENT OF ALLERGIC CONDITIONS IN CHILDREN

DR. VERNON W. LIPPARD: We do not use a large number of drugs in treating allergic conditions in chil-dren, and we do not use any that have not been mentioned.

One or two points with regard to dosage might be emphasized. In children we use doses of epinephrine which closely approximate those used in older persons. An effective dose of solution of epinephrine hydro-chloride in an infant is seldom less than 0.1 cc. and most children of school age require doses in the range of 0.3 cc. in order to bring about any therapeutic effect in an asthmatic attack. The ordinary dose of ephedrine sulfate in children is 0.025 Gm. and, as Dr. Baldwin mentioned, we often give a sedative either in the same prescription or concurrently. The use of sedatives might be stressed a little more in relation to children than it has been in adults. Many children become frightened during an asthmatic attack. The attack is likely to subside more quickly if one allays the emotional excitement by liberal use of phenobarbital or other seda-tives in conjunction with epinephrine or ephedrine preparations. We do not use atropine very often because we find, as Dr. Baldwin said, that we cannot give enough atropine to produce therapeutic effects without creating the undesirable toxic effects which accompany large doses.

Of course, we attempt to discover the exciting factors. Since a great many allergic disorders are attributed to hypersensitivity to foods, pollens or inhalants it is often possible to remove the causative factors rather than merely to treat the symptoms. The use of drugs may often be confined to the period when one is study-ing the patient and trying to discover the offending antigens.

DISCUSSION

DR. DU BOIS: The subject is open to general dis-cussion. I hope that you may have many questions relating to the pharmacology and the uses of these drugs, their mode of action, and the relative merits of the different compounds and methods.

DR. MCKEEN CATTELL: I wonder whether Dr. Bald-win can throw any light on the mechanism of the apparent increase in tolerance to epinephrine which sometimes follows the repeated use of the drug. I do not think we observe anything of that sort experi-mentally, although in the case of ephedrine there is an effect we note with repeated administration, which might correspond to something of the sort.

DR. BALDWIN: It is not easy to answer this question. I presume the reason patients become epinephrine

"fast" is that the tissues affected by the epinephrine have become exhausted with continued stimulation.

DR. CATTELL: The definite impression is that it is related to the repeated dosage rather than to any change in the condition of the disease itself?

DR. BALDWIN: The repeated dosage seems to me to be the important thing.

DR. DU BOIS: If bronchial spasm is not an important factor in man, how would this act then?

DR. BALDWIN: Dr. Gold indicated that some observers think that bronchial spasm is not an important factor in the human being. On the other hand edema might well be affected by epinephrine without the effect on the bronchial musculature through the constrictive effect on the bronchial vascular bed.

DR. JANET TRAVELL: You spoke about giving solutions of epinephrine hydrochloride subcutaneously. We know that epinephrine is very poorly absorbed from the subcutaneous tissues, and I wondered whether you ever give the solution intramuscularly.

DR. BALDWIN: We do not usually give solution of epinephrine hydrochloride intramuscularly. We have been under the impression that the intramuscular injection gives too rapid absorption. In cases in which we had given it intramuscularly there occurred severe throbbing, headache and extreme nervousness, which made us reluctant to repeat it. However, I might say that in the treatment of status asthmaticus we do use very small amounts of epinephrine in a solution of dextrose by intravenous infusion, and it seems to be very effective used that way.

DR. GOLD: I wonder whether I may say something about these patients who become tolerant to epinephrine in the course of time and develop status asthmaticus in which epinephrine is no longer useful. When their protracted attack of asthma subsides, they sometimes regain their responsiveness to epinephrine, do they not?

DR. BALDWIN: Yes.

DR. GOLD: Wouldn't this argue against the view that their temporary failure to respond is due to frequent use of epinephrine? Then I should like to ask whether the tolerance may not really be due to the fact that the mechanism of the attack of asthma is different in the late stages of asthma when epinephrine is no longer effective from what it is in the early stages. By way of illustration, if in the early stages it is mainly a matter of bronchial spasm we can overcome it readily, but if in the late stages it becomes more a matter of edema, then epinephrine might readily fail to overcome it. If in the late stages it becomes more a matter of paralysis of the capillary wall, epinephrine would then have as little effect as it has in angioneurotic edema, in which epinephrine is not as effective as it is in asthma.

DR. BALDWIN: This may be true.

DR. GOLD: A change in the disease itself rather than a development of tolerance as the result of the protracted use of the drug would be the formulation that I would suggest to explain the poor response to epinephrine in the late stages of asthma.

DR. TRAVELL: I was going to ask whether there were any other means of prolonging the action of epinephrine besides putting it up in an oily solution?

DR. DU BOIS: Such as rubbing the spot?

DR. BALDWIN: Rubbing of the injected area in the arm with most asthmatic patients is really not very effective. We find it rather a rarity when a patient comes in and says "I rubbed this area after I gave myself the injection and it worked." It is disappointing that it does not work more often.

DR. GOLD: The proposers claim that it works in about 20 per cent of the cases.

DR. BALDWIN: I would say that is liberal.

DR. DU BOIS: I have been disappointed in the method, hoping to demonstrate dramatic effects. I have almost always failed.

DR. ALICE BERNHEIM: Dr. Abramson at Mount Sinai has developed iontophoresis. He finds epinephrine used in that way very effective because that too prolongs the absorption.

DR. GOLD: Dr. Baldwin has spoken about slowing up the absorption of epinephrine by oily solutions in order to prolong the epinephrine action. Are we seeking to delay the absorption or exactly the opposite? When we give a dose of epinephrine subcutaneously for the treatment of asthma we can get effects within two or three minutes, which means that the drug enters the blood stream rapidly. Then, however, a marked local vasoconstriction takes place, which delays or prevents further absorption. An extract of the area of the skin made several hours later by Luckhardt and Koppanyi still contained epinephrine. The problem that needs to be solved is not one of delaying absorption but of accelerating it. Epinephrine delays its own absorption too much. I can readily see how an oily medium might protect the local vessels against the strong constrictor action and in that way prolong absorption. There are other ways in which that might be done. If one irritates the tissues and produces dilatation of the capillaries or paralysis, then epinephrine may continue to be absorbed over a longer period of time. I wonder whether an irritant in the solution of epinephrine might not be a useful expedient. Somewhat more than the 0.1 per cent sodium sulfite used as a preservative might serve the purpose.

DR. LIPPARD: Will Dr. Baldwin please discuss his experience with x-ray therapy in asthma?

DR. BALDWIN: It is a comparatively new method, and it is much too early to attempt a final evaluation. There are some cases of asthma that are helped by exposure of the chest to x-rays, and we usually combine it with irradiation of the sinuses. Some very dramatic results are obtained, and it has seemed to me that the cases helped most often have been the chronic infectious types of asthma with considerable wheezy bronchitis. In others it appears to be of no value. At present we have no definite knowledge of what its effect is on the tissues histologically or what the results will be after five years or more.

DR. WALTER MODELL: If one wants to avoid an increase in blood pressure in the asthmatic patient with hypertension would one use epinephrine or ephedrine?

DR. BALDWIN: In my experience an asthmatic patient with hypertension having an acute attack of asthma may be given epinephrine in small doses. It produces the usual relief of the acute asthmatic attack and the blood pressure is very apt to fall after its administration rather than rise. My preference is to use aminophylline in these cases.

DR. MODELL: How would that compare with the action of ephedrine in the same situation?

DR. BALDWIN: The effect of ephedrine is, of course, slower, but I have not been impressed that the use of ephedrine or epinephrine is harmful to asthmatic patients with hypertension. I would be interested to know what Dr. Gold thinks about that.

DR. GOLD: I cannot say whether or not they would be harmful, but if I had a choice I should use epinephrine instead of ephedrine for the attack of asthma in which hypertension is also a problem. The reason is that ephedrine is rapidly absorbed and epinephrine poorly absorbed. A small part of the dose of epinephrine enters the circulation very quickly, but too little to raise the blood pressure. One way to reduce the vasopressor effect of ephedrine is to give it with epinephrine, because the epinephrine will delay the absorption of the ephedrine.

STUDENT: How do calcium compounds act in relieving the asthmatic attack?

DR. GOLD: I can just state what calcium does that might conceivably be beneficial. It relaxes smooth muscle. This may explain how it relieves renal colic and lead colic. It reduces permeability of capillaries. It also reduces neuromuscular irritability, which is one of the problems in bronchial asthma. It is possible that those three actions would occasionally prove valuable in bronchial asthma.

DR. DU BOIS: If given by mouth, would there be enough calcium to do that?

DR. GOLD: No, it would have to be given by vein, and then the problem of intravenous calcium is one that ought to be considered with circumspection. There is considerable danger in rapid intravenous injection of calcium. A gram or a gram and a half of calcium gluconate in about a 10 per cent solution, injected in a period of from five to ten minutes, not more quickly, may be used.

MR. T. P. ALMY (Student): Would any one comment on or criticize the use of pitressin and a low sodium diet in the treatment of bronchial asthma?

DR. BALDWIN: I have not had any experience with it.

DR. DU BOIS: Suppose you tell us about it.

MR. ALMY: Cook and Stoesser reported in June 1938 six cases in children with bronchial asthma whom they treated with pitressin, a low sodium diet and a high water intake. The use of pitressin was continued for about thirty-six hours. In most cases they obtained some relief, and in some cases it was complete. In one instance the symptoms of asthma returned after the ingestion of 4 Gm. of sodium chloride.

DR. DU BOIS: Are there any comments on that work?

DR. LIPPARD: This work was based on the original observation that diets high in salt increased asthmatic symptoms and that diets low in salt or artificial fever resulted in a decrease in asthma. Cook and Stoesser also studied the effect of potassium chloride, the ingestion of which failed to increase the severity of asthmatic attacks and in some instances seemed to bring about some alleviation. The effects of alterations in electrolyte balance cannot be considered, however, without also considering the water metabolism. It has been shown that administration of pitressin causes not only retention of body water but also an increase in output of sodium chloride. Since the administration of pitressin was effective in decreasing the frequency of asthmatic attacks, despite retention of water, it appears that the loss of sodium chloride is the essential factor.

These studies are interesting from the theoretical point of view but the methods have not been used practically in a large group of patients. They should be of greatest value in diminishing the frequency and duration of attacks rather than in alleviating acute symptoms.

DR. BALDWIN: May I say something more about the use of these drugs we have discussed. We cannot emphasize too strongly that their use constitutes only a part of the treatment of the asthmatic. Those who see asthmatic patients frequently are greatly impressed with the importance of therapeutic measures other than drugs. If you go to the home of a patient who is having an attack of asthma, you should be on the alert for such factors as a feather pillow, a dog sitting on the bed, the cosmetics in use or a sinus infection complicating the asthma. The removal of those factors gives results often more dramatic than the administration of drugs.

DR. LIPPARD: For the benefit of students who have not seen many of these patients, the use of asthma powders should be mentioned. Seldom does one see a child with asthma who has not had some proprietary asthma powder burned in his room. I have been rather impressed with the possibility that the intensity of the attack may be increased by the use of these powders and have never been convinced that they produce relief. The air in a small room in which powders have been burned becomes practically suffocative after a few hours. I do not see how a healthy person could breathe very easily in such an atmosphere.

DR. ADE T MILHORAT: I was wondering whether Dr. Lippard could tell us how he proceeds to give serum to a child who is sensitive. What precautions does he take?

DR. LIPPARD: Serum should be administered only with great caution to children who have histories of asthmatic attacks associated with exposure to animal danders or previous injections of serum. Most fatal reactions have occurred in this group. Both ocular and intracutaneous tests with diluted serum should be performed. If reactions are observed, a small amount of diluted serum may be given subcutaneously in the arm and absorption controlled if necessary by means of a tourniquet. If no generalized reaction occurs within thirty minutes, the remainder of the serum may be given slowly by intravenous injection, preferably diluted 1 : 10. Injection should be interrupted and epinephrine administered at the first sign of a generalized reaction.

DR. GOLD: I should like to ask one question of Dr. Baldwin: whether he feels quite convinced that potassium iodide would be more effective than a strong solution of sodium chloride in bronchial asthma. Is not the expectorant effect of the iodide merely a nonspecific reflex effect of the strong salt?

DR. BALDWIN: I have never used a strong solution of sodium chloride in the treatment of bronchial asthma but I am convinced that either sodium iodide or potassium iodide is a very useful drug in the treatment of chronic bronchial asthma.

DR. GOLD: I do not doubt its being useful. I venture the suspicion, however, that a strong solution of ordinary table salt would be equally effective.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE BOARD OF TRUSTEES REQUESTED THE COUNCIL ON PHARMACY AND CHEMISTRY TO MAKE A STUDY OF THE PROMISCUOUS USE OF BARBITURATES, PARTICULARLY WITH REFERENCE TO THE DANGEROUS USE OF THESE PRODUCTS BY THE PUBLIC. THE COUNCIL INVITED DR. W. E. HAMBOURGER OF WESTERN RESERVE UNIVERSITY TO DRAW UP A REPORT. THE COUNCIL CONSIDERED THIS REPORT AND AUTHORIZED ITS PUBLICATION, EXPRESSING APPRECIATION OF DR. HAMBOURGER'S EXCELLENT WORK. THIS REPORT WILL BE FOLLOWED BY ANOTHER ONE AT A LATER DATE.

PAUL NICHOLAS LEECH, Secretary.

A STUDY OF THE PROMISCUOUS USE OF THE BARBITURATES

THEIR USE IN SUICIDES

W. E. HAMBOURGER, PH.D.

CLEVELAND

At a meeting of the American Medical Association in June 1937 a resolution was introduced on the "Evils from Promiscuous Use of Barbituric Acid and Derivative Drugs," in which was included the following statement: "The evils of these drugs include habit formations, toxic cumulative action, their substitution for alcoholic beverages for drunken episodes, their use for successful as well as unsuccessful suicidal attempts, their improper use being a recognized causative factor in many motor accidents and their improper use being a recognized etiologic factor in some criminal assaults. . . ."

The widespread use of barbiturates is illustrated in table 1 by statistics of the manufacture and sale of the drugs in this country for 1936 compiled by the United States Tariff Commission. These figures were made available through President H. G. Bertram of the Winthrop Chemical Company, in whose opinion, because of the high United States duty, "sales" may be considered practically equivalent to consumption in the United States.

If the average therapeutic hypnotic dose for all the drugs in table 1 is taken as 1½ grains (0.1 Gm.), then the United States sales represent more than 810,000,000 doses a year, which is more than 2,200,000 doses a day. A large part of these drugs undoubtedly were used under medical supervision, often in much larger dosage (for instance, by psychotic patients and for basal anesthesia). What part was used without prescription or medical supervision is difficult to evaluate.

The problem of investigating the promiscuous use of the barbiturates divides itself conveniently into four headings: (1) the incidence of successful suicides by barbiturates, (2) the incidence of nonfatal poisoning, (3) chronic usage and (4) involvement in motor accidents and criminal offenses.

The present report is concerned with the incidence of accomplished suicides. A study of the other aspects is being made and will be reported on at a later date.

SOURCES OF INFORMATION

The data considered in this report come from two general sources: (1) medical literature and (2) vital statistics. The latter were obtained from United States census reports and from data solicited of the Metropolitan Life Insurance Company and medical examiners and coroners of several large cities.

From the Department of Pharmacology, Western Reserve University.

LITERATURE ON SUICIDES AND ACUTE POISONING

The available medical literature on the barbiturates, largely as listed in the *Quarterly Cumulative Index Medicus*, has been examined from January 1926 to July 1938, and the papers significant to the present topic are discussed later. As a rule, data on intentional and unintentional deaths are found intermingled.

The incidence of acute poisoning by barbiturates has increased markedly in recent years. Gillespie[1] in a thorough search of the literature collected 157 reports of published deaths up to the end of 1932, of which forty-four occurred since 1927. The deaths were divided as follows: Fifty-seven were definitely suicidal, thirteen more were questionably suicidal, nine deaths (including three suicides) occurred in addicts, and seven more (including two questionable suicides) were in suspected addicts.

Scarlett and MacNab[2] found a total of 408 deaths in the literature up to the end of 1934. This total represented 247 deaths in the two calendar years 1933-1934 (a discrepancy of four deaths as compared with Gillespie's figures). The great majority of the fatalities in their series were due to suicidal intent, indicating an increasing tendency in this direction from 1932 to 1934, since only one third of Gillespie's deaths were suicides.

In the Registrar-General's statistics for 1931 in England there were 5,149 suicides, of which only thirteen (0.26 per cent) were by barbiturates.[1]

Lowy,[3] analyzing 2,046 replies from hospitals in the United States to questionnaires covering the decade 1924-1934, reported 1,185 cases of barbiturate poisoning with 124 deaths. This includes only the three drugs barbital, phenobarbital and allonal. Some deaths were probably due to the aminopyrine in the allonal. These data may be compared with parallel figures of 139 cases of poisoning and seventeen fatalities by coal tar analgesics (antipyrine, acetophenetidin and acetanilid) and seventy-four cases of poisoning with four fatalities for acetylsalicylic acid. The hospitals had about 2,500,000 admissions a year or 25,000,000 for the decade, so the death rates were therefore approximately as indicated in table 2.

TABLE 1.—*Manufacture and Sale of Barbiturates in United States for 1936*

Drug	Manufacture		Sales	
	Pounds*	Grains†	Pounds*	Grains†
Coal tar barbiturates (essentially phenobarbital)	107,650	755,000,000	98,617	690,000,000
Non-coal tar barbiturates (essentially barbital, amytal, pentobarbital, and so on)	123,517	865,000,000	75,571	529,000,000
Totals	231,167	1,620,000,000	174,188	1,219,000,000

* Weights are avoirdupois; 1 pound = 7,000 grains.
† Value in grains is only approximate.

In Germany, from the end of 1918 to April 1936, Siebert[4] reported a total of 2,894 cases of suicide by solid, liquid and gaseous poisons which he had compiled from publications. Of these, 1,071 were due to barbituric acid derivatives. This is second only to illuminat-

1. Gillespie, R. D.: On Alleged Dangers of Barbiturates, Lancet 1: 337-345 (Feb. 17) 1934.
2. Scarlett, E. P.; and MacNab, D. S.: Poisoning from Phenobarbital, with Report of Fatal Case and Review of Fatalities Previously Reported, Canad. M. A. J. 33: 635-641 (Dec.) 1935.
3. Lowy, Otto: Comparative Study of Habitual Use of Barbiturates and Coal Tar Derivatives as Furnished by Reports from Various Hospitals Throughout the U. S., Canad. M. A. J. 31: 638-641 (Dec.) 1934.
4. Siebert, H.: Selbstmorde durch Gift in Deutschland seit Kriegsende, Sammlung von Vergiftungsfällen 7: C73-74, 1936.

ing gas, with 1,196 deaths. The other hypnotics together account for only 109 successful suicides. Unsuccessful suicides were not recorded. Presumably they exceed the successful cases in number. The actual number of suicides undoubtedly far exceeds the number reported in the literature. The percentage of suicides by barbiturates in Germany is much greater than the corresponding incidence in the United States, at least until recent years. This is presumably because barbiturates were introduced in Germany several years before their introduction in American medicine, and the "fashion" or "suicide cycle" has only recently turned to barbiturates as a means of self destruction in the United States.

TABLE 2.—*Death Rates for Various Drugs*

Drug	Deaths per Million Admissions*
Barbiturates	5 00
Coal tar derivatives ..	0 64
Acetylsalicylic acid..	0 16

* In Lowy's conclusions, these figures are given tenfold too high The figures given here are from part of his summary table and have been verified by direct correspondence with him.

VITAL STATISTICS ON SUICIDES

Those vital statistics which have been considered in this investigation list deaths due to asphyxiant gases (carbon monoxide, automobile exhaust, artificial illuminating gas and the like) separately from deaths due to drugs and poisons, liquid and solid. Since very few data on gases are available, the figures given here for suicides due to poisons refer only to liquid and solid poisons and do not include asphyxiant gases, except as specifically noted.

U. S. Bureau of the Census.[5]—The latest federal report contains statistics for the five year period 1932-1936 inclusive (table 3 A). During this interval there were 634 successful suicides by all barbiturates This may be compared with 27,978 suicides by all poisons, solid, liquid and gaseous (of which 12,892 were due to gases alone). Deaths from all forms of suicide including the foregoing, numbered 96,256. Suicides by all barbiturates for the five year period, therefore, amounted to 4.20 per cent of all solid and liquid drugs (excluding gases), to 4.92 per cent as compared with suicides by poisonous gases only and to 2.26 per cent of all drugs and poisons, gaseous as well as liquid and solid. Barbiturate suicides constitute 0.66 per cent of suicides by all means, drug and otherwise.

The data for this five year period indicate a definite increase in the incidence of suicides by the barbiturates in the more recent years, while the incidence of suicides by poisonous gases has slightly declined. The frequency of suicides by the barbiturates, as compared to suicides from all causes, has more than doubled from 0.42 per cent in 1932 to 0.93 per cent in 1938, to make the five year average 0.66 per cent. Chart 1 shows a similar upward trend for barbiturates as compared to all solid and liquid poisons.

For each year there are listed a number of "accidental" barbiturate deaths almost identical with the number of suicidal deaths. Martland[6] has pointed out that ". . . a considerable number of undoubted suicides often signed out as 'accidental deaths due to overdose of sleeping powders, etc.' will be found classified under accidental deaths by poison." Such inaccuracies, if eliminated, would nearly double the percentage of suicides by barbiturates. The figures already given, therefore, must be considered as minimum values.

There were 171 suicides due to barbiturates in the United States in the year 1936, according to the official U. S. census[5] figures which represent the entire population of the states, District of Columbia, Hawaii, Puerto Rico and the Virgin Islands, an estimated total of 128,500,000. There were also 165 additional deaths due to barbiturates listed under the heading "Accidental, Other or Unidentified." If one assumes that a considerable number of these are suicides, as Martland[6] has suggested, then the probable true number of suicidal deaths caused by barbiturates in 1936 was close to 300.

Judging from the present increasing trend of suicides by the barbiturates, the probable number of suicidal deaths by this method in the United States in 1937 (census data not yet available) may have approached or even exceeded 400.

The Metropolitan Life Insurance Company.[7]—Claims were paid for 4,658 suicides among weekly premium-paying industrial policyholders in the three years 1935 to 1937 inclusive (table 3 B). Of these 680, or 14.6 per cent, were due to drugs and poisons. A barbiturate was specified as the drug used in forty-one cases, representing 6 per cent of all suicides by drugs and 0.88 per cent of suicides from all causes. Specifically barbital was the worst offender, causing eighteen deaths (44 per cent). Next in order came phenobarbital with ten deaths (24.4 per cent), amytal with eight deaths (19.5 per cent) and allonal with three deaths (7.3 per cent; some of these may conceivably have been due to aminopyrine), and neonal and ortal each with one death (2.4 per cent).

TABLE 3.—*Classification of Suicides*

	Location	Barbiturates No.	All Poisons* No.	All Poisons* % B‡	All Methods† No	All Methods† % B‡
A	U S national census (1932 1936 incl)	634	15,036	4 2	96,256	0 66
B	Metropolitan Life Insurance Company; weekly premium paying industrial policyholders for 1935, 1936 and 1937 (national distribution) . ..	41	680	6 0	4,658	0 88
C	Large urban areas: (1928 1937 incl)					
	Suffolk County (Boston), Mass	34	203	16.7	1,272	2 67
	Cook County (Chicago), Ill	128	1,197	10 7	6,523	1 96
	Borough of Manhattan, New York	126	1,477	8 5	13,401	1 10
	Essex County (Newark), N. J .	15	183	8 2	1,433	1 28
	Cuyahoga County (Cleveland), Ohio	32	474	6.7	2 101	1 52
	City and county of San Francisco	19	524	3 6	2,365	0 80
	City of St Louis . .	9	435	2 0	1,870	0 48
	Totals for urban areas	363	4,493	8 1	28,065	1 25

* Suicides by all drugs and poisons including barbiturates but excluding gases.
† Total suicides: suicides by all methods (shooting, hanging, drowning, as well as drugs and gases)
‡ Percentage of barbiturates as compared to "all poisons" or "all methods"

During the same three year period there were 332 claims for deaths due to accidental poisoning. Of these, twenty-seven deaths (18 per cent) were caused by

5 Department of Commerce, Bureau of the Census, Vital Statistics, Special Reports, Number of Deaths in the U. S 1932-1936, 5: 107-108 (June 4) 1938

6 Martland, H S, chief medical examiner of Essex County (Newark), N J Private communication to the American Medical Association

7. Dublin, L. I., third vice president and statistician of the Metropolitan Life Insurance Company. Private communication to the American Medical Association.

barbiturates; specifically, phenobarbital eleven deaths (40.8 per cent), barbital nine deaths (33.3 per cent), amytal five deaths (18.5 per cent) and allonal and neonal each one death (3.7 per cent).

Medical Examiners and Coroners.—We are indebted to the following thirteen local officers who replied to the questionnaire on the incidence of suicides by barbiturates:

S. R. Gerber, M.D., coroner, Cuyahoga County (Cleveland), Ohio.

T. A. Gonzales, M.D., chief medical examiner, Borough of Manhattan, New York.

T. B. W. Leland, M.D., coroner, city and county of San Francisco.

H. S. Martland, M.D., chief medical examiner, Essex County (Newark), N. J.

L. R. Padberg, M.D., coroner, city of St. Louis.

F. J. Walsh, M.D., coroner, Cook County (Chicago), Ill.

W. H. Watters, M.D., Associate Medical Examiner, Suffolk County (Boston), Mass.

W. J. Brickley, M.D., medical examiner, Northern Division Suffolk County (Boston).

N. H. Angell, magistrate, police court, Townson, Md.

E. DeRoma, M.D., medical examiner, Norfolk County (Walpole), Mass.

J. F. Golden, M.D., medical examiner, Norfolk County (Stoughton), Mass.

C. O. Nelson, M.D., medical examiner, Norfolk County (West Medway), Mass.

R. R. Ryan, M.D., medical examiner, Norfolk County (East Weymouth), Mass.

Of these thirteen replies, those of the first seven officials in the list are used in this analysis. One of the remaining six (Brickley) has been omitted because most of its data are included in another reply (Watters).

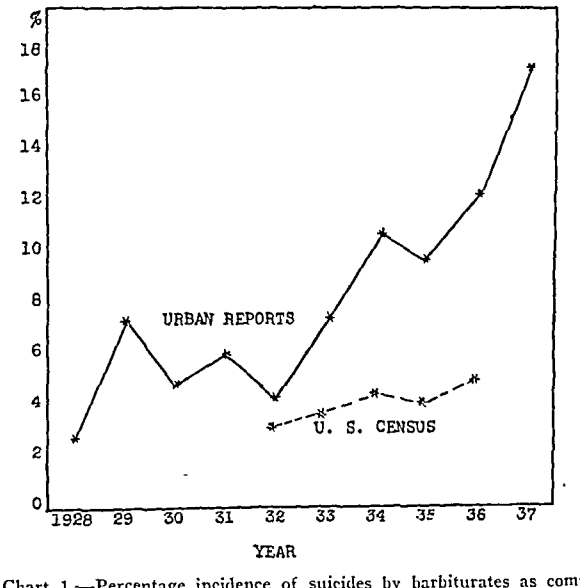


Chart 1.—Percentage incidence of suicides by barbiturates as compared to all solid and liquid poisons.

The last five in the list have been omitted because they do not contain any cases involving barbiturates.

The localities concerned in this report, it will be noted, are mainly the larger cities and their associated counties, namely Boston, Chicago, Cleveland, Newark, New York, St Louis and San Francisco. The period covered is the decade 1928-1937. An additional report for the commonwealth of Massachusetts covering the two years 1936 and 1937 only was also received from Dr. Watters. Although it increases the total number of suicides for those two years, it does not significantly alter the variously calculated percentage values for the urban localities.

A total of 28,965 suicides by all means (table 3 C) was reported. Of these, 4,493 deaths were due to solid and liquid drugs and poisons, exclusive of poisonous

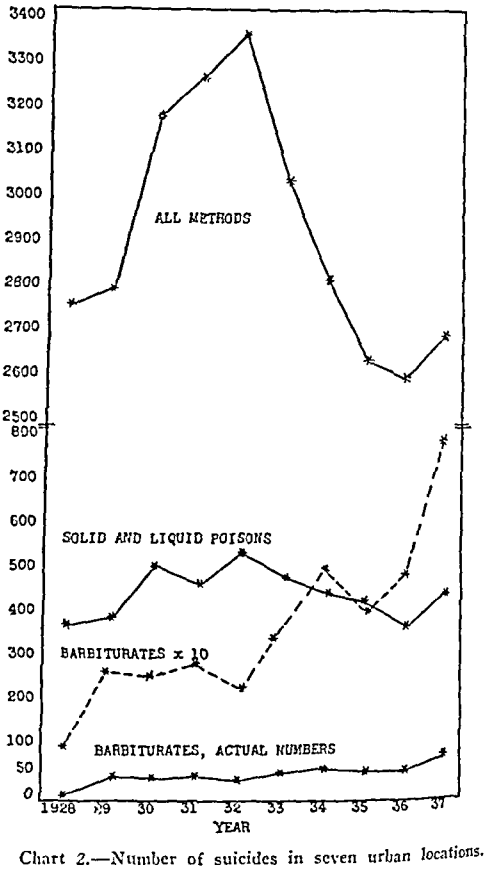


Chart 2.—Number of suicides in seven urban locations.

gases. There were 363 suicides by barbiturates, or 8.1 per cent of the suicides due to all poisons (except gases) and 1.25 per cent of the total suicides by all methods. The percentage of all suicides caused by barbiturates as obtained from this series (1.25 per cent) is nearly double the percentage found in the statistics previously mentioned of the Metropolitan Life Insurance Company (0.88 per cent) and the United States census (0.66 per cent). This indicates a higher incidence of suicide by barbiturates in the population of the larger cities than in the country population, since the last two figures include inhabitants of smaller city and country areas as well as of larger cities.

The percentage of suicides by barbiturates as compared with all poisons (excluding gases), varied widely in different localities from 16.7 per cent in Suffolk County (Boston) to 2 per cent in the municipality of St. Louis. The data for the various regions is given in table 3 C in decreasing order of incidence of suicides by barbiturates.

Six reports, obtained from Boston, Chicago, Cleveland, Newark, New York and St. Louis, listed separately the individual barbituric acid derivatives involved in successful suicides. There was a total of 344 deaths attributable to the barbiturates in this group. Barbital was considered responsible for a majority of 209 deaths (60.7 per cent). Next in descending order came phenobarbital with fifty-six deaths (16.3 per cent), amytal

with twenty-four deaths (7 per cent), allonal with seven deaths (2 per cent), pentobarbital with four deaths (1.2 per cent), ipral, neonal, phanodorn and seconal with one death each (0.3 per cent), and forty deaths (11.6 per cent) due to unidentified or unclassified barbituric acid derivatives. It is plausible that the high incidence of suicides by barbital is somewhat exaggerated and that some of these deaths should also be classified as due to an unidentified barbiturate, since there is a tendency on the part of lay persons, official as well as civil, to call nearly all barbiturates "barbital."

An analysis of the yearly total for the seven large urban areas discloses an upward trend in the frequency of usage of barbiturates as compared both to the total number of suicides and to the number due to solid and liquid poisons. The upward slope of the rise has significantly increased since 1933. This is clearly shown in chart 1, in which the yearly percentage of suicides by the barbiturates as compared with all solid and liquid poisons is graphed. Chart 1 also shows a similar rise, but from a lower level, for the national incidence of suicides by barbiturates as obtained from the U. S. census figures. The two curves clearly indicate the greater use of barbiturates by urban populations than by the national population as a whole (country as well as city).

Another view of the upward trend of the barbiturates as a means of suicide compared to other methods is shown in chart 2. These curves represent in solid lines the actual yearly numbers of suicides by all methods (top curve), by all solid and liquid poisons (middle curve) and by barbiturates (bottom curve). To permit easier comparison, the broken line represents the number of suicides by barbiturates magnified ten times. To conserve space the top curve has been arbitrarily lowered, but the original magnitude of the vertical scale has been maintained. It will be observed that the contour of the curve for barbiturates shows a distinct upward course, increasing since 1933, while there has been a parallel decline since 1933 in both the curves for all poisons and for all methods.

SUMMARY

1. More than 1,200,000,000 grains of barbituric acid derivatives was sold in the United States in 1936.

2. The total number of suicidal deaths by the barbiturates in the United States in 1936 was probably close to 300. The probable number in 1937 may have approached or even exceeded 400.

3. For the five years 1932-1936 the national incidence of suicides by barbiturates represents 4.2 per cent of all poisons (except gases) and 0.66 per cent of all methods used for suicide.

4. In seven large cities and their associated counties, for the decade 1928-1937, barbiturates represent 8.1 per cent of suicides by all solid and liquid poisons and 1.25 per cent of all methods used for successfully committing suicide.

5. The incidence of suicides by barbiturates is nearly twice as high in large cities as in the country as a whole, ranging from 2 per cent in St. Louis up to 16.7 per cent in Boston.

6. The number of suicides by barbiturates has shown a definite upward trend during the past decade, especially marked since 1933, although the frequency of suicides by liquid and solid poisons and of total suicides have both declined since 1933.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

CLAPP'S CHOPPED MIXED GREENS

Manufacturer.—Harold H. Clapp, Inc., Rochester, N. Y.

Description.—Chopped mixed greens containing equal proportions of kale, lettuce and swiss chard. Slightly seasoned with salt.

Manufacture.—Fresh kale, lettuce and swiss chard are cleaned, mixed in equal quantities, and chopped to particles of the desired size. Definite amounts of salt are added, the mixture is heated in an atmosphere of steam and automatically filled into cans, sealed and heat processed.

Analysis (submitted by manufacturer).—Moisture 93.6%, total solids 6.4%, ash 1.0%, sodium chloride 0.3%, fat (ether extract) 0.4%, protein (N × 6.25) 1.6%, reducing sugars as invert sugar 0.3%, sucrose (copper reduction method) 0.2%, crude fiber 0.6%, carbohydrates other than crude fiber (by difference) 2.8%, calcium (Ca) 0.078%, phosphorus (P) 0.036%, iron (Fe) 0.002%.

Calories.—0.21 per gram; 6 per ounce.

Vitamins.—The methods of preparation and processing are designed to retain the natural vitamin values to the highest degree consistent with adequate and safe heating processes. Contact of the product with air during processing is avoided as far as possible.

TRIX

Manufacturer.—New Foods, Incorporated, Chicago.

Description.—Puffed white corn grits, coated with cheese flavoring containing coconut oil, process cheese and certified color.

Manufacture.—Selected grades of white corn grits are cooked under steam pressure, slightly dried, passed between rolls under pressure, dried and inflated under high pressure. The expanded product is screened, toasted, coated with a cheese flavoring (a mixture of coconut oil and process cheese) and packed in a moisture-proof bag.

Analysis (submitted by manufacturer).—Moisture 3.3%, total solids 96.7%, ash 2.9%, fat (ether extract) 24.1%, protein (N × 6.25) 10.2%, reducing sugars as dextrose none, sucrose none, crude fiber 1.2%, carbohydrates other than crude fiber (by difference) 58.3%.

Calories.—4.91 per gram; 139 per ounce.

CRADLE BABY BRAND STRAINED AND SEEDLESS GRAPE JAM

Manufacturer.—Glaser, Crandell Company, Chicago.

Description.—Canned strained grape jam sweetened with sucrose. The jam may contain small amounts of added acid and/or pectin.

Manufacture.—Fresh Michigan Concord grapes are inspected, washed, stemmed and sent to the cooking rooms or frozen and stored. The fruit is sieved and the jam is prepared in essentially the same manner as that described for Cradle Baby Brand Strained and Seedless Fig Jam (THE JOURNAL, March 18, 1939, p. 1071).

Analysis (submitted by manufacturer).—Moisture 30.5%, total solids 69.5%, water-insoluble solids 0.4%, water-soluble solids 69.1%, ash 0.3%, protein (N × 6.25) 0.4%, crude fiber 0.2%, carbohydrates other than crude fiber (by difference) 68.0%, acidity 0.6%.

Calories.—2.74 per gram; 78 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 8, 1939

EXPERIMENTAL RENAL ATROPHY

Recently D. R. Drury [1] of the Department of Physiology, University of Southern California, has described a new method for the production of renal insufficiency of any desired grade in rabbits without the production of pathologic changes in the kidney epithelium. Numerous methods for the production of renal insufficiency in laboratory animals have been devised by previous investigators, such as the administration of nephrotoxins or other bacterial products, exposure to x-rays, surgical removal of one kidney with partial ablation of the other and, more recently, the application of Goldblatt ischemic clamps to the renal arteries. By all these technics, however, necrosis or other pathologic changes are produced in kidney tissue, particularly in rabbits. To avoid such cellular degenerations and to produce a purely quantitative reduction in renal function, Drury placed a loose silk ligature about the left renal artery of baby rabbits (400 Gm.) and allowed this loop to serve as a check to normal kidney growth. Adequate renal function was assured in these rabbits by a compensatory hypertrophy of the right kidney. As soon as the desired stage of dwarfism was demonstrable by palpation of the left kidney, the overgrown right kidney was removed. The animal was now dependent solely on the dwarfed left kidney for its total renal function. Drury regulated the diameter of the loop placed about the left renal artery by tying the silk ligature down on a wire of known diameter. The tie was made snugly but not tightly, so as to avoid crushing or damaging the accompanying artery, and the wire was withdrawn. The artery soon grew up to the size of the loop. Kidney growth was arrested at this stage. After removal of the overgrown right kidney, hypertrophy of the dwarfed left kidney is hindered by the restricted blood flow. By varying the size of the loop, any desired degree of renal dwarfism can be produced by this technic. In his current paper Drury reports dwarf kidneys as small as 20 per cent of the total normal combined kidney weight as well as kidneys of intermediary size varying from 30 to 45 per cent of the combined kidney weight.

The California physiologist found that hypertension is demonstrable in his rabbits submitted to this procedure even before removal of the hypertrophied right kidney. Since the rabbits presumably have fully compensated renal function before this removal, his result suggests an unknown endocrine factor (or "mediator") secreted by the stunted left kidney. The nature of this hypothelial direct or indirect vasopressin has not yet been determined. After removal of the hypertrophied right kidney the hypertension is increased. Effects of ablation of the stunted left kidney at this stage of his operation have not yet been tested.

Among the other suggestive effects of the Drury renal atrophy is loss of appetite and resulting loss of weight in practically all animals depending solely on dwarfed kidney function. Disturbance of the sense of equilibrium and anemia were also frequent. The average hematocrit reading falls to about 25 per cent, as contrasted with approximately 30 per cent in normal rabbits. Hemorrhages are frequently found in the intestinal walls, with an occasional hemorrhage into the eyeball. Hypertension is uniformly accompanied by cardiac hypertrophy. The average heart weight in his hypertension rabbits was about 4 Gm. per kilogram of body weight, as contrasted with 2.35 Gm. per kilogram in normal controls.

Drury's most significant result is his observation that a relatively high degree of hypertension develops in renal atrophy before the removal of the hypertrophied and presumably fully compensating right kidney. Whether or not female rabbits at this stage of his operation would develop eclampsia [2] if allowed to become pregnant has not yet been determined.

1. Drury, D. R.: J. Exper. Med. 68: 693 (Nov.) 1938.

MOTOR ACCIDENTS AT NIGHT

Numerous accidents at night on the highways continue to indicate the need of more adequate supervision of traffic. Whereas the enforcement of traffic laws has heretofore been mainly a daytime activity, many cities are now placing policemen on streets to handle traffic during the dark hours. Most motorists obtain their experience and training under daylight conditions; the problems that arise at night have not been sufficiently impressed on drivers, and traffic engineering has not kept pace with the situation.

The fatal motor accident rate at night, on the basis of traffic, is more than three times the accident rate during daylight. Motor vehicle fatalities during the hours of darkness have increased 43 per cent since 1930. The entire increase in traffic deaths in 1937 over those in 1936 resulted from the increase in night accidents. However, the recent emphasis on safe driving at night is producing results. The Committee on Night Accident Hazards of the National Safety Council reports for

2. Dill, L. V., and Erickson, C. C.: Proc. Soc. Exper. Biol. & Med. 39: 362 (Nov.) 1938.

the first six months of 1938 a reduction of 26 per cent in the motor fatalities occurring during dusk and darkness.

In its analysis of the problem the committee finds that eyesight, driving experience and mental attitude are the important factors in the driver himself. He too is responsible for the associated problems of intoxication, speed, fatigue and age. The committee found that 78 per cent of the accidents in which the driver had been drinking occurred between 6 p. m. and 6 a. m. Further studies on intoxication as related to driving accidents are under way. Night driving involves a different technic from day driving because of the difference in visibility and in the reactions of the driver. Motorists should be taught night driving technic in their initial training. Much can be done to eliminate the hazards which are the result of low visibility at night. Highway officials should insist on the best design and maintenance of highways with adequate signs and warnings designed for good visibility at night. An improved type of lighting the highways is being installed in many places throughout the United States. The most common method of lighting the road is by means of headlights. Unfortunately the possibilities in head lamps on cars have not been developed as rapidly as those of other parts of the car. Headlights lose as much as half of their original effectiveness in a short time unless they are kept clean and adjusted. The committee recommends that officials consider the importance of securing adequate visibility for night driving and promote safety through installation of good illumination for heavily traveled and dangerous highways and by installation of flood lights at such hazardous locations as railroad crossings, intersections and special entrances.

Recently the Michigan Highway Department studied the use of reflector buttons on rural highways. Units were spaced 100 feet apart and 8 feet from the edge of the pavement on 80 miles of road between Lansing and Detroit. In the first three months of 1938 there was a reduction of 79 per cent in accidents on this stretch of highway, whereas on a control stretch of highway the reduction was only 19 per cent.

The night pedestrian is susceptible to accidents. Night pedestrian fatalities in Philadelphia increased from 56 per cent of the total number of night fatalities in 1935 to 73 per cent in 1937. In New Jersey in 1936, 67 per cent of the urban pedestrian fatalities and 83 per cent of the rural pedestrian fatalities happened at night. The committee urges that the pedestrian give the motorist every possible opportunity to see him. If it is necessary to walk at night in rural districts the pedestrian should carry a light when practicable and wear light colored clothing. Even carrying a white handkerchief is a considerable aid. Because the pedestrian sees the motor's headlights does not mean that the motorist sees him.

The night limits the speed for safe driving. The National Conference on Street and Highway Safety recently fixed forty-five miles an hour as the prima facie speed limit at night in sections where the corresponding day limit is fifty miles an hour. Lower speeds are necessary in many places. Drivers should lower the speed at night in order to keep their safe stopping distance within the range of clear visibility. Safe driving at night is a challenge to the ingenuity of the driver, who must be alert for every indication of objects ahead or changes in the road.

DOCTOR, HERE'S YOUR BOOK!

Some time has passed since "The Story of San Michele" by Axel Munthe emerged shyly from its publisher's sanctum and began to attract public attention. The widespread enthusiasm with which that romantic tale of medical performances was received seemingly initiated a deluge of works by and about doctors, unique in the history of American publishing. Such works as "An American Doctor's Odyssey" by Victor Heiser, "The Citadel" by Cronin, "Fifty Years a Surgeon" by Robert T. Morris, "Fifty Years a Country Doctor" by William N. Macartney, "The Horse and Buggy Doctor" by Arthur E. Hertzler, "Doctor Bradley Remembers" by Francis Brett Young, the confessions of George Sava, James Harpole and Frederick Loomis, and a whole host of minor novels constitute the main exhibits. Most of these works were important as literary contributions to public understanding of the medical scene.

Most recent to attract public consideration is a somewhat autobiographical work entitled "Doctor, Here's Your Hat" by Dr. Joseph A. Jerger, published by a firm only recently in the general field known as Prentice Hall, Inc. This animated diary had previously appeared in part serially in the *American Magazine* and was digested from that partial publication in the *Reader's Digest*. Its literary qualities need not seriously concern us here. Indeed, from a literary point of view it has attracted little, if any, attention. However, the publisher and the author are apparently not averse to using the machinery of modern journalism to keep the volume in the public eye. Of late much propaganda has been devoted to the promotion of the belief that the headquarters office of the American Medical Association is in complete control of the practice of medicine in this country, dictating who shall act as physicians in the hospitals and exercising a control and restraint never within the prerogatives or the practices of the organization. Apparently in the course of his practice Dr. Jerger has had occasional difficulties with both the medical staffs and the directors of several hospitals in Chicago. From time to time these groups have apparently indicated to him that it would be preferable for him to associate himself elsewhere. In these activities, most of which occurred long before the book was published, each of the hospitals acted independently. Obviously, when such institutions are chartered the

right to control the staff rests with the boards of trustees or directors. Nevertheless, Dr. Jerger and his publishers apparently continue to spread the word that organized medicine barred him from the hospitals and that he is denied their facilities by the American Medical Association. This statement, widely disseminated by press associations, has even been made editorially in some newspapers of good repute. The statement is untrue and without the slightest basis in fact. Amazing, however, is the apparent willingness of newspapers and other agencies of public information to disseminate such charges without attempting to secure verification. The American Medical Association has until now failed to pay the slightest attention either to Dr. Jerger or to his book. According to an interview with Dr. Jerger in the New York *World-Telegram*, a committee of the Chicago Medical Society, entirely independently, requested Dr. Jerger to come before it to explain certain pronouncements which were made by him personally. As far as we know, even here no official action has yet been taken.

In any other matter newspapermen would probably have exercised a reasonable amount of diligence to avoid the possibility of being made the unpaid publicity agents for a publishing venture. In this instance at least they have lent themselves, albeit unwittingly, to aid the dissemination of what is after all not an outstanding literary performance.

Current Comment

THE BRINKLEY CASE

The suit for libel and damages filed by John R. Brinkley against the Editor of *Hygeia* was called in the federal court at Del Rio, Texas, on Wednesday, March 22. A jury consisting largely of residents of the vicinity of Del Rio was impaneled and evidence began to be offered by the plaintiff on the afternoon of the same day. In the course of the trial the plaintiff, Dr. John R. Brinkley, offered in evidence not only his own testimony but that of his associates; also a number of character witnesses. It was the decision of the court that patients would not be allowed to testify as to the results of any procedures performed on them. For the defendant there appeared three experts: Drs. Alfred I. Folsom, Dallas; Benjamin Weems Turner, Houston, and J. Manning Venable, San Antonio; also a chemist of the American Medical Association, Dr. E. W. Schoeffel, Chicago. Furthermore, there were read into the record several depositions containing evidence prepared for a previous suit of a similar character which was dismissed. Among the exhibits offered were most of the pamphlets circulated by the plaintiff and a book concerned with his biography written by Clement Wood and entitled "The Story of a Man." Following the completion of the evidence, which required four full days, attorneys for both sides presented the case to the jury and the instructions were given to the jury by Judge R. J. McMillan. After a consideration of several hours, the jury returned its verdict for the defendant. In a future issue of THE JOURNAL (probably the issue of April 22) and also in *Hygeia* it is proposed to present a complete abstract of the evidence and the instructions of Judge McMillan to the jury.

YELLOW TYPHOID BACILLI

The transformation in the test tube of nonpathogenic flavobacteria into virulent typhoid bacilli, recently alleged by Dresel and his co-workers [1] of Leipzig, Germany, challenges conventional theories of epidemiology in typhoid. Eight years ago, several strains of yellow bacteria were isolated from urinary samples. By repeated "single cell" cultivation of these flavobacteria nonpigmented variants were eventually obtained morphologically, culturally and antigenically identical with standard strains of B. typhosus. Reversing the process, the investigators were able to dissociate from a standard laboratory strain of B. typhosus a yellow variant (Bacterium typhi flavum). More than sixty species of flavobacteria are recognized by American bacteriologists, most of them regarded as common saprophytes in surface waters. Several strains, however, such as Flavobacterium fecale and Flavobacterium esteroaromaticum, have been isolated from the intestinal contents of man or as presumptive contaminants from human necropsy material. Medical bacteriologists of the past have usually disregarded these yellow bacteria as of little clinical interest, since none of the known yellow strains had been shown to be pathogenic for man or lower animals. The conclusion of the Leipzig bacteriologists, however, that some species of flavobacteria are merely disguised forms of Bacillus typhosus may lead to a critical reexamination of the experimental evidence leading to this conclusion.

REPORTS OF OFFICERS AND THE BOARD OF TRUSTEES

In this issue of THE JOURNAL under the Organization Section appear the reports of the officers of the American Medical Association and of the Board of Trustees and of the various Councils and Bureaus which will be presented to the House of Delegates at the next annual session of the Association, to be held in St. Louis May 15-19. These reports constitute a survey of current problems in the field of medical practice and of the activities of the American Medical Association in relationship thereto. Every physician who holds membership in the organization, and particularly Fellows of the American Medical Association, should make a most careful study of this material. The responsibilities now assumed by organized medicine are vital in relationship to the health and welfare of the nation. The determination of the policies of the organization rests with the House of Delegates, which is itself directly representative of the membership. The material will be found of exceeding interest as marking an epoch in the affairs of the American Medical Association.

1. Dresel, E. G., and Graf, Willi: Arch. f. Hyg. u. Bakt. **118**: 153 (No. 3) 1937. Dresel, E. G., and Lôtsch, Herbert, ibid. **120**: 286 (Nos. 4 and 5) 1938.

ORGANIZATION SECTION

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion.—Ed

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association

The following annual report of the Secretary is respectfully submitted

MEMBERSHIP AND FELLOWSHIP

A review of the Membership and Fellowship records for the five years from 1934 to 1938 inclusive shows that there has been a constant increase in the number of members as well as in the number of Fellows Official reports of the Secretary submitted to the House of Delegates have included the following figures for each of these five years In 1934 the number of members was 98,041 and the number of Fellows 60,714, in 1935 there were 99,536 members and 61,406 Fellows, in 1936 the members numbered 101,946 and the Fellows 62,997, in 1937 the number of members was 105,460 and the number of Fellows 66,296, in 1938 there were 109,435 members and 68,478 Fellows, and on March 1, 1939, the official membership list carried the names of 112,210 physicians, while the names of 69,468 Fellows were recorded on the Fellowship roster

The figures here presented would seem to refute definitely statements emanating from various sources during these five years designed to indicate that there have been great disaffection in the ranks of the physicians of the United States and great diminution in the support of the profession generally for the established policies of the American Medical Association During these same years, in which significant increases in both membership and Fellowship have been recorded, there has been a tremendous increase in the number of requests for service of various kinds These requests have poured into the offices of the Association from state medical associations, from county and district medical societies, from independent organizations of physicians, from official governmental agencies, from the public press, from officers and members of civic groups and from the general public While it is true that a considerable number of communications critical of the policies of the Association and its constituent and component societies have been received, it is also true that a tremendously larger number of communications have been received from the duly appointed officers of medical societies and other organizations, from hundreds of individual physicians and from many laymen indicating confidence in the medical profession of the United States in its organized capacity and as a profession and expressing appreciation of the efforts that have been made by the American Medical Association to carry out the aims and objects defined in its Constitution and By-Laws and to serve the public interest

MEDICAL ORGANIZATION IN THE STATES

It will be seen from the figures presented in an accompanying table that physicians of 2,058 of the 3,139 counties of the United States are now included in the membership of component county medical societies On March 1, 1939, there were 386 counties in which no organization of physicians has been effected as compared with 397 such counties in 1938 Very considerable progress has been made in promoting the efficiency of the official machinery of a number of constituent state medical associations A larger number of component county medical societies now employ full time secretaries or executive secretaries than ever before, and there can be no doubt that through the employment of full time personnel the work of county medical societies is better organized and more efficiently carried out than otherwise could be done

Organization of Constituent State Medical Associations

	Number of Counties in State	Number of Component Societies in State	Organization of Constituent State Associations: Number of Counties in State Not Organized		Number of Physicians in State 15th Ed A M A Directory	Number of Members of State Associations		Number of A M A Fellows in State
			1938	1939		1938	1939	
Alabama	67	67			2,072	1,518	1,559	566
Arizona	14	13	1	1	562	339	379	259
Arkansas	75	60	9	11	1,850	1,068	1,036	426
California	58	39	10	10	11,278	5,906	6 219	4,502
Colorado	63	28			1,923	1 130	1,140	742
Connecticut	8	8			2,203	1,621	1,699	1,064
Delaware	3	3			376	209	209	130
District of Columbia					2,141	824	849	659
Florida	67	34	21	19	2,042	1,231	1,275	701
Georgia	159	93	44	46	2,756	1,793	1,818	704
Idaho	44	10			426	227	268	161
Illinois	102	92	6	6	11,942	7,485	7 606	4,756
Indiana	92	83	1	1	4,081	3,087	3 136	1,736
Iowa	99	97			3,100	2 414	2 406	1,420
Kansas	105	69	20	19	2,117	1,509	1,512	982
Kentucky	120	114	4	4	2 762	1,770	1,889	790
Louisiana	64	42	16	17	2,200	1,324	1,446	766
Maine	16	15	1	1	987	690	727	396
Maryland	23	23	1		2,821	1,384	1,401	970
Massachusetts	14	18			7,028	5 109	5,189	3 113
Michigan	83	54			6,142	3 987	4,196	2,495
Minnesota	87	34	1	1	3,426	2,519	2,524	1 965
Mississippi	82	21	1	1	1,495	945	1,046	342
Missouri	114	81	11	11	5,348	3,216	3,231	1 931
Montana	56	16	25	25	520	357	363	238
Nebraska	93	49	19	16	1,705	1 094	1,086	711
Nevada	17	5	12	12	148	104	107	71
New Hampshire	10	9			616	498	511	284
New Jersey	21	21			5,433	3,399	3,604	2,458
New Mexico	31	15	14	16	419	238	254	171
New York	62	61	1	1	25,613	16 080	16 606	10 268
North Carolina	100	74	19	18	2,663	1,616	1,689	809
North Dakota	53	13	10	10	508	413	390	254
Ohio	88	87	2	2	9 117	6,099	6 271	3,712
Oklahoma	77	65	7	7	2,364	1,470	1,456	793
Oregon	36	24	3	2	1,386	746	774	527
Pennsylvania	67	60	6	6	13,205	8,874	9,077	5 968
Rhode Island	5	6	1	1	938	488	494	342
South Carolina	46	39	2	2	1,354	897	943	400
South Dakota	69	12	2	1	539	320	317	189
Tennessee	95	60	24	24	2,917	1,727	1,719	827
Texas	254	125	15	15	6,795	4,230	4,246	2,257
Utah	29	9	4	4	567	443	449	270
Vermont	14	10	3	3	501	343	374	215
Virginia	100	47	9	9	2 818	1,739	1,756	985
Washington	39	24	13	13	2,123	1,401	1,377	887
West Virginia	55	30	5	5	1,893	1,207	1,202	685
Wisconsin	71	52			3,436	2,435	2,450	1,523
Wyoming	24	11	11	11	266	166	170	114
Alaska					65	36	39	20
Hawaii	5	4	1	1	410	266	277	124
Isthmian Canal Zone					198	118	122	19
P I (Provinces)	56	22	40	34	3,107	921	1,054	50
Puerto Rico	7	7			445	370	358	70
Foreign					26			185
	3,139	2,058	397	386	173,879	109,435	112,210	66 537
Commissioned medical officers								2,931
								69,468

FIELD WORK AND CORRESPONDENCE

Official representatives of the American Medical Association have attended more meetings of state and county medical societies and have appeared before more lay audiences within the last year than in any preceding year It is not possible to give a

thoroughly dependable estimate of the number of persons that have composed either the professional or the lay audiences addressed by these representatives, but it is believed that the lay audiences have numbered more than 150,000 persons and that audiences composed of physicians have numbered from 25,000 to 40,000. Some constituent state medical associations and some of the larger component county medical societies have maintained speakers' bureaus through which speakers have been provided to address civic groups and student bodies of public schools, colleges and universities. The nation wide radio program of the American Medical Association has been heard by a very large but undetermined number of children in schools and of older persons in their homes.

A veritable mass of correspondence pours into the offices of the Association each day, a large part of which consists of communications from the lay public.

In these several ways the aims and objects of the Association and the nature and scope of its work are brought to the attention of both the profession and the public.

Special Session of the House of Delegates

A special session of the House of Delegates was held in Chicago Sept. 16 and 17, 1938, for the purpose of giving official consideration to the national health program submitted to the National Health Conference held in Washington, D. C., in July of 1938 and to other matters submitted by the Board of Trustees. Copies of the proceedings of this special session have been sent to each member of the House of Delegates in attendance at that session, and an account of the proceedings has been widely distributed among physicians and among the members of legislative bodies and of various other groups.

Annual Conference of Secretaries of Constituent State Medical Associations

The regular Annual Conference of Secretaries of Constituent State Medical Associations was not held in 1938. All state secretaries and the editors of all official journals of state medical associations were invited to attend the special session of the House of Delegates held in Chicago September 16 and 17, and most of the members of these two groups attended that session.

Reports of Delegates to State Associations

It has been most gratifying within recent years to note the completeness of reports submitted by members of this House of Delegates to their constituent state medical associations. In some instances these reports have been published in state medical journals almost immediately after the annual meetings of the House, while in other instances such reports have not been submitted until the meetings of the houses of delegates of the state associations.

There can be little doubt that the members of the Association generally are better informed through the publication of these reports prepared and presented by members of this House of Delegates than they otherwise would be, and their interest in the affairs of the Association and their knowledge of the nature and scope of its activities will be increased and enhanced if such reports are made available to them.

Memorials and Resolutions

Up to the time of the preparation of this report, no memorials, resolutions or proposed amendments to the Constitution and By-Laws have come to the Secretary for transmission to the House of Delegates.

In Appreciation

In offering this, his seventeenth consecutive report submitted to the House of Delegates, the Secretary desires to express his grateful appreciation of the helpful consideration and the kindly assistance extended to him by the officers of the Association, by members of the House of Delegates and by the officers and a great many members of component county medical societies and of constituent state medical associations. He also desires to acknowledge his gratitude for the cordial cooperation extended by members of the administrative personnel of the Association and especially his gratitude for the loyal and efficient service of those immediately associated with him in the work of the Secretary's office.

Respectfully submitted. OLIN WEST, Secretary.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

Within the last few years, many problems of the most important interest to medicine have demanded earnest consideration by medical organizations. Most of these problems are not at all new, having been created out of developments that have naturally followed on the continued advancement of scientific medical knowledge and the need for improved methods for applying such knowledge. Some of these problems have been brought up more acutely because of the activities of various agencies outside the medical profession that are most largely concerned with political considerations or because of long-continued economic disturbances. The existing situation is one that has created tremendously larger demands than ever before on the time and effort of the officers, official bodies and administrative personnel of the American Medical Association. It has necessitated expansion in several of the divisional offices and has required some extension in both the nature and the scope of Association activities. The volume of work done in *practically every department during the last year was very* considerably larger than in any preceding year. Present indications are strongly to the effect that even greater demands will be made on the Association in future years and it is reasonable to expect that further expansion of the Association's facilities will be required.

Business Operations

Gross income from all sources for the year ended Dec. 31, 1938, amounted to $1,758,147.09, representing an increase of $2,837.25 over the total income of the preceding year. Total expense for the year ended Dec. 31, 1938, amounted to $1,769,548.60, an increase of $136,481.68 over total expenditures for the year 1937. The net loss for the year was $11,401.51.

Payments received for Fellowship dues and subscriptions in 1938 amounted to $655,875.91 as compared with $670,170.31 in 1937. Total receipts from the sale of advertising space in 1938 amounted to $875,367.43 as compared with $841,042.57 in the preceding year. Income received from interest on investments in 1938 was $86,857.26 and, through the sale of securities, the sum of $2,831.25 was realized.

Collections from subscriptions and Fellowship dues, notwithstanding an increase in both the number of Fellows enrolled and the number of subscribers to THE JOURNAL, were less in 1938 than in the preceding year by the sum of $14,294.40. Receipts from the sale of advertising space were larger than in the preceding year by the sum of $34,324.86. Interest received on investments in 1938 exceeded receipts on this account in 1937 by the sum of $3,293.52. Office salaries and wages in 1938 amounted to $259,953.13, an increase over the preceding year of $11,292.55. The factory payroll in 1938, amounting to $226,389.15, was larger than in 1937 by the sum of $14,867.72. The cost of paper in 1938 was greater than in the preceding year by a sum slightly in excess of $10,000. Expenditures for first class postage in 1938, amounting to $38,871.82, were larger than in 1937 by the sum of $3,341.69, and expenditures for second class postage in 1938 exceeded those of the preceding year by the sum of $2,591.33.

Expenditures incident to the operation of the various councils, bureaus and departments of the Association during the year covered by this report were $458,499.27, representing an increase of $26,496.58 over the expenditures of the preceding year.

Expenditures for legal services, amounting to $67,096.56, were larger in 1938 than in 1937 by the sum of $43,807.96. These larger expenditures were made necessary because of the indictment of the Association at the instance of the federal Department of Justice for alleged violation of the Anti-Trust Laws; a ruling of the Bureau of Internal Revenue under which the Association was made liable for the payment of Social Security taxes and classified as a business league rather than a scientific and educational organization, and several suits filed against the Association.

The building and equipment of the Association have been maintained to the best possible advantage. As this report is

being prepared, some new machinery, including a gathering machine of the latest model, is being installed at a cost of approximately $36,000

The number of employees of the Association is now slightly less than 600, but this number will be considerably increased when the preparation of the next edition of the American Medical Directory is begun

A more detailed presentation of income and expenditures will be found in the reports of the Treasurer and the Auditors, which are submitted as a part of this official report of the Board of Trustees

Summary

Total income in 1938 was larger than in 1937, but the increase in total expenditures was considerably larger than the increase in income. Income from interest on investments was slightly larger in 1938 than in the preceding year. Total expenditures were larger than income by the sum of $11,401.51.

The Journal of the American Medical Association

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION continues to occupy the place achieved in previous years as a leader in the dissemination of knowledge of advances in medical science and as a representative of the point of view of the organized medical profession of the United States

TABLE 1.—*Approximate Count of Fellows and Subscribers on The Journal Mailing List, by States, Jan. 1, 1939, Also Gain or Loss in Each State*

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama	516	246	762	7	
Arizona	243	117	360	16	
Arkansas	91	536	627	46	
California	4,180	2,534	6,714	513	
Colorado	645	277	922		45
Connecticut	1,019	627	1,646	72	
Delaware	12	81	204		5
District of Columbia	624	570	1,194	63	
Florida	694	368	1,062	48	
Georgia	630	405	1,035		11
Idaho	150	113	263	13	
Illinois	4,368	2 850	7,218	42	
Indiana	1,696	664	2,260	47	
Iowa	1,237	426	1,663	14	
Kansas	876	286	1,162		
Kentucky	727	360	1,087	17	
Louisiana	675	343	1,018	39	
Maine	377	153	530	15	
Maryland	869	652	1,521	55	
Massachusetts	2,845	1,687	4,532	82	
Michigan	2,200	1,254	3,454		25
Minnesota	1,373	621	1,994	18	
Mississippi	294	138	432	21	
Missouri	1,735	894	2,629		24
Montana	199	101	300	19	
Nebraska	623	266	889		32
Nevada	64	33	97	7	
New Hampshire	271	97	368	19	
New Jersey	2,367	1,508	3,875	109	
New Mexico	161	79	240	6	
New York	9,475	5,940	15,415	186	
North Carolina	751	536	1,287	48	
North Dakota	211	85	296	13	
Ohio	3,450	1,570	5,020	31	
Oklahoma	681	315	996	45	
Oregon	465	300	765	59	
Pennsylvania	5,626	2,601	8,227	82	
Rhode Island	331	202	533		2
South Carolina	348	240	588	14	
South Dakota	178	117	295	16	
Tennessee	744	436	1,180	20	
Texas	1,902	847	2,749	97	
Utah	237	87	324	5	
Vermont	207	82	289	5	
Virginia	931	441	1,372	51	
Washington	793	365	1,158	39	
West Virginia	610	295	905	26	
Wisconsin	1,354	646	2,000		21
Wyoming	105	52	157	4	
U S Army		173	173	2	
U S Navy		202	202	11	
U S P H S		96	96	96	
Alaska	18	26	44	7	
Canada	13	811	824		33
Cuba	3	103	106	3	
Hawaii	106	73	179		5
Mexico	8	86	94		28
Panama	16	36	52		2
Philippine Islands	45	229	274	44	
Puerto Rico	60	64	124		11
Virgin Islands	2	5	7		
Foreign	111	2,967	3,078	157	
Advertisers, agents			499		30
Exchanges			320	12	
Complimentaries			118	17	
Total on mailing list			99,804	2,378	274

Among the new features developed during the past year has been the Student Section, which appears once each month, the first issue appearing in July 1938 In this section are articles, abridgments of essays and medical news pertaining especially to student activities and to medical schools This section of THE JOURNAL was established by the Board of Trustees in order to inform the practicing physicians of tomorrow concerning the problems of today Much of the material is developed by educators and those interested in the problems of medical education, yet opportunity has been given also to the students, to interns and to residents to discuss problems of special concern to them A questionnaire circulated among students in twenty different medical schools indicated that the majority had a favorable point of view toward the material thus published It is proposed to continue the development of this department to meet the need which is apparent for contact between the student, the intern, the resident and the practicing physician

TABLE 2.—*Percentage of Physicians Receiving The Journal**

State	Number Receiving Journal	Physicians in State A M A Directory	Approximate Percentage Receiving Journal
Alabama	762	2,072	37
Arizona	360	562	64
Arkansas	627	1,850	34
California	6,714	11,278	59
Colorado	922	1,923	48
Connecticut	1,646	2,503	66
Delaware	204	326	62
District of Columbia	1,194	2,141	56
Florida	1,062	2,072	51
Georgia	1,035	2,756	38
Idaho	263	426	61
Illinois	7,218	11,942	60
Indiana	2 260	4 081	55
Iowa	1,663	3,100	53
Kansas	1,162	2,117	54
Kentucky	1,087	2,762	39
Louisiana	1,018	2,200	46
Maine	530	987	54
Maryland	1,521	2,821	54
Massachusetts	4,532	7,528	60
	3,454	6,142	56
	1,994	3,426	58
	432	1,495	29
Missouri	2,629	5,348	49
Montana	300	520	57
Nebraska	889	1,705	52
Nevada	97	148	65
New Hampshire	368	616	59
New Jersey	3,875	5,433	71
New Mexico	240	419	57
New York	15,415	25,613	60
North Carolina	1,287	2,663	48
North Dakota	296	508	58
Ohio	5,020	9 117	55
Oklahoma	996	2,364	42
Oregon	765	1,386	55
Pennsylvania	8,227	13,205	62
Rhode Island	533	938	57
South Carolina	588	1,304	43
South Dakota	295	535	55
Tennessee	1,180	2,917	40
Texas	2,749	6,795	40
Utah	324	567	57
Vermont	289	501	57
Virginia	1,372	2,818	48
Washington	1,158	2,123	54
West Virginia	905	1,873	49
Wisconsin	2 000	3,436	58
Wyoming	157	266	59

* This table gives the number of physicians (based on the Fifteenth Edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state Copies to physicians in the United States Army, Navy and Public Health Service are not included

The Organization Section of THE JOURNAL has been largely devoted to problems of current interest in the fields of legislation and medical economics Of special interest have been the reports of the results of the surveys of medical service carried out in individual counties and municipalities as well as in some states

Other features currently appearing in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION which have aroused considerable comment are the series of articles on the vitamins, a series of pharmacologic and therapeutic conferences held in the New York Hospital, and the clinical articles developed during the last annual session of the American Medical Association. Thus, while THE JOURNAL has kept abreast of the most important advances in research, it has not neglected the clinical aspects of daily work

The department of Queries and Minor Notes has maintained its popularity. Special issues have appeared during the year devoted to the hospitals, to medical education, to state licensure and to the annual session. Among the research projects conducted by THE JOURNAL have been cooperation with the United States Public Health Service in determining the availability of typing for pneumococci, the annual reports on deaths from typhoid fever and from diphtheria, and a special survey devoted to Fourth of July accidents.

Table 1, included in this report, indicates the number of Fellows and Subscribers on the mailing list of THE JOURNAL in each state on Jan. 1, 1939. There is also shown in this table the number of Fellows and subscribers in other countries, the number of copies of THE JOURNAL sent to advertisers and subscription agents and the number sent as exchanges and complimentary subscriptions. Table 2 indicates the number and the approximate percentage of physicians in each state who receive THE JOURNAL.

The circulation of THE JOURNAL on Jan. 1, 1939, was 99,854, an increase of 2,104 over the preceding year.

Summary

It has been the earnest purpose of the Board of Trustees and of the Editorial Department to maintain The Journal of the American Medical Association in its established position of leadership in the field of medical journalism and to increase its usefulness both as a scientific periodical and as a defender of the public interest.

Among the new features developed during the past year has been the Student Section, which appears once each month, dealing with matters pertaining especially to student activities and to medical schools. It is proposed to continue the development of this department of The Journal so as to meet the apparent need for contact between the student, the intern, the resident and the practicing physician.

The Organization Section of The Journal, devoted to discussions of problems of current interest in the fields of legislation and medical economics, has been well received and will be further developed as opportunity offers.

Special articles dealing with clinical aspects of the daily work of physicians have been published from time to time and apparently have aroused much interest and have been made the subject of much favorable comment.

The popularity of the department of Queries and Minor Notes has been maintained and is apparently serving an important purpose. The publication of special issues devoted to medical education, hospitals, licensure and other phases of the Association's activities have been continued. The Journal has cooperated with various agencies, including agencies of the federal government, and has published annual reports dealing with mortality due to typhoid fever and diphtheria and has undertaken a special survey pertaining to Fourth of July accidents.

Special Journals

The usual high standards, both scientific and mechanical, have been maintained for the special journals during 1938. The number of pages of reading material published was approximately the same as in 1937, except in three of the periodicals, viz. the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY, the ARCHIVES OF OTOLARYNGOLOGY and the ARCHIVES OF PATHOLOGY. Increases in the number of pages of practically all the periodicals will be necessary if the material that is accepted is to be published within a reasonable length of time. There was an increase in the subscription list of each of the periodicals, ranging from 75 to 225 and totaling 1,168.

During 1938 there was a considerable reduction in the number of pages of advertising carried in these journals, namely 778 as compared with 1,104 in 1937, the result probably of retrenchment on the part of business houses. The loss in receipts from advertising during 1938 as compared with 1937 was $2,240.71.

A special issue of the ARCHIVES OF PATHOLOGY was published in July 1938 as a testimonial to the life and work of Dr. Ludvig Hektoen on the occasion of his seventy-fifth birthday. This issue comprised 448 pages of articles contributed by physicians who were his students or who were closely associated with him in his many activities.

Owing to the unfortunate illness of Dr. Dean DeWitt Lewis, chief editor of the ARCHIVES OF SURGERY, Dr. Waltman Walters was appointed chairman pro tem of the Editorial Board. Drs. Arthur W. Allen of Boston, Alfred Blalock of Nashville, Lester R. Dragstedt of Chicago and Walter E. Dandy of Baltimore have been added to the Editorial Board in order to develop the periodical still further along practical lines.

In addition to the exhaustive articles in experimental surgery published in the past, shorter articles dealing with progress in surgery of clinical application, general reviews of the literature and editorials in which debatable surgical topics can be discussed will be published.

Summary

Slight increases were recorded in the total circulation of all the publications in this group. Only three of the special journals produced income exceeding the costs of publication, namely the Archives of Otolaryngology, the Archives of Ophthalmology and the American Journal of Diseases of Children. Net income for the American Journal of Diseases of Children barely exceeded the cost of publication.

The net loss on the entire group of special journals was $28,883.35, as compared with $25,958.37 in 1937 and $33,821.30 in 1936.

Library

A geographic analysis of requests for service coming to the Library of the American Medical Association indicates that the greatest number of requests come from Illinois, New York, Ohio and Pennsylvania. Nevertheless, every state in the United States and every province in Canada has availed itself of such services. During 1938, 13,012 periodicals were lent to subscribers, an increase of 2,253 loans over 1937.

The Package Library Service continues to supply material to great numbers of inquirers, notwithstanding the fact that similar services have now been set up by several of the individual state medical societies. During 1938, 3,016 packages were distributed to physicians of the United States and of Canada. The subjects on which packages were most frequently requested were alcoholism, arthritis, pneumonia, sulfanilamide, syphilis, tuberculosis and vitamins.

In addition to the lending of periodicals and of packages of references, the Library answered by letter and by telephone approximately 5,000 individual inquiries on medicobibliographic subjects. Moreover, more than 1,500 persons visited the Library during the year in search of material which was supplied to them.

The great demands on the space available in the headquarters office of the Association made necessary during the year the removal of the Employees' Library from the special room which it occupied to a place on the Library floor. The total circulation for the year was 5,100 books. The Employees' Library now owns 2,030 books and subscribes to twenty magazines. Moreover, material is regularly received by loan from the Chicago Public Library.

The QUARTERLY CUMULATIVE INDEX MEDICUS constitutes the major project of the Library department. During 1938 forty additional periodicals were added to the list of periodicals regularly indexed and fifty-six periodicals were selected for occasional indexing of important items. The universal acclaim tendered to this project, which is maintained by the American Medical Association at a considerable loss, indicates not only the necessity of the service but the excellence of its conduct.

Summary

The activities of the Library have been continued along the same lines previously followed. There was a considerable increase in the number of periodicals lent to subscribers, and the Package Library has continued to

supply material largely for the use of members of the Association who do not have ready access to medical libraries. Approximately 5,000 individual inquiries on medicobibliographic subjects were answered during the past year, and more than 1,500 persons visited the Library in search of such material. The Quarterly Cumulative Index Medicus constitutes the major project of the Library department.

Quarterly Cumulative Index Medicus

There was a slight increase in 1938 in the number of subscribers to the QUARTERLY CUMULATIVE INDEX MEDICUS. The cost of production over income was $43,034.71, as compared with $42,616.32 in 1937.

It is undoubtedly true that the general use of the QUARTERLY CUMULATIVE INDEX MEDICUS in libraries has increased, but the number of subscriptions has not grown correspondingly. The INDEX is available for the use of individual physicians and investigators in practically all important medical libraries, in several general libraries and in some hospitals, where a single volume is available for the use of many individuals.

Standard Classified Nomenclature of Disease

The publication of this guide to nomenclature was assumed by the Board of Trustees of the American Medical Association at the request of the National Conference on Nomenclature of Disease, which first issued the volume in 1932. This nomenclature has been approved by most of the leading special scientific organizations in the United States, and most of them have cooperated in its development.

Since the project was taken over by the American Medical Association, nearly 2,000 copies have been sold.

A questionnaire circulated to the hospitals of the United States indicates that 753 hospitals use the Standard Classified Nomenclature.

Steps are being taken toward the preparation of a new revised edition subsequent to the national conference, which will be called in 1940.

Preparation has also been made to undertake the Standard Classified Nomenclature of Surgical Operations.

The New York Hospital has tendered to the American Medical Association the use of its Nomenclature of Operations as a basis for the development of the standard list. A list of consultants is being developed for this purpose and also for revision of Nomenclature of Disease.

Hygeia

The maintenance of the circulation of HYGEIA, the recognition of its worth particularly by educators throughout the United States, and the innumerable citations from its pages appearing regularly in digest publications, in other health periodicals, in bulletins of various industrial and similar organizations and in newspapers indicate the manner in which HYGEIA has become a source book for information on health throughout the nation. Moreover, several radio programs are now devoted largely each week to citation of material taken from this publication. Beginning with the current volume, improvements were made in the typography, arrangement and illustration of the magazine. A prompt response ensued on the part of numerous readers. Every effort is being made by the Board of Trustees to further the development of this publication as an invaluable contact directly with the public and as a means of extending more widely the benefits of medical science.

The circulation of HYGEIA has been maintained above the 100,000 mark. Through the splendid efforts of the Woman's Auxiliary in Tennessee, an order was received from the state of Tennessee for 6,182 subscriptions whereby the magazine was placed in the public schools throughout Tennessee. Income from the sale of advertising space in HYGEIA has rather steadily declined.

The loss incurred on account of the publication of HYGEIA in 1938 was $18,896.12, as compared with a loss of $31,004.90 in 1937. The indicated reduction was accomplished by resorting to all possible economies that would not interfere with improvement in the magazine.

Summary

Improvements have been made in the typography, arrangement and illustration of Hygeia. The magazine apparently has established itself in many schools as a source book for information on health, and material from its columns is being reproduced in a large number of lay publications and has been used to some extent in radio programs.

The circulation of Hygeia has been maintained above 100,000. The net loss on this publication for the year 1938 was $18,896.12, as compared with a loss of $31,004.90 in 1937.

Book Publications of the American Medical Association

While the American Medical Association does not contemplate any large invasion of the field of book publication, the assembling of material first issued in the form of feature articles is a logical step in its work. The volumes now available include "The Handbook of Therapy," in its eleventh edition, "The Technic of Medication," in its third edition, "Medical Writing: Its Art and Technic," "A. M. A. Intern's Manual," "The Primer on Fractures," now in its fourth edition, "The Handbook of Physical Therapy," in its third edition, "Medicolegal Cases" and "Simple Lessons in Human Anatomy." In the course of preparation are a new volume on the vitamins and a series of twenty-four cases entitled "The Pharmacopeia and the Physician," prepared in cooperation with the United States Pharmacopeial Committee. The Association publishes, moreover, the special volumes issued by the Council on Pharmacy and Chemistry and the Bureau of Investigation. In process of preparation is a new book to be called "Accepted Foods," which is being prepared under the auspices of the Council on Foods.

American Medical Directory

The American Medical Directory is in some respects one of the most important of the Association's publications. The information contained in this volume is essential for the purposes of the Association itself and is of great value to constituent state and territorial medical associations, to component county medical societies and to many agencies, governmental and otherwise, that find it necessary to have dependable information concerning the medical profession and medical institutions.

The Fifteenth Edition of the American Medical Directory was published in 1938. The names and addresses of the legally qualified physicians of the United States and Canada, together with biographic material concerning them, are published in the Directory. The number of names listed in 1938 was 188,916, as compared with 183,312 in the Fourteenth Edition. While 13,811 new names were printed in the Fifteenth Edition of the Directory, 8,008 physicians whose names appeared in the Fourteenth Edition died in the interim, and approximately 200 names which appeared in the Fourteenth Edition did not appear in the Fifteenth Edition for various reasons, including revocation of licenses and withdrawals from practice for other reasons.

The publication costs of the Fifteenth Edition of the American Medical Directory amounted to $165,794.47. The sales of the Directory up to the time of the preparation of this report have failed to equal production costs by the sum of $8,488.90. It is reasonable to expect that this deficit will be reduced to some extent by additional sales.

Summary

The Fifteenth Edition of the American Medical Directory contains the names of 188,916 physicians of the United States and Canada. More than 13,000 new names appeared in this edition, while approximately 8,000 names *which appeared in the Fourteenth Edition were dropped*

because of deaths and for other valid reasons. The cost of compiling and publishing the information presented in the Fifteenth Edition of the Directory was $165,794.47. The income received from sales up to the time of preparation of this report was less than the cost of publication by the sum of $8,488.90.

Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau is operated for the benefit of official publications of constituent state medical associations, and thirty-three of these publications are represented in the Bureau. Advertising contracts secured through this Bureau for state journals in 1938 amounted to $166,704.57, which represents an increase of about $10,000 over the year 1937. Commissions earned by the Bureau amounted to $33,392.45, of which amount the sum of $17,500 was rebated to the state journals after the costs of maintaining the Bureau were subtracted from the total amount of commissions earned.

Thirty-three state medical journals were members of the Cooperative Medical Advertising Bureau in 1938. In January 1939 the *New York State Journal of Medicine* was added to the list of publications served by this Bureau.

Summary

The earnings of the Cooperative Medical Advertising Bureau in 1938 were $33,392.45, of which amount the sum of $17,500 was distributed among the state journals after the operating costs of the Bureau had been deducted. The total amount of the value of advertising contracts secured through the Bureau for the state medical journals was $166,704.57.

The New York State Journal of Medicine was added on Jan. 1, 1939, to the list of journals participating in the Bureau.

Mailing and Order Department

A total of 69,736 orders were handled by the Order Department during the year covered by this report. The total units distributed were 398,564. The use of more than 5,000 mail bags with a total weight of 156 tons was required to carry the material distributed through orders received.

The total number of pieces of first and third class mail sent out by the Mailing Department was 1,699,477. Nearly three and one-half million envelops were required for all mailing purposes.

American Medical Association News

During 1938-1939 a department to aid in press relations was established in the headquarters office, in charge of a professional newspaper writer, Mr. Lawrence C. Salter. From this department each week there is issued the AMERICAN MEDICAL ASSOCIATION NEWS, containing excerpts or rewrites of material published in the various publications of the American Medical Association and also special announcements concerning the activities of the organization. This bulletin is sent regularly to all press associations, to news sources, to periodicals and to the editors of medical journals and of bulletins of county medical societies.

Conference with Representatives of Hospital Associations

On invitation of the Board of Trustees of the American Medical Association, members of the board of trustees of the American Hospital Association and representatives of the Catholic Hospital Association and the American Protestant Hospital Association met in conference at the offices of the American Medical Association on Feb. 15, 1939. Various matters of mutual interest to the groups represented were frankly discussed, and it was most gratifying to note that there was decided unanimity of opinion with respect to many phases of the general subject of medical care in hospitals, even though there may be some differences between the basic policies of one or more hospital associations and those of the American Medical Association.

Among questions that received consideration at this conference were those having to do with group hospitalization and an apparent tendency on the part of some of the hospital groups to include both special and general medical service in contracts offered to their members as well as other questions of major importance and present interest. During the conference the following resolution was unanimously adopted by the representatives of the three hospital associations:

> The representatives of the American Hospital Association, the Catholic Hospital Association and the American Protestant Hospital Association here present desire to express to the Board of Trustees of the American Medical Association their confidence in the leadership of the medical profession in furthering the excellence of medical service and in aiding the solution of problems of the distribution and provision of medical care.

At a later time the following resolution was approved by all those who participated in the conference:

> It is moved that the following be the sense of this meeting:
> This gathering of the Trustees of the American Medical Association with representatives of the American Hospital Association, the Catholic Hospital Association and the American Protestant Hospital Association express their gratification on the unanimity of opinion developed concerning many phases of the health problems of the nation achieved by mutual discussion. It is recommended to the American Medical Association, the American Hospital Association, the Catholic Hospital Association and the American Protestant Hospital Association that such joint meetings of their representatives be held for the consideration of problems of mutual concern.

It is the considered opinion of the members of the Board of Trustees that this conference with the representatives of the hospital associations served a most useful purpose in that it provided opportunity for open discussion of important problems and established an understanding which possibly could not have been brought about otherwise.

It was not possible that all matters of mutual interest to those who participated in the conference could be fully considered, nor did it seem wise to undertake at the time to examine minutely the reasons for some possible differences in the policies of all the organizations represented in the conference. There seemed to be unanimous agreement that the physician is supreme in the hospital in all matters pertaining to medical service rendered in hospitals.

As indicated by the terms of the resolution which received the unanimous approval of all present, it is hoped that similar conferences may be held from time to time in the future with the official approval of the American Hospital Association, the Catholic Hospital Association, the American Protestant Hospital Association and the American Medical Association.

The Board of Trustees offers the recommendation to the House of Delegates that such approval be indicated at this session.

Official Contact with Other National Organizations

Various important medical organizations of national scope not officially affiliated with the American Medical Association have within recent years concerned themselves with the consideration of many matters which they had not previously officially considered. It seems to be highly desirable that, so far as possible, concerted effort on the part of all groups interested in the promotion of the art and science of medicine, in the extension of medical service for the benefit of all classes, in improving the methods for applying scientific medical knowledge and in the maintenance of worthy professional ideals should be fully established at the earliest possible time.

For that reason the Board of Trustees has decided to invite the proper official representatives of certain medical organizations of national scope to participate in conferences similar to that recently attended by the members of official bodies of the three national hospital associations. The first invitation was recently extended to the Board of Regents of the American College of Physicians.

Communications from National Medical Association, Inc.

Official representatives of the National Medical Association, Inc., which is the national organization of Negro physicians in the United States, appeared before the Board of Trustees and later before the House of Delegates of the Association at the special session of the House held in Chicago in September 1938.

The National Medical Association, Inc., includes in its membership Negro physicians, dentists and pharmacists. According to the statement of its president, Dr. George W. Bowles, the association has approximately 4,000 members, this number having been determined from the records of the organization in the hands of its secretary. From the same source an estimate is offered to the effect that there are approximately 5,300 Negro physicians in the United States.

The representatives of the National Medical Association addressed the House of Delegates at the special session in September and expressed a desire on the part of the officers of that association to cooperate to the fullest possible extent in maintaining the policies of the American Medical Association as established by its House of Delegates. They asked for such aid as might be extended to them by the American Medical Association in securing recognition of Negro physicians, members of the National Medical Association, by certain agencies of the federal government and of state governments. They also expressed the desire to have the designation "col.," which appears with the names of Negro physicians listed in the American Medical Directory, removed.

The Board of Trustees has given careful and sympathetic consideration to the communications received from the elected officers and other representatives of the National Medical Association, Inc., and will undertake to work out some method for listing Negro physicians in the American Medical Directory in a manner that will not be objectionable to them.

The Board of Trustees desires to submit to the House of Delegates the communications referred to with the recommendation that they be referred to a reference committee for consideration of the points involved.

The president of the National Medical Association, Inc., has been informed that this action would be taken by the Board of Trustees and that the Board believes that the reference committee of the House of Delegates to which these matters may be referred will be glad to have official representatives of the National Medical Association appear before it.

Division of Drugs, Foods and Physical Therapy

The creation of the Division of Drugs, Foods and Physical Therapy has proved to be an effective means of coordinating the work of the Council on Pharmacy and Chemistry, the Council on Foods, the Council on Physical Therapy and the Chemical Laboratory. This Division has also been concerned with the activities of the Advisory Committee on Advertising of Cosmetics and Soaps, the Councils' Committee on Contraceptives and the Committee on Medical Patents.

Council on Pharmacy and Chemistry

The year 1938 will be memorable because of the passage by the Congress of (*a*) the Wheeler-Lea Bill regulating the advertisements of foods, drugs and cosmetic preparations outside the package, including advertising over the radio, through newspapers and even by the spoken word; (*b*) the Food, Drug and Cosmetic Act, which places in the hands of the Department of Agriculture much more effective weapons to control the supervision of labeling and advertising accompanying the packages of products sold to the public, and also requires disclosure of the contents of preparations; (*c*) the licensing drug bill providing that no new drug preparation may be placed in interstate commerce after June 25, 1938, until it has received a license from the Food and Drug Administration, which is charged with the duty of determining whether or not the product may be harmful under the conditions recommended. These laws are designed to carry out, to a certain extent, policies similar to those long since established by the Council on Pharmacy and Chemistry and by the Bureau of Investigation. While they do not yet contain some of the provisions which seem to be in order, such as quantitative disclosure of formula, these statutes do clearly recognize the validity of principles maintained by various departments of the American Medical Association unceasingly since 1905, the year in which the Council on Pharmacy and Chemistry was created.

The Food, Drug and Cosmetic Act represents an endeavor to minimize counter prescribing. Physicians should therefore welcome this opportunity to encourage the proper prescribing of drugs and do all in their power to cooperate with pharmacists against the counter exploitation of drugs used in the scientific practice of medicine. The work of the Council on Pharmacy and Chemistry will be aided in certain directions by force of these new laws, but it will not be lessened. Council recognition of products is coming to mean more and more to physicians and to manufacturers, as is shown by the fact that the work of the Council increases each year. When a drug passes scrutiny of the Council it has shown promise of merit and, if it is accepted, the manufacturer must agree to market it according to claims the Council believes to be justified. The products of certain manufacturers are not recognized by the Council. Few agencies are in position to exercise such discrimination as is shown by the Council in the acceptance of pharmaceutic products. The law now recognizes and provides for the pronouncements of expert medical opinion and it is expected that the opinions of the Council on Pharmacy and Chemistry will have decided influence in helping to formulate decisions on the current use of therapeutic agents. A number of concerns whose products are not recognized by the Council have recently made active progress in revising their catalogues to avoid unfavorable official rulings. It is quite likely that some of these producers will be able to show sufficient revision to warrant the Council's considering certain of their drugs for inclusion in New and Nonofficial Remedies.

On Sept. 1, 1938, announcement was made of the acceptance of products of the Upjohn Company and that company is now cooperating well with the Council. The Council now has catalogues of approximately a dozen manufacturers before it with a view to determining the status of the products of these concerns.

The Council wishes to take this opportunity to express to the members of the American Medical Association its appreciation of the increasing support and recognition which is being given to its work.

INCREASE IN MEMBERSHIP OF THE COUNCIL

Because of the widening field in drug therapeusis it has been necessary to increase the membership of the Council by two members.

PUBLICATIONS OF THE COUNCIL

New and Nonofficial Remedies.—A usual edition of this publication was issued in 1938. Two supplements were issued as usual, one on August 1 and one on November 1. It is to be emphasized that New and Nonofficial Remedies is a current publication, issued annually, the contents of which are being constantly changed to keep in step with the rapid advancement of therapy. The number of copies sold in 1938 was 5,242. In addition 6,300 paperbound copies were distributed to one class of each class A medical school.

The Epitome of the U. S. Pharmacopeia and National Formulary.—It was not necessary to revise this book, since few changes were made in the Interim Supplement issued by the Revision Committee of the U. S. Pharmacopeia or by the Revision Committee of the National Furmulary. The demand for the Epitome was very good, the number of copies sold in 1938 having been 7,809.

Useful Drugs.—Useful Drugs has found increasingly wide acceptance among the profession and particularly in the medical schools. In 1938 a new edition was issued. Of late it has been necessary to revise the book approximately every two years. The motto for this book might well be a modification of the old aphorism "It is better to know a few drugs well than many drugs poorly." The number of copies of Useful Drugs sold in 1938 was 7,397.

Glandular Physiology and Therapy.—This book was issued at the close of 1935, after which there was one reprinting. The book is in need of revision and it is anticipated that the new edition will be published during 1940. The number of copies of Glandular Physiology and Therapy sold in 1938 was 710.

A. M. A. Interns' Manual.—This represents a radical revision of a publication previously known as Hospital Practice for Interns. It was issued for the first time in the late spring of

1938. The reception given to the book was greater than was anticipated. In it are contained the official statements from the Council on Medical Education and Hospitals on the relationship of the intern to the hospital, a brief discussion of physical therapy prepared by the Council on Physical Therapy, and a statement on foods and nutrition prepared by the Council on Foods. In addition, there is considerable material on various types of drugs—dosages and indications—which come within the purview of the Council on Pharmacy and Chemistry. This represents truly a cooperative effort of the various councils of the Association in a common field. The number of copies sold in approximately a half year was 1,943.

REPORTS OF THE COUNCIL

The Council issued the usual number of reports. Undoubtedly more interest has been shown in sulfanilamide than in any other drug introduced in medicine during the last few years, and the Council has again revised its description. During the year the Council coined a nonproprietary name for a derivative of sulfanilamide which had been introduced in the United States under undesirable proprietary names. Sulfapyridine, the name coined by the Council, has received wide acceptance. A number of articles which represent extensive work were published by the Council, such as those on the Present Status of Ergonovine, the "new" alkaloid from ergot; Creosote and Guaiacol Compounds, all of which were omitted from New and Nonofficial Remedies; the Present Status of Immune Globulin (Human); the Present Status of Picrotoxin in Poisoning by the Barbiturates, and a number of reports on other substances. Space does not permit detailed statement of the many products and substances which have been passed on by the Council.

COOPERATIVE COMMITTEE ON VITAMINS

The Council on Pharmacy and Chemistry and the Council on Foods have a joint committee on vitamins. Because of the importance of the vitamin problems which were before the councils during 1938 a special meeting of this committee, together with the members of the two councils who are not members of the committee, was called early in December. In order to aid in appreciation of the scope of the discussions, mention is made of the following among the topics presented for action: permissible claims for vitamin A, riboflavin, thiamin chloride, nicotinic acid, cevitamic (ascorbic) acid, vitamin D, vitamins A and D together, viosterol preparations, and vitamin E. The Cooperative Committee of the Councils endorsed the action of the American Society of Biological Chemists and the American Society of Nutrition that the term "vitamin F" be not recognized. It also considered the possibility of reducing the number of types of vitamin A and D preparations by prescribing limits of potency and dosages for different classes of vitamin products. The new problems of nomenclature in relation to vitamins were thoroughly discussed, as were international standards. Other topics dealt with the work of the Council on Foods, such as fortification of various foods with vitamins, and statement of general policy toward such preparations.

Based on these discussions there is to be published in 1939 a review of the action of this committee. Scientifically the conception of vitamins is becoming much clearer and each year brings contributions to the knowledge of the subject. On the other hand, the vitamins have been played up in a grossly unscientific manner to the public. Particularly to be disparaged are the many unnecessary polypharmaceutic preparations containing vitamins, sometimes combined with minerals, which are constantly urged on the public. There is but little need for vitamins as contained in such products and certainly no need medically of complex unscientific mixtures sold under "catchy" names, with misleading claims indicating usefulness in the treatment of various diseases and as cosmetics.

The Council on Pharmacy and Chemistry, in cooperation with the Council on Foods, expects to issue in 1939 a book on vitamins containing the articles published under the joint auspices of these councils. These articles have been thoroughly revised and are being edited by the Secretary of the Council on Foods.

During the year, nicotinic acid was standardized and a number of brands were submitted to the Council on Pharmacy and Chemistry. The Council also has under consideration the newer addition to the vitamins now called vitamin K. It is encouraging to note that scientific terms are gradually replacing the use of such unsatisfactory designations as are indicated by alphabetic designations. Practically all the known pure crystalline substances are now included in New and Nonofficial Remedies under chemical names.

PROBLEMS OF NOMENCLATURE

The foregoing discussion indicates in a small measure the various problems before the Council. Appreciation of the work of any group having so many questions before it requires a large background of experience. It is therefore sometimes difficult to understand adequately why the Council has been compelled to take this or that action. Practically, most of the complaints that are received in the Council office deal with matters of nomenclature. It is difficult for some persons to see the necessity of not establishing precedents by the use of names which are therapeutically suggestive and that, should therapeutically suggestive names be once recognized, the chaotic condition of nomenclature which was prevalent in 1905 would again be in the course of establishment. The Council is also insistent that there shall be only one proprietary name to any substance and such a proprietary name is granted either because of discovery of a novel preparation or discovery of novel medicinal properties, either of which constitutes a definition for distinct originality.

MEMBERSHIP OF THE COUNCIL

The Council lost by resignation one of its valued members, Dr. E. M. Bailey, who was forced to retire because of illness. Dr. Bailey had been a member of the Council on Pharmacy and Chemistry and of the Council on Foods since 1930. He was chairman of the Committee on Rules and Procedure of the Council on Pharmacy and Chemistry and served admirably as chairman of the Cooperative Committee on Policy, Rules and Procedure, representing the three councils. The members of the Council have recorded their appreciation of the excellent services which Dr. Bailey gave to the medical profession during these years though he himself was not a member of that profesion. It is one of the glories of science in general that men of distinction who are not physicians are willing to serve the medical profession unselfishly in its endeavor to promote the best interests of the public and of medicine.

Summary

Important legislation enacted by Congress during the year 1938 included a bill regulating the advertising of foods, drugs and cosmetic preparations outside the package, over the radio and through newspapers, the food, drug and cosmetic act providing for more effective control over the supervision of labeling and advertising accompanying packaged products and requiring the disclosure of the contents of the preparations, and an act providing that no new drug preparation could be placed in interstate commerce after June 25, 1938, until it had received a license from the Food and Drug Administration. These laws are designed to carry out to a certain extent policies similar to those of the Council on Pharmacy and Chemistry and will in some respects offer support to the work of this Council. The law now recognizes and provides for pronouncements of expert medical opinion, and it is possible that the official opinions of the Council on Pharmacy and Chemistry may have some important influence in aiding in the formulation of decisions on the use of therapeutic agents.

Some manufacturers whose products are not recognized by the Council have made revisions in their catalogues for the purpose of bringing them into compliance with newly enacted legislation, and some of these manufacturers may be able to show sufficient revision to warrant consideration by the Council of some of their products for inclusion in New and Nonofficial Remedies.

Increase in the volume of work necessarily undertaken by the Council required the addition of two members.

Publications of the Council have enjoyed fairly satisfactory distribution, and it has become necessary to issue new editions of some of them and to prepare for early revision of others. The issuance of reports

designed to provide the medical profession with information concerning the status of new drugs has been continued.

The Cooperative Committee on Vitamins, a joint committee representing the Council on Pharmacy and Chemistry and the Council on Foods, has been created for the purpose of conducting intensive studies pertaining to vitamins. Under the auspices of this committee, important articles pertaining to vitamins have been prepared and, after publication in The Journal, will be brought together for publication in book form.

Council on Foods

It is one of the functions of the Council on Foods to evaluate evidence regarding the nutritional significance of foods and, by means of its seal, to designate as acceptable the claims contained in the advertising of wholesome food products. In this work the Council has continued to receive the cooperation of many producers. Although there has been a limitation in the classes of foods which are accepted, during 1938 approximately 400 products were given consideration. For most of these it was necessary to recommend changes in labeling or advertising or both. Only six products were rejected during the year because firms were unwilling to meet requirements. Thus, it would seem that the work of the Council is bearing fruit, although it would be difficult to obtain an accurate measure of it.

Despite restrictions in the scope of the Council's activities, the labors of its members have greatly increased. The evaluation of scientific evidence and the examination of advertising demand considerable time. During a single month the Council receives approximately 4,000 typewritten pages of radio "continuity" alone. No proper estimate can be made of the amount of advertising for newspapers and periodicals and longer statements such as are contained in booklets and pamphlets that has been given careful consideration. Perhaps the increased powers of governmental agencies provided by the new Food, Drug and Cosmetic Act and the Wheeler-Lea Bill may in time relieve the Council of much of this work and thus permit more time to be spent on the evaluation of scientific and medical data on the value of foods in preserving health.

PUBLICATIONS OF THE COUNCIL

During the year there was prepared for the A. M. A. Interns' Manual a section on Diet and Nutrition. There also was published a pamphlet containing a brief account of some of the principles which underlie the selection of foods for an adequate diet. This pamphlet, entitled "The 'Normal' Diet," was distributed in connection with the exhibit of the Council at the San Francisco meeting. Copies were made available for distribution in reply to the great number of inquiries received by the Council office for information about foods and diet from physicians, students and the general public.

When canned orange juice and other canned fruit juices are substituted for the fresh orange juice which commonly is used in the feeding of infants, there is interest in the vitamin C content of the products. Vitamin C is readily destroyed by oxidation, particularly on heating. Modern canning procedures are designed so as to conserve the vitamin. In order to obtain further information on this point, Dr. E. M. Bailey of the Connecticut Agricultural Experiment Station, New Haven, has supplied for the Council comparative data on the vitamin C content of accepted fruit juices (orange, lemon, grapefruit, pineapple and tomato) determined by the chemical titration method. The Council, in its report, concluded that all of the products examined may be considered excellent sources of vitamin C.

In collaboration with the Council on Pharmacy and Chemistry, arrangements were made for the preparation of a series of articles on the vitamins. These were published during 1938 in THE JOURNAL. There were thirty-one articles altogether, which reviewed the chemistry, physiology and dietetic and therapeutic values of each of the vitamins. Judging by inquiries, these authoritative reviews, prepared by leading investigators in the field, have proved to be most useful. Arrangements now have been made for publication of the series in book form.

Progress also has been made in the compilation of material for the book "Accepted Foods."

RULES AND DECISIONS

As information has accumulated regarding foods and their nutritional value, it has been necessary for the Council to revise the requirements for accepted products. Some of the items which have been given careful study are indicated by the changes made in the Rules and Decisions.

The Council has always believed that the ingredients of processed foods should be made known, and particularly of the products intended for special dietetic uses and for feeding infants. Prominent declaration should be made of the ingredients and of the amounts of the essential dietary substances on labels. In accordance with these fundamental policies, the Rules Governing Package Labels and Advertising of special purpose foods have been revised by the incorporation of the following statements:

> The labels and advertising shall contain a statement listing all dietary ingredients of nutritional significance in the order of decreasing predominance by weight and shall indicate the special purpose for which the product is intended. These statements, so far as is practical, should be in close proximity to the trade name. In addition, as much of the following information should be given as is significant to permit the intelligent use of the particular product by the consumer: specific properties, vitamin and mineral content, the calories per gram or ounce, and the grams each of carbohydrate, protein and fat per portion.

Claims for the vitamin content of food products intended for therapeutic purposes should be supported by suitable evidence. As a guide to producers and as an expression of Council policy, the following statement concerning the kind of evidence desired together with a general suggestion about how this evidence may be obtained has been incorporated under the Rules Governing Package Labels and Advertising:

> In the case of special purpose foods designed to supplement the vitamin content of therapeutic and other diets, satisfactory evidence must be presented that storage under ordinary conditions does not lower the vitamin potency of the product below the assay values claimed. Suitable evidence on this point, for products which ordinarily are kept at room temperature, would be obtained by assay of specimens maintained for three months at a temperature of 100 degrees Fahrenheit. For products which ordinarily are kept in the refrigerator, suitable evidence would be obtained by assay of specimens which have been maintained for suitable periods of time at refrigerator temperature.

The section of the Rules headed "Vitamins" under "Form of Submission of Foods for Consideration" likewise has been amended to read:

> Specific vitamin claims must be based on satisfactory evidence, preferably by direct biologic tests of marked samples by a competent investigator. Report of assays should be complete enough to enable appraisal of the work and the deductions therefrom. In the case of vitamin C, chemical titration may be sufficient evidence of the ascorbic acid potency of products for which it has been demonstrated that the chemical method is sufficiently precise. It is important that assay of the vitamin potency of food products be performed on samples which have been kept under conditions of storage comparable to those to which the food product is likely to be subjected.

It was formerly customary to add a small amount of bread crumbs or other cereal food to strained vegetables prepared for use in infant feeding in order to thicken them slightly and to increase their caloric value. The use of cereal in the preparation of strained vegetables for infant feeding has now been largely abandoned, but vegetable soups prepared for infants and young children frequently contain cereal or potato as thickening agents and for the added food value which they supply. Commercially prepared strained vegetable soups with few exceptions contain cereal ingredients in amounts ranging from 1.7 to 12 per cent by weight. The cereals used are chiefly barley, rice and wheat germ. One cereal product only or a mixture of any two or all three of the cereals named may be employed. The nutritional value of the added cereal for healthy babies is recognized.

Because of the small amount of cereal which may be used and the fineness of division of strained foods, the presence of cereal may not be immediately apparent on inspection of the product. The Council believes that the container label of foods should conspicuously present such information as will inform the public of the ingredients of the food within the package. In the case of strained vegetable soups the Council further believes that prominent declaration of the presence of cereal in the product may be of importance to physicians pre-

scribing these foods and the following decision on this point has been adopted:

Added cereal in sieved vegetable soups intended for infant feeding or for special diets shall be given appropriate and prominent declaration on the main panel face of the package label.

The following decision concerning the use of the word "cream" on the labels and in advertising of evaporated milk is self explanatory:

There have appeared on labels and in advertising for various brands of evaporated milk certain statements which the Council believes are undesirable, such as "use evaporated milk instead of cream," "for all your cream needs" and "use as cream." Although evaporated milk is often useful as a culinary aid in situations in which cream is commonly used, the composition of evaporated milk differs from that of cream; statements that imply that evaporated milk is practically the same as cream are nutritionally incorrect and misleading. The claim that evaporated milk has the "consistency of cream" may be correct from a physical point of view; however, the Council regards the expression as objectionable because of the suggestion of similar nutritive properties. The use of evaporated milk in tea, coffee and for other purposes can be suggested without recourse to the word "cream."

GENERAL POLICIES

The funds supporting the work of the Council on Foods come entirely from the American Medical Association. There is no charge of any kind for the seal of acceptance and there never has been.

In order to conserve its facilities, the Council has found it necessary to omit certain foods from its scope. Among the exempted products are well known perishable foods such as fresh fruits and vegetables, fresh meat and eggs and ordinary pasteurized milk. As long ago as 1936 it was found necessary to include individual brands of butter in the exempted list. During 1938 it was brought to the attention of the Council that exemption of butter with continued consideration of oleomargine created a difficulty because of the belief of many that the seal of acceptance constitutes a recommendation. The Council has stated repeatedly that the seal means only that in its opinion the product on which it appears is a wholesome food and that the labeling and advertising comply with Council requirements. It also may be emphasized that the Council gives consideration to so-called educational advertising of trade associations or firms for classes of foods and, on material which is acceptable, permits the display of the seal, usually with an added statement to the effect that the seal denotes that the nutritional claims are acceptable to the Council. With regard to butter, however, the disadvantages of not being able to obtain the seal were felt so keenly by members of the dairy industry that the House of Delegates requested the Council to reestablish suitable standards for the acceptance of butter and the advertising associated therewith. The Council has been spending considerable time in an endeavor to take care of the added work that would be involved and it is expected that some general method of procedure shortly will be devised.

MEMBERSHIP AND CONSULTANTS

During the year the term of membership of Dr. Lydia J. Roberts expired and she was reelected by the Board of Trustees to serve another period of five years. Dr. George R. Cowgill was elected to serve the unexpired term of Dr. Edwin O. Jordan (deceased), and Dr. Irvine McQuarrie was elected to take the place of Dr. Grover Powers, who resigned because of the pressure of other duties. The staff of the Council office remains the same except for the appointment of Dr. Harriet Morgan Fyler to replace Dr. Marjorie Pickens, who resigned to become research associate in the Department of Home Economics, University of Illinois.

The services of the following persons, who were called on as consultants during the year, are gratefully acknowledged: Dr. Walter C. Alvarez, Dr. Hugh R. Butt, Dr. A. J. Carlson, Dr. Henry C. Eckstein, Dr. George B. Eusterman, Miss Mary A. Foley, Dr. Ramon F. Hanzal, Dr. A. C. Ivy, Dr. William E. Krauss, Dr. Grace MacLeod, Dr. E. M. Nelson, Dr. Grover F. Powers, Dr. Henry C. Sherman, Dr. Albert M. Snell and Dr. Genevieve Stearns.

Summary

A review of activities of the Council during 1938 emphasizes again the continued cooperation of members of the food industry. Few products have been accepted without requiring changes in nutritional claims on labels or in advertising and very few products have been rejected because producers were unwilling or unable to meet the requirements. The newer legislation on foods may enable the Council to concentrate more on the evaluation of scientific and medical opinion on the value of foods in preserving health. Reports of this nature have been published. In a study of the comparative value of the vitamin C potency of canned fruit juices it was found that accepted products compare favorably with fresh juices and rate as excellent sources of the antiscorbutic factor. The Council has prepared brief accounts of the principles which underlie the selection of an adequate diet, one such report having been published in the A. M. A. Interns' Manual. In cooperation with the Council on Pharmacy and Chemistry there was published in The Journal a series of noteworthy articles on the vitamins prepared by prominent investigators in the field. These articles now are being collected for publication in book form. There are recorded several revisions in the Rules and Decisions of the Council which were made with the view of having the requirements for accepted products more definite in the light of newer knowledge. The request of the House of Delegates for the reestablishment of suitable standards for the acceptance of butter, and the advertising associated therewith, has resulted in a concentrated effort on the part of the Council to devise some general method of procedure whereby meritorious foods which now are exempted from consideration, because of limitations in facilities, may be given proper recognition.

Council on Physical Therapy

Among important activities of the Council on Physical Therapy within the last year were those concerned with the consideration of radium and radon seeds, roentgen ray apparatus, artificial limbs, hearing aids and the formulation of standards for audiometers, advice in problems of research, a study of radio interference caused by electromedical equipment, revision of the Handbook of Physical Therapy and the booklet "Apparatus Accepted," and the investigation of apparatus. The gathering and dissemination of information that will aid the medical profession in determining the therapeutic value of certain devices and methods employed in the administration of physical therapy constitutes one of the purposes for which this Council was created. Through official reports and scientific articles published in THE JOURNAL, conferences with interested groups and a voluminous correspondence, the Council is attempting to accomplish this purpose.

RADIUM AND RADON

After a thorough study of the question of leakage and filtration of radon seeds, the Council is now in a position to go forward with the consideration of these products, using as a guide the report "Radon Seeds," to be published in THE JOURNAL. The preliminary work consisted of testing seeds purchased on the open market in a prominent laboratory manned by qualified physicists aided by qualified physicians.

In view of the action taken by the House of Delegates at the San Francisco session of the American Medical Association in June 1938 disapproving the rental of radium under certain conditions, the Council is now in a position to proceed with the consideration of the radium products which have come to its attention.

ROENTGEN RAY APPARATUS

The Council is continuing investigations of roentgen ray apparatus with a view to accepting for inclusion in its official lists such apparatus as meets requirements of the Council for that purpose. While it is easily possible to secure satisfactory tests of the smaller equipment of this nature, it is much more difficult to secure the necessary facilities for testing the largest and most powerful roentgen ray machines.

ARTIFICIAL LIMBS

At the suggestion of manufacturers of artificial limbs, a joint meeting of representatives of the Council on Physical Therapy

and of the Association of Limb Manufacturers of America was held in Chicago, at which time the question of sites for amputation, fitting of artificial limbs, standards for acceptance and sales methods were discussed. Articles are now in preparation dealing with these subjects and they will be published in THE JOURNAL.

AUDIOMETERS AND HEARING AIDS

A meeting was held in Chicago at which representatives of the hearing aid industry and consultants for the Council were present. As a result of action taken at this meeting, the "Minimum Requirements for Acceptable Audiometers" were revised and published. Problems discussed at this meeting were (1) the establishment of the energy value for the threshold of hearing, (2) the practicability of fitting hearing aids by means of audiometers and (3) requirements for acceptance of hearing aids. A better understanding of the mutual problems of the otologist and the manufacturers of audiometers and hearing aids was reached.

INTERFERENCE WITH RADIO COMMUNICATION

By mutual agreement the Federal Communications Commission and the Council on Physical Therapy held a joint informal meeting in the Harkness Theatre, Columbia University, New York, in January 1939, at which the problem of interference with radio communication caused by electromedical equipment was given consideration. Attending the meeting were members of the medical profession, representatives of manufacturers of electromedical equipment and of radio manufacturers, officials of the Federal Communications Commission, and other interested groups. At this meeting specialists and engineers in the radio communication field demonstrated interference by short wave diathermy with aural reception and television. The important accomplishment of the meeting was better appreciation of the mutual problems confronting the medical profession and the communication interests. Two solutions were proposed: (1) screening of the treatment room and (2) the allocation of certain radio bands or channels. No definite action was taken, however, since it was believed that further consideration of this problem was necessary.

HANDBOOK OF PHYSICAL THERAPY

The third edition of the Handbook of Physical Therapy has been revised and brought up to date. New articles prepared and included in the volume are on the following subjects: fever therapy, medical diathermy, neutron rays, ultraviolet and infrared radiation, electrolysis, physical therapy in fractures and infantile paralysis, psychoses and neurologic conditions and equipment for physical therapy departments in hospitals. Revisions have also been made in most of the articles retained from the second edition.

INVESTIGATION OF APPARATUS

As usual, much of the Council's time has been concerned with the consideration of apparatus. Of the 100 pieces of apparatus considered, forty were accepted, eleven were rejected, and the remainder were withdrawn from the market or recommendation made that the units be improved and resubmitted to the Council for consideration. A new edition of the booklet "Apparatus Accepted" was published in September, 1938, bringing up to date the information on apparatus that has been reported on by the Council.

GRANTS-IN-AID OF RESEARCH

Several applications were presented to the Council requesting aid in research. Only one application was approved. The Council believes there are many problems in the field of physical therapy deserving careful investigation and will carefully review all requests for grants in aid of research.

EDUCATION

In its educational program, designed to promote sound physical therapy, the Council has had the able assistance of a group of consultants whose efforts have been untiring in this field. Approximately seventy lectures were given and instruction in physical therapy was instituted in three medical schools. Twenty-six articles and three books were published by this group. The members attended fifteen meetings of physical therapy groups. Efforts to establish an American Board of Physical Therapy culminated in the appointment of a committee to establish such a board which will serve physicians limiting their practice to physical therapy. New departments of physical therapy were established in several hospitals as a result of the Council's efforts.

Five exhibits were shown at various medical meetings, and four new films were prepared on the following subjects: "Aids in Muscle Training," "Underwater Therapy," "Occupational Therapy" and "Massage."

The Council has cooperated with the Council on Medical Education and Hospitals, the American Physiotherapy Association and the American Registry for Physical Therapy Technicians in connection with the consideration of problems concerning educational standards for technicians. It also cooperated with the Section on Ophthalmology of the American Medical Association in the consideration of ophthalmologic devices.

Summary

Briefly, the important work of the Council on Physical Therapy for 1938 has been directed toward the consideration of radium and radon seeds, artificial limbs, audiometers, hearing aids, roentgen ray apparatus, the study of radio interference caused by electromedical equipment, the revision of the Handbook of Physical Therapy and of the booklet "Apparatus Accepted," and the examination of other therapeutic apparatus.

Consultants on audiometers and hearing aids, on artificial limbs, on roentgen ray apparatus and on radium and radon products have cooperated with the Council in connection with the formulation of standards, the preparation of articles and the consideration of apparatus in the respective fields.

The interference with radio communications by electromedical equipment was one of the important subjects coming before the Council. A joint meeting was held at which members of the medical profession, representatives of the manufacturers of electromedical equipment, of radio manufacturers and of other interested bodies, and officials of the Federal Communications Commission were present. Ways and means of solving the problems were considered but no definite action was taken.

The Council on Physical Therapy has revised the Handbook of Physical Therapy and brought it up to date. The booklet "Apparatus Accepted" has been revised and reprinted.

The Council has continued its investigation of and reporting on apparatus submitted and in some instances has investigated and reported on products not submitted.

The Chemical Laboratory

The A. M. A. Chemical Laboratory continued in its important work of cooperating with the Council on Pharmacy and Chemistry in the examination and elaboration of standards for a large number of new preparations or new forms of old preparations offered to the medical profession. It exercised careful scrutiny over all the brands of sulfanilamide submitted to the Council and has examined the products of twenty-two manufacturers. The sulfanilamide now on the market has been found to coincide closely with the standards which were elaborated by the A. M. A. Laboratory in 1937. A good portion of one chemist's time has been devoted to the problems pertaining to crystalline zinc insulin and amorphous insulin, both in the solid form and in solutions in ampules. Nicotinic acid, cevitamic (ascorbic) acid, thiamin chloride, riboflavin and carotene are examples of pure vitamins in crystalline form which have received close attention by the Laboratory. Other compounds of interest are mercurials combined with theophylline, certain estrogenic substances and a number of products containing vasoconstrictors, including ephedrine, propadrine, racephedrine, neosynephrin and their salts. The Laboratory has found it necessary to continue examination of the various dextrose solutions on the market. A number of revised tests and standards were prepared dealing with products included in New and Nonofficial Remedies. New barbiturate derivatives and new anes-

thetics have been carefully examined chemically; also a number of contrast substances for the purpose of aiding x-ray diagnosis. Bismuth preparations still demand a great deal of attention.

The Laboratory has examined a number of products for the Bureau of Investigation, which have either been reported in THE JOURNAL or are about to be reported.

Members of the Laboratory staff have appeared before a number of scientific societies and have contributed to their programs. Members of the staff have also cooperated with other departments of the Association in the preparation or criticism of material involving chemical considerations.

Councils' Committee on Contraceptives

The Councils' Committee on Contraceptives was organized by the Council on Pharmacy and Chemistry and the Council on Physical Therapy of the American Medical Association at the request of the House of Delegates. The membership of the Committee is as follows: Dr. Paul C. Cannon, Dr. Carl Henry Davis, Dr. A. U. Desjardins, Dr. E. M. K. Geiling, Dr. E. E. Irons, Dr. John H. Musser and Dr. H. B. Williams. Ex-officio members of the Committee include Dr. Sollmann, chairman of the Council on Pharmacy and Chemistry, Dr. Mock, chairman of the Council on Physical Therapy, Dr. Fishbein, Mr. Carter and Dr. Leech.

The Committee on Contraceptives has decided on a general policy of conservative action and will serve largely as a fact-finding body rather than as an advisory body. Recently a report was issued on the use of roentgen rays for contraceptive purposes. An article by Dr. Irving Stein entitled "Contraceptive Methods" has been approved for publication by the Committee. This is a comprehensive review of contraceptive devices which may be harmful. Others have been asked to prepare articles dealing with contraceptive practices.

Advisory Committee on Advertising of Cosmetics and Soaps

The Advisory Committee on Advertising of Cosmetics and Soaps has continued to pass on preparations on which its advice has been requested. There is no doubt that a decided change has been noted in the advertising of many of the cosmetic firms, owing in large measure to the advent of the new Food, Drug and Cosmetic Act but in small measure also to the activities of this Committee. The Committee has been called on for advice from many sources. Although the Committee has not published any articles over its name, it is pleased to report that many of the firms with which it has dealt have revised their literature completely and effectively. In the case of other firms the Committee has been obliged to inform them that their products are not acceptable for advertising in the pages of THE JOURNAL. In 1938 the membership of the Committee was increased by two and now consists of Dr. Harry E. Alderson, Dr. Joseph J. Eller, Dr. C. Guy Lane, Dr. Francis E. Senear and Dr. Bedford Shelmire, with the Editor of THE JOURNAL and the Director of the Division of Drugs, Foods and Physical Therapy.

Council on Industrial Health

GENERAL ACTIVITIES

During its first year of organized activity, the Council on Industrial Health has been obliged to devote a major share of its attention to problems of organization and to definitions of the scope of work which it should undertake. In both directions it has had assistance and encouragement from the other established agencies at headquarters. With a view to expediting the ordinary conduct of Council affairs, an office and staff have been organized, rules adopted and subcommittees formed, and a bulletin has been developed by means of which questions of policy may be promptly submitted to the Council. During the year the membership was increased to twelve by the addition of Drs. L. D. Bristol, Anthony J. Lanza and Clarence D. Selby, while one member, Dr. Morton R. Gibbons, resigned.

NOMENCLATURE IN INDUSTRIAL DISEASE

The Council early concluded that the terminology used in industrial medical practice was in large part unscientific, if not chaotic. Usages have been derived from a variety of sources—court decisions, legislative and administrative practice, pronouncements of industrial organizations, and proceedings of technical committees and their publications. It was the opinion of the Council that by reason of this widespread confusion the medical profession needed an analysis of current industrial medical parlance to provide common understanding and acceptance of meanings. A Committee on Nomenclature was appointed to study the problem from a broad point of view and to arrange for the publication of a compendium. In compiling this list and defining its terms, the committee intends to consult with all other interested agencies, including bureaus and councils of the American Medical Association, in order that all possible sources of accurate and competent information may be represented. The publication of this material in book form will provide the profession with a useful reference in a field that has not heretofore been adequately treated.

MEDICAL EDUCATION AND INDUSTRIAL HEALTH

The Council has been impressed by the scarcity of opportunities for training in industrial medicine and hygiene in all categories—undergraduate teaching, organized graduate courses and postgraduate education. The advice and assistance of the Council on Medical Education and Hospitals were solicited and the conclusion was reached that most of the early activities of the Council on Industrial Health could profitably be directed toward the improvement of educational opportunities. Communications have been received from all but two of the four year medical colleges regarding the present status of undergraduate teaching in industrial hygiene and from all known departments in schools of medicine and public health conducting organized graduate courses. Data have been collected and organized in useful form for demonstration and publication. As the study continues, plans will be formulated designed to impress educators with the need of making the profession generally aware of its responsibilities and of the magnitude of its potential contribution to the industrial health program. Likewise, in the conduct of its early survey in the educational field the Council has learned of teaching programs for other than professional participants in the industrial health field which it might profitably explore.

PRODUCTION OF AUTHENTIC LITERATURE

The issuance periodically of authentic articles was considered an important part of the Council's educational program. The first of a series of publications on silicosis has appeared. Arrangements are being made for the preparation and publication of a series of articles covering the administration and maintenance of an adequate industrial medical service, with particular emphasis on the special needs of small industrial plants.

FIRST ANNUAL CONGRESS ON INDUSTRIAL HEALTH

In January 1939 the Council conducted the first of a series of conferences on industrial health. The underlying note of the inaugural meeting was that the practicing physician must attempt to orient himself in a rapidly expanding field. The aims and accomplishments of other organized agencies were clarified and the character of industrial medicine appraised and its scope and interrelationships reemphasized and redefined. The Council considers that this meeting satisfactorily fulfilled its objectives and has gone on record as approving an annual congress as one of its regular educational functions.

CONTACTS WITH STATE ASSOCIATIONS

The Council has been in correspondence with officials of the constituent medical societies in an effort to develop means for regular correspondence and interchange of opinions, preferably by the formation of committees on industrial health in the state societies. In many states the desirability of this arrangement has been realized, and at present twenty-five state medical associations have organized such committees and a few others have signified their intention to cooperate with the Council in this way. In recognition of the importance of these relationships, the Council has appointed a Committee on State Associations, which will have the effect of coordinating the pronouncements and recommendations of the Council with the activities of the state groups.

CLEARING HOUSE OF INFORMATION

From the outset it has seemed important to the Council that some arrangement be made for the collection and evaluation of contributions to the literature on the etiology, diagnosis, treatment and prevention of hazards associated with occupation This activity was originally suggested by the Section on Dermatology and Syphilology As sources of authentic information improve it is confidently expected that the Council office will be in a good position to satisfy the requirements of physicians who are in need of help in the solution of industrial problems

REVIEW OF COMPENSATION LAWS

Throughout all the preliminary discussions which led to the creation of the Council on Industrial Health, considerable emphasis was placed on the desirability of uniformity in compensation practice in the various jurisdictions The determination of a sound approach to compensation activities has given the Council great concern In this regard special attention has been paid to the functions and accomplishments of other agencies of the American Medical Association which have studied and acted on these matters At present the conclusion reached is that the Council should concern itself primarily with standards and accomplishments of medical practice under workmen's compensation laws As one of its important objectives, the Council proposes to determine which of the administrative agencies in charge of workmen's compensation now employ suitable medical representation and in what directions such medical boards could be expanded and their value emphasized

RELATIONSHIP OF TRAUMA TO DISEASE

Certain instances have come to the attention of the Council in which industrial commissions or courts have ignored or superseded commonly accepted scientific principles and knowledge in making awards, particularly through associating organic pathologic changes with previous trauma or by ascribing aggravation of preexisting disease to trauma It is not safe to assume that any action taken by a scientific organization will influence these administrative agencies It is the opinion of the Council, however, that an appraisal or medical survey of the relationship between trauma and disease, approached primarily from the point of view of the pathologist, might constitute a more reliable groundwork of reference which such tribunals ultimately could not ignore As a preliminary step in this direction the Council has suggested a cooperative survey with the Section on Pathology and Physiology of the Scientific Assembly regarding the relationship between trauma and appendicitis

REHABILITATION

The Council has been invited to participate in discussions covering the several aspects of vocational rehabilitation Conferences will probably be called soon looking toward improvement in the contributions of all agencies involved—the rehabilitation groups, the compensation commissions and the medical profession The Council has been disinclined to assume the initiative in developing conversations designed to clarify and improve the functions of these agencies until a greater degree of information is available, especially on the proper interest which medicine has in the total rehabilitation picture It is in this phase of the problem that the Council is most likely to interest itself for the time being, in view of its opinion that rehabilitation is not a medical function beyond the provision of adequate medical treatment from the inception of the injury

MEDICAL ORGANIZATION IN INDUSTRY

Sound opinion concedes that the next great impetus given the industrial health movement will be an effort to provide the employee in the small plant with the same advantages of controlled working environment and scientific preventive medicine as now exist in many of the larger establishments If this trend is substantially realized, many physicians will be called on to undertake, at least as a part time activity, preventive medical control over small manufacturing plants Satisfactory results will depend in large measure on the degree to which these physicians have comprehended the fundamentals of industrial hygiene and their practical application of this knowledge It is the plan of the Council therefore to aid in every ethical way the development of such services to small industries Arrangements for extension courses and postgraduate education through the state and county medical organizations will be emphasized The published reports of the Council will stress the functions of medical organization in industry, the material being so developed as to be ultimately available as a handbook for physicians and industrial executives

ACTIVITIES OF INDEPENDENT AGENCIES

Many physicians realize the widespread interest in the industrial health movement, but few are aware of the full extent of its complexity and ramifications There are more than 2,000 trade associations, not a few of which have developed programs for safety and for the elimination of hazards either individually or through established foundations Dozens of manufacturing concerns, particularly insurance carriers, have in the same fashion supported such enterprises as laboratory and field investigations, code development, determination of safe concentrations of toxic agents and health education in general Federal and state departments of labor, labor organizations and workers individually are demonstrating increasingly widespread interest in conditions of employment During the past several years the United States Public Health Service has expanded its facilities for investigation and control of occupational hazards and has fostered the development of bureaus of industrial hygiene in state departments of health and in a few cities The Council foresees as the basis of one of its most useful functions an ability to inform the profession about the spread of the industrial health movement and to correlate its own program with the programs of independent agencies which have obviously a real interest in and important contributions to make to improved health for the worker

Summary

The Council on Industrial Health has completed its first year of organized activity and much attention has been directed to internal organization and scope. The establishment of a headquarters office and a bulletin have greatly facilitated the conduct of its affairs. Preliminary work designed to introduce order into the chaotic field of industrial medical nomenclature is approaching completion. Plans are under way to create an abundance of opportunities for sound instruction in the fundamentals of industrial hygiene designed for the undergraduate medical student and for the postgraduate education of physicians. Contacts have been established with all the constituent associations, and committees of industrial health have been established in most of the states where the degree of industrialization seems to warrant it. Steps have been taken to make available authoritative information on clinical and administrative phases of industrial health. Ramifications of medical relationships under workmen's compensation are realized and the Council will work toward uniformity of administration and elevation of medical standards. The Council has instituted an investigation into the relationship between trauma and appendicitis. Its cooperation has been invited to determine the degree of medical interest involved in vocational rehabilitation. Independent agencies interested in industrial health have been investigated and activities of those which have important contributions to make to the health of the worker will be brought to the attention of the medical profession.

Bureau of Legal Medicine and Legislation

FEDERAL LEGISLATION

Seventy-Fifth Congress — The Seventy-Fifth Congress adjourned June 16, 1938 The Federal Food, Drug and Cosmetic Act had then passed both houses On June 25 it was approved by the President The act does not become wholly effective until the expiration of one year after the date of its approval, but its provisions relating to new drugs became effective immediately An analysis of the act was published in THE JOURNAL, July 23, 1938, pages 324-326

During the closing days of the Seventy-Fifth Congress, a bill was passed to amend the United States Employees' Compensation Act so as to give osteopaths the same status under that act as is given to doctors of medicine It was approved

by the President May 31, 1938. The passage of this bill can probably be attributed to a statement on the floor of the Senate that the medical profession had withdrawn opposition to it. No one authorized to speak for the Association had made any such representation and in fact the bill was as obnoxious as ever. The facts surrounding the passage of the bill were set forth in detail in THE JOURNAL, May 28, 1938, page 1838.

Seventy-Sixth Congress.—The Seventy-Sixth Congress convened in its first session Jan. 3, 1939. Already, when this report is being written, March 24, 1939, more than 7,500 bills and resolutions have been introduced and the session is still in progress. Even allowing for the introduction of identical bills in both houses, the volume and diversity of the legislation proposed is flowing, but it is probable that much of it will not be enacted. Abstracts of bills that seem to be of medical interest have been published weekly in THE JOURNAL. Among such bills, the following appear to call for special comment:

Wagner Amendment to Social Security Act.—Senator Wagner of New York introduced on February 28 a bill, S. 1620, proposing to expand the Social Security Act so as to give life to the recommendations of the Interdepartmental Committee to Coordinate Health and Welfare Activities, appointed by the President in August 1935. This bill is sometimes referred to as "The Wagner Bill," although its sponsors have selected for it, if it passes, the title "The National Health Act of 1939." The title is obviously adroitly chosen. This bill was referred to the Senate Committee on Education and Labor, where it is pending when this report is being prepared.

While no companion bill has been introduced in the House of Representatives, yet the recommendations of the Interdepartmental Committee to Coordinate Health and Welfare Activities are before the House, having been transmitted by the President Jan. 23, 1939, with the recommendation that they be given a careful study by the Congress. (H. R. Doc. No. 120, 76th Congress, first session.) In the House, the President's message and the report of the Interdepartmental Committee were referred to the Committee on Ways and Means, but up to present writing no action has been taken with respect to them. The essential difference between the situation in the Senate and the situation in the House of Representatives is that the Senate has before it the Wagner bill, proposing specific amendments to the Social Security Act to carry into effect the recommendations of the Interdepartmental Committee, while the House of Representatives has before it only the President's message and the report and recommendations of the Interdepartmental Committee and is left to formulate such legislation, if any, as it deems proper to give effect to those recommendations.

An analysis of the Wagner bill proposing amendments to the Social Security Act, looking toward the extension of medical and health services throughout the United States under the direction and supervision of the United States Public Health Service, the Children's Bureau and the Social Security Board, was published in THE JOURNAL March 11, 1939. Essentially, the bill proposes to provide federal subsidies to induce the several states to undertake new activities and to enlarge activities already under way, in certain economic, health and medical service fields named in the bill. The funds to be paid by the federal government toward the state activity are to be matched to a certain extent by funds appropriated by the state. The bill does not propose any specific taxes to cover the cost of the new and enlarged services but leaves the very large expense proposed by the bill to be met by increases in the general taxes or else by savings to be effected by the federal and state governments through the discontinuance or limitation of various federal and state services already under way.

The principal changes in the Social Security Act proposed by Senator Wagner's bill, of medical interest, include the following:

The Social Security Act provides federal subsidies to enable states to extend and improve "services for promoting the health of mothers and children." The pending bill proposes to authorize greatly increased subsidies to be allotted to the states to enable them not only to promote the objects provided for in the existing law but also to "provide medical care during maternity and infancy, including medical, surgical, and other related services, and care in the home or institutions, and facilities for diagnosis, hospitalization, and after care."

The Social Security Act provides for federal subsidies to enable the states to extend and improve services for locating crippled children and for providing medical, surgical, corrective and other services and care, and facilities for diagnosis, hospitalization and after-care for children who are crippled or who are suffering from conditions which lead to crippling. The pending bill proposes to enlarge the coverage to include an extension and improvement of services, supplies and facilities for the medical care of all children, especially children physically handicapped from any cause who are in need of special care.

The Social Security Act authorizes federal subsidies to aid the states, counties, health districts and other political subdivisions to establish and maintain adequate public health services, including the training of personnel for state and local health work. The pending bill proposes to permit allotments only to states and to authorize specifically the making of such allotments "to extend and improve public health work, including services, supplies and facilities for the control of tuberculosis and malaria, for the prevention of mortality from pneumonia and cancer, for mental health, and industrial hygiene activities" and for the development of more effective measures for carrying out such purposes, including the training of personnel. The Social Security Act furthermore authorizes a federal appropriation for expenditure by the Public Health Service for investigation of disease and problems of sanitation. The pending bill proposes to increase this appropriation and to authorize the Public Health Service, through the National Institute of Health, to make investigations of health, disease, sanitation and matters pertaining thereto.

Over a period of three years the pending bill contemplates an increase in federal expenditures of $196,550,000, exclusive of expenditures for administrative purposes, over the expenditures authorized by the Social Security Act for maternal and child health services, for services for crippled children and for public health work. What the increase in expenditures thereafter will be cannot be determined from the pending bill, because after 1942 no definite amounts are authorized, only as much as may be necessary.

The Social Security Act contains no authorization for appropriations for grants to states for hospitals and health centers. The pending bill proposes to add a new title to the act whereunder grants will be made by the Public Health Service to assist states to establish and improve hospitals and to assist, for a period of three years, in defraying the operating costs of added facilities. For the establishment and improvement of general hospitals the bill contemplates a federal appropriation of $8,000,000 for the fiscal year ending June 30, 1940, of $50,000,000 for 1941, of $100,000,000 for 1942 and of such sums "as may be necessary" thereafter. For mental and tuberculosis hospitals the bill proposes annual federal appropriations of such sums as may be necessary. Within the provisions of the bill, the term hospital is to include health, diagnostic and treatment centers, institutions and related facilities.

The Social Security Act does not authorize any appropriation to assist the states to extend and improve medical care generally. The pending bill does. It contemplates the addition of a new title to the Social Security Act whereunder grants may be made by the Social Security Board to the states to enable them to extend and improve medical care, including all services and supplies necessary for the prevention, diagnosis and treatment of illness and disability, and to develop more effective measures for carrying out the purposes of the new title, including the training of personnel. For the fiscal year ending June 30, 1940, an appropriation of $35,000,000 is to be authorized for this purpose and thereafter such sum annually as may be necessary.

The Social Security Act does not contain any authorization contemplating cash payments by the states to individuals who are temporarily disabled from whatever cause. The pending bill would add to the act a new title to authorize grants by the Social Security Board to assist the states in the development, maintenance and administration of plans for paying compensation to persons temporarily unable to or unfit for work by reason of injury or illness not arising out of or in the course of employment. For the fiscal year ending June 30, 1940, the sum of $10,000,000 is to be authorized and thereafter such sum annually as may be necessary. No state may, how-

ever, receive any of the federal funds unless it has a plan or plans that have been approved, presumably by the Social Security Board, under which the board finds that "reasonably adequate medical services, including preventive services, are available to minimize disability among those covered under the state plan for temporary disability compensation."

The Wagner Social Security Act amendment bill was discussed editorially in THE JOURNAL, March 11, 1939, as follows:

The House of Delegates of the American Medical Association, in considering the National Health Program, approved expansion of public health service where need could be shown, approved medical care to the indigent and to the medically indigent where need could be shown, and approved even expansion of hospital construction, provided the need could be demonstrated, recommending, however, utilization of existing facilities to the utmost before a new building program was authorized. The House of Delegates also approved the principle of assistance to the worker for temporary disability resulting from illness. Now the Wagner act goes far beyond these recommendations: First, it authorizes the expenditure of vast sums before the need has been shown; second, it expands tremendously the work of the Children's Bureau, the United States Public Health Service and the Social Security Board, without any demonstration that such expansion is warranted; third, it proposes to place the state health officers in a commanding position as far as concerns the dispensing of the funds allotted, subject only to approval of all plans by the federal agency to which the task is assigned. Vast funds are provided for the construction of hospitals and health centers and for their maintenance, notwithstanding the fact that there is not yet available any dependable determination of the exact nature and extent of needs that prevail. Who can imagine for a moment that the money once appropriated will not be expended? Finally, the measure introduces the principle of allotment of federal money to the individual states for medical care, by the Social Security Board, without specifying the means to be used in the individual states for providing such service other than to demand the approval of the Social Security Board.

As is emphasized in the analysis made by the Bureau of Legal Medicine and Legislation, the advisory councils to be set up are vague as to their membership, their duties and their responsibilities. There is one criticism that is to be made above all others in relation to this proposed legislation, namely its extreme vagueness in the light of the vast sums of money to be dispensed and the great powers conferred on certain federal officers in the control of the spending, and particularly the decision as to which of the individual states shall benefit by the expenditures.

Health Insurance.—A health insurance bill entitled "A Bill to aid in alleviating the loss caused by sickness," S. 658, was introduced by Senator Capper of Kansas, identical with a bill introduced by him in the Seventy-Fifth Congress. It proposes to authorize annual federal appropriations of $200,000,000 to induce the several states to develop and maintain systems of health insurance. The bill follows closely the provisions of the so-called Epstein health insurance bill. It is pending, when this report is being written, in the Senate Committee on Finance.

Tuberculosis.—A bill introduced by Senator Murray of Montana, S. 471, proposes to authorize an appropriation of $5,000,000 immediately and during the next succeeding four fiscal years unlimited annual appropriations to assist the several states in providing hospital beds for tuberculous persons. Under the provisions of the bill the federal government is to pay to each state which has submitted to the Surgeon General of the Public Health Service plans satisfactory to him 75 per cent of the cost of providing additional hospital beds and in addition a sum not to exceed $1.25 a day per bed actually operated. A state, to obtain the federal subsidy, must appropriate a sum equal to 25 per cent of the total amount required to provide the added hospital beds, and the state or a political subdivision of it must pay at least 50 per cent of the cost of operation. This bill is pending in the Senate Committee on Commerce.

Narcotic Drugs.—A joint resolution to authorize a survey of narcotic conditions in the United States by the United States Public Health Service, H. J. Res. 103, was introduced by Representative Coffee of Washington and is pending in the House Committee on Interstate and Foreign Commerce. It proposes to authorize the United States Public Health Service to investigate the conditions in the United States "existing now and during the past twenty-five years with respect to the importation, production, distribution, and use of narcotics," in order to obtain information with respect to (*a*) the extent of unlawful activities in narcotics, and the number of persons connected with such activities; (*b*) the extent of addiction to the use of narcotics, the number of addicts, the causes of addiction, the availability and use of various kinds of treatment, and other related matters; and (*c*) the conditions and trends with respect to the prevalence of evils arising from narcotics, with a view to aiding Congress to enact laws and aiding the law enforcement agencies to administer the laws, so as properly to protect the people from such evils. The Surgeon General of the Public Health Service is to report the results of his investigation to Congress, if this joint resolution is enacted, and he is to recommend any necessary legislation.

Medical Care for Transients or Nonresidents.—Two bills, H. R. 2974 and H. R. 2975, were introduced by Representative Voorhis of California proposing to amend the Social Security Act so as to authorize the appropriation of federal funds to assist the states to provide medical care for nonresident needy persons or for needy transients. Both bills are pending in the House Committee on Ways and Means.

Epilepsy.—The creation of a National Epilepsy Institute in the United States Public Health Service is proposed in S. 1557, introduced by Senator Shipstead of Minnesota. This bill, still pending in the Senate Committee on Commerce, is modeled closely after the National Cancer Institute Act, passed by the Seventy-Fifth Congress. It proposes to authorize the institute to conduct researches, investigations, experiments and studies relating to the cause, diagnosis and treatment of epilepsy, to assist and sponsor similar research activities by other agencies, public and private, and to promote the coordination of all such researches and activities and the useful application of their results, with a view to the development and widespread use of the most effective methods of prevention, diagnosis and treatment of epilepsy.

Cancer.—Representative Rogers of Massachusetts has introduced a bill, H. R. 4585, proposing to amend the National Cancer Institute Act so as to authorize an additional appropriation of $2,300,000 for the fiscal year ending June 30, 1940, and unlimited appropriations annually thereafter, to assist states, counties, cities or other political subdivisions to extend and improve measures through public and private institutions and organizations for the diagnosis, treatment and control of cancer, including the provision of hospital, diagnostic, clinic and other facilities for the diagnosis and treatment of persons suffering from cancer or suspected of suffering from that disease.

Financial Aid to the Disabled.—Nine bills, in addition to the Wagner amendments to the Social Security Act, propose to amend that act so as to provide federal funds to assist states to make cash payments to individuals who are physically disabled. None of these bills propose that medical services be supplied. Under the provisions of five of the bills, H. R. 42, H. R. 1960, H. R. 3999, H. R. 4035 and S. 1218, a person must be permanently disabled before he is entitled to the contemplated benefits of the bill. The other bills, H. R. 172, H. R. 2000, H. R. 2753 and H. R. 5038, make a physical disability or handicap a condition precedent to the receipt of benefits but are not clear as to such disability or handicap being permanent. All the House bills are pending in the House Committee on Ways and Means. The Senate bill is before the Senate Committee on Finance.

Deduction of Medical Expense Under the Income Tax Law.—Two bills have been introduced by Representative Tenerowicz of Michigan proposing to permit federal income taxpayers to deduct in the computation of their income taxes amounts expended during the taxable year for medical services. One bill, H. R. 4747, places a limit of $500 on the amount that may be so deducted; the other, H. R. 4779, imposes no such limit. Both bills are pending in the House Committee on Ways and Means.

Food, Drug and Cosmetic Act.—Under the new Federal Food, Drug and Cosmetic Act a drug that enters into interstate commerce or commerce in the District of Columbia or other jurisdiction under exclusively federal control must be labeled so as to show its common name or, if it is fabricated of two or more ingredients, its several ingredients. Drugs intended for use by man and containing any quantity of certain narcotic or hypnotic habit-forming substances must be labeled "Warning—May be habit forming." Drugs dispensed on written bona fide prescriptions of physicians, dentists and

veterinarians are under certain conditions exempted from these labeling requirements, except that a drug dispensed in the course of the conduct of a business of dispensing drugs pursuant to diagnosis by mail is not so excepted. This requirement becomes effective June 25, 1939. How many nostrums are sold on the basis of actual diagnoses by mail is not known. The provisions of the new law, however, seem to threaten with particular force one of them, Dr. Nathan Tucker's Asthma Specific, a preparation exploited primarily for the relief of asthma. The preparation is used as a spray and is labeled as containing variant quantities of cocaine per fluidounce, from 5 grains upward, although the proprietors of the nostrum claim that when it reaches the consumer it contains only minute quantities of cocaine, the residue having been converted into ecgonine. Whether it contains any other potent ingredients is not known.

Legislative relief is being sought by the proprietors of Dr. Nathan Tucker's Asthma Specific through H. R. 3951, a bill that proposes to exempt from the requirements that apply to nostrums sold on the basis of diagnoses by mail "a drug prescribed or dispensed by a physician pursuant to a diagnosis made from oral or written information given by the patient and where such drug is not dangerous to health and has been effective in relieving the condition for which it is prescribed in at least one thousand cases per year during the last twenty years preceding the approval of this Act." The effect of the enactment of this bill would be to give to the proprietors of Dr. Nathan Tucker's Asthma Specific a chance to show that cocaine is not dangerous to health or to show that it contains no cocaine and therefore, if labeled as containing cocaine, that it is misbranded under the law; also to show that the extensive use of their nostrum is not due to the habit forming properties of the cocaine put into it or of any derivative of that cocaine. This bill is pending in the House Committee on Interstate and Foreign Commerce.

Social Security Act and Scientific and Educational Organizations.—A bill is pending in the House of Representatives Committee on Ways and Means, H. R. 101, introduced by Representative O'Day of New York, proposing to bring under the old age and unemployment benefit provisions of the Social Security Act organizations operated exclusively for religious, charitable, scientific, literary or educational purposes, and the employees of such organizations. Such employees and their employers will, if the bill is enacted, become subject to the taxes imposed by the act and entitled to such benefits as the act may provide. According to present information, the House Committee on Ways and Means has decided to postpone indefinitely action on this proposed amendment to the Social Security Act, notwithstanding the fact that it has the approval of the Social Security Board.

Legislation Relating to Veterans.—The Seventy-Fifth Congress authorized the House Committee on World War Veterans' Legislation to make a comprehensive survey and inspection of soldiers' hospitals and other Veterans' Administration facilities, including hospitals with which the government has a contract for ex-service men of any war in which the United States was engaged. This investigation was made and a report submitted to the House of Representatives, Jan. 30, 1939. The committee reported that the Veterans' Administration is maintaining a high standard in care and treatment of beneficiaries and is continually studying new diagnostic and treatment methods which may benefit the disabled American veteran. From the contents of the report it would seem that the investigation was primarily for the purpose of inspecting the physical equipment of the various hospitals and the manner in which they are operated. The report contained no recommendation as to the need of additional hospitals. Concerning the number of veterans in such hospitals, the report stated:

> Of the 50,670 veterans under treatment at the end of last year, 47,285 were in facilities controlled by the Veterans' Administration; 2,512 in other Government hospitals; and 873 in State or civil institutions. Over 63 per cent of these veterans in all hospitals are receiving treatment in the facilities in the State of their reported home addresses. Since March 3, 1919, when the acquisition of the Government hospitals was first authorized for the treatment of veterans of the World War, there have been 1,863,289 admissions of veterans of the United States to hospitals, of which 152,966 were made during the last year. This load has been increasing since 1919.

As of June 30, 1938, there was in Veterans' Administration facilities a total of 51,991 hospital beds, apportioned to the different classes of patients, as follows: neuropsychiatric, 28,119; tuberculosis, 5,121; general, 11,662; general: homes, 7,089. During the fiscal year 1939 it is proposed to add 3,453 new beds, as follows: neuropsychiatric, 1,334; tuberculosis, 155; general, 1,012; general: homes, 952. During the fiscal year 1940 it is proposed to add 6,731 new beds, as follows: neuropsychiatric, 3,686; tuberculosis, none; general, 2,653; general: homes, 392. If the proposed plans are carried out, there will be available, as of June 30, 1940, a total of 62,175 beds in Veterans' hospitals, as follows: neuropsychiatric, 33,139; tuberculosis, 5,276; general, 15,327; general: homes, 8,433. The present hospital building program of the Veterans' Administration is being carried out under an appropriation of only $4,500,000 made available directly by the Seventy-Fifth Congress, but this is being supplemented by a sum three times as large, $13,268,200, donated by the Public Works Administration.

The Administrator of Veterans' Affairs contemplates as an ultimate goal 100,000 beds in Veterans' hospitals, which will make available one bed for every forty veterans throughout the United States. He estimates that the peak load of hospitalization will be reached in 1949 or 1950. What is to become of these hospital facilities as that load declines is not clear, especially in view of the proposal in the pending Wagner bill to amend the Social Security Act that, if the bill should be enacted, may increase the number of beds in government hospitals in the United States within the next three years by as many as 79,000 beds. With an average of 31.1 per cent of the beds in the general hospitals of the United States unoccupied in 1938, the need for any such enlarged hospital program is not apparent.

It is impracticable to discuss in detail the provisions of the various bills now pending in the Seventy-Sixth Congress, proposing to construct either new hospitals or additions to existing facilities. There are pending, however, twenty-one bills proposing (1) to make available a minimum of 2,409 additional beds specifically designated for general medical and surgical disabilities, (2) to construct six new hospitals, with a combined minimum bed capacity of 2,750 beds, for the accommodation of veterans suffering from any type of disability for which they are entitled to hospitalization, (3) to construct a hospital of 200 bed capacity to accommodate veterans suffering from diseases of the chest, (4) to construct a neuropsychiatric hospital to accommodate 400 patients and (5) to construct a 300 bed addition to take care of general medical, surgical and neuropsychiatric disabilities. No action has been taken on any of these bills yet. One of the bills is pending in the Senate Committee on Finance. All others are before the House of Representatives Committee on World War Veterans' Legislation.

Contract and Acting Assistant Surgeons, Spanish-American War.—The injustice that has been done contract surgeons of the Spanish-American War in the matter of pensions continues. As has been previously reported to the House of Delegates, women nurses who served under contract as army nurses in the active military service of the United States during the Spanish-American War are entitled to service pensions; that is, pensions granted them because of disability incurred other than in the line of duty or because of advancing age. Contract women nurses are therefore placed on a parity with the commissioned and enlisted personnel. Contract surgeons, on the other hand, are denied service pensions and remain in a class by themselves. There are pending two bills, S. 259, introduced by Senator McNary of Oregon, and H. R. 2540, introduced by Representative Smith of Washington, which propose to accord contract surgeons of the Spanish-American War the same rights to pensions as are now accorded persons who served in the war under a similar status. These bills are pending, respectively, in the Senate and House Committees on Pensions.

Federal Department of Health.—Three bills are pending proposing to authorize the reorganization of the civil administrative agencies of the executive branch of the government: S. 1706, introduced by Senator Byrd of Virginia, H. R. 4425, introduced by Representative Cochran of Missouri, and H. R. 4893, introduced by Representative Angell of Oregon. None

of these bills, however, either provide for the establishment of a federal department of health or contain any authorization whereby such a department may be created. All three bills, on the other hand, definitely preclude the creation of any new department in any reorganization scheme that may eventuate from them. On March 6, however, Representative Pfeifer of New York introduced a bill, H. R. 4791, proposing the establishment of a federal executive department of health, with a secretary of health at its head, appointed by the President from the medical profession, with the advice and consent of the Senate. The duty of the new department would be to protect and maintain health and sanitation by (1) conducting research, experiments and surveys, formulating and fostering plans, and compiling and disseminating information; (2) performing such other functions relating thereto as shall be authorized by law, and (3) cooperating with official agents established by law in the several states and subdivisions thereof. To this federal department of health would be transferred the Food and Drug Administration of the Department of Agriculture; the Bureau of Census, Division of Vital Statistics, of the Department of Commerce; the Freedman's Hospital and St. Elizabeths Hospital of the Department of Interior; the Children's Bureau of the Department of Labor; and all functions of the Public Health Service and the Bureau of Narcotics, now operating under the Treasury Department, and the Health Department of the District of Columbia. Furthermore, the President would be authorized at any time within ninety days after the passage of the act to transfer to the new department the whole or any part of any bureau, service or other agency of the government primarily engaged in fostering and promoting health and sanitation. The Secretary of Health, according to the provisions of the bill, will be authorized, with the approval of the President, to reorganize or consolidate any of the bureaus, services or offices under his jurisdiction, redistribute the functions thereof, or set up in the Department of Health such subdivisions as may best be adapted for accomplishing the purposes for which the department is to be established. The bill is pending in the House Committee on Expenditures in the Executive Department.

United States Postgraduate Medical and Surgical College.—A bill, introduced by Representative May of Kentucky, H. R. 2423, proposes to establish a United States Medical and Surgical College to be located in the District of Columbia. This bill is identical with a bill introduced by the same author in the Seventy-Fifth Congress. It proposes to authorize an appropriation of $10,000,000 to construct and equip necessary buildings and the appropriation annually of such sum as may be necessary to carry out the purposes of the bill. Graduates of accredited medical and surgical colleges would be admitted to this so-called medical West Point for training for army, navy or public health work, on designation by Senators and Representatives in Congress. This bill is pending in the House of Representatives Committee on Interstate and Foreign Commerce.

Cooperative Medical Service.—A bill, H. R. 4312, introduced by Representative Hull of Wisconsin, proposes to amend the Code of the District of Columbia so as to provide for the organization and regulation of cooperative associations of various kinds. An association organized under the bill would be authorized to engage in any one or more lawful modes of acquiring, producing, operating, furnishing, exchanging and distributing any type or types of services for the primary and mutual benefit of the patrons of the association, and of the patrons of such patrons, if any, as ultimate consumers. The bill proposes that an association formed under the act which arranges for the rendering to its members of licensed professional services on a nonprofit basis shall not be subject to the insurance laws nor be construed as being in violation of any rule against corporate practice of professions or in violation of statutes regulating licensure of professions. Any group incorporated under any other law of the District of Columbia and operating on a cooperative basis or any unincorporated group operating on such a basis in the District of Columbia is to be authorized to secure the benefits proposed by this bill if it desires to do so. No association, or method or act thereof, which complies with the provisions of the bill is to be deemed a conspiracy or a combination in restraint of trade or an illegal monopoly, or an attempt to lessen competition or fix prices arbitrarily. This bill was referred to the House of Representatives Committee on the District of Columbia, where it is now pending.

STATE LEGISLATION

Through a legislative reporting service, the Bureau of Legal Medicine and Legislation receives daily when any state legislature is in session notices of bills of interest to the medical profession that have been introduced. Ordinarily such notices are received about the third day after the introduction of the bill and report only its number and title, its sponsor and the committee to which it has been referred. Obviously, a state medical association that maintains its own legislative service at the state capital or has its headquarters there usually obtains such information before the Bureau of Legal Medicine and Legislation in Chicago, but most of our state associations are not so fortunately situated. The Bureau, therefore, immediately on receipt of notice that a bill has been introduced reports its introduction to the president, the secretary and the chairman of the legislative committee of the state association immediately concerned. This reporting in triplicate enables the officers named to confer among themselves at once, even though located at more or less remote places, to determine the policy of their association with respect to the measure.

As soon as possible after the introduction of a bill, the legislative reporting service supplies a copy of it, and it is then analyzed by the Bureau in the light of the laws already in force in the state and of the policies of the American Medical Association. If the analysis shows anything of moment, a letter stating the facts is immediately sent to the secretary of the association, copies of which are sent to the president and the chairman of the legislative committee, for their guidance. In any event, an abstract of each bill that is deemed of interest to the profession in the particular state is submitted to THE JOURNAL for publication and published so far as available space in THE JOURNAL permits, so that every Fellow of the Association and every subscriber to THE JOURNAL may know what legislation is pending in his own state. In this way, interested Fellows and members of the Association in every state, and subscribers to THE JOURNAL, learn what is going on more promptly than would otherwise be possible, for the state journals, with only two exceptions, appear only monthly whereas the service rendered by the Bureau, through THE JOURNAL, is weekly. A similar service is rendered as the bill progresses toward defeat or enactment; the Bureau receives from its legislative reporting service reports of action by committees and by either branch of the legislature and of the enactment or defeat of the bill, if it reaches a final vote. As has been pointed out, although a few state medical associations are so highly organized and fortunately situated as not to be in need of such service as is described, to a large number of such associations the service seems to be of value.

After the close of each calendar year, the legislation that has been considered by state legislatures that met during the year is summarized and the result published in THE JOURNAL, to keep the medical profession of the country informed of the trends of legislation and legislative opinion in the various legislative fields of medical interest. The summary of state legislation for 1938 was published in the Organization Section of THE JOURNAL, Feb. 11 and 18, 1939. A brief discussion of some of the most important state legislation considered during 1938 follows.

Laws Relating to the Healing Art.—A new Massachusetts law postponed until Jan. 1, 1942, the effective date of a law enacted in 1936, which was to raise the educational qualifications exacted of applicants for licenses to practice medicine by requiring such applicants to have completed two years of premedical collegiate work and to have graduated from a chartered medical school approved by the secretary of the board of registration and medicine, the commissioner of education and the commissioner of public health. Laws were enacted in Mississippi and New York setting out causes for the revocation, suspension and refusal of licenses in addition to the causes enumerated in the prior laws. An osteopathic practice act passed in South Carolina and osteopaths are now licensed by an unsupervised and uncontrolled board of osteopathic examiners. A resolution was adopted in Massachusetts directing a special unpaid commission to investigate the advisability of establishing an independent board of examination and registration in osteopathy and a similar board in chiropractic.

Contraception and Venereal Disease Prophylactics.—A new Kentucky law prohibits the retail sale or distribution of appliances, drugs or medicinal preparations intended or having special utility for the prevention of venereal diseases, except by licentiates of the state board of pharmacy and licentiates of the board of medical examiners regularly licensed to practice medicine.

Laws Designed to Combat Syphilis.—Laws were enacted in New Jersey, New York and Rhode Island to require every physician attending a pregnant woman to take a sample of her blood and to make or cause to be made a standard serologic test for syphilis. Laws to require, as a condition precedent to the issue of marriage licenses, that both parties to the proposed marriages present certificates from physicians that they are free from stated venereal diseases were enacted in Kentucky, New Jersey, New York and Rhode Island.

Compulsory Health Insurance.—Bills proposing the establishment of systems of compulsory state health insurance were considered in 1938 in Massachusetts, New York and Rhode Island, but all these bills failed of enactment. All were patterned closely after the so-called Epstein social security bill for health insurance. However, a new New York law created a state commission to study and recommend ways and means of minimizing risks of illness through the extension of public health services; for furnishing adequate medical care for persons of low income, which have to be met from public funds; for making public funds available for the support of medical education and for studies for raising the standards of medical practice; for medical care to the indigent; for using private institutions in allocating public funds for the rendition of medical service to the public; for effecting adequate administration and supervision of the health functions of the state government, and, if deemed advisable, for consolidating under a separate department all federal and state health and medical services and activities. This commission was directed to report to the legislature before Feb. 15, 1939, but the New York legislature in 1939 was asked to extend its existence for another year for the purposes stated.

Hospital Service Corporations.—Laws were enacted in Kentucky and New Jersey authorizing the formation of corporations to provide on a so-called "nonprofit basis" "hospital care" to their members or subscribers. The activities of such corporations under these laws would seem to be limited to the rendition of hospital care and not to include medical or surgical care. A new Louisiana law provides for the formation of so-called service companies, authorized to make agreements with members or subscribers to furnish hospitalization and incidental drugs on the occurrence of sickness or other physical disability of a member or subscriber. Whether such companies may also contract to furnish medical care is not clear from a perusal of the law.

Narcotic Drugs.—The uniform narcotic drug acts in force in Louisiana and New Jersey were so amended in 1938 as to make cannabis or marihuana a narcotic drug within the meaning of the acts. The New York uniform narcotic drug act was so amended as to redefine cannabis.

Vaccination.—A new Virginia law authorizes local boards of health, in addition to rights previously possessed at law, to require, whenever they deem it necessary to prevent an epidemic, the compulsory administering of toxoids.

Workmen's Compensation.—So far as can be ascertained, no workmen's compensation legislation of interest to the medical profession was enacted in 1938.

Pneumonia Control Program.—A total of $35,000 was appropriated in New Jersey for the purchase and distribution of type I and type II pneumonia serum to be available free of charge to persons afflicted with pneumonia and financially unable to purchase the necessary serum.

STATE LEGISLATION BY INITIATIVE

In some states, chiefly in the West and Southwest, the constitution permits the electorate to enact legislation directly through their votes at the polls and not through the legislature, a process that is commonly referred to as the initiative. Sometimes procedures have been instituted under the initiative to accomplish purposes that would hardly have received serious consideration. The chiropractic and osteopathic initiative acts adopted in California by the initiative in 1922 illustrate this point. In recent years, cultists in states in which the procedure is possible have with increasing frequency resorted to the initiative to gain for themselves advantages that they could not have hoped to gain through the legislature.

In 1938 four initiative proposals were pending which, if adopted, would have jeopardized the public health and welfare in those states. Two of these measures were voted on at the general elections in November 1938. Fortunately neither was adopted.

In Colorado the electorate decisively rejected an initiative measure advanced by the chiropractors, which, while proposed by them primarily to protect themselves from regulation by the legislature, would have weakened the other laws of the state, those relating to the practice of the healing arts, and would have produced chaotic results in the fields of medicine and public health.

The California electorate rejected an initiative measure designed to hinder the use of living dogs for purposes of research. This measure proposed to forbid the delivery of any living dog from any pound in the state to any institution of learning or research for purposes of study or instruction.

In Oklahoma an initiative measure was inaugurated which proposed to amend the medical practice act so as to permit hospitals and clinics organized on a mutual or cooperative basis to enter into contracts for hospital or medical services and to prevent the board of medical examiners from disciplining licensed physicians who cooperated in such schemes. The people of the state, however, did not vote on this measure, since at the time of the election an appeal was still pending in the Supreme Court of Oklahoma to determine the regularity of the petition on the basis of which it was proposed to put the initiative measure on the ballot. A bill is now pending (March 22, 1939) in the Oklahoma legislature which, if enacted, will accomplish the results aimed at by the proposed initiative measure.

In Ohio a contemplated chiropractic initiative measure somewhat similar to the Colorado chiropractic initiative was considered, but its proponents never carried it to a point at which the electorate might pass on it. The cultist sponsors of this measure apparently became disheartened shortly after they had submitted it to the attorney general for his approval as to form and never offered petitions with a sufficient number of signatures to entitle the measure to a place on the ballot.

COOPERATION APPRECIATED

The Board of Trustees, on behalf of the Bureau of Legal Medicine and Legislation, expresses appreciation of the cooperation that the Bureau has received from the several state constituent medical associations and component county medical societies and from individual physicians.

Summary

Federal Legislation.—**Seventy-Fifth Congress: The new Federal Food, Drug and Cosmetic Act was approved by the President June 16, 1938, and the provisions of it relating to new drugs became effective immediately. The other provisions will become effective June 25, 1939. Under the provision of a law enacted by the Seventy-Fifth Congress, osteopaths are given the same status as doctors of medicine under the United States Employees' Compensation Act.**

Seventy-Sixth Congress: The Wagner bill to amend the Social Security Act proposes to give life to the recommendations of the Interdepartmental Committee to Coordinate Health and Welfare Activities. Essentially the bill proposes to provide federal subsidies to induce the several states to undertake new activities and to enlarge activities already under way in certain economic, health and medical service fields named in the bill. The Capper sickness insurance bill contemplates a federal appropriation of $200,000,000 annually to induce the states to develop and maintain systems of health insurance.

Other federal subsidies are proposed in pending bills to enable states to provide hospital beds for tuberculous persons, medical care for transients or nonresidents, financial aid to the disabled, and to improve measures for the diagnosis, treatment and control of cancer.

A survey of narcotic conditions is proposed in a pending measure, and the creation of a National Institute of Epilepsy similar to the National Cancer Institute is contemplated by another bill. Other federal proposals

would authorize federal income tax payers to deduct the amount expended for medical services and would amend the Federal Food, Drug and Cosmetic Act for the relief of a nostrum exploited for the relief of asthma.

A proposal to bring under the old-age and unemployment provisions of the Social Security Act organizations operated exclusively for religious, charitable, scientific, literary or educational purposes has been indefinitely postponed by the House Committee on Ways and Means.

The House Committee on World War Veterans' Legislation has filed a report of its investigation of veterans' hospitals but recommended no increase in beds. The present building program is being carried out with the aid of more than $13,000,000 obtained by the Veterans' Administration from PWA. Proposals continue to be made to Congress for the construction of new hospitals. The injustice that has been done to contract surgeons of the Spanish-American War continues.

Three bills propose the reorganization of the civil administrative agencies of the executive branch of the government but none provide for the establishment of a federal department of health or contain any authorization whereby such a department may be created. A pending bill, however, does propose the establishment of such an executive department with a secretary of health at its head. Another bill proposes the establishment of a United States Medical and Surgical College to be located in the District of Columbia, in which graduates of accredited medical and surgical colleges will be trained for army, navy or public health work.

The incorporation and the legalization of cooperative medical service organizations in the District of Columbia is contemplated by a pending bill.

State Legislation.—During the year, as it has done in prior years, the Bureau kept constantly in touch with state legislation of medical interest, promptly advising state associations of legislative proposals that seemed to be of particular importance Compulsory health insurance proposals were defeated in Massachusetts, New York and Rhode Island, but a commission was created in New York to study the matter and to report back to the legislature. Hospital service corporations were authorized in Kentucky, Louisiana and New Jersey. Other legislation enacted in one or more states related to osteopathy, chiropractic, venereal diseases, narcotic drugs, vaccination, pneumonia control, educational qualifications of applicants for licenses to practice medicine and the causes for which such licenses may be revoked.

State Legislation by Initiative.—Initiative measures in California and Colorado that would have jeopardized the public health and welfare of those states were decisively rejected by the people. Proposed initiative measures in Oklahoma and Ohio did not appear on the ballot.

Bureau of Health Education

By action of the House of Delegates at the San Francisco session, the name of the Bureau of Health and Public Instruction was changed to Bureau of Health Education This change was made in the interest of simplicity and to minimize the occurrence of erroneous identifications of the Bureau

CORRESPONDENCE

The correspondence handled through the Bureau continues to be divided into two main groups, which are called, for convenience, Bureau correspondence and Question and Answer correspondence The number of letters handled under each heading was Bureau, 5,474, Question and Answer, 8,220, Radio Audience Mail, 1,145 In Bureau correspondence an increase is noted of 17 per cent over 1937, the 1937 increase over 1936 was 13 per cent

Question and Answer correspondence in 1938 showed a decrease of 16 per cent, whereas in 1937 it increased 26 per cent over 1936 The 1938 decrease is accounted for by the absence of world's fairs or major expositions American Medical Association exhibits at such expositions always stimulate correspondence In 1937 fairs were in progress at San Diego, Dallas and Cleveland The normal unstimulated correspondence actually showed an increase in 1938 of 4 per cent over 1937

Radio audience mail can be controlled by the practice of asking or not asking for correspondence in connection with broadcasts The relatively small volume of audience mail in 1938 is due entirely to the fact that no inducements were offered to the radio audience

RADIO PROGRAM

The radio program Your Health, in cooperation with the National Broadcasting Company, was broadcast from January 1 through June 15 to complete the first series of special programs for schools A new series was authorized by the Board of Trustees early in 1938 and was put on the air beginning Oct 19, 1938 This was based on the same principle as the first series of special programs for junior and senior high schools Therefore, the radio briefs which had been published in HYGEIA from October 1937 through June 1938 were not republished, but listeners were referred to file copies of HYGEIA for these briefs and only a much abbreviated radio announcement was carried in HYGEIA each month from September through December 1938

The usefulness of this program to the schools was indicated by the fact that in the latter weeks of summer and the weeks of school openings numerous letters from school principals, health supervisors and science teachers were received asking information as to when the program would be resumed

Sixty National Broadcasting Company stations regularly broadcast the program

The Woman's Auxiliary gave its customary cooperation in publicizing the radio program locally, as did many state and county medical societies

The workbook "Your Health," published by the Johnson Publishing Company to coordinate with the program, was reissued in a 1938-1939 edition practically identical with the edition of 1937-1938

A broadcast on "Medical Care" was given over the Blue network of the National Broadcasting Company by Dr Irvin Abell, President of the Association, September 17, during the special session of the House of Delegates

The Your Health program received a first award from the Institute on Radio in Education at its ninth annual meeting in Columbus, Ohio, in May At this meeting transcriptions of broadcasts were heard by the Committee on Awards, and the superior quality of the Your Health program was recognized by this award

The radio library maintained by the Bureau for the use of state and local medical societies and of organizations whose use of the material is approved by local medical societies was called on by such organizations during 1938 for 5,540 scripts, as compared with 4,589 in 1937 and 3,388 in 1936 In 1938, 128 county medical societies used the scripts, as compared with seventy-two in 1937. In 1938, twenty-one state medical associations used the scripts, as compared with thirteen in 1937

In order to keep the script library up to date, 100 older manuscripts have been dropped and 123 new ones added, making a total of 876 titles, of which 351 are for fifteen minutes, 196 for ten minutes and 329 for five minutes

Advice and suggestions with regard to outside radio programs were given in sixty-two instances Among the most important instances of cooperation in 1938 was included the development of a radio broadcast complimentary to the medical profession by the famous radio team of Lum and Abner in which the Bureau was assisted by the executive secretary of the Los Angeles County Medical Association

A special dramatized broadcast on infantile paralysis was put on the air and transcribed for repeated local use on December 19 in cooperation with the National Broadcasting Company and the National Foundation for Infantile Paralysis, affiliated with the Committee for the Celebration of the President's Birthday

The evaluation project by the Committee on Evaluation of the Federal Communications Commission, with headquarters at Ohio State University, continued through the year. The evaluation was hampered during the last half of the year by the absence of a Chicago outlet for the program Your Health

PROTECTION OF RESEARCH

The Bureau has continued its cooperation with the Committee for the Protection of Medical Research under the chairmanship of Dr Elliott C Cutler

The Bureau made its usual donation in May to graduating medical students of complimentary copies of the pamphlet Animals in Research This was accompanied by a copy of the Bureau of Medical Economic's pamphlet Economics and the Ethics of Medicine The Animals in Research pamphlets distributed totaled 5,430, and the pamphlets on medical economics 5,342

COOPERATION WITH GOVERNMENTAL AGENCIES

The Bureau is frequently called on for advice, consultation and cooperation by public agencies, including departments of the federal government, state health and education departments and the health departments, school boards and libraries of municipalities The states and their subdivisions to which service has been extended are too numerous to list, but the federal departments and the divisions of these which have called on the American Medical Association for service through this Bureau alone are as follows

United States Department of Labor
Children's Bureau
United States Department of the Interior
Office of Indian Affairs Pine Ridge, S D , Window Rock Ariz , Ignacio, Calif , and Fort Wingate N M
Office of Education
Bureau of Mines
United States Department of Commerce
Bureau of the Census
Accident Prevention Conference
United States Treasury Department
Bureau of the Public Health Service
Surgeon General
Library
Office of Health Education
Advisory Cancer Council
Division of Sanitary Reports and Statistics
National Institute of Health, Division of Zoology
United States Department of Agriculture
Cooperative Extension Work in Agriculture and Home Economics

The Director of the Bureau continues as a member of the General Advisory Committee on Maternal and Child Health and Crippled Children's Work Two meetings of the committee were held during 1938, at which the Bureau was represented

COOPERATION WITH LAY ORGANIZATIONS

National Congress of Parents and Teachers —There have been no new development in 1938 in the cooperative relationships with the National Congress of Parents and Teachers There is slow but steady progress toward more widespread adoption of the congress policy for the examination of children in physicians' own offices, such examinations to be paid for by parents where possible, otherwise to be done gratis and in a few instances paid for by local parent-teacher associations Such payment is usually made on the initiative of the parent-teacher association

The usual authorization was given by the Board of Trustees for the printing of examination blanks, one half to be paid for at cost by the National Congress of Parents and Teachers, the other half donated by HYGEIA, the Health Magazine

The Advisory Committee to the Summer Round-Up held its usual meeting in January for the consideration of business relating to the summer round-up, but there was nothing in that meeting worthy of special note

General Federation of Women's Clubs—A meeting of the Advisory Committee of the General Federation of Women's Clubs was held Jan 14, 1939 The clubs continue their work in the child welfare, syphilis education and cancer education programs The Director of the Bureau was made a member of a special subcommittee to consider further revision of the blanks previously developed for community health surveys by women's clubs, but no conclusion has been reached by the committee Since this study has attracted little or no attention among women's clubs, it is possible that it may be dropped from the program

A new president, Mrs Saidie Orr Dunbar of Portland, Ore, took office and appointed a new chairman for the division of public health of the federation, Mrs Margaret Wells Wood of the Illinois State Department of Health, Springfield The Director of the Bureau of Health Education has been reappointed as a member of the advisory committee

4-H Clubs (National Committee for Boys and Girls Club Work)—In the annual "Healthiest Boy and Healthiest Girl" contests for 1938, four boys and four girls were named instead of just one boy and one girl as has been the case in the past Director C W Warburton of the U S Department of Agriculture, Extension Division, has expressed a special interest in arranging contests so that more benefits will accrue to boys and girls who participate but do not win prizes

Joint Committee on Health Problems in Education—The year 1938 was marked by two significant developments with relation to the Joint Committee

(*a*) The announcement at the February meeting by Dr Thomas D Wood, chairman of the committee for twenty six years, of his intention to resign, followed by his actual resignation in July

(*b*) The appointment, immediately on Dr Wood's announcement, of a subcommittee to plan for the reorganization of the Joint Committee; these appointments were made by Dr Charles C Wilson, Hartford, Conn, vice chairman of the Joint Committee

Dr Wilson has functioned as acting chairman of the committee since Dr Wood's announcement of his resignation The subcommittee to plan for reorganization consists of Dr Thurman B Rice, Indianapolis, chairman; Miss Mary Murphy Elizabeth McCormick Memorial Fund, Chicago, Miss Anne Whitney, Newton, Mass , Supt Willis A Sutton, Atlanta and Dr W. W Bauer, Chicago

The deliberations of the committee resulted in agreement on a tentative set of simple principles under which the present Joint Committee will cease to function when these principles have been adopted and will be replaced by a new Joint Committee, smaller in number with more flexible organization and more likely to be responsive to changing needs of changing times

At the meeting of the Joint Committee at Cleveland in February 1939, the reorganization was completed, providing for a committee of ten members, five from the National Education Association and five from the American Medical Association Terms of these members are to be as follows initial terms respectively, one, two, three, four and five years, subsequent terms, five years each, maximum, two terms in succession A chairman, vice chairman and secretary-treasurer are to be elected annually by the committee from among its members using the Hare system of proportional representation The scope of the committee was defined and an operating code of broad and elastic principles was adopted The committee is to be strictly a Joint Committee of the two organizations excluding from its membership all other organizations, but the committee is to draw freely on other organizations for consultant and advisory subcommittees Consultants and advisers are to have no vote in the Joint Committee All actions of the committee must be adopted by a vote of four fifths, except mail votes, which must be unanimous There shall be no quorum at meetings unless there are seven members present of whom at least three shall be from one of the participating organizations

SYMPOSIUM ON HEALTH PROBLEMS IN EDUCATION

A second Symposium on Health Problems in Education under the sponsorship of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, together with the Section on Pediatrics, the Section on Preventive and Industrial Medicine and Public Health, the Section on Ophthalmology and the Section on Laryngology, Otology and Rhinology of the American Medical Association, was held in the City Health Building, Civic Center, San Francisco, June 14 This auditorium, seating 300 persons, was believed ample in size, but it was found necessary to turn away more than 300 teachers and physicians who wished to attend the symposium Another symposium has been arranged for the American Medical Association meeting at St Louis in May 1939

American Public Health Association—The Director of the Bureau continues to serve his five year term, of which two

years remain, as a section councilor of the Section on Health Education of the American Public Health Association.

The American Public Health Association at its Kansas City meeting adopted a resolution which has been published in THE JOURNAL (Nov. 5, 1938, p. 1775) and which did not endorse the so-called health insurance proposals of the plans of the National Health Conference held in Washington in July.

Other Cooperative Relationships. — The Director of the Bureau was appointed by the Executive Committee of the Board of Trustees to represent the American Medical Association on the Section Committee on Minimum Requirements for Plumbing and Standardization of Plumbing Equipment. This committee is sponsored by the American Society of Mechanical Engineers.

Other organizations with which regular cooperative relationships are being maintained include:

State and Territorial Health Authorities (guest representative at meetings).
United States Public Health Service (participation in health conferences on invitation).
United States Department of Commerce (accident prevention conference).
National Organization for Public Health Nursing (consultant).
Committee on Evaluation of School Broadcasts of Federal Communications Commission (Ohio State University).

COOPERATION WITH STATE AND COUNTY SOCIETIES

The Bureau continues as in the past its endeavors to function as a clearing-house for health information and ideas for county and state medical societies and to establish and further cordial relationships between the medical profession and other organizations working for similar purposes.

PERSONAL APPEARANCES

Addresses to assembled audiences by the Director in 1938 numbered ninety-nine and by the Assistant Director fifty-eight, a total of 157. This compares with 125 addresses in 1937. These appearances required 42,859 miles of travel by railroad, automobile and bus. Appearances were made in twenty states.

The number of invitations has steadily increased and it is always necessary to decline a considerable number because of schedule conflicts and for other reasons.

HYGEIA CLIPPING LOAN COLLECTIONS

The clipping loan service of HYGEIA material bound into folders and accompanied by an outline for a proposed speech increased remarkably in 1938, owing largely to the publication in THE JOURNAL of an article "When Doctors Address the Public," by Dr. Paul A. Teschner, March 12, 1938, p. 155B. The total number of loans in 1938 was 895, as compared with 375 in 1937 and 230 in 1936.

BUREAU PUBLICATIONS

The pamphlet publications of the Bureau were maintained as in past years by revising, dropping or adding, as the demand seemed to indicate. New Bureau publications numbered twelve; those revised numbered five.

The use of photographic covers on HYGEIA suggested to the Director of the Bureau that these cover plates could be put to further use by employing them as a basis for posters. These posters were developed with special reference to economy, attractiveness and usefulness in the classroom. Therefore they were printed on lightweight paper so that they could be sold and mailed at a price of 25 cents for eight, including postage.

Material for publication in THE JOURNAL and in HYGEIA has been prepared by the personnel of the Bureau as occasion has demanded.

REVISION OF THE PERIODIC HEALTH EXAMINATION MANUAL

Revision of the Manual of Suggestions for the Conduct of Periodic Examination of Apparently Healthy Persons was authorized by the Board of Trustees and is in progress.

EXHIBITS

The Bureau cooperated, as in former years, with the Bureau of Exhibits in the preparation of exhibit material for use on various occasions, the principal ones being the Golden Gate International Exposition and the New York World's Fair.

Summary

The Bureau handled 5,474 communications from doctors, medical societies and cooperating agencies, 8,220 inquiries from the lay public and 1,145 pieces of radio audience mail. The Bureau broadcast thirty-seven dramatized radio programs in cooperation with the National Broadcasting Company. The radio library furnished scripts to 128 county medical societies and twenty-one state medical associations, distributing a total of 5,540 scripts covering 876 titles. Special radio broadcasts were arranged in connection with the annual session at San Francisco and the special session of the House of Delegates at Chicago. The Bureau cooperated with the Committee for the Protection of Medical Research and distributed 5,430 copies of pamphlets on protection of medical research to senior medical students; these were accompanied by an equal number of pamphlets on medical economics. Cooperation was given to five major departments of the United States government. The Bureau represented the American Medical Association in cooperative projects with the National Congress of Parents and Teachers, the General Federation of Women's Clubs, the National Committee for Boys and Girls 4-H Club Work, the National Education Association, the American Public Health Association, State and Territorial Health Authorities, National Organization for Public Health Nursing and the Federal Communications Commission's Committee on Evaluation of School Broadcasts. Public addresses were given to 157 audiences in twenty states, requiring 42,859 miles of travel; these audiences numbered 45,786 persons. Clipping loan collections from Hygeia were furnished to 895 doctors in forty-six states to aid them in preparing addresses for the public. The Bureau issued twelve new pamphlets and revised five old pamphlets. Eighty-two items were contributed to The Journal and thirty-four to Hygeia. Revision of the periodic health examination blank and manual was begun. The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association was completely reorganized.

Bureau of Medical Economics

A number of phases of medical economics were under consideration during 1938. The study of medical care proceeded throughout the year; reports of the National Health Survey and the text of the National Health Program have been analyzed; assistance has been given to medical societies on the study and preparation of medical service plans; group hospitalization plans have continued to demand study and criticism; data have been assembled for the study of fee schedules, and other subjects such as collection of medical fees, sickness financing, malpractice insurance, workmen's compensation, relations between physicians and hospitals, the preparation and revision of publications of the Bureau and field engagements have consumed the time of the Bureau personnel.

STUDY OF MEDICAL CARE

In compliance with the resolution adopted by the Board of Trustees in December 1937 calling for a study of the need and supply of medical care and in accordance with the suggestions of the Committee on the Study of Medical Care, the Bureau of Medical Economics prepared nine forms to be used by county and state medical societies in the collection of data for such a study of medical care. Two information booklets containing suggestions on the conduct of the study and a special Summary Sheet were also prepared to make possible the collection of somewhat uniform information by the committees appointed by county medical societies to conduct the study. Also a special form was prepared for the use of state medical societies in the collection of information concerning statewide medical facilities. In all, the Study of Medical Care necessitated the preparation and distribution of 280,000 pieces of material.

The Committee on the Study of Medical Care recommended a special study of free services rendered by physicians and dentists throughout the United States. Records of free medical

services were prepared to be kept for one week by physicians and by dentists during each of three periods selected to obtain a representative sample of the services rendered during a year. For the conduct of this special study, 496,000 records were distributed to physicians and dentists.

As of Feb. 28, 1939, 416 county medical societies in thirty-six states have completed the Study of Medical Care in their counties and returned to the Bureau of Medical Economics the Summary Sheets with information obtained in the study. Many of the committees in charge of county studies returned detailed reports based on the findings of the study and including recommendations for the improvements that seemed necessary. In six states the returns are complete for all the counties in the state. Four state medical societies have also returned the special form which contains information regarding statewide arrangements for medical services.

Medical societies in forty-five states and the District of Columbia are participating in the Study of Medical Care, and it is expected that an additional number of medical societies will complete the Study of Medical Care at a later date.

Only two of the three periods to be included in the special study of free medical services have been completed, but as of Feb. 28, 1939, 434 counties have returned approximately 8,000 forms which represent the actual records of free medical services rendered by physicians and dentists. These records are being prepared for machine tabulation on punch cards, and more than 5,000 have been checked and are ready for tabulation. Twelve of the county and state reports have been published in the Organization Section of THE JOURNAL to indicate the nature of the information received and to encourage committees in charge of the Study of Medical Care to prepare complete reports.

MEDICAL SERVICE PLANS

During the past year there has been a noticeable increase in the activities of county and state medical societies in the study and development of medical service plans. The impetus for these activities may have come partly from the distaste on the part of the medical profession to a form of medical practice organized and operated by some nonprofessional agency, either voluntary or governmental, and partly from the encouragement given by the House of Delegates to medical societies to develop for local communities supplementary arrangements for the distribution of medical services according to local requirements and conditions.

The House of Delegates in 1934 established ten principles to assist medical societies in the organization of arrangements to supplement the private practice of medicine. The Study of Medical Care has developed data that in some instances have also brought to the attention of the organized medical profession problems in the distribution of medical services that deserve careful sympathetic consideration. These and other factors, not the least of which is the National Health Program, have focused the attention of both the medical profession and the public on "plans" to facilitate the distribution of medical care.

Interest in Medical Care Plans.—Since the Special Session of the House of Delegates in September 1938 some forty or more medical societies have sought assistance in the study and development of forms of medical service suited to their respective localities.

The growing interest of medical societies and of the public in special arrangements for organizing payments for medical services can be almost directly measured by the increasing number of experiments conducted by state and county medical societies. In 1934, 150 plans for the distribution of medical services were being conducted by medical societies in various communities in the United States. By 1935 this number had grown to 200, by 1936 to 250, by 1937 to 350, and at present the number is in excess of 450.

The existence of these organizational plans for the delivery of medical services is a direct refutation of the assertions that have been made concerning the unwillingness of the medical profession to tolerate change in the arrangements for payment for medical services. As a matter of fact, medical societies throughout the United States have in operation more experiments with new plans for the distribution of medical services than all the proponents of group payment plans have ever proposed.

Prepayment Plans.—The prepayment or group payment medical service plans that have received consideration from medical societies vary extensively in details but can be classified into two main types:

First, medical service plans on a unit service basis whereby an organization is created to collect funds from members and to provide medical services through participating physicians who agree to accept a prorated division of whatever funds are available after expenses have been paid.

Second, medical service plans on a cash indemnity basis, whereby an organization is created to collect funds from members and to pay a designated amount of cash to assist members in meeting their medical bills.

Under the unit service plan a schedule of the number of units to allow for each service is established, and the value of the unit is determined by dividing the amount of money available for medical bills by the number of units of service rendered. Under the cash indemnity plan, benefits are paid according to a listing of benefits which limits the amount that can be paid to the member or on assignment to his physician—the payments do not fix the physician's fees but assist the member to meet his medical bills.

Most of the proposals have contemplated the organization of some unit service plan. The simplicity of this type of arrangement, which entitles members to all necessary medical services with the participating physicians agreeing to divide the funds collected on an equitable basis is most appealing. There has been much experience with this unit system method, most of which would seem to indicate that there are difficulties which must be overcome before satisfactory results can be expected. Probably because of the known difficulties with unit service plans, the House of Delegates, both at the last annual session in San Francisco and at the recent Special Session in Chicago, gave particular encouragement to the development of cash indemnity plans.

A supplementary report, "Organized Payments for Medical Services," which describes practically all the various methods of organizing payments for medical services, contains a detailed discussion of the advantages and disadvantages of cash indemnity and unit service plans. The experience that will be gained under each of these two types of prepayment medical service plans may point the way to future arrangements for medical practice.

GROUP HOSPITALIZATION

Group hospitalization plans have continued to develop rapidly throughout the year 1938. Today there are eighty such plans in operation, with more than two and a half million members enrolled. Proposals for the organization of these plans are also receiving consideration in at least fifty-six communities.

The medical profession has given close attention to the development of group hospitalization plans beginning with the inauguration of the original plan. The first study of these plans was conducted by the Bureau of Medical Economics in 1932, and the criticisms and suggestions outlined in that study and in subsequent studies laid down many of the principles which the actual operation of group hospitalization plans has proved to be of fundamental importance. The consideration that the House of Delegates has given to the progress of group hospitalization plans has been based on sympathetic understanding of the desirability of some method of insurance payment to assist persons to pay hospital bills. At the same time the House of Delegates has evidenced concern over the possible deleterious effect on the practice of medicine in hospitals by an organized method of payment for hospital bills which would result in a lowering of the quality of services rendered to patients or a prostitution of the medical specialties practiced in hospitals.

It is a matter for concern on the part of the medical profession, in connection with these hospital service or group hospital insurance plans, that the inclusion of medical services in the hospital service contracts is being proposed. This feature of group hospitalization contracts has received the serious consideration of the House of Delegates on previous occasions and prompted the preparation of an extensive report, "Group Hospitalization," by the Bureau of Medical Economics, in which the experience of hospital service plans throughout the United States was analyzed. This report pointed out the undesirable effect on medical practice in hospitals when special medical

services such as anesthetic, pathologic and radiologic services are included in a hospital service contract on a service basis.

Policy Established by House of Delegates.—The attitude that has been taken by the House of Delegates toward the inclusion of medical services in group hospitalization contracts can be outlined as follows:

In June 1937 the House of Delegates recommended:

> . . . that the contract benefits provided by group hospitalization insurance should be limited to the room, bed, board and nursing facilities ordinarily provided by hospitals and routine medicines. . . . In regard to certain benefits offered by many hospital insurance plans, combining professional and technical services, the committee is in complete sympathy with those who would make every possible provision to prevent inclusion of any and all types of services involving medical care.

Also in 1937 the House of Delegates adopted the Ten Principles for the guidance of group hospitalization plans which are published on page 247 of the report "Group Hospitalization." The fourth of these Ten Principles states that the provisions in a hospital service contract should be limited exclusively to hospital facilities, which are defined to include "only hospital room accommodations, such as bed, board, operating room, medicines, surgical dressings, and general nursing care."

At the session of the House of Delegates in San Francisco (1938) the fourth of these Ten Principles was extended by the following statement:

> If for any reason it is found desirable or necessary to include special medical services such as anesthesia, radiology, pathology or medical services provided by outpatient departments, these services may be included only on the condition that specified cash payments be made by the hospitalization organization directly to subscribers for the cost of such services.

At the Special Session of the House of Delegates in September 1938 approval was given to the principle of hospital service insurance, provided these plans confine themselves to provision of hospital facilities and do not include any type of medical care.

The House of Delegates has declared that most of the difficulties concerning medical services in group hospitalization contracts can be avoided either by omitting all provisions for medical services on a service basis or by providing cash benefits directly to the subscriber for designated medical services. The first of these arrangements has been put into effect in cities such as St. Louis, Washington, D. C., and Wilmington, Del., where the group hospitalization plans exclude practically all such medical services. The second arrangement has been put into effect in Oakland, Calif., in Pittsburgh and Philadelphia, and in other localities, where the hospital service plans include certain medical services but on a basis which permits the payment of cash benefits directly to the patient or the physician. Such group hospitalization plans have the cooperation of the medical societies in these localities.

The recommendations of the House of Delegates have been concurred in by the action of state and county medical societies and by resolutions adopted by national societies of specialists, all of which have pointed out the undesirability of including special medical services in hospital service contracts on a service basis. It can be accepted, therefore, that the conviction of the medical profession generally is that the inclusion of medical services in a group hospitalization contract on a service basis will have an undesirable effect on the practice of medical specialties in hospitals and on the quality of the service rendered.

Hospitalization Contracts Show Variations.—An analysis of the contracts sold by sixty-three of the group hospitalization plans now in operation indicates that twenty-seven do not include x-ray services, thirty-one do not include pathologic services except for limited routine laboratory examination, and twenty-five do not include anesthesia. A comparison of the membership and financial experience of the plans that sell contracts in accordance with the recommendations of the House of Delegates indicates that a hospital service plan can enroll as many members and operate as successfully as the plans which include special medical services.

Whatever may be the attitude of hospital administrators or physicians concerning the arrangements that should exist between hospitals and physicians practicing in hospitals, it seems that this larger problem should not be confused with the principles that have been established concerning the inclusion of medical services in group hospitalization contracts to be sold by hospital service corporations. These principles specify that special medical services such as anesthetic, pathologic and radiologic services should not be included as benefits in a hospital service contract unless cash payments for these services are made to the subscriber or on assignment to his physician.

A contractual arrangement between the hospital and a hospital service corporation whereby a specified payment is to be made by the corporation to the hospital for each patient day of service, including professional services that are properly performed by physicians, raises many ethical and legal problems. Hospital administrators and physicians are justified in attempting earnestly to prevent the growth of these problems. While a hospital service corporation may contract with hospitals for the use of hospital facilities, it is believed to be undesirable for these corporations to contract with hospitals for the medical services in the hospital.

Practical Application of Principles.—The principles which have been adopted by the House of Delegates of the American Medical Association offer two possible alternatives:

First, that special medical service benefits be entirely omitted by restricting the benefits of the hospital contract exclusively to hospital facilities such as bed and board, use of the operating room, medicines, surgical dressings and general nursing care.

Second, that special medical service benefits may be included in the hospital service contract providing the benefits for such services are payable in cash to the subscriber or on assignment to his physician or hospital.

Both of these alternatives have been put into operation in various localities and either one will permit the organization of a hospital service plan that can have the full support of the medical profession.

At the same time the Committee on Hospital Service and the Council on Hospital Insurance of the American Hospital Association seem to be encouraging the development of plans that include special medical services on a service basis. It appears that the staffs of local hospitals are first induced to support a proposed hospital service plan which includes special medical services on a service basis and afterward an attempt may be made to secure approval of the plan by the local county medical society. The county medical society is then faced with the problem either of disavowing the principles suggested by the American Medical Association and by the state medical society or of disapproving the action taken by members of the hospital staffs. The American Hospital Association at its last annual session approved the extension of hospital care insurance plans to include medical fees in hospital practice when the arrangements are approved by the local county medical society. At a recent conference between representatives of the American Medical Association and the American Hospital Association this problem was frankly discussed.

The recommendation of the House of Delegates with regard to the principle that special medical services on a service basis be entirely excluded from the hospital service contract, or that direct cash benefits be paid for such services, has received official sanction by a considerable number of medical societies. There is need, however, for a more thorough understanding of this recommendation by many physicians, hospital administrators and the public.

This principle takes on added importance in view of the suggestions being made by directors of hospital service corporations that the hospital service contract be extended to include all medical services in the hospital—surgical and general medical services as well as the special medical services of anesthesia, pathology and radiology. The development of medical service plans under the auspices of medical societies or voluntary organizations reemphasizes the necessity for maintaining separate provisions for the physician's services and for hospital facilities.

A joint report of the three national hospital associations has suggested that federal legislation be sought to permit the licensing of hospital service corporations similar to the federal licensing of credit unions. It is contemplated that such federally licensed hospital service corporations would be the proper agencies to enter into contracts with the government for the care of the indigent sick. This proposal also emphasizes the necessity for separate arrangements for the provision of the personal services of physicians.

Apart from the specific principles for group hospitalization plans, the House of Delegates in 1935 adopted the following:

The House of Delegates would again emphasize particularly the necessity for separate provisions for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, instalment purchase or so-called voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministrations of the physician on the other.

RELATIONS BETWEEN PHYSICIANS AND HOSPITALS

The relations of physicians and hospitals concerning medical services for hospitalized patients have been brought to a sharp focus by the development of group hospitalization plans, all-inclusive rate plans and governmental arrangements for hospital care of the indigent which look to the hospital as the source of medical care and tend to subordinate the physician to a status similar to that of an employee of the hospital.

It is suggested that the House of Delegates and state and county medical societies might properly take cognizance of the fact that certain types of group hospitalization plans and other payment arrangements for hospital care may tend to establish relations between physicians and hospitals that are not desirable for the welfare of hospitalized patients or for the furtherance of good medical practice in hospitals.

At the last annual session the House of Delegates recommended that a joint study be made by the Council on Medical Education and Hospitals and the Bureau of Medical Economics to determine the existing relations between hospitals and the physicians practicing therein. This study was to be undertaken with a view toward a clearer definition of the relationships in the departments of anesthesia, radiology, pathology and physical therapy in order that ethical standards may be established for the practice of medicine by physicians in hospitals which would prevent the exploitation of either the public, the hospitals or the physicians.

The results of this study will be reported by the Council on Medical Education and Hospitals. As a part of the study, the Bureau of Medical Economics has made an analysis of schedules obtained from 876 radiologists by the Inter-Society Committee for Radiology concerning the economics of the practice of radiology.

MEDICAL FEE SCHEDULES

The Bureau of Medical Economics, since it was established in 1931, has made an effort to collect fee schedules from county medical societies. During 1934 the Bureau computed minimum and maximum average fees for the United States for 530 items from 384 county schedules which it had in the files at that time. This list of 530 items with average fees was kept in the files of the Bureau where it could be referred to on questions involving medical fees, but at no time has any fee schedule been recommended for adoption by county medical societies.

In November 1937 a concentrated effort was made to secure a more complete and up-to-date record of county fee schedules. A letter was sent to the secretary of every county medical society in the United States requesting a copy of the fee schedule that had been adopted or was being used by the county society at that time. A complete list of the number of letters sent out and of the number of replies and schedules returned by the county society is given in table 1.

At the annual meeting of the House of Delegates of the American Medical Association in San Francisco in June 1938 the following Resolution on Fee Schedules was adopted:

Whereas, State and county medical societies have from time to time, on their own initiative or at the request of others claiming a valid or social interest in the cost of medical services to a particular group, established so-called fee bills on which the contracting persons or groups agree to base charges; and

Whereas, Such fee bills often set up without due regard to the equitable interest of the various groups concerned furnish an implement through which exploitation is practiced and abuses encouraged; and

Whereas, The necessity for or advisability of such schedules has never been considered by the House; and

Whereas, Controversy over the application of such schedules is rife, serving to divert the attention of the contracting persons from the central fact—namely, the quality of medical care—thus reflecting unfavorably on the profession and lending comfort to those critics who charge it with the adoption of trade union methods; and

Whereas, It has been the unwritten rule, established by a long line of ethical practitioners, both past and present, to adapt charges for medical services to the ability of his patient to pay, untrammeled by fixed community schedules; therefore be it

Resolved, That this device, appearing with increasing frequency, examined by an appropriate agency of the American Medical Associa to the end that the Association may declare itself on certain controver points, among which are:

(*a*) The advisability of or necessity for fee schedules in the pu interest.

(*b*) Their ethical or unethical qualities.

(*c*) Necessity for certain fixed principles to guide constituent units the Association when and if it is deemed, in the public interest, necess to adopt such a device, and

(*d*) Whether such schedules, approved by constituent units of Association, should or should not provide for elasticity so as to per of adaptation to wage levels, specialized medical services, variati based on differential costs as between urban, semiurban and rural prac and other related considerations.

In June 1938 the Bureau began compiling and tabulating t figures recorded on the county medical societies' fee schedul At first it was necessary to make a composite list of ite included in the 558 county fee schedules. The nomenclature a classifications in the schedules varied greatly. No two sched-ules were completely alike. Considerable time and work were involved in making a complete list that would include the services on which three or more counties reported fees. Many of the counties reported a very short schedule—a list of the most common services performed by the general practitioner in his daily practice. Others had a very elaborate and detailed list of more than 300 items including many unusual and seldom

Table 1.—*Number of Requests for County Fee Schedules and the Number of Replies*

State	Number of Requests Sent to County Medical Societies	Number of Schedules Returned	Replied But No Schedule Submitted	No Reply
Alabama	67	13	14	40
Arizona	13	2	2	9
Arkansas	62	15	5	42
California	39	9	10	20
Colorado	28	6	3	19
Connecticut	8	..	5	3
Delaware	3	..	2	1
District of Columbia	1	..	..	1
Florida	33	10	5	18
Georgia	91	13	2	79
Idaho	9	3	..	6
Illinois	93	35	9	49
Indiana	83	71	5	7
Iowa	97	23	6	68
Kansas	67	20	4	43
Kentucky	114	19	3	92
Louisiana	40	5	5	30
Maine	15	1	4	10
Maryland	22	4	2	16
Massachusetts	18	4	3	11
Michigan	54	18	8	28
Minnesota	34	12	3	19
Mississippi	21	2	3	16
Missouri	80	18	9	53
Montana	15	6	1	8
Nebraska	50	12	8	30
Nevada	5	1	..	4
New Hampshire	10	1	1	8
New Jersey	21	6	6	9
New Mexico	14	4	2	8
New York	61	26	8	27
North Carolina	73	29	3	41
North Dakota	13	3	1	9
Ohio	87	19	15	53
Oklahoma	65	16	4	45
Oregon	23	8	2	13
Pennsylvania	60	14	16	30
Rhode Island	6	1	1	4
South Carolina	37	5	3	29
South Dakota	12	3	..	9
Tennessee	59	11	7	41
Texas	131	33	10	88
Utah	9	4	1	4
Vermont	10	1	1	8
Virginia	48	19	4	25
Washington	24	6	3	15
West Virginia	30	5	6	19
Wisconsin	52	19	10	23
Wyoming	11	4	3	4
Total for United States	2,021 100%	559 28%	228 11%	1,234 61%

used tests and operations. In the final list, which includes a total of 606 items, the medical and surgical services are subdivided under ten main headings and twenty-three subheadings. All of the fees have now been trasferred from the county schedules to this uniform list of items and the number of fees reported for each item has been computed.

Table 2 gives a list of the medical and surgical services on which the greatest number of societies reported a fee. This list indicates the type of services on which the majority of the

county medical societies considered established fees to be practicable. Except for surgical procedures, complement fixation tests for syphilis and postmortem examinations, the list includes only services which the general practitioner might be expected to perform every day under ordinary conditions. The fact that so many county medical societies' schedules do not include

TABLE 2.—*Common Services for Which More That 100 Counties Reported Fees*

Classifications	Number of Counties Reporting These Fees
Home visit	536
Office visit	514
Obstetrics—normal delivery	436
Night visit	412
Mileage	400
Consultation	279
General anesthetic	278
Venereal disease treatments	235
Fractures	228
Urine tests	217
Herniotomy	208
Smallpox immunization	205
Amputations	205
Circumcision	201
Gynecologic operations	182
Appendectomy	172
Physical examinations	168
Prescriptions	167
Tonsillectomy	153
Hypodermic medication	126
Physical examinations for insurance	119
Intravenous medication	117
Complement fixation test for syphilis	107
Surgical assistant's fee	105
Postmortem examinations	100

established fees for the remaining 581 items, which make up the composite list, indicates the difficulty of establishing fees for services for which the amount of time, skill and responsibility required cannot be determined in advance.

Study of Medical Fees to Continue.—The next phase of study, now in progress, is to compile average minimum and maximum fees for each state for every item on which a sufficient number of fees from which to compute an average are reported. Average minimum and maximum fees for the United States will be computed for all the 606 items. These average fees will be used as a basis for a further study on the question of the necessity or desirability of established fee schedules for medical and surgical services. There are many other factors which must be considered in presenting the arguments for and against this question, but to enter into a discussion of fee schedules it is necessary to know the existing average fees in the various states and the geographic and political divisions of the United States. An equitable fee depends not only on the professional skill required and the time consumed but also on costs of living and the economic status of the majority of the people in a given locality. Medical fees also show considerable variation in rural areas as compared to industrial centers. Consequently, average fees for the entire United States would be useful to any particular county society only as a comparison of the difference between the local medical fees and the average fees for the United States. Average fees for a state might be a more practical guide for a county medical society within the particular state if the average fees were derived from figures that are representative of the actual amounts usually charged for medical services in that state.

These average figures will also be useful as a guide in determining equitable fees for medical services under various medical care plans for special economic groups such as the indigent, Farm Security Administration clients and the low income group. At the present time requests have come from more than twenty-five county medical societies that do not have fee schedules or wish to revise their fee schedules for a schedule of average fees which could be used as a guide in setting up or revising a fee schedule.

The completed study of fee schedules, so far as information is available, will be submitted as a supplementary report of this Bureau.

COLLECTING MEDICAL FEES

The Bureau of Medical Economics continues to receive complaints from physicians concerning the practices of commercial collection agencies in the collection of medical accounts. A report "Collecting Medical Fees" which was published serially in THE JOURNAL beginning in May 1938 outlined and discussed the various systems used by commercial collection agencies with particular emphasis on practices that tend to defraud the unwary physician and often deal harshly with his patients. A special study of professional credit and collection bureaus was also included in this report.

During the past year 460 copies of the report "Collecting Medical Fees" were distributed to medical societies, physicians, collection agencies, libraries and lay individuals. Including a previous report on collecting medical fees, a total of 6,200 reports have been distributed within the past six years to assist physicians with their collection problems.

One of the most significant developments in medical economics during recent years has been the organization of credit and collection bureaus by county medical societies or by groups of physicians. This movement toward professional control of agencies for the collection of medical accounts has progressed rapidly during the past five years and symbolizes the effort on the part of physicians to eliminate many of the undesirable features that have arisen because of dissatisfaction with methods used by commercial collection agencies and because of the need for an agency to organize some of the "business" aspects of medical practice.

According to available records there are at least fifty professionally controlled credit and collection bureaus in operation, and twenty-five others are proposed. Reported experiences with the operation of these bureaus indicates that they perform a valuable service for the patients and the physicians in the communities where they were organized.

Inappropriate Collection Methods.—Improper or unsatisfactory collection arrangements are prominent among the reasons which cause medical accounts to have the highest ratio of bad debts of all retail accounts in the United States. The consequent loss of payments amounts to an estimated one-fourth billion dollars annually. An even greater damage to the physician's practice is caused by improper credit and collection practices that lead to dissatisfaction with the use of the sliding scale of fees and sometimes may encourage malpractice suits. Greater attention to the "business" side of medical practice with special regard for extension of credit to patients and billing procedures is not unprofessional or beneath the dignity of the medical profession, particularly when it can be shown that lack of attention to the proper conduct of the business side of medicine results in extensive harm to the delivery of good medical service by threatening to destroy the personal and friendly relations between physicians and their patients.

Familiarity with Collection Methods Essential.—Once again physicians should be urged to familiarize themselves with the proper procedures to follow in the use of a third party agency to collect medical accounts. While complaints continue to be received, there has been an encouraging decrease in the number of complaints from physicians who have been defrauded by unscrupulous collection agencies and methods. Recently the postal authorities convicted the officers of a large collection agency of fraud and it appears that other collection agencies utilizing similar contracts will no longer be allowed to use the mails to transact their business. Legislation in certain states for the licensing of collection agencies is contemplated in the hope of providing at least some regulation of these agencies. The most hopeful possibility, however, is that the individual physician will learn to avoid collection agencies that use methods which almost invariably lead to unfair dealings with his patients and sly handling of his accounts.

SICKNESS FINANCING COMPANIES

The formation of special financing organizations which offer to make available funds with which to finance medical accounts is creating an important financial institution which may introduce new problems in the medical field. In the past, medical societies and physicians have not been in favor of finance plans on the ground that such arrangements do not lower the cost of medical care but instead result in an additional cost to the patient and in many of the arrangements increase costs for the physicians. It has been felt that persons with low incomes whose medical accounts require special arrangements are deserving of a reduction rather than an increase in charges by the addition of interest or other expenses paid to a financing agency.

It is true that patients now have access to a variety of lending agencies such as personal finance companies, Morris Plan and industrial banks, personal loan departments of banks, credit unions, remedial loan societies, pawnbrokers and unlicensed lenders of all types. For example, it was estimated that in 1936 more than $40,000,000 was lent by personal finance companies alone to patients for medical, dental and hospital bills.

The feasibility of developing special finance plans, perhaps under the auspices of medical societies or groups of physicians, will undoubtedly be given wide consideration. Already several medical societies have experimented with a special financing arrangement. The Bureau of Medical Economics has records of forty-five sickness financing plans the majority of which are still privately financed and owned institutions. A thorough study of sickness financing arrangements would seem to be warranted, especially in view of the likelihood of a development of financing arrangements under sponsorship of medical societies.

MALPRACTICE INSURANCE

Within the past few years, considerable changes in policies and rates for malpractice insurance have been made by practically all companies writing this type of insurance. Increasing underwriting losses have caused insurance companies to become concerned over the selection of "malpractice risks." The present unsettled situation in the underwriting of malpractice insurance is due to many possible causes, among which are the increasing complexity of medical practice involving more general use of special apparatus such as x-ray and physical therapy, a resentment on the part of certain patients of efforts of physicians to collect payments for delinquent accounts, critical comments by some physicians and the general attempts which have recently been made to discredit the medical profession. These and other factors have led to an increasing tendency for patients to allege that their physicians are guilty of malpractice.

A question has been raised as to whether there is any relationship between the American Medical Association and insurance companies writing malpractice insurance, apparently because several companies require that an applicant be a member of a medical society. These insurance companies establish their own policies, which, presumably, change with experience. The American Medical Association has not attempted to influence insurance companies in the formulation of their policies pertaining to rates, coverage, type of risks accepted, or any other part of the companies' business.

The Bureau of Medical Economics has made an effort to secure from the companies a statement of their policies in order that intelligent replies might be made to correspondents who inquire about malpractice coverage.

PUBLICATIONS

In addition to the reports already mentioned, two new studies have been published, "Medical Relations Under Workmen's Compensation—Developments since 1930" and "Health Insurance in England," which bring down to date the information in these two important fields of medical economics. The report "Sickness Insurance Not the Remedy" has been rewritten with much additional information, and the report on "Contract Practice" has been revised with new material added that involved a study of nearly a thousand of such plans for which records exist in the Bureau. Other publications that were reprinted during the year were "Critical Analysis of Sickness Insurance," "The Economics and Ethics of Medicine" and "Sickness Insurance Catechism."

Developments and extensions in the medical program of the Farm Security Administration have required examination and analysis of the different arrangements made by the Farm Security Administration with state and county medical societies. Many medical societies, before entering into such agreements, have asked for information, suggestions and copies of the plans used in other states. A full report of the Farm Security Administration plans is included as a chapter in the report "Organized Payment for Medical Services." Likewise medical societies have requested detailed information concerning plans for the care of the indigent. A chapter describing the arrangements for the care of the indigent throughout the United States is also embodied in the report "Organized Payments for Medical Services." A chapter in this report also outlines the developments under the Social Security Act which are of interest to medical societies.

Medical economics abstracts were prepared each week for the Organization Section of THE JOURNAL. In many cases these abstracts require considerable research and statistical work or translation from European publications. Articles on socialized medicine and other subjects in medical economics were also prepared for several nonmedical magazines.

NATIONAL HEALTH PROGRAM

The factual data on which the National Health Program was based were taken largely from the information collected in the National Health Survey. As soon as the reports of the National Health Survey became available, the Bureau prepared analyses of certain parts on which comments could be made without consulting all the basic data.

Likewise, as soon as the text of the National Health Program was issued, an analysis was made for the Board of Trustees and for use of the reference committees of the Special Session of the House of Delegates in September 1938.

These analyses and additional statements bearing on particular portions of the National Health Program were made available to the committee of the House of Delegates which met with government representatives in October and December 1938 to discuss the recommendations of the National Health Program.

DEPARTMENT OF JUSTICE INVESTIGATION

When the Department of Justice investigator visited the Bureau, every assistance was given him to examine all the source files and correspondence bearing on the mission for which he was sent. This assistance went further than the mere compliance with requests to see specific material. Suggestions were made concerning other material which it was thought might be of interest or assistance. All reprints and publications of the Bureau were given to the investigator and he was invited to return at any time, when every possible assistance to examine every document in the Bureau files would be given him. The contact with the investigator was very cordial.

Later, when the subpenas were received for specific material, much time was required to collect from the Bureau files all the material needed to comply with the subpenas. Photostatic copies of the original material sent to the Department of Justice, Washington, D. C., are on file in the Bureau.

OTHER ACTIVITIES

One important portion of the work of the Bureau is the furnishing of information on medical economics subjects which comprise fifty-five main subject classifications with 159 subclassifications. Requests for information on these topics come to the Bureau by letter, telephone, telegram or personal visits from physicians, both as individuals and as officers of medical organizations, from individual lay persons and from administrators of various agencies.

The majority of the written requests have to be answered on an individual basis, which requires considerable research and library work to secure the specific information requested. This is particularly true of requests received from secretaries of committees appointed by medical societies to conduct special studies in various problems of medical economics. Requests are chiefly for information concerning group hospitalization, medical care plans, state medicine, contract practice plans, collection agencies, insurance companies (particularly malpractice insurance), costs of medical care and medical education, income from medical practice, distribution of physicians and hospitals, rural medical services, care of the indigent sick, and medical relations under workmen's compensation.

Representatives from a variety of organizations, but chiefly from state and county medical societies, often visit the Bureau in person for consultation on particular medical economic problems. These consultations have served a distinctly useful purpose in acquainting representatives of the county medical societies with the functions of the Bureau and in making known to representatives of lay organizations that the source files of the Bureau contain much information concerning the medical economic problems in which they are interested, as well as to acquaint the Bureau with the nature of their problems. In a

number of instances the visits from interested persons have developed into valuable contacts with important organizations in other fields, such as public welfare, insurance, foundations, government agencies, workmen's compensation commissions and industry.

On many occasions the Director or his associates are invited to address or confer with state or county medical societies, national organizations such as the American Association of Medical Students, American Hospital Association, American Pharmaceutical Association, American Public Welfare Association, National Association of Retail Druggists, National Conference of Social Workers, National Education Association, United States Children's Bureau, United States Public Health Service, Conference on Rural Medical Care, State and Provincial Health Authorities of North America and local groups such as women's auxiliaries, state hospital associations, women's clubs, public forums, high school clubs, colleges and universities, Y. M. C. A., Rotary, Kiwanis, and Lions clubs, and consumer groups. Engagements with these medical societies and national or local organizations have averaged one a week during the year.

Summary

Study of Medical Care.—Medical societies in forty-five states and the District of Columbia are participating in the Study of Medical Care. Already 416 county medical societies in thirty-six states with the cooperation of other agencies and organizations interested in medical services have completed a study of the need and supply of medical care in their communities.

A special study of free medical services rendered by physicians and dentists throughout the United States has been made by having records of free medical services kept for three representative periods of seven days each.

A supplementary report will summarize the results of the Study of Medical Care and the special study of free medical services.

Medical Service Plans.—Medical societies throughout the country have taken a very active part in the study and development of medical service plans. A supplementary report, "Organized Payments for Medical Services," has been prepared which describes practically all the various methods of organizing payments for medical services.

The prepayment or group payment medical service plans which have received consideration from medical societies can be classified into two main types: (1) unit service plans, which provide medical services through participating physicians who agree to accept a prorated division of whatever funds are available after administrative and other expenses are paid; (2) cash indemnity plans, which provide a designated amount of cash to assist members in meeting their medical bills. Experience gained under each of these types of medical service plans will, no doubt, produce much helpful information.

Group Hospitalization. — Hospital insurance plans organized by hospital administrators and physicians have continued to receive widespread attention. One major problem in connection with these plans is concerned with the question of including or excluding special medical services, such as anesthesia, pathology and radiology. The experience gained in the operation of these plans emphasized the importance of the recommendations of the House of Delegates that such special medical services be omitted from a hospital service contract or included only on the basis that cash benefits be payable directly to the member.

The development of medical service plans raises a further question as to the relation between hospital service plans and other medical services in the hospital —surgical and general medical services. The consensus seems to be that a medical service plan should be kept separate in its organization and administration from a hospital service plan.

Relations Between Physicians and Hospitals.—Various organized arrangements for the payment of medical services in hospitals brought into sharp focus the necessity for establishing a clearer understanding of relationships between the hospital departments of anesthesia, radiology, pathology and physical therapy and physicians practicing in these departments.

Medical Fee Schedules. — An exhaustive survey of county medical society fee schedules has been completed. All the county fee schedules that could be obtained were classified and tabulated into a composite fee table, which includes a total of 606 items and the "average" minimum and maximum fees for each item.

A supplementary report, "Medical Fee Schedules," has been completed in accordance with the request of the House of Delegates that a study be made of the advisability and necessity of fee schedules.

Collecting Medical Fees.—A significant development in medical economics during recent years has been the organization of credit and collection bureaus by county medical societies or by groups of physicians. The movement toward professional control of agencies for the collection of medical accounts has been reported in a special study, "Collecting Medical Fees." This report also outlines and discusses the various systems used by commercial collection agencies and gives particular emphasis to the practices that tend to defraud the unwary physician. Physicians are urged to familiarize themselves with the preferable procedure to follow in the use of a third party agency to collect medical accounts.

Sickness Finance Companies. — Recently interest has been evinced in the development of special medical finance plans under the auspices of medical societies or groups of physicians. Patients now have access to a variety of lending agencies and careful study should be given to the development of financing arrangements under the sponsorship of medical societies.

Malpractice Insurance. — Policy provisions and rates for malpractice insurance have been subjected to considerable changes in the past few years. Increasing underwriting losses have caused insurance companies to become concerned over the selection of malpractice risks. The present unsettled situation in the underwriting of malpractice insurance is due to many causes, not the least of which has been the recent attempts to discredit the medical profession.

Publications.—In addition to the reports already mentioned, two new studies, "Medical Relations Under Workmen's Compensation — Developments since 1930" and "Health Insurance in England," were published. Two new reports, "Sickness Insurance Not the Remedy" and "Contract Practice," have been submitted for publication.

The new report "Organized Payments for Medical Services" will also contain chapters descriptive of Farm Security Administration plans, arrangements for the care of the indigent sick and medical care developments under the Social Security Act.

Articles and abstracts pertaining to medical economic problems were prepared for the Organization Section of The Journal and for some nonmedical magazines.

National Health Program. — Analysis and statements pertaining to the National Health Program and the National Health Survey were prepared for the Board of Trustees and the committee appointed by the House of Delegates to confer and consult with proper federal representatives.

Department of Justice Investigation.—Every possible assistance was given to the investigator from the Department of Justice to examine all the source files and correspondence of the Bureau which might have a bearing on the mission for which he was sent.

Other Activities.—Correspondence, consultations and speaking engagements increased continuously throughout the year but have made possible a wide distribution of information concerning medical economic problems.

Bureau of Investigation

Dr. Paul C. Barton, formerly a member of the administrative personnel of the Council on Pharmacy and Chemistry, assumed the duties of Director of the Bureau of Investigation Nov. 1, 1938.

The services of this Bureau continue to be utilized by physicians and laymen, and many inquiries are received from representatives of organizations that are concerned with the detection and exposure of fraud for the purpose of public protection, as well as from official agencies that are concerned not only with the detection and exposure of fraud but also with the prosecution of impostors. Approximately 10,000 direct inquiries were received by the Bureau in 1938, about 60 per cent of which came from the lay public and about 40 per cent from physicians. It seems to be evident that the Bureau is filling a real need in supplying information, since many inquirers, including busy physicians, take time to write letters of acknowledgment and thanks for the information furnished in response to their inquiries. An increasing number of communications requesting information are received from students and from the members of consumers' study groups. In most instances the material provided by the Bureau for students and for the members of study groups is utilized in the preparation of essays presented before classes, and thus wide distribution is given to the information that is made available through this Bureau.

Many requests for information are received from newspapers, magazines, broadcasting stations and advertising agencies concerning the acceptability of products for which advertising is offered. Most of these requests come from publications, radio station operators and advertising agencies in the Eastern part of the United States and in the Middle West.

The services of the Bureau of Investigation continue to be used by various agencies of the federal government and the utmost possible cooperation is maintained between the Bureau and the Food and Drug Administration, the Federal Trade Commission and the Post Office Department. These governmental agencies provide the Bureau with official releases based on fraud orders, notices of judgment and other orders, and much of the information so secured is published in THE JOURNAL. Cordial cooperative effort is maintained with Better Business Bureaus throughout the United States.

The Bureau has continued the long-established policy of providing physicians, teachers, health officers and civic groups with material to be used for exhibit purposes and for the preparation of public addresses. The amount of such material distributed during the year was approximately the same as in each of several preceding years.

Articles of current interest were prepared by the Bureau for publication in the Association's periodicals during the year, many of which were contributed by Dr. Arthur J. Cramp, who was for many years Director of the Bureau of Investigation.

Bureau of Exhibits

THE SCIENTIFIC EXHIBIT

There were 242 signed applications for space in the Scientific Exhibit at the San Francisco session, of which 161 were accepted, 66 per cent. The Scientific Exhibit occupied a floor area of 27,665 square feet, located in various halls, rooms and corridors of two floors. Because of the somewhat limited space available there was much congestion.

Total Exhibits, 1938.—In addition to 161 exhibits for which there were signed applications, there were two special exhibits on fractures and on anesthesia, and four motion picture booths sponsored by the various sections of the Scientific Assembly. There were 136 exhibits sponsored by the sections, forty-nine of which were accompanied by papers read before the various sections during the week.

Section exhibits	136
Educational group	
National organizations	16
Organized medicine	9
Motion picture booths	4
Special (subsidized) exhibits	2
	167

Exhibits and Registration.—For each exhibit in the Scientific Exhibit, thirty-six Fellows of the Association registered at the General Registration Booth. This was a slightly smaller ratio than last year, as shown in the table below, in spite of the fact that a larger percentage of applications were rejected this year than in former years. The lower figure this year, therefore, is without much significance.

	Total Exhibits	Total Registration	Attendance per Exhibit
Cleveland, 1934	167	6,293	37.7
Atlantic City, 1935	213	8,166	38.3
Kansas City, 1936	176	6,824	38.7
Atlantic City, 1937	254	9,764	38.4
San Francisco, 1938	167	6,034	36.0

Section Exhibits.—The fifteen sections of the Scientific Assembly presented 136 exhibits, an average of nine each, as compared with thirteen each last year. The largest number of exhibits presented by any section were in the Section on Pathology and Physiology with seventeen exhibits and the smallest number the Section on Laryngology, Otology and Rhinology with four exhibits. Following is a comparison of exhibits presented by the various sections for the past several years:

	Kansas City 1936	Atlantic City 1937	San Francisco 1938
Practice of Medicine	21	18	11
Surgery	17	26	16
Obstetrics and Gynecology	6	10	6
Ophthalmology	11	11	8
Laryngology, Otology and Rhinology	5	9	4
Pediatrics	11	9	6
Pharmacology and Therapeutics	7	9	9
Pathology and Physiology	11	17	17
Nervous and Mental Diseases	5	8	7
Dermatology and Syphilology	7	12	11
Preventive Medicine	6	14	5
Urology	7	8	6
Orthopedic Surgery	11	11	16
Gastro-Enterology	12	18	8
Radiology	10	14	6

The Section on Practice of Medicine was represented by Dr. Fred M. Smith, Iowa City, who was also secretary of the section. There were twenty-five applications presented, eleven of which were accepted and one transferred to another section. One exhibit received a Bronze Medal and one a Special Citation. Three of the exhibits were accompanied by papers read before the section.

The Section on Surgery, General and Abdominal, was represented in the Scientific Exhibit by Dr. Grover C. Penberthy, Detroit. There were thirty-two applications, of which sixteen were accepted. In addition to the exhibits, the section presented a motion picture program in an area adjoining the exhibits. Three exhibits received Certificates of Merit and two Honorable Mention. Five of the exhibits were accompanied by papers read before the section.

The Section on Obstetrics and Gynecology was represented by Dr. H. Close Hesseltine, Chicago. There were twelve applications, of which five were accepted and one was transferred from another section. In addition to the exhibits there was a motion picture program presented as a special feature in an area adjoining the exhibit space. One exhibit received Honorable Mention. Two exhibits were accompanied by papers read before the section.

The Section on Ophthalmology was represented by a committee composed of Dr. Georgiana Dvorak Theobald, Oak Park, Ill., chairman, Dr. Dohrmann K. Pischel, San Francisco, and Dr. Derrick Vail, Cincinnati. There were fourteen applications for space, of which eight were accepted. There were no awards made in this section. Five of the exhibits were accompanied by papers read before the section. A very successful motion picture program was run adjacent to the exhibits.

The Section on Laryngology, Otology and Rhinology was represented by Dr. Robert C. Martin, San Francisco. There were seven applications for space, three of which were transferred to other sections, leaving four exhibits to be accepted. One exhibit received an Honorable Mention. Two of the exhibits were accompanied by papers read before the section.

The Section on Pediatrics was represented by Dr. F. Thomas Mitchell, Memphis, Tenn. There were eight applications for space, of which six were accepted. There were no awards made in this section. One exhibit was accompanied by a paper read before the section.

The Section on Pharmacology and Therapeutics was represented by Dr. Wallace M. Yater, Washington, D. C. There were thirteen applications for space, of which nine were accepted. One exhibit received a Gold Medal and one a Certificate of Merit. Four exhibits were accompanied by papers read before the section.

The Section on Pathology and Physiology was represented by Dr. F. W. Konzelmann, Philadelphia. There were twenty-one applications for space, of which sixteen were accepted and one was transferred from another section. Two of the exhibits in this section were awarded medals. Three of the exhibits were accompanied by papers read before the section.

The Section on Nervous and Mental Diseases was represented by Dr. Roland P. Mackay, Chicago. In addition to the exhibits, a motion picture program was presented in an adjoining area. There were twelve applications for space, of which seven were accepted. None of the exhibits received awards. One exhibit was accompanied by a paper read before the section.

The Section on Dermatology and Syphilology was represented by Dr. Clark W. Finnerud, Chicago. There were eighteen applications for space, of which eleven were accepted. The section presented a Symposium on Industrial Dermatoses, which received a Special Citation. There were seven papers presented before the section by exhibitors.

The Section on Preventive and Industrial Medicine and Public Health was represented by Dr. Paul A. Davis, Akron, Ohio. The section had twelve applications for space, of which five were accepted. One of the exhibits received a Silver Medal and one exhibit was accompanied by a paper read before the section.

The Section on Urology was represented by Dr. R. S. Ferguson, New York. There were nine applications for space, of which six were accepted. One exhibit received a Certificate of Merit.

The Section on Orthopedic Surgery was represented by Dr. Norman T. Kirk, San Francisco. The section presented twenty-two applications for space, of which sixteen were accepted. The Committee on Awards presented to exhibits in this section one Silver Medal, two Certificates of Merit and one Honorable Mention. Four of the exhibits were accompanied by papers read before the section.

The Section on Gastro-Enterology and Proctology was represented by Dr. J. A. Bargen, Rochester, Minn. The section had fourteen applications for space, of which eight were accepted. One exhibit received a Certificate of Merit. Four exhibits were accompanied by papers read before the section.

The Section on Radiology was represented by Dr. E. E. Downs, Woodbury, N. J. There were eleven applications of which six were accepted. None of the exhibits received awards, but all six exhibits were accompanied by papers read before the section.

Motion Pictures.—Four sections presented motion picture programs in connection with the exhibits—the Section on Surgery, General and Abdominal, the Section on Obstetrics and Gynecology, the Section on Ophthalmology and the Section on Nervous and Mental Diseases. All the pictures shown were selected with considerable care by the section representatives, the pictures being previewed in some instances. Projectors and operators were furnished by the Association and the programs carried out under the control of the director of the Scientific Exhibit. For the most part the space available for these motion picture programs was too small and crowded, resulting in much congestion. All the pictures attracted large audiences.

Many motion pictures were shown in individual booths by the various exhibitors, who had included part of their evidence in the form of motion pictures. These pictures formed a serious problem in the narrow corridors where the Scientific Exhibit was located.

Special Exhibits.—The Special Exhibit on Fractures was carried on under the official direction of the committee composed of Dr. Kellogg Speed, Chicago, chairman, Dr. Frank D. Dickson, Kansas City, Mo., and Dr. Walter Estell Lee, Philadelphia. More than fifty physicians from various parts of the country assisted with the demonstrations, and a pamphlet describing the exhibit was distributed. Acknowledgment is made to Major General C. R. Reynolds, the Surgeon General, United States Army, Washington, D. C.; Colonel Roger Brooke, M.C., United States Army, Letterman General Hospital, San Francisco; Lieut. Colonel Norman T. Kirk, M.C., United States Army, Letterman General Hospital, San Francisco; Dr. C. H. Chandler, dean of Stanford University School of Medicine, San Francisco, and Mrs. Mitchell and Mrs. McMurray, nurses from the Stanford University Hospital, San Francisco, for the efficient service which they rendered in connection with the fracture exhibit. Appreciation is also expressed to Dr. Carleton Mathewson Jr., local representative in San Francisco for the fracture exhibit, for his excellent cooperation.

The Special Exhibit on Anesthesia was presented for the second time under the auspices of a committee composed of Dr. Ralph M. Waters, Madison, Wis., chairman; Dr. P. J. Hanzlik, San Francisco; Dr. Chauncey D. Leake, San Francisco, and Dr. Philip D. Woodbridge, Boston, assisted by a competent corps of demonstrators. There was a material increase in the exhibit this year over last year. A pamphlet describing the exhibit was distributed during the meeting, for which there has been a persistent call during the ensuing months. The pamphlet has been reprinted and is now available.

Committee on Awards.—The Committee on Awards was composed of Dr. Eben J. Carey, Milwaukee, chairman; Dr. H. C. Bumpus Jr., Pasadena, Calif.; Dr. Dean Lewis, Baltimore; Dr. E. E. Irons, Chicago, and Dr. W. Walter Wasson, Denver. The duties performed by this committee are of a most arduous nature, involving careful study of each separate exhibit and conscientious and qualified judgment of the merits and value of each.

ASSOCIATION EXHIBITS

The demand for exhibits for loan purposes from the headquarters of the Association has increased again this year. At the present time there are forty-two exhibits pertaining to the various departments of the Association or to subjects in which those departments are interested. During the year, exhibit material was sent out on 124 occasions to forty states. Very often two or more exhibits went to one place, greatly increasing the number of items lent.

There were no international expositions or world's fairs during the year in which the Association participated.

MOTION PICTURES

The demand for motion pictures has continued to increase and the Bureau now has seventeen pictures—fourteen for the medical profession and three for the public. There has been no attempt to build up a large film library but rather to supply information concerning films that may be available elsewhere.

Summary

The Scientific Exhibit at the San Francisco session was marked by very large attendance which constantly filled the halls and corridors on both floors of the exhibit. There were 242 applications for space, of which 161 were accepted. The special exhibits on fractures and anesthesia were outstanding successes.

Association exhibits, dealing with the activities of the Association, were sent out on 124 occasions to forty states.

The demand for motion pictures continues to increase. There has been no attempt to build up a large film library; there are seventeen subjects, however, on the film list, which are almost constantly on loan.

Use of Barbituric Acid and Derivative Drugs

At the annual session of the Association held in Atlantic City in 1937 a resolution pertaining to the sale and promiscuous use of barbituric acid derivatives was submitted to the House of Delegates by Dr. H. A. Luce, Michigan.

Information concerning existing legislation for the control of the sale of these products was compiled by the Bureau of Legal Medicine and Legislation. Laws designed to establish control over the sale of barbituric acid and derivative drugs have recently been enacted in Georgia, Tennessee and Washington, and a bill of similar nature has been passed by both houses of

the legislature in Delaware but at the time of the preparation of this report has not been signed by the governor. Bills on the same subject are pending in the legislatures of California, Kansas, Minnesota and New York, but none had been enacted into law at the time this report was prepared. A similar bill failed of enactment in Indiana. Up to this time laws providing for the regulation of the sale and distribution of barbituric acid and its compounds and derivatives have been enacted and are now in effect in nineteen states. In one state a law for the control of the sale of barbiturates was enacted several years ago but was later repealed.

While the Council on Pharmacy and Chemistry had already given attention to this matter, the Board of Trustees requested that body to prepare a scientific statement for publication in THE JOURNAL, and the Council has prepared an exhaustive report.

Committee on American Health Resorts

Pursuant to resolutions adopted by the House of Delegates at the San Francisco Session, the Board of Trustees has appointed the following Committee on American Health Resorts:

Dr. Bernard Fantus, Chairman, Chicago.
Dr. Walter S. McClellan, Saratoga Springs, N. Y.
Dr. Euclid M. Smith, Hot Springs National Park, Ark.
Dr. M. B. Jarman, Hot Springs, Va.
Dr. William P. Holbrook, Tucson, Ariz.

This committee is now engaged in outlining its plans of work and will no doubt submit a report to the Board of Trustees which can be transmitted to the House of Delegates at its next meeting.

Committee on Distinguished Service Award

After the election of Dr. H. H. Shoulders as Speaker of the House of Delegates, it seemed desirable to have some one designated to serve in his place as Chairman of the Committee on Distinguished Service Award, and the Board of Trustees selected Dr. E. L. Henderson of Louisville, Ky., a member of this House of Delegates, to serve in that capacity. The other members of the Committee on Distinguished Service Award are Dr. John W. Amesse, Denver; Dr. Grant C. Madill, Ogdensburg, N. Y.; Dr. J. D. Brook, Grandville, Mich., and Dr. John F. Hassig, Kansas City, Kan.

The Indictment of the Association

An indictment of the American Medical Association, the Medical Society of the District of Columbia, the Harris County Medical Society, which is a component society of the State Medical Association of Texas, certain members of the Medical Society of the District of Columbia, and certain members of the administrative personnel of the American Medical Association was returned by an additional Grand Jury impaneled at the request of the Department of Justice of the United States. This indictment was reproduced in full in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Dec. 31, 1938.

Only one member of the official personnel of the American Medical Association appeared before the Grand Jury, and that one appeared only for the purpose of producing material taken from the files of the Association in compliance with the terms of subpenas issued at the instance of the Department of Justice. It required the expenditure of a great deal of time and effort on the part of a rather large number of members of the working personnel in the Association's offices to comply with the demands presented through these subpenas, but a sincere and exhaustive effort was made to make the fullest possible compliance.

The Board of Trustees, in accordance with instructions received from the House of Delegates at its special session held in Chicago Sept. 16 and 17, 1938, has engaged counsel and will exert all possible effort to make proper defense before the courts in which the issues involved may be heard.

Ruling of Bureau of Internal Revenue

The House of Delegates was informed at a previous annual session that the Bureau of Internal Revenue of the federal government had issued a ruling to the effect that the American Medical Association is liable for the payment of taxes under the provisions of certain sections of the revenue laws, and that under this ruling the Association would be classified by the Bureau as a business league rather than as a scientific and educational organization, under which classification the Association had always been placed prior to the issuance of the latest ruling of the Bureau of Internal Revenue.

On authorization of the House of Delegates, the Board of Trustees has appealed for a reversal of this ruling, and its appeal has been pending before the proper officials of the Bureau of Internal Revenue for several months, though at the time of the preparation of this report no decision has been handed down. In the meantime, taxes due under the ruling of the bureau have been paid after careful efforts to estimate fully the amounts due.

Several conferences, participated in by the Association's attorneys and attorneys of the Bureau of Internal Revenue, have been held and at one conference three members of the official personnel of the Association were present and received most courteous consideration at the hands of the government officials present. It is expected that a decision in this matter will be made within the near future.

Miscellaneous Matters

A great many matters that are not covered in this report have received official consideration by the Executive Committee of the Board of Trustees at its monthly meetings and by the Board of Trustees at the regular meetings of this body. To discuss all such matters fully would require the presentation of a report of such length as to make it burdensome. However, the Board of Trustees is prepared to submit to the House of Delegates any information that may be desired and that is available to the Board.

Respectfully submitted.

ARTHUR W. BOOTH, Chairman.
AUSTIN A. HAYDEN, Secretary
ROGER I. LEE.
ALLEN H. BUNCE.
RALPH A. FENTON.
JAMES R. BLOSS.
THOMAS S. CULLEN.
R. L. SENSENICH.
CHARLES B. WRIGHT.

ADDENDA TO REPORT OF BOARD OF TRUSTEES

Report of the Committee on Scientific Research for 1938

The committee has followed its policy to support by small grants promising individual research in various fields of medical interest. During the year seventy-three applications have been considered and forty-five grants have been made. In all cases the money has been turned over to the financial officer of the institution in which the grantee works, with the understanding that it would be subject to requisitions by the grantee and that an accurate account of the expenses would be kept. Practically complete results of work under twenty-nine grants have been published or are in course of publication. The results under eighteen grants prior to 1938 are being prepared for publication; in the case of forty-three grants prior to 1938 active work is still in progress, but in several cases reports on results have been published. During the year unexpended balances from grants amounting to $86.57 have been refunded (see financial statement for 1938).

Financial Statement for 1938

Balance, Jan. 1, 1938		$ 4,161.19
Appropriation for 1938		13,750.00
Refund, grant 369		35.00
Refund, grant 370		2.89
Refund, grant 398		48.68
		$17,997.76

The committee believes that its work should be continued and ventures to recommend that the same appropriation be made for 1939 as for 1938; namely, $12,500 for grants in aid of medical research and $1,200 for expenses of the committee.

The financial statement for 1938 is presented, also brief accounts of grants pending at the end of 1937 and a list of grants made in 1938

Respectfully submitted

COMMITTEE ON SCIENTIFIC RESEARCH OF THE AMERICAN MEDICAL ASSOCIATION
LUDVIG HEKTOEN, Chicago, Chairman
Term expires, 1941
N. W JONES, Portland, Ore
Term expires, 1939
MARTIN H FISCHER, Cincinnati
Term expires, 1940
C C BASS, New Orleans
Term expires, 1942
JOHN J MORTON, Rochester, N Y
Term expires, 1943

GRANTS AND EXPENSES PAID IN 1938

Grant 484 William Antopol	$ 250 00	
Grant 485, Erwin Chargaff	400 00	
Grant 486, Ben Vidgoff	300 00	
Grant 487, Felix Saunders	250 00	
Grant 488, I R Dragstedt and G M Dack	600 00	
Grant 489, Alexander S Wiener	200 00	
Grant 490, Peter Heinbecker	500 00	
Grant 491, Charles G Johnston	660 00	
Grant 492, Solomon Strouse and B O Raulston	500 00	
Grant 493, George M Curtis	600 00	
Grant 494, Catharine Macfarlane	480 00	
Grant 495, Lincoln Opper and Barnett Sure	600 00	
Grant 496 Samuel Soskin	500 00	
Grant 497, Albert P Krueger	300 00	
Grant 498, Henry Laurens	351 50	
Grant 499, Robert W Virtue	365 00	
Grant 500, Moore E Mills and Francis D Gunn	300 00	
Grant 501, Arthur H Smith	200 00	
Grant 502, Charles P Sheldon	31 25	
Grant 503, R C Robb	800 00	
Grant 504 Wallace M Yater	500 00	
Grant 505, Elizabeth S Russell	250 00	
Grant 506 Harry Sobotka	150 00	
Grant 507, Joseph H Roe	500 00	
Grant 508, Louis N Katz	250 00	
Grant 509, Roe E Remington	400 00	
Grant 510, Erma A Smith	150 00	
Grant 511, Charles W Turner	500 00	
Grant 512, Barnes Woodhall	350 00	
Grant 513 John S Lawrence	350 00	
Grant 514, Samuel R M Reynolds	200 00	
Grant 515, Robert R Sealock	400 00	
Grant 516, Charles O Warren	300 00	
Grant 517, Irving J Wolman	170 00	
Grant 518, Harold D West	100 00	
Grant 519, D B Phemister and Harwell Wilson	400 00	
Grant 520, H E Carter	250 00	
Grant 521, Rucker Cleveland	400 00	
Grant 522, Ludwig A Emge	500 00	
Grant 523, Frederick A Fender	150 00	
Grant 524 Ernest Spiegel	300 00	
Grant 525, A R Buchanan	400 00	
Grant 526, Charles F Code	400 00	
Grant 527, Alexander Levy	300 00	
Grant 528, Frank Co Tui	150 00	
Clerical expense	600 00	
Committee expense	304 60	
Printing and supplies	17 54	
		$16 929 89
Balance on hand		$ 1 067 87

GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH

NEW GRANTS—1938

Grant 484 William Antopol, Newark Beth Israel Hospital, Newark, N J, $250 Shwartzman phenomenon

Grant 485 Erwin Chargaff, Columbia University, $400, chemistry and physiology of obstructive jaundice

Grant 486 Ben Vidgoff, University of Oregon Medical School $300, inhibitory hormone of the germinal epithelial cells of the testis and its effect on the rat prostate

Grant 487 Felix Saunders, University of Chicago, $250, isolation of growth factors

Grant 488 Lester R Dragstedt and G M Dack, University of Chicago $600, relationship of Bacterium necrophorum to ulcerative colitis

Grant 489 Alexander S Wiener, Jewish Hospital of Brooklyn, $200, agglutinogens in human blood and studies on Kline test

Grant 490 Peter Heinbecker, Washington University School of Medicine, $500, pituitary regulation of water balance in the dog

Grant 491 Charles G Johnston, Wayne University College of Medicine, Detroit, $660, intestinal obstruction

Grant 492 Solomon Strouse and B O Raulston, University of Southern California, $500, sodium potassium relationship in diabetes

Grant 493 George M Curtis, Ohio State University, $600, iodine and calcium metabolism in thyroid disease

Grant 494 Catharine Macfarlane, Woman's Medical College of Pennsylvania, $480, value of periodic pelvic examination in detecting cancer of the uterus

Grant 495 Lincoln Opper and Barnett Sure, University of Arkansas, $600, relation of vascular disease to avitaminosis in the rat

Grant 496 Samuel Soskin Michael Reese Hospital, Chicago, $500, laboratory tests for endocrine dysfunction

Grant 497 Albert P Krueger, University of California, $300, bacteriophage

Grant 498 Henry Laurens, Tulane University, $351 50, lowering of arterial pressure by carbon arc radiation

Grant 499 Robert W Virtue, University of Denver, $365, formation of bile acids

Grant 500 Moore E Mills and Francis D Gunn, Northwestern University Medical School, $300, experimental pulmonary tuberculosis in dogs

Grant 501 Arthur H Smith, Wayne University College of Medicine, Detroit, $200, serum proteins in relation to blood volume

Grant 502 Charles P Sheldon, Harvard University, $31 25, respiration in pregnancy and labor

Grant 503 R C Robb, Syracuse University College of Medicine, $800, diseases in twins

Grant 504 Wallace M Yater, Georgetown University Medical School, $500 histopathology of "bundle branch" block

Grant 505 Elizabeth S Russell, Roscoe B Jackson Memorial Laboratory, Bar Harbor, Me, $250, genetics of tumors in the fruit fly

Grant 506 Harry Sobotka, Mount Sinai Hospital, New York, $150, monomolecular layers of physically active substances

Grant 507 Joseph H Roe, George Washington University, $500, vitamin C content of plant, animal and tumor tissue

Grant 508 Louis N Katz, Michael Reese Hospital, Chicago, $250 factors influencing activities of the heart

Grant 509 Roe E Remington, Medical College of the State of South Carolina, $400, iodine deficiency in the rat

Grant 510 Erma A Smith, Iowa State College, $150, influence of various substances on gastrointestinal motility

Grant 511 Charles W Turner, University of Missouri, $500 relation of thyrotropic hormone of anterior pituitary to pregnancy and lactation

Grant 512 Barnes Woodhall Duke University Hospital, $350, reactions to implanted Shope rabbit papilloma by cerebral tissue

Grant 513 John S Lawrence, University of Rochester, $350, transmissible agranulocytosis in the cat

Grant 514 Samuel R M Reynolds, Long Island College of Medicine, $200, action of oestrin on small blood vessels

Grant 515 Robert R Sealock, University of Rochester, $400, relation of metabolism of melanin pigment precursors to vitamin C requirements

Grant 516 Charles O Warren Jr, Cornell University Medical College, $300, metabolism of bone marrow

Grant 517 Irving J Wolman Children's Hospital of Philadelphia, $170, lipoid pneumonia

Grant 518 Harold D West, Meharry Medical College, $100, synthesis of *dl* threonine

Grant 519 D B Phemister and Harwell Wilson, University of Chicago, $400 mechanism of blood pressure in sympathectomized dogs

Grant 520 H E Carter, University of Illinois, $250, betaines of aminohydroxy acids

Grant 521 Rucker Cleveland, Vanderbilt University, $400, cytology of endometrium

Grant 522 Ludwig A Emge, Stanford University School of Medicine, $500, relation of sex hormones to tumor growth

Grant 523 Frederick A Fender, Stanford University School of Medicine, $150, development of device for direct neurologic stimulation

Grant 524 Ernest Spiegel Temple University, $300 physicochemical factors influencing the excitability of the central nervous system

Grant 525 A R Buchanan, University of Mississippi, $400, vestibular mechanism

Grant 526 Charles F Code, University of Minnesota, $400, metabolism of histamine

Grant 527 Alexander Levy, University of Oregon Medical School $300, occlusion of the coronary arteries

Grant 528 Frank Co Tui, New York University, $150, relation between Shwartzman agent and pyrogen

STATE OF WORK UNDER PREVIOUS GRANTS

1 COMPLETED DURING THE YEAR

Grant 174, 1930 Alfred R Roos, College of Medical Evangelists, Loma Linda, Calif, $1,455, hay fever pollens in the Southwest The reports and maps describing the results of work on the different groups of plants will be published by the Department of Agriculture of the state of California

Grant 277, 1933 Gustav Zechel, University of Illinois College of Medicine, $260, study of growing malignant cells by moving photomicrographs Zechel, Gustav, and Morgenster, O A Timing Device for Talking Motion Pictures, *Science* **81**: 23, 1935 Zechel Gustav A Simple Method of Obtaining Blood from the Rat in the Preparation of Plasma for Tissue Culture, *Arch f exper Zellforsch* **18**: 142, 1935 Zechel, Gustav An Improved Tissue Culture Chamber, *Science* **87**: 264, 1938

Grant 343, 1934 John Guttman, Post Graduate Medical School and Hospital, $400, relation between electrical disturbances in cochlea and the sensation of hearing Guttman, John, and Barrera, S E: The Electrical Potentials of the Cochlea and Auditory Nerve in Relation to Hearing, *Am J Physiol* **120**: 666, 1937

Grant 348 1935 Phillips Thygeson State University of Iowa, $400, trachoma and 'inclusion virus" disease of the genito urinary tract Thygeson, Phillips and Mengert, W F The Virus of Inclusion Conjunctivitis *Arch Ophth* **15**: 377, 1936 Thygeson Phillips, Proctor, Francis I, and Richards, Polk Etiologic Significance of the Elementary Body in Trachoma *Am J Ophth* **18**: 811, 1935 Thygeson, Phillips, and Richards, Polk Nature of the Filtrable Agent of Trachoma *Arch Ophth* **20**: 569, 1938 Thygeson Phillips The Cultivation of Human Conjunctival and Corneal Epithelium in Vitro, *Am J Ophth* to be published

Grant 356 1935 Jay C Davis University of Minnesota $500 coronary flow and lesions of the aortic valves See grant 463 1937 Davis J C An Analysis of the Factors Involved in the Changes in Coronary Flow in Aortic Stenosis and Regurgitation, *Am J Physiol* **123**: 50, 1938

Grant 365, 1935 Ludwig A Emge, Stanford University School of Medicine, $300 effect of castration on malignant tumors Emge Ludwig A, and Murphy, Kathleen M Effect of Rapidly Repeated Pregnancies on Transplantable Mammary Rat Adenofibromas *Proc Soc Exper Biol & Med* **37**: 620, 1938 Emge Ludwig A, Murphy, Kathleen M, and Schilling, Walter Effect of Theelin on Transplantable Mammary Rat Adenofibroma, *ibid* **38**: 21, 1938 Emge Ludwig A Schilling Walter and Wulff, L M R Effect of Pregnancy on the Growth of Rat Sarcoma *ibid*, p 338 Emge, Ludwig A Sarcomatous Degeneration of Transplantable Mammary Adenofibroma of the White Rat *Arch Path* **26**: 429, 1938 Murphy, Kathleen M, Schilling, Walter and Emge Ludwig A Effect of Prolonged Theelin Injections on Transplantable Mammary Adenofibroma, *Proc Soc Exper Biol & Med* **39**: 298, 1938 Emge, Ludwig A, and others The Influence of Long Continued Injections of Estrogen on Mammary Tissue, *Am J Obst & Gynec* **36**: 750 1938

Grant 370, 1935 Richard L Crouch University of Missouri $500 connections of diencephalon (refund $2 89) Crouch Richard L, and Thompson, John K The Efferent Fibers of the Thalamus of Macacus Rhesus *J Comp Neurol* **69**: 255 1938 Crouch, Richard L and Thompson, John K Termination of the Brachium Conjunctivum in the Thalamus of the Macaque Monkey, *ibid*, p 449 Other papers in course of publication

Grant 378, 1935 Wallace M Yater, Georgetown University Hospital Washington, D C, histopathologic basis of "bundle branch" block See grant 504 1938 Yater, Wallace M The Morbid Anatomy of Bundle Branch Block, *M Ann District of Columbia* **7**: 1 and 54 1938 Yater, Wallace M Pathogenesis of Bundle Branch Block *Arch Int Med* **62**: 1, 1938

Grant 380, 1935 N W Popoff, Highland Hospital, Rochester N Y, $600, arteriovenous anastomosis Popoff, Nicholas W Epithelial Functional Rejuvenation, *Arch Path* to be published

Grant 402, 1936 C H Thienes and L T Samuels, University of Southern California, $500 carbohydrate metabolism as influenced by the hypophysis See grant 453, 1937 Samuels, L T, and others Glycogen Formation After Alanine Administration in Adrenalectomized Animals *Proc Soc Exper Biol & Med* **35**: 538, 1937 Ball H A and Samuels, L T The Effect of Cortical Extract on the Glucose Tolerance of Adrenalectomized Rats, *ibid*, p 633 Samuels, L T, Schott, H F and Ball Howard A Carbohydrate Metabolism Studies in Hypophysectomized Rats II The Relation of the Hypophysis and Adrenal Cortex to the Removal of Excess Glucose from the Blood of Rats *Am J Physiol* **120**: 649, 1937

Grant 418, 1936 Frank W Allen, University of California $200, nucleotide of the red corpuscles See grant 464, 1937 Euler, John J, and Allen Frank W The Catabolism of the Purine Nucleotides I The Relation to Glycolysis in the Blood of the Rabbit, *J Biol Chem* **123**: 655 1938

Grant 427, 1936 Helen S Mitchell Massachusetts State College $300, nutritional cataract in rats Mitchell, Helen S, and Cook Gladys M Influence of Protein or Cystine Intake on Cataract Producing Action of Galactose, *Proc Soc Exper Biol & Med* **36**: 806, 1937 Mitchell Helen S, Merriam, Oreata A, and Cook Gladys M The Relation of Ingested Carbohydrate to the Type and Amount of Blood and Urine Sugar and to the Incidence of Cataract in Rats, *J Nutrition* **13**: 501, 1937 Mitchell Helen S, and Cook, Gladys M Galactose Cataract in Rats, *Arch Ophth* **17**: 22, 1938

Grant 428, 1936 D B Phemister, K Grimson and H Wilson University of Chicago, $400, effect of sympathectomy on blood pressure in dogs See grant 476, 1937 Grimson, Keith S, Wilson, Harwell and Phemister, Dallas B The Early and Remote Effects of Total and Partial Paravertebral Sympathectomy on Blood Pressure, *Ann Surg* **106**: 801, 1937

Grant 430, 1936 S W Ranson, Northwestern University Medical School, $315, fever producing agents Ranson S W Jr Fever Induced by the Intravenous Injection of Typhoid Paratyphoid Vaccine *Arch Int Med* **61**: 285, 1938 Other papers in course of publication

Grant 433, 1936 Frederick Lemere, Eastern State Hospital, Medical Lake, Wash $500, Berger brain rhythms in psychotic patients Lemere Frederick Effects of Electroencephalogram of Various Agents Used in Treating Schizophrenia, *J Neurophysiol* **1**: 590, 1938

Grant 435, 1936 Warren O Nelson, Wayne University College of Medicine Detroit, $300, effect of synthetic androgenic substances See grant 481, 1937 Nelson, Warren O, and Merckel, Charles G Effects of Androgenic Substances in the Female Rat, *Proc Soc Exper Biol & Med* **36**: 823, 1937 Nelson, Warren O, and Merckel, Charles G Maintenance of Spermatogenesis in Testis of the Hypophysectomized Rat with Sterol Derivatives, *ibid*, p 825 Nelson, Warren O, and Hickman, Jane Effect of Oestrone on Hypophyses and Reproductive Organs of Thyroidectomized Rats, *ibid*, p 828 Nelson, Warren O Some Factors Involved in the Control of the Gametogenic and Endocrine Functions of the Testis, *Cold Spring Harbor Symposia on Quantitative Biology* **5**: 123, 1937 Nelson, W O, and Merckel C F Maintenance of Spermatogenesis in Hypophysectomized Mice with Androgenic Substance *Proc Soc Exper Biol & Med* **38**: 737, 1938

Grant 436, 1936 Albert P Krueger, University of California $300 nature of bacteriophage See grant 497, 1938 Krueger, A P and Mundell J H Effect of Phage on Electrokinetic Potential of Susceptible Cells, *Proc Soc Exper Biol & Med* **36**: 317, 1937 Krueger A P The Mechanism of Bacteriophage Production *Science* **86** 39 1937 Scribner, I J, and Krueger, A P The Effect of NaCl on the Phage Bacterium Reaction, *J Physiol* **21**: 1, 1937 Krueger Albert P, and Tong, Jacob The Relationship Between Bacterial Growth and Phage Production, *ibid*, p 137 Krueger, A P, and Struetmann W L Effect of Sodium Sulfate on the Phage Bacterium Reaction *J Gen Physiol*, to be published Krueger, A P, and Mundell J H Demonstration of Phage Precursor in the Bacterial Cell, *Science* to be published

Grant 438, 1937 Irving Graef, New York University, $300 pulmonary reactions to lipids and mineral oils Graef Irving, Kaufmann William, and Kaplan Leo Experimental Studies of Tissue Reactions to Lipids I The Formation of Acid Fast Membranes Around Certain Oils and Waxes, *Arch Path* **26**: 914, 1938 Other papers in course of publication

Grant 439, 1937 Moore A Mills, Northwestern University Medical School $300, experimental pulmonary tuberculosis in the dog See grant 500 1938 Mills, Moore A, and Colwell, Charlotte A Cutaneous Reactivity to Tuberculin in the Dog, *Proc Soc Exper Biol & Med* **37**: 470, 1937 Mills, Moore A, Gunn, Francis D and Barth E E Experimental Pulmonary Tuberculosis in the Dog *J Bact* **35** 453 1938

Grant 440 1937 M M Wintrobe, Johns Hopkins University $700 red corpuscles Wintrobe Maxwell M, Mitchell D M and Kolb L C Sensory Neuron Degeneration in Vitamin Deficiency, *J Exper Med* **68**: 207, 1938 Wintrobe, Maxwell M Experiments with Young Pigs on an Artificial Diet, to be published

Grant 446, 1937 Samuel Soskin, Michael Reese Hospital Chicago $500 hormone assay of blood and urine in endocrine dysfunction See grant 496 1938 Freed, S C, Mesirow, S D, and Soskin Samuel On the Composite Nature of the Estrus Phenomenon *Endocrinology* **21**: 731 1937 Freed, S C, and Soskin, Samuel Cyclic Inhibitory Influence of the Rat's Ovary on the Uterine Response to Estrin *Proc Soc Exper Biol & Med* **38**: 391, 1938

Grant 454, 1937 George M Curtis, Ohio State University $600 iodine and calcium balance in thyroid disease See grant 493 1938 Curtis George M, and Puppel, Italo D The Iodine Metabolism in Exophthalmic Goiter, *Ann Surg* **108**: 574, 1938 Puppel Italo D and Curtis, George M The Iodine Balance in Exophthalmic Goiter *Arch Path* **26**: 1093, 1938

Grant 457, 1937 James B Hamilton Albany Medical College $450 testicular descent by administration of male hormone Hamilton James B The Effect of Male Hormone upon the Descent of the Testes *Anat Rec* **70**: 531 1938 Hamilton, James B, and Hubert Gilbert Effect of Synthetic Male Hormone Substance on Descent of Testicles in Human Cryptorchidism, *Proc Soc Exper Biol & Med* **39** 4 1938

Grant 459 1937 John S Lawrence, Strong Memorial Hospital Rochester N Y $450, antiserum for white blood cells See grant 513, 1938 Lawrence, J S, and Syverton J T Spontaneous Agranulocytosis in the Cat, *Proc Soc Exper Biol & Med* **38**: 914 1938 Lawrence John S, Pearse Herman E, and Mider G B The Effect of Experimental Neutropenia on the Healing of Wounds *Arch Path* to be published

Grant, 461, 1937 Roe E Remington, Medical College of the State of South Carolina, $400, quantitative effect of iodine deficiency in the rat See grant 509, 1938 Remington Roe E Effect of Chloride on the Thyroid Gland, *Proc Soc Exper Biol & Med* **37**. 652 1938 Remington, Roe E, and Remington John W Effect of Enhanced Iodine Intake on Growth and on the Thyroid Glands of Normal and Goitrous Rats, *J Nutrition* **15**: 539, 1938 Remington Roe E Does Fat in the Diet Affect the Thyroid *ibid*, to be published Harris Philip L and Remington, Roe E The Effect of Yeast and of Thiamin on the Production of Low Iodine Goiter, *ibid*, to be published

Grant 468 1937 Valy Menkin, Harvard Medical School $300 mechanism of inflammation Menkin, Valy Studies on Inflammation XIV Isolation of the Factor Concerned with Increased Capillary Permeability in Injury, *J Exper Med* **67**. 129, 1938 Menkin Valy Studies on Inflammation XV Concerning the Mechanism of Cell Migration, *ibid*, p 145 Menkin, Valy Studies on Inflammation XVI On the Formation of a Chemotactic Substance by Enzymatic Action ibid, p 153 Menkin, Valy Mechanism of Inflammation *Arch Path* **24**: 65, 1938 Menkin Valy The Role of Inflammation in Immunity *Physiol Rev* **18**: 366 1938 Menkin Valy Studies on Inflammation XVII Direct Effect of Changes in the Hydrogen Ion Concentration on Leukocytes *Arch Path* to be published

Grant 470, 1937 Peter Heinbecker, Washington University School of Medicine $350, pituitary regulation of water exchange and effect of diet on dextrose tolerance and insulin response in dogs See grant 490 1938 White, H L, and Heinbecker, Peter Observations on Creatinine and Urea Clearances, on Responses to Water Ingestion and on Concentrating Power of Kidneys in Normal Diabetes Insipidus and Hypophysectomized Dogs, *Am J Physiol* **123** 566, 1938

Grant 475 1937 Joseph T King, University of Minnesota $350 physiology and sulfanilamide King, Joseph T The Effect of Sulfanilamide on Blood Leukocytes, *Am J Physiol* **123**: 119, 1938 King Joseph T, Henschel, Austin F, and Green Beryl S Influence of Prontosil Soluble on Beta Hemolytic Streptococci Growing in Tissue Culture Media, *Proc Soc Exper Biol & Med* **38**: 810, 1938 King Joseph T; Green, Beryl S, and Henschel Austin F Response of Leukocytes to Colonies of Streptococci Growing in Tissue Culture Media *ibid*, p 812

Grant 476 D B Phemister and Keith Grimson, University of Chicago, $400, effect of sympathectomy in dogs See grants 428, 1936, and 519, 1938

2 INCOMPLETE

A Work under the grant completed, account rendered of expenses but results not published fully

Grant 286, 1933 T H Pike, Columbia University, $600, the effects of successive experimental lesions of the nervous system

Grant 308, 1933 John L Ulrich, Johns Hopkins University, $250, the reflex system in the cat See grant 372, 1935

Grant 309, 1933 Carroll L Birch, University of Illinois School of Medicine, $300, assay of urine for sex hormone of the anterior pituitary

Grant 367, 1935 Robert Gault and A C Ivy, American Institute for the Deaf Blind, Evanston, Ill, $600, mechanical stimulation of the vibrotactile organs See grant 412, 1936

Grant 379, 1935 Victor C Myers (Donald E Bowman), Western Reserve Medical School, $650, chemical test for pregnancy

Grant 382, 1935 L Goodman, A J Geiger and L Chilborn, Yale University, $250, antiraneme principle

Grant 398, 1936 George A Emerson, West Virginia University, Morgantown $175, metabolic products of sympathomimetic amines (refund, $48 68)

Grant 401, 1936 W. T Dawson, University of Texas, Galveston, $200, toxicity of cardiac glucosides

Grant 407, 1936 Ralph I Dorfman, Louisiana State University, $250, estrogenic substance in human urine and other estrogenic compounds

Grant 412, 1936· Robert H Gault and A C Ivy, American Institute for Deaf Blind, Evanston, Ill, $400, stimulation of vibrotactile organs by mechanical vibrations See grant 367, 1935

Grant 416, 1936 Jean Broadhurst, Teachers College, Columbia University, $200, inclusion bodies in the female genital area

Grant 431, 1936 Benjamin Harrow, College of the City of New York, $200 purification of the hyperglycemic factor in urine

Grant 447, 1937 R C Herrin, University of Wisconsin, $400, urea clearance

Grant 448, 1937 Warren H Cole, University of Illinois College of Medicine, $500, cholesterol tolerance as an index of hyperthyroidism and study of excretory function of the liver

Grant 452, 1937 G Albin Matson, Montana State University, Missoula, $100, antigenic properties of certain chemical substances

Grant 465, 1937. Fred L Humoller, Loyola University School of Medicine, Chicago, $300, toxic principles in culture fluids of Bacterium enteritidis

Grant 469, 1937 Joseph Krafka Jr, University of Georgia School of Medicine, $370, elastometric measurements on smooth muscle and connective tissue Krafka, Joseph, Jr Comparative Study of the Histophysics of the Aorta, *Am J Physiol*, to be published

Grant 471, 1937 Timothy Leary, Office of Medical Examiner, Boston, $500, early atherosclerotic processes and relation of cholesterol to neoplastic growth

Grant 493, 1938 George M Curtis, Ohio State University, $600, iodine and calcium metabolism in thyroid disease See grant 454, 1937

B ACTIVE WORK STILL IN PROGRESS

Grant 254, 1932 J Lisle Williams, Rush Medical College, Chicago, $200, decreased dextrose tolerance in acute infectious diseases

Grant 372, 1935 John L Ulrich, Johns Hopkins University, $450, cerebral functions in the action of antagonistic muscles See grant 308, 1933

Grant 310, 1934 Lay Martin, Johns Hopkins University, $150, study of gastric juice See grant 462, 1937

Grant 324, 1934 William deB MacNider, University of North Carolina, $285, study of artificial circulation in the kidney

Grant 337, 1934 James L O'Leary, Washington University, $245, Loven reflexes Bishop, G H, and O'Leary, James Pathways Through the Sympathetic Nervous System in the Bullfrog, *J Neurophysiol* **1:** 442 1938

Grant 344, 1934 Paul L Day and W C Langston, University of Arkansas School of Medicine, $300, effect of withdrawal of vitamin G from diet of monkeys Shukers Carroll F, Langston, William C, and Day, Paul L The Normal Blood Picture of the Young Rhesus Monkey, *Folia haemat* **60:** 416, 1938 Day, Paul L, Langston, William C, and Darby, William J Failure of Nicotinic Acid to Prevent Nutritional Cytopenia in the Monkey, *Proc Soc Exper Biol & Med* **38:** 860, 1938 Langston, William C, Darby, William J, Shukers, Carroll F, and Day, Paul L· Nutritional Cytopenia (Vitamin M Deficiency) in the Monkey, *J Exper Med* **68:** 923, 1938

Grant 350, 1935 Frederic A Gibbs, Harvard University School of Medicine, *$100, fiber system in the cat's brain concerned in convulsions* Gibbs, Erna Leonhardt, and Gibbs, Frederic Andrews A Purring Center in the Cat's Brain, *J Comp Neurol* **64:** 209, 1936

Grant 355, 1935 Royall M Calder, San Antonio, Texas, $150, mechanism of pneumococcic inflammation

Grant 388, 1935 Tracy J Putnam, Boston City Hospital, Boston, $150, effect of low voltage current on nervous sytem Alexander, Leo Clinical and Neuropathological Aspects of Electrical Injuries, *J Indust Hyg & Toxicol* **20:** 191, 1938 Alexander, Leo Electrical Injuries to Central Nervous System, *M Clin North America* **22:** 663, 1938

Grant 397, 1936 R F Hanzal, Western Reserve University, $150, source of endogenous uric acid and the effects of methylated xanthines on its secretion

Grant 410, 1936 H E Eggers, University of Nebraska, $200, effect of tetra methyl arsonium gluconate on human cancer

Grant 413, 1936 Philip Levine, Newark Beth Israel Hospital, Newark, N J, $350, bacteriophage action in the dysentery group Levine, Philip, and Perlstein, David Phage Specific Heat Labile Factors in B Dysenteriae Sonne, *Proc Soc Exper Biol & Med.* **36:** 295, 1937

Grant 415, 1936 Gordon H Scott, Washington University, St Louis, $300, lead and aluminum in cerebrospinal fluid Scott, Gordon H, and McMillen, J Howard Spectrographic Analyses of Human Spinal Fluid, *Proc Soc Exper. Biol & Med* **35:** 287, 1936 McMillen, J Howard, and Scott, Gordon H · Spectrographic Studies of Lead in Human Blood, *ibid*, p 364

Grant 420, 1936 Arthur Knudson, Albany Medical College, $400, synthesis of cholesterol in the animal body

Grant 423, 1936 Alfred Gilman, Yale University, $300, physiology of the antidiuretic hormone of the posterior pituitary Gilman, Alfred, and Goodman, Louis Secretory Response of the Posterior Pituitary to the Need for Water Conservation, *J Physiol* **90:** 113, 1937

Grant 434, 1936 Wilbert H McGaw, Western Reserve University, $500, sound conduction in fractured bones

Grant 441, 1937· Edward S West and G E Burget, University of Oregon Medical School, $350, diuretic action and chemical metabolism of sorbitol

Grant 442, 1937 S J Crowe, Johns Hopkins University, $480, physiology of hearing

Grant 443, 1937 Ernest Carroll Faust, Tulane University, $300, epidemiology of trichinosis in New Orleans Sawitz, Willi Are Post mortem Statistics on Trichinosis Valid for the Living Population? *Am J Pub Health* **27:** 1023, 1937 Sawitz, Willi Studies on Trichinella Spiralis in the New Orleans Area *Arch Path*, to be published

Grant 444, 1937 George Herrmann University of Texas, Galveston, $300, chemistry of the heart muscle Herrmann, George, and Erhard, Peter Total Creatinine, Phosphates, Calcium and Potassium in Normal and Infarcted Myocardium of the Dog, *Proc Soc Exper Biol & Med* **38:** 35, 1938

Grant 445, 1937· Paul M Levin, Johns Hopkins University, $250, cerebral efferent tracts in primates Levin, Paul M A Nervous Structure in the Pineal Body of the Monkey, *J Comp Neurol* **68:** 405, 1938 Levin, Paul M, and Bradford, F Keith The Exact Origin of the Corticospinal Tract in the Monkey, *ibid*, p 411

Grant 449, 1937 Charles W Turner, University of Missouri, $250, pituitary hormones See grant 511, 1938

Grant 451, 1937 Frank Co Tui, New York University, $200, Schwartzman phenomenon and pyrogenic reaction See grant 528, 1938

Grant 453, 1937 L T Samuels and C H Thienes, University of *Southern California, $300, hypophysis in metabolism of carbohydrate fat* and metabolism See grant 402, 1936

Grant 455, 1937 Elizabeth S Russell, Roscoe B Jackson Memorial Laboratory, Bar Harbor, Me, $225, genetics of tumors in the fruit fly See grant 505, 1938

Grant 456, 1937 Ira A Manville, University of Oregon Medical School $500, relation of degenerative changes in connective tissue to glycuronic metabolism

Grant 458, 1937 Orthello R Langworthy, Johns Hopkins University, $350, effect of ovulation and pregnancy on smooth muscle of urinary bladder Langworthy, O R, and Brack, C B The Effect of Pregnancy and Corpus Luteum on Vesical Muscle, *Am J Obst & Gynec*, to be published

Grant 460, 1937· M G Seelig, Barnard Free Skin and Cancer Hospital, St Louis, $250, carcinogenicity of heterocyclic hydrocarbons

Grant 462, 1937 Lay Martin, Johns Hopkins University, $200, gastric juice See grant 310, 1934

Grant 463, 1937 Jay Conger Davis, Minneapolis, $600, action of certain drugs on the coronary arteries See grant 356, 1935

Grant 464, 1937 Frank W Allen, University of California, $200, relation of nucleotide fraction of red corpuscles to glycolysis See grant 418, 1936

Grant 466, 1937 G Louis Weller Jr, George Washington University, $275, effect of sodium pyruvate and other substances on vitamin B deficiency

Grant 467, 1937 B O Barnes, Rush Medical College, $300, extract of adrenals

Grant 472, 1937 Margaret Lasker, Yonkers, N Y, $200, incidence of pentosuria and fructosuria

Grant 473, 1937 Roy H Turner, Tulane University, $400, physiology of blood vessels in man

Grant 474, 1937 Marion Fay, Woman's Medical College of Pennsylvania, $275, biochemistry of strontium

Grant 477, 1937 Irving J Wolman, University of Pennsylvania, $335, lipoid pneumonia See grant 517, 1938

Grant 478, 1937 Martin Silberberg, Washington University School of Medicine, $600, influence of hormones on bone growth Silberberg, Martin, and Silberberg, Ruth Influence of Cattle Anterior Pituitary Extract on Endochrondal Ossification in Young Ovariectomized Pigs, *Proc Soc Exper Biol & Med* **37:** 446, 1938

Grant 479, 1937 Tracy J Putnam, Boston City Hospital, $200, injuries to the cervical cord

Grant 480, 1937 Amy L Daniels, State University of Iowa, $250, relation of fluorine to physiologic function

Grant 481, 1937 Warren O Nelson, Wayne University College of Medicine, Detroit, $200, synthetic androgenic substances See grant 435, 1936

Grant 482, 1937 Warren O Nelson, Wayne University College of Medicine, Detroit, $400, effect of thymus gland on the growth of rats Janes, Ralph G, and Segaloff, Albert Growth and Metamorphosis of Anuran Larvae on Thymus Extracts, *Proc Soc Exper. Biol & Med* **39:** 172, 1938

Grant 483, 1937: J. M. Johlin, Vanderbilt University School of Medicine, $250, attenuation of toxins by interfacial adsorption. Johlin, J. M.: Attenuation of Toxins by Interfacial Adsorption, *Proc. Soc. Exper. Biol. & Med.* **38**: 568, 1938.

3. No Results Published

Grant 386, 1935: E. V. McCollum, Johns Hopkins University, $150, adaptation of the eyes to subdued light and its relation to vitamin A (refund, $19.65).

Report of Committee on Therapeutic Research

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds for the prosecution of necessary research.

During the year 1938 the Committee issued thirty-seven new grants. A detailed list of these grants, together with a list of publications during 1938, and of unexpired grants made before Jan. 1, 1938, will be found in the appendix to this report.

The following is a list of the investigations conducted with the assistance of grants made by the Committee on Therapeutic Research, reports of which were published during 1938:

1. The Effect of Supplementary Lysine, Methionine and Cystine on the Production of Fatty Livers by High Fat Diets Containing Gliadin, Helen F. Tucker and Henry C. Eckstein: *J. Biol. Chem.* **126**: 117 (Nov.) 1938.

2. The Effect of Sodium Amytal, Sodium Barbital and Nembutal on the Electrocardiogram, Roberta Hafkesbring and Winona MacCalmont: *J. Pharmacol. & Exper. Therap.* **64**: 43 (Sept.) 1938.

3. Clinical Excretion of Bismuth: V. Excretion of Sobisminol and of Some Other Bismuth Preparations for Oral Administration, Torald Sollmann, H. N. Cole, Katharine Henderson and collaborators: *Arch. Dermat. & Syph.* **37**: 993 (June) 1938.

4. Bismuth Studies: V. The Bismuth Absorption from the Site of Injection in Dogs, Torald Sollmann and Katharine Henderson: *Am. J. Syph., Gonor. & Ven. Dis.* **22**: 286 (May) 1938.

5. Clinical Excretion of Bismuth: VII. The Autopsy Distribution of Bismuth in Patients After Clinical Bismuth Treatment, Torald Sollmann, H. N. Cole, Katharine Henderson and collaborators: *Am. J. Syph., Gonor. & Ven. Dis.* **22**: 555 (Sept.) 1938.

6. Bismuth Studies: VIII. Bismuth Distribution in Dogs Following Intramuscular Injection of a Single Dose of Various Bismuth Preparations, Torald Sollmann and Katharine Henderson: *Am. J. Syph., Gonor. & Ven. Dis.* **22**: 739 (Nov.) 1938.

7. Combination Courses of Bismuth Administration, Torald Sollmann, H. N. Cole, Katharine Henderson and collaborators: *J. A. M. A.* **111**: 2175 (Dec. 10) 1938.

8. The Effect of Prontosil and Related Compounds upon the Chemotropism of Leukocytes, Dale Rex Coman: *Am. J. M. Sc.* **196**: 273 (Aug.) 1938.

9. Studies in Chemotropism: Source of Substances Attracting Polymorphonuclear Leukocytes to Bacteria, Harold M. Dixon and Morton McCutcheon: *Proc. Soc. Exper. Biol. & Med.* **38**: 378 (April) 1938.

10. The Action of Histidine on the Gastrointestinal Tract, Louis S. Goodman and Philip A. Bearg: *Am. J. Digest. Dis.* **5**: 117 (April) 1938.

11. The Action of Excess Na, Ca and K on the Coronary Vessels, L. N. Katz and E. Lindner: *Am. J. Physiol.* **124**: 155 (Oct.) 1938.

12. Effects of Various Drugs on the Coronary Circulation of the Denervated Isolated Heart of the Dog and Cat: I. Observations on Epinephrine, Acetylcholine, Acetyl-β-Methylcholine, Nitroglycerin, Sodium Nitrite, Pitressin and Histamine, L. N. Katz, E. Lindner, W. Weinstein, D. I. Abramson and K. Jochim: *Arch. internat. de pharmacodyn. et de thérap.* **49**: 400 (Aug. 31) 1938.

13. The Distribution of the Coronary Blood Flow, L. N. Katz, K. Jochim and W. Weinstein: *Am. J. Physiol.* **122**: 252 (April) 1938.

14. Further Studies on the Pulse Wave in the Aorta and Its Branches, Philip Dow and W. F. Hamilton: *Am. J. Physiol.* **123**: 54 (July) 1938.

15. Blood Pressure Values in Street Dogs, W. F. Hamilton, E. R. Pund, A. W. Simpson, Jr., G. M. Colson and H. W. Coleman: *Am. J. Physiol.* **123**: 88 (July) 1938.

16. Pulmonary Arterial, Venous and Differential Pressure in the Unanesthetized Dog, R. A. Woodbury, W. F. Hamilton and Elkin Vogt: *Am. J. Physiol.* **123**: 220 (July) 1938.

17. The Rate of Utilization of Vitamin A and Carotene by Normal and Diabetic Dogs, Elaine P. Ralli and Arthur C. Pariente: *Am. J. Physiol.* **123**: 166 (July) 1938.

18. Relation Between Size of Dose and Lipotropic Effect of Choline Chloride in Mice, Mary Scott Welch and Arnold DeM. Welch: *Proc. Soc. Exper. Biol. & Med.* **39**: 5 (Oct.) 1938.

19. Lipotropic Action of Certain Compounds Related to Choline Chloride, Arnold DeM. Welch and Mary Scott Welch: *Proc. Soc. Exper. Biol. & Med.* **39**: 7 (Oct.) 1938.

20. The Chemical Nature and Nomenclature of Choline Derivatives, Arnold DeM. Welch: *Science* **88**: 333 (Oct. 7) 1938.

21. A New Method for Determination of Iodine in Five Cubic Centimeters of Blood or Other Biological Material, J. F. McClendon, A. Calvin Bratton, Ralph V. White and William C. Foster: *J. Biol. Chem.* **123**: 699 (May) 1938.

22. Determination of "Hormone Iodine" in 5 Cc. Blood, J. F. McClendon and William Foster: *Proc. Soc. Exper. Biol. & Med.* **39**: 230 (Nov.) 1938.

23. Determination of Iodine in Drinking Water, Urine and Substances Containing Only About 1,000 Times as Much Organic Matter as Iodine, A. C. Bratton, J. F. McClendon, William Foster and Ralph White, *Indust. & Engin. Chem.* **10**: 600 (Oct. 15) 1938.

24. Changes With Age in the Cardiac Output in Adult Men, William Hall Lewis Jr.: *Am. J. Physiol.* **121**: 517 (Feb.) 1938.

25. Experimental Infection in the Mouse Produced by Intratracheal Inoculation with Hemophilus Pertussis, William L. Bradford: *Am. J. Path.* **14**: 377 (May) 1938.

26. An Attempt to Increase Resistance to Pertussis in Newborn Infants by Immunizing Their Mothers During Pregnancy, John A. Lichty Jr., Betty Slavin and William L. Bradford: *J. Clin. Investigation* **17**: 613 (Sept.) 1938.

27. The Reaction of the Epiphysial Cartilage in Normal and Rachitic Rats, J. A. Pierce: *J. Biol. Chem.* **124**: 115 (June) 1938.

28. Pathologic Effects of Elixir of Sulfanilamide (Diethylene Glycol) Poisoning, E. M. K. Geiling and Paul R. Cannon: *J. A. M. A.* **111**: 919 (Sept. 3) 1938.

29. Analysis of the Circulatory Actions of Ethylnorsuprarenin, W. M. Cameron, J. M. Crismon, L. J. Whitsell and M. L. Tainter: *J. Pharmacol. & Exper. Therap.* **62**: 318 (March) 1938.

30. Further Evidences on the Nature of the Vasomotor Actions of Ethylnorsuprarenin, W. M. Cameron, L. J. Whitsell, J. M. Crismon and M. L. Tainter: *J. Pharmacol. & Exper. Therap.* **63**: 340 (July) 1938.

31. Action of Sympathomimetic Amines on the Heart-Lung Preparation, J. M. Crismon and M. L. Tainter: *J. Pharmacol. & Exper. Therap.* **64**: 190 (Oct.) 1938.

32. Protective Effects of $CaCl_2$ Against Procaine Convulsions in Guinea Pigs, R. Beutner and G. P. Miley: *Proc. Soc. Exper. Biol. & Med.* **38**: 279 (March) 1938.

33. A Further Evaluation of Artificial Pneumothorax in Lobar Pneumonia, Francis G. Blake: *J. A. M. A.* **111**: 581 (Aug. 13) 1938.

34. The Effectiveness of Therapeutic Measures After Poisoning with Sublethal and Lethal Dosages of Barbital in the Rabbit, O. W. Barlow: *J. Lab. & Clin. Med.* **23**: 601 (March) 1938.

35. The Relative Activity of Various Purified Products Obtained from American Grown Hashish, R. P. Walton, L. F. Martin and J. H. Keller: *J. Pharmacol. & Exper. Therap.* **62**: 239 (Feb.) 1938.

36. The Effect of Benzedrine Sulfate on the Emptying Time of the Human Stomach, E. J. Van Liere and C. K. Sleeth: *J. Pharmacol. & Exper. Therap.* **62**: 111 (Jan.) 1938.

37. A Comparative Study of the Effects of Various Anesthetic Agents on the Emptying Time of the Stomach, C. K. Sleeth and E. J. Van Liere: *J. Pharmacol. & Exper Therap.* **63**: 65 (May) 1938.

38. Studies on Inflammation: XIV. Isolation of the Factor Concerned with Increased Capillary Permeability in Injury, Valy Menkin: *J. Exper. Med.* **67**: 129 (Jan.) 1938.

39. Studies on Inflammation: XV. Concerning the Mechanism of Cell Migration, Valy Menkin: *J. Exper. Med.* **67**: 145 (Jan.) 1938.

40. Studies on Inflammation: XVI. On the Formation of a Chemotactic Substance by Enzymatic Action, Valy Menkin: *J. Exper. Med.* **67**: 153 (Jan.) 1938.

41. The Role of Inflammation in Immunity, Valy Menkin: *Physiol. Rev.* **18**: 366 (July) 1938.

During 1938 the following grants were issued:

Grant 337: Harald G. O. Holck, associate professor of pharmacology, University of Nebraska College of Pharmacy, $150, to investigate the relation of sex differences to the action of certain drugs.

Grant 338: Torald Sollmann, dean and professor of pharmacology and Materia Medica, Western Reserve University School of Medicine, and Joseph Seifter, Western Reserve University School of Medicine, $250, to investigate the action of certain antimony and arsenic compounds.

Grant 339: Katharine Henderson, Department of Pharmacology, Western Reserve University School of Medicine, $300, to investigate bismuth preparations.

Grant 340: A. R. McIntyre, professor of physiology and pharmacology, University of Nebraska College of Medicine, $100, to investigate the effects of the digitaloid bodies on the metabolism of dextrose by the cardiac musculature.

Grant 341: Maurice Rosenthal, formerly instructor in pathology, Long Island College of Medicine, $200, to investigate radium poisoning.

Grant 342: W. L. Bradford, associate professor of pediatrics, University of Rochester School of Medicine, $300, to investigate pertussis.

Grant 343: Morton McCutcheon, associate professor of pathology, University of Pennsylvania School of Medicine, $150, to investigate chemotaxis, especially of leukocytes.

Grant 344: John C. Krantz Jr., professor of pharmacology, University of Maryland School of Medicine, $250, to investigate the alkyl nitrites and their use in angina pectoris.

Grant 345: M. L. Tainter, professor of pharmacology, Stanford University School of Medicine, $250, to investigate sympathomimetic amines.

Grant 346: A. S. Marrazzi, Department of Pharmacology and Therapeutics, New York University College of Medicine, $200, to investigate the actions of epinephrine, ephedrine and other members of the sympathomimetic group on sympathetic ganglions.

Grant 347: Reinhard Beutner, professor of pharmacology Hahnemann Medical College, $80, to investigate the toxicity and detoxification of procaine.

Grant 348: G. O. Broun, professor of internal medicine, St. Louis University School of Medicine, $250, to investigate the prevention and treatment of atherosclerosis.

Grant 349 Garnett Cheney, associate clinical professor of medicine, Stanford University School of Medicine, $250, to investigate vitamin K deficiency in chick hemophilia

Grant 350 James T Culbertson assistant professor of bacteriology, Columbia University College of Physicians and Surgeons, $300, to investigate sulfanilamide

Grant 351 Eugene B Ferris, assistant professor of medicine, University of Cincinnati College of Medicine, $200, to investigate the administration of human serum

Grant 352 Harold D Green, assistant professor of physiology, Western Reserve University School of Medicine, $250, to investigate the effects of drugs on coronary vessels

Grant 353 W F Hamilton, professor pharmacology and physiology, University of Georgia School of Medicine, $125, to investigate vasomotor response of unanesthetized animals

Grant 354 Hebbel Hoff, assistant professor of physiology, Alexander Winkler, instructor in medicine, and Paul K Smith, instructor in pharmacology and toxicology, University of Georgia School of Medicine, $150, to investigate the effect of calcium, magnesium and potassium on the dog heart

Grant 355 Peter K Knoefel, associate professor of pharmacology, University of Louisville School of Medicine, $150 to investigate the action of amines, of the epinephrine series and of related substances on the central nervous system

Grant 356 John B Lagen, research associate in medicine, University of California Medical School $150, to investigate the potassium and sodium ions in the blood of asthmatic patients and in anxiety states

Grant 357 William R Lyons assistant professor of anatomy, University of California Medical School, $250 the standardization of lactogenic hormone

Grant 358 R J Main associate professor of physiology and pharmacology, Medical College of Virginia, $100, to investigate the effects of epinephrine and benzedrine on alveolar carbon dioxide in man

Grant 359 F C McLean, professor of pathology and physiology, University of Chicago $125 to investigate the effects of the growth hormone of the anterior pituitary lobe on the growth of long bones

Grant 360 F C McLean professor of pathology and physiology, University of Chicago, $125, to investigate the mode of action of dihydrotachysterol (A T 10)

Grant 361 S Morgulis professor of biochemistry, University of Nebraska College of Medicine, $100, to investigate the relationship between muscular dystrophy and gonadal atrophy

Grant 362 James M Orten assistant professor of physiologic chemistry, Wayne University College of Medicine, $150, to investigate the effect of copper and certain other inorganic salts on the hypoglycemic activity of insulin

Grant 363 Louis A Toth Department of Physiology, Tulane University of Louisiana School of Medicine, $160, to investigate the influence of low oxygen on urine secretion

Grant 364 Arnold De M Welch Department of Pharmacology, Washington University School of Medicine $300, to investigate the lipotropic action of choline chloride

Grant 365 Harold W Werner assistant professor of physiology and pharmacology, University of North Dakota Medical School $250 to investigate the effects of stimulants on rabbits depressed with ethyl alcohol

Grant 366 George W Piff, Department of Anatomy, Long Island College of Medicine, $75, to investigate the effect of digitalis on the heart

Grant 367 Simon Benson dean of pharmacy, Ferris Institute, $100 to investigate the therapeutic effects of skin counterirritants

Grant 368 Abraham White, Department of Physiological Chemistry, Yale University School of Medicine, $200, to investigate the lactogenic substance isolated in the pituitary

Grant 369 J M Dille Department of Pharmacology, University of Washington College of Pharmacy, $100, to investigate the action of certain depressant drugs

Grant 370 Harald G O Holck, associate professor of pharmacology, University of Nebraska College of Pharmacy $250 to investigate the possible effect of aging on the strength of digitalis preparations

Grant 371 H N Cole, clinical professor of dermatology and syphilology, Western Reserve University School of Medicine $75, to investigate arsphenamine dermatitis

Grant 372 Charles Weiss, associate professor of research medicine, University of California Medical School, $200, to investigate the immunology of staphylococcic infections

Grant 373 Morris Rosenfeld, associate in pharmacology and experimental therapeutics, Johns Hopkins University School of Medicine, $400, to investigate the hormone of the posterior pituitary gland (an ultracentrifugal study)

The following grants were issued before Jan 1, 1938 In some cases the grant has expired and an unexpended balance remains or the work is not yet completed or not yet published

Grant 102 C W Greene, professor of physiology and pharmacology, University of Missouri School of Medicine, $250, to investigate the distribution of nitrous oxide and oxygen in the blood during anesthesia

Grant 119 Nicholas Kopeloff, research associate in bacteriology, New York State Psychiatric Institute and Hospital, $100, to investigate bacillus acidophilus milk for the prevention and treatment of summer diarrhea in babies

Grant 164 E L Jackson, associate professor of pharmacology, Emory University School of Medicine, $200, to investigate the antagonism between sodium barbital and insulin

Grant 201 George R Cowgill, associate professor of physiologic chemistry, Yale University, Sterling Hall of Medicine, $250, to investigate vitamin B in relation to morphine addiction

Grant 221 John G Reinhold, Department of Public Health, Philadelphia General Hospital, $250, to investigate the action of aminoacetic acid (glycine) in progressive muscular dystrophy

Grant 222 Eugene U Still, formerly assistant professor of physiology, University of Chicago, $250, to investigate the changes in the metabolism of the pancreas

Grant 223 Clinton H Thienes, professor of pharmacology, and Lawrence E Detrick, Department of Pharmacology, University of Southern California School of Medicine, $200, to investigate withdrawal phenomena in morphine addicted animals

Grant 232 George R Cowgill, associate professor of physiologic chemistry, Yale University School of Medicine, $250, to investigate the heart in vitamin B deficiency

Grant 236 C W Greene, professor of physiology and pharmacology, University of Missouri School of Medicine, $100, to investigate the pharmacology of the so called specific coronary dilator drugs

Grant 238 Roy R Kracke, professor of pathology, Emory University School of Medicine, $250, to investigate the effect of the oxidation products of aminopyrine and related drugs on the leukocyte counts of rabbits

Grant 248 Fred C Koch, chairman of the Department of Physiological Chemistry and Pharmacology, University of Chicago, $250, to investigate the male sex hormone

Grant 249 J Percy Baumberger, associate professor of physiology, Stanford University Department of Physiology, $200, to investigate the occurrence and oxidation reduction potential of pigments in tumor cells

Grant 251 Bernard Fantus, professor of therapeutics, University of Illinois College of Medicine, $100, to investigate the titration of the antitoxic value of serum of patients who have received tetanus antitoxin

Grant 261 Robert P Walton, professor of pharmacology, University of Mississippi School of Medicine, $100, to investigate the absorption of drugs through the oral mucosa

Grant 263 H A Shoemaker, associate professor of biochemistry and pharmacology, C E Clymer, professor of clinical surgery, and Henry H Turner, University of Oklahoma School of Medicine, $150, to investigate the blood cholesterol and iodine values in thyroid disease and their alteration by treatment

Grant 264 Detlev W Bronk, Johnson professor of biophysics, University of Pennsylvania School of Medicine, $200, to investigate the action of various drugs on the autonomic centers

Grant 270 Elaine P Ralli, assistant professor of medicine New York University College of Medicine, $250, to investigate the effect of carotene on the blood vitamin A

Grant 278 William H Lewis Jr, assistant clinical professor of medicine and Arthur C DeGraff, professor of therapeutics, New York University College of Medicine, $150, to investigate the function of the heart in relation to age

Grant 279 Norman A David, assistant professor of pharmacology, University of Cincinnati College of Medicine, $65, to investigate the effects of carbarsone and other pentavalent arsenicals on the optic nerve

Grant 280 John P Peters, professor of medicine Yale University School of Medicine, $200, to investigate by means of intravenous pyelography the state of ureters and kidneys in a large series of patients after delivery and subsidence of acute signs of toxemia

Grant 281 O W Barlow, formerly assistant professor of pharmacology, Western Reserve University School of Medicine, $125, to investigate circulatory effects of metrazol under conditions of anesthesia with ether as well as under the influence of hypnotics

Grant 282 Arthur W Grace, Department of Medicine, Cornell University Medical College, $250, to investigate the effect of roentgen and Frei vaccine therapy in artificially inoculated venereal lymphogranuloma in guinea pigs

Grant 297 Melvin Dresbach, Harvard University School of Medicine, $250, to investigate the emetic effect of some of the digitalis bodies

Grant 298 Kenneth W Thompson, Department of Physiology, Yale University School of Medicine, $200, to investigate the effects of the thyroid stimulating hormone

Grant 302 Mary E Collett, Flora Stone Mather College, Western Reserve University, $200, to investigate the effect of the female sex hormone on the hot flashes and the basal metabolism of ovariectomized women

Grant 304 Howard B Lewis, professor of biologic chemistry, University of Michigan Medical School, $175, to investigate selenium salts

Grant 305 Beverly Douglas, assistant dean and associate professor of surgery, Vanderbilt University School of Medicine, $250, to investigate the pneumatic (transparent rubber jacket) system of treating extensive wounds

Grant 306 Edwards A Park, professor of pediatrics, Johns Hopkins University School of Medicine, $75 to investigate rickets in the rat and the effect of solution of parathyroid on the circulation of the bone

Grant 307 Ephraim Shorr, assistant professor of medicine, Cornell University Medical College, $200, to investigate methods of determining adequate dosage of corpus luteum hormone for the human being

Grant 308 Claus W Jungeblut, professor of bacteriology, Columbia University College of Physicians and Surgeons, $250, to investigate the relation of vitamin C to diphtheria

Grant 311 Clarence P Berg, assistant professor of biochemistry, State University of Iowa, $250, to investigate amino acids

Grant 313 Treat B Johnson, Sterling professor of chemistry, Yale University, $250, to investigate pyrimidines

Grant 314 F C Koch, chairman Department of Physiological Chemistry and Pharmacology, University of Chicago, $250, to investigate provitamin D

Grant 315 Erwin E Nelson, professor of pharmacology, Tulane University School of Medicine, $125, to investigate some actions of the pituitary

Grant 316: Edward Van Liere, professor of physiology, West Virginia University School of Medicine, $100, to investigate the action of various drugs on gastric motility.

Grant 319: J. P. Quigley, Department of Physiology, Western Reserve University School of Medicine, $250, to investigate gastrointestinal motility.

Grant 324: Howard B. Lewis, professor of biologic chemistry, University of Michigan Medical School, $200, to investigate selenium salts.

Grant 327: Eben J. Carey, dean and professor of anatomy, Marquette University School of Medicine, $250, to investigate the pharmacologic agents that influence the histologic signs of nervous action.

Grant 328: Donald E. Gregg, assistant professor of physiology, Western Reserve University School of Medicine, $250, to investigate the cardiac blood supply in dogs.

Grant 329: Roberta Hafkesbring, associate professor of physiology, Woman's Medical College of Pennsylvania, $250, to investigate the effects of sodium barbital, sodium amytal and pentobarbital sodium on blood pressure, respiration and kidney function.

Grant 332: J. P. Simonds, department of pathology, Northwestern University Medical School, $200, to investigate the selective activity of toxic substances on the kidneys.

Grant 333: Owen S. Gibbs, chief of Pharmacological Division, University of Tennessee College of Medicine, $180, to investigate the toxicity of morphine and scopolamine on rats.

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association for the Year Ending December 31, 1938

Reserve invested as at December 31, 1937	$2,340,373.00	
Bonds Purchased (Cost)	200,812.50	
	$2,541,185.50	
Less:		
Bonds Called	$ 19,575.00	
Bonds Sold	100,406.25	119,981.25
Invested Funds December 31, 1938		$2,421,204.25
Balance for Investment December 31, 1937	$ 39,061.56	
Interest on Investments	87,954.48	
	$ 127,016.04	
Less:		
Transfer to General Fund	$ 83,939.06	
Uninvested Funds December 31, 1938		$ 43,076.98
Invested and Uninvested Reserve as at December 31, 1938		$2,464,281.23

DAVIS MEMORIAL FUND

Balance in Fund December 31, 1937	$7,118.75	
1938 Interest on Bank Balance	107.17	
Total Fund as at December 31, 1938 on Deposit		$ 7,225.92

HERMAN L. KRETSCHMER, Treasurer.

AUDITOR'S REPORT

February 1, 1939.

To the Board of Trustees,
American Medical Association, Chicago, Illinois.

Dear Sirs:

In accordance with your instructions, we have made an examination of the Balance Sheet of the American Medical Association, Chicago, Illinois, as at December 31, 1938, and of the Income Account for the year 1938. In connection therewith, we examined or tested accounting records of the Association and other supporting evidence, and obtained information and explanations from officers and employees of the Association; we also made a general review of the accounting methods and of the operating and income accounts for the year, but we did not make a detailed audit of the transactions. We now submit our report on the examination, together with related statements as enumerated in the index appended hereto.

In our opinion, based on such examination, the accompanying Balance Sheet and related Income Account fairly present the position of the Association as at December 31, 1938, and the results of its operations for the year, subject to the following qualifications and observations:

(1) The inventories of materials, supplies, work in progress and publications, amounting to $92,859.95, are stated in accordance with certificates signed by responsible officials of the Association, and have not been confirmed by us.

(2) In accordance with established practice of the Association, the accounts as stated do not include (a) unrecorded assets in respect of accrued interest on bond investments, and membership dues unpaid; and (b) provision for accrued payroll, accrued property taxes for the year 1938, and sundry unpaid bills.

(3) *Subscriptions paid in advance* are stated at an estimated amount which is based on cash received in December 1938, on account of 1939 subscriptions. This procedure conforms to the method used in prior years.

(4) Advance payments on publications include an estimated amount ($123,745.97) for prepaid subscriptions to Hygeia, and the amount ($12,430.47) received in advance for January 1939, advertising, directory information sales and service.

(5) The buildings of the Association are carried at reproduction values as determined by an appraisal by Holabird and Root as at December 31, 1936, less depreciation accrued to the date of the Balance Sheet. The portion of the depreciation provision for the year applicable to the increase in book value which was recorded at December 31, 1936, as determined by the appraisal, has been charged against the complementary credit included in the Net Worth of the Association in that connection.

(6) No provision has been made in the accounts for possible liability in respect to Federal Social Security Taxes applicable to the period prior to April 28, 1938, amounting to approximately $90,000.00 (including penalties and interest), which liability is contingent upon the outcome of an appeal now pending in the Bureau of Internal Revenue with regard to the status of the Association under the Federal Income Tax Act.

The Association was advised by a letter dated March 4, 1936, from the office of the Commissioner of Internal Revenue, that it was held to be exempt from Federal Income Taxes, under the provisions of Section 101(6) of the Income Tax Act which relates to organizations operated exclusively for religious, charitable, scientific, literary or educational purposes. In a published bulletin issued in January 1937, the Bureau of Internal Revenue ruled that an organization which had been held to be exempt from Federal Income Taxes, under the provisions of Section 101(6) of the Income Tax Act, is also exempt from the taxes imposed under Titles VIII and IX of the Social Security Act. On April 28, 1938, however, the previous ruling (March 4, 1936) regarding the Association's status was supplanted by an advice from the Office of the Commissioner of Internal Revenue to the effect that the basis of exemption should be Section 101(7) of the Income Tax Act, instead of Section 101(6) as previously indicated; the provisions of Section 101(7) relate to organizations classified as business leagues and the like, which are not exempt from Social Security Taxes. The Association has appealed to the Bureau of Internal Revenue for reconsideration of the later ruling (April 28, 1938) and reclassification as a scientific and educational organization.

Pursuant to the ruling of April 28, 1938, the Association was requested by the Treasury Department to file proper returns and pay the taxes required by Titles VIII and IX of the Social Security Act, for the periods from the respective effective dates thereof. The Association, however, has not acceded to this request insofar as the period prior to April 28, 1938, is concerned, but returns have been filed for the period subsequent to that date, as and when due, and the taxes reported therein have been paid under protest.

We have received a letter from Messrs. Loesch, Scofield, Loesch and Burke, attorneys for the Association, regarding litigation pending against the Association or its officers at December 31, 1938, which states that the following lawsuits alleging libel had been filed against the Association or its officers as at December 31, 1938: Dr. Jean Paul Fernel for $1,000,000.00; Robert Wadlow by Harold F. Wadlow for $150,000.00; Hirestra Laboratories, Inc., for $3,000,000.00; Asa Brunson for $250,000.00; William E. Balsinger for $100,000.00; and John R. Brinkley for $250,000.00. In addition to the foregoing suits, the Association is named defendant in certain actions charging conspiracy in restraint of trade. The attorneys state that in their opinion all of these suits will be defeated.

Fidelity insurance is carried against the undermentioned officers and employees, in the amounts stated:

Dr. Olin West, Secretary and General Manager	$10,000.00
Dr. Herman L. Kretschmer, Treasurer	10,000.00
E. A. Hoffman, Cashier	2,000.00
J. E. Hartigan, Assistant Cashier	12,000.00
Sundry Employees (twelve, $1,000.00 each)	
Total Fidelity Insurance	$44,000.00

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly, PEAT, MARWICK, MITCHELL & Co.

INDEX TO STATEMENTS

	Exhibit
Balance Sheet, as at December 31, 1938	"A"
Income Account, for the year ended December 31, 1938	"B"
	Schedule
Journal Operating Expenses, for the year ended December 31, 1938	"1"
Association and Miscellaneous Expenses, for the year ended December 31, 1938	"2"

EXHIBIT "A"

BALANCE SHEET AS AT DECEMBER 31, 1938

ASSETS:

Property and Equipment:		
Real Estate—Land at less than cost (see Note "1"); and Buildings at Reproduction Cost New (as appraised by Holabird and Root at December 31, 1936), less Depreciation		$1,146,868.37
Equipment—at Cost, less Depreciation:		
Machinery	$ 127,852.74	
Type and Metal	16,163.69	
Furniture and Equipment	89,882.45	
Chemical Laboratory	8,957.77	242,856.65
Total Property and Equipment		1,389,725.02
Investments—at Cost:		
U. S. Government Securities	1,553,723.06	
Railroad, Municipal and Public Utility Bonds	867,481.19	2,421,204.25
Cash held by Treasurer for Investment		43,076.98
Cash in Bank and on Hand		136,503.86
Accounts Receivable:		
Advertising	63,861.98	
Co-operative Medical Advertising Bureau	12,592.29	
Reprints	3,797.27	
Directory (Estimated)	10,000.00	
Miscellaneous—Deposits, Advances, etc.	15,247.32	105,498.86
Note Receivable		100.00
Inventories of Materials, Supplies, Work in Progress and Publications		92,859.95
Expenditures on Publications in Progress		43,392.23
Prepaid Expenses—Insurance, etc		7,321.25
Total		$4,239,682.40

Note 1: Book value of Land was reduced $40,000.00 as of December 31, 1933, by official action of Board of Trustees. This action was reported to House of Delegates.

LIABILITIES:

Accounts Payable:		
Federal Social Security Taxes (see Note "2")		$ 28,427.78
Co-operative Medical Advertising Bureau		12,092.19
Miscellaneous		5,084.06
		45,604.03
Subscriptions Paid in Advance		165,914.61
Advance Payments on Publications		136,176.44
Net Worth:		
Association Reserve Fund	$ 350,000.00	
Building Reserve Fund	350,000.00	
Retirement Reserve Fund	25,000.00	
Capital Account:		
Amount thereof as at December 31, 1937	$3,135,053.52	
Net Loss for the year ended December 31, 1938	11,401.51	
	$3,123,652.01	
Deduct—Amounts transferred during year to Building Reserve Fund ($50,000.00) and Retirement Reserve Fund ($25,000.00)	75,000.00	3,048,652.01
Increase in book value of Buildings—per appraisal	124,481.59	
Deduct—Depreciation applicable thereto for the years 1937 and 1938	6,146.28	118,335.31
Net Worth, December 31, 1938		3,891,987.32
Total		$4,239,682.40

Note 2: No provision has been made in the accounts for possible liability in respect of Federal Social Security Taxes applicable to the period prior to April 28, 1938, amounting to approximately $90,000.00 (including penalties and interest)—See comment in attached report.

EXHIBIT "B"

INCOME ACCOUNT

FOR THE YEAR ENDED DECEMBER 31, 1938

Journal:		
Gross Earnings:		
Fellowship Dues and Subscriptions		$ 655,875.91
Advertising		875,367.43
Jobbing		96,731.41
Reprints		1,139.47
Books		18,915.87
Insignia		6,835.86
Miscellaneous Sales		7,786.80
Gross Earnings from Journal		1,662,652.75
Operating Expenses—Schedule "1"		1,020,940.53
Net Earnings from Journal		641,712.22
Miscellaneous Income:		
Rents	$ 1,200.00	
Sundry Publications	4,204.29	5,404.29
Association Income:		
Income from Investments	86,857.26	
Miscellaneous Income	3,232.79	90,090.05
Gross Income		737,206.56
Association Expenses—Schedule "2"	458,499.27	
Miscellaneous Expense—Schedule "2"	290,108.80	748,608.07
Net Loss		$ 11,401.51

Note: No provision has been made in the accounts for possible liability in respect of Federal Social Security Taxes applicable to the period from January 1, 1938, to April 28, 1938, amounting to approximately $20,000.00 (including penalties and interest)—See comment in attached report.

SCHEDULE "1"

JOURNAL OPERATING EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1938

Wages and Salaries		$ 486,342.28
Editorials, News and Reporting		12,139.56
Paper—Journal Stock		250,163.52
Paper—Miscellaneous		2,090.62
Electrotype and Engravings		15,033.40
Binding		629.86
Ink		9,063.19
Postage—First Class		38,871.82
Postage—Second Class		64,336.09
Journal Commissions		16,204.10
Collection Commissions		620.44
Discounts		30,345.89
Express and Cartage		5,802.48
Exchange		2,450.89
Office Supplies		2,784.43
Telephone and Telegraph		3,620.77
Office Jobbing		15,710.89
Power and Light		10,035.79
Factory Supplies		11,823.80
Repairs and Renewals—Machinery		5,494.48
Miscellaneous Operating Expenses		23,290.55
Bad Debt Losses, and Loss from Sale of Equipment, etc. (Net)		1,775.21
Total Journal Operating Expenses, before Provision for Depreciation		1,008,630.06
Depreciation on Equipment (computed on diminishing Balances):		
Machinery	$6,729.09	
Furniture and Equipment	4,312.29	
Factory Equipment	418.37	
Type	343.41	
Metal	507.31	12,310.47
Total Journal Operating Expenses		$1,020,940.53

SCHEDULE "2"

ASSOCIATION AND MISCELLANEOUS EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1938

Association Expenses:	
Association	$114,859.42
Health Education	36,892.70
Pharmacy and Chemistry	49,331.41
Chemical Laboratory	24,926.43
Medical Education and Hospitals	77,180.76
Therapeutic Research	7,579.18
Legal Medicine and Legislation	37,670.88
Bureau of Investigation	12,272.06
Bureau of Medical Economics	35,457.50
Council on Foods	22,184.83
Physical Therapy	17,823.33
Council on Industrial Health	7,726.70
Bureau of Association Exhibits	14,122.61
Laboratory Depreciation (5% on diminishing balances)	471.46
Total Association Expenses	$458,499.27
Miscellaneous Expenses:	
Insurance and Taxes	$ 28,778.38
Legal and Investigation	67,096.56
Building Expenses:	32,611.64
Building Depreciation (2.5% on diminishing balances—cost basis)	18,968.18
Fuel	8,361.96
Federal Social Security Taxes (see Note)	30,784.71
Sundry Publications	103,507.37
Total Miscellaneous Expenses	$290,108.80

Note: The above expenses do not include any provision for possible liability in respect of Federal Social Security Taxes applicable to the period from January 1, 1938, to April 28, 1938, amounting to approximately $20,000.00 (including penalties and interest)—See comment in attached report.

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American Medical Association:

With the exception of applications for Fellowship in the Association which for one reason or another require investigation by the Judicial Council, the volume of work coming before it has been less than for several years. There has been the usual number of inquiries of an ethical or constitutional nature from individuals and from county and state societies. These inquiries can in general be answered by the Secretary or the Chairman without reference to the entire Council because of official opinions or answers in preceding similar situations. However, all such replies by the Secretary or Chairman receive official approval by the Council at a subsequent meeting.

It is surprising when consideration is given to the vast number and variety of schemes for reducing sickness costs to the low-income population by periodic prepayment plans that the Council has not been asked for an opinion on the ethical features of a single plan. Whether rightly or wrongly, there has been such popularity and enthusiasm for these plans and such haste in their development that the ethical principles involved apparently have been completely ignored. The Council believes it can see a rapidly growing menace to many of the sound principles which have governed the practice of medicine by the members of this organization for many years and which have contributed in preponderant measure to the high quality of medical care which the people of this country as a whole enjoy. In this report the Council desires only to sound a warning and a caution and to call attention to the fact that the practice of medicine by the members of this organization is governed, so far as ethical considerations are concerned, by the Principles of Medical Ethics as approved and adopted by the House of Delegates, which will remain as they are until the House itself changes or eliminates them. The function of the Judicial Council is interpretation only.

But one appeal from a disciplinary action by a constituent association has been brought before the Judicial Council this past year. This appeal was heard recently. The briefs and arguments are under consideration and study by the individual members of the Council. No decision has been reached as yet.

TEACHING IN SCHOOLS OF CHIROPODY OR PODIATRY

At the last annual meeting of the House of Delegates, in San Francisco, a resolution was introduced declaring that the serving of members of the American Medical Association on the faculties of schools of chiropody is unethical. The cause of the introduction of the resolution was a statement made in the annual report of the Judicial Council for that year that "teaching in cultist schools and addressing cultist societies is even more reprehensible" than association with cultists in practice. The resolution was referred to the Judicial Council as a reference committee and on its recommendation the resolution was laid on the table. Since that meeting the Council has investigated the matter further and is of the opinion that the practice of chiropody is not a cult practice as is osteopathy, chiropractic or Christian science, which have bases of treatment not supported by scientific or demonstrated knowledge but on which bases all diseases are treated. Chiropody is rather a practice ancillary—a hand maiden—to medical practice in a limited field considered not important enough for a doctor of medicine to attend and therefore too often is neglected. General opinion seems to be that chiropody fairly well satisfies a gap in medical care that the profession has failed to fill. There are several reputable medical colleges whose faculties teach this branch of the healing art to students who later become chiropodists and the Council can see no reason to declare such teaching by members of this organization to be unethical, provided the schools in which they teach are connected with approved schools of medicine and recognized standards of premedical education are required.

DIAGNOSTIC CLINICS

The Judicial Council has been asked to give a definition of a "diagnostic clinic." The word clinic is a very popular one in medical practice today and may mean anything from one doctor practicing medicine with lay assistants to a most elaborate organization prepared to do anything of a medical nature. There are also many types of clinics the names of which describe the type of work done in them. The Greek basis of the word "clinic" meant simply medical instruction at the bedside of patients. The term has never been copyrighted and any one may use it and put his own interpretation on its meaning. The name "clinic," because of its association with the earlier users of the term, now in the lay mind implies a very superior service by very superior individuals, which too frequently is not the case. If the American Medical Association is to define a diagnostic clinic it must be done in a way that will represent the efficiency that modern scientific progress has made possible to the doctor of medicine who has kept abreast of that progress, and the idealism or ethical principles that for hundreds of years have been our most cherished heritage as a profession. It must not be a definition which any charlatan be he medical or lay, can point to as describing himself. It must be a definition which is definite. Obviously such a definition cannot be made in a sentence and equally obvious is the fact that those most anxious to use the designation will be the least pleased with it. The Council has given careful consideration to the problem of what a real diagnostic clinic is and what it should be and has sought advice from sources held in high esteem. It submits the following as its opinion of a proper definition of a diagnostic clinic worthy of the name:

1. A diagnostic clinic is an organization of physicians whose sole work in the clinic is to make or supervise diagnostic examinations of patients referred to the clinic by doctors of medicine, or to collaborate in general diagnostic surveys.

2. The reports of the diagnostic clinic on examinations and tests are made only to the referring physician unless he requests that the case and the recommendations for treatment be discussed with the patient as part of a professional consultation at which the relationship of the results of the diagnostic studies to the general condition of the patient is open for discussion. In such case, discussion is only by a member of the staff.

3. The staff of the diagnostic clinic should include representatives from all the specialties that are of recognized diagnostic usefulness. Every clinical examination, laboratory test or x-ray procedure is made by a physician who specializes in that field or under his supervision. The clinic must be equipped to allow the various specialists to exercise fully their abilities.

4. The control of the clinic must be vested in one or more members of the professional staff. Any profits are to be apportioned only to the members of the staff actually engaged in the work of the clinic. There must be no dividends, bonuses or salaries paid any individual except for services rendered.

5. The clinic must be governed in its activities by the same ethical principles as apply to an individual member of the American Medical Association.

It is recognized that under this definition only in cities large enough to support the various specialists needed can a diagnostic clinic be established or maintained. Unless the specialists are available it is not a diagnostic clinic worthy of the name.

Respectfully submitted.

GEORGE EDWARD FOLLANSBEE, Chairman.
EDWARD R. CUNNIFFE.
WALTER F. DONALDSON.
JOHN W. BURNS.
JOHN H. O'SHEA.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

1. In connection with the survey of undergraduate medical schools the following institutions have been revisited:

University of Arkansas School of Medicine
Boston University School of Medicine
Wayne University College of Medicine
Albany Medical College
Wake Forest College School of Medical Sciences
Woman's Medical College of Pennsylvania
Medical College of the State of South Carolina
Meharry Medical College
University of Tennessee College of Medicine

Reports indicating progress have been received from:

University of Maryland School of Medicine and College of Physicians and Surgeons
University of Missouri School of Medicine
University of North Carolina School of Medicine
Hahnemann Medical College and Hospital of Philadelphia
Medical College of the State of South Carolina

2. The Council's report of the survey is being prepared and will be ready for publication, it is hoped, by the end of the summer.

3. Graduate education, for purposes of study, has been considered under three categories: first, systematic courses of instruction conforming to generally accepted academic standards; second, apprenticeship courses, consisting of residencies and fellowships, and, third, extension courses, conducted either separately or jointly by universities and medical societies. A preliminary report on this phase of graduate medical education was published in August 1938. The complete report will be issued when all the states have been visited.

4. From Feb. 1, 1938, to Jan. 31, 1939, 375 hospitals were visited, as follows:

For approval of internships	207
For approval of residencies	88
For approval of both	52
For registration	28

5. The report of the Interdepartmental Committee to Coordinate Health and Welfare Activities proposed among other things a vast increase in the hospital facilities of the United States. The evidence which the committee submitted in support of its program was so untrustworthy that the Council felt compelled to prepare and circulate a pamphlet showing the exact distribution of hospital facilities in the United States.

6. The Council has also made a careful study of existing hospital facilities in a single state—Mississippi—a report of which will be presented to the House of Delegates at St. Louis.

7. In addition to the visitation of hospitals, inspections were made of technical schools as follows:

Laboratory technic	25
Physical therapy	6
Occupational therapy	1

8. The Council, during 1938, was represented at the following meetings:

American Medical Association, San Francisco
American Medical Association, Conference on Industrial Health, Chicago
American Hospital Association, Dallas, Texas
Catholic Hospital Association, Buffalo
Association of American Medical Colleges, Syracuse, N. Y.
American Congress of Physical Therapy, Chicago
American Society of Pharmacology and Experimental Therapeutics, Baltimore
American Society of Tropical Medicine, Oklahoma City
Federation of American Societies for Experimental Biology, Baltimore
Southern Medical Association, Oklahoma City
History of Science Society, Chicago
Northwest Regional Conference, Chicago
Tri State Hospital Association, Chicago
American Congress of Physical Therapy, Western Section, Los Angeles
Illinois Society of Experimental Biology and Medicine, Chicago
Minnesota Hospital Convention, St. Paul
Michigan Hospital Association
Postgraduate Course on Industrial Hygiene, Allegheny County Medical Society, Pittsburgh
Multnomah County Society, Portland, Ore.
Hospital staff meetings, twenty three
Installation of president of Tulane University, Vanderbilt University and Tufts College

9. Exhibits were prepared for:

World's fairs, New York and San Francisco
San Francisco and St. Louis meetings, American Medical Association
American Hospital Association
Catholic Hospital Association

10. Publications:

Hospital Number of THE JOURNAL
State Board Number of THE JOURNAL
Educational Number of THE JOURNAL
Study of Hospital Facilities in the United States
Study of Graduate Medical Education
Approved Colleges of Arts and Sciences and Junior Colleges
Choice of a Medical School
Data for fifteenth edition of American Medical Directory on medical schools, special examining boards and hospitals
Proceedings of Annual Congress
Essentials

11. Owing to the pressure of extra work created by the National Health Conference last July and by the indictment of the Association by a grand jury of the District of Columbia, the Council is not yet in a position to make a complete report on medical practice in hospitals in accordance with the instructions of the House of Delegates (THE JOURNAL, July 2, 1938, p. 45), but an agreement has been reached with a representative group of radiologists as to the definition of the function of the radiologist in the hospital. This definition is incorporated in the revised Essentials of a Registered Hospital, submitted herewith for approval.

12. At the Congress on Medical Education and Licensure, the registration this year was 550, indicating a larger attendance than at any time within the last ten years.

13. Through the Social Security Act, the federal government has made available several million dollars for the further training of physicians. A number of state societies have found it possible, through the cooperation of the state department of health, to direct the expenditure of this money and to strengthen their own programs of postgraduate education. In other states the health department has inaugurated independent courses with results not altogether satisfactory. The House of Delegates might well bring to the attention of each of the constituent societies of the Association the paramount importance of retaining control of this phase of professional education.

14. At the Council's meeting of Feb. 11, 1939, a committee consisting of Dr. Willard C. Rappleye, Dr. Robin C. Buerki and Dr. J. W. Bowers presented to the Council an invitation to participate in the formation of an "Advisory Council on Medical Education, Licensure and Hospitals," an organization initiated by representatives of some eight or ten associations more or less interested in the subjects named in the title. This invitation reads:

> This Council is created to meet the need of a body representing the medical profession, the universities, medical schools, hospitals, licensing bodies, specialty boards, public health agencies and other national organizations in this country which deal with different phases of medical education. The Council shall serve as a clearing house for the cooperative consideration of those problems and programs of professional training with which more than one organization is concerned, and shall serve as a medium for consultation and mutual assistance in the formulation and support of adequate educational standards, and as an agency for advice and recommendations to member and other organizations dealing with medical education.

The Council, feeling itself incompetent to act on this matter without instructions from the House of Delegates, voted:

> That the Council recommend to the House of Delegates that it be authorized to appoint from its body three representatives to act on this Advisory Council on Medical Education, Licensure and Hospitals without voting power.

15. The Council submits herewith for the approval of the House of Delegates:

(*a*) Revised "Essentials of a Registered Hospital"
(*b*) Revised "Essentials of Approved Residencies and Fellowships"
(*c*) Revised "Essentials for Approved Examining Boards in Specialties"

Respectfully submitted.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS.
RAY LYMAN WILBUR, Chairman.
J. H. MUSSER.
FRED MOORE.
REGINALD FITZ.
FRED W. RANKIN.
CHARLES GORDON HEYD.
FRANK H. LAHEY.
WILLIAM D. CUTTER, Secretary.

Essentials of a Registered Hospital

General Statement.—The American Medical Association gives recognition to hospitals by admitting to the Hospital Register those that are found to qualify according to the essentials contained in the following paragraphs.

Registration is a basic distinction between all recognized hospitals and those that are refused recognition. It is a prerequisite to the consideration of a hospital for approval for interns or for residencies in specialties.

The registration of hospitals, the approval of hospitals for interns, approval for residencies in specialties, and all other service of the Association regarding hospitals is carried on by the Council on Medical Education and Hospitals.

It is the desire of the Council to cooperate in every way for the improvement of hospital service, whereby the sick and injured may be provided with scientific and ethical medical care.

The Council does not have nor does it assume legal authority over any hospital. It recognizes clearly that the officers in charge of such institutions have the unquestioned right to conduct the hospitals in any way they may deem wise. If a hospital desires to have its name appear on the American Medical Association Hospital Register and thus have the endorsement of that Association, it should be willing to comply with the principles which the Council on Medical Education and Hospitals considers necessary.

Essentials of a Registered Hospital.—Hospitals seeking admission to the register should have the following qualifications:

1. *Organization.*—The organization should consist of a board of trustees or other supreme governing body having final authority and responsibility and an executive officer or superintendent to carry out the policies adopted by the governing body. The executive officer should be assisted by adequate competent personnel.

Regardless of the form of organization, the hospital should function primarily in the interests of the sick and injured of the community.

2. *Staff.*—This constitutes the most important essential. The staff should be organized and composed of regular physicians who are properly qualified as to training, licensure and ethical standing.

Staff membership and the use of the hospital's facilities must be limited to doctors in medicine. Where cult practitioners, osteopaths, chiropractors or other healers outside the scope of regular medicine are allowed to use the hospital's diagnostic facilities, to prescribe for or treat patients in the hospital, or to enter orders or other data on the case records, such a hospital obviously cannot be recognized or endorsed by the American Medical Association.

Regular staff conferences should be held at least monthly and preferably more often. All deaths that occur during the period intervening between meetings, perplexing cases, and patients who do not respond to treatment should be discussed. When postmortem examinations have been performed there should be a presentation of the clinical aspect of the patient and the postmortem observations. Interesting pathologic specimens from surgery or removed at postmortem should be presented and discussed with regard to the preoperative or antemortem findings.

Minutes of staff conferences should be kept and filed with the hospital records. The activity of the staff as to scientific meetings and clinical and pathologic conferences is an index to the scientific mindedness and progressiveness of the group.

3. *Nurses.*—A competent nursing staff should be provided by employing an adequate number of registered nurses who are graduates of schools of nursing recognized by the state board of nurse examiners, or by maintaining such a school.

All nursing should be supervised by qualified registered graduates.

4. *Records.*—An adequate record system should be maintained. No particular system or set of forms is recommended, since requirements are not the same under varying circumstances. The average case record should include at least a brief medical history, physical examination, laboratory reports, diagnosis, operative record, progress notes, nurses' notes and summary. Case records should be complete in every department and reviewed and signed by the attending physicians before they are placed in the permanent file. Roentgenologic interpretations, pathologic descriptions and diagnoses of tissues removed in the operating room, and (when an autopsy has been performed) a description of postmortem observations, should be included with the patient's record.

Case histories and physical examinations should be recorded in the patient's chart within twenty-four hours after the patient has been admitted to the hospital. A patient should not be operated on, except in the case of emergency, when the history, physical examination and routine laboratory work have not been completely recorded in the chart. The duty of recording these data falls on the attending physician and he should be held directly responsible for the case records.

Monthly and annual analyses of hospital service should be made in order that the staff may be in a position to improve its service.

5. *Pharmacy.*—The handling of drugs should be adequately supervised and should comply with state laws.

6. *Pathology.*—The hospital should provide or have ready access to laboratory facilities in accordance with its needs. All tissues removed in the operating room should be examined, described and diagnosed by a competent pathologist excepting tissues, such as tonsils and teeth, in which the pathologic changes are quite obvious.

A physician-pathologist qualified by training and experience to supervise the laboratory service and interpret tissue pathology should be employed on a full time or part time basis. When this is not practicable, arrangements should be made with a consulting pathologist for tissue diagnosis, postmortem work and the interpretation of the more complicated tests and determinations in clinical and surgical pathology, as well as in general clinical laboratory work. Preferably the pathologist should be a physician who holds a certificate of the American Board of Pathology.

Autopsies.—Every effort should be made to secure consent for autopsies, which should be performed by a competent pathologist.

7. *Radiology.*—The responsibility for all radiologic examinations must rest on the physician-roentgenologist who is head of the department. His findings and conclusions for all examinations should be placed in the patient's chart. Nothing in this provision should preclude additional study and interpretation by qualified attending physicians on the staff.

The physician-roentgenologist should be preferably one who is a diplomate of the American Board of Radiology or a physician whose qualifications are acceptable to the Council on Medical Education and Hospitals of the American Medical Association.

It shall not be the policy of the hospital to make a profit from the department of radiology.

8. *Ethics.*—In order that a hospital may be eligible for registration it will, of course, be expected that the staff and management conform to the principles of medical ethics of the American Medical Association with regard to advertising, commissions, division of fees, secret remedies, extravagant claims, overcommercialization and in all other respects.

Essentials of Approved Residencies and Fellowships

Residencies and fellowships in the clinical branches of medicine and surgery, pathology and radiology represent advanced training usually in preparation for the practice of a specialty. Residencies in specialties, as defined by the Council, are straight services of one or more years following an approved internship. A fellowship is a form of apprenticeship which in some cases is indistinguishable from a residency, although it usually offers greater opportunity for the study of basic sciences and research. Ordinarily a fellowship is a university rather than a hospital appointment. *Mixed residencies* are general hospital assignments following internship. (They include services classified as general residencies and chief residencies.)

Approved residencies and fellowships are offered in the following branches of medicine:

1. Anesthesiology
2. Cardiology
3. Communicable Diseases
4. Dermatology and Syphilology
5. Epilepsy
6. Fractures
7. Gynecology
8. Malignant Diseases
9. Medicine
10. Mental Deficiencies
11. Mixed Residency
12. Neurology
13. Neurosurgery
14. Obstetrics
15. Obstetrics-Gynecology
16. Ophthalmology
17. Ophthalmology-Otolaryngology
18. Orthopedic Surgery
19. Otolaryngology
20. Pathology
21. Pediatrics
22. Physical Therapy
23. Plastic Surgery
24. Psychiatry
25. Radiology
26. Surgery
27. Thoracic Surgery
28. Traumatic Surgery
29. Tuberculosis
30. Urology

I. GENERAL REQUIREMENTS

Registration.—Previous admission to the Register of the American Medical Association is essential in the case of hospitals offering fellowships and residencies in specialties.

This implies that each hospital must be adequately organized, staffed and equipped and that it be conducted primarily for the welfare of the sick. The educational function described in these Essentials is supplementary to the main purpose of the hospital service but is closely related thereto in that it serves to improve the quality of medical practice.

Size.—The size of the institution is not a primary consideration. The clinical material, however, should be sufficient to enable residents and fellows to observe the principal manifestations of the disease, or diseases, they are studying.

Plant and Equipment.—The physical plant should be such as to assure the safety and comfort of the patients. There should be such equipment, appliances and apparatus as are commonly employed in the specialty in which training is offered and in the use of which the resident should become proficient.

II. STAFF

There must be an organized staff of ethical, licensed physicians holding the degree of doctor of medicine from acceptable medical schools. The particular specialties in which residents are being trained must be represented on the staff by well qualified, experienced and proficient physicians.

In general hospitals, the staff shall further provide a definite departmental organization in those branches of medicine in which residencies are offered. The director of each service should be a competent specialist who is at least eligible for certification by the corresponding specialty board. He should assume direct responsibility for the training of residents and fellows and should stimulate others of his staff to give instruction and sympathetic cooperation which graduate students require.

It is essential that there shall be at least monthly clinical-pathologic conferences or other regular staff meetings at which histories and clinical observations in selected cases may be reviewed, particularly when the death of patients has necessitated special study including necropsy performance. In addition to meetings of the staff as a whole, it is expected that departmental conferences shall be conducted in which residents may take an active part to the end that the character of the service given by that department to its patients may be recurringly evaluated. Other educational activities requiring the full support of the staff are described under Training Program, section IX.

III. DEPARTMENT OF RADIOLOGY

The department of radiology shall be under the direction of a qualified radiologist proficient in the various functions of his specialty. He must likewise cooperate in all matters pertaining to residencies and fellowships which fall within the scope of his service. The department should contain roentgenographic, roentgenoscopic and, where required, therapeutic equipment and radium. All these facilities are essential in institutions offering a complete residency or fellowship program in radiology.

After Jan. 1, 1942, an applicant for certification by the American Board must have completed a period of study after the internship of at least three years in a recognized institution or radiologic department. This period of specialized training should include an active experience in radiology of not less than twenty-four months and graduate instruction in pathologic anatomy, radiophysics and radiobiology. Board certificates are offered in (1) the entire field of radiology, (2) roentgenology, (3) diagnostic roentgenology and (4) therapeutic radiology.

Residencies and fellowships of from one to three years' duration should be organized in such a manner that on completion of the graduate program the aggregate of training will coincide with the foregoing requirements. Courses of shorter duration, however, may provide the basic instruction in radiology required by other specialties. A complete residency or fellowship program supplies training in all divisions of the specialty—diagnostic roentgenology, therapeutic roentgenology and radium therapy. Without attempting to define a detailed plan of instruction it can be suggested that the first year be devoted principally to pathology, roentgenologic technic and a general orientation in the radiologic field. In the second and third years the clinical applications of radiology should be emphasized with at least six months assigned exclusively to radiotherapy. In view of the importance of pathology as a basis for radiologic diagnosis and therapy it is recommended that a minimum of six months be devoted to pathologic anatomy, particularly the study of gross pathology and tumors. Instruction in radiophysics and radiobiology may well run concurrently with the training in radium therapy and therapeutic roentgenology.

Residencies in a restricted field of radiology can likewise be modeled on this plan. The training should be systematic and progressive in character with gradual assignment of responsibility in both diagnosis and therapy. It should also include an active participation in radiologic conferences, staff meetings, and joint conferences with other departments. An adequate amount of clinical material must be available in the divisions of radiology in which residency or fellowship training is offered.

IV. DEPARTMENT OF PATHOLOGY

The department of pathology must be under the supervision of a qualified pathologist who shall be prepared to cooperate fully in the training of graduate students and supervise any direct contact which they have with the laboratory. The department should provide apparatus, reagents and materials necessary to the operation of a modern clinical and pathologic laboratory. Adequate necropsy facilities should also be available.

Residencies and fellowships, in contrast to the shorter courses for basic instruction in pathology, are ordinarily of from one to three years' duration. Thus they may serve to fulfil the requirements for certification, which specify in addition to the internship a period of study of at least three calendar years, including one year in the various phases of clinical pathology and not less than two years of training and experience in a department of pathologic anatomy. (The training may be combined or in sequence.)

The teaching material must be sufficient in kind and amount to afford graduate students adequate training in all divisions of the service and in both gross and microscopic pathology. Systematic instruction should be carried out with the use of fresh material and collections of slides and museum specimens for comparative studies in histology and pathology. As the training continues an increasing amount of responsibility should be assigned to the residents and fellows in tissue diagnosis, in actual performance of postmortem examinations and in the preparation of pathologic reports and necropsy protocols. Further instruction should be obtained through active participation in clinical-pathologic conferences, staff meetings and joint conferences with other departments.

V. NECROPSIES

Thoroughness in postmortem performance should be emphasized. All institutions and individual clinical services desiring approval for the training of residents or fellows must examine post mortem 15 per cent or more of their fatal cases. An additional requirement of at least 100 necropsies a year applies to institutions offering residencies or fellowships in pathology. Complete necropsy records should be kept on file and each should contain a summary of the clinical record and a detailed description of both the gross and the microscopic observations. Graduate students of all departments should attend postmortem examinations as often as possible. They may, with value, participate in the performance of necropsies from their own service and in the preparation of the protocols.

VI. MEDICAL LIBRARY

Institutions offering graduate training should maintain or provide ready access to an adequate medical library containing modern texts, the QUARTERLY CUMULATIVE INDEX MEDICUS and current journals relating to the fields in which residencies and fellowships are offered.

VII. HISTORIES AND RECORDS

There must be complete histories giving the patient's complaint, physical examination at time of admission, preliminary diagnosis, laboratory observations, descriptions of operations if any, regular progress notes, final diagnosis, condition on discharge, end results and, in case of death, necropsy observations if postmortem examination is performed.

The histories should show by signatures, or initials, all persons writing them or parts of them as well as the staff members by whom the histories are verified. Likewise, all orders and progress notes should be initialed or signed.

The records should be in charge of some competent person, preferably a trained record librarian. Alphabetical and diagnostic indexes of the patients should be maintained and the records filed so as to be readily accessible from either source. Operative procedures and radiologic and pathologic material should likewise be classified in a suitable manner.

VIII. ELIGIBILITY OF APPLICANTS

Candidates for residencies or fellowships should be selected from graduates of approved medical schools, who have served an internship in an approved hospital or have had two or more years in practice. It is recommended, however, that candidates seeking residencies or fellowships in such specialties as urology, orthopedics, plastic surgery, thoracic surgery and neurosurgery should have completed one year of general surgical training in addition to the internship.

IX. TRAINING PROGRAM

Residencies and fellowships are designed primarily to meet the requirements for certification of special practice. Individually they may not fulfil all the essentials of a specialty board, but each service that is properly organized will make a substantial contribution to the graduate program. In all instances the term of service should be at least twelve months and might well be extended to two or more years when suitable facilities are available. An affiliation with a university or medical school is desirable to provide the required training in basic sciences relating to individual specialties.

Aside from the daily contact with patients and staff men, the assumption of responsibility is the most valuable aspect of residency and fellowship training. Consequently, as ability is demonstrated, an increasing amount of reliance should be placed in the judgment of graduate students both in diagnosis and in treatment.

Residents and fellows should be given an opportunity to contribute to the effectiveness of the hospital service by some investigative work. This may take the form of research in the hospital laboratories or wards, summaries of medical literature, or the preparation of statistical analyses derived from the hospital record department. The members of the resident staff should likewise be encouraged to engage in teaching activities, particularly in relation to the training of medical students, interns and nurses.

The effectiveness of a residency or fellowship program depends largely on the quality of medical supervision and teaching. It is important, therefore, that methods of instruction be employed which are best suited to the special field. Emphasis should be placed on bedside instruction, teaching rounds, departmental meetings or seminars, clinical-pathologic conferences, demonstrations and lectures. The review of medical literature is an essential feature of residency training. Likewise the study of basic sciences as required by specialty boards should be integrated with the clinical experience. In the operative divisions it is desirable that facilities be available for anatomic dissection and experimental surgery on animals or on the cadaver. Additional requirements apply to graduate courses leading to advanced degrees.

The following regulations pertaining to individual specialties contain a brief abstract of the special training required for certification by the Specialty Boards. The full requirements for certification should be ascertained by direct correspondence with the secretary of each board as listed in section XI.

1. ANESTHESIOLOGY.—Present requirements for certification by the American Board include an internship of one year and at least four calendar years of active experience limited to anesthesiology. This period of specialized training and practice should include a minimum of two years of supervised clinical instruction in anesthesiology and graduate study in the related basic sciences, particularly anatomy, physiology, pharmacology and biochemistry. After Jan. 1, 1942, the requirements will be interpreted as three years of special training and three years of additional practice in anesthesiology.

The director of the department should be a qualified physician limiting his practice to anesthesiology. It is preferable that he serve on a full time basis to supervise the technical and educational activities of the department. His staff must include an adequate number of trained anesthetists in accordance with the needs of the service.

Equipment must be satisfactory for the teaching of modern methods of anesthesia and should include suitable apparatus for gas administration, resuscitation and inhalation therapy. Likewise, the clinical material must be sufficient to afford graduate students adequate experience in the various methods and types of anesthesia now commonly employed. It is expected that each graduate student should administer a minimum of 500 anesthetics a year, of which 400 should be general surgical in type. Residencies and fellowships organized in accordance with the foregoing requirements should provide systematic clinical and technical instruction supplemented by seminars, lectures and demonstrations on anatomic and other material.

2. CARDIOLOGY.—(See Medicine.)

3. COMMUNICABLE DISEASES.—(See Medicine.)

4. DERMATOLOGY AND SYPHILOLOGY.—In order to qualify for certification in dermatology and syphilology, graduate students who begin their training after Jan. 1, 1940, must complete three years of systematic instruction and two additional years of study or practice. The period of specialized training following internship shall include (*a*) not less than eighteen months of active experience in clinical dermatology and syphilology and (*b*) graduate study in the basic sciences of embryology, histology, chemistry, physiology, bacteriology, mycology, parasitology, pathology, immunology, serology, pharmacology and physics as related to physical therapy.

Residencies and fellowships designed to meet these requirements should provide an organized course of instruction involving lectures, seminars, clinical demonstrations and laboratory assignments especially in histopathology, parasitology, mycology and immunology. To facilitate clinical and laboratory teaching it is essential that the department have ready access to an adequate supply of classified anatomic and pathologic material including histologic and lantern slides for demonstrations. Projection apparatus should be available and also facilities for clinical photography.

Since the practice of dermatology and syphilology is concerned largely with ambulatory patients, it is essential that an active outpatient service be available to furnish sufficient clinical material in the various subdivisions of the specialty. It is also desirable that hospital facilities be available and that graduate students be given an opportunity to observe the dermatologic manifestations of the acute contagious diseases. Ordinarily a minimum of 3,500 annual visits is considered essential in the dermatologic division and a similar number in syphilology.

5. EPILEPSY.—(See Psychiatry and Neurology.)

6. FRACTURES.—(See Surgery; also Orthopedics.)

7. GYNECOLOGY.—(See Obstetrics and Gynecology.)

8. MALIGNANT DISEASES.—The division of malignant diseases is largely a combination of services involving practically all the branches of medicine and surgery, including pathology and radiology. It is important, therefore, that competent staff physicians be assigned to all departments and that special facilities be available for histopathology, diagnostic roentgenology, operative surgery, therapeutic roentgenology and radium therapy.

The clinical material should be sufficient in kind and amount to enable graduate students to observe and study the various types of malignant diseases and the methods of therapy commonly employed. A teaching service should have approximately 350 inpatients a year and additional material in the outpatient tumor clinic.

Ordinarily, the training is general in type with assignments in clinical diagnosis, pathology, diagnostic roentgenology, surgery, therapeutic roentgenology and radium therapy. Courses in surgical and postmortem pathology, radiophysics and radiobiology are often included. In some instances the service is limited in scope and is utilized primarily as supplementary training in internal medicine, surgery, pathology, radiology or other specialties.

9. MEDICINE.—Requirements for certification in this specialty include an approved internship of at least twelve months, three years of special training and two additional years of practice in the field of internal medicine or its more restricted and specialized branches. The graduate training should include several months of properly supervised instruction in anatomy, physiology, biochemistry, pathology, bacteriology or pharmacology as related to medical specialties.

Residencies and fellowships should necessarily be organized on a broad basis to furnish instruction in the various specialties which combine to form the foundation of practice in internal medicine. Accordingly, the service should not be limited entirely to general medicine and its subdivisions of allergy, cardiology, gastro-enterology, metabolic diseases, contagion and tuberculosis but might well include a reasonable amount of instruction in the divisions of psychiatry and neurology, dermatology and syphilology, and pediatrics, now organized as independent specialties.

It should be taken into account, however, that not more than one year of instruction in the related medical specialties and basic sciences can be applied to the three year period of special training.

In institutions offering residencies and fellowships in general medicine, cardiology, communicable diseases or tuberculosis, emphasis should be placed on the educational features of the service and residents should receive regular instruction from members of the staff in methods of clinical study and diagnostic and therapeutic procedures. Of particular importance is the study of etiology, pathogenesis, symptomatology and course of the various diseases so that the residents may develop skill and accuracy in diagnosis as well as a mature judgment and resourcefulness in therapy.

Under the supervision of qualified members of the staff the residents should assume individual responsibility in actual case management. They should also be required to correlate clinical studies with postmortem pathology, review medical literature and take an active part in weekly teaching rounds, departmental seminars and clinical-pathologic conferences. Instruction in the basic sciences may well be integrated with the clinical experience.

Training in tuberculosis should be of such a character that residents may become thoroughly familiar with the various phases of institutional service as well as the community aspects of tuberculosis control. This necessitates a well organized program of instruction with rotating assignments in the admitting department, infirmaries, convalescent and ambulatory wards and the outpatient clinics. Careful instruction should be provided in diagnosis, interpretation of roentgenograms, therapeutic procedures and general sanatorium care. It is particularly important that the residents become fully acquainted with the use of pneumothorax therapy and the technic of the initial induction as well as the subsequent refills. If a surgical department is maintained, the operative service may be combined with the general training in tuberculosis or it may form the basis of a separate residency in thoracic surgery.

It must be emphasized that residencies in tuberculosis are educational in character and that of the full time sanatorium staff only those physicians who serve primarily on an educational basis come within the residency classification of the Council.

The clinical material must be adequate in kind and amount. In general medicine a minimum of 400 annual admissions is considered desirable, while in tuberculosis approximately 125 inpatients a year may be sufficient.

Residencies in cardiology and communicable diseases may well follow the general plan indicated. In cardiology a large part of the required teaching material is frequently supplied on a consultation basis and therefore the number of patients admitted directly to the department may not be an accurate index of the scope of the service. A well balanced service is essential for residency training in contagious diseases. Between 300 and 400 admissions a year may be considered sufficient, especially if most of the acute contagious diseases are well represented.

10. MENTAL DEFICIENCIES.—(See Psychiatry and Neurology.)

11. MIXED RESIDENCY (see definition in opening paragraph).—All hospitals approved for intern training are automatically accredited for mixed residencies which represent general assignments of at least one year duration following an approved internship. Other hospitals presenting a general service and an admission rate of at least 1,500 patients a year may likewise be certified if they conform to the general requirements for residency training.

12. NEUROLOGY.—(See Psychiatry and Neurology.)

13. NEUROSURGERY.—(See Surgery; also Psychiatry and Neurology.)

14. OBSTETRICS.—(See Obstetrics and Gynecology.)

15. OBSTETRICS AND GYNECOLOGY.—Candidates for certification in obstetrics and/or gynecology must in addition to other requirements have completed a year of internship and five years of practice including at least three years of special training in obstetrics and/or gynecology. After Jan. 1, 1942, the requirements for all candidates will consist of one year of approved internship followed by a minimum of seven years of practice including not less than three years of special training in obstetrics and/or gynecology.

Institutions offering residencies or fellowships in obstetrics and/or gynecology must provide surgical and obstetric facilities adequate for the clinical and teaching needs of the service. They should also furnish sufficient teaching material to afford graduate students a wide experience in clinical diagnosis, treatment, and technical and operative procedures. Ordinarily an admission rate of 400 patients a year is considered necessary for graduate training in obstetrics and a similar requirement applies to gynecology. In a combined service each division should furnish a corresponding amount of clinical material. Antepartum and follow-up clinics are also essential.

The graduate program should include the study of fundamental subjects, particularly obstetric and gynecologic pathology, anatomy, embryology and physiology. Primarily, however, the emphasis should be placed on clinical training in order that graduate students may receive ample instruction in the various phases of gynecologic and obstetric service—antepartum care, treatment of toxemias of pregnancy, management of normal and abnormal labor, technic of versions, breech extractions and instrumental delivery; diagnosis and treatment of the complications of labor, postpartum hemorrhage, puerperal infections; operative obstetrics and gynecology. Courses of instruction should include assignments in pathology, demonstrations on the manikin, departmental seminars, clinical-pathologic conferences, and teaching rounds. Training in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility especially toward the end of the graduate program.

16. OPHTHALMOLOGY.—To become certified in ophthalmology a candidate must have completed an internship of one year or its equivalent and a period of combined study, training and practice of not less than three years. The special training should include active clinical experience and graduate study of related basic sciences, particularly anatomy, histology, embryology, optics, physiologic optics, visual physiology and psychology, pathology, bacteriology and pharmacology. The candidate should have knowledge of the application of these subjects and their use in clinical ophthalmology especially in refraction, disorders of motility and binocular vision, perimetry, and in the use of the ophthalmoscope, retinoscope and slit lamp.

Residencies and fellowships should be organized in such a manner that on completion of the graduate program the aggregate of training should coincide with the foregoing requirements. There must be adequate equipment for diagnosis, therapy, refraction, operative procedures, and preferably additional facilities for dissection and experimental surgery. Histologic and pathologic material should be available for demonstration and individual study. The clinical facilities must be sufficient in kind and amount to afford graduate students an adequate experience in diagnosis, therapy and operative technic. Ordinarily a minimum of 150 admissions and 1,500 outpatient visits a year is considered necessary for graduate training in this specialty.

A systematic course of instruction should be offered with regular lectures and demonstrations in clinical and operative ophthalmology. Instruction in surgical technic should be sufficient to enable residents and fellows to undertake operative

work on their own responsibility, especially toward the end of the graduate program.

17. OPHTHALMOLOGY-OTOLARYNGOLOGY.—A joint service in ophthalmology and otolaryngology should fulfil the requirements listed under each department except that three years of training and experience should constitute the minimum time required.

18. ORTHOPEDIC SURGERY.—After Jan. 1, 1940, candidates for certification must have completed one year of internship, three years of concentrated instruction in orthopedic surgery and two years of subsequent practice in this special field. Knowledge of the basic sciences related to orthopedic surgery is also required.

As preliminary training the Council recommends one year of general surgery in addition to the internship. Surgical and orthopedic facilities must be satisfactory and clinical material sufficient to afford graduate students adequate experience in the correction of congenital and acquired deformities and in the treatment of fractures and other acute and chronic disorders which interfere with the proper function of the skeletal system and its associated structures.

Both hospital and outpatient facilities are desirable, and institutions offering graduate instruction should treat a minimum of 200 inpatients annually. Students should become thoroughly familiar with all methods of diagnosis and treatment, corrective exercises, physical therapy, operative procedures and the use of orthopedic appliances. Instruction in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

Graduate study is recommended in the fundamental sciences of anatomy, embryology, physiology, pathology, bacteriology and biochemistry. Clinical instruction should include teaching rounds and departmental conferences.

19. OTOLARYNGOLOGY.—The qualifications for special practice in this field include an approved internship and three years of graduate preparation, with at least one and preferably two years in recognized residencies or basic courses followed by private practice in otolaryngology.

Residencies and fellowships in otolaryngology should aim to provide adequate clinical and operative experience and additional opportunities, if possible, for graduate study in the related basic sciences of anatomy, embryology, histology, physiology, pathology, bacteriology and pharmacology.

Essential equipment for diagnosis and surgery should be available, including an audiometer and other special apparatus depending on the scope of the service. The department should further provide histologic and pathologic material for demonstrations and study and preferably facilities for experimental surgery and dissection of the head and neck. The clinical material should be sufficient in variety and amount to provide adequate training in the various divisions of the service, which might advantageously include the field of bronchoscopy. It is generally assumed that a graduate service would require a minimum of 400 admissions a year and at least 3,500 visits in the outpatient department.

The training should include a systematic course of instruction with lectures and demonstrations on clinical and technical subjects pertaining to the various phases of otolaryngology. Instruction in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

20. PATHOLOGY.—(See Department of Pathology, section IV.)

21. PEDIATRICS.—To qualify for certification in pediatrics a candidate must have completed five years of training and practice after graduation from an approved medical school. The requirements include an approved internship of one year, a service of two years in a pediatric center and two additional years of specialized study or practice. Although the training need not be continuous or in the same institution, it is desirable that the educational program be systematized in the form of residencies or fellowships of from one to three years' duration.

Clinical training should be obtained in general medical pediatrics, *nutritional disorders, care of newborn infants,* preventive pediatrics and outpatient clinics in the various departments of medical pediatrics. Correlative studies are recommended especially in contagion, well baby clinics, mental deficiencies, neurologic disorders of children and behavior problems. Sufficient time should also be devoted to the fundamental subjects of physiology, embryology, nutrition, growth and development.

In the wards and in the clinics the residents and fellows should be permitted to assume individual responsibility in diagnostic and therapeutic procedures and case management. They should actively participate in teaching rounds, clinical-pathologic conferences, departmental seminars and all other functions designed to improve the quality of the clinical and educational service. To supply an adequate amount and variety of teaching material a department should provide a minimum of approximately 200 annual admissions in general medical pediatrics.

22. PHYSICAL THERAPY.—The department should be under the direction of a physician qualified by training and experience in physical therapy. He should spend sufficient time in the department daily to supervise actually the work of the graduate students and technicians. Adequate space and apparatus should be furnished in the department for all phases of the work. The clinical material should be sufficient in kind and amount to enable the residents and fellows to observe and study all forms of treatment in physical therapy. Both inpatient and outpatient clinical material should be available.

The training should include (*a*) the study of certain fundamental subjects: physics of light, heat, electricity and mechanics; anatomy, with special reference to the peripheral nervous system, muscles, blood vessels, bones and joints; physical chemistry as related to physical therapy; physiology; (*b*) clinical and hospital training in the study and treatment of patients by various physical agents—light therapy, thermotherapy, fever therapy, hydrotherapy, electrotherapy and mechanotherapy. Emphasis should be placed on subjects related to physical therapy such as orthopedics, neurology, roentgenology, dermatology and general medicine.

A minimum of three years of special training is considered necessary for a physician to qualify as a specialist in physical therapy.

23. PLASTIC SURGERY.—(See Surgery.)

24. PSYCHIATRY AND NEUROLOGY.—Specialized training and experience of at least five years is essential for certification in neurology or in psychiatry. (To qualify in both fields a minimum of six years is required.) The requisite training consists of three full years of study after the general internship, and two or three additional years of practice or study in psychiatry or neurology or both. During the period of training a program of graduate studies should run concurrently with clinical instruction, covering the fundamentals of neuroanatomy, neuropathology, neurophysiology, psychobiology and psychopathology.

In institutions offering residencies and fellowships of from one to three years' duration, emphasis should be placed on the educational features of the service, and the residents should receive regular instruction from members of the staff in general orientation in the specialty, and diagnostic and therapeutic procedures and methods of clinical study as well as in the organization of ward services. Administrative details, progress notes, and contact with patients' relatives should be kept sufficiently within bounds so that the residents may employ their time in the study and treatment of neurologic and psychiatric disorders. Emphasis should be placed on the study of etiology, pathogenesis, symptomatology and course of the various diseases so that the residents may develop skill and accuracy in diagnosis, as well as mature judgment based on knowledge of the natural history of the diseases and resourcefulness in therapy.

A rotating assignment in psychiatry is essential to give residents adequate experience on the admission services, on the infirmaries and wards, in the therapeutic divisions and in the outpatient clinics. A resident in neurology should have adequate contacts with psychopathic departments, general medicine, pediatrics, contagious disease and tuberculosis services so that he may become familiar with neurologic complications of general diseases, and he should also witness or assist at whatever neurosurgical operations are performed in the hospital. Teaching rounds, clinical and pathologic conferences and seminars are essential for clinical instruction in both fields.

The clinical material must be adequate in kind and amount. Between 200 and 400 admissions a year per resident is considered desirable. Smaller numbers prevent proper survey of the field of neuropsychiatric disorders; larger numbers are incompatible with adequate study of the patients admitted. Similar requirements apply in institutions where separate residencies are offered in the field of epilepsy and mental deficiencies, except that not more than one year of residency in either type of hospital will be considered as preparation for the specialty of psychiatry or neurology. It must be emphasized that residencies in psychiatric and neurologic hospitals are educational in character and that, of the full time psychiatric or neurologic staff of such hospitals, only those physicians who serve primarily on an educational basis come within the residency classification of the Council.

25. RADIOLOGY.—(See Department of Radiology, section III.)

26. SURGERY.—The requirements for certification by the American Board of Surgery include an approved internship and at least five additional years of special training in surgery. During this period the entire time should be devoted to surgical training supplemented by sufficient experience in the basic sciences of anatomy, physiology, pathology, bacteriology and biochemistry.

Residencies and fellowships, organized in accordance with these requirements may be of from one to five years' duration but need not necessarily be confined to one institution. In aggregate, however, the training should coincide with the plan described. Individual residencies may be conducted in general surgery, fractures, neurosurgery, plastic surgery, thoracic surgery, traumatic surgery and other surgical divisions now organized as independent specialties. As preliminary training for residencies and fellowships in such specialties as neurosurgery, orthopedics, plastic surgery, thoracic surgery and urology the Council recommends one year of general surgery in addition to the internship.

All surgical departments can readily subscribe to the same general plan of training, although their scope of service may show considerable variation. Training in most of the surgical specialties is ordinarily limited to one division, but residencies in general surgery may well encompass the entire surgical field with the possible exception of ophthalmology and otolaryngology.

It is essential that adequate supervision be maintained by a competent department head responsible for the organization of the graduate program. He should personally direct the plan of clinical and operative training but may well rely on qualified assistants to supervise certain details of the educational service. Residencies and fellowships should emphasize careful training in diagnosis, preoperative therapy and postoperative care. This requires systematic bedside instruction, correlation of clinical and operative data, the study of gross and microscopic pathology, collateral reading, and accurate observations throughout the entire course of the disease. Supplementary instruction should be furnished in the form of departmental seminars, teaching rounds and clinical-pathologic conferences, usually on a weekly basis. It is also desirable that facilities be available for anatomic dissection and experimental surgery on animals or on the cadaver. Surgical training should be obtained under the careful guidance and supervision of competent specialists. It should be sufficient in amount to insure a reasonable degree of technical proficiency and thus enable the residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

Equipment and facilities for general and special surgery must be adequate to meet the needs of the service. The clinical material should likewise be sufficient to furnish adequate experience and training in diagnosis, therapy and operative technic. Accordingly it is suggested that general surgical services provide approximately 400 annual admissions per resident. The same amount may not be necessary for separate residencies in fractures, neurosurgery, plastic surgery, thoracic surgery and traumatic surgery, but even in the most limited of these specialties there should be at least 150 patients treated annually.

27. THORACIC SURGERY.—(See Surgery; also Tuberculosis.)

28. TRAUMATIC SURGERY.—(See Surgery.)

29. TUBERCULOSIS.—(See Medicine.)

30. UROLOGY.—For certification in urology a minimum of five years of special training and practice is required after the internship. This period of preparation should include an active clinical experience of at least eighteen months, graduate training in anatomy, physiology, pathology and other basic sciences, and not less than two years of additional practice.

As preliminary training for residencies and fellowships in urology, the Council recommends one year of general surgery in addition to the internship. Graduate instruction should be organized in accordance with the aforementioned requirements. It should be systematic and progressive in character to the end that adequate training may be obtained in diagnosis, therapy, cystoscopic examinations, pyelography and operative procedures, all under the supervision of a well qualified urologist.

Instruction in the fundamental branches can readily be integrated with the clinical experience. Particular emphasis should be placed on the study of pathology, and residents and fellows might well be required to examine both grossly and microscopically all urologic specimens removed during their term of service. Teaching rounds and departmental conferences are considered essential for systematic clinical instruction.

The department must provide adequate facilities for surgery and special urologic procedures.

Training in surgical technic should be sufficient to enable residents and fellows to undertake operative work on their own responsibility, especially toward the end of the graduate program.

The clinical material should be sufficient in amount and variety to fulfil the teaching needs of the service. It is generally assumed that a minimum of 200 inpatients a year is necessary for advanced training in urology. This amount should be supplemented by outpatient material in cystoscopic and general urologic clinics. Access to gonorrheal clinics would also be of advantage.

X. RESIDENT-INTERN RELATIONSHIP

Those hospitals training both residents and interns should recognize their responsibility to both groups and not curtail too sharply the opportunities ordinarily given to interns by an excess of solicitude for the residents. The residents may, with profit, teach the interns, supervise their records and direct the treatments which interns administer. They should not, however, act so as to diminish the contact of the interns with the attending men or assume the supervisory or disciplinary functions of the staff intern committee.

XI. RECORDING OF CREDIT

A successful completion of a residency or fellowship is recorded in the biographic files of the American Medical Association. It is important, therefore, that all institutions approved for fellowships and residencies in specialties make annual reports to this office. Periods of service in institutions approved by the Council for fellowships and residencies in specialties are given full credit without further inquiry. Services in unapproved institutions are recorded as unclassified assignments.

Arrangements are now being made for an interchange of information between the Council and the examining boards responsible for the certification of specialists. In this way the study and appraisal of residencies and fellowships will lead to the formulation of lists approved by the Council and acceptable to the respective boards.

The specialty boards listed below have been approved by the Council in accordance with the following resolutions of the House of Delegates:

Resolved, That the Council on Medical Education and Hospitals is hereby authorized to express its approval of such special examining boards as conform to the standards of administration formulated by the Council; and be it further

Resolved, That the Board of Trustees of the American Medical Association be urged to use the machinery of the American Medical Association, including the publication of its Directory, in furthering the work of such examining boards as may be accredited by the Council.

American Board of Anesthesiology,
Paul M. Wood, Secretary-Treasurer,
745 Fifth Avenue, New York.

American Board of Dermatology and Syphilology,
C. Guy Lane, Secretary-Treasurer,
416 Marlboro Street, Boston.

American Board of Internal Medicine,
William S. Middleton, Secretary-Treasurer,
1301 University Avenue, Madison, Wis.

American Board of Obstetrics and Gynecology,
Paul Titus, Secretary-Treasurer,
121 South Highland Avenue, Pittsburgh.

American Board of Ophthalmology,
John Green, Secretary,
6830 Waterman Avenue, St. Louis.

American Board of Orthopaedic Surgery,
Fremont A. Chandler, Secretary,
6 North Michigan Avenue, Chicago.

American Board of Otolaryngology,
William P. Wherry, Secretary,
107 South Seventeenth Street, Omaha.

American Board of Pathology,
Frank W. Hartman, Secretary-Treasurer,
2799 West Grand Boulevard, Detroit.

American Board of Pediatrics,
C. Anderson Aldrich, Secretary,
722 Elm Street, Winnetka, Ill.

American Board of Psychiatry and Neurology,
Walter Freeman, Secretary,
1028 Connecticut Avenue N.W., Washington, D. C.

American Board of Radiology,
Byrl R. Kirklin, Secretary,
102 Second Avenue S.W., Rochester, Minn.

American Board of Surgery,
J. Stewart Rodman, Secretary,
225 South Fifteenth Street, Philadelphia.

American Board of Urology,
Gilbert J. Thomas, Secretary,
1009 Nicollet Avenue, Minneapolis.

XII. Admission to the Approved List

Institutions that wish to be approved for residencies or fellowships should apply to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago. Application blanks will be furnished and arrangements made for a personal visit of inspection by a member of the Council's staff. Approval is based on full compliance with the foregoing standards. Recognition may be withdrawn whenever it appears that the institution no longer conforms to these essentials or when the positions remain vacant for a period of two or more years.

Essentials for Approved Examining Boards in Specialties

I. Organization

1. A special examining board to be approved by the Council should represent a well recognized and distinct specialty of medicine.

2. It should be composed of representatives of the national organizations of that specialty including the related section of the American Medical Association.

3. It should be incorporated.

4. A special board should:

   a. Determine whether candidates have received adequate preparation as defined by the board.

   b. Provide a comprehensive test of the ability and fitness of such candidates.

   c. Certify to the competence of those physicians who have satisfied the requirements of the board.

II. Definition of Special Fields

The following branches of medicine at present are recognized as suitable fields for the certification of specialists:

1. Internal Medicine
2. Surgery
3. Pediatrics
4. Obstetrics and Gynecology
5. Ophthalmology
6. Otolaryngology
7. Dermatology and Syphilology
8. Neurology and Psychiatry
9. Urology
10. Orthopedic Surgery
11. Radiology
12. Pathology
13. Anesthesiology

III. Qualification of Candidates

Each applicant for admission to the examination should be required to present evidence that he has met the following standards:

A. General Qualifications.

1. Satisfactory moral and ethical standing in the profession.
2. A license to practice medicine.
3. Membership in the American Medical Association or, by courtesy, membership in such Canadian or other medical societies as are recognized for this purpose by the Council on Medical Education and Hospitals of the American Medical Association. Except as here provided, membership in other societies should not be required.

B. Professional Education.*

1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education and Hospitals of the American Medical Association.
2. Completion of an internship of not less than one year in a hospital approved by the same Council.

C. Special Training.**

(To be effective not later than Jan. 1, 1942.)

1. A period of study after the internship of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same Council as competent to provide a satisfactory training in the special field of study.
2. This period of specialized preparation shall include,
   a. intensive graduate training in anatomy, physiology, pathology, and the other basic medical sciences which are necessary to the proper understanding of the disorders and treatment involved in the specialty in question;
   b. an active experience of not less than eighteen months in hospitals, clinics, dispensaries or diagnostic laboratories recognized by the Council as competent in the specialty;
   c. examinations in the basic medical sciences of a specialty as well as in the clinical, laboratory and public health aspects.
3. An additional period of not less than two years of study and/or practice.

IV. Withdrawal

For reasons which are deemed sufficient, in the judgment of the Council on Medical Education and Hospitals, the recognition extended by the American Medical Association to holders of certificates from special examining boards may be withdrawn.

* Candidates who submit credentials from institutions outside of the United States and Canada should be required to pass the examination of the National Board of Medical Examiners.

** Candidates whose special training has been received outside of the United States and Canada should submit credentials satisfactory to the examining boards.

REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association:

The death of Dr. J. C. Flippin of Charlottesville, Va., a member of the Council on Scientific Assembly and of the House of Delegates, occurred on Feb. 16, 1939. Dr. Flippin had served as a member of the Council since 1936 and had represented the Medical Society of Virginia in the House of Delegates of the American Medical Association since 1934. As dean of the University of Virginia Department of Medicine and through constant attendance at meetings of important professional societies and active participation in the affairs of this Association and of other medical organizations, Dr. Flippin enjoyed a wide acquaintance with the physicians of the United States and was held in high esteem by all who were privileged to know him and especially by those whose privilege it was to be associated with him in some official capacity. He won the respect and affection of the members of this Council because of

his courteous bearing, his earnestness of purpose, his tolerance of the opinions of others, his readiness to carry his full share of responsibility, his devotion to duty and his loyalty to the highest professional ideals and to the organizations in whose service he was engaged.

The usual meetings of the Council on Scientific Assembly were held during the annual session at San Francisco, and the regular interim meeting of the Council was held in Chicago on Dec. 2, 1938, at which time the annual conference of the Council with the section officers was also held.

PROGRAM CHANGES

As reported to the House of Delegates at the San Francisco session, consideration has been given by the Council to the possibility of effecting changes in the nature of the programs of the scientific sections and the General Scientific Meetings. The Council has had the highly valued suggestions and advice of the section secretaries with respect to this matter, and it will be noted that certain innovations in the scientific programs are being instituted at this session.

A new feature of the program of the General Scientific Meetings will be panel discussions on Tuesday afternoon. The program at that time will be divided into medical and surgical sessions. The program of the medical session will be devoted to a discussion, to be directed by a moderator, which will deal with etiology, therapeutic methods and indications and public health aspects of pneumonia. The program of the surgical session will be given over to a discussion of diseases of the biliary tract, dealing with physiology, differential diagnosis and other important phases of this general subject and will be presented in the same manner as that of the medical session.

For many years it has been an unwritten rule observed by those in charge of the preparation of scientific programs that physicians residing in the city in which an annual session of the American Medical Association is held should not participate as contributors of papers. The Council on Scientific Assembly and the section officers have felt that the operation of this rule has at times prevented the presentation of papers of significant importance by physicians especially well qualified to discuss topics of general interest. An important innovation in this year's program involves the presentation of a group of papers in the program of the General Scientific Meetings by local physicians.

In some of the section meetings at this annual session the method of presentation of the programs will be changed to some extent. At least one section will devote one of its sessions to a panel discussion, and in certain instances two sections have combined their sessions on Friday into symposiums. It is proposed that experiments somewhat similar to those that are being undertaken this year be continued with the view of developing scientific programs of more general interest and in such manner as to afford opportunity for greater dissemination of helpful information and perhaps for greater participation in discussions by members of the sections and by those who attend the General Scientific Meetings.

The official program of the St. Louis session is submitted as a part of the report of the Council on Scientific Assembly. The programs of the sections are prepared by the officers of the sections, while the program of the General Scientific Meetings has been prepared under the direction of the chairman of the Council on Scientific Assembly.

At a proper time the Council will submit to the House of Delegates nominations for Affiliate Fellowship.

The members of the Council desire to make grateful acknowledgment of the helpful assistance received at the hands of the officers and especially of the secretaries of all the scientific sections.

Respectfully submitted.

JAMES E. PAULLIN, Chairman.
J. GURNEY TAYLOR.
A. A. WALKER.
CLYDE L. CUMMER.
ROCK SLEYSTER, President-Elect. } Ex officio.
MORRIS FISHBEIN, Editor, THE JOURNAL. } Ex officio.
OLIN WEST, Secretary. } Ex officio.

OFFICIAL NOTES

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 2 p. m. eastern standard time (1 p. m. central standard time, 12 noon mountain time, 11 a. m. Pacific time).

Changes in this time will be necessary to take into consideration daylight saving time. Announcement of this change will appear in advance in THE JOURNAL. Owing to network conflicts the Chicago broadcast does not occur at 1 p. m. Wednesday but there is a rebroadcast from a recording over Station WENR at 8 o'clock each Monday evening. The program broadcast each Monday is identical with the network program of the preceding Wednesday.

It has been necessary to curtail the length of the series by omitting the last two programs, which would have been broadcast June 14 and June 21. The series, therefore, will end with the broadcast scheduled for June 7.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

April 12. Learning to Live.
April 19. "Accidents Don't Just Happen—"
April 26. What Is a Doctor?

WOMAN'S AUXILIARY

Michigan

The Kalamazoo auxiliary distributed food to needy families in the community at Christmas.

Mrs. P. L. Thompson gave a talk on her recent world tour at the November meeting of the auxiliary to the Kent County Medical Society, which was attended by 158 members. The auxiliary has placed 172 six month subscriptions to *Hygeia* in the county rural schools and is collecting all printed articles pertaining to medical legislation. Dr. Ruth Herrick, chairman of the section on dermatology and syphilology of the Michigan State Medical Society, spoke on "The New Social Hygiene Program" at a recent meeting of the auxiliary, discussing "Shadow on the Land" by Surgeon General Parran.

Dr. Claire E. Straith spoke on the projects of the auxiliary to the Washtenaw County Medical Society at the Michigan Union, Ann Arbor, November 8. Members of the county medical society joined the auxiliary, hearing Dr. Straith speak on plastic surgery.

The auxiliary to the Saginaw County Medical Society has given subscriptions to *Hygeia* to twenty rural schools.

Oklahoma

The Pontotoc County auxiliary was addressed January 18 by Mrs. E. M. Gullatt on socialized medicine.

The women's auxiliary to the Woodward County Medical Society meets on alternate months with the doctors and shares the program. Dr. Coyne Campbell, Oklahoma City, spoke on psychoanalysis and Dr. Johnson of the staff of the Oklahoma State Hospital for Insane reviewed results of insulin treatment of dementia praecox patients, December 14.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Short Course in Internal Medicine.—The division of medical extension, Tulane University of Louisiana, New Orleans, in cooperation with the Medical Association of the State of Alabama, opened a course in internal medicine in Tuscaloosa April 3. Sessions will be held April 10, 24, May 1, 8 and 15. The instructors are Drs. Virgil P. Sydenstricker, professor of medicine, University of Georgia School of Medicine, Augusta, and Julius L. Wilson, associate professor of medicine at Tulane. Dr. Sydenstricker will discuss "Nutritional Diseases," "Diabetes," and "Nephritis," and Dr. Wilson, "Cardiac Diseases," "Acute Infections" and "Pulmonary Tuberculosis."

State Medical Meeting in Montgomery.—The Medical Association of the State of Alabama will hold its annual session at the Whitley Hotel, Montgomery, April 18-20, under the presidency of Dr. Seale Harris, Birmingham, and with the Montgomery County Medical Society acting as host. Out-of-state speakers will include:

Dr. John S. Turberville, Century, Fla., Prostatic Diseases from the Standpoint of the General Surgeon.
Dr. Giles S. Bryan, Amory, Miss., Reducing the Pneumonia Death Rate.
Dr. Edward N. DeWitt, Bridgeport, Conn., Intra-Ocular Tumors.
Dr. Tinsley R. Harrison, Nashville, Tenn., The Therapeutic Approach to High Blood Pressure.
Dr. Virgil P. W. Sydenstricker, Augusta, Ga., The Changing Concepts of Deficiency Diseases.
Dr. Clyde Brooks, New Orleans, Blood Sedimentation.
Dr. Adrian Taylor, Clifton Springs, N. Y., Clinical Aspects of Thyroid Disease.
Dr. William H. Anderson, Booneville, Miss., The Community Hospital.
Dr. Maxwell E. Lapham, New Orleans, Postgraduate Study.

Dr. George T. Pack, New York, will deliver the Jerome Cochran Lecture Wednesday morning on "Recent Advances in the Radiation Therapy of Cancer." There will be a symposium on hospitalization and medical care of the indigent Tuesday morning. Wednesday afternoon a feature will be the unveiling of a statue to James Marion Sims at which the speakers will be Dr. Marye Y. Dabney, Birmingham, on "James Marion Sims, 'The Father of Modern Gynecology'"; Mrs. Marie Bankhead, director, department of archives and history of the state of Alabama, Montgomery, "James Marion Sims, 'Benefactor of Womankind'," and Gov. Frank M. Dixon, who will accept the monument. A public session will be held Wednesday evening on "Medical Education in Alabama." The fourteenth annual meeting of the woman's auxiliary will be at the Whitley April 18-19.

ARKANSAS

Society News.—The Sebastian County Medical Society was addressed February 14 by Dr. Raymond T. Smith, Fort Smith, on "The Appearance of the Ear Drum in Certain Middle Ear Conditions."——At a meeting of the Lawrence County Medical Society February 14 Drs. John B. Elders, Walnut Ridge, discussed syphilis and Charles C. Townsend, Walnut Ridge, "Medicine as It Is or State Medicine?"——The Benton County Medical Society was addressed in Rogers February 9 by Drs. Miles E. Foster on "Sedimentation Rate in Gynecology"; Sidney J. Wolfermann, "Socialized Medicine," and William R. Brooksher, "Roentgen Ray Treatment of Infections." All are of Fort Smith. The society was addressed in Bentonville March 9 by Drs. Jesse D. Riley, State Sanatorium, on "Collapse Therapy" and Clyde L. McNeil, Rogers, "Sulfanilamide."

CALIFORNIA

Bequest to Library.—The income from a fund of $10,000 will be paid to the library of the Los Angeles County Medical Association, Los Angeles, in accordance with a stipulation in the will of the late Dr. Walter Jarvis Barlow. The name of Dr. Barlow has been prominently associated with the history of the library. In 1906 he erected a building to house what was then known as the Hendryx Medical Reference Library. In 1907 a building was opened in the name of the Barlow Medical Library Association. In 1932 negotiations were started to transfer the library to the county medical association, which in 1934 opened its permanent home, providing quarters for the library. The entire collection is known as the Library of the Los Angeles County Medical Association.

CONNECTICUT

Society News.—Dr. Emil Novak, Baltimore, recently addressed a public meeting sponsored by the Medical Information Bureau of the Hartford Medical Society and the Hartford County Medical Association on "Cancer: A Message of Hope."

Changes in Health Officers.—The *Connecticut Health Bulletin* announces the following changes in health officers:

Dr. Cyrus E. Pendleton, appointed in Colchester to succeed the late Dr. Edward J. Howland.
Dr. Harold A. Howard of Wethersfield to succeed the late Dr. Edward G. Fox.
Dr. Robert C. Sellew of Canaan.
Dr. Charles K. Skreczko Jr. of Shelton to succeed Dr. William S. Randall.
Dr. Joseph S. Stygar of Derby to succeed Dr. Thomas F. Plunkett.
Dr. John M. Renehan of Ansonia to succeed Dr. Louis Howard Wilmot.
Dr. George E. Roch of Willimantic to succeed Dr. Reuben Rothblatt.

DISTRICT OF COLUMBIA

University News.—Reuben L. Kahn, D.Sc., Ann Arbor, Mich., delivered a series of lectures on "Interpreting the Serology of Syphilis" at the U. S. Naval Medical School, Naval Medical Center, Washington, March 21-24.

Public Health Forum.—Georgetown University recently conducted its second annual public health forum. Dr. Ella Oppenheimer opened the series of lectures February 2 with a discussion of "Child Welfare." Other speakers were Dr. Custis Lee Hall, February 9, on "Crippling Conditions in Children"; J. Edward Routh, Ph.D., February 16, "Problem Children," and Fred R. Sanderson, February 23, "Common Household Poisons." The series ran six weeks.

GEORGIA

State Medical Meeting at Atlanta.—The ninetieth annual session of the Medical Association of Georgia will be held at the Biltmore Hotel, Atlanta, April 25-28, under the presidency of Dr. Grady N. Coker, Canton, and with the Fulton County Medical Society acting as host. The presidential address will be entitled "Modern Trends of Medical Practice." The speakers will include:

Dr. Hartwell Joiner, Gainesville, Prophylactics and the Common Cold
Dr. Carl C. Garver, Atlanta, Pneumolysis as an Adjunct of the Treatment of Pulmonary Tuberculosis.
Dr. Ernest F. Wahl, Thomasville, Effect of Nervous Influences on Nutrition.
Dr. Joseph Yampolsky, Atlanta, Use of Sulfanilamide in Routine Pediatric Practice.
Dr. Harrison H. Shoulders, Nashville, Tenn., Some Phases of Medical Economics.
Hon. Robert F. Maddox, Atlanta, chairman, state board of health, The Social and Economic Value of Health.
Dr. Crawford F. Barnett Jr., Atlanta, Chronic Gastritis.

Dr. John S. Lundy, Rochester, Minn., will deliver the Abner Wellborn Calhoun Lecture Wednesday on "Suggestions for the Use of Anesthetics and Analgesics in General Medical Practice." A symposium on industrial surgery will be held the same day and one on cancer Thursday. Entertainment will include the annual luncheon of the Georgia Radiological Society, and the annual dinners of the alumni of the medical schools of Emory and Georgia universities. Speakers before the woman's auxiliary, which will meet April 25-27, will include Drs. William H. Myers, Savannah, president-elect of the state medical association, on "Evolution in the Practice of Medicine."

ILLINOIS

Society News.—Dr. Lawrence F. Weber, Chicago, discussed common diseases of the skin before the Lawrence County Medical Society in Lawrenceville April 5.——The Will-Grundy County Medical Society was addressed in Joliet by Dr. Stanley Gibson, Chicago, April 7 on acute conditions of the abdomen in children.——At a meeting of the Madison County Medical Society, Alton, April 7, Dr. John S. Coulter, Chicago, discussed the "Home Treatment of Chronic Arthritis."

Chicago

Institute for Negro Health Workers.—The Tuberculosis Institute of Chicago and Cook County will conduct a two day institute for Negro health workers in cooperation with the National Tuberculosis Association April 17-18 at the Y. M. C. A., Wabash Avenue and Thirty-Eighth Street. The program will cover the following four themes: A modern con-

cept of tuberculosis, what it is, how it develops; best methods for controlling tuberculosis, including case-finding and hospitalization; the organized campaign against tuberculosis with special stress on Negro organization, and the possibility of controlling tuberculosis.

Society News.—Dr. Arthur Steindler, Iowa City, among others, addressed the Chicago Orthopedic Society and the Chicago Roentgen Society March 9 on "Compensation and Derotation in the Treatment of Scoliosis."——Dr. Frances Hannett discussed "What Constitutes a Psychiatric Problem in General Practice" before the Chicago Council of Medical Women March 22 and Dr. Adelaide M. Johnson, "Treatment of Children's Problems with Special Reference to Play Therapy."——The Chicago Society of Internal Medicine was addressed March 27, among others, by Drs. Heinrich Necheles, Rudolf Schindler and Rubin L. Gold on "Surgical Gastritis: A Study on the Genesis of Gastritis Associated with Ulcers."——Dr. Leo K. Campbell gave a public lecture at the Chicago Woman's Club March 8 under the auspices of the Chicago Medical Society on "Eat, Drink and Grow Fat."——The Chicago Pediatric Society was addressed March 21 by Drs. Adrian D. M. Kraus on "Periodic Paralysis"; Eugene T. McEnery, "Epidermoid Cysts of the Spleen," and Lloyd E. Harris, "Bromide Intoxication in a Child Four Years of Age."——At a meeting of the Chicago Ophthalmological Society March 20 the speakers were Dr. John G. Bellows and Herman Chinn, Ph.D., on "Distribution of Sulfanilamide in the Eye"; Drs. Bertha A. Klien, "Concerning the Dictyoma Retinae" and Samuel S. Blankstein, Milwaukee, "Comparison of Visual Acuities."

INDIANA

Tri-State Meeting.—The annual meeting of the Northern Tri-State Medical Association, including Michigan, Ohio and Indiana, will be held at the Hotel Oliver, South Bend, April 11. The speakers will include:

Dr. Albert C. Furstenberg, Ann Arbor, Mich., Nasal Accessory Sinus Disease in the General Practice of Medicine.
Dr. Daniel P. Foster, Detroit, Newer Concepts of Diabetes Mellitus.
Dr. Charles G. Johnston, Detroit, Physiologic Implications in the Management of Intestinal Obstruction.
Dr. David Edwin Robertson, Toronto, Fractures in Children.
Dr. Robert M. Moore, Indianapolis, Diagnosis and Treatment of Heart Disease.
Dr. A. Jerome Sparks, Fort Wayne, Ind., Calculi in the Upper Urinary Tract.
Dr. Frank C. Walker, Indianapolis, Relation of Cervical Lesions to Carcinoma of the Cervix Uteri.
Dr. Harold N. Cole, Cleveland, Relapse in Syphilis: Its Importance in Diagnosis, the Public Health Aspect, and Its Treatment.
Dr. Waldo E. Nelson, Cincinnati, Treatment of Diabetes Mellitus in Children.
Dr. Bruce K. Wiseman, Columbus, Ohio, The Cytolytic Functions of the Spleen in Relation to the Blood Diseases.

IOWA

Society News.—Dr. Soma Weiss, Boston, will discuss "Cardiac Asthma and Associated Syndromes" before the Linn County Medical Society, Cedar Rapids, April 24.——Dr. Morris Edward Davis, Chicago, addressed the Black Hawk County Medical Society, Waterloo, March 14 on "Endocrine Therapy in Obstetrics and Gynecology."

Grant to Study Infant Nutrition.—Dr. Philip C. Jeans, professor of pediatrics, State University of Iowa College of Medicine, Iowa City, has received a grant of $7,500 from the Borden Company for the continuation of his investigations in infant nutrition. The grant was made available through the Council for Pediatric Research of the American Academy of Pediatrics.

KANSAS

Society News.—Dr. James Roscoe Miller, Chicago, addressed the Shawnee County Medical Society February 6 on "Diagnosis and Treatment of Coronary Occlusion."——The Wyandotte County Medical Society was addressed in Kansas City February 21 by Drs. Eugene D. Liddy Jr. and Frederic A. Speer on asthma and diagnosis of fever in infancy, respectively.

LOUISIANA

Instruction for Medical Reserve Officers.—The department of graduate medical studies of Tulane University of Louisiana School of Medicine, New Orleans, will conduct a two weeks course of instruction for medical reserve officers of the fourth corps of the U. S. Army April 11-22.

Society News.—Dr. Charles E. Galloway, Evanston, Ill., discussed "Pathology of the Cervix" before the Orleans Parish Medical Society and the New Orleans Gynecological and Obstetrical Society March 13. The parish medical society was addressed February 27 by Drs. Carlo J. Tripoli on "Acute Lymphocytic [illegible] and Rudolph Matas, "Recent Observations [illegible] in the Spanish War."——Dr. Clarence P. May discussed "Medical Psychology" before the Rapides Parish Medical Society, Alexandria, February 6.

MARYLAND

Society News.—A symposium on marihuana was presented before the Baltimore City Medical Society February 3 by Rowland K. Adams, judge, supreme bench of Baltimore City; Dr. Manfred S. Guttmacher, chief medical officer of the supreme bench, and Mr. H. J. Wolin [illegible] of the treasury department, bureau of [illegible] D. C. At a meeting of the society March 3, the speakers included Drs. Henry J. Walton on "What Can Be Done for Patients Suffering from Far Advanced Bone Metastasis," and Richard T. Shackelford, "Peritoneoscopy, Its Uses and Limitations."——Dr. Thomas Archibald Malloch, librarian of the New York Academy of Medicine, gave an illustrated lecture on William Osler before the Osler Historical Club, Baltimore, March 21.

MASSACHUSETTS

The Cutter Lecture.—Dr. Frederick F. Russell, professor of preventive medicine and epidemiology, emeritus, Harvard Medical School, Boston, will deliver the annual Cutter Lecture in Preventive Medicine at the school April 17. His subject will be "The History of Yellow Fever as an Illustration of Methods of Study and Control of Virus Diseases."

Health Education Institute.—The New England Health Education Association, in cooperation with the departments of education, state departments of health and tuberculosis associations of the New England states, will hold an institute on health education April 21-22 at the William Barton Rogers Building, Massachusetts Institute of Technology, Cambridge.

MICHIGAN

Society News.—Dr. Jacob P. Greenhill, Chicago, discussed "The Use of Androgens in Gynecology" before the Detroit Obstetrical and Gynecological Society March 7.——Dr. William P. Tew, London, Ont., discussed "Diagnosis and Treatment of Hemorrhage Late in Pregnancy" before the Genesee County Medical Society in Flint February 8.——Dr. Morris Edward Davis, Chicago, addressed the Berrien County Medical Society in Benton Harbor March 16 on "Present Day Diagnosis and Treatment of Hemorrhage Late in Pregnancy."

Venereal Disease Director Appointed.—Dr. Thomas E. Gibson, Paw Paw, formerly director of the Van Buren County Health Department, has been appointed director of the venereal disease division of the Michigan State Department of Health. Previously Dr. Gibson was director of the Genesee County Health Department and of the Isabella County Health Department and in 1931 he served with the state department of health for six months on a Rockefeller Foundation scholarship. He graduated at the College of Medical Evangelists, Loma Linda-Los Angeles, in 1931.

Graduate Programs.—The attending staff of Receiving Hospital, Detroit, has arranged the programs of the monthly staff meetings for the remainder of this academic year as a continuing graduate activity, according to the Detroit *Medical News*. All former interns of the hospital are invited. The speakers at the meeting March 8 were Warren O. Nelson, Ph.D., professor of anatomy, Wayne University School of Medicine, Detroit, on "Physiology of the Ovarian Hormones"; Oliver Kamm, scientific director of research, Parke, Davis & Co., "The Standardization and Chemical Relationships of the Ovarian Hormones," and Dr. Ward F. Seeley, professor of gynecology and obstetrics at Wayne, "Hormonal Treatment of Menstrual Disorders."

Personal.—Dr. George McL. Waldie has resigned as medical superintendent of the Copper Country Sanatorium, Houghton, effective on the appointment of a successor. He has held the position for twelve years.——Dr. Robert B. Harkness, Hastings, director of the Barry County health department, was elected president of the State Council of Health at its advisory session with the state health commissioner in Lansing recently, succeeding Ura G. Rickert, D.D.S., Ann Arbor, who died Oct. 22, 1938. P. C. Lowery, D.D.S., Detroit, vice president of the American Dental Association, has been appointed a member of the council to serve the unexpired term of Dr. Rickert, which ends June 30, 1941.——Dr. Thomas Y. Ho, St. Johns, was recently reelected secretary of the Clinton County Medical Society for the sixteenth consecutive time.

MINNESOTA

Special Lecture.—Dr. Ludvig Hektoen, executive director, National Advisory Cancer Council, U. S. Public Health Service, Washington, D. C., will present the annual Minnesota Cancer Institute Lecture in Minneapolis April 17. His subject will be "Advances in the Knowledge and Control of Cancer."

State Radiologic Meeting.—The Minnesota Radiological Society held its spring meeting in St. Paul, March 18. The speakers included.

Ancel Keys, Ph D., and Dr. Hymer L. Friedell, Minneapolis, Roentgen Kymographic Studies in Cardiac Physiology.
Drs. Harry M. Weber and Clarence Allen Good Jr., Rochester, A Series of Interesting Duodenal Lesions
Drs. Clarence P. Truog and Raymond E. Burge, Minneapolis, Bone Atrophy. Report of an Unusual Case.
Dr. Henning M. Berg, Bismarck, N. D., The Practice of Radiology in Sweden

A symposium on radiation therapy of neoplasm of the stomach was presented by Drs. Arthur U. Desjardins, Rochester; Chauncey N. Borman, Cyrus O. Hansen and Russell W. Morse, Minneapolis; Edward Schons, St. Paul, and Wilhelm Stenstrom, Ph.D., Minneapolis. At the dinner, Drs. John L. McKelvey spoke on "Medical Experiences in China," and Harry M. Weber, Rochester, "Observations on Roentgenology in Europe."

MISSISSIPPI

Society News.—At a meeting of the Pike County Medical Society in McComb January 5 Drs. Emile F. Naef and Conrad G. Collins, New Orleans, spoke on "First Infection Type Tuberculosis in Childhood" and "Causes and Treatment of Vaginitis" respectively.——A joint meeting of the faculty of the University of Mississippi and the Northern Mississippi Medical Society was addressed in Oxford January 19 by Drs. Paul H. Harmon, Springfield, Ill., on "Suppurative Arthritis of the Hip"; Samuel W. Banks, Chicago, "The Intervertebral Destruction in Relation to Back Pain" and Edward L. Compere, Chicago, "Methods of Treatment for Fractures of the Neck of the Femur."

MISSOURI

Lectures on Pediatrics and Obstetrics.—The state board of health, the committee on maternal welfare of the Missouri State Medical Association and the extension service of the University of Missouri College of Agriculture are sponsoring lectures on obstetrics and pediatrics throughout the state.

Society Condemns Smoke Nuisance.—The St. Louis Medical Society recently adopted a resolution condemning the smoke nuisance in St. Louis as a danger to health and requesting city authorities to take immediate steps to "abolish the menace," newspapers reported. The resolution adopted by the society incorporates recent resolutions of the Ear, Nose and Throat Club, the Trudeau Society and the St. Louis Pediatric Society expressing opinions on the subject.

Retires as Superintendent of Barnes Hospital.—Dr. Louis H. Burlingham has retired after twenty-two years' service as superintendent of Barnes Hospital, St. Louis, effective April 1. According to *Modern Hospital,* Dr. Burlingham submitted his resignation a year ago, but the board of trustees of the hospital declined to accept it, granting him instead a leave of absence in the hope that he would regain his health. Dr. Burlingham graduated at Johns Hopkins University School of Medicine, Baltimore, in 1906

Society News.—Round table discussions form a new type of program recently introduced at meetings of the St. Louis Medical Society. The subject "Anemias—Clinical and Laboratory Diagnosis" was discussed February 24 with Dr. Goronwy O. Broun as the leader; "Anemia—Modern Methods of Treatment" was the theme March 3 with Dr. Lawrence D. Thompson as the leader.——Dr. Timothy Leary, Boston, discussed "The Most Important Professional Disease: Coronary Sclerosis" before the Kansas City Academy of Medicine February 17.

MONTANA

Personal.—Dr. Joseph L. Richards, Polson, has been reappointed county physician and secretary of the board of health of Lake County.

Society News.—Dr. Roy V. Morledge, Billings, was elected president of the Montana Academy of Ophthalmology and Oto-Laryngology at its semiannual meeting February 6 and Dr. Ashley W. Morse, Butte, was reelected secretary.

NEW YORK

State Medical Meeting at Syracuse.—The annual meeting of the Medical Society of the State of New York will be held April 24-27 at the Hotel Onondaga and the Hotel Syracuse, Syracuse, under the presidency of Dr. William A. Groat Syracuse. Two general sessions will be devoted to discussions of "Emergencies—Their Recognition and Treatment" and "Chronic Diseases—Their Early Recognition" In the first session the speakers will be:

Dr. Thew Wright, Buffalo, The Acute Abdomen
Dr. Edward A. Schumann, Philadelphia, Obstetrical Emergencies
Dr. Orman C. Perkins, Brooklyn, Acute Cerebral Emergencies
Dr. Edward C. Reifenstein, Syracuse, Cardiac Emergencies

In the second general session addresses will be made by:

Dr. Samuel A. Levine, Boston, Early Evidence of Cardiovascular Disease.
Dr. Francis Carter Wood, New York, Early Diagnosis of Cancer (the first A. Walter Suiter Lecture).
Dr. James Alexander Miller, New York, Early Diagnosis and Treatment of Pulmonary Tuberculosis
Dr. Clarence O. Cheney, White Plains, Early Recognition of Mental Diseases and Their Treatment.

Guest speakers who will address the sections will include

Dr. Thomas E. Jones, Cleveland, Surgical Treatment of Diverticulitis
Dr. Harry E. Bacon, Philadelphia, Extrarectal Metastatic Malignancy Simulating Primary Carcinoma of the Rectum
Dr. Trygve Gundersen, Boston, Diagnosis and Treatment of Diseases of the Cornea.
Dr. Maurice B. Strauss, Boston, Etiology and Treatment of True Toxemia of Pregnancy.
Dr. Harold R. Griffith, Montreal, Canada, Management of Complications Arising During Cyclopropane Anesthesia.
Drs. Bernard L. Wyatt, Robert A. Hicks and Harry E. Thompson, Tucson, Ariz., Chronic Arthritis—Differential Diagnosis—Special Treatment Methods: Medical, Orthopedic, Physical Therapy.
Dr. Donald Guthrie, Sayre, Pa., The Advantages of Silk in General Surgery.

The annual banquet will be at the Hotel Syracuse Tuesday evening April 25. Addresses will be made by Mr. Alexander Woollcott, New York; Drs. Logan Clendening, Kansas City, Mo.; William A. Groat, Syracuse, president of the society, and Terry M. Townsend, New York, president-elect.

New York City

The Salmon Lectures.—The seventh series of Thomas William Salmon Memorial Lectures will be delivered by Dr. Edward A. Strecker, chairman of the department of psychiatry, University of Pennsylvania School of Medicine, Philadelphia, at the New York Academy of Medicine April 14, 21 and 28. Dr. Strecker's general subject will be "Beyond Clinical Frontiers," and the individual titles, "The Massive Retreat from Reality"; "Crowd-Mindedness" and "Threats to Our Culture."

Long Island College Alumni Meeting.—The Alumni Association of the Long Island College of Medicine will hold its annual Alumni Day April 25. The morning program will include addresses by Drs. Frederick Schroeder on "Ancient and Modern Methods of Poisoning"; William A. Jewett, "Treatment of Pelvic Malignancies at the Long Island College Hospital" and Samuel Potter Bartley, "Reconstruction of the Arm and Hand" At a luncheon at the hospital Mr. Tracy Voorhees, president of the college board of regents, will speak on "A Layman's Thoughts on the Modern Problems Facing the Medical Profession," and Dr. Nathaniel P. Rathbun, "Some of the Problems Which the Medical Profession Is Facing Today." The annual banquet will be held in the evening at the Columbus Club with Drs. Frank L. Babbott, president of the college, John Sturdivant Read and Cassius H. Watson as the speakers

Health Calendar for the World's Fair.—Observances of special days have been scheduled by several organizations for the period of the New York World's Fair. A recent announcement includes:

May 1-8, National Child Health Week.
May 9, Dental Society of New York State.
May 12, National Hospital Day and Nurses' Day.
May 16, American Medical Association.
May 17, Red Cross Day
May 19, Tenth International Congress of Military Medicine and Pharmacy
May 31, Medical Society of the State of New York.
June 3, American Academy of Pediatrics
June 4, American Society for the Hard of Hearing.
June 18, New York City Health Department.
June 23, School Health Day.
June 27, County Medical Society Day.
October 21, National Health Day

Society News.—At a meeting of the Medical Society of the County of New York February 27 a symposium on the proposed national health program was presented by Drs Martha M. Eliot, Washington, D. C, John P. Peters, New Haven,

Conn., Samuel J. Kopetzky and Frederic E. Elliott.——Drs. John L. Rice, health commissioner, and Stanley R. Woodruff, Jersey City, N. J., addressed the Harlem Medical Association March 1 on "The Role of the Private Physician in Public Health" and "Management of Stones in the Urinary Tract" respectively.——Dr. Herbert Willy Meyer addressed the New York Surgical Society March 1 on "Perforations of the Gastrointestinal Tract."——Dr. Louis Lichtenstein addressed the New York Pathological Society February 23 on "Pathologic Findings Following Therapeutic Hyperthermia" and Drs. Abraham Penner and Alice Bernheim, "Hemostatic Mechanisms as a Cause of Visceral Lesions."——A symposium on arthritis was presented at a stated meeting of the New York Academy of Medicine March 2 by Drs. Philip S. Hench, Rochester, Minn.; Walter Bauer, Boston, and Ralph H. Boots, New York.——Dr. J. Irving Kushner, among others, addressed the Bronx Gynecological and Obstetrical Society February 27 on "Obstetrics in a General Hospital (10,000 Cases at the Bronx Hospital)."

NORTH CAROLINA

Society News.—Dr. Walter R. Johnson, Asheville, addressed the Buncombe County Medical Society, Asheville, March 20, on "The Use of the Gastroscope in Diagnosis of Stomach Disorders." Dr. James P. Rousseau, Winston-Salem, addressed the society in Asheville February 20 on "Roentgen Treatment of Pneumonia." In the afternoon the society held a panel discussion of pneumonia.——At a meeting of the Scotland County Medical Society in Laurinburg January 19 the speakers were Drs. Douglas Jennings, Bennettsville, S. C., on obstetrics; William T. Rainey, Fayetteville, on congestive heart failure, and William D. James, Hamlet, on the work of the state board of medical examiners.——Dr. Russell L. Haden, Cleveland, addressed the New Hanover County Medical Society, Wrightsville Beach, February 27 on "Nutritional Deficiency Diseases."

OHIO

Annual Library Meeting.—Dr. Cyrus C. Sturgis, Ann Arbor, Mich., addressed the second annual meeting of the Harold Brittingham Memorial Library at the Cleveland City Hospital January 17. His subject was "The Historical Development of Knowledge Concerning Blood Transfusion and Appraisal of Its Value." The library now contains 1,300 bound volumes and 500 books, it was reported. During 1938 4,800 visitors were registered and 1,500 items were borrowed.

Society News.—Dr. Arthur U. Desjardins, Rochester, Minn., addressed the Academy of Medicine of Cincinnati March 21 on "Radiotherapy for Inflammatory and Malignant Conditions." Dr. Herman O. Mosenthal, New York, discussed "Experiences with Protamine Zinc Insulin" March 7.——Dr. Grover C. Penberthy, Detroit, addressed the Montgomery County Medical Society, Dayton, March 17 on "Burns, Their Treatment and Management."——Dr. George M. Curtis, Columbus, addressed the Mahoning County Medical Society, Youngstown, March 21 on "Iodine Metabolism in Thyroid Disease."

OREGON

Society News.—A discussion of thrombosis and embolism was presented before the Multnomah County Medical Society, Portland, March 15 by Drs. Charles H. Manlove, Warren C. Hunter and Herbert H. Foskett.——Dr. Virgil E. Dudman, Portland, addressed the Central Willamette Medical Society, Eugene, February 2 on "Obstetrics: Emergency Conditions."

Changes in Health Officers.—Dr. Courtney M. Smith, Oregon City, has resigned as health officer of Clackamas County to become assistant health officer of Portland. Dr. Daniel P. Trullinger, Oregon City, succeeded Dr. Smith in Clackamas County.——Dr. Gerald E. Stark, Coquille, has been appointed health officer of Coos County to succeed Dr. Charles L. Coyle, Grants Pass, who resigned recently.

PENNSYLVANIA

Professor Krogh Lectures at Swarthmore.—Prof. August Krogh of the University of Copenhagen, Denmark, is delivering a series of lectures at Swarthmore College, Swarthmore. The general subject of the series is "The Comparative Physiology of Respiratory Mechanisms."

Personal.—Dr. Howard C. Frontz, Huntingdon, was recently elected to serve his second term as president of the Huntingdon County Medical Society; his first election was in 1897.——Dr. Thomas H. A. Stites, Nazareth, has been appointed medical director of the Cresson Sanatorium, State, a position he held from 1923 to 1935. He succeeds Dr. Louis A. Wesner.——Dr. Samuel J. Dickey, West Chester, health officer of Chester County, has been appointed director of the division of tuberculosis in the state department of health.

Philadelphia

Scarlet Fever Outbreaks.—Eighty-four students at Girard College were reported ill of scarlet fever March 24. Dick tests were to be made of the other 1,646 students.——The Sigma Phi Epsilon fraternity house at Temple University was quarantined March 21 when four of twenty-one residents became ill of scarlet fever.

Society News.—Drs. Manuel M. Pearson and Marcus David Burnstine, among others, addressed the Philadelphia Psychiatric Society March 10 on "Psychosis Precipitated by Sulfanilamide."——Among the speakers at a meeting of the Philadelphia Academy of Surgery March 6 were Drs. John S. Lockwood and Virgil H. Moon on "Bacteriologic Considerations in Wound Healing" and "Early Recognition of Shock and Its Differentiation from Hemorrhage," respectively.——At a meeting of the Philadelphia Laryngological Society March 7 the speakers included Drs. Matthew S. Ersner on treatment of type III pneumococcus meningitis with sulfapyridine; David Myers, treatment of otitic sepsis and meningitis with sulfanilamide, and Merrill B. Hayes, employment of sulfanilyl aminopyridine in other otorhinologic conditions.——Speakers before the Philadelphia County Medical Society March 8 were Drs. Samuel W. Sappington on "Heparin in Blood Transfusion"; Charles B. Hollis, "Effect of Tobacco on the Respiratory Tract," and George D. Geckeler, "Coronary Artery Disease."

RHODE ISLAND

Committee on Industrial Health Appointed.—Dr. Charles F. Gormly, Providence, has been appointed chairman of a committee on industrial health of the Rhode Island Medical Society. The appointment of the committee was authorized at a meeting of the house of delegates in January.

SOUTH DAKOTA

Dr. Cook Appointed State Health Superintendent.—Dr. John F. D. Cook, Langford, for many years secretary of the South Dakota State Medical Association, has been appointed superintendent of the state board of health. He succeeds Dr. Park B. Jenkins, Pierre.

TEXAS

Hospitals Opened.—The Patterson Memorial Hospital, Troup, was opened recently. The new eighteen room hospital was built by Miss Gillie Patterson, Troup, in memory of her parents. The Littlefield Hospital and Clinic, with twenty-three private rooms, two wards of two beds each and five bassinets, was opened recently.

Bequest to Sealy Hospital.—Mrs. Jennie Sealy Smith, who died Oct. 10, 1938, directed in her will that after the payment of certain bequests the balance of her estate, estimated at $4,000,000, be paid to the Sealy and Smith Foundation for the John Sealy Hospital, Galveston. A private and semi-private pavilion is to be erected in memory of Mrs. Smith's husband, R. Waverly Smith.

VIRGINIA

Society News.—Drs. Edwin C. Hamblen, Durham, N. C., and Charles P. Mangum, Richmond, addressed the Danville-Pittsylvania Academy of Medicine March 14 on "Endocrine Disturbances and Present Day Endocrine Therapy" and "Pediatric Endocrinology" respectively.——Dr. Beverly C. Smith, New York, addressed the Roanoke Academy of Medicine February 6 on "Diagnosis and Treatment of Peripheral Vascular Diseases" and Dr. Henry Lee, Roanoke, on "Postoperative Thrombophlebitis."

State Society's Cancer Committee.—*The advisory committee to the Virginia Cancer Foundation, appointed recently by the president of the Medical Society of Virginia, has been enlarged and will now act as an advisory committee to the Women's Field Army of the American Society for the Control of Cancer, the cancer foundation and any other agencies seeking advice or endorsement on this subject. Dr. Edwin P. Lehman, Charlottesville, is chairman and the members are: Drs. Irl C. Riggin, Richmond, state health officer; Isaac A. Bigger, Richmond; Frederick M. Hodges, Richmond; Robert L. Payne, Norfolk; Richard P. Bell, Staunton, and Isaac C. Harrison, Danville. Dr. Hugh H. Trout, Roanoke, president-elect of the state society, and Dr. Alexander F. Robertson Jr., Staunton, president, are ex officio members.*

WASHINGTON

Puget Sound Surgical Meeting.—Dr. Philip D. Wilson, New York, was the guest speaker at the annual meeting of the Puget Sound Surgical Society in Seattle March 10-11. Dr. Wilson delivered an address March 10 at a dinner at the Rainier Club on "Pioneers in Orthopedic Surgery." Saturday he conducted clinics at King County Hospital and in the evening spoke at the annual banquet on "Inequality of Leg Length and Methods of Correction."

Society News.—Dr. Brien T. King, Seattle, addressed the Walla Walla Valley Medical Society, Walla Walla, February 9 on goiter and on recent research on the restoration of the abductor function of the larynx following paralysis due to recurrent nerve paralysis.——A symposium on the biliary tract was presented before the King County Medical Society, Seattle, March 6, by Drs. Clyde R. Jensen, Thomas W. Blake, Charles E. Watts and John A. Duncan.——Dr. Sterling Bunnell, San Francisco, was the guest speaker at the annual meeting of the Tacoma Surgical Club April 1. His subject was "Primary Repair of the Injured Hand."——A symposium on gallbladder disease was presented before the Spokane County Medical Society, Spokane, March 16 by Drs. James M. Nelson, Joseph Melvin Aspray, Charles M. N. Anderson, Robert L. Rotchford and Rudolph G. Andres.——Drs. Samuel E. Light and John W. Gullikson addressed the Pierce County Medical Society, Tacoma, February 14 on "Treatment of Acne Vulgaris" and "Spinal Anesthesia" respectively.

WYOMING

Personal.—Dr. Walter M. Lacey, Cheyenne, has resigned from the state board of medical examiners and has been succeeded by Dr. Jacob R. Pierce, Thermopolis.

Changes in State Board of Health.—Dr. Enos G. Denison, Sheridan, and Raymond G. Howe, D.D.S., Casper, have been appointed members of the state board of health and Dr. Marshall C. Keith, Casper, has been made state health officer. Dr. Keith is secretary of the Wyoming State Medical Society.

GENERAL

Nurses Wanted for Latin American Service.—At the request of health authorities of one of the Latin American republics, the Pan American Sanitary Bureau, Washington, D. C., is seeking nurses familiar with Spanish and if possible trained in care of mental cases. Contracts will be offered for two years and transportation to their destination will be paid.

The Society of University Surgeons.—This society, organized in 1938, held its first annual meeting at the University of Rochester School of Medicine and Dentistry, Rochester, N. Y., in February. Dr. Samuel J. Stabins, Rochester, was elected president; Dr. Warren H. Cole, Chicago, president-elect, and Dr. Frank Glenn, New York, secretary. The society is made up of surgeons who have completed a surgical residency in one of the following schools and are now engaged in teaching in these or other institutions: University of Chicago, University of Cincinnati, University of Rochester, Columbia, Cornell, Harvard, Johns Hopkins, Vanderbilt, Washington and Yale universities.

Changes in Status of Licensure.—The State Board of Health of Kentucky has reported the following action:

Dr. Ernest Raspberry Alexander, Cynthiana, license revoked January 7 for violation of the Harrison Narcotic Act.

Dr. Walker L. Stumbo, Lackey, license revoked January 7; allowed to practice on probation.

The New York State Board of Medical Examiners reports the following action:

Dr. Edmund K. Macomber, 745 New Scotland Avenue, Albany, license revoked Nov. 16, 1938, for criminal abortion.

The Virginia State Board of Medical Examiners recently reported the following action:

Dr. J. Burton Nowlin, Lynchburg, license revoked Dec. 14, 1938, for violations of the Harrison Narcotic Act.

Dr. Gilmer Rosser Shelton, Dabney, license revoked Dec. 14, 1938, on account of violations of parole in relation to the Harrison Narcotic Act.

Society News.—The annual convention of the American Red Cross will be held in Washington, D. C., April 24-27.——The twenty-fourth annual meeting of the American Association of Industrial Physicians and Surgeons with the American Conference on Occupational Diseases and Industrial Hygiene will be held at the Hotel Statler, Cleveland, June 5-8.——The American Society of Anesthetists will meet in New York April 14 with the following speakers: Drs. Philip D. Woodbridge, Boston, and Karl A. Connell, Branch, N. Y., on "Hazards of Explosion from the Point of View of the Anesthetist," and Joseph Warren Horton, Sc.D., Cambridge, Mass., "Factors Affecting the Occurrence and Prevention of Electrostatic Sparks."

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Joseph's Hospital, Syracuse, N. Y., $147,932.93 by the will of the late George Doheny. Other institutions sharing equally in the residuary estate include the Syracuse Memorial Hospital, General Hospital of Syracuse, Syracuse Free Dispensary and St. Mary's Maternity Hospital and Infants' Asylum.

Lenox Hill Hospital and New York Post-Graduate Medical School and Hospital, $20,000 each, and New York Infirmary for Women and Children, $15,000, by the will of Mrs. Amalia F. Morse; all are in New York.

Lenox Hill Hospital, New York, $150,000 by the will of the late Jacob Ruppert.

Eye and Ear Hospital of Pittsburgh, $3,000 by the will of Dr. James A. Lippincott.

St. Luke's Hospital, New York, $5,000, and New York Eye and Ear Infirmary, $2,500 by the will of Miss Virginia Scott Hoyt.

Methodist Episcopal Hospital and Methodist Home for the Aged, Philadelphia, $5,000 by the will of the late Miss Emily Leaming Goble.

Shriners Hospital for Crippled Children and Lankenau Hospital, Philadelphia, will share with three other institutions about $600,000 from the estate of the late C. Henry Strecker.

Special Society Elections.—Dr. James L. Dunavant, Ripley, Tenn., was chosen president-elect of the Mid-South Post Graduate Medical Assembly at the annual meeting in Memphis, Tenn., in February. Dr. Herbert Fay H. Jones, Little Rock, became president.——Dr. Charles J. Andrews, Norfolk, was named president-elect of the Tri-State Medical Association of the Carolinas and Virginia at the annual meeting in Charleston, S. C., in February. Vice presidents elected were Drs. John S. Horsley, Richmond, Va.; Harold S. Clark, Asheville, N. C., and William R. Wallace, Chester, S. C. Dr. James M. Northington, Charlotte, N. C., was reelected secretary. The 1940 meeting will be in Richmond.——Dr. Robert D. Schrock, Omaha, was chosen president-elect of the American Academy of Orthopaedic Surgeons at its seventh annual convention in Memphis January 15-19, and Dr. George E. Bennett, Baltimore, was installed as president. Other officers are Drs. Alfred R. Shands Jr., Wilmington, Del., vice president; Eugene Bishop Mumford, Indianapolis, treasurer; Carl E. Badgley, Ann Arbor, Mich., secretary, and Philip Lewin, Chicago, historian and librarian. The next annual session will be held at the Hotel Statler, Boston.

Meeting of American Rheumatism Association.—The American Rheumatism Association will hold its annual meeting in St. Louis May 15 at the Chase Hotel, beginning at 9:15 a. m. All members of the American Medical Association are invited. Following the presidential address by Dr. Ralph Pemberton, Philadelphia, the program will be presented:

Dr. Francis C. Hall, Boston, Menopause Arthritis.

Dr. Richard H. Freyberg, Walter D. Block, Ph.D., and M. F. Fromer, Ann Arbor, Mich., Study of Sulfur Metabolism and the Effect of Sulfur Administration in Rheumatoid Arthritis.

Dr. Louis Maxwell Lockie and Roger S. Hubbard, Ph.D., Buffalo, Observations of Effect of High Fat Diet in Gouty Arthritis.

Dr. J. Albert Key, St. Louis, Foreign Body Arthritis.

Drs. Marian W. Ropes and Walter Bauer, Boston, Origin and Nature of Normal Synovial Fluid.

Drs. Martin Henry Dawson and Ralph H. Boots, New York, Arthritis Associated with Lymphogranuloma Venereum.

Drs. Frances Baker, James F. Rinehart, Stacy R. Mettler and Frederick S. Bruckman, San Francisco, Rheumatoid Arthritis of the Spine.

Drs. Nathan Sidel and Maurice I. Abrams, Boston, Treatment of Chronic Arthritis: Results with Saline Injections Used as Controls for Vaccine Therapy.

Dr. John P. Stump, New York, Prevention of Arthritic Deformities by Early Orthopedic Management.

Report of the Commonwealth Fund.—During its twentieth year the Commonwealth Fund of New York appropriated $2,277,953.19 for philanthropic purposes. More than four fifths of its expenditures went for the promotion of health, principally for medical education, research, public health and community hospitals in rural areas. The fund's endowment having been raised in 1937 to almost $50,000,000, the appropriations for the past year were the largest it has ever made. The ninth rural hospital built by the fund was opened at Ada, Okla., during the year, and two others have been planned—one at Provo, Utah, and one at Lancaster, S. C. A new type of arrangement has been made with the Kings Mountain Memorial Hospital at Bristol, Tenn.-Va., by which the fund will finance modernization of the plant and provide resident medical service. In return, the community agrees to put the institution on a sound financial footing and bring its operation in line with accepted standards. Contributions to medical education through various channels amounted to $375,000. A new plan in this field was to award fellowships to ten junior instructors

in medical schools for study in other institutions. Four junior staff men interested in pediatrics received fellowships to study psychiatry. Other new awards include subsidies to the departments of preventive medicine at New York and Long Island College of Medicine. Fifteen medical schools and hospitals received funds for medical research amounting to $345,000. To some extent these funds were concentrated on groups of related studies at different centers. Oklahoma and Alabama were added this year to the states receiving assistance in support of rural public health service. In Oklahoma a state traveling unit to advise local health officers and a demonstration of county health work in Seminole County were made possible through the fund. In Alabama the state health department received aid in building up a health district of seven counties as a means of strengthening local service in various fields of local health activity. One of the major interests of the Commonwealth Fund is in mental hygiene and it has promoted this activity in England as well as in the United States. According to the report, these activities in the United States have three main objectives: to encourage exploration of the frontiers between psychiatry and other areas of medicine (particularly pediatrics); to increase the supply of trained psychiatrists and psychiatric social workers, and to promote and safeguard standards of clinical organization and service. The fund last year subsidized teaching clinics at the New York Hospital and the Babies Hospital in New York, Children's Hospital in Boston and the University of Minnesota, Minneapolis; it offered fellowships in psychiatry and psychiatric social work and maintained a national advisory service for community clinics in cooperation with the National Committee for Mental Hygiene. In England the fund continues to assist the London Child Guidance Center, an agency known as the Child Guidance Council and a training course for psychiatric social workers.

CANADA

Society News.—Dr. Edmund L. Keeney, Baltimore, addressed the section on medicine of the Academy of Medicine of Toronto January 10 on "'Slow' Epinephrine" and Dr. Alfred H. W. Caulfield on "'Slow' Epinephrine Inhalant."—— Dr. Irvine McQuarrie, professor and head of the department of pediatrics, University of Minnesota Medical School, Minneapolis, addressed the Montreal Neurological Society at McGill University, Montreal, March 1, on "Physicochemical Studies on the Mechanism of Convulsive Phenomena."

Grants to University of Toronto.—A gift of $250,000 from the Rockefeller Foundation toward an endowment for the school of nursing is announced by the University of Toronto. The department of medical research at the Banting Institute has received from the Supreme Council of the Scottish Rite Masons a grant of $2,500 for research on the insulin and metrazol treatments for dementia praecox. A gift of 200 mg. of radium has been made to the department of medical research by Gilbert A. Labine of the Eldorado radium mines in memory of his son Leonard.

FOREIGN

Dr. Rous Lectures in England.—Dr. Francis Peyton Rous of the Rockefeller Institute for Medical Research, New York, gave the William Withering Lectures at the University of Birmingham, England, March 9, 16, 21 and 23, on the cancer problem.

Anniversary of Petrus Camper's Death.—The University of Groningen, Holland, announces a special meeting and exhibition April 29-30 to commemorate the one hundred and fiftieth anniversary of the death of Petrus Camper, a physician, anatomist, obstetrician and artist who for ten years was professor of medicine at the university. Camper died April 7, 1789. At the memorial meeting Saturday evening, April 29, addresses will be made by Dr. B. W. Th. Nuyens, Amsterdam, and members of the Groningen faculty. The exhibition will bring together anatomic drawings by Camper and a number of preparations made by him. The drawings are in the possession of the Library of the Netherlands Society for the Promotion of Medicine at Amsterdam and the University Library at Leyden.

CORRECTION

Immunization Against Pertussis.—In Miller and Faber's article in THE JOURNAL, March 25, page 1147, second column, first paragraph, line seven, the word "disease" should have been "exposure" and in the following line the word "from" should be deleted. In the second line of the third paragraph in the same column the word "atypical" should be "typical."

Government Services

Meningitis on the Navajo Reservation

An outbreak of meningitis on the Navajo Indian Reservation, which covers parts of Arizona, New Mexico, Colorado and Utah, is reported in a recent issue of the *Navajo Medical News*, bulletin of the Indian Medical Service for this reservation. The report covered the area served by the Indian Hospital at Shiprock, N. M. In twenty-seven suspected cases, the diagnosis was positive in thirteen, presumptive in twelve and negative in two. Twenty-six cases occurred in Navajos. Several of the patients had died before the physicians were notified and the diagnosis was made from descriptions of the symptoms. Of the twenty patients who were hospitalized, nineteen were in Shiprock hospital. There were thirteen deaths: five in the Shiprock hospital; one in San Juan Hospital, Farmington, N. M., and seven outside of hospitals. Most of the patients were children, the average age being 11½ years. A brief mention of this outbreak, based on a newspaper report, was published in THE JOURNAL January 28 under Utah news, page 343.

Medical Activities of the Veterans' Administration

The Veterans' Administration had 50,899 patients under hospital care at the close of the fiscal year ended June 30, 1938, an increase of 4,483 over the previous year, according to the annual report of the administrator. The largest proportion of these beneficiaries were hospitalized for neuropsychiatric diseases, 57.54 per cent; 9.64 per cent were under treatment for tuberculosis and 32.82 for general medical and surgical conditions. Of the total number of veterans, 76.32 per cent were receiving treatment for disabilities not of service origin.

Hospital admissions for 1938 were the highest of any fiscal year since 1919, when government facilities were authorized for care of World War veterans. There were 152,966, of which 91 per cent were for nonservice-connected disabilities. They were divided as follows: 10,989 for tuberculosis, 10,750 for psychotic or mental diseases, 12,686 for other neurologic disorders and 118,541 for general medical and surgical diseases.

During the fiscal year 202,081 patients were under treatment; 149,956 were discharged after an average of 76.9 inpatient days. Deaths in hospitals totaled 10,117, or 6.75 per cent of the discharges. Of the total number of deaths, 6,620 occurred among patients with general conditions; about 36 per cent of these deaths were caused by diseases of the circulatory system including heart disease, and 33 per cent by malignant tumors and diseases of the digestive system. In addition, there were 1,979, or 19.56 per cent of all the deaths, from pulmonary tuberculosis, and 1,518, or 15 per cent of the total, from neuropsychiatric diseases.

Veterans present in domiciliary status in facilities under the control and jurisdiction of the administration totaled 14,254, an increase of 3,216 during this fiscal period. Of the entire number, 10,104 were disabled by medical and surgical conditions, 3,844 by neuropsychiatric diseases and 306 by tuberculosis. During the year there were 28,585 admissions for domiciliary care, of which about 90 per cent were for nonservice-connected disabilities.

The Veterans' Administration was operating hospital facilities at eighty-one locations in forty-three states and the District of Columbia, with a capacity of 51,991 beds. There was an increase of 4,570 beds, of which 80 per cent was in beds for mental patients. At the close of the fiscal year construction was in progress on twenty-two major projects to provide 3,626 beds. Funds have been made available for 6,593 more beds. The administration also has 16,798 domiciliary beds and new construction will provide 2,158 more.

The net operating expense for all facilities totaled $49,076,115.42 and the per diem rate for the year was $2.65, as compared with $2.81 in 1937.

Field facilities of the administration made a total of 1,128,587 physical examinations for outpatient purposes, of which 98 per cent were medical and 2 per cent dental. Treatments furnished during the year totaled 994,968, as compared with 895,208 the previous year. About $400,000 was authorized for the purchase of orthopedic and prosthetic appliances, the largest item being $122,000 for artificial legs.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 11, 1939.

The Protection of Physicians in Air Raids

In a debate in the House of Lords on air raid shelters, Lord Horder said that in the event of war no adequate security, physical or moral, could be afforded to those who continued to work in a dangerous area, except by some form of bomb-proof shelter. He had special reason for speaking, because one body must inevitably work in a danger zone—the physicians. An intensive air raid must paralyze for a time all activity, even on the part of physicians at a first aid station. Some thought that as many casualties as possible should be removed forthwith from the danger center to the less dangerous parts of the city, the periphery. But, owing to the congestion of thoroughfares and the blocking of streets by débris, many casualties would have to be treated at the point of origin and the physicians must be there to administer treatment. This was the whole meaning of a first aid station or hospital. He therefore entered a special plea that the first aid stations must be in some bomb proof place, and he could think of none adequate for this purpose except a deep underground shelter. At present 95 per cent of physicians were already enrolled by the British Medical Association for war work. The minister of health was now earmarking from that register those for special purposes. The number of these experts was limited, and the first air raids must count among their casualties a large number of physicians. He was not speaking on their behalf; he was speaking economically. They were valuable citizens and more valuable prospectively in the event of war. Their replacement was limited and, apart from that, their work would be possible only underground. Not only they but their valuable equipment, which would be difficult to replace in an emergency, must be in a place of adequate shelter. Replying for the government, Lord Birkenhead said that the question of underground dressing stations was under consideration. The problem of deep shelters was more complex than was supposed. None of the continental great powers had gone in for them on a large scale.

A Clinic for Criminals

That crime is often a medical problem has been increasingly realized in recent years. Dr. Norwood East, lecturer on crime and insanity at the Maudsley Hospital, and Dr. W. H. Hubert, psychotherapist at Wormwood Scrubs Prison, have in their official report recommended a new institution in which abnormal and unusual types of criminals can be given psychologic treatment. They have for four years been engaged in an investigation to determine how far psychiatric and psychotherapeutic experience in the management and treatment of psychotic and psychoneurotic illnesses and various forms of behavior could be applied with profit to prisoners of divergent types.

They investigated 406 prisoners, including boys with whom the Borstal system had failed, adolescent adults and a large group of sex offenders. Of these, 214 were treated psychologically. They concluded that 75 per cent of the Borstal boys, 55 per cent of the adolescents, 30 per cent of the adults and from 30 to 65 per cent of the sex offenders were suitable for the new institution. They suggest that this should serve as (1) a clinic and hospital for treatment by psychotherapy, (2) an institution for the psychiatric treatment of prisoners who have not proved amenable to the reeducative and rehabilitating influences of the modern prison, (3) a colony for offenders for whom reformative methods, however specialized, seem useless and the severity and hardships of prison life are not appropriate, and (4) an observation and treatment center for boys who, because of mental abnormality, appear unsuitable for Borstal training or have failed to respond to it. The medical staff should be psychiatrically trained, with additional experience in criminology, and the superintendent should be a prison psychiatrist. The inmates should not be insane or mentally defective and should not be encouraged to regard themselves as irresponsible mental invalids. Those who refuse to cooperate in treatment and abuse their privileges should be returned to prison.

Other recommendations of the report are extension of the use of psychotherapy on probation, but largely confined to first offenders, with the condition that the offender must reside for certain periods in a mental hospital or approved place. The investigation was confined to men and boys, but the investigators do not doubt that their experience justifies the appointment of a woman psychotherapist to a woman's prison and they recommend such an appointment.

PARIS

(From Our Regular Correspondent)

March 4, 1939.

Protamine Zinc Insulin in the Treatment of Diabetes

At the January 20 meeting of the Société médicale des hôpitaux of Paris, Dr. Raoul Boulin reported the following results of treatment with protamine zinc insulin in 100 cases of diabetes:

1. Glycosuria disappeared in seventy-four cases. In two of these, injections of ordinary insulin had also been given before meals. In the other seventy-two the glycosuria could be controlled with a dose of protamine zinc insulin which was only one sixth that of ordinary insulin. In eleven of the other twenty-six cases the blood sugar content was lowered about 50 per cent, but in fourteen cases the substitution of protamine zinc insulin failed to have any influence on the glycosuria. In the last-named group the diabetes was of a severe type, from 70 to 90 units daily of ordinary insulin being required to control the glycosuria. A better result might have been obtained in these fourteen cases if ordinary insulin had been given as an adjuvant before meals.

2. The blood sugar content before eating was brought down to normal in twenty-eight cases with doses of protamine zinc insulin varying from 16 to 50 units, about one fifth the dose of ordinary insulin. Of the other seventy-two cases, the blood sugar content was slightly above normal, i. e. from 1.25 to 1.5 Gm., in twenty-nine, between 1.5 and 2 Gm. in twenty-nine and above 2 Gm. in fourteen. In a total of ninety-six cases there was a lowering of the blood sugar content before eating, even though there was an average reduction of one sixth from the dose which, with ordinary insulin, would have given the same results. In four cases of severe diabetes the blood sugar content was distinctly higher after the use of protamine zinc insulin.

3. Local complications noted were painful nodules at the site of injection, which became ecchymotic at times. Such nodules were usually observed if the injections of protamine zinc insulin had been given too superficially. In addition to these nodules, pruritus, urticaria and a bullous eruption were seen. These local complications necessitated cessation of treatment in two cases.

4. General complications included in two cases headache so severe as to cause the treatment to be suspended. Symptoms of hypoglycemia were observed in nineteen cases. The syndrome usually appeared after midnight, in the milder form as nausea and profuse perspiration. In only four cases were convulsions and a comatose state noted, and response to treatment was rapid.

5. A sudden transitory increase in the severity of the glycosuria or a sudden drop in the blood sugar content, also temporary, was often noted.

6. An apparent failure to obtain good results with protamine zinc insulin is often due to the fact that the patient does not shake the ampule so that the insulin is well suspended in the solution. Other causes of failure which may be cited are injection into the muscular tissues instead of the skin and a too liberal diet.

7. Protamine zinc insulin is to be especially recommended for diabetes of moderate severity. In a certain number of cases of severe diabetes it has the advantage over ordinary insulin that it can be given not only in smaller doses but also in a single injection. In other cases of severe involvement, about 14 per cent of all in which ordinary insulin is indicated, the protamine zinc combination given alone and in a single dose has not given as good results as ordinary insulin given in several doses; hence it is advisable to employ both the ordinary and the protamine zinc variety.

Cerebral Complications Following the Use of Acetarsone

At the January 20 meeting of the Société médicale des hôpitaux of Paris a case was reported by Dr. Robert Worms in which cerebral symptoms appeared a few hours after introduction into the vagina of a tablet containing 0.25 Gm. of acetarsone. A woman aged 65 had been given such tablets as a remedy for leukorrhea. The treatment was resumed after a lapse of three months. About twelve hours after insertion of a tablet she felt nauseated and complained of a severe headache and the temperature rose to 103 F. The following day a generalized scarlatiniform eruption appeared. Despite repeated injections of epinephrine the headache became more severe, and forty hours later the patient became comatose after an epileptiform convulsion. The coma persisted for two days and was followed by rapid cessation of all symptoms. In a search for the cause of such a clinical picture it was found that twelve years before the patient had been given a series of injections of acetylarsan (a French proprietary preparation, p-oxy-acetylamino-phenylarsinate of diethylamine) for chronic intestinal parasitosis. Five days after the second injection severe headache, convulsions and coma appeared, which receded as rapidly as during the present attack.

Dr. Worms expressed the opinion that, as in the case reported by Laederich and his co-workers, the syndrome following the introduction into the vagina of such a relatively small amount of an arsenical preparation could be due only to an intolerance to such medication.

In the discussion the syphilologist Dr. Milian said that the pentavalent arsenical preparations so commonly employed at present are apt to give rise to the same complications as the trivalent arsenical preparations. The use of the pentavalent preparations can be followed by peripheral neuritis or neuritis involving the optic or auditory nerve in persons who have an intolerance toward all arsenical preparations. As to absorption from the vagina, in the use of arsenical preparations for syphilis, he had seen results from the use of vaginal suppositories as good as those which are generally obtained with oral or intravenous medication.

BERLIN

(From Our Regular Correspondent)

Feb. 20, 1939.

The New Medical Curriculum

The increased shortage of trained professional men in Germany has aroused a great deal of apprehension with regard to the younger generation. Certainly the educational programs have numerous disadvantages, the most egregious of which have been the late age at which training is completed and the still later age at which the professional man has found it possible to establish a family. Legislation to become effective April 1 has been framed with the purpose of correcting these disadvantages. The new law aims chiefly at a greater concentration of the curriculum and the avoidance of unnecessary waste of time. Revisions become necessary in the medical curriculum from time to time in order that the schools may keep pace with the advances of scientific knowledge; certain courses lose their importance and new courses of study must be accorded a larger place. Since the Nazi revolution, a whole series of reforms has been urged. The physician now is quite mature before he founds a family. The prospective doctor passes the examination for entrance to the university at the age of 18 (the earliest limit). At the age of 20 or 21 he has completed the compulsory labor service and military service required of all male citizens. There follow five and one half years of medical study and the year of undergraduate internship required of every medical student before he receives the final license. Meanwhile the young man has reached the age of 27 at least. If he wishes to specialize there follows a further period of special training, which averages five years. Most doctors are ultimately admitted to sickness insurance practice, but before becoming a panel practitioner a doctor must have had at least two years of general practice. Time spent in the study of a specialty is to a certain extent deductible from the period of preparation for panel practice. Accordingly a general practitioner is about 29 and a specialist about 33 before an independent practice can be begun.

The curtailment effected by the new legislation will amount to two years; it is accomplished as follows: 1. The regular curriculum is reduced from the present eleven to ten semesters (four preclinical and six clinical). 2. The year of internship, which at present must be served immediately after the student has completed his courses and passed the state examination, is incorporated within the undergraduate schedule. At specified times the medical student will serve under a staff physician as a "famulus" in a clinic or hospital. This arrangement has existed for decades on a voluntary basis. Hospitals must now adjust their routines to this new compulsory arrangement, which at the same time deprives them of the services of the graduate interns. For many institutions this loss of the "praktikanten" will be a severe blow since these men receive no remuneration and often perform valuable service. 3. Another half year will be saved by drastic abbreviation of the time required for taking the state examinations.

Despite these curtailments, several new compulsory lecture courses have been introduced into the curriculum at the instance of the national führer of physicians and the national führer of university instructors. According to official explanation of the innovation, "it must no longer be optional with the student whether or not he commits himself with regard to questions of vital importance to national life. The physician of the future must have an authoritative, fundamental knowledge of all these problems. In future less stress will be placed on the theoretical training than on the principle that theoretical knowledge and practical performance may be correlated in such a way that the present lack of practical ability will be a thing of the past." Whether through this new orientation

much will be lost that has helped to establish the reputation of German medicine the future will tell. The very foundations of this reputation may be menaced. Sad to say, the new curriculum represents a type of medical education the introduction of which has constantly been opposed by all intelligent medical groups. On the contrary, it cannot be denied that the reform legislation contains good points. For example, hereafter the courses in zoology, botany, chemistry and physics designed for medical students will be freed of a vast amount of detail which, while valuable to the student of natural science, is of no particular importance to the medical student. In the anatomy courses too the student will be spared certain excessive feats, such as the learning by heart of the nomenclature of the most minute vessels. Conversely, topographic anatomy will be given greater consideration.

The following items have been introduced into the preclinical curriculum: lectures on the history and nature of the art of healing, lecture courses in ethnology and policies regarding population (scheduled for the first semester, before the student can have formed any independent opinion with regard to these things), field trips in search of medicinal herbs, supplementary to the course in botany, six weeks of practice nursing (a real advance), a lecture course on the physiology of occupation, sports and aviation, and practical experience as a worker in a factory or on a farm. The excursions in search of medicinal herbs will of course further the new movements for natural therapeutics. The nursing service is to be performed between the second and third semesters; it is to show whether the student is psychically equal to contacts with the sick and whether or not he should continue in medicine. Factory service or farm service, lasting four weeks, will be interposed between the third and fourth semester. This means actual work as a farm or a factory hand; the requirement was initiated by public health headquarters of the Nazi party and is designed to aid the future practitioner to a better understanding of popular needs.

To the clinical part of the curriculum have been added courses in radiology, natural therapeutics, occupational diseases, treatment of traumatic injuries, child welfare, eugenics, dental diseases, genetics, forensic medicine and deontology. Several shorter lecture courses have been added and finally two three month terms as a famulus (between the sixth and seventh and the eighth and ninth semesters).

In professional quarters fears have been entertained that training under the new curriculum will be less complete than under the present curriculum. On the other hand, it is expected that the new plan will be "much more in accord with practical needs" and "more realistic." Henceforward the German medical student must work extra hard to assimilate his courses within a brief period. But it is already apparent that this high pressure type of training is being overdone and that the spirit of medical science, which ought to prevail, stands in danger of being badly damaged by overorganized curricular schedules. The youthful student should be allowed time in which to reflect on all the new facts learned in his courses and to make these an intimate part of himself. To do so he must have vacations and leisure periods, both of which are to be taken from him. Now he will be turned into a learning robot, hurried from one task to another.

There is no doubt that the lack of doctors must be made up as quickly as possible. Similarly a few weeks ago the prescribed minimal curriculum in all institutes of technology and kindred schools was abbreviated because of a shortage of engineers and other trained technicians, which is even more acute than the shortage of physicians. Although the ministerial decree of course does not say so, it is obvious that gaps exist in the ranks of German physicians as a consequence of the exclusion of Jews from practice. The expansion of the defense forces has created an additional need for physicians for, without exception, besides the six months labor service, military service has to be taken for two years before the younger men can begin their medical studies. It will be several years before the new curricular reforms can exert perceptible influence on the serious shortage of doctors. Will the young physicians trained under a system that minimizes theoretical principles be able to carry the disciplines into the practice of medicine, as doctors have been wont to do? Will the doctors of the future be able to find their way among new phenomena and principles no mention of which was made in their studies, and will they be able to comprehend the unfamiliar? There is room for doubt. Is it possible that the imponderabilities are being irretrievably sacrificed to temporary political expediency?

AUSTRALIA

(From Our Regular Correspondent)

Feb. 14, 1939.

National Health Insurance Abandoned

The commonwealth government of Australia has now decided to abandon completely its scheme for national health and pensions insurance. In a determined effort to preserve the plan even if only in skeleton form, several alternative schemes less comprehensive in nature were considered, but the agreement to abandon the whole insurance act was reached today with only two members dissenting. The treasurer (Mr. R. G. Casey), who evolved the scheme and fathered it through parliament, has now emerged as one of the strongest advocates against it. Reasons advanced for this decision are fear that the financial burden involved may be so great as to stifle normal developmental expenditure if it is allowed to fall simultaneously with the heavy defense program to which the ministry is already committed, fear of the repercussions from the cost of insurance while the greater part of the commonwealth is suffering from the effects of severe drought and widespread bush fires, and a recognition of the fact that throughout Australia the act is highly unpopular and that its introduction against the wishes of the people may lead ultimately to grave political consequences.

The opposition to the scheme in the ministry itself, although strong when parliament adjourned in December, has increased immensely since. In the past two months, members of the cabinet have moved freely in their electorates and have in many cases been astonished at the intensity of public feeling against national insurance.

The abandonment of the scheme will cost the commonwealth government at least £750,000 and perhaps £1,000,000, according to estimates made by the National Insurance Commission. Large sums of money have been spent on the initial steps for its establishment and numerous "approved societies" have incurred heavy expenditures to cope with the new responsibilities which they were prepared to undertake. Already 156 such societies have been formed in Australia, sixty by trade unions, fifty-nine by friendly societies and thirty-seven by miscellaneous organizations; wages contracts have been entered into with staffs, and many men have left lucrative posts to take administrative positions with the government or with approved societies. The government has not yet considered whether the whole organization which it created will be disbanded immediately or whether it will be kept to form a nucleus for the proposed national register (for defense purposes). The British Medical Association in Australia has been opposed from the start to national insurance as proposed by the government. It is to be hoped that this abandonment of the present scheme will furnish an opportunity for drawing

up at some future date a scheme more universally acceptable, to be put into practice at a time when the nation is better prepared to handle developmental measures.

The Future of Pharmacy

That the future of pharmacy depends on its resuming its original primary function as handmaiden to medicine was the theme of an address by Sir Stanton Hicks, professor of physiology at Adelaide University, to the pharmaceutic section of the recent meeting of the Australian and New Zealand Association for the Advancement of Science. Recent advances in synthetic aids to therapy demand the application of expert chemical knowledge in the medical field, but the physician in his capacity as a practitioner cannot be expected to grasp the full significance of the intricacies of chemistry. He needs cooperation with a chemical assistant, who will be able to advise him concerning the value of new synthetic therapeutic substances and other therapeutic chemical advances. Sir Stanton Hicks said that the profession of pharmacy must come back to where it was before the split between the apothecary and the physician. But we are coming back along roads which could not be envisaged then.

With the development of specific medicinal reagents, for example chemotherapeutic substances, vitamins, endocrine products and immune serums, we are approaching a phase of rational specific nonsurgical therapy, for which the whole-hearted cooperation of the pharmacist must be enlisted and for which the pharmacist must be prepared.

Regarding the need for chemical guidance in the doctor's choice of new therapeutic substances, it is doubtful that any individual pharmacist could give a reasonable opinion on their value. General opinion in Australia favors the formation of a body comparable to the Council on Pharmacy and Chemistry of the American Medical Association.

Medical Survey of Children

The possibility that many children acquire uneven shoulders because of the overuse of their right hand and arm was discussed by Dr. E. A. Machin before the recent congress of the Australian and New Zealand Association for the Advancement of Science. Dr. Machin disclosed the results of a health survey of 16,777 children attending state schools in New South Wales. Of the boys examined 34.2 per cent had uneven or "dropped" shoulders. Such shoulders appear to be associated with the general uneven or one-sided development of the muscles of the shoulder girdle as the result of the overuse of the right hand and arm. Games like tennis appeared to overemphasize the difference between the two sides.

Of the children examined 77 per cent had slight or no medical defects, 20.4 per cent had remediable defects including marked dental defects, 1.9 per cent had permanent defects not seriously incapacitating, and 0.4 per cent had defects causing permanent serious incapacity. The posture was reported as good for 26 per cent, average for 43 per cent, below average for 26 per cent and poor for 4 per cent. The nutrition of 37 per cent was good, of 64 per cent average, of 8.3 per cent below average and of 2.1 per cent poor. These figures, however, are based on a purely arbitrary standard of classification and are apt to convey a false impression as to the state of nutrition of Australian school children.

Postgraduate Education in New South Wales

This year is marked by the establishment of a postgraduate school of medicine at the Prince Henry Hospital in Sydney. This hospital, which was reconstituted by act of parliament in 1936, has been divided into three departments, of medicine, surgery and pathology, each under the control of a director, and, although a number of students have been attached to the school during the past year, attention has been devoted mainly to developing the organization necessary for postgraduate work. It will figure largely in the 1939 program of medical courses for graduates. Four important fellowships have been founded by the board of directors with the object of promoting postgraduate teaching in medicine and surgery in New South Wales, by enabling suitable graduates to obtain special experience in these fields, and also of encouraging and advancing research in medicine and surgery by systematized postgraduate instruction. A fellowship in anesthesia has been founded.

The New South Wales Postgraduate Committee holds a general revision course each year, which is brief and intensive and designed for general practitioners. Week end courses are held at various country centers; courses of a more special nature are arranged, and instruction for higher degrees and diplomas is provided.

Education for Physical Fitness

The coordinating Council of Physical Fitness at its recent meeting in Melbourne decided to ask the federal government to provide lectures in physical education at each of the Australian universities. The proposed scheme envisages a center in every state where young men and women may obtain instruction and training to qualify them for the instruction and training of others in physical fitness. In Australia there is a dearth of qualified persons in this field, and the primary task of any fitness campaign is to educate a team of potential instructors. The cost to the commonwealth government of the present proposals will be £12,000 a year. This will provide lecturers' salaries, the equipment of gymnasiums and the provision and upkeep of all facilities.

Oversupply of Medical Students

If the number of first year medical students at Australian universities remains constant, and there is every reason to assume that it will increase, one in every 250 young men and women in Australia will be embarking on a medical course. This proportion is absurdly high and must lead to an overloading of the medical profession. In comparison, one in 1,500 is entering the profession of dentistry, one in 600 the law and one in 800 engineering.

Money Spent on "Patent Medicines"

In an address on national health services at the seventh summer school of the Australian Institute of Political Sciences, Dr. T. L. Dunn, city health officer of Sydney, stated that the Australian public spends £11,000,000 annually on "patent medicines" and so-called cures. This represents an average annual expenditure of £2 a person.

Marriages

WESLEY DEE THOMPSON JR., Philadelphia, to Miss Catharine Gray Bennett of Wellsboro, Pa., Nov. 22, 1938.

HERBERT WILLIAM WALL, Los Angeles, to Mrs. Kathleen Petty Hudson in Dallas, Texas, in December 1938.

PRESTON HEPBURN WATTERS to Miss Mary Margaret Culbertson, both of Miami, Fla., in December 1938.

ARSHAK Y. YAZARIAN, Washburn, Ill., to Miss Satenig Siranossian of Bridgewater, Mass., August 14.

ST. JULIEN R. MURCHISON to Miss Lady Mildred Thomas, both of Fort Worth, Texas, Dec. 15, 1938.

RUSSELL C. WILLOUGHBY, Groves, Texas, to Miss Louise Latimer of Port Arthur, Oct. 12, 1938.

THOMAS B. TAYLOR, Douglasville, Ga., to Miss Carol Taylor at Powder Springs, in December 1938.

CHARLES STEPHEN WHELAN, Boston, to Miss Maria Elizabeth Hearns of Brooklyn, February 6.

LANDRUM TUCKER, Ripley, Tenn., to Miss Helen Roberts at Hot Springs, N. C., February 1.

HERMAN TURK, Lima, Ohio, to Miss Daphne Stout in Georgetown, Ky., February 13.

Deaths

John Bion Bogart ⊕ Lower Granville, N. S., Canada; University of the City of New York Medical Department, 1884; an Affiliate Fellow of the American Medical Association; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; consulting surgeon to the Kings County, Jewish, Wyckoff Heights, Methodist Episcopal and Unity hospitals and the Brooklyn Home for Consumptives; aged 79; died, January 18, in the Memorial Hospital, Middleton.

Edwin Milton Beery ⊕ Brooklyn; Bellevue Hospital Medical College, New York, 1897; senior surgeon to the Brooklyn Eye and Ear Hospital; consulting ophthalmologist to the Kingston Avenue Hospital and formerly director of eye service, Brooklyn Jewish Hospital; at one time assistant director of hospitals of New York City Department of Health; aged 67; died, January 30, in St. John's Hospital of heart disease.

Percival James Eaton, Provincetown, Mass.; Harvard University Medical School, Boston, 1888; member of the American Pediatric Society; on the staff of the Columbia Hospital, 1906-1918; past president of the staff of St. Margaret Memorial Hospital and on the staff of the Children's Hospital, Pittsburgh; aged 76; died, Dec. 28, 1938, in the Olean (N. Y.) General Hospital of carcinoma of the colon.

Jacob Treichler Butz ⊕ Allentown, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; secretary of the Lehigh County Medical Society and the Lehigh Valley Medical Society; president of the Lehigh County Tuberculosis Society; for many years county medical director; city health officer; formerly county coroner; aged 65; died, Dec. 22, 1938, of cerebral thrombosis.

Ernest Loyd Cartwright, Springfield, Mo.; St. Louis University School of Medicine, 1926; member of the Missouri State Medical Association; on the staff of the Springfield Baptist Hospital, and on the associate staffs of the Burge and St. John's hospitals, aged 37; died, Dec. 30, 1938, in the Missouri Baptist Hospital, St. Louis, of complications following a nephrotomy for kidney stones.

William Cantrell, Greenville, Texas; Arkansas Industrial University Medical Department, Little Rock, 1897; member of the State Medical Association of Texas; past president of the Hunt-Rockwall-Rains Counties Medical Society; formerly member of the state board of medical examiners; physician in charge of a hospital bearing his name; aged 67; died, Dec. 28, 1938, of heart disease.

Robert Henry Ash, Canastota, N. Y.; College of Physicians and Surgeons, Buffalo, 1883; Hahnemann Medical College and Hospital, Chicago, 1884; member of the Medical Society of the State of New York; formerly health officer; on the staffs of the Canastota (N. Y.) Memorial Hospital and the Oneida (N. Y.) Hospital; aged 81; died, Dec. 19, 1938, of coronary thrombosis.

Randolph Faries, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1888; at one time professor of physical education at the University of Pennsylvania; formerly physician-in-chief of the city department of public welfare; aged 76; died, Dec. 30, 1938, in the Graduate Hospital of pneumococcic lobar pneumonia and arteriosclerotic heart disease.

Chester M. Carlaw, Minneapolis; McGill University Faculty of Medicine, Montreal, Que., Canada, 1891; member of the Minnesota State Medical Association; fellow of the American College of Surgeons; surgeon to the Northwestern and Minneapolis General hospitals; aged 68; died, January 7, of coronary sclerosis and diabetes mellitus.

Philip Sheridan Goodwin, Perry, N. Y.; Western Reserve University School of Medicine, Cleveland, 1885; member of the Medical Society of the State of New York; for many years coroner and village health officer; aged 73; died, Dec. 13, 1938, in the Rochester (N. Y.) General Hospital of arteriosclerotic heart disease.

Ward Eugene Collins ⊕ Kalamazoo, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1908; member of the American Academy of Pediatrics; served during the World War; aged 55; on the staff of the Bronson Methodist Hospital, where he died, Dec. 31, 1938, of cerebral hemorrhage.

Vernon Alfred Gotcher, Lancaster, Pa.; University of Arkansas School of Medicine, Little Rock, 1931; member of the Medical Association of Georgia; formerly assistant professor of pathology at the University of Georgia School of Medicine, Augusta; aged 37; died, Dec. 2, 1938, of coronary occlusion.

Elbridge Arthur Carpenter, Passaic, N. J.; University of Vermont College of Medicine, Burlington, 1909; aged 56; died, January 1, in the General Hospital, Paterson, of purulent bronchiectasis and bronchopneumonia, following burns of the face received when he fell asleep while smoking.

Merchant C. Householder ⊕ Pottsville, Pa.; Jefferson Medical College of Philadelphia, 1888; past president of the Schuylkill County Medical Society; on the staff of the Pottsville Hospital; aged 74; died, Dec. 17, 1938, of a dissecting aneurysm of the aorta and arteriosclerosis.

Elmer Ellsworth Bamford, Centerville, Iowa; College of Physicians and Surgeons, Keokuk, 1890; Rush Medical College, Chicago, 1893; fellow of the American College of Surgeons; on the staff of St. Joseph's Hospital; aged 72; died, January 6, in Appanoose of cerebral hemorrhage.

Christopher James Carr, Framingham, Mass.; Medico-Chirurgical College of Philadelphia, 1901; formerly member of the board of health; for several years school physician; aged 63; on the staff of the Framingham Union Hospital, where he died, Dec. 21, 1938, of chronic myocarditis.

John Dean Shipman, Vernon, N. Y.; Syracuse University College of Medicine, 1898; member of the Medical Society of the State of New York; served during the World War; formerly health officer and coroner of Vernon and Geneva; aged 63; died, Dec. 18, 1938, of heart disease.

James Rankin McCarrell, Pittsburgh; Jefferson Medical College of Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; aged 78; died, Dec. 12, 1938 in the Allegheny General Hospital of a skull fracture received when he was struck by an automobile.

Andrew Stephen Backus, St. Paul; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1905; member of the Minnesota State Medical Association; formerly deputy coroner; aged 57; was found dead, January 20, of carbon monoxide poisoning.

Amos Henry Baldwin, Pleasant Hill, Mo.; Hahnemann Medical College and Hospital, Chicago, 1890; member of the Missouri State Medical Association; past president of the Cass County Medical Society; aged 72; died, January 27, of pernicious anemia.

Richard H. Hutchings Jr., ⊕ Wingdale, N. Y.; Syracuse University College of Medicine, 1919; member of the American Psychiatric Association; on the staff of the Harlem Valley State Hospital; aged 44; died, Dec. 14, 1938, of coronary occlusion.

Emerson Joel Linsday, Walled Lake, Mich.; Detroit College of Medicine and Surgery, 1927; member of the Michigan State Medical Society; formerly member of the health department of Detroit; aged 43; died, Dec. 25, 1938, of coronary occlusion.

Norman Olaf Dalager, Anamoose, N. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; member of the North Dakota State Medical Association; aged 60; died, Dec. 27, 1938, in a hospital at Minot.

James Edgar Doig, Endicott, N. Y.; Albany (N. Y.) Medical College, 1899; member of the Medical Society of the State of New York; county coroner; aged 63; died, Dec. 31, 1938, in the Ideal Hospital, of cerebral hemorrhage and hypertension.

Gustaf Hugo Johnson ⊕ Savannah, Ga.; Long Island College Hospital, Brooklyn, 1898; county coroner; served during the World War; on the staff of the Warren A. Candler Hospital; aged 67; died, Dec. 28, 1938, of acute dilatation of the heart.

Leroy Cholula Goff, Clarksburg, W. Va.; University College of Medicine, Richmond, 1906; member of the West Virginia State Medical Association; formerly county coroner; on the staff of St. Mary's Hospital; aged 60; died, Dec. 22, 1938.

William Brown Thistle, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, Ont., 1886; L.R.C.P., London, 1887; formerly associate professor of clinical medicine, University of Toronto Faculty of Medicine; died, Dec. 17, 1938.

Charles Lincoln Bliss, Washington, D. C.; University of the City of New York Medical Department, 1891; member of the Medical Society of the District of Columbia; formerly a medical missionary; aged 73; died, January 21, of cerebral thrombosis.

John Thomas Davis, Liberty, Kan.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1879; member of the Kansas Medical Society; formerly county health officer; aged 85; died, Dec. 26, 1938, of chronic myocarditis.

Richard August Morgner, Fitchburg, Mass.; Tufts College Medical School, Boston, 1902; member of the Massachusetts Medical Society; for many years on the staff of the Burbank Hospital; aged 65; died, Dec. 27, 1938, of diabetes mellitus.

Henry Herbert, Los Angeles; Medizinische Fakultät der Universität Wien, Austria, 1891; at one time associate professor of physical diagnosis at the College of Physicians and Surgeons, Los Angeles; aged 72; died, Dec. 15, 1938, of heart disease.

Charles Le Baron ⊕ Gulfport, Miss.; Medical College of Alabama, Mobile, 1889; past president of the Harrison County Medical Society; on the staff of the King's Daughters' Hospital; aged 70; died, Dec. 11, 1938, of chronic nephritis.

Joseph Thomas Brennan ⊕ Grandview, Mo.; St. Louis University School of Medicine, 1908; county health officer; served during the World War; aged 56; died, Dec. 31, 1938, in St. Joseph Hospital, Kansas City, of coronary thrombosis.

Peter M. Campbell, Elgin, Ill.; Detroit College of Medicine, 1891; member of the Illinois State Medical Society; on the staffs of St. Joseph's and Sherman hospitals; aged 78; died, January 17, of lobar pneumonia and chronic myocarditis.

James Percy Powell, Mangham, La.; Arkansas Industrial University Medical Department, Little Rock, 1896; aged 70; died, Dec. 5, 1938, in Vicksburg (Miss.) Sanitarium, of arteriosclerotic heart disease and chronic nephritis.

Frederick Durand Davis ⊕ Springfield, Mass.; University of Vermont College of Medicine, Burlington, 1910; served during the World War; on the staff of the Mercy Hospital; aged 54; died, Dec. 31, 1938, of coronary thrombosis.

Charles Henry Root ⊕ Bassett, Neb.; University of Nebraska College of Medicine, Omaha, 1903; aged 62; died, Dec. 14, 1938, in the Methodist Hospital, Omaha, of retroperitoneal abscess and chronic cholecystitis.

Aaron Thomas Colley, Enterprise, Ala.; University of Louisville (Ky.) Medical Department, 1894; member of the Medical Association of the State of Alabama; aged 69; died in December 1938 of coronary thrombosis.

Joseph Henry Boyles, Greensboro, N. C.; College of Physicians and Surgeons, Baltimore, 1903; veteran of the Spanish-American War; on the staff of the Piedmont Hospital; aged 65; died, January 24, of lymphosarcoma.

Albert Smith Parker, Clinton, Wis.; Northwestern University Medical School, Chicago, 1901; member of the State Medical Society of Wisconsin; aged 69; died, Dec. 10, 1938, in Sawtelle, Calif., of arteriosclerosis.

Alexander Rudolph Chillag ⊕ Buffalo; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1918; aged 45; died, Dec. 20, 1938, of arteriolar nephrosclerosis and hypertension.

George Wesley Blanchard, Pelham, N. Y.; Medical School of Maine, Portland, 1895; consulting physician to the United States Military Academy at West Point; aged 70; died, January 17, of coronary thrombosis.

Omer Rocelus Alexander, Winter Haven, Fla.; Atlanta Medical College, 1893; member of the Florida Medical Association; aged 66; died, January 25, in Dunedin of coronary occlusion and thrombosis.

Ole Hansen Berg, Chicago; College of Physicians and Surgeons of Chicago, 1896; on the honorary staff of the Norwegian-American Hospital; aged 71; died, January 8, of diabetes mellitus and hypertension.

Arthur Wesley Thomas, Salem, N. Y.; Albany (N. Y.) Medical College, 1904; for many years health officer of Jamaica, Vt., and school director; aged 61; died, Dec. 17, 1938, in Brattleboro, Vt., of myocarditis.

David A. Hewit, Spokane, Wash.; John A. Creighton Medical College, Omaha, 1904; member of the Washington State Medical Association; aged 57; died, Dec. 27, 1938, at Santa Ana, Calif., of arteriosclerosis.

Wilson Canfield, Eaton Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; aged 79; died, January 8, of arteriosclerosis, diabetes mellitus and chronic myocarditis.

Thomas Willett Bishop ⊕ South Pasadena, Calif.; Bellevue Hospital Medical College, New York, 1895; medical director and owner of the Pasadena Sanitarium; aged 68; died, Dec. 28, 1938, of cerebral hemorrhage.

Chester C. Impey, Omaha; John A. Creighton Medical College, Omaha, 1903; on the staffs of the Lutheran and St. Catherine's hospitals; aged 58; died, Dec. 11, 1938, in Oakland, Calif., of heart disease.

Charles Pelton Hutchins ⊕ Syracuse, N. Y.; Long Island College Hospital, Brooklyn, 1897; served during the World War; aged 66; died, Dec. 28, 1938, of coronary thrombosis and cerebral embolism.

John Lockwood Baker ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1905; for many years member of the city health department; aged 61; died, January 4, in the Swedish Hospital of pneumonia.

Julius A. Fowler, Malakoff, Texas; Louisville (Ky.) Medical College, 1892; formerly county health officer and member of the state board of medical examiners; aged 69; died, Dec. 5, 1938, of bronchiectasis.

Albert F. Merrell, Hallstead, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1888; member of the state legislature; bank president; aged 72; died, Dec. 2, 1938, of carcinoma of the prostate.

Alexander Lane Brobeck, Hoopeston, Ill.; University of Louisville (Ky.) Medical Department, 1885; member of the Illinois State Medical Society; aged 85; died, January 16, of cirrhosis of the liver.

Henry Delapierre White, Lancaster, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887; aged 72; died, Dec. 2, 1938, of coronary thrombosis.

Mark Duane Gundrum ⊕ Westville, Ill.; Loyola University School of Medicine, Chicago, 1916; served during the World War; aged 49; was found dead, Dec. 25, 1938, of coronary thrombosis.

Willis E. Stewart ⊕ Stratton, Neb.; Central Medical College of St. Joseph, Mo., 1900; medical director and owner of a hospital bearing his name; aged 63; died, Dec. 30, 1938, of chronic myocarditis.

Harvey William Marvin, Washington, D. C.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1897; aged 64; died, Dec. 17, 1938, of cerebral hemorrhage and chronic myocarditis.

Albert Mason Tyler, Long Beach, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1886; aged 80; died, Dec. 11, 1938, of diabetes mellitus and cerebral thrombosis.

John Sheridan Arnold ⊕ Washington, D. C.; College of Physicians and Surgeons, Baltimore, 1896; for many years school medical inspector; aged 73; died, January 6, of cerebral hemorrhage.

William Allan Taltavall ⊕ Redlands, Calif.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885; aged 79; died, Dec. 22, 1938, of coronary disease.

Richard Alexander Peters, Tipton, Iowa; Rush Medical College, Chicago, 1884; aged 75; died, Dec. 11, 1938, in Chicago of hypernephroma of the left kidney with metastasis to the pubic bone and pelvis.

Arthur Morris Cohen ⊕ Philadelphia; University of Pittsburgh School of Medicine, 1925; aged 38; died Dec. 26, 1938, in the Mount Sinai Hospital, Cleveland, of coronary arteriosclerosis and thrombosis.

Walter B. Weaver, Cincinnati; Medical College of Ohio, Cincinnati, 1890; member of the Ohio State Medical Association; formerly county coroner; aged 70; died, Dec. 14, 1938, of arteriosclerosis.

Joseph Roop Smith, Marydel, Md.; University of Pennsylvania Department of Medicine, Philadelphia, 1887; aged 72; died, Dec. 24, 1938, in the Kent General Hospital, Dover, Del., of pneumonia.

Charles L. Ackerman, Brownstown, Ind.; Kentucky University Medical Department, Louisville, 1903; member of the Indiana State Medical Association; aged 71; died, January 4, of pneumonia.

Monroe F. Clouser ⊕ Oley, Pa.; Medico-Chirurgical College of Philadelphia, 1907; aged 55; died, Dec. 6, 1938, in St. Joseph's Hospital, Reading, of coronary occlusion and diabetes mellitus.

John Henry Rumpf, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1896; aged 76; died, Dec. 1, 1938, of heart disease.

John Clyde MacDonald, Edmonton, Alta., Canada; Halifax (N. S.) Medical College, 1895; aged 70; died, Dec. 28, 1938.

Ezra A. Haist, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, 1895; died, Dec. 12, 1938.

Correspondence

ANATOMY OF SPHINCTER

To the Editor:—In The Journal February 18 an article by Blaisdell refers to my work on the anatomy of the anal sphincter and the etiology of fistula. After reading Dr. Blaisdell's article several times I feel that both he and the discusser, Dr. Hill, have overlooked several important points in my work and that they have failed to correlate certain age-old clinical observations with actual anatomic manifestations. Some of these observations are that:

1. There is a definite relation between the internal and external orifices of a fistula. A fistula having its external orifice situated behind a plane passing transversely through the center of the anus usually has its internal aperture in the posterior commissure of the anus at points corresponding to 5 or 7 on the clock, the posterior median line being considered as 6 o'clock.

2. A subcutaneous fistula has its external opening within 1 inch of the anus and the internal opening external to Hilton's white line.

3. In submuscular fistulas the internal opening is usually between the sphincters.

The explanation of these observations is contained in my article on this subject published in *Surgery, Gynecology and Obstetrics* in May 1931. It demonstrates that the course of fistulous tracts does not follow the intermuscular septum but, in those cases in which the fistula passes into the ischiorectal fossa, the internal opening corresponds to the points at which the vessels traversing the ischiorectal fossa enter the submucous region of the anus, namely 5 and 7 o'clock posteriorly.

The external longitudinal coat of the large intestine is at best a rather weak structure. Some of the fibro-elastic terminations of this coat of the bowel pass through the internal sphincter to the submucous region caudad to the muscularis mucosae; others pass between the layers of the external anal sphincter muscle to insert into the cornified skin around the anus, and still others insert into the levator ani muscles. These observations are clearly portrayed in my article on Hilton's white line in the *Annals of Surgery* of July 1935. Dr. Blaisdell has apparently made the same mistake as many other workers in this field who have considered the anatomy from the observations made on surgical specimens and autopsy material instead of the living patient. An accurate picture of the relationship of the various muscles cannot be obtained after death because the muscles are relaxed and do not maintain their normal positions. Hilton emphasized this fact when he referred to his white line as being present "in the living." When the sphincters are contracted the external sphincter is caudad to the internal sphincter, which is the thickened termination of the inner circular coat of the rectum. The strongest coat of the intestine, as every surgeon knows, is the submucous coat. This is the coat which is used in the making of catgut. It is also the coat through which the surgeon likes to have his intestinal suture pass in order to secure firm union. This fact was emphasized by Halsted and Gross. Microscopic study of the anal region discloses that the thick fibrous area described by Milligan and Morgan and quoted by Blaisdell as the intermuscular septum is really a much thickened submucous layer.

Although the anatomy of the external sphincter muscle of the anus does follow a certain general pattern, it varies so greatly in individual specimens, as disclosed by my studies, that it cannot account for the more or less constant location of the internal opening of the fistula.

The points raised by Blaisdell on the subjects of cutting the muscles during operations on a fistula, the dangers of dilating the rectum, the physiology of the sphincter muscles and the observations made on palpation of the anus are all discussed in my articles already cited.

Robert I. Hiller, M.D., Milwaukee.

COINS COMMEMORATING PHYSICIANS

To the Editor:—In The Journal, Aug. 27, 1938, page 863, Dr. E. F. Kiser stated that he knew of no coin bearing the portrait of a physician other than the one struck by Austria in 1929 commemorating Theodor Billroth.

Lithuania in 1936 commemorated Dr. Jonas Basanavicius on a 5 litas silver coin, and Brazil in 1937 struck a 400 reis nickel coin with the portrait of Oswaldo Cruz.

I should be glad to hear from interested physicians if other such coins have been issued by any country.

L. Grant Glickman, M.D., Minneapolis.

A SIMPLE METHOD OF PLASMA TRANSFUSION

To the Editor:—The intravenous administration of blood plasma is recognized as a rational procedure in the therapy of secondary shock resulting from loss of blood plasma and consequent increase in concentration of the blood, as in crushing injuries and burns. Although whole blood transfusions are of therapeutic value in these conditions, the red cells serve no useful purpose and tend to prevent the rapid correction of increased blood viscosity. It can be said, with possibly some reservation, that plasma transfusion also appears to be logical in hypoproteinemia resulting from the combination of starvation and parenteral administration of crystalloid solutions in the treatment of acute abdominal disease.

"Lyophile" serum (Flosdorf and Mudd, *J. Immunol.* 29:389 [Nov.] 1935) has been developed for use in these conditions and has received clinical trial. Unfortunately the preservation of human blood serum in dry form is complex and costly and its development has not yet been carried to a point at which it can be used without the fear of reactions or contamination.

This brief communication is to point out that human plasma is available safely, immediately and cheaply to any one who has access to a blood bank. Stored blood, standing at rest in the refrigerator, separates into plasma and cell layers. During the past six months in the Department of Surgery and Gynecology of the University of Virginia Hospital we have employed the supernatant plasma in cases of shock presenting increased blood concentration and in cases of hypoproteinemia from starvation. In the former group of cases the results have been satisfactory. In the latter group a larger series of cases than ours will be needed before the results can be appraised. The principle is presented therefore only as a suggestion for a method of treatment, obviously safe and theoretically logical.

Whole citrated blood transfusions are given at the University of Virginia Hospital by the closed method, a single flask for collecting, storing and delivering the blood being used. The supernatant plasma can be obtained by aspiration. A sterile glass tube attached to the negative pressure collection apparatus which is used in obtaining blood from donors is carefully inserted in the storage flask and the plasma layer is sucked over into a flask, which is then used to deliver the plasma to the recipient.

The underlying precautions as to typing, cross matching, serologic study and storage period of the blood to be used for plasma transfusion are observed just as though the whole blood were to be employed. The matching must be perfect in both directions—i. e., donor's plasma vs. recipient's cells and recipient's plasma vs. donor's cells—and must be carried out just before use of the plasma. The plasma should be administered immediately after collection in order to avoid bacterial growth from minor degrees of possible contamination from the air. With the precautions used it is obvious that the spilling over of a small portion of the cell layer will not create danger. Nor will it defeat the major purpose of the procedure.

The red cell layer remaining in the donor flask may also serve a useful end. In a number of instances, after proper additional

matching, the erythrocytes suspended in salt solution have been given to patients with anemia. The value of this procedure is as yet undetermined, but it would seem to be logical in cases of hemolytic sepsis in which the essential problem in repeated transfusions is the replacement of red cells and not of plasma.

It is presumed that these simple procedures have occurred to many others dealing with bank blood In the rapidly growing literature on the blood bank, reference to them has not been encountered.

EDWIN P. LEHMAN, M D, University, Va.
Department of Surgery and Gynecology,
University of Virginia Hospital.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST

POLIOMYELITIS VIRUS

To the Editor —Kindly advise me regarding the following with reference to poliomyelitis 1. How is the presence of a virus in nasal washings or in stools determined? Has any other method than injection of monkeys been devised? 2. It is stated that there are numerous types of the virus (of poliomyelitis) with different characteristics How has this been determined? 3 How is it possible to determine whether or not antibodies exist in serum?

M D, Alabama

ANSWER—1. The virus of poliomyelitis is detected in nasal washings or stools by processing the material submitted for the test Such material is then tested for infectivity by intracranial inoculation in susceptible monkeys. The technic used in preparing this material is that of suspension in a suitable aqueous menstruum with filtration through a bacteria-tight filter, followed by concentration of the fluid medium to a small volume by distillation in vacuo. There is no test for the presence of poliomyelitis virus other than the inoculation test in monkeys

2 The viruses of poliomyelitis can be defined by two means: (*a*) immunologic properties and (*b*) variable effect following inoculation into monkeys. The immunologic methods that have been used to define the poliomyelitis virus are the insusceptibility of animals to cross inoculation and cross protection tests The differences in individual properties of the virus include a different mortality rate and extent of paralysis as produced in experimental animals.

3 The means of determining the presence of antibodies in serum are the following Each serum is tested by mixture with a standard infectious dose of virus and incubated in vitro at 37 C The mixture is then tested for infectivity in monkeys. If the mixture produces the disease in animals, the serum is said to contain no protective antibodies. These tests may also be carried out on a quantitative basis.

FROHLICH SYNDROME

To the Editor —A boy aged 15 presents a typical picture of Fröhlich's syndrome Reports regarding the value of pituitary substance in these cases vary widely. What is the best accepted treatment? The patient's chief complaint is perspiring, especially on the hands. Physical examination is entirely negative except for blood pressure of 148 systolic 88 diastolic What would cause perspiration, granted that it is not due to a nervous cause? How can I reconcile it with pituitary disturbance?

J J ZONE, M D, Wayland, N Y.

ANSWER—Opinions vary regarding "the typical picture of Frohlich's syndrome" This description is often applied to boys who are simply too fat and whose sexual development is somewhat delayed Many of these boys "straighten around" with a little patience and a weight reduction regimen Williams studied a large group of boys of this type who were admitted to an English school and found that 87 per cent of them became normal spontaneously. This does not mean that the boy described does not have Frohlich's syndrome; it simply suggests the need for caution in making this diagnosis It should be added that this "typical syndrome" is found also in many boys who are mentally deficient Hecker and Warren report many such examples.

Assuming that this patient has Frohlich's syndrome, there are at least three hormones which may be tried:

1. Pituitary gonadotropic hormone. This hormone, obtained directly from the pituitary, has not been tried in enough cases to warrant any conclusion.

2. Pituitary-like gonadotropic hormones. These have been used more extensively. They are obtained from sources other than the pituitary—usually from the urine of pregnant women or the serum of pregnant mares. They resemble the true pituitary gonadotropic hormone in most ways but probably originate in the chorionic villi and not in the pituitary. The horse serum has not been utilized sufficiently to draw conclusions and has the usual disadvantages associated with the use of any horse serum. The hormone from the urine of pregnant women has been used must frequently but not always in well selected cases and the results are not always evaluated in a critical fashion. In the case mentioned this hormone might be tried. The dosage has varied, but 500 or 1,000 units two or three times a week for ten to twelve weeks should constitute an adequate trial period A note of caution is not out of order. Thompson and Heckel reported several cases of marked enlargement of the genitalia from the use of this hormone.

3 Testosterone propionate. This may be the method of choice. Testosterone propionate is the male hormone in its crystalline form. A recent article by Kenyon has reviewed this subject and reports some interesting cases. If this hormone is to have any effect in the case described it should manifest itself after a period of from ten to twelve weeks' treatment, the patient being given 25 mg. of testosterone propionate hypodermically each week

The inquirer does not mention the patient's basal metabolic rate If this is low, he may need thyroid extract. In any event he should follow a weight reduction regimen although both of these suggestions may affect the interpretation of improvement if endocrine substances are used. The single blood pressure reading may not be significant; it should be checked every hour for twenty-four hours It probably is not related to the Frohlich syndrome The sweating is of questionable significance and may disappear with improvement in the patient's general condition.

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COLD ABSCESSES OF OLD AMPUTATION STUMP

To the Editor.—A World War veteran aged 47 suffered multiple wounds of his right leg and thigh and underwent a mid thigh amputation in 1918. As the result of infection, healing was delayed for more than a year. Since 1920, however, he has worn a prothesis without trouble, except for the removal of two small bits of shrapnel in 1930 Since early in 1937 two small localized, discrete masses about the size of chestnuts have appeared subcutaneously on the anteromedial aspect of the thigh 2 inches below the inguinal ligament just distal to the rim of the prothesis The masses disappear spontaneously as a rule after two or three weeks and then recur in four or six weeks They are quite tender In September 1938 one mass developed into a small "cold" abscess, which was aspirated for examination, then incised It promptly healed, and the other mass disappeared Both recurred a month later and disappeared after incision of the abscess Today, Nov. 21, 1938, I find both have recurred for the third time The man's general health is excellent The bacteriologic examination revealed "an acid fast bacillus resembling the tubercle bacillus" The patient had a negative Mantoux test in a dilution of 1 500 of old tuberculin He has no lymphatic enlargement, his red count, white count and differential counts are normal, and his Wassermann reaction is negative X ray examination of the stump reveals no disease of the bone nor any shadows of shrapnel. Could this be caused merely by irritation of the artificial limb, although it apparently fits perfectly? Could smegma bacilli gain entry through apparently healthy skin and cause such a condition? Is this condition common among men wearing artificial limbs? Any suggestions you may offer as to cause and treatment will be greatly appreciated.

JOSEPH C. ANDERSON, M D, Ebensburg, Pa.

ANSWER.—It is probable that in this case the irritation of the artificial limb plays but small if any part It would seem that this is most likely a tuberculosis of the skin. An attempt should be made to confirm this by further stained slides at the time of the next abscess. Possibly a guinea pig injection would be of use. General measures to improve the man's health, as in tuberculosis elsewhere, should be of value, and when there is any suspicion that one of the abscesses is forming the artificial limb should not be worn.

BODY ODOR

To the Editor:—A patient, white, single and 21, has never been ill. The family history is negative. The menstrual history is normal. Beginning about two years ago this girl noticed a peculiar odor like coffee about her person. This lasted for about an hour or so and then disappeared. Her friends notice it also. The odor does not come from her mouth and appears at irregular times with no apparent relationship to meals or menses. It may occur while she is working or while she is out with friends and it has become most embarrassing. Physical examination, including examination of the urine, is completely negative. The diet has not influenced the condition. Could you possibly suggest a cause and line of treatment?

M.D., New York.

ANSWER.—The study of body odors aroused considerable interest among the dermatologists of former days but nothing has been found in the medical literature of the last several years. The public is now particularly alert in this respect as the result of the insistent advertising of commercial products designed to correct or overcome such odors.

Odors may originate from (1) gas escaping from the bowel without the knowledge of the person, (2) bad breath, (3) discharge from the ears, (4) vaginal discharge, (5) decomposing sweat, sebum or urine on the skin or clothing, or (6) the peculiar odor of freshly secreted sweat. The query seems to rule out all except the last cause. Certain foods and drugs are credited with producing sweat of a peculiar odor. Alcohol, coffee, various ethers, garlic, valerian, asafetida and other gum resins, angelica, truffles, musk, turpentine, tar, sulfur, benzoic acid, iodine, iodides, phosphorus, zinc phosphate and copaiba are listed as having this power.

Nervous influence is also credited with the production or alteration of the body odor. There are many reports dealing with neurotic or hysterical individuals who emanate peculiar odors, pleasant or the opposite, during attacks. Fraud must always be suspected. In the case under consideration, an effort should be made to check the claims of the patient and her friends. She should be examined for a possible parosmia due to organic or functional nervous disease.

If it can be determined that the odor is in the sweat, the axillae may be dabbed frequently with from 1 to 5 per cent solution of salicylic acid in alcohol or from 1 to 5 parts of "solution of formaldehyde-U. S. P." and alcohol to make 100 parts. Potassium permanganate 1:3,000 in water may be applied as a wet compress or 1 per cent solution of the same drug may be painted on once a day. Applications about the genitalia must be made with more care. If there is any hyperhidrosis, x-rays filtered through 1 mm. of aluminum, 70 roentgens once a week may be given until the abnormal sweating is checked. If this is not possible, 25 per cent aluminum chloride in distilled water may be dabbed on once every third day and allowed to dry on. No soap should be used immediately before its application, and it must be allowed to dry completely before the clothing is put on. This is too apt to irritate to allow its use in the anogenital region.

The patient must be told repeatedly that others do not notice the odor as she does and that she must not allow herself to indulge in worry over it, for an olfactory neurosis is most difficult to overcome.

STUTTERING

To the Editor:—In May 1938 a woman aged 25, unmarried, a school teacher, was taking 1 grain (0.065 Gm.) of plasmochin daily. After two or three days she developed circumoral and ocular bluish discoloration, abdominal pain, shortness of breath, stuttering and hoarseness, anorexia and constipation. After about two months of tonics (iron, quinine and strychnine) she recovered in all respects except the stuttering. This has remained and becomes worse when she is tired. I will appreciate any comments both as to further treatment and as to the prognosis. Treatment so far has been nothing more than tonics, fresh air and exercise.

WATSON WHARTON, M.D., Smithfield, N. C.

ANSWER.—The patient should begin by taking some short verse and sounding a note over each word, starting the word with a low note and reaching the middle of the word with the octave and then coming down to the low note again on the remainder of the word. This should be practiced for three periods a day, each period being fifteen minutes long and one of the periods occurring before she retires for the night. After the patient can do this note with ease it can then be applied in her conversation over any word in which speech difficulty arises. The idea is to build for the time being a melody control over the speech, since it is impossible to stutter in the melody area. After two or three weeks of practice she may then pick out another short verse and use the note over the whole line instead of each word. To illustrate: In the line "This is the forest primeval" she should start the low note on *thi* of the word *this* and reach the octave on the *i*, drawn out and the *s*, coming down slowly on the rest of the sentence. This second note is then applied in the conversation after it has become easy in place of the first note. Then in the third step another verse is chosen and the note is so applied that the octave is reached in the middle of the sentence. For example, in the line quoted the octave would be reached in the syllable *for* of the word *forest*. The fourth step is to choose a verse which has pictures easy to visualize and learn it and picture the object for which the word stands as that word is uttered. After considerable practice the patient may then make up stories of ten lines or so of something she has seen and can picture easily. When skill has been developed in doing this, the mental picture of the word can be applied in conversation and the note discarded. Fresh air, exercise and rest are all helpful. At the stated age, with careful and faithful practice it would probably take about six months for recovery, perhaps much less, depending on the severity of the disturbance.

LOSS OF SPONTANEOUS MICTURITION AFTER HYSTERECTOMY

To the Editor:—A woman aged 26 was submitted to a subtotal hysterectomy for relief of menorrhagia. Immediately after the operation she voided urine twice. Ten weeks has now elapsed and catheterization has been necessary all the time. Distention of the bladder causes no distress and she cannot void voluntarily. There was nothing out of the ordinary about the operation and no perineal work. The Kahn reaction was negative and urologic examination gave negative results. How common is such an occurrence and what is the recommended treatment?

F. E. BOLLAERT, M.D., East Moline, Ill.

ANSWER.—Difficulty with reestablishment of spontaneous urination occurs most frequently in those cases in which there has been considerable mobilization or denudation of the bladder, with impairment of the nerve supply. In this case the question arises as to whether the bladder was stripped downward from the uterus for a considerable distance. If the patient is otherwise normal, a return of the power of spontaneous micturition is to be awaited with confidence.

A helpful procedure is daily distention of the bladder with sterile water, a rubber catheter and a 50 cc. or larger syringe. The bladder is filled until the patient complains of discomfort; then it is emptied through the catheter. On succeeding days the procedure is repeated, always with avoidance of producing excruciating pain, yet with the intent of ironing out folds and creases sufficiently to induce the return of function. "Distention treatment" has yielded gratifying results in nearly all cases in which there has been a persistent loss of bladder tone.

Except in patients with organic nerve lesions, persistent lack of tone is of extreme rarity, seemingly limited to patients with marked myasthenic symptoms.

TREATMENT FOR DRY SCALP—VITALIS

To the Editor:—What medication would you suggest for a dry scalp? Is "Vitalis" injurious to the scalp or beneficial? Is castor oil or olive oil satisfactory?

M.D., Washington, D. C.

ANSWER.—In all probability the underlying factor producing a dry scalp is seborrhea, of which there are two types. In one variety there is excess oil and this is accordingly termed "oily seborrhea." The other type of seborrhea is the dry type, or "seborrhea sicca." The principal characteristic of this is a dry scaling scalp. The scales themselves may be oily. The hair and scalp are lusterless and the latter is of a grayish hue. There may be moderate itching. In the treatment of all types of seborrhea, sulfur stands first. Among other useful agents are resorcinol, salicylic acid and mercurials such as the ammoniated and the bichloride. It is best to begin with pomades and after improvement of the scalp continue with lotions, which are more elegant and are more appreciated by the patient. The treatment should be continued for a relatively long time, because seborrhea is essentially a chronic disorder. Castor oil and olive oil may be used on the scalp but preferably in combination with some of the agents mentioned. Olive oil may be useful as a shampoo in certain types of seborrhea.

The Bureau of Investigation of the American Medical Association reports that it does not know what "Vitalis" contains. It has received reports from at least two physicians that irritation followed the use of "Vitalis." In June 1937 the Federal Trade Commission at Washington reported that it had obtained a promise from the Bristol-Myers Company to stop representing that its hair tonic, Vitalis, retards falling hair, unless limited to indicate excessive falling hair; that the product, combined with a massage treatment, brings new life and looks to the hair by giving it a chance to grow at the roots and scalp, and that it contains oils that hair requires for health.

GABRIEL'S SOLUTION FOR PRURITUS ANI

To the Editor:—Can you furnish me with information as to the composition of Gabriel's solution, used in the treatment of pruritus ani by injection, its method of use and the rationale?

MARION W. HESTER, M.D., Americus, Ga.

ANSWER.—Gabriel uses two solutions in the treatment of anal pruritus: (1) a 3 per cent solution of ethyl aminobenzoate (anesthesin) with benzyl alcohol (5 per cent) and ether (10 per cent) in sterilized olive oil, and (2) a solution composed of nupercaine (0.5 per cent), benzyl alcohol (10 per cent) and phenol (1 per cent) in sterilized oil of sweet almond. He prefers to give a few large injections rather than a series of small ones. He states that a large initial dose of 10 cc., which is injected about the posterior half of the perianal region, is the most significant feature of the treatment. No injection should be given in the presence of acute, moist dermatitis. A 10 cc. syringe is filled with one of the solutions and a needle 3 cm. in length is attached. The perianal skin is prepared in order to produce as nearly as possible a condition of asepsis. The injection is given through four punctures posterior to the anus. In this region is located the principal sensory distribution to the anus (the inferior hemorrhoidal nerve and the perineal branch of the fourth sacral nerve).

At each puncture 2.5 cc. of the solution is injected in a fan-like manner, and the needle should be inserted deeply so that no surface swelling is noticeable at the conclusion of the injection. Abrasions and excoriations about the anal margins should receive local treatment with medicated solutions, ointments and dusting powders.

A second injection of 10 cc. is given from five to seven days after the first. At the time 5 cc. of the solution is distributed by two punctures in relation to the right anterior quadrant and 5 cc. in relation to the left anterior quadrant.

A third injection of 10 cc. is given a week later. These injections are made "on each side of, and posterior to, the anus. The needle is passed forward in the subcutaneous tissues parallel to the surface, 5 cc. being injected on each side."

Thus a total of 30 cc. of the oily anesthetic solution is given. He warns that careful aseptic technic should be used and says that the best results can be obtained if the patient rests in bed for two or three weeks during the time the treatment is being given. Usually in twenty-four hours after each injection the patient notices a feeling of numbness which lasts for from three to six weeks, and during this time Gabriel emphasizes the importance of local treatment. He says that the solution of nupercaine and oil produces more pronounced anesthesia but believes that it does not last any longer than that produced by ethyl aminobenzoate. He has not found that abscesses have occurred in any of his private or hospital patients and has calculated that for about two thirds of his patients the results have been good. Gabriel: The Principles and Practice of Rectal Surgery, London: H. K. Lewis & Co., Ltd., 1937.

MULTIPLE FETUSES AND PLACENTA

To the Editor:—Are there any data with regard to twin births in which there are one and also two placentas? Do children attached to a common placenta and formed by what appears to be bifurcation ever differ in sex? When each child (fetus) is possessor of its own placenta of course one will admit that there were two ova fertilized at one time, but when there is but a single placenta one suspects that only one ovum was impregnated and that it bifurcated and formed two fetuses. Is it a fact that the mother of the Dionne quintuplets at their birth was delivered of only three placentas and that two of those were bifurcated, indicating that only three ova were involved in the generation? My experience in delivering twin births with the fetuses attached to a common placenta is that they are universally of the same sex, which goes to show that the sex of the fetus is determined before or immediately after growth begins from fertilization of the spermatazoon.

T. H. STANDLEE, M.D., Mirando City, Texas.

ANSWER.—Twins who have had a single placental attachment may or may not be of the same sex. Such a placenta may be the result of a fusion of two separate placentas. It is almost impossible, and according to several authors absolutely impossible, to determine by an examination of the placenta whether twins are the result of a single ovum or of separate ova. Detailed microscopic examination may be of some value, but gross examination is of no value. About 5 per cent of monozygotic or single ovum twins have distinct amnions and chorions. Twins arising from the same ovum are always of the same sex. Those arising from separate ova may or may not be. Sex is determined immediately on fertilization of the ovum and is dependent on the spermatozoon.

The famous quintuplets are monozygotic, all having originated from a single ovum. This fact has been definitely determined by a careful study of their finger-print patterns and other characters. At the present time this method of study is the only reliable way of determining whether multiple births arise from a single ovum. Dr. Dafoe had little opportunity to study the placenta of the quintuplets before it was destroyed, but it was his impression that it consisted of a single large placenta.

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LIME DEPOSITS FROM WATER AND WATER SOFTENING

To the Editor:—Our water supply has a high mineral content, particularly calcium, which deposits around the cooling system of the engines used to generate electricity, causing excessive heating. To counteract this a thick liquid called "Sandbaum" made by the Sandbaum Company of Fort Worth, Texas has been used. It is called a vegetable colloid and claim is made that it removes lime deposits without chemical action. It costs $15 for 8 ounces, which lasts about one month. Do you have any information on this product? It seems to me that there are chemical water softeners which would be much cheaper than this. Do ordinary water softeners prevent the deposit of lime on instruments and cooking utensils?

L. W. FORNEY, M.D., Mason City, Neb.

ANSWER.—Without knowing the exact chemical characteristics of the water used it is not possible to advise relative to the economics of water treatment and softening for the plant. Waters having calcium bicarbonates in solution will, of course, precipitate the calcium carbonate when the carbon dioxide, which serves to hold the carbonate in solution, is driven off with heating. As a rule where the quantity of water used for condensers is large and the dissolved solids high, water softening by chemical treatment or by passing the water over zeolites is more economical and satisfactory than batch treatment by various chemicals of a colloidal nature. It would probably be prudent and good economy to consult a qualified industrial chemist with regard to this problem.

NODULAR FIBROSITIS

To the Editor:—I should like information on the nature of the small nodular masses frequently palpable over the sacro-iliac synchondroses. They are smooth, rounded, variable in size, firm in consistency, overlying the joint. I find them more often in women, and they appear to be present in cases of both infected and apparently not infected joints. Although they feel like enlarged lymph nodes, I am inclined to think that they are cartilaginous bodies. Have they any significance?

V. E. POWELL, M.D., Atlanta, Ga.

ANSWER.—Small nodular masses, frequently palpable over the sacro-iliac synchondroses, are most often present in patients who have a general ligamentous relaxation not only in that region but throughout the body. This condition is often present around the time of the menopause, when the metabolic processes are at a low ebb and the patient presents a picture of extreme fatigue with lumbar lordosis and poor posture in general. The masses are similar to, if not identical with what has been called nodular fibrositis, which also may be present about the shoulder region and in the muscles or ligaments of the upper dorsal spine between the blades of the scapulae.

They have been examined microscopically, following excision, and consist of extremely edematous, fibrous, connective tissue. The cause is thought to be a low grade chronic inflammation, probably not on an infectious basis. They are present in many instances when chronic strain or stretching of the superficial ligaments exists. It is probable that any type of chronic irritation in the presence of poor muscle tone and poor venous circulatory return predisposes to the development of these nodules. Such nodules may be expected to disappear when the posture is improved and the muscle tone, strength and circulation are restored to normal.

SCARLET FEVER IMMUNIZATION

To the Editor:—What is the present status of scarlet fever immunization? Should one recommend that all children be given the five doses of scarlet fever toxin? I have not felt that there has been enough evidence to warrant the universal use of the scarlet fever toxin.

M.D., Illinois.

ANSWER.—Inoculation of toxin according to the Dick method for the prevention of scarlet fever is not universally accepted without question. Pediatricians as a rule do not recommend the routine use of this procedure. Only those subjects shown to be susceptible on the basis of a positive Dick reaction should be injected with Dick toxin for the purpose of immunization. Usually a susceptible person who has received the five regular doses of Dick toxin does not develop clinical scarlet fever if exposed to the disease. However, immunization against streptococcic infections is not established. The Dick plan for scarlet fever immunization is carried out in many hospitals and other institutions, where it is of undoubted value.

PRURITUS FROM WATER

To the Editor:—A married woman aged 28 complains of an annoying pruritus, i. e., a generalized itching on her body only after taking a bath. If she washes clothes or dishes she has itching only where the water touches her. When water splashes on her chest when she is bathing her baby the spot where the water touches her body itches. This pruritus occurs regardless of whether she uses soap or not or whether the water is cold or hot. She is fastidious, taking baths at least once daily, often twice daily. Restricting the use of water, i. e., bathing herself, gives her comparative freedom from itching in between bathing. The use of soothing ointments after bathing does not lessen the itching. She is a moderate hyperthyroid, having a basal metabolic rate of + 29, but under medical care her pulse has come down from 115 to 92 and her nervousness has improved greatly. She has no palpable thyroid and no exophthalmos. The urine, Wassermann reaction and blood counts are all negative. What can be done for this woman? Is it possible to desensitize her? Can a cause be found for this itching? Is there anything that can be given to allay her itching after bathing?

THOMAS MESSINA, M.D., Newark, N. J.

ANSWER.—The cause of ordinary bath pruritus is the drying of the skin caused by soap and water and by the dry winter air outdoors and the dry air of heated dwellings. It should therefore be more pronounced in winter than in summer. The case described is an extreme one, probably because of the slight hyperthyroidism. Desensitization is hardly to be hoped for. The itching can be modified or perhaps avoided by using soap and water only on the hands and face, the feet and the body folds. Then the patient should take a colloid bath made with bran, oatmeal or starch. This should be tepid and after it the skin should be dabbed gently until nearly dry, then anointed with 10 per cent borated petrolatum, with rose water ointment or other ointment, or with a lotion, such as the following, originated by Dr. William Allen Pusey:

	Gm. or Cc.	
Liquid petrolatum	120.0	
Oil of rose geranium		
Oil of bergamot		
Oil of lavender	āā	0.1 or more as desired
Sodium benzoate	2.0	
Powdered tragacanth	16.0	
Water	to make	1,000.0

Phenol to 1 per cent may be added if desired, or any other antipruritic such as solution of coal tar.

The colloid bath is made of bran or oatmeal from 1 to 3 pounds to a 30 gallon bath, boiled for a few minutes in a gauze bag, to keep it out of the drains. This bag and the water in which it has been boiled are stirred about in the bath, and the bag gently squeezed. The starch bath is simpler, for no precautions need be taken to keep it out of the drains. It should be stirred up with cold water until it swells and then placed in the bath. The temperature of the bath water should be about 100 F. so that it may soothe, not stimulate. The patient should be taught that baths are not needed so frequently in winter as in summer, for the skin has less opportunity of becoming dirty.

AMMONIA AND RESPIRATORY SYSTEM

To the Editor:—I should appreciate an answer to the following hypothetic problems, all of which have medicolegal significance: 1. Could the exposure to fumes of ammonia gas in a man aged 54 light up a latent or quiescent tuberculosis? 2. What are the effects of ammonia gas on the respiratory tract? 3. It has been stated that ammonia gas never reaches the lungs. Is this a correct assumption? If so, what is the mechanism that prevents the gas from entering the lungs?

M.D., New York.

ANSWER.—1. Possibly yes, if the exposure to ammonia led to purulent catarrhal tracheitis, hemorrhagic bronchopneumonia, peribronchial pneumonia, pulmonary abscess or any prolonged injury of severe nature to the lower respiratory tract. Tuberculosis is not a common result.

2. Ammonia gas chiefly attacks the membranes of the upper respiratory tract, leading to edema, which edema may be delayed. Through reflex action, ammonia attacking the membranes of the upper respiratory tract may lead to cardiac dysfunction, paralysis of the respiratory center in the brain, convulsive movements and the like. Action on the lower respiratory tract is the same, although less ammonia may reach this portion of the respiratory system.

3. When concentrations of ammonia are high, spasm of the glottis prevents the entry of much ammonia into the trachea. On this account ammonia is commonly classed as an "irrespirable" gas. However, under some circumstances some ammonia may reach the bronchi and bronchioles. It may be doubted that any ammonia as such leaves the terminal air sacs and possibly none leaves the ultimate bronchioles. The reason for this is that the ammonia, immediately on contact with surface tissues, is chemically combined. The action of ammonia within the lung is localized exclusively, or almost exclusively, along the bronchial tree.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Fifth Annual Meeting, held in Chicago, Feb. 13 and 14, 1939

(Continued from page 1288)

DR. JULIAN F. DU BOIS, Sauk Centre, Minn., in the Chair

THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 14—MORNING

Does Medical Licensure Procedure Conform to the Accepted Standards of Medical Education?

DR. A. C. FURSTENBERG, Ann Arbor, Mich.: The principal objective of medical education is the preparation of men and women for the practice of medicine. It must constantly change with the advent of new knowledge and new demands of service. It is impossible to prepare a curriculum which possesses permanent values. Growth and improvement in methods of teaching are imperative, with adjustments based on the changing social needs of medical service, and I doubt that medical education is keeping pace.

One hears dissatisfaction expressed on the count that premedical education deals with abstruse learning and has wandered far from its original purpose. Thirty years ago the premedical course was established to give the student a broad general education before he commenced the study of medicine. I doubt that this objective now dominates the picture. Analysis of the premedical curriculum discloses that it is composed largely of specific science subjects. The addition of numerous science studies has pushed the cultural ones out into the periphery of the curriculum. Students contemplating the study of medicine intuitively seek the science subjects, believing that they offer the best preparation for the study of medicine, and frequently they are urged by educators to take advanced courses in biology and chemistry in order that they may start medical education on the highest possible scientific level. I know of several arts colleges where premedical students are urged to study the anatomy, embryology, biochemistry and physiology of man. Such a program, which includes medical subjects, defeats the purpose for which premedical education was designed. Instructors in medical schools complain of this plan, arguing that it taxes their strength and patience to repair the damage done the students by instruction in basic medical sciences presented from the standpoint of the academician rather than from that of the doctor of medicine. Such a program robs the premedical curriculum of its cultural subjects and deprives the student of his only opportunity to obtain a broad general education before he commences to study medicine.

I urge that greater flexibility in the premedical curriculum be promoted, that it be made less stereotyped and that it be opened up liberally to cultural subjects so that it will give the student a wider range of interests. The term premedical is an unfortunate one. It should not represent a course specifically preparatory to the study of medicine. It should give the student a mature intellect and a well disciplined mind and prepare him for any professional study in which he may wish subsequently to engage.

If the present plan of premedical education fails to fulfil its purpose, the burden of criticism does not all rest with the medical schools. Some of it can be charged to the boards of registration. It is to be remembered that the boards have prescribed certain specific science requirements. They have written them into the laws governing the licensure of physicians, and the physician must present credits in these courses before he is certified for the practice of medicine. What about the student who has not pursued the science courses who

decides at the termination of four years of college that he wishes to study medicine? His predicament is most discouraging, because he finds the doors of the medical school closed to him. He is told that he has made his decision too late, that he should have known that he wanted to study medicine when he entered the freshman year in the arts college and that his only recourse is to return to the literary school for two more years of work in the sciences. I am wondering whether a decision of this character absolves the educator from further obligation to the student. Is the student to be penalized for withholding judgment on a matter of such vital importance as his life's work until he has graduated from the arts college at the age of 21? I have interviewed college graduates with excellent scholastic records who have decided that they wished to study medicine but were considered undesirable candidates by admissions committees because they had not completed the so-called premedical curriculum. Many of these students have been striking personalities, brilliant in their college accomplishments and equipped with a broad cultural education but destitute of the science credits which have been prescribed by law and required by medical educators.

All of which leads me to appeal for a less rigid, less stereotyped premedical curriculum, one that will give the student a broad general education before he commences the study of medicine. If the physician finds a knowledge of physics, chemistry, botany and zoology essential to the practice of medicine, then let no one interfere with the present premedical curriculum. If he can get along, as I do and as many of my colleagues do, without a speaking acquaintance with these subjects, then may I beg that a searching consideration be given to a problem of vital importance to the medical profession.

The second cause of dissatisfaction expressed by medical practitioners and the leading educators pertains to the work in the medical school itself and the methods of presenting it to the students. There is a conspicuous lack of integration of the fundamental sciences and clinical medicine. The time honored system of medical training thrusts the student into two years of arduous study of the basic sciences and then abruptly transfers him to a study of the practical clinical problems in the hospital. In short, there is a wide gap between the basic sciences and clinical medicine; the former are divorced from the latter, with the result that seniors and recent graduates are wofully deficient in a knowledge of the fundamental sciences. This plan is open to criticism when one recalls that half of the period of medical training has been devoted to a study of preclinical subjects. The trouble rests in failure to correlate the basic sciences and clinical medicine. It is futile to expect the student to retain a working knowledge of anatomy, for example, if he is divorced from the subject at the termination of the freshman year in medicine. The introduction of some genuine practical problems into the early years of medical training, and the pursuit of the fundamental sciences not for a greater number of hours but throughout the four year period of medical education in close association with clinical and preventive medicine, would mean that on the day of graduation the student was equipped with a knowledge of the basic sciences as serviceable as his knowledge of general surgery or internal medicine. Let us not be consumed by the ambition to recruit academicians and theoreticians from the student body. Let us focus on our objective, that of preparing men and women for the practice of medicine.

What then are the common interests of medical education and the state boards' procedure for licensure? A study of the boards' questions which serve as an index of the examiner's estimate of the young graduate's professional capabilities is revealing. Three distinct types of questions are usually in evidence: (1) the formal memory question, not expected to elicit a practical answer; (2) the less rigid academic question, which calls for both a theoretical and a practical answer and reveals a comprehensive and well integrated knowledge of the problem, and (3) the technical question, which calls for an immediate practical answer on the mechanics or technic of some particular method or procedure.

The following question is an example of the first type, the formal memory question: Define: (*a*) plica vascularis; (*b*) vitelline duct; (*c*) urachus. What is the student going to do with this question? The answer is "nothing" unless he was fortunate enough to turn accidentally, the night before the examination, to the chapters in his textbook which described these terms. An example of the second type of examination question is "Sketch heart and blood vascular system." Here is a question referring to a subject which was commenced in the anatomy course of the freshman year, elaborated on later in the study of physiology, treated sedulously in the pathology courses of the sophomore and junior years and firmly impressed on the minds of the students in their cardiology of the senior year. What will be the character of the student's response? The answer is "good." Here is a subject which was kept alive throughout the medical curriculum; as it progressed from one year to the other, the student acquired interest and understanding and enjoyed the enlightenment derived from a correlation of theory and practice. As a result the material did not fail of lasting recognition at the termination of the senior year. The student's answer to this question reflects in large measure the extent to which he was trained in the medical school. An example of the third type of question is "Describe the technic of lumbar puncture." Even though this question may be a fair one, I doubt that it has a place in the examination of a student who has just completed his senior year in medicine. To perform a lumbar puncture involves mechanical skill, and the mere knowledge of how it should be done falls short of teaching the student how to do it. This operation requires supple and dexterous hands, which can be trained only by experience. Knowing how to do it is not sufficient; the performance demands exercise, which in the present program of medical education has been left to the practical opportunities of the intern year. An intern service in an accredited hospital is one of the legal requirements for practice in many states, and it would seem wise and expedient to delegate the responsibility of teaching technical procedures to the residents and house officers charged with the duties of postgraduate medical education.

Another problem of mutual interest to the boards of registration and the medical schools deals with the medical practice law which requires the student to present a diploma from a recognized college of medicine which has as a minimum requirement a four year course of eight months in each calendar year. This precludes the possibility of utilizing medical credits obtained in a graduate school or acquired in several summer sessions until it is certified in the office of the registrar that the student has been regularly enrolled in a medical school a full academic period in four calendar years. The student who transfers from the curriculum of public health and preventive medicine and the doctorate of philosophy to the medical school is not permitted to use the medical credits acquired in these fields until he has been registered in his school of medicine for the period prescribed by law. This legal requirement has some serious aspects. The extra expense of tuition and maintenance often imposes a severe financial burden on the student. He seeks advanced work in certain courses but is not always favored by the kind of studies best suited to his needs and interests; he dissipates his time and efforts in byways which do not lead in the direction of his objective; in short, he loses his motivation and finally, in despair, is content to make the best of a period of intellectual decadence until time permits him to take his examinations.

I recognize the magnitude of this academic problem, that it is peculiar to most forms of education, but in determining the qualifications of the doctor let us not overlook his training and preparation in the sociological and humanitarian aspects of medicine. Students today are abysmally lacking in these essentials of practice: a knowledge of human conduct and behavior, an understanding of mental and physical reactions to the emotional influences of life, and an appreciation of the variable human capacities for enduring pain and sorrow and resisting adversity and despair. All these factors comprise the very essence of medical practice. Does the medical student know that most of the practice which he anticipates will consist of patients experiencing some social, economic, moral or religious

conflict, that their physical ills will be a reflection of some emotional state and that drugs and operations will not cure them? From the beginning of premedical education until graduation, and beyond, the training of the doctor is predominantly in the organic sciences. A pain in the head is the result of sinus disease, brain tumor or cerebral arteriosclerosis, and if the student cannot find an organic basis for the headache he loses interest and passes on to his next assignment. No one has ever attempted to impress on him that the headache, in all probability, is due to an emotional conflict as important as an organic disease. Medical education has overlooked and is still overlooking this tremendously important field of medicine.

Examination Results Before Massachusetts State Board of Registration in Medicine

DRS. E. A. KNOWLTON, Holyoke, Mass., and STEPHEN RUSHMORE, Boston: The medical practice act of Massachusetts differs from the acts of all the other states. It provides for one board of seven physicians to examine and license persons who wish to practice the art of healing. There are no secondary boards, such as there are in many states, to license osteopaths, chiropractors, neuropaths, homeopaths, eclectics and whatnot to practice their respective cults. There are two boards which might be considered nonprofessional, one in optometry and the other in chiropody, but persons who wish to treat the sick must be licensed by the one board, the State Board of Registration in Medicine. Excluded from this board are physicians who are in any way a part of a faculty of a medical school, and a majority of the board members may not be members of any one chartered medical society. But the great difference between the Massachusetts act and the acts of other states is the requirement that any graduate from a legally chartered medical school must be accepted for examination. As a result Massachusetts is a great gathering place for graduates of the so-called nonapproved schools, who outnumber those from the approved schools about two to one. A great majority of these applicants fail in the examinations but still they come, year after year.

I have been making a statistical study of the end results of the Massachusetts examinations for 1937 and have prepared charts to present the results. The board is compelled by law to conduct examinations by the conventional written tests and to examine in seventeen subjects. As a result of my study I think that all the schools approved by the Council on Medical Education and Hospitals of the American Medical Association are graduating physicians equally well prepared to care for the sick and to deal with the health problems of the country. It is hard, however, to draw comprehensive conclusions. It is apparent that persons in the highest ranking fourth from the nonapproved schools are better qualified to meet a written examination than those in the lowest ranking sixth from the approved schools. The Massachusetts board has been condemned by the profession at large for licensing so many graduates from nonapproved schools. It has been as severely criticized by the officers of some of the approved schools for the high number of failures among their graduates. The question has often been asked, and I know the board members have often asked one another, whether the 26 per cent of applicants from nonapproved schools who have been licensed are better qualified to practice than the 18 per cent of graduates from the approved schools who have failed to pass and have not been licensed. There are, however, far too many applicants from both types of schools who receive exactly 75, a minimum passing mark.

I am not proud of the method of conducting examinations, which treat far too many subjects. The board members are not teachers or research workers. When the legislature changes the medical practice act so that the educational background of the applicants may be considered and some practical or oral test of their qualifications to practice may be used, the results of the examinations will not be so far out of step with those in other states.

DISCUSSION ON PAPERS OF DR. FURSTENBERG AND DRS. KNOWLTON AND RUSHMORE

DR. J. EARL MCINTYRE, Lansing, Mich.: Dr. Furstenberg has expressed excellent ideas. I have been of the opinion that premedical requirements are dogmatic and biased, too severe. I believe that the work leading to the bachelor's degree in liberal arts is as important as preparing the boy or girl for the medical school, if not more important, because I believe that it provides a broader background, better cultural education. Boards that have the power to fix a standard of both premedical and medical education should give thought to this point. I think that in the future changes which would be for the benefit of the coming generation should be considered.

DR. ERWIN SCHENK, Keokuk, Iowa: The program of medical education has not crystallized; it is so large that no one has caught up with it. The teaching force is not prepared to give the basic science work, and the deans are not high enough to coordinate the work that is going on in their institutions. Some of the latter aim to improve the situation by adding more years of study, but many students are like pitchers—you fill them full and whatever more you pour into them runs over the top. It will be necessary to exercise much more care in the acceptance of applicants by medical schools. The capacity is about so much in too many persons. The best way to cull such persons is to grade the colleges.

DR. A. S. BEGG, Boston: The deans are in a difficult position. They are pushed from below by the attitude of the colleges; they are pushed on one side by the faculty and its demands and on the other side by the student and his wishes, and they are pushed from above by the qualifying examinations. The correlation mentioned by the first speaker is being attempted in many places. In Boston University School of Medicine, clinical correlation exercises are started in the first year. A good many exercises are given in connection with the preclinical sciences by clinicians, who use the information the student has acquired to show him how it applies in medicine. There was an exercise not long ago called eighteen hearts. That happened to be the number of subjects in the dissecting room. The eighteen hearts were brought to the amphitheater, a pathologist rendered a report on each one and then a cardiologist discussed the results of the pathologist's examination. In one case the pathologist said "I suspect that you are going to find small kidneys." The instructor's job after the exercise was to keep the students from going in and taking out the kidneys to see whether he was right. In an exercise on the genito-urinary system the instructor told the students about roentgenograms that show double ureters and explained these on an embryologic basis; the students went back into the laboratory and were much interested in studying the very thing that they had been studying the preceding week, because here was a man who was making his daily bread by knowing such facts. I am not much worried about the waste of time on the part of the brilliant student. He finds other things to do. I have seen few who have been adversely influenced by long exposure to the medical curriculum. When one looks at the results of the examinations in Massachusetts, one is amazed and realizes the weakness of the whole system. I should like to recommend to the Federation of State Boards that it appoint a subcommittee to study the technics and content of state examinations, because I think they are very uneven. It is too bad that in Massachusetts so many persons must be examined in the course of a year. I hope that in 1941 this will be changed a little, but at the same time there ought to be legal provision for a really practical examination of those who come up for licensure.

DR. F. H. MAGNEY, Duluth, Minn.: You have heard the law and the setup in Massachusetts. Let me briefly state the setup in Minnesota. A basic science board eliminates a large number. Candidates for the medical board are mostly University of Minnesota graduates. The university I think has about 600 applicants each year, from which about 100 are selected. The university works well with the medical profession and the Minnesota State Medical Association, so its methods of teach-

ing are much in accord with medical practice. The other candidates are men who are working in the Mayo Foundation at Rochester, which is affiliated with the university. They come from the university medical schools of this country and Canada and they also are a picked group. About the only older men, who have been out of school for any length of time, are men who are put on the faculty of the university. The state board has the discretion of stating what types of candidates or what schools are recognized, as compared with the Massachusetts board, by which any school which is legalized or licensed must be recognized. Minnesota recognizes only class A schools. It is a question whether the board should be too critical in its examinations when the candidates are of such high caliber. A candidate is failed occasionally, but there is no reason why the percentage should be high.

DR. L. J. KOMINSKY, Texarkana, Ark.: I was glad to know that Massachusetts confesses its shortcomings from the medical standpoint. I find through my experience on the state board that there are two branches in which the students are quite lacking, materia medica and therapeutics. Every day the physician is confronted with detail men who know nothing about medicine but who tell him how to treat disease with the remedies put out by their houses. If every doctor had in his office the U. S. Pharmacopeia, the National Formulary and New and Nonofficial Remedies, he could find out whether the preparation in question was in one of these three. If a preparation is not, it should be let alone. I have told that to the young men before the state board in the past two years. In Arkansas, after a lot of tribulations, a basic science board has been established. I want to say for the University of Minnesota that last November one of its graduates, who is now a captain in the Army and Navy General Hospital, made the highest grade that has been made in Arkansas in the past eight years.

DR. G. M. WILLIAMSON, Grand Forks, N. D.: The remarks made by the last speaker are very apt. The universities are not teaching materia medica and therapeutics. Dr. Furstenberg's paper is one of the best I have ever heard. The university medical schools are teaching too scientifically and are not practical enough. The board in North Dakota examines only a small number, and the men are fairly well known before they come up for examination. A candidate either satisfies the board or doesn't satisfy the board. Even if he makes 90 or 95, if he is not the right type to turn loose on the public, he is so notified. One of the best men ever examind, as far as grades were concerned, it would have been a crime to license, because he didn't know anything. He was the most unpractical person ever examined by the board. What can be done with such men? I believe that it would be a good plan to have some of the deans and members of the council at these meetings, to have more plain talk and not to let one group do all the talking and tell us what to do, because the members of the state boards have to pass on the candidates later.

DR. T. J. CROWE, Dallas, Texas: I don't think any of us can know too much about medicine. I am against any attempt to reduce the premedical or medical qualifications. I believe that any man who wants to call himself a specialist should have at least from three to five years of intensive training in an institution devoted entirely to the subject which he is going to take up. I think the board should do something about that phase of the matter. It can be controlled through the hospitals. Now, about the examinations. There are advisory committees and then advisory committees of advisory committees. Why don't we talk about standardizing examinations? Why don't we talk about standardizing with reference to reciprocal relations and with reference to the credits that should be allowed a man who has been engaged in active practice? I should like to have settled, if possible, what credit shall be given the man who has been in active practice and is required to take a state board examination.

Citizenship and Medical Licensure

DR. J. E. MCINTYRE, Lansing, Mich.: This article appeared in full in THE JOURNAL, March 18, page 1075.

Legal Status of the Intern

DR. FRED E. CLOW, Wolfeboro, N. H.: This article will appear in full in THE JOURNAL.

DISCUSSION

DR. FRANK M. FULLER, Keokuk, Iowa: There was no mention in this paper of the type of internship that is now known, at least locally, as a voluntary internship. In order that the term may be understood I will say that men from foreign countries are being sent into various institutions by miscellaneous groups who have enough money to assure the government that their protégés are not going to become public charges. Such foreign physicians are being distributed. I say that because the problem has come up in Iowa, where men have come into the state university hospitals as voluntary interns. This means that, after the university has had its full quota of internships assigned, men are sent in with expenses paid to the extent of $600 a year, as voluntary interns. What is the legal status of interns of this type? When they get through, the board has to have a certificate from the dean or officer of the hospital that they have completed an internship. After having completed a year's internship in Iowa, they are eligible to licensure in the state. The board is concerned as to just how it is going to handle these so-called voluntary internships. To my mind there isn't any such thing. An intern is an intern whether he is voluntary or involuntary. I am asking this in order that some light may be thrown on the problem, which no doubt is going to be more extensive. I have been trying to find out where the idea of voluntary internships originated and who is supporting the unfortunate persons who are being driven out of their own country and brought in here. I should like to know how extensive is the movement toward establishing voluntary internships throughout the country.

DR. EDWARD A. KNOWLTON, Holyoke, Mass.: I did not know until I heard Dr. Clow read his paper that Massachusetts is the only state which licenses interns. I thought that Massachusetts was the last to do anything modern in medical licensure. It has worked out very satisfactorily. There are two types of license, one for the student intern and one for the graduate who is an intern. The licensure provides the board with a registry of all the interns throughout the state. When an intern appears at a hospital, the first thing asked him by the hospital authorities is "Let me see your license."

DR. J. EARL MCINTYRE, Lansing, Mich.: In Michigan the attorney general has ruled that the board has the power of fixing a definite internship period as an educational requirement, and the state has a twelve months rotating internship. The attorney general also has ruled that on completion of this internship, any who practice medicine, either within or without a hospital, thereafter must be registered and licensed by the board. Licensure is therefore required of all second year interns and residents. The attending staff physician is thus not responsible for the intern's or resident's act; the hospital is not responsible because such intern or resident has all the prerogatives of any other doctor of medicine within the state. In other words, the attending physician cannot delegate his authority to practice medicine. He cannot delegate any authority to the intern, resident physician, nurse or technician. This has been a means of solving that particular problem in Michigan.

DR. FRED E. CLOW, Wolfeboro, N. H.: I did not mention in my paper that there are records in New Hampshire of twenty-three malpractice suits brought against interns. Most of these cases, of course, came to nothing, but enough have had to be settled to disturb the board. Apparently the lawyer has found that he cannot recover from the hospital except in rare instances, and he has learned to go back of the hospital to the young man who is the cause of the alleged malpractice. These suits have a nuisance value at least, so that there is often involved the payment of some money in order to clear the young man. When he is an unlicensed person, he is put in an extremely vulnerable position. I cannot answer Dr. Fuller's question. Voluntary internship is not known, at least by that name, in my part of the country, and I do not know of any men who have been placed in hospitals under such circumstances.

The Objectives, Aims and Activities of the Commission on Graduate Medical Education

DR. ROBIN C. BUERKI, Chicago: The Commission on Graduate Medical Education is still less than a year old, and obviously it is not prepared as yet to give specific answers to any of the questions that have been raised. I should like, however, to present some of these questions and suggest possible answers. In a statement of the scope of the work of the commission, the chairman said in part:

"The Commission on Graduate Medical Education will undertake the formulation of the educational problems and principles involved in the continuation of medical training for a period of years after graduation, in the adequate training of specialists and in making recommendations for those in practice, general and limited, to keep abreast of new developments in diagnosis, treatment and prevention. It is the opinion of the commission that these phases of graduate medicine are closely related and should be regarded broadly as parts of a single problem.

"The educational problems of the internship need definition in the larger concept of medical education because of the great confusion that now exists among physicians, hospitals and medical faculties regarding this vital, though frequently unsatisfactory, phase of training. There is need of integrating the hospital training with the undergraduate course and of making it more effective as a preparation either for general practice or for advanced training for a specialty.

"Little attention has yet been given to the opportunities for training for specialization of the large number of practitioners who are otherwise qualified and desire to become fully equipped in a limited field of practice. Sound plans which will meet individual conditions and permit these physicians to secure an adequate preparation in a special field must be worked out.

"In recognition of the need of a study of the whole situation in graduate and postgraduate medical training, it seems desirable that there be set up a group to mobilize the best current opinions and experience and to formulate principles and standards of training which may be of help in setting up programs of instruction. Such a group should comprise representatives of the profession, the specialty boards, the hospitals, the medical schools and the state regulatory bodies familiar with these problems. It would develop standards of training which would be of help to the Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association and other agencies concerned with the inspection and evaluation of facilities. There should be no duplication of effort or conflict with such agencies.

"The Advisory Board for Medical Specialties is more representative than any other body of the different interests involved and it was felt that it should create a group to study the whole problem; hence its action in Atlantic City on June 6, 1937, creating the Commission on Graduate Medical Education.

"It was understood that the commission would concern itself primarily with those problems which are common to all the specialty boards and organizations dealing with the different aspects of graduate medicine and would not attempt to accredit or evaluate facilities or perform other administrative functions now carried out by the Association of American Medical Colleges, the American Medical Association, the American College of Surgeons and other administrative agencies. Obviously the material developed would be made available to the interested groups."

The director of study began work March 1, 1938. In a discussion of the whole problem with more than 400 persons from all parts of the country, emphasis has been placed on the fact that this is not a survey. Almost without exception the men visited were in enthusiastic accord with the aims of the commission, feeling that lack of adequate training and opportunities for continued education constitutes one of the greatest problems confronting the medical profession today.

There seems to be a definite feeling that the internship should be more closely related to the undergraduate years and should be considered as such by the staffs of hospitals and the faculties of the medical schools. Partly because almost all medical students after graduation serve as interns in hospitals and partly because medical schools do not feel that at present they have adequate control over the type of internship offered, it seems to be an open question as to whether or not an internship should be required for graduation. The general feeling is that the average internship is not satisfactory from an educational standpoint, but there is considerable divergence of opinion as to how the educational content of the internship shall be improved.

The vast majority of the internships offered are rotating services; from 1934 to 1938 these increased from 4,569 to 5,697. In spite of the fact that recently there was a decrease in the number of straight internships from 781 in 1934 to 442 in 1938 and an increase in the number of mixed internships from 853 in 1934 to 1,212 in 1938, there is still a rather strong feeling on the part of some authorities that a straight service is desirable. A rather large group of men feel that even in a rotating internship some of the more highly specialized services should not be offered to interns.

There seems to be almost complete unanimity of opinion that a residency of three or more years is the ideal way to prepare a man for the practice of his chosen specialty, nor does there seem to be any major disagreement concerning the ruling of the various specialty boards that a portion of the residency shall contain work in the medical sciences. The majority of the specialty boards feel that such work should train the resident to approach his specialty from the point of view of the scientist and need not necessarily make him more proficient in all the basic science courses; the men in the basic sciences as a whole feel that neither the budgets nor the staffs of their departments are adequate to offer this work and suggest the possibility of training individual clinicians who are members of the various clinical departments and who in turn can give this work to their own residents or, in large groups, to the prospective candidates for certification in their specialty.

There is considerable agitation to have more opportunities available for men already in practice to develop proficiency in their specialty. The general reaction is that short courses, if given for graduates to perfect themselves in a specialty, are not educational in fact and do not train the man to be competent in his chosen field. There is a definite feeling, and figures substantiate it, that the good residencies are too few to produce enough trained men to meet the needs for the replacement in and the growth of the specialties. It is gratifying to note, however, that the number of all residencies has increased by 50 per cent in the last five years, from 2,373 in 1934 to 3,492 in 1938, and that the number of residencies of three or more years in length has trebled in the same period, having increased from 332 in 1934 to 1,092 in 1938. Many of these residencies are not really satisfactory.

The solution of the problem of postgraduate medical education for the general practitioner is a most difficult problem. After the physician has become recognized in his specialty, his contact with national societies and his willingness to read in most instances keeps him abreast of the advances in his specialty, but this is not true in the main of the general practitioner. Some persons have the definite feeling that the only way to keep the rank and file of the profession abreast of the advances in medicine is to give limited licenses, even though they recognize the difficulties involved in such a suggestion. It has also been suggested that a specific amount of postgraduate work be essential for continued membership in the local county medical society.

After eleven months of travel from one end of this country to the other, I feel sure that the medical schools must take more than an academic interest in the building and operation of a coordinated program of medical education that will follow their students from the time of graduation until they retire from the active practice of medicine. In this broad and comprehensive program hospitals will play an increasingly important part, but they must await the constructive leadership that only the medical schools can supply. It is obvious that the solution which I am proposing involves a large expansion of thought and activity on the part of the medical schools. Leadership in meeting this great series of problems must come primarily from those who have heretofore carried the major responsibility for medical education. No other group has the richness of experience in medical education that medical educators have.

(To be continued)

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, April 1, page 1288.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS Parts I and II. Medical centers having five or more candidates desiring to take the examination, May 1-2 (Part II only—limited to a few centers), June 19-21, and Sept. 11-13 Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. *Oral* examinations for all candidates, St. Louis, May 13-14 *Written* Various places throughout the United States, Sept. 9. Applications must be filed by July 11. *Oral* Part II Philadelphia, Oct. 14-15. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Philadelphia, Oct. 30-Nov. 1. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Various sections of the United States, Oct. 16 and Feb. 19. Formal application must be received before Aug. 20 for the Oct. examination and on or before Jan. 1 for the Feb. examination Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY General oral, clinical and pathological examinations for all candidates, Part II examinations (Groups A and B) will be held in St. Louis, May 15-16 Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY *Written* Various cities throughout the country, Aug. 5 *Oral* St. Louis, May 15 and Chicago, Oct. 7. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY St. Louis, May Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY St. Louis, May 12-13 and Chicago, Oct. 6-7. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha

AMERICAN BOARD OF PEDIATRICS Cincinnati, Nov. 15 Appointments must be made before July 15 Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY Chicago, May 13 Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY St. Louis, May 11-14 Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY *Part II* New York, May 8 and May 9 Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia

AMERICAN BOARD OF UROLOGY White Sulphur Springs, W. Va., May 26-28 Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis

Vermont Endorsement Report

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports nine physicians licensed by endorsement from July 25 through Dec. 17, 1938. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Johns Hopkins University School of Medicine		(1927)	N. B. M. Ex.
Harvard University Medical School		(1929)	N. B. M. Ex.
Tufts College Medical School		(1937)	New Hamp.
Cornell University Medical College		(1924)	New York
Hahnemann Med. College and Hospital of Philadelphia		(1937)	Delaware
University of Vermont College of Medicine		(1937, 4)	N. B. M. Ex.

California October Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held at Sacramento, Oct. 18-20, 1938. The examination covered nine subjects and included ninety questions. An average of 75 per cent was required to pass. Sixty-four candidates were examined, fifty-four of whom passed and ten failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
College of Medical Evangelists		(1937)	75.1, (1938) 75.9, 78, 80.2, 81, 81.1, 83, 86, 86.3, 86.6, 86.8
Stanford University School of Medicine		(1938)	83.9
University of California Medical School		(1938)	80.6, 85.1
Loyola University School of Medicine		(1938)	80.3
Northwestern University Medical School		(1937)	82.3, (1938) 79.9, 86.7,* 88
Rush Medical College		(1937)	85.7, (1938) 85.4
School of Medicine of the Division of Biological Sciences		(1937)	85.2
University of Illinois College of Medicine		(1937)	79.9
University of Kansas School of Medicine		(1937)	87.1
[illegible] l of Medicine		(1938)	81
[illegible] hool		(1935)	85.8, (1936) 87.2
[illegible] l School		(1937)	87.3
[illegible]		[illegible]	80.7
[illegible]			82.3
Creighton University School o[illegible]			83.7, 83.9
Syracuse University College of [illegible]			78.7
University of Rochester Schoo[illegible]			81.7, 83.3
University of Oregon Medical			81.7, 83.8
Hahnemann Med. College and			84.8
Jefferson Medical College of Philadelphia		[illegible]	85.6
Temple University School of Medicine		(1938)	80
Marquette University School of Medicine		(1938)	83.3, 83.6
University of Toronto Faculty of Medicine		(1937)	81
McGill University Faculty of Medicine (1934) 84, (1937) 80.6, 83.7, 83.9			
Friedrich Wilhelms Universitat Medizinische Fakultat, Berlin		(1923) 79, (1924)	84.1
Hamburgische Universitat Medizinische Fakultat		(1922)	83.3
Johann Wolfgang Goethe-Universitat Medizinische Fakultat, Frankfurt am Main		(1921)	79.4
Schlesische Friedrich-Wilhelms Universitat Medizinische Fakultat, Breslau		(1925)	90.4
Universitat Köln Medizinische Fakultat	(1920) 80.7,	(1921)	86.9

School	FAILED	Year Grad	Per Cent
University of Arkansas School of Medicine		(1937)	74.3
College of Medical Evangelists		(1938)	73.3
Stanford University School of Medicine		(1936)	64.8
Rush Medical College		(1938)	73.4
Creighton University School of Medicine		(1938)	71.4
Woman's Medical College of Pennsylvania		(1936)	74.7
Marquette University School of Medicine		(1938)	73.2
McGill University Faculty of Medicine		(1937)	72.8, 74.1
Latvijas Universitäte Medicinas Fakultäte, Riga, Latvia		(1928)	39.3

Thirty-nine physicians were licensed by reciprocity and three physicians were licensed by endorsement from September 29 through December 14. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
Stanford University School of Medicine		(1936)	Washington
University of California Medical School		(1935)	New York
[illegible] rsity School of Medicine		(1929)	New York
[illegible]		(1937)	Illinois
[illegible] ege of Medicine		(1928)	Missouri
Indiana University School of Medicine		(1930)	Indiana
State University of Iowa College of Medicine		(1927), (1936)	Iowa
University of Kansas School of Medicine		(1933)	Kansas
Johns Hopkins University School of Medicine		(1937)	Maryland
Harvard University Medical School		(1928)	Minnesota
University of Michigan Medical School		(1929, 2)	Michigan
University of Minnesota Medical School		(1930)	S. Dakota, (1926), (1931) Minnesota
University of Missouri School of Medicine		(1908)	Idaho
St. Louis University School of Medicine		(1927)	New York
Washington University School of Medicine		(1936)	Missouri
Creighton University School of Medicine	(1926),	(1935)	Nebraska
University of Nebraska College of Medicine		(1934)	Nebraska
Bellevue Hospital Medical College		(1888)	Ohio
Cornell University Medical College		(1933)	New York
Long Island College of [illegible]		(1935)	New York
New York University		(1935)	New York
Western Reserve Unive[illegible]		(1932)	Ohio
University of Oklahom[illegible]		(1934)	Oklahoma
University of Oregon Medical School		(1936, 2)	Oregon
Jefferson Medical College of Philadelphia		(1918)	Penna., (1935) Washington
University of Tennessee College of Medicine		(1933)	Tennessee
University of Texas School of Medicine		(1937, 2)	Texas
Marquette University School of Medicine		(1937)	Wisconsin
Magyar Kiralyi Pazmany Petrus Tudomanyegyetem Orvosi Fakultasa, Budapest		(1894)	New York
University of Edinburgh Faculty of Medicine		(1931)	New York

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical E[illegible]ngelists		(1938)	N. B. M. Ex.
University of Color[illegible]		[illegible]	U. S. Navy
Yale University Sch[illegible]		[illegible]	N. B. M. Ex.

* This applicant [illegible] ill receive the M. D. degree on completion of internship

Hawaii October Examination

Dr. James A. Morgan, secretary, Board of Medical Examiners, Territory of Hawaii, reports the oral and written examination held at Honolulu, Oct. 10-13, 1938. The examination covered ten subjects and included eighty questions. An average of 75 per cent was required to pass. Ten candidates were examined, nine of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad	Per Cent
Stanford University School of Medicine		(1936)	79.1
Loyola University School of Medicine		(1937)	82.4
Northwestern University Medical School		(1936)	87
Rush Medical College		(1935)	87.7
University of Louisville School of [illegible]		[illegible]	81.7
Washington University School of [illegible]			82.3
Pennsylvania Medical School, St Shanghai	(1935) 78.3,	(1938)	79
Woman's Christian Medical College, Shanghai		(1938)	77.8

School	FAILED	Year Grad	Per Cent
Nippon Ika Daigaku, Tokyo		(1937)	40

Five physicians were licensed by endorsement from July 27 through September 24 after an oral examination. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
Rush Medical College		(1934)	N. B. M. Ex.
Tulane University of Louisiana School of Medicine		(1937)	N. B. M. Ex.
University of Michigan Medical School		(1932)	N. B. M. Ex.
Washington University School of Medicine		(1933)	N. B. M. Ex.
Hahnemann Med. College and Hospital of Philadelphia		(1935)	N. B. M. Ex.

Kentucky December Examination

Dr. A. T. McCormack, secretary, State Board of Health of Kentucky, reports the written examination held at Louisville, Dec. 6-8, 1938. The examination covered eleven subjects and included 110 questions. An average of 70 per cent was required to pass. Two candidates were examined, both of whom passed The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Louisville School of Medicine		(1938)	79
Temple University School of Medicine		(1937)	76

Fourteen physicians were licensed by reciprocity from September 2 through December 19. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists	(1936),	(1938)	Michigan
Tulane University of Louisiana School of Medicine		(1936)	Louisiana
Johns Hopkins University School of Medicine		(1935)	Maryland
University of Michigan Medical School		(1933)	Michigan
University of Minnesota Medical School		(1934)	Minnesota
Ohio State University College of Medicine		(1936)	Ohio
University of Cincinnati College of Medicine	(1932),	(1935)	Ohio
Western Reserve University School of Medicine		(1937)	Ohio
Vanderbilt University School of Medicine	(1932),	(1935), (1936), (1937)	Tennessee

Indiana Reciprocity and Endorsement Report

Seventy-one physicians were licensed by reciprocity and two physicians were licensed by endorsement during 1938 by the Indiana State Board of Medical Registration and Examination. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1935),	(1936)	Arkansas
University of Colorado School of Medicine		(1936)	Colorado
George Washington University School of Medicine		(1935)	Maryland
Howard University College of Medicine		(1936)	Tennessee
Loyola Univ. School of Med	(1918), (1932), (1935),	(1937)	Illinois
Northwestern University Medical School		(1923)	Mississippi, (1926), (1936) Michigan, (1935) Missouri, (1936) Ohio, (1932), (1933), (1936) Illinois
Rush Medical College		(1925)	Kansas, (1935) Ohio, (1936) Utah, (1928), (1930), (1932, 2), (1936, 2) Illinois
School of Med of the Division of [illegible]		[illegible]36)	Illinois
State University of Iowa College o[illegible]		34)	Iowa
University of Kansas School of [illegible]		, 2)	Kansas
University of Louisville School of Medicine	(1929),	(1930), (1936, 3), (1937)	Kentucky
Tulane University of Louisiana School of Medicine		(1935)	Louisiana
Johns Hopkins University School of Medicine		(1928)	Louisiana, (1934), (1935) Maryland
University of Maryland School of Medicine		(1912)	Maryland
Harvard University Medical School		(1933)	Michigan
University of Michigan Department of Medicine and Surgery		(1908)	Michigan
University of Michigan Medical School	(1927), (1931),	(1936)	Michigan
St Louis University School of Medicine		(1932)	Vermont, (1932), (1936, 2) Missouri
University of Nebraska College of Medicine		(1934)	Missouri
Columbia Univ College of Physicians and Surgeons		(1935)	New York
University of Rochester School of Medicine		(1931)	Ohio
Eclectic Medical College, Cincinnati	(1936),	(1937, 2)	Ohio
Ohio State University College of Medicine		(1935)	Ohio
University of Cincinnati College of Medicine		(1932)	Kentucky, (1935), (1937) Ohio
Western Reserve University School of Medicine		(1933)	Ohio
University of Oklahoma School of Medicine		(1936)	Oklahoma
Temple University School of Medicine		(1934)	New Jersey
University of Pennsylvania School of Medicine		(1916)	Kentucky
Medical College of the State of South Carolina		(1934)	N. Carolina
Meharry Medical College		(1936, 2)	Tennessee
Wisconsin College of Physicians and Surgeons		(1911)	Wisconsin
Magyar Királyi Erzsebet Tudomanyegyetem Orvostudomanyi, Pecs		(1923)	New York
Regia Università degli Studi di Roma Facolta di Medicina e Chirurgia		(1934)	New York

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
School of Med of the Division of Biological Sciences		(1937)	N. B M Ex
University of Michigan Medical School		(1935)	N. B M Ex.

Mississippi December Report

Dr. Felix J. Underwood, secretary and executive officer, Mississippi State Board of Health, reports nine physicians licensed by reciprocity at the meeting held in Jackson, Dec. 8, 1938 The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad	Reciprocity with
University of Louisville School of Medicine		(1910)	Kentucky
Tulane University of Louisiana School of Medicine		(1938)	Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons		(1916)	W. Virginia
University of Pennsylvania School of Medicine		(1936)	Texas
Meharry Medical College		(1935)	Tennessee
University of Tennessee College of Medicine		(1936), (1937)	Tennessee
Vanderbilt University School of Medicine		(1934)	Tennessee
University of Texas School of Medicine		(1921)	Texas

Book Notices

Shock and Related Capillary Phenomena. By Virgil H Moon AB, M Sc, M D., Professor of Pathology, Jefferson Medical College, Philadelphia. Cloth. Price, $3.50. Pp. 442, with illustrations New York Toronto & London: Oxford University Press, 1938.

The purpose of the book is to present the subject as a pathologic entity. The author states that the major advances in solving the shock problem have been made by physiologists and surgeons, while the contributions made by pathologists have been negligible. In order to remedy this defect, the author attempts to discuss shock as he would any other pathologic condition The book begins with an excellent review of current knowledge concerning the capillaries; their distribution, function, reactions permeability and local capillary phenomena associated with the action of histamine, with inflammation and so on. Then follows a brief but good review of the theories concerning shock The remaining portion of the book, with the exception of an appendix on practical considerations, is devoted to a presentation of the pathologic processes and morphologic changes in shock, to the evidence for the special theory favored by the author, that of traumatic toxemia, and to an attempt to correlate the pathologic processes and morphologic changes in traumatic shock with those found in many other pathologic conditions, including anaphylactic shock, burns, edema and terminal pneumonia, on the basis of primary injury of the capillaries with subsequent loss of circulating fluid The book is written with the spirit of a crusader Few readers familiar with the present status of the knowledge of shock will disagree with most of the material presented The author has summarized in a masterly manner the opinions and conclusions of numerous investigators employing diverse methods of approaching the many different phases of the problem Such a unanimity of approval will probably not be given the author's considerations of the toxemia theory and his apparent belief that the shock problem has been definitely solved The book is recommended for those desiring a well written and stimulating review of the known facts concerning capillary phenomena Pertinent references and a suitable index are given The print is large and easy to read.

A Study of Asbestosis in the Asbestos Textile Industry. By Waldemar O. Dreesen, Passed Assistant Surgeon, and others From the Division of Industrial Hygiene, National Institute of Health Prepared by direction of the Surgeon General U. S. Treasury Department, Public Health Service Public Health Bulletin No 241. Paper Price, 20 cents Pp 126, with 64 illustrations. Washington, D C: Supt of Doc, Government Printing Office, 1938

This complete study of the asbestos industry made by the Division of Industrial Hygiene of the United States Public Health Service ranks with the best of the industrial studies that this group has produced Initiated by the State Board of Health and by the Industrial Commission of North Carolina, the objectives of the study were to determine the effects of continued inhalation of asbestos dust, identifying the various processes which produce the dust, and recommending at the same time the indicated engineering improvements to control the pollution of the atmosphere. The study endeavors to determine what concentrations of asbestos dust can be safely borne The report begins with a description of the various processes in which asbestos is used in combination with cotton to fabricate various textiles A brief comparison is made with the similar industry in Great Britain. An analysis of the various occupations involved was made and dust samples were collected by the standard impinger method with reference to each occupation. It was demonstrated that it was possible to reduce the dust concentration below five million particles per cubic foot In all, about 550 asbestos workers received thorough physical examinations, including a carefully worked out occupational history. Both the x-rays and the fluoroscope were used and the observations were carefully tabulated The investigators classified the asbestosis cases on the basis of x-ray interpretations in three stages, although pointing out that it is not practicable to establish a sharp line of demarcation between the stages. Of a total of 445 workers examined with x-rays, seventy-three were diagnosed as having asbestosis. It should be remembered that all examined in the groups were individuals who were working daily. Including

both workers still on the job and those who had been discharged or laid off, 27.5 per cent were found to have asbestosis. This figure might be compared with the results of the silicosis studies at Picher, Okla., where 21.3 per cent had silicosis, and the study of anthracite miners by this same group, among whom the prevalence of anthracosilicosis was 23 per cent. The report includes a chapter on pathology. The numerous illustrations, both reproductions of slides as well as lung specimens and x-ray films, are excellent. This is an admirable report, is a substantial contribution to the general subject of pneumoconiosis, and will go a long way toward clarifying some of the doubtful aspects of asbestosis.

The Practical Applicability of the Cardio-Pulmonary Function Test. By Gustav Nylin. Acta medica scandinavica, Supplementum 93. Paper. Pp. 24, with 25 illustrations. Stockholm, 1938.

In attempting to evaluate the functional capacity of the heart, various investigators have tried many types of tests. Perhaps the most valuable functional test is that which measures the energy cost of physical exercise. Among such tests is the one developed by Nylin. The results of his experience are presented in this monograph. The test used by him consists of three degrees of exertion on a pair of semicircular stairs each having six steps going up and six going down. The effect of these exercises on the oxygen consumption was determined by comparing the basal rate with the increased rate occurring from two to five minutes after completing the exercise. Both metabolic tests were run with the patient reclining in bed. As the result of an experience on 265 normal persons and twenty-two patients with various forms of cardiac and pulmonary disease, the author states that this test gives an estimate of the functional capacity of the heart when the state of the pulmonary system is taken into account. It is unfortunate that he uses the term "relative oxygen debt," because a sample of the excess oxygen consumption of exercise need not necessarily be a measure of the entire extra oxygen consumption caused by the exercise. Nevertheless, viewing it entirely from its practical utility the method developed seems promising and deserves further trial. The presentation is simple and somewhat superficial. It should nevertheless be appealing to those interested in objective methods of estimating cardiac capacity and cardiac reserve. While it is meritorious to seek objective methods of estimating cardiac capacity, no method will turn out to be as practically efficacious as a careful inquiry by the physician into the ability of the patient to do his daily activities and to meet the extra strains which he is forced to cope with. There is no short cut to a careful, history. It is true, however, that the discipline placed on the clinician by information derived from proper objective tests may at times be invaluable.

Biokhemichni zmini krovi i spinnomozkovoï ridini pri uremiï. [By] M. L. Ertukhova. [Biochemical Changes in Blood and Cerebrospinal Fluid in Uremia.] Paper. Price, 6 kopecks. Pp. 166. Kiev: Vidavnitstvo Akademiï Nauk URSR, 1938.

The author studied biochemical variations in the blood and the cerebrospinal fluid of thirty-nine uremic patients. The studies included the alkali reserve, most of the nitrogenous fractions of the protein metabolism ordinarily determined in the blood, the inorganic phosphorus, K, Ca, the chlorides, Na, cryoscopy, sugar, cholesterol and lactic acid. The simultaneous study of the blood and the cerebrospinal fluid is valuable from both the diagnostic and the therapeutic points of view. Thus, data obtained from the group of patients suffering from "azotemic" uremia, cases characterized by the disturbance of the nitrogen excretory function without a disturbance of the acid excretory function and without any manifestation of disturbance of the permeability of the hemato-encephalic barrier, permitted the author to draw the conclusion that the process can be reversed by elimination of the causes giving rise to accumulation of nitrogenous waste products, as, for example, infection or dietetic disorder. In another group in which, along with the azotemia, there were observed a sharp fall in the alkali reserve and manifestations of the disturbance of the permeability of the cell membrane, specifically the hemato-encephalic barrier, the prognosis was unfavorable and treatment powerless. The group with acute convulsive uremia justifies the assumption of cerebral edema and the use of spinal puncture. The author's thesis is that comparative study of the biochemical changes and the clinical manifestations rather than the search for the hypothetic uremic toxin will lead toward the solution of the essential pathogenesis of uremia.

This suggestive contribution to the clinical subject of uremia is written in the Ukrainian. It contains summaries in Russian and English.

Babies are Human Beings: An Interpretation of Growth. By C. Anderson Aldrich, M.D., Associate Professor of Pediatrics, Northwestern University Medical School, and Mary M. Aldrich. Cloth. Price, $1.75. Pp. 128, with 5 illustrations. New York: Macmillan Company, 1938.

This book, written by a pediatrician and his wife, presents the problem of growing up from the point of view of the child. This is indicated by various chapter headings, such as "The Baby Dilemma," "The Baby Responds to the World" and "The Baby's Way of Eating." Emphasis is laid especially on the response of the infant and on ways and means of making his environment as helpful as possible in developing his own personality and in fitting himself into this world without sacrificing his enthusiasm and energy, which is so evident at 2 and 3 years of age and which so often is lost later on. The volume should be helpful in solving many of the problems which the physician meets, not so much by the specific advice given in a particular situation as by serving as a basis for working out problems. For parents it should prove of great value. It is a book not only to be read but to be reread and studied, chapter by chapter, by both mother and father. It will give the parents an insight into what their offspring is trying to accomplish in growing up and how they as parents can help in making it possible for him to reach maturity with the least number of harmful bumps and with his native enthusiasm intact.

The Principles and Practice of Perimetry. By Luther C. Peter, A.M., M.D., Sc.D., Professor of Ophthalmology in the Graduate School of Medicine of the University of Pennsylvania, Philadelphia. Fourth edition. Cloth. Price, $4.50. Pp. 331, with 227 illustrations including 5 colored plates. Philadelphia: Lea & Febiger, 1938.

This book has long been of established value to the ophthalmologist and practitioner in allied branches of medicine. The new edition is revised and enlarged with new illustrations and tables to clarify the text and points of difference. As in former editions, the various phases of perimetry are presented in logical sequence. Part I consists of a brief but adequate description of the anatomy and physiology of the visual pathway. Part II describes the extent of the normal visual fields and physiologic principles which govern and influence them. Part III outlines in a clear and detailed manner the method and technic of taking fields. The various instruments are described. Part IV discusses the general pathology of the visual field. The special pathology of fields is dealt with in Part V. In part VI the fields in functional nervous disease is discussed. A good bibliography is added for those who are interested in various problems which perimetry presents.

Urology. By Daniel N. Eisendrath, M.D., Consulting Urologist to the American Hospital, Paris, France, and Harry C. Rolnick, M.D., Attending Urologist, Michael Reese, Mt. Sinai, and Cook County Hospitals, Chicago. Fourth edition. Cloth. Price, $10. Pp. 1,061, with 762 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1938.

This is an excellent textbook for students and a valuable manual for the general practitioner. The personal experience of the authors is apparent and their therapeutic and operative recommendations represent the standard methods of today. Many of the illustrations have been selected from American and European sources. The original illustrations for this edition have also been well chosen. The chapter on neurogenic dysfunction of the bladder will be well received. Urology in the female is adequately presented in a single chapter. Consideration of the etiologic factors of dilatation of the ureters and renal pelves in pregnancy is taken up under three possible headings: (*a*) mechanical, (*b*) muscular atony resulting "from the action of either hormones or of toxins on ureteral and renal pelvic musculature with resultant atony," and (*c*) mixed origin, viz. the resultant of the chief factor of atony and of compression by the uterus as a secondary cause. While this subject is still a question and various points of view have been expressed in both clinical and experimental contributions

to the subject, recent experimental work would seem to have demonstrated that the dilatation of the upper part of the urinary tract during pregnancy is primarily due to hormonal influence. An occasional typographic error appears, as in the last sentence on page 517. As a whole this book can be heartily recommended and it ranks high in the category of available textbooks for teaching in medical schools. Its broad scope and excellent index will make it a valuable reference work for the specialist in urology. Many references to the earlier editions appear in recent periodical literature of urology in the English language.

Minor Maladies and Their Treatment. By Leonard Williams, M.D. Seventh edition. Cloth. Price, $3.75. Pp. 439. Baltimore: William Wood & Company, 1937.

This edition of a work first published in 1906 has been revised and keeps pace with the discoveries and change in practices in the treatment of minor maladies, including coughs, colds, sore throats, indigestion, constipation, diarrhea, neuralgia, headaches and minor glandular disturbances, and concludes with chapters on general health and treatment in advanced years. While the therapeutic methods suggested at times do not conform with the generally accepted beliefs, the methods employed are satisfactory and will usually be found beneficial. Each subject is considered with sufficient thoroughness to aid in assuring adequate therapy. The book will continue to find its field of usefulness.

The Etiology of Trachoma. By Louis A. Julianelle, Chairman of the Trachoma Commission, Washington University, St. Louis. Cloth. Price, $3.25. Pp. 248, with 13 illustrations, including 10 plates. New York: Commonwealth Fund; London: Oxford University Press, 1938.

Among other things, this book contains a summary of the studies in trachoma that have been in progress in the Oscar Johnson Institute of Washington University for the past eight years. Almost all of the material has appeared at various times in the journals of ophthalmology and as such is familiar to students of the subject. In the eleven chapters of the book the epidemiology, causation and infectivity of trachoma are discussed at some length, after which the text swings into technical descriptions of the bacterial flora of the disease, inclusion bodies and the virus aspect. The conclusion is that "the infectious agent of trachoma is a virus of remarkable frailty, succumbing before physical and chemical agents tolerated by numerous other bacterial and viral agents." A thorough bibliography and index are appended. The book work is good and the illustrations are excellent. The monograph represents a large amount of work, especially of a bibliographic nature, and as such is of great value from a reference standpoint.

Jan Ev. Purkyně 1787-1937; Sborník statí k 150. vyroči narození českého učence. [Jan Ev. Purkyně 1787-1937: Collection of Articles in Honor of 150th Anniversary of Birth of Czech Scientist.] Paper. Pp. 325, with illustrations. Prague: Purkyně Society for Study of Life and Works of J. E. Purkyně, 1937.

This book consists of twenty-seven essays on the life and work of Johannes Evangelista Purkinje. Among the contributors are the foremost Czech scientists. The volume is divided into two parts: In the first are discussed Purkinje's contributions to science; in the second, some phases of his private life, his character, his philosophy, his love of literature and his efforts to awaken the national spirit of the Slavs in general and of the Czechs in particular. The last seventeen pages contain a list of Purkinje's publications and a program of the international celebration in Prague in September 1937 to commemorate the one hundred and fiftieth anniversary of his birth. It is claimed that Purkinje is the founder of microscopic anatomy and experimental physiology in Germany. His noteworthy contributions to the biologic and medical sciences make him one of the founders of modern medicine. Among his contributions to biology was his description of the cell, which he considered the fundamental unit of the living organism. He was the first to use the term "protoplasma" to designate the living substance of a cell, and the second after Dujardin to call attention to the existence of this substance. He is credited as being the first anatomist to describe the nerve cells in the brain, spinal cord and ganglions as well as the first to demonstrate glandular tissue in the stomach. He made many original studies on the eye, heart, sex organs, skin, blood vessels, connective tissue, cartilage and bone. With the acquisition of the Plössl microscope later in his life he was able to amplify these studies. The account of his pharmacologic experiments makes interesting reading. Many of these studies he carried out on his own person. He investigated the action of camphor, digitalis, belladonna, opium, ipecac, turpentine and other substances. He systematized dactyloscopy, classifying finger prints into nine groups. A modification of this classification is being used now in criminology. About the importance of physiology in medicine he wrote:

> A modern physician cannot be trained for research or physiology by attending the clinics or by the study of the old masters. His training, beginning with the observation on the sick, must continue in the laboratory, where science is taught and where progress in contemporary medicine is made. It is clear then that physiology, in whose domain rests this experimental laboratory investigation, is the climax of the education of a modern physician, the crown of his medical understanding and the embryo of further progress. For a physician must not be deceived about understanding disease when he can designate it by name or place it into a certain system; he must take to mind that only then does he understand disease when he masters it scientifically, prognostically as well as therapeutically. The attainment of this progress is possible only through physiologic investigation. It is evident, therefore, that physiology is the fundamental medical science.

Purkinje's extreme modesty prevented him from publishing many interesting and valuable observations. The Purkinje Society of Czechoslovakia is engaged in bringing to light such material as has not been presented thus far, as well as in solving some of the controversies regarding priorities. This stimulating book is highly recommended to research workers and physicians. It is unfortunately not available in English translation.

Physiologie des Nebennierenmarkes. Von Gustav Bayer und Doz. Dr. Dr. Theodor Frhr. v. d. Wense. Band VI, Zwanglose Abhandlungen aus dem Gebiete der Inneren Sekretion. Herausgegeben von Professor Dr. W. Berblinger. Paper. Price, 11.70 marks. Pp. 87. Leipzig: Johann Ambrosius Barth, 1938.

More than one fourth of this comprehensive but not analytic and critical review of the literature on the adrenal medulla, epinephrine and "sympathin" during the last twenty-five years is taken up by the bibliography. The brief citations of the numerous inconclusive, if not contradictory, results of research, without much attempt at appraisal, especially in the section dealing with the possible relation of the adrenal medulla to the other endocrines, leaves most doctors not much wiser.

Modern Anæsthetic Practice. Edited by Sir Humphry Rolleston, Bt., G.C.V.O., M.D., and Alan A. Moncrieff, M.D., F.R.C.P. Published on behalf of The Practitioner. Cloth. Price, 10s. 6d. Pp. 231, with 6 illustrations. London: Eyre & Spottiswoode (Publishers) Ltd., 1938.

This volume is prepared especially for the general practitioner of medicine in England. The introduction by Blomfield and the first chapter, by Hewer, on theoretical aspects of anesthesia and analgesia, are the best portions of the book and are appropriate for any textbook on anesthesia. Chapter 2, by Featherstone, on the use of volatile anesthetic agents, is conservative and to the point although nothing new is presented. Chapter 3, by Macintosh and Pratt, on nitrous oxide anesthesia in surgery, does not seem to belong in a book bearing the title of Modern Anaesthetic Practice, except for the discussion of the use of nitrous oxide in minor surgery and the value of preliminary medication in connection with its use. Chapter 4, by Ashworth, on basal anesthesia, presents briefly the common practice in England with basal anesthetic agents. Chapter 5, on endotracheal anesthesia, summarizes briefly and well the endotracheal method of anesthesia. In chapter 6, on spinal anesthesia, the present trend in spinal anesthesia is presented conservatively without going into much detail. Chapter 7, on anesthesia and analgesia in midwifery, is excellent and represents a conservative view on the relief of pain in childbirth. Chapter 8, by Evans, on anesthesia and the child, is commendable and deserves to be read by anesthetists in general. In chapter 9, by Vaile, on anesthesia in dentistry, is presented the English attitude in anesthetizing the dental patient but nothing new is presented. Chapter 10, by Romanis, on local anesthesia and analgesia, is conservative but excellent as far as it goes; few types of block anesthesia are discussed, however; the main thing stressed is the value of infiltration with procaine and epinephrine, which is not debatable. Chap-

ter 11, by Magill, on the anesthetic aspects of postoperative care, is one of the most valuable chapters in the book and could be read to advantage by all anesthetists and surgeons. Chapter 12, on risks of explosion in anesthesia, is an excellent summary of present day opinion on the subject. This is a book that most anesthetists of this country will want to read at least, if not own. Its value for general practitioners in the United States is not apparent.

Dunant: The Story of the Red Cross. By Martin Gumpert. Cloth. Price, $2.50. Pp. 323, with portrait. New York: Oxford University Press, 1938.

This book is the pathetic, not to say tragic, story of the Nobel peace prize winner Henri Dunant, who was the first to entertain the conception of an international society for the alleviation of the sufferings of wounded in battle and of prisoners. Dunant was an ordinary citizen of Geneva, somewhat better off than the average, if not actually wealthy, who was engaged in the banking business. He came into contact with war somewhat accidentally at the battle of Solferino, where the French and the Austrians met in 1859. Here he was plunged into the midst of the fighting and saw the miserable lack of accommodations for the wounded and the total absence of doctors, nurses and medical supplies. He plunged into the emergency and made heroic efforts to supply as much as possible of the need through his own labor. Needless to say his success was scarcely worth mentioning, but the impression of horror was etched so deep on his mind that it dominated the rest of his life. After Solferino he could never get rid of the idea and he traveled all over Europe meeting statesmen, kings, emperors, politicians, society leaders and literati. He became a salesman for an obsession. Quiet and retiring in nature, he was relentless in a gentle sort of way and had an exceedingly persuasive way with persons whom he could meet individually. He was in no sense a rabble rouser; neither was he an organizer. In fact, though the Red Cross idea was his, the development of the idea was made possible largely through the organizing ability of one of his associates, Moynier. Toward the end of his life Dunant was disappointed by the hypocrisy and lip service of many who professed adherence to his idea and this, coupled with bankruptcy from squandering his resources on the promotion of his ideas, caused him to retire into oblivion, from which he did not emerge until he was accidentally discovered living in obscurity in Switzerland. He then received the Nobel peace prize, which he dedicated in its entirety to furtherance of Red Cross work, for by this time the International Red Cross had been established and was to a large extent functioning. The book is written with what is obviously an intense affection for Dunant. His tragic life story is depicted with sympathetic understanding and an appreciation of the mental and spiritual struggle which motivated the founder of the Red Cross. The author also develops and strongly emphasizes the idea that the Red Cross in its present form and functioning is a negation and a betrayal of the ideals and purposes of the founder, who is represented as coming in his later years to a feeling that his first proposal for aid on the battlefield was a totally inadequate approach and that the real function and purpose of the Red Cross should be to agitate for universal peace. Whether one takes the view of the author or not, the fact remains that the Red Cross as we know it is a living monument to the tragic life of Henri Dunant.

Classic Descriptions of Disease With Biographical Sketches of the Authors. By Ralph H. Major, M.D., Professor of Medicine, University of Kansas School of Medicine, Kansas City. Second edition. Cloth. Price, $5.50. Pp. 727, with 137 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1939.

Distinctive in this edition are sections covering malaria and yellow fever as well as many new illustrations. The author points out that many of the biographic sketches have been rewritten, and the index has been revised and enlarged. For the student and the teacher of medical history as well as for the dilettante in this field Major's contribution is invaluable. Even for those who have been little concerned in the past with medical history the book will be attractive and will serve in many instances to initiate them to a lifelong interest in this field.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Foot Drop Following Operation on the Knee; Res Ipsa Loquitur.—The plaintiff sued the defendant physicians to recover damages for injuries allegedly due to their negligence in performing an operation on his left knee. The trial court directed a verdict for defendant Carlson and entered an order of non-suit in favor of the defendant Ream. The plaintiff then appealed to the district court of appeal, first district, division 2, California.

The plaintiff suffered a strain of the crucial ligaments and external lateral ligaments of his left knee and was treated by defendant Carlson. As a result of the treatment, the plaintiff was able to walk and had full use of his left leg and foot but some instability remained in his left knee which made it impossible for him to perform the work he had formerly been employed to do. To correct this condition, defendant Carlson, assisted by defendant Ream, operated on the knee. Immediately thereafter the plaintiff suffered from foot drop and his leg was placed in a cast, but the treatment resulted in no improvement. About five months later a third physician performed an operation on the knee and found that the external peroneal nerve had been severed at a point approximately where its course intersected the course of the incision made by defendant Carlson. The ends of the nerve were freshened and sutured together, but there was practically no improvement in the plaintiff's condition.

It was conceded that the nerve was severed during the course of the operation performed by the defendants. On appeal, the plaintiff contended that the defendants failed to examine the nerve before closing the wound to ascertain whether it had been injured and that this omission constituted negligence. This contention, the court said, was without merit. The medical testimony disclosed that the nerve was not laid bare but was retracted with the tissue surrounding it. To examine it, the surrounding tissue would have had to be laid open along the length of the nerve, an act which might itself have resulted in severe injury to the nerve. The evidence further disclosed that the standard practice of surgeons of good repute in the locality was to ascertain after the completion of the operation and after the patient had regained consciousness whether the nerve had been injured by means of testing certain reflexes in the lower leg and foot. This was done in the present case, the court pointed out.

The plaintiff next contended that the doctrine of res ipsa loquitur applied and therefore an inference of negligence might arise sufficient to support a verdict in his favor. The determining factor, the court said, as to whether the doctrine applies in operative cases of the kind under consideration is whether the act causing the injury is one which can be visualized by the layman or whether it is one which depends entirely on scientific or medical knowledge. The plaintiff was completely anesthetized when the operation was performed on his knee and it was impossible for him to know what occurred. The defendants were in complete charge of the operation during the course of which the external peroneal nerve was severed. The nerve was not being treated and it was not in any way diseased. While the nerve lay in the operative field, it was involved only to the extent that it had to be retracted to one side in order that the operator might go beneath it. Scientific or expert opinion was not required, in the opinion of the court, because no question was raised with respect to negligence either in the diagnosis or treatment of a human ailment. The testimony of experts was necessary to establish the facts concerning the location and function of the external peroneal nerve, the location of the crucial and external lateral ligaments of the left knee, the location of the operative fields, and the extent to which the external peroneal nerve was involved in the operation which the defendants undertook to perform. But, once these facts were established, the inference of negligence was one which may be drawn by the application of the common knowledge of laymen.

The doctrine of res ipsa loquitur, where applicable, gives rise to an inference of negligence. If that inference is met by the

introduction of evidence which rebuts it, then the inference is overcome and a non-suit or directed verdict is proper. The evidence introduced by the defendant Carlson, the court pointed out, made no attempt to explain how the nerve was severed. Three expert witnesses for the defendants testified that the methods followed by the defendants in the course of the operation constituted good standard practice, as followed by surgeons of good repute in the same locality. But no one testified that the actual operation as performed was done with due care in all its details. These witnesses testified also that even though the operation on the knee were performed with due care, the external peroneal nerve would be severed in from 5 to 9 per cent of the cases and that the presence of scar tissue caused by the injury to the ligaments would increase the likelihood that the nerve would be severed. None of this evidence, the court said, rebutted the inference of negligence with respect to defendant Carlson in a clear and positive manner and the trial court should not have directed a verdict in his favor.

As to defendant Ream, the record presented a different case, in the opinion of the court. The plaintiff contended and the defendants conceded that the nerve was severed during the course of the operation. The evidence was clear, positive and uncontradicted that defendant Ream had not cut around the peroneal nerve. He handled the retractors after they were placed by defendant Carlson, who testified that defendant Ream handled no instruments that would actually have severed the nerve. In the light of this evidence, the inference of negligence which might arise from the application of the doctrine of res ipsa loquitur was completely rebutted and dispelled as to defendant Ream by clear, positive and uncontradicted evidence. It followed, the court said, that, as the inference of negligence as to this defendant was dispelled from the case as a matter of law, the order granting a non-suit was proper.

The appellate court, therefore, affirmed the order granting a non-suit in favor of defendant Ream but reversed the judgment entered on the directed verdict in favor of defendant Carlson — *Engelking v Carlson (Calif.), 80 P. (2d) 96.*

Society Proceedings

COMING MEETINGS

American Medical Association, St. Louis, May 15-19 Dr. Olin West, 535 North Dearborn St, Chicago, Secretary

Alabama, Medical Association of the State of, Montgomery, April 18 20. Dr. D L Cannon, 519 Dexter Ave, Montgomery, Secretary.

American Academy of Tuberculosis Physicians, St Louis, May 13-14. Dr. Arnold Mimnig, 638 Metropolitan Bldg, Denver, Secretary.

American Association for the Study of Goiter, Cincinnati, May 22 24. Dr W. Blair Mosser, 133 Biddle St, Kane, Pa, Secretary.

American Association for Traumatic Surgery, Hot Springs, Va, May 8 9. Dr. Ralph G Carothers, 409 Broadway, Cincinnati, Secretary.

American Association of Genito Urinary Surgeons, Williamsburg, Va, May 24 26 Dr. Charles C. Higgins, 2050 East 93d St., Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Cleveland, June 5 8 Dr V. S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Association of the History of Medicine, Atlantic City, N. J, April 30 May 1. Dr. Henry E. Sigerist, 1900 Monument St, Baltimore, Secretary.

American Association on Mental Deficiency, Chicago, May 3-6. Dr E Arthur Whitney, Washington Road, Elwyn, Pa, Secretary.

American Bronchoscopic Society, Rye, N. Y., May 26 Dr. Lyman Richards, 319 Longwood Ave, Boston, Secretary

American Dermatological Association, Montebello, Canada, May 31-June 3. Dr. Fred D Weidman, University of Pennsylvania Medical Laboratories, Philadelphia, Secretary.

American Gastro Enterological Association, Atlantic City, N J., May 1-2. Dr. Russell S Boles, 1901 Walnut St, Philadelphia, Secretary.

American Gynecological Society, White Sulphur Springs, W. Va., May 22 24 Dr. Richard W. TeLinde, 11 East Chase St, Baltimore, Secretary.

American Heart Association, St Louis, May 12-13. Dr. Howard B. Sprague, 50 West 50th St, New York, Secretary.

American Laryngological Association, Rye, N. Y., May 24 26. Dr. James A. Babbitt, 1912 Spruce St, Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Chicago, May 10-11. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medico Legal Association, Chicago, May 12-13. Dr. Michel Pijoan, 124 Commonwealth Ave, Boston, Secretary.

American Neurological Association, Atlantic City, N. J., June 5 7. Dr. Henry A. Riley, 117 East 72d St, New York, Secretary.

American [illegible] Springs, Va, June 5-7. Dr. Eugene [illegible] Haven, Conn, Secretary.

American [illegible] June 5 8. Dr. Ralph K. Ghormley [illegible] Minn, Secretary.

American Otological Society, New York, May 22 23 Dr. Thomas J. Harris, 104 East 40th St, New York, Secretary.

American Pediatric Society, Sky Top, Pa, Apr. 27-29 Dr Hugh McCulloch, 325 North Euclid Ave, St Louis, Secretary

American Physiological Society, Toronto, Canada, Apr 26-29. Dr A C Ivy, 303 East Chicago Ave., Chicago, Secretary.

American Psychiatric Association, Chicago, May 8-12 Dr. Arthur H Ruggles, Butler Hospital, Providence, R. I., Secretary

American Radium Society, St. Louis, May 15-16. Dr Frederick W O'Brien, 465 Beacon St., Boston, Secretary.

American Society for Clinical Investigation, Atlantic City, N J, May 1 Dr. Isaac Starr, University of Pennsylvania Hospital, Philadelphia, Secretary.

American Society for Experimental Pathology, Toronto, Canada, April 26 29. Dr. Paul R. Cannon, Dept. of Pathology, University of Chicago Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics Toronto, Canada, Apr. 26-29. Dr. G. Philip Grabfield, 319 Longwood Ave., Boston, Secretary.

American Society for the Study of Allergy, St. Louis, May 15 16 Dr J. Harvey Black, 1405 Medical Arts Bldg, Dallas, Texas, Secretary

American Society of Anesthetists, New York, Apr. 14 Dr. Paul M Wood, 745 Fifth Ave., New York, Secretary.

American Society of Biological Chemists, Toronto, Canada, Apr 26 29 Dr. C. G. King, Univ. of Pittsburgh, Dept. of Chemistry, Pittsburgh, Secretary.

American Society of Clinical Pathologists, St. Louis, May 12 14 Dr Alfred S Giordano, 531 N. Main St., South Bend, Ind, Secretary.

American Surgical Association, Hot Springs, Va, May 11-13 Dr. Charles G. Mixter, 319 Longwood Ave, Boston, Secretary.

American Therapeutic Society, St. Louis, May 12-13 Dr. Joseph F Elward, 1726 Eye St. N.W., Washington, D. C, Secretary.

American Urological Association, White Sulphur Springs, W. Va, May 29-June 1. Dr. Clyde L. Deming, 789 Howard Ave, New Haven, Conn, Secretary.

Arizona State Medical Association, Phoenix, Apr. 13-15. Dr. D F Harbridge, 15 East Monroe St, Phoenix, Secretary.

Arkansas Medical Society, Hot Springs National Park, May 8 10 Dr W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Associated Anesthetists of the United States and Canada, St. Louis, May 15. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary General.

Association for the Study of Internal Secretions, St. Louis, May 13 14 Dr. E. Kost Shelton, 921 Westwood Blvd, Los Angeles, Secretary.

Association of American Physicians, Atlantic City, N. J., May 2 3 Dr Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn, Secretary.

Association of Military Surgeons of the United States, Washington, D C, May 8 10. Dr. H. L. Gilchrist, Army Medical Museum, Washington D. C., Secretary.

California Medical Association, Del Monte, May 1-4 Dr. George H Kress, 450 Sutter St, San Francisco, Secretary.

Connecticut State Medical Society, New Haven, May 25 26 Dr Creighton Barker, 258 Church St., New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, April 25 27 Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Executive Secretary.

Federation of American Societies for Experimental Biology, Toronto, Canada, Apr. 26-29. Dr. D. R. Hooker, 19 West Chase St, Baltimore Secretary.

Florida Medical Association, Daytona Beach, May 1-3. Dr Shaler Richardson, 111 W. Adams St, Jacksonville, Secretary

Georgia, Medical Association of, Atlanta, Apr. 25 28 Dr Edgar D Shanks, 478 Peachtree St. N.E., Atlanta, Secretary

Illinois State Medical Society, Rockford, May 2 4. Dr H M Camp, 224 S Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, Apr. 25 27. Dr. Robert L Parker, 3510 Sixth Ave, Des Moines, Secretary.

Kansas Medical Society, Topeka, May 1-4 Mr. C. G Munns, 112 W 6th St, Topeka, Executive Secretary.

Louisiana State Medical Society, Alexandria, Apr. 24 26 Dr P T Talbot, 1430 Tulane Ave, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr 25 26 Dr Walter Dent Wise, 1211 Cathedral St, Baltimore, Secretary

Massachusetts Medical Society, Worcester, June 6 8. Dr. Alexander S Begg, 8 Fenway, Boston, Secretary

Minnesota State Medical Association, Minneapolis, May 31-June 2 Dr B B. Souster, 11 West Summit Ave, St. Paul, Secretary

Mississippi. State Medical Association, Gulfport, May 9 11. Dr T M Dye, McWilliams Bldg, Clarksdale, Secretary.

Missouri State Medical Association, Excelsior Springs, Apr 10 12 Dr E J. Goodwin, 634 North Grand Blvd, St Louis, Secretary

National [illegible] York, June 1 2 Dr G Randolph [illegible] s, Secretary.

Nebraska [illegible] l, May 2 4. Dr R B Adams, [illegible] ecretary.

New Han[illegible] e 8 9 Dr Carleton R Metcalf [illegible]

New Jers[illegible] June 6 8 Dr Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New Mexico Medical Society, Gallup, May 11-13. Dr. L B Cohenour, 219 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Syracuse, April 24 27 Dr Peter Irving, 2 East 103d St, New York, Secretary.

New York State Association of Public Health Laboratories, Valhalla May 8 Miss Mary B. Kirkbride, New Scotland Ave, Albany, Secretary.

North Carolina, Medical Society of the State of, Cruise to Bermuda, May 9-14. Dr. T. W. M. Long, Roanoke Rapids, Secretary

North Dakota State [illegible] May 8 10. Dr Albert W. Skelsey, 20½ N[illegible] tary

Ohio State Medical [illegible] Mr. C S Nelson, 79 E. State St, Co[illegible]

Oklahoma State Medi[illegible] , May 1 3. Dr L S Willour, Third and [illegible] y.

Rhode Island Medical Society, Providence, June 7 8. Dr. Guy W. Well 124 Waterman St, Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J, Apr. 29. Dr W. C Spain, 116 E. 53d St, New York, Secretary

South Carolina Medical Association, Spartanburg, April 11-13. Dr E A Hines, Seneca, Secretary.

South Dakota State Medical Association, Aberdeen, Apr. 24 26 Dr Clarence E Sherwood, Madison, Secretary.

Tennessee State Medical Association, Jackson, Apr. 11-13 Dr H H Shoulders, 706 Church St., Nashville, Secretary.

Texas, State Medical Association of, San Antonio, May 8 11 Dr Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, St. Louis

22: 1-118 (Jan.) 1939

Facial Hemiatrophy: Report of Two Cases. F. B. Walsh, Baltimore.—p. 1.

Staphylococcus Toxin: Experimental Study in Rabbits. J. H. Allen and A. E. Braley, Iowa City.—p. 11.

Influence of the Central Nervous System on the Pigment Migration in the Retina of the Frog. H. M. Burian, Hanover, N. H.—p. 16.

A Contact Lens-Telescopic System. J. W. Bettman and G. S. McNair, San Francisco.—p. 27.

*Vitamin Therapy in Ophthalmic Practice. J. Laval, New York.—p. 33.

Lectures on Motor Anomalies: V. Development and Course of Strabismus. A. Bielschowsky, Hanover, N. H.—p. 38.

Parallel Study of the Pathogenesis of Rhinogenous Optic Neuritis and of Serous Iritis. B. Waldmann, Oradea, Rumania.—p. 44.

Intra-Ocular Tension in Electropyrexia: Preliminary Report. H. C. Ernsting, Cleveland.—p. 54.

Causes of Blindness in Indiana. D. H. Row and C. D. Chadwick, Indianapolis.—p. 57.

Vitamin Therapy in Ophthalmic Practice.—Laval suggests that in certain ophthalmologic conditions in which deficiencies of vitamins exist it might be theoretically valuable to prescribe the following treatment: 1. A tablespoonful of cod liver oil twice daily should be prescribed in cases of poor dark adaptation, phlyctenular keratoconjunctivitis, photophobia and low grade conjunctivitis in women who are on a slenderizing diet or in cases of other corneal and conjunctival lesions in which the history shows a deficiency of vitamin A. 2. In cases of incipient cataract, optic neuritis, retrobulbar neuritis and also toxic amblyopia vitamin B (B_1 and B_2) may be prescribed. This could be taken daily in the form of eight tablets of brewers' yeast or in the powdered form. 3. The juice of at least two large oranges or one grapefruit daily can be ordered in cases of incipient cataract. (This is plus the brewers' yeast, which is also to be taken daily.) In cases of intraocular hemorrhage the juice of four lemons daily is suggested.

American Journal of Orthopsychiatry, Menasha, Wis.

9: 1-272 (Jan.) 1939. Partial Index

Enuresis: Study in Etiology. Margaret W. Gerard, Chicago.—p. 48.

*Incidence of Enuresis and Age of Cessation in 1,000 Neuropsychiatric Patients: Discussion of Relationship Between Enuresis and Delinquency. J. J. Michaels, Boston, and Sylvia E. Goodman, Ann Arbor, Mich.—p. 59.

Proposed Classification of Psychiatric Problems. G. S. Sprague, White Plains, N. Y.—p. 72.

Psychiatric Nomenclature. E. Harms, Washington, D. C.—p. 81.

Overestimation of Psychopathology. G. Zilboorg, New York.—p. 86.

Some Parallels Between Dynamic Psychiatry and Cultural Anthropology. Helen Leland Witmer.—p. 95.

The Economic Factor in Disorders of Behavior. T. Burrow, New York.—p. 102.

Psychiatry in a Boys' Club. A. R. Martin, New York.—p. 123.

Psychoses and the Prepsychotic Personality. T. V. Moore, Washington, D. C.—p. 136.

Inter-Agency Use of Child Guidance Clinics: From the Point of View of the Cooperative Effort of Social Workers. Rose Green, Philadelphia.—p. 170.

Tutoring as Therapy. Grace Arthur, St. Paul.—p. 179.

The Drama as a Therapeutic Measure in Adolescents. F. J. Curran, New York.—p. 215.

Enuresis in Neuropsychiatric Patients.—According to Michaels and Goodman, there was an incidence of 19.3 per cent of enuresis in 1,000 neuropsychiatric patients distributed in fourteen diagnostic groups. The incidence was significantly higher in the groups of psychopathic personality (32.2 per cent), psychiatric behavior problems (43.8 per cent) and mental deficiency (33.3 per cent). There were consistently more males among the enuretic, this being especially prominent among the psychopathic personalities and the psychiatric behavior problems. Patients with manic depressive psychosis presented the lowest incidence of enuresis (12.4 per cent) as well as the smallest percentage of males among those who had enuresis. Persistence of enuresis was encountered in 35.7 per cent of the group with behavior problems. The triad association of male, psychopathic personality and enuresis seems worthy of serious consideration. Enuresis in its stubborn persistence reflects psychosomatically the lack of an internal inhibitory agent just as delinquency later reflects this lack sociopsychologically. Persistent enuresis is the prototype of the expression of deficient inhibitory tendencies, a weak ego and a reflection of an ill balance of the types belonging to the psychopathic personality, the delinquent and the psychiatric behavior problem. Its roots are embedded in the instinctual layer of the personality. It indicates faulty integration in the component levels of the personality and a lack of maturation. If enuresis is such a prophetic indicator of psychobiologic reactivity, the need for more intensive study of enuresis in the individual person is self apparent.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

23: 1-142 (Jan.) 1939

*Treatment of Tabetic Lightning Pains with Thiamin Chloride: Preliminary Report. P. F. Metildi, Rochester, N. Y.—p. 1.

Studies in the Bismuth Therapy of Syphilis: I. Comparative Study of Toxicity and Therapeutic Activity of Bismuth Compounds Commonly Employed in Treatment of Syphilis. J. A. Kolmer, H. Brown and Anna M. Rule, Philadelphia.—p. 7.

Clinical and Experimental Evaluation of Sulfanilamide in Gonorrhea. A. Cohn, A. Jacoby, B. A. Kornblith and M. Wishengrad, New York.—p. 41.

Gonorrhea and Sulfanilamide: Effort Toward Clinical Orientation. P. S. Pelouze, Philadelphia.—p. 48.

*Reinfection (?) in Neurosyphilis. I. Kopp and H. C. Solomon, Boston.—p. 54.

Hemorrhagic Encephalitis in Pregnancy Following Antisyphilitic Therapy with Neoarsphenamine. S. S. Paley and N. Pleshette, New York.—p. 69.

Study of Sensitivity and Specificity of the Laughlen Test as Compared with the Wassermann and Kahn Tests. H. W. Craig and J. L. Callaway, Durham, N. C.—p. 76.

Mapharsen as a Substitute for Neoarsphenamine in Agranulocytic Angina Following Neoarsphenamine Therapy in a Pregnant Syphilitic Woman. M. Goldberg, Brooklyn.—p. 79.

Alterations in Serum Proteins in Lymphopathia Venerea. Marion E. Howard, Anna J. Eisenman and M. J. Strauss, New Haven, Conn.—p. 83.

Massive Gangrene of the Skin in a Syphilitic Patient. H. Goodman, L. Oulmann, New York, and M. W. Buchbinder, Jamaica, Long Island, N. Y.—p. 97.

Thiamin Chloride for Tabetic Pains.—Metildi used thiamin chloride in the treatment of lightning pains of six tabetic patients in whom the tabes dorsalis process was not actively progressive. In each of these cases antisyphilitic treatment by standard methods had been ineffectual in relieving lightning pains. Thiamin chloride was given intramuscularly or intravenously. The patients were relieved of these pains either completely or in part in a few days after the injection of 10 mg. of thiamin chloride. The injections are being continued at weekly intervals. The period of observation is as yet too short to permit evaluation of the results.

Reinfection in Neurosyphilis.—Kopp and Solomon present a case of probable reinfection with syphilis in a patient who had neurosyphilis. The patient was continuously under observation in one clinic for eleven years. Numerous negative blood and spinal fluid examinations were obtained during this period. It is possible that reinfection occurred in this patient, who had developed early asymptomatic neurosyphilis while under active treatment for his first infection. Multiple chancres developed during the second infection.

Annals of Medical History, New York

1: 1-104 (Jan.) 1939

The Faculty of Medicine of Paris: Historical Study of Its Origin and Its Influence Through Six Centuries to the Outbreak of the French Revolution. H. W. Jones, Washington, D. C.—p. 1.

The Origin of the Microscope. R. L. Haden, Cleveland.—p. 30.

Robert Adams, Surgeon, and His Contributions to Cardiology. J. B. Herrick, Chicago.—p. 45.

Brief History of Physical Diagnosis. H. M. Korns, Iowa City.—p. 50.

Circumcision. M. S. Jacobs, Philadelphia.—p. 68.

Ignatz Philipp Semmelweis: Outline for a Biography. I. I. Edgar, Detroit.—p. 74.

Canadian Medical Association Journal, Montreal

40: 1-104 (Jan.) 1939

*Major Forms of Hereditary Ectodermal Dysplasia (with an Autopsy and Biopsies on the Anhydrotic Type). H. R. Clouston, Huntingdon, Que.—p. 1.
Early Diagnosis of Cancer of the Stomach. L. J. Notkin, Montreal.—p. 8.
Cystic Disease of the Urinary Tract Epithelium: Report of Case. N. W. Roome, London, Ont.—p. 13.
*Intranasal Administration of Estrogenic Hormones in Constitutional Deafness. H. Mortimer, R. P. Wright, D. L. Thomson and J. B. Collip, Montreal.—p. 17.
Improvements in Audiometry at the Montreal General Hospital. E. G. Burr and H. Mortimer, Montreal.—p. 22.
Biochemical Study of Patients on Sulfanilamide Therapy. C. C. Lucas and D. R. Mitchell, Toronto.—p. 27.
Pelvic Endometriosis: Report of Forty Cases. D. N. Henderson, Toronto.—p. 34.
Diagnosis and Treatment of the Common Disorders of Menstruation. E. Shute, London, Ont.—p. 38.
Etiologic Factors and Treatment of Carcinoma of Cervix. P. J. Kearns, Montreal.—p. 43.
The Management of Diabetes Mellitus by the General Practitioner. A. MacKay, Toronto.—p. 48.
Fors Clavigera in Anesthesia. W. Bourne, Montreal.—p. 52.
Results of Phrenic Nerve Paralysis in Treatment of Pulmonary Tuberculosis. A. F. Miller and V. D. Schaffner, Kentville, N. S.—p. 55.
Blood Culture as an Aid to Diagnosis of Carcinoma and Sarcoma. O. C. Gruner, Montreal.—p. 63.
The Blood Sedimentation Rate in Anemia. H. Sugarman, Saskatoon, Sask.—p. 65.
Aberrant Renal Vessels: Report of Two Cases. G. A. Winfield, Halifax, N. S.—p. 66.

Hereditary Ectodermal Dysplasia.—Clouston has made some additional observations on the hydrotic types of hereditary ectodermal dysplasia. He presents a chart showing that its severity is decreasing. The first four cases of the anhydrotic type of ectodermal dysplasia to be reported in Canada are cited with biopsy records and the third postmortem study is given. The condition is much more common than is usually believed. The distinctive marks are diminished sweating, dental aplasia and a rhinitis which has usually been called "atrophic." This is shown to be hypoplastic; the mucous glands of the nose and throat are diminished in number or absent. The resultant lack of defense and aeration, combined with loss of emergency temperature control, is probably a heretofore unrecognized cause of death in infancy. Recognition is not made because death occurs before the children are old enough to complain of the heat and before the distinctive dentition has occurred. Breast tissue was shown to be absent by the microscope. The question is raised as to what extent ozena is a hereditary ectodermal defect. It did respond to estrogenic substances. Evidence is given that the endocrine glands of ectodermal origin are involved in the general ectodermal dysplasia.

Estrogen Intranasally in Constitutional Deafness.—Mortimer and his colleagues report the results of the insufflation of estrogen intranasally in a series of fifty-five cases of constitutional deafness. Of the patients treated between July 1936 and September 1938 there are thirty-nine females and sixteen males. The cases were mostly diagnosed as either "otosclerosis" or "nerve deafness"; no attempt was made to select any given type of case. The patients range in age from the second to the sixth decade of life. Treatment consisted of daily nasal insufflation of 1 cc. of oil containing 1,000 international units of estrogen. None of the patients were treated for less than three months. Many of them have been under treatment for six months and there are some who have been treated intermittently for two years. As controls, eight males and six females have been observed. Before and during the treatment, at intervals of from one to two months, the hearing acuity in each ear of each patient was measured. Statistical examination shows that when all the data for 512, 1,024, 2,048 and 4,096 cycles are considered, the hearing of the treated males improves slightly while that of the untreated males deteriorates slightly. At these same frequencies the hearing of the treated females also improves slightly and of the untreated ones it appears to deteriorate. The high incidence of cranial dysplasia in 153 cases of constitutional deafness is discussed. The authors draw attention to the distribution of cranial types in this group and its similarity to the type of distribution in atrophic rhinitis and ozena. They suggest that these two constitutional diseases may have a similar or even share a common constitutional background. This view, they believe, finds additional support in that the two constitutional defects coexist in the same individual and in the same familial stock more often than it is generally recognized (in such stock the two defects may be distributed through one generation or in successive generations) and in that treatment which acts specifically on the nasal disease is capable of producing not only marked improvement in certain individual cases of the aural defect but also a statistically significant amelioration in the hearing level of the constitutionally deaf. The authors do not imply that constitutional deafness is an endocrine disease.

Delaware State Medical Journal, Wilmington

11: 1-16 (Jan.) 1939

Surgical Problems of Hyperthyroidism. I. S. Ravdin, Philadelphia.—p. 1.
Injection Treatment for the Cure of Hernia. B. R. Veasey, Wilmington.—p. 7.
Acute Retention of Urine in Single Kidneys. B. S. Vallett, Wilmington.—p. 8.

Journal of Pediatrics, St. Louis

14: 1-136 (Jan.) 1939

Tetany in Newborn Infants: Relation to Physiologic Hypoparathyroidism. H. Bakwin, New York.—p. 1.
Empyema in Children. S. Hurwitz and H. B. Stephens, San Francisco.—p. 11.
*Mental Retardation Associated with Congenital Heart Disease: Study of Twenty-Two Cases. Mabel Ross, Baltimore.—p. 21.
*Controlled Study of Pertussis Prophylaxis: Comparison of Phase I, Haemophilus Pertussis Vaccine with Undenatured Bacterial Antigen. Charlotte H. Singer-Brooks, San Francisco.—p. 25.
Neurologic Complications of Whooping Cough: Review of the Literature with Reports of Two Cases of Pertussis Encephalitis. R. L. Nelson, Wichita Falls, Texas.—p. 39.
Weil's Disease: Report of Case Occurring in a Child. E. E. Martmer, Detroit.—p. 48.
Niemann-Pick's Disease: Report of Three Cases in One Family. D. Merksamer and B. Kramer, Brooklyn.—p. 51.
Roentgenologic Demonstration of Esophageal Varices as a Diagnostic Aid in Chronic Thrombosis of the Splenic Vein. H. M. Greenwald and M. G. Wasch, Brooklyn.—p. 57.
*Anemia of Rheumatic Fever. J. P. Hubbard, Boston, and Margaret Harper McKee, Irvington, N. Y.—p. 66.
Acrodynia Treated with Intramuscular Injections of Vitamin B_1. J. I. Durand, V. W. Spickard and E. Burgess, Seattle.—p. 74.
Idiopathic Dilatation of the Common Bile Duct in Childhood. H. K. Berkley, Los Angeles.—p. 79.
Serum Treatment of Meningococcic Meningitis. C. J. Leslie and A. G. De Sanctis, New York.—p. 83.
Congenital Omphalocele: Report of Four Cases. J. L. Stein and A. Gerber, Brooklyn.—p. 89.

Mental Retardation with Congenital Heart Disease.—Ross points out that in the Harriet Lane Home those working in the cardiac clinic observed that many of the children with congenital cardiac lesions were often placed in special classes because of difficulty in school work. This observation led to a study of the incidence of mental retardation in patients with congenital heart disease. The cases studied were limited according to age (not more than 14 years) by the admitting rules of the Harriet Lane Home Dispensary and, in order to have a reasonable expectation of accurate results by the Binet-Simon intelligence tests, no child less than 5 years of age was included. Eleven boys and eleven girls ranging from 5 to 14 years of age were observed. Fifteen of these had been followed in the cardiac clinic, but the diagnosis was well checked in all. In these cases, patent interventricular septum (eight) and patent ductus arteriosus (six) were most common. The diagnosis was patent interauricular septum in four, pulmonary stenosis in two and valvular disease in one, and the pathologic condition was undetermined in one. None of the subjects fell in the idiot class but two had intelligence quotients below 50, seven fell in the moron group and eight were in the dull normal group. Only four were within the normal range of 91 to 110, and the highest of the group had an intelligence quotient of 117. There was no relation to the type of lesion, as the diagnosis in the two lowest and the one highest in the whole group was patent interventricular septum. This group was compared with a cross section of the Harriet Lane Psychiatric Dispensary patients, 1,000 cases. This group was felt to be fairly representative of the general outpatient population. The dull normal range was the same in all categories, but among those with congenital cardiac lesions the

moron group was much larger and the normal group much smaller than in the outpatient population The study appears to show that the intellectual endowment, as measured by the Binet-Simon intelligence tests, tends to be somewhat lower in the group suffering from congenital heart disease

Pertussis Prophylaxis.—Singer-Brooks presents the results of pertussis prophylaxis obtained over a period of three years during which ninety-five children were injected with undenatured bacterial antigen, 272 children with phase I Haemophilus pertussis vaccine and 256 children were not protected and served as controls for treated groups Of the ninety-five children injected with undenatured bacterial antigen thirty-four were exposed and in twenty-eight of these pertussis developed, making the attack rate 29 4 per cent Of the children injected with phase I Haemophilus pertussis vaccine, forty-two were exposed to pertussis Haemophilus pertussis infections developed in seven of these The attack rate in this group was 2 5 per cent Seventy-one of the control children were exposed to pertussis and in sixty-two of these attacks developed The attack rate in the 256 control children was 24 2 per cent The treated children have not been observed over a sufficiently long period to determine conclusively the duration of the protection conferred

Anemia of Rheumatic Fever.—Hubbard and McKee observed the changes in the blood of seventeen patients with nineteen characteristic recrudescences of rheumatic fever All had well established rheumatic fever with cardiac complications Their ages ranged from 5 to 16 years None received any drugs which could be considered to have any bearing on the production of anemia The patients were treated with the usual supportive measures including salicylates, diuretics and digitalis Six of the exacerbations progressed to a fatal termination All other patients were followed during their convalescence until the activity subsided It was found that in association with the active phases of rheumatic disease a secondary anemia develops which is often quite severe As the infection subsides, the blood levels tend to return to normal Therefore the presence of anemia may often be an indication of continued rheumatic fever activity

Military Surgeon, Washington, D. C.

84: 1 96 (Jan) 1939

The Navy Today W D Leahy —p 1
The Medical Department of the Navy 1933 1938 and Its Plans for the Future P S Rossiter —p 5
Dental Aspects of Preventive Medicine L C Fairbank —p 11
Therapeutic Value of Castor Oil and Magnesium Sulfate in Treatment of Acute Upper Respiratory Disease W A Smith and G F Baier —p 16
Transmission of Tularemia by the Fin Prick of a Catfish D H Miller —p 23
Practical and Brief Program for the Teaching of Chemical Warfare to a Medical Reserve Officers' Troop School H G Roller and L Goldman —p 29
Principles of Control of Fungus Disease of Feet in the Military Organization L Goldman —p 35
*Incidence of Syphilis in 5,000 Recruits and Casual Soldiers R E Blount —p 40
Ruptured Appendix F J Vokoun —p 45
Efficacy of Cold Vaccine Investigation Conducted Among Soldiers C G Blitch and J F Doyle —p 46
Extract from Medical History of the Post Fort Monroe, Va Rendered by G E Cooper, submitted by F M Hartsock —p 52
The Life of Jonathan Letterman J M Phalen —p 62

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Veterans Administration and Its Relation to National Defense F T Hines —p 97
Current Activities in the Medical Department Equipment Laboratory, Carlisle Barracks, Pa G L McKinney —p 105
Medical Department Lessons from the Fourth Army Maneuvers, 1937 D C Hilton —p 115
Observations on the Medical Department of the Japanese North China Expeditionary Force L A Fox —p 130
Soldier's Clothing S A Cohen —p 138
The Venereal Diseases United States Army H C Michie —p 146

Incidence of Syphilis in Army.—Blount points out that the Kline diagnostic and exclusion tests were performed on the serums of 5,000 army recruits and soldiers having previous service All serums giving positive reactions were checked by the Wassermann and Kahn reactions Sixty one cases (1 2 per cent) of syphilis were found The incidence varied from 0 52 per cent in recruits from 18 to 23 years of age to 5 5 per cent in those from 30 to 35 years old In soldiers having previous service the incidence varied from 1 per cent in those from 20 to 23 years old to 18 1 per cent in those from 42 to 59 years of age However, few men between the ages of 42 and 59 years were examined Soldiers with tropical service had a slightly higher incidence of syphilis than did those with service only within the continental borders of the United States More than 50 per cent of the cases of syphilis found were so-called latent, but a relatively large number of cases of cardiovascular and cerebrospinal syphilis were found The author believes that the examination of all recruits, as well as periodic surveys of the personnel of the army, would be of value to it

Minnesota Medicine, St. Paul

22: 71 144 (Feb) 1939

Advances in Prevention and Treatment of Contagious Diseases of Childhood E S Platou and P F Dwan, Minneapolis —p 71
Essentials in Diagnosis of Congenital Heart Disease T J Dry, Rochester —p 78
*Polyneuritis in Children R E Cutts, Minneapolis —p 89
What Is New in the Field of Food Sensitiveness W C Alvarez, Rochester —p 92
Type of Chronic Nervous Depression in Women Relieved by Administration of Thyroid Extract G R Kamman, St Paul —p 97
Fracture of the Elbow and Volkmann's Ischemic Contracture H W Meyerding, Rochester —p 100
Practical Points in Anesthesia R T Knight, Minneapolis —p 105

Polyneuritis in Children.—Cutts states that the incidence of polyneuritis among the children of Minnesota is low but that the prolonged and severe disability requiring nursing care, physical therapy and, in some cases, orthopedic surgery make the condition an important one The gross pathologic changes of polyneuritis are usually minimal although some swelling and congestion of the peripheral nerves may be detected The symptoms of polyneuritis are usually both sensory and motor Customarily the lower extremities are first involved, with progression to the upper extremities and trunk The distribution is roughly symmetrical General treatment during the active stage consists of supportive measures, elimination of foci and sources of toxin, improvement of nutrition, protection of the weakened muscles and the use of oxygen when the muscles of respiration are involved As recovery progresses, physical therapy and orthopedic appliances are usually indicated Surgery may be required to decrease disability when recovery has been incomplete Specific measures are indicated when a specific cause can be determined Metallic poisoning, either accidental or as a result of therapy, accounts for a considerable proportion of these cases Of the metals the most frequent offender is lead Lead may be ingested by children as a result of chewing paint from furniture and toys Food and water may become contaminated from pipes or containers Insecticides and sprays are other possible sources The prognosis for complete recovery after lead polyneuritis is not as good as after most types because involvement of the spinal cord is generally greater In the cases presenting evidence of lead encephalitis the prognosis is considerably worse Arsenic, thallium and bismuth are other metals capable of producing polyneuritis Cases of polyneuritis due to or associated with infections are less readily classified That following diphtheria is considered the most common type in children Diphtheritic polyneuritis is almost invariably preceded several days by local paralysis such as the paralysis of the soft palate and pharynx associated with faucial diphtheria Neuritis occurs almost exclusively in cases in which antitoxin has been administered late or in inadequate dosage A small group of cases has been reported in which neuritis developed several days after a brief febrile illness of undetermined origin The polyneuritis in these cases is roughly symmetrical, usually associated with bilateral facial paralysis, frequently affecting proximal muscle groups of the extremities more than the distal groups If the acute stage is survived, recovery is usually rapid and complete Periarteritis nodosum is said to be accompanied by polyneuritis in 20 per cent of the cases It occurs rarely and the neuritic symptoms are likely to be overshadowed by the other symptoms of the disease Polyneuritis occasionally complicates other diseases tuberculosis, typhoid, paratyphoid, malaria, septicemia, pyogenic infections, scarlet fever and mumps Diabetes in children is rarely complicated by polyneuritis Several drugs other than the metals mentioned have been cited as causes of polyneuritis Among these are dinitrophenol, atabrine, sedatives of the chloral group and, rarely, anesthetics, including ether and

procaine hydrochloride. Occasional cases have been reported following the administration of foreign protein such as therapeutic serums. Hematoporphyrinuria and hematoporphyrin hydrochloride used therapeutically may also cause polyneuritis. Dietary deficiencies are known to be capable of causing neuritis. Until recently, massive doses and parenteral administration of vitamin B have not been practicable. Since vitamin B_1 is now available in pure concentrated form, information should soon be available concerning its use in the less common types of polyneuritis. Whether large doses of vitamin B_1 orally or parenterally will have any beneficial effects in the treatment of polyneuritis following diphtheria and the metallic and drug intoxications remains to be determined.

Nebraska State Medical Journal, Lincoln

24: 41-80 (Feb.) 1939

Distortions Accompanying Congenital Single Lip Cleft. V. P. Blair, St. Louis.—p. 41.
Extension of Operability in Carcinoma of the Stomach. K. Meyer and P. Shapiro, Chicago.—p. 44.
Unnecessary Treatment in Mitral Valve Disease. A. L. Smith, Lincoln. —p. 49.
Therapy of Convalescent Human Serum. F. Clarke, Omaha.—p. 55.
Surgical Relations of the Thyroid Gland. M. Grodinsky, Omaha.—p. 58.
An Attack on Delinquency with a Discussion of "Active Play Therapy." J. H. Waterman and J. C. Nielsen, Ingleside.—p. 62.
Differential Diagnosis of Vesical Neck Obstruction. E. Davis, Omaha.—p. 66.
Eruption Due to Hydrophen Ointment: Case Report. D. J. Wilson, Omaha.—p. 70.

New England Journal of Medicine, Boston

220: 129-174 (Jan. 26) 1939

Treatment of Chronic Alcoholism with Amphetamine (Benzedrine) Sulfate. W. Bloomberg, Boston.—p. 129.
The Control of Medical Science. M. V. MacKenzie, Boston.—p. 136.
Acute Hemolytic (Lederer's?) Anemia: Report of Case. T. H. McGavack, New York.—p. 140.
Disease of Besnier-Boeck-Schaumann. L. Babalian, Portland, Maine.—p. 143.
Popliteal Aneurysm: Report of Two Cases. A. R. Kimpton and E. R. Sanderson, Boston.—p. 146.
Syphilis. C. G. Lane, Boston.—p. 156.

New Orleans Medical and Surgical Journal

91: 335-402 (Jan.) 1939

Gas Bacillus Infection, with Special Reference to the Therapeutic Value of the X-Rays. L. S. Charbonnet Jr. and R. W. Cooper, New Orleans. —p. 335.
Tumors of Adrenal Gland in Early Childhood: Report of Two Cases. A. R. Morgan, Crowley, La.—p. 345.
Elliott Treatment of Pelvic Inflammatory Diseases of Ambulatory Women: Analysis of Seventy-Three Cases. E. C. Smith, New Orleans.—p. 351.
*Serum Volume Test for Hemorrhagic Diathesis in Jaundice: Further Observations. F. F. Boyce and Elizabeth M. McFetridge, New Orleans.—p. 357.
Chronicity of Pulmonary Tuberculosis. S. Jacobs, New Orleans.—p. 364.
Advantages and Disadvantages of Cyclopropane Anesthesia. M. C. Beck, New Orleans.—p. 369.
The Thrombocyte in Allergy: Preliminary Report. N. F. Thiberge, New Orleans.—p. 372.

91: 403-462 (Feb.) 1939

Subdeltoid Bursitis. P. A. McIlhenny, New Orleans.—p. 403.
Some Gynecologic Problems Occurring During the Reproductive Period. V. S. Counseller, Rochester, Minn.—p. 407.
The Constitutional Psychopath as a Community Problem. T. H. Pargen, Jackson, La.—p. 413.
Myasthenia Gravis: Report of Case Treated with Oral Prostigmine. L. L. Cazenavette, New Orleans.—p. 417.
Dietetic and Insulin Management of the Juvenile Diabetic. P. H. Herron, Monroe, La.—p. 423.
Value of Bronchoscopy in Bronchiogenic Carcinoma. G. J. Taquino, New Orleans.—p. 429.
Radiologic Aspects of Bronchiogenic Carcinoma. A. D. Mayoral, New Orleans.—p. 436.
Bronchiogenic Carcinoma from the Bronchoscopic Aspect: Review of Some Recent Literature. H. L. Kearney, New Orleans.—p. 437.
Pathologic Aspects of Bronchiogenic Carcinoma. B. Halpert, New Orleans.—p. 439.

Serum Volume Test for Hemorrhagic Diathesis.—Boyce and McFetridge discuss the underlying causes of the hemorrhagic diathesis in jaundice with special reference to Quick's prothrombin theory. The procedure for carrying out their serum volume test for the diagnosis of the hemorrhagic diathesis in jaundice is given in an abstract in THE JOURNAL Jan. 8, 1938, page 158. Twenty-one cases of jaundice are reported, all of which were studied by the serum volume test, the Ivy venous pressure test and the Quick hippuric acid test of hepatic function. The serum volume test proved correct in all cases, but the Ivy test did not. Since the serum volume test and the Quick hippuric acid test failed to correspond frequently, the authors ask whether depressed hepatic function can be invoked to explain all cases of bleeding in jaundice. They outline the preparation of jaundiced patients for surgery, referring especially to the use of blood transfusion, dextrose and vitamin K.

Physiological Reviews, Baltimore

19: 1-134 (Jan.) 1939

Reaction of Muscle to Denervation. Sarah S. Tower, Baltimore.—p. 1.
Stuttering. S. Cobb and E. M. Cole, Boston.—p. 49.
Renal Tubular Excretion. J. A. Shannon, New York.—p. 63.
Physiology of Human Hair. C. H. Danforth, San Francisco.—p. 94.
Respiration in Diving Mammals. L. Irving, Swarthmore, Pa.—p. 112.

Southern Medical Journal, Birmingham, Ala.

32: 125-232 (Feb.) 1939. Partial Index

Fracture and Fracture-Dislocation of the Astragalus. O. L. Miller, Charlotte, N. C., and L. D. Baker, Durham, N. C.—p. 125.
Management of Compound Injuries of Face and Jaws. J. B. Brown, St. Louis.—p. 136.
Roentgen Treatment of Carcinoma of Larynx and Hypopharynx. W. G. Scott and S. Moore, St. Louis.—p. 144.
*Use of Testosterone Propionate in Prostatic Hypertrophy. R. Bolend, Oklahoma City.—p. 154.
Conservative Management of Appendical Peritonitis. C. E. Gardner Jr., Durham, N. C.—p. 157.
Staphylococcic Septicemia. P. F. Stookey and L. A. Scarpellino, Kansas City, Mo.—p. 173.
Further Observations on the Schiller Presumptive Test for Carcinoma of the Cervix. O. B. Hunter, Washington, D. C.—p. 179.
Puerperal Inversion of the Uterus. M. P. Rucker, Richmond, Va.—p. 197.
Review of Some of the Histogenetic Relationships of the Skin. M. T. Gaines, Mobile, Ala.—p. 202.
Present Status of Shock and Fever Therapy in Ophthalmology. S. C. Howell, Atlanta, Ga.—p. 208.
Histopathology of Sinusitis. P. J. Bayon, New Orleans.—p. 211.
Statewide Program in Health Education. H. H. Walker, Knoxville, Tenn.—p. 219.

Testosterone Propionate in Prostatic Hypertrophy.—Recently Bolend reported the results obtained with the use of testosterone propionate in twenty-three unselected cases of enlarged prostate with urinary retention. Ten patients are clinically well or symptom free, seven patients are improved and six experienced no improvement. Critical examination of the clinical data shows that, while ten patients are clinically well and symptom free, some of them carry from 5 to 35 cc. of residual urine. The patient giving the most striking clinical response has 130 cc. of residual urine. These patients, however, all consider themselves cured. In a later series of thirty-five patients the clinical course corresponds to the foregoing except that there was a higher percentage of beneficial results, owing to the fact that only patients with uncomplicated benign hypertrophy were treated. It has not been possible to demonstrate conclusively by palpation or by cystograms that the prostate is actually reduced in size. Hence, in his effort to determine how and why these patients are able to empty their bladders more completely, the author studied sections from the prostate of seven patients treated with varying amounts of the drug. Careful and accurate clinical data with biopsies before and after treatment were kept. Three changes were observed in the gland following treatment: (1) an exaggeration of glandular hyperplasia, (2) a reduction or at least no increase in the stroma and (3) a reduction in the inflammatory reaction. If there is any change in the individual epithelial cells, the change was not constant enough to be significant in the cases studied.

Surgery, St. Louis

5: 1-160 (Jan.) 1939

Tumors of the Hands and Feet: Introduction. G. T. Pack, New York. —p. 1.
Carcinoma of the Hands and Feet. M. L. Mason, Chicago.—p. 27.
Subungual Melanoma: Differential Diagnosis of Tumors of the Nail Bed. G. T. Pack and F. E. Adair, New York.—p. 47.
Angiomatous Tumors of the Hands and Feet. A. W. Oughterson and R. Tennant, New Haven, Conn.—p. 73.
Tumors of Synovia, Tendons and Joint Capsules of the Hands and Feet. A. Brunschwig, Chicago.—p. 101.
Tumors Primary in the Bones of the Hands and Feet. B. L. Coley and N. L. Higinbotham, New York.—p. 112.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

35: 241-320 (Oct.-Dec.) 1938

Acute Intussusception in Children. C. P. G. Wakeley and F. R. B. Atkinson.—p. 241.
*Causation of Paralysis in Diphtheria. I. Taylor.—p. 250.
Chorea and Athetosis in Childhood. J. Shafar.—p. 259.
Exophthalmic Goiter in Children. F. R. B. Atkinson.—p. 267.

Cause of Paralysis in Diphtheria.—Taylor discusses some of the evidence bearing on the manner in which diphtheria toxin attacks the nervous system. The view held by some authors is that all forms of diphtheritic paralysis are due to hematogenous toxemia, the frequency with which certain nerves are attacked being explained by the selective affinity of the toxin for these nerves. The close anatomic relationship between the site of infection and the initial paralysis has led other observers to discard this theory in favor of extreme views of a different nature. They state that the toxin first attacks the nerves in the locality of the site of infection and that all other paralyses are produced by diffusion of toxin in the nervous system from the point of entry. This view receives some support from the orderly sequence of paralyses commonly noted in faucial diphtheria. The two schools of thought meet in the theories advanced by Walshe that (1) the initial paralysis is caused by lymphogenous invasion of the nervous system, the toxin passing from the site of infection to the central nervous system by the perineural lymphatics, (2) generalized paralysis is the result of hematogenous toxemia and (3) accommodation paralysis is the result of the selective affinity of circulating toxin for certain elements of the nervous system. Most clinicians and experimental workers are agreed that the late multiple neuritis following diphtheria, giving rise to diphtheritic pseudotabes, is due to hematogenous toxemia. The strongest evidence of the hematogenous origin of such paralyses is the fact that the experimental injection of diphtheria toxin intravenously in animals produces a multiple neuritis which is exactly comparable to this late form of peripheral neuritis found in diphtheria in the human being. In addition to the limb paralysis, accommodation paralysis must be included in the group of symptoms due to blood-borne toxin, because this form of paralysis is found quite frequently in both faucial and extrafaucial diphtheria. There are good grounds for believing that hematogenous toxemia is capable of producing, in addition to generalized paralysis, a type of paralysis similar to the local paralysis found in faucial diphtheria. The author believes that one may thus accept the possibility that blood-borne toxin may play some part in the production of local paralyses as they are encountered in faucial diphtheria. The close anatomic relation between the local paralysis and the site of infection can leave no doubt that the nervous system is primarily attacked by local absorption of toxin. Unilateral faucial diphtheria frequently results in paralysis of the corresponding side of the palate. An important and familiar clinical observation is what has been described as the "march of paralysis." One cannot but be impressed by the orderly way in which paralysis develops in most severe cases, palatal paralysis preceding pharyngeal and the diaphragm being involved before the intercostal spaces. Such a march suggests the slow spread of toxin in the central nervous system.

British Journal of Dermatology and Syphilis, London

51: 1-50 (Jan.) 1939

*Etiology of Seborrheic Dermatitis. G. B. Dowling.—p. 1.
*Id. G. H. Percival.—p. 7.
Reaction of Stools and Its Relation to Diseases of the Skin. R. Aitken.—p. 13.
Bazin's Disease. J. Kinnear.—p. 18.
Two Families Showing Hereditary Ectodermal Dystrophies. C. Hardwick.—p. 24.

Etiology of Seborrheic Dermatitis.—Dowling states that the cause of seborrheic eczema is not established but that the available evidence points to a primary infection with yeastlike organisms, usually saprophytic but capable of developing varying degrees of pathogenicity under different conditions. Why some cases are fixed and stationary while others are acute is not always easy to explain, but there can be little doubt that these variations depend on a number of factors. Seborrheic eczema in its pure form often undergoes alteration owing to pyococcic invasion or to numerous local and constitutional factors. These secondary changes may so alter the clinical picture that the diagnosis of the original dermatosis may be a matter of guesswork. One has to depend largely on the presence of a certain number of typical lesions, the characteristics of which Darier has described.

Etiology of Seborrheic Dermatitis.—Percival separates seborrheic dermatitis into three groups: (1) pityriasis capitis and eczematide lesions affecting the hairy or potentially hairy regions, (2) flexural dermatitis, which is almost always exudative, and (3) pustular dermatitis affecting areas covered with strong hair. He summarizes the evidence which has a bearing on the etiology of cases labeled "seborrheic dermatitis" into the following: 1. An almost specific type of organismal infection is associated with each case group and clinical observation of the course of the eruptions and their response to treatment suggests, even in the absence of scientific corroboration, that infection plays a definite part in their production. 2. In all three case groups a type of eczematous reaction, which is distinct for each group and which is different from the eczematous reaction produced by chemical irritation, is a characteristic and diagnostic feature of the eruption. 3. The clinical features, bacteriologic findings and response to treatment in the three groups of cases are so distinctive that each group stands out clearly as an individual clinical entity. In the absence of definite proof the author suggests that an external infective origin should be presumed temporarily for all three groups. Furthermore, the same presumption might be extended to include infectious eczematoid dermatitis, and in descriptive nomenclature this group might be placed in the same class.

Indian Medical Gazette, Calcutta

73: 713-776 (Dec.) 1938

Follow-Up of a Mass Treatment with Injectable Atabrine. A. T. W. Simeons.—p. 713.
Enumerative Studies in Benign Tertian Malaria. V. Sivalingam.—p. 715.
*Use of Cobra Venom in Nerve Leprosy. J. S. Chowhan and R. N. Chopra.—p. 720.
Investigation and Conservative Treatment of the Nasal Factor in Asthma. F. T. Harrington.—p. 725.
Hobbs Treatment with Glycerin Applied to Male Urethra in Gonorrhea. R. L. Raymond, K. K. De and U. Soe Nyun.—p. 729.
Induction of Labor. G. P. Charlewood.—p. 733.
Report of a Case of Early Acquired Syphilis in a Patient with Tertiary Stigmas of Untreated Yaws. R. V. Rajam.—p. 735.
Treatment of Animals with Antirabic Vaccine. R. O. A. Smith, J. P. McGuire, E. D. Stephens and B. N. Lahiri.—p. 736.

Cobra Venom in Nerve Leprosy.—The nerves most frequently involved in leprosy are the ulnar, peroneal, posterior tibial and median. These nerves were thickened and painful in nearly all the cases that Chowhan and Chopra observed. Injections of cobra venom relieved the severe nerve pains due to lepra reaction. In some cases injections were given locally to relieve pain of a particular part of the body, which was interfering with the sleep of the patient. It had been suggested that relief of nerve pain and other nerve symptoms in leprosy, after cobra venom, is due to its choline esterase-like action. In persons suffering from severe and constant nerve pains, there is probably an excess of acetylcholine in tissues produced by pathologic overstimulation of nerves and possibly the choline esterase normally present is insufficient to neutralize it. Since injections of cobra venom relieved nerve symptoms it is possible that it acted by neutralizing the excess of acetylcholine present. It is also possible that cobra venom may itself act like choline esterase or may have a substance of this nature present in it. The study of the biochemical changes in the blood of patients with leprosy before and after the injections of cobra venom is in progress, particularly its effects on choline esterase. It is not expected that cobra venom will ever replace chaulmoogra oil and other measures in the treatment of the nerve type of leprosy, but it may serve as an additional weapon in ameliorating some of the troublesome symptoms. From 60 to 70 per cent of cases of leprosy in India are of the

nerve type. Cobra venom has been shown to give marked relief in from 60 to 80 per cent of these cases, particularly if the injections are given into the macular and anesthetic patch. The sensations of numbness and formication are also improved. The relief of pain was observed after the second or third injection and the pain disappeared almost completely after the fifth or sixth injection. The criteria of improvement were the return of normal sensations and less disturbed sleep. Mixed injections of vitamin B_1 and cobra venom have resulted in definite benefit in a few cases of neuritis which did not improve with cobra venom alone. Vitamin B and cobra venom if used together would most probably be highly beneficial therapeutic agents in neuritic leprosy.

Medical Journal of Australia, Sydney

2: 1103-1144 (Dec. 31) 1938

Sulfanilamide. Beatrix Durie.—p. 1103.
Use of Sulfanilamide in Some Clinical Conditions. J. Chesterman.—p. 1110.
Q Fever: Factors Affecting the Appearance of Rickettsiae in Mice. F. M. Burnet and M. Freeman.—p. 1114.
Observations on Vulvovaginitis in Children. N. M. Gibson and C. J. Wiley.—p. 1116.
Spermatorrhea in Trichosurus Vulpecula and Other Marsupials. A. Bolliger and A. L. Carrodus.—p. 1118.
Blackwater Fever Following the Administration of Atabrine. C. E. M. Gunther.—p. 1119.
*Method of Giving Blood Transfusions to Infants. V. L. Collins.—p. 1121.

Blood Transfusions in Infants.—Collins describes a method of giving blood transfusions to infants which makes use of the malleolar vein. A needle with a stilet as a cannula, blood taking apparatus, rubber tubing with a lumen of 4 mm. and a record syringe with a three-way stopcock supply are the apparatus needed. The needle with a stilet renders the cannulizing of even a small vein a simple procedure. It is an ordinary large hypodermic needle (gage 18, 24 mm. in length by 1.2 mm. in thickness) shortened to 20 mm. The stilet projects 4 mm. beyond the end of the needle, which is cut straight across and beveled round its circumference so that it tapers to the stilet. One piece of rubber tubing, 25 cm. long, runs from the stopcock to the adapter, which fits the needle. A second piece of tubing, 30 cm. long, connects the stopcock to the vessel containing compatible citrated blood. The infant's foot is bandaged to a splint, the position of the malleolar vein is noted and under local anesthesia a transverse or oblique incision is made across the line of the vein just proximal to the medial malleolus. By placing a pair of Spencer-Wells forceps in the wound and opening them in a plane at right angles to the incision, the subcutaneous tissues can be opened as deep as the periosteum. When the periosteum is bared, the vein can be mobilized with an aneurysm needle, and two pieces of catgut passed beneath it in the customary manner. With fine scissors the vein is then cut half across, and the needle and stilet are introduced. The record syringe is attached to the stopcock and the rubber tubing is connected to the flask of blood. The tap is adjusted and blood is drawn into the syringe. Then the tap is turned on and any air in the syringe is expelled through the tube. As soon as blood is dropping from the adapter in this tubing, the stilet is removed and the adapter is fitted into the needle in the vein. The small amount of air in the needle can be ignored. The blood is then gently forced into the vein, and by refilling the syringe and adjusting the stopcock each time the desired amount of blood can be given. When the transfusion is completed, the pieces of catgut surrounding the vein should be removed and a dressing applied. A horsehair suture is rarely required for the incision. The amount of blood and the rate at which it is given depend on the circumstances. Usually it is desirable to take from twenty to thirty minutes to give 90 cc. of blood to an infant weighing 2.7 Kg. (6 pounds). In larger infants it is more satisfactory to transfuse blood by the continuous drip method, but this is not always possible when the veins are small. The author states that the method described has been found so satisfactory for intravenous therapy that it is now used throughout his hospital for all blood transfusions and the intravenous administration of saline solution. A slightly larger needle is used for continuous transfusion.

Journal de Chirurgie, Paris

53: 161-304 (Feb.) 1939

Parathyroid Osteosis: Case. P. Moulonguet and J.-A. Lièvre.—p. 161.
Sinucarotid Enervation: Technic, Indications, Results. L. Léger.—p. 176.
*Surgical Treatment of Diabetes. J. Bréhant.—p. 195.

Surgical Treatment of Diabetes.—Bréhant says that the attempts at surgical cure of diabetic conditions are only in their beginnings. The medical treatment looks only to substition for the deficient pancreatic function by the application of endocrine therapy; the surgical treatment aims to modify the relation between the two neurohumoral systems, which regulate the sugar metabolism and assure glycemic equilibrium. These two systems are: (1) the apparatus aiming at hypoglycemia, which consists of the pancreatic islands, the secretion of which is dependent on the pneumogastric nerve, and accessorily of certain endocrines such as the salivary glands and the parathyroids; (2) the apparatus acting in the hyperglycemic direction, which consists of the adrenal medulla, the secretion of which is dependent on the splanchnic nerves, and secondarily of certain endocrine glands such as the hypophysis and the thyroid. The surgical attempts that have been carried out thus far have aimed either at the strengthening of the vagopancreatic apparatus or its connected glands or at the depression of the adrenosplanchnic apparatus and its connected glands. The attempts at activation of the pancreatic function so far have given deceptive clinical results. Pancreatic transplantation is not feasible in human subjects. Sympathectomy of the arteries of the pancreas so far has only formed a part of the experimental sphere. Moreover, the attempts at transformation of the pancreas into a gland that is only endocrine, by alteration of the external function, have not given reliable clinical results. Among the attempts aiming to modify the endocrine status of the accessory glands, the only ones which rest on approved physiologic bases are the attempts of hormonal activation of the salivary glands or of the inhibition of the hypophysial apparatus. The first ones have not given appreciable clinical results; those of the second group were more encouraging, but the seriousness of hypophysectomy prevents the practiced application of a surgical intervention on this gland. There remain the attempts at the suppression of the adrenal apparatus. Rather than to attack directly the adrenal gland, the attempts thus far tend to rely to a certain extent on the operations of glandular enervation and in particular on splanchnicectomy. These attempts are sufficiently encouraging to be considered worthy of a trial in grave forms of diabetes that are resistant to insulin.

Presse Médicale, Paris

47: 153-176 (Feb. 1) 1939

*Accidents of Skiing: Their Genesis, Frequency and Distribution. J. Braine and C. Goury.—p. 153.
Faciocervicothoracobrachial Neuralgic Syndrome Probably of Sympathetic Etiology. J.-A. Chavany.—p. 156.

Accidents of Skiing.—Braine and Goury point out that the technic of this sport has been specified and improved during recent years. Regarding the accidents that occur in the course of skiing, they say that in view of the large number of persons who do use skis the frequency of the accidents is relatively slight, other snow sports, such as tobogganing and bobsleighing, being much more dangerous. Statistics which are difficult to establish are deceptive; the seriousness of the accidents differs greatly and many of the minor lesions (small muscular and ligamentous ruptures and mild sprains), which constitute the majority of accidents, escape medical control. Accordingly, the authors cite figures with certain reservations. The incidence of skiing accidents is 0.5 per thousand. In the region of Freiburg, with more than 2,000 skiing students every Sunday during the winter, fourteen fractures and 160 sprains have been counted during one season. In the region of Innsbruck, 157 accidents, of which eighty-seven were fractures, have been counted in one year. After citing figures on the percentages of the serious, moderate and mild accidents, the authors give their attention to the etiology, pointing out that it depends on the equipment, the skiing terrain, the physical condition of the skier and the type of skiing. In estimating the equipment, the authors describe and illustrate the boots, the sticks and

their correct and incorrect attachment to the hand, and the different types of bindings, that is the devices by which the skis are attached, and so on. They also illustrate how the sticks may eventually cause dislocation of the shoulder. Discussing the role of the skiing terrain in accidents, they say that the frequency and the type of accidents, as well as the localization and the character of the traumatic lesion, are largely determined by the condition of the snow. Its quality varies according to the season. Especially dangerous is the snow at the beginning of the season and in the spring. Moreover, the consistency of the snow varies from day to day. Recently fallen snow may obscure obstacles. The physical condition of the skier and his training are also important factors in the etiology of accidents, for traumas are most frequent at the beginning of the season. That the type of skiing plays a part in the causation of accidents is proved by their high frequency in going down slopes and in mountain skiing. In skiing on level ground accidents are comparatively rare. In the last part of this report the authors give figures on the characteristic lesions that occur in skiing. The therapy of these lesions they intend to discuss in a later report.

Schweizerische medizinische Wochenschrift, Basel

69: 117-140 (Feb. 11) 1939. Partial Index

Causes of Accidents in Skiing. M. Petitpierre.—p. 117.
Morphology and Function of Bone Marrow in Osteopathies. N. Markoff.—p. 120.
*Neuromuscular Impairment of the Young of Rats with E Hypovitaminosis and Their Treatment with Synthetic Vitamin E. V. Demole and H. Pfaltz.—p. 123.
*Calcium and Training of Athletes. P. Martin.—p. 125.

Neuromuscular Impairment of Young of Rats with E Hypovitaminosis.—Demole and Pfaltz show that the young of rats with E hypovitaminosis frequently develop neuromuscular lesions during the period of lactation. Symptoms of these lesions are laziness, awkwardness, paresis, paralysis and convulsions. The administration of synthetic *dl*-alpha-tocopherol as well as of its acetyl ester during the first half of the period of lactation (up to fifteen days after birth) either to the mother animal or to the young prevents the appearance of these disturbances. If the tocopherols are administered during the second half of the period of lactation, existing mild disturbances such as awkwardness and pareses are cured but complete paralysis is not influenced.

Calcium and Training of Athletes.—Martin reports his studies on the influence of calcium therapy during the training of athletes. The young athletes who were the subjects of the experiments were mostly city dwellers who lived in modest circumstances and whose food was frequently deficient in calcium salts. Moreover, working in offices during the day, they had little opportunity to benefit from fresh air and sunshine. Before describing his experiments the author reviews some aspects of the physiologic and biologic role of calcium. Following this he cites several authors who employed calcium in treating athletes. His own experiments aimed to answer the question whether the administration of calcium permits the progressive intensification of training without producing the signs of excessive training. The tests were made on young runners (400 meters). Of a group of twenty-seven athletes, fifteen underwent training without calcium therapy; the other twelve were subjected to intensive calcium therapy during the five months of training (December to April). They were given daily two tablets of calcium gluconate or an equivalent amount of calcium in some other form. The author gives tabular reports of the results of the tests at the onset and at the end of the period of training. Recapitulating the results he says that the amelioration of the coefficient of fatigability (difference between the pulse rate on arrival after the 400 meter run and the normal pulse rate) was 60 per cent higher in the athletes who had received calcium than in those who had not received it. The improvement of the coefficient of rapidity of recuperation to the normal state (difference between the pulse rate ten minutes after finishing the run and the normal pulse rate) was 33.7 per cent better in the athletes who had received calcium therapy. The athletes tolerated the administration of calcium well. There were no complaints about difficulties in the absorption of the medicament. On the contrary, they felt the beneficial effect on their general condition.

Rivista di Patologia e Clin. d. Tubercolosi, Bologna

13: 1-80 (Jan. 31) 1939. Partial Index

Origin of Insatiable Pneumothorax: Experiments. G. Baldacci.—p. 1.
Decline Posture in Therapy of Pulmonary Tuberculosis. D. D'Arcangelo and T. Todoroff.—p. 7.
*Influence of Parapneumothoracic Pleurisy on Contralateral Tuberculosis. N. Cavarozzi.—p. 21.

Parapneumothoracic Pleurisy in Contralateral Tuberculosis.—Cavarozzi's work was meant to determine whether parapneumothoracic pleurisy has an influence on the evolution of contralateral tuberculosis and what the mechanism of action of that influence is. The author followed the behavior of the contralateral lung before development and after recovery or improvement of typical, abundant and noncomplicated parapneumothoracic pleurisy in fifty-seven adults. Before development of pleurisy the contralateral lung was normal in eight cases. In the remaining forty-nine the structure showed clinical symptoms and x-ray changes varying from conditions of adenopathies or tuberculous infiltrations to different forms of tuberculosis. Collapse of the pneumothoracized lung was clinically efficient in ten cases, including those in which the contralateral lung was normal. After parapneumothoracic pleurisy the clinical symptoms and the roentgenograms of the contralateral lung were unchanged in twenty-five cases, including those in which the structure was previously normal. There was regression of tuberculosis in sixteen cases and aggravation of the disease in sixteen cases. The author found that behavior of the contralateral lung parallels that of the pneumothoracized structure in all cases unless the pleuritic fluid is infectious. In the presence of clean pleuritic fluid (either spontaneous or from thoracentesis and lavages) the contralateral lung does not change in most of the cases or it shows regression of tuberculosis. In these cases pleurisy follows a favorable evolution, and prompt recovery of the patients results. Aggravation of contralateral tuberculosis after parapneumothoracic pleurisy is observed in cases in which the pleuritic fluid is purulent or suppurative. However, the evolution of the condition is modified if the fluid is transformed from purulent to clean by proper treatment. According to the author, parapneumothoracic pleurisy has a mechanical action on collapse and a toxic and infectious action on the general system with a consequent indirect action on the contralateral lung. The nature of the action is biologic and infectious as the changes of collapse interfere with the control or stimulation of tuberculosis of the pneumothoracized lung, and the acute infectious nature of the fluid disturbs directly the general trophism.

Zeitschrift für Kinderheilkunde, Berlin

60: 285-466 (Dec. 19) 1938. Partial Index

Electrocardiography in Nurslings. A. Nádrai.—p. 285.
Therapy and Prophylaxis of Rickets with Single Large Dose of Vitamin D_2 and D_3. H. Brockmann.—p. 359.
Experimental Studies on Whooping Cough (Blood Picture, Sedimentation Reaction of Blood, Encephalitis). W. Camerer.—p. 371.
Behavior of Blood-Cerebrospinal Barrier in Experimental Poliomyelitis. M. Kasahara, T. Kakusui and Sha-Shi-Nan.—p. 391.
Occurrence of Enterobius Vermicularis in Appendixes Removed by Surgery or Obtained in Postmortem Examinations. O. Fusthy.—p. 394.
Acute Hemolytic Anemia (Type Lederer). W. Brenner.—p. 405.
*Susceptibility to Serum Disease. A. Beer.—p. 418.
Subarachnoidal Hemorrhage During Childhood. E. Engelhardt.—p. 436.

Susceptibility to Serum Disease.—By the statistical analysis of a large material, Beer aimed to detect fluctuations in the susceptibility to serum disease. He determined the incidence of serum disease in the cases in which treatment with diphtheria horse serum was administered during the twenty years from 1916 to 1935. He observed an increase in the percentage of serum disease during the spring months, more exactly during May and June compared to March and April. This increase he regards as the result of the general alteration in reactivity to which the organism is subject at this time of the year. There was no definite evidence of changes in the susceptibility in connection with the different ages of the patients; to be sure, the figures seemed to indicate with some probability that there was a greater susceptibility to serum disease during the first three or four years of life. However, this evidence was not sufficiently convincing to justify the drawing of conclusions. The author gave attention also to the articular complications of serum dis-

ease and observed an indisputable augmentation of their incidence corresponding to the increasing ages of the patients; moreover, he noted that the reactions on the part of the joints became manifest earlier in the older children and that the late articular complications (later than sixteen days after the injection) became rare in children over the age of 7 years. The author considers that these fluctuations in the type of articular involvement are the result of the progressive development of the joints.

Klinicheskaya Meditsina, Moscow

16: 1605-1772 (No. 12) 1939. Partial Index

*Controversial Points in Teaching of Rheumatic Disease of the Heart. Ya. G. Etinger.—p. 1609.
Fate of Syphilitic Patients from Ten to Forty Years After Infection. B. N. Zilberman.—p. 1626.
Differential Diagnostic Errors in Recognition of Tuberculosis. T. D. Kan.—p. 1632.
Correlation of Some Cardiovascular Reactions in Croupous Pneumonia. I. S. Shnitser.—p. 1641.
Venous Pressure in Croupous Pneumonia. D. N. Prudnikov and V. V. Bazhenov.—p. 1647.
Intravenous Alcohol Therapy of Croupous Pneumonia. T. S. Mnatsakanov.—p. 1654.

Rheumatic Disease of the Heart.—Valvular lesions of the heart of nonsyphilitic origin, according to Etinger, are associated as a rule with rheumatic infection regardless of history of previous attacks of inflammatory disease of the joints. The etiologic identity of the so-called arthritic valvular lesions of the heart, as well as of those not associated with involvement of the joints, has been established by anatomic and clinical studies. The clinical diagnosis of rheumatic endocarditis is possible only on the demonstration of functional valvular derangement, which is possible during the acute period in relatively few cases. The question of the myocardial or endocardial origin of a systolic murmur heard in the apex in the acute stage of rheumatism has not been solved. The author stresses the point that regardless of the mechanism determining this murmur it does not necessarily point to a later development of the valvular lesion. In his experience not less than 50 per cent of such murmurs disappeared in a later course. Diagnosis of the involvement of the bicuspid valve is possible only after the lesion has been established some time after the attack. The recognition of the aortic lesion is not infrequently possible during the acute period on the basis of the diastolic murmur. Definite diagnosis of a mitral lesion is possible not earlier than one year after an attack of rheumatic arthritis. Its determining clinical syndrome is the appearance of a presystolic murmur, which indicates the beginning stenosis of the mitral opening. The progressing sclerosis of the involved valvular apparatus is conditioned not so much by the rheumatic flare-ups as by overwork and functional strain. The incidence of cardiac lesions in connection with recurrent attacks of joint inflammation is about the same as that associated with the first attack; thus rheumatic patients who have suffered one, two and more arthritic attacks are not guaranteed from developing valvular lesions in subsequent attacks. The absolute number of lesions arising in connection with recurrences is relatively small when compared with lesions arising in the prearthritic period or in connection with the first arthritic attack, which is explainable on the basis of diminishing frequency of recurrences with each attack as well as with diminution of the percentage of rheumatics with intact valvular apparatus with each consecutive joint attack. The author stresses the high incidence of valvular lesions in the prearthritic period. In his series of 420 patients entering the hospital in the course of the first involvement of the joints eighty-one, or 19.3 per cent, presented an old valvular lesion. Analysis of the author's material indicates a small percentage of involvement of the mitral valve alone (from 3 to 4 per cent) as well as a relatively rare incidence of isolated lesions of the aortic valves. The incidence of combined valvular lesions amounted to 40 per cent. This rate increases with each new flare-up of the joints. The author stresses the regular development of myocarditis in association with rheumatism as well as the fact that the recurring specific myocarditis frequently is the determining factor in the fate of rheumatic patients by provoking or increasing the cardiac insufficiency.

Nederl. Tijdschr. v. Verlosk. en Gynaec., Haarlem

41: 177-305 (Nos. 3-4) 1938

Influence of Untreated (Latent) Syphilis on Course of Pregnancy in Chinese Women. L. P. Kian.—p. 177.
*Tetany and Pregnancy. J. C. Verhage.—p. 201.
Transplantation of Uterine Mucosa. M. A. van Bouwdijk Bastiaanse. —p. 232.
Congenital Tuberculosis in Man and Animals. L. P. H. J. de Vink.—p. 243.
Position of Fetus in Uterus. D. G. Wesselink.—p. 252.

Tetany and Pregnancy.—According to Verhage, tetany is comparatively rare during pregnancy; at any rate this is the case if the atypical forms, without spontaneous convulsions, are disregarded. He reports two cases of tetany in pregnant women. In the first woman the tetany developed following a strumectomy that was performed eight days after the birth of the woman's third child. After this the woman became entirely well. She had no symptoms of tetany until she became pregnant. These symptoms subsided after the pregnancy was terminated but recurred again three years later when the woman became pregnant once more. The second woman developed tetany during pregnancy although she had not undergone an operation. However, the anamnesis disclosed that she had had symptoms of tetany ten years before, about six months before the menarche. In both cases the authors succeeded in counteracting the symptoms and in increasing the calcium content by means of parathyroid extract. However, normal calcium values were not reached before delivery. When after delivery the same therapy was continued, the calcium content increased further. In both instances the calcium content of the blood was considerably higher in the child than in the mother. However, when the calcium content of the maternal blood was extremely low, that of the blood of the child was likewise below normal. The anemia which accompanied the tetany yielded to treatment with reduced iron and, as the anemia improved, the calcium content of the blood increased. In a general discussion of the problem of tetany in pregnancy the author takes up the symptomatology, pathogenesis, prognosis and therapy. He shows that tetany must be regarded as a serious complication during pregnancy and during the puerperal period, although, thanks to the new forms of treatment (parathyroid extract and dihydrotachysterol), its prognosis has greatly improved in recent years.

Acta Chirurgica Scandinavica, Stockholm

81: 405-583 (Jan. 13) 1939. Partial Index

Hematuria and Renal Calculus as Complication After Appendectomy. H. F. Harbitz.—p. 405.
Ectopia Renis with Hydronephrosis and Carcinomatous Degeneration: Case. O. Odén.—p. 425.
*Clinical and Experimental Studies on Intestinal Paralysis in Extra-Abdominal Traumatic Injury to the Trunk. K. Lehmann.—p. 439.
Amputation Neuroma on Nerves of Fingers. H. Josefsson.—p. 460.
Mesenteric Pyemia. R. Brandberg.—p. 529.
Retroperitoneal Ileocecum, a Peculiar Position of Appendix Observed During Operation. S. Grettve.—p. 541.
Incidence of Thrombo-Embolism After Operations for Hernia. B. Bergqvist.—p. 555.

Intestinal Paralysis in Extra-Abdominal Traumatic Injury.—According to Lehmann, traumatic injury involving the abdomen directly, especially with injury to intra-abdominal organs or hemorrhage, may produce intestinal paralysis. It is more difficult, however, to explain how extra-abdominal traumatic injury which is limited to the back, chest or pelvis can give rise to typical ileus. Some cases of serious paralytic ileus in traumatic injury to the back, including one with fatal outcome, gave rise to the studies here presented. In order to get some idea of the frequency of this traumatic form of ileus, the author investigated a material of 497 cases of extra-abdominal traumatic injuries limited to the region of the back, chest, pelvis and kidney. In this number eleven were found to be associated with more or less pronounced paralytic ileus. One case terminated in death. On the basis of the postmortem observations in this case, of the localization of the trauma in other cases and of experimental studies, the author suggests that the intestinal paralysis is due to an inhibiting action on the intestinal musculature. This effect is exerted by the sympathetic, which in turn is impaired by the formation of a hematoma. In eight of the eleven reported cases the hematoma was localized in the region of the splanchnic nerves, more especially on their intrathoracic course.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, No. 15 — COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION — CHICAGO, ILLINOIS — APRIL 15, 1939

THE EFFECT OF RADIATION THERAPY ON GASTRIC SECRETION

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In this article we wish to describe certain effects of radiation therapy on gastric secretion in man. The studies were made on patients with peptic ulcer and with the therapy of ulcer in mind. This report, however, deals primarily with the effect on gastric secretion, because other methods of ulcer treatment were used in conjunction with x-rays and because a reliable appraisal of the therapeutic procedure is as yet premature.

Bruegel [1] in 1917 reported the production with radiation therapy of a temporary achlorhydria as measured by means of the usual test meals in vogue at that time. Bensaude [2] in 1925 described a decrease in acidity in six of eleven patients. Viviani [3] studied the effect of radiation on histamine secretion in 1931, reporting a definite depression, variable both in extent and in duration. Emery [4] in 1932 noted a temporary achlorhydria in four cases. The amount of therapy employed by these workers and the technic used varied greatly. Experimentally, Miescher [5] in 1923 found a moderate but temporary reduction in secretion in a dog after each of two courses of therapy. Portis and Ahrens [6] in 1924 produced complete achlorhydria in one dog with a Pavlov pouch and almost complete achlorhydria in another. Ivy, McCarthy and Orndoff [7] in 1924, Case and Boldyreff [8] in 1928, Snell and Bollman [9] in 1934 and Visscher [10] in 1937 described a variable and temporary reduction in gastric secretion in the dog following irradiation.

There is an increasing amount of evidence that acid gastric juice plays a most important role in both the pathogenesis and the healing of peptic ulcer or, to use Dragstedt's [11] term, "acid ulcer." No attempt will be made at this time to present the evidence for this point of view, but it is of interest in this connection to note that Miescher [5] twice observed the healing of a cutaneous ulcer adjacent to the stoma of a Pavlov pouch when the secretion from the pouch decreased as the result of irradiation. The great problem of therapy seems to be that of achieving more complete, more constant and more permanent neutralization or inhibition of the acid secretion. The excessive, continued night secretion appears to play an especially important role in the failure of ulcers to heal. Any method of depressing gastric secretion, therefore, seems to us worthy of investigation.

The potential dangers of radiation therapy have been emphasized by several investigators and were well recognized by us. In 1919 Hall and Whipple [12] called attention to the sensitiveness of the mucosa of the small intestine to irradiation and described the epithelial injury and necrosis resulting therefrom. The observation was subsequently confirmed by Denis and Martin,[13] Martin and Rogers,[14] Ivy and his associates [7] and other workers. Wetzel [15] in 1921 described the case of a cachectic woman aged 68 with gastric carcinoma in whom, after two courses of radiation therapy, there was found at autopsy a defect in the anterior wall of the stomach, peritonitis and regional necrosis of the left lobe of the liver, even though there was no change microscopically or grossly in the overlying skin. Case and Warthin [16] found degenerative and necrotic hepatic lesions at autopsy in three cases of carcinoma of the stomach in which intensive radiation therapy had been given. In recent years, however, one of our associates, Dr. Alexander Brunschwig, has had a rather wide experience in the radiation treatment of malignant disease and has found that, on the whole, the abdominal viscera can tolerate fairly large doses quite well. We therefore decided to study the effect of a large but, in our experience, safe dose of radiation on gastric secretion in man.

From the Department of Medicine and the Division of Roentgenology of the University of Chicago.

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PROCEDURE

Approximately 100 cases of peptic ulcer, including gastric, duodenal and jejunal lesions, were treated. In eighty-eight of these the effect on the gastric secretion was studied. The amount of radiation employed was considerably less than that used in the treatment of malignant disease and consisted of ten treatments given over a period of eleven or twelve days, five treatments

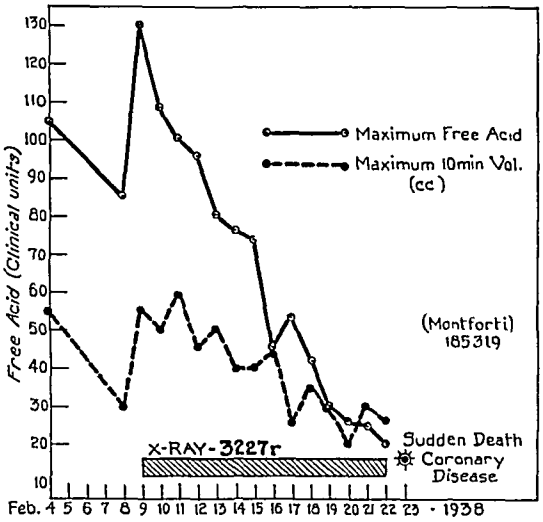


Chart 1.—Effect of radiation therapy on gastric secretion (histamine stimulation).

anteriorly and five posteriorly on alternate days through portals 15 cm. square. The portals were aimed at the upper part of the stomach. Occasionally the relationship of the portals to the stomach was checked fluoroscopically. The dose of radiation through each portal was approximately 1,500 roentgens, measured without back scatter, or a total of 3,000 roentgens. In a few instances a total dosage of 3,600 roentgens was given, and in a few others much smaller doses were used. The roentgen formula was 200 kilovolts, 25 milli-

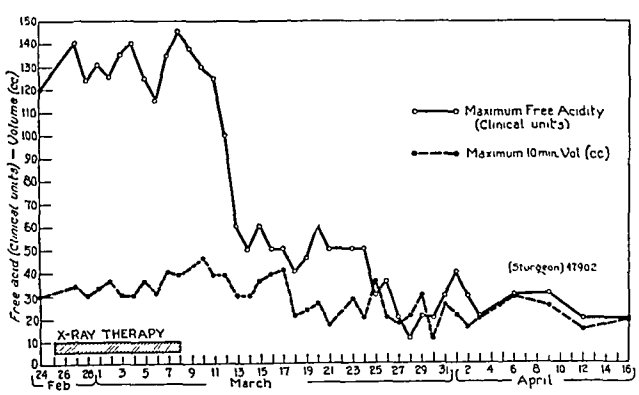


Chart 2.—Effect of radiation therapy (2,960 roentgens) on gastric secretion (histamine), showing marked reduction on daily tests.

amperes, with 1 mm. of copper plus 1 mm. of aluminum filtration, and a focal skin distance of 50 cm., from 32 to 38 roentgens being delivered per minute.

The gastric secretory response was measured by means of the standard histamine test of Bloomfield and Polland,[17] 0.01 mg. of histamine hydrochloride being used per kilogram of body weight. The maximum free acidity and the maximum ten minute volume were considered to indicate the maximum gastric response on a given day and were the points for comparison in constructing the curves. Histamine tests were made at variable intervals during and after therapy.

RESULTS

Some depression of gastric secretion was obtained in every case treated, but the extent and duration of this depression were quite variable. The results are best portrayed by a series of charts of illustrative cases. In one case, as shown in chart 1, the gastric secretory capacity, as judged by daily histamine tests, dropped rapidly during the period of treatment from a maximum free acidity of 130 to a maximum of 20, and the maximum ten minute volume likewise dropped from 60 cc. to 26 cc. In chart 2, on the other hand, no appreciable change occurred during the period of therapy, but a marked drop did occur a few days later—from an average free acidity of 130 to approximately 30 without much change in the volume of secretion. Chart 3 similarly shows very little change during the period of treatment and only a minimum depression later. The free acidity before treatment was 115. It dropped to

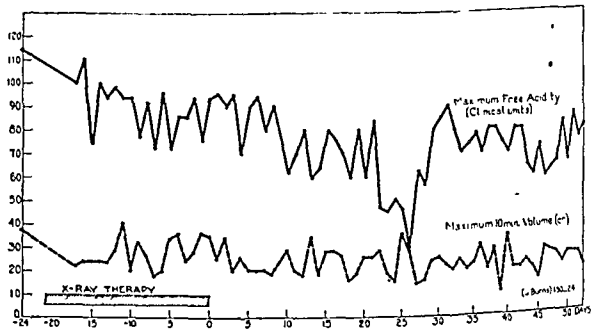


Chart 3.—Effect of radiation therapy (3,600 roentgens) on gastric secretion (histamine). Minimum depression in spite of large dose

30 on one occasion, twenty-six days after treatment, but the daily level ranged around 80, with no decrease in the volume of secretion. Of the eighty-eight cases studied, the depression of secretion observed in this case was less than in any of the others.

The more chronic effects are illustrated in the subsequent charts. In chart 4 it will be seen that a complete achlorhydria to histamine appeared on the twenty-second day and persisted through the ninety-seventh day after therapy. The volume of secretion was greatly reduced. The secretory response gradually returned but at the end of a year had not regained its original level. In chart 5, on the other hand, the period of achlorhydria was of only two weeks' duration and at the end of four months gastric secretion was again normal. An additional course of therapy (1,762 roentgens) had only a temporary effect in terms of free acidity, although the depression of the volume of secretion apparently was more prolonged. Chart 6 likewise shows a temporary initial period of achlorhydria followed by a return to a high secretory response. Charts 7 and 8, by contrast, show the production of a prolonged achlorhydria lasting in each instance six months or more and with profound depression of secretion still present nine months after treatment.

In two instances, marked and prolonged depressions were noted even with small doses of radiation, as may

17. Bloomfield, A. L., and Polland, W. S.: The Diagnostic Value of Studies of Gastric Secretion, J. A. M. A. 92: 1508 (May 4) 1929.

be seen in charts 9 and 10. In fact, as shown in chart 9, the smallest dose used in our series, 1,097 roentgens, was followed by a histamine achlorhydria of three weeks' duration and by a very low secretory response still in effect at the end of five months.

The most frequent complications encountered were those of the well known but poorly understood roentgen sickness. This usually accompanied the first two or three treatments and then disappeared. No correlation was observed between the severity of the sickness and the depression of secretion. Acute anemia was observed in one case. In this instance (chart 10) the treatment was given while the patient was recovering from a massive hemorrhage. Examination of the stools was negative for occult blood, but the blood picture had not returned to normal. After the fifth treatment the erythrocytes suddenly dropped from 3.8 to 2.86 million per cubic millimeter without evidence of hemorrhage. The treatments were therefore discontinued. No other anemia has been observed and no definite or marked anemia has appeared subsequent to therapy. In one case painless diarrhea appeared almost three months after the therapy and proved rather troublesome for two months. It then ceased and the patient has continued in good health. The only serious complication encountered in the series occurred in the patient whose

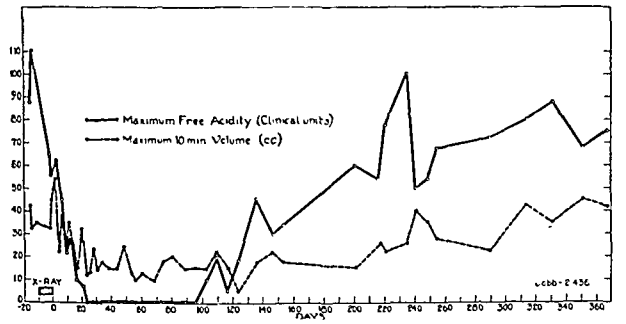


Chart 4.—Effect of radiation therapy (2,930 roentgens) on gastric secretion (histamine). Complete achlorhydria for seventy-two days; marked depression for 216 days; slight depression for 367 days.

course is shown graphically in chart 11. Three weeks after treatment acute pain and muscular rigidity appeared in the upper part of the abdomen suggesting the acute perforation of a viscus. At operation the ulcer appeared to be healed but there was a region of acute necrosis in the left lobe of the liver, presumably radiation necrosis. The overlying skin was normal. The abdominal wall was closed and the patient made an uneventful recovery. It is interesting to note in this case that, although sufficient radiation was delivered to produce local injury to the liver, the effect on gastric secretion was only moderate.

The maximum reduction in the free acidity obtained in the eighty-eight cases is summarized in chart 12, in which the maximum initial response to histamine is compared with the minimum subsequent response. It may be noted that no correlation is seen between the initial level of secretion and the amount of depression. Complete achlorhydria appeared in thirty-five of the eighty-eight cases, the known duration of achlorhydria varying from a few days to six months, as is shown in chart 13.

The susceptibility of the gastric secretory mechanism to irradiation was not related to the initial secretory response of the gastric glands nor was it related to sex or to age, as is shown in chart 14, for the age distribution of those in whom achlorhydria developed was essentially the same as that of the entire group. It likewise did not appear to depend on height or body weight or to be a direct function of depth dose, for of the two patients in whom achlorhydria developed and persisted for approximately six months one was quite thin and the other was very obese.

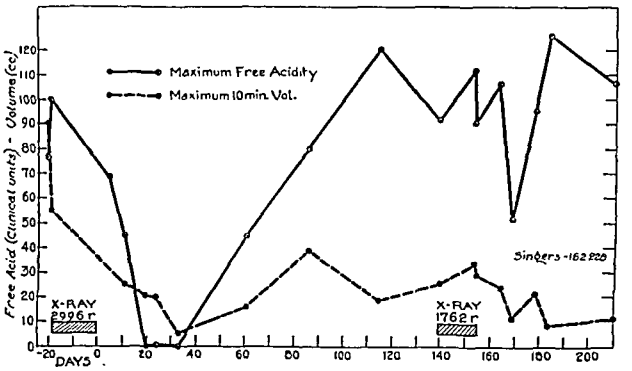


Chart 5.—Effect of radiation therapy on gastric secretion (histamine). Slight effect from second treatment.

MORPHOLOGIC CHANGES IN THE GASTRIC MUCOSA

Dawson[18] in 1925 made a detailed study of the microscopic changes in the gastric mucosa of the dog following irradiation, the observations being summarized as follows:

The reduction and eventual disappearance of acid from the gastric secretion is associated with definite injury to the gastric mucosa. The most striking injury occurs in the superficial portions. Mucous, neck, chief and parietal cells are damaged. The chief cells undergo cytolysis, while the parietal are not so readily broken down. Persisting parietal cells which show no histological evidence of injury are unable to produce acid . . . the necrotic tissue is apparently sloughed, regeneration occurring from below. In regenerated mucosa the thickness is markedly reduced but the structure is histologically normal. The parietal cells show marked variations in staining

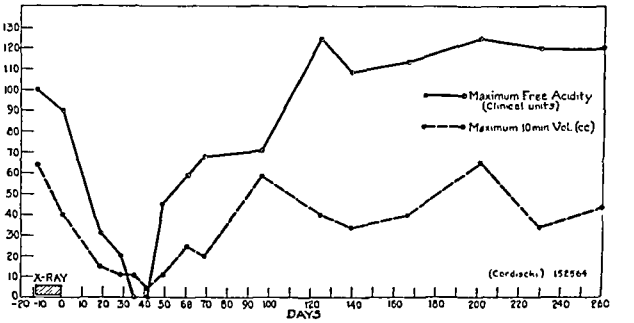


Chart 6.—Effect of radiation therapy (2,930 roentgens) on gastric secretion (histamine). Marked initial temporary depression.

and in nuclear structure. Some cells are pale with a pycnotic nucleus while others stain densely and their nuclei show a definite reticulum.

In two of the cases treated in our series, opportunity arose to study the mucosa in detail. In the first of these, described in connection with chart 1, death occurred of coronary occlusion the day after a course

18. Dawson, A. B.: Histological Changes in the Gastric Mucosa (Pawlow Pouch) of the Dog Following Irradiation, Am. J. Roentgenol. 13: 320 (April) 1925.

of treatment was completed totaling 3,227 roentgens in a period of thirteen days. In this case of penetrating duodenal ulcer with severe pain and with moderate diabetes mellitus, thyrotoxicosis and coronary sclerosis, death was definitely due to the rupture of an atheromatous plaque in the right coronary artery (autopsy). Extensive coronary sclerosis was present with multiple healed infarcts of the myocardium. There were no acute changes in the heart muscle and there was no

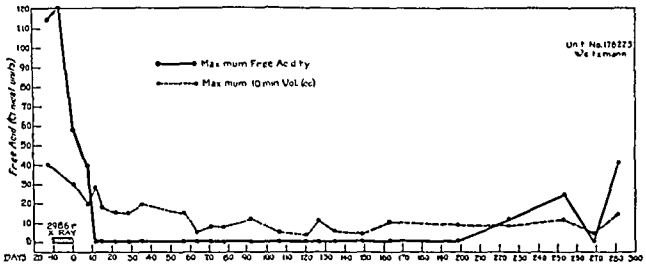


Chart 7.—Effect of radiation therapy on gastric secretion (histamine stimulation). Prolonged achlorhydria.

evidence clinically or pathologically to incriminate the roentgen therapy as a precipitating factor in the death. Dr. H. G. Wells and Dr. Eleanor Humphreys of the department of pathology studied the material and Dr. Humphreys has made the following report:

The gastric mucosa is everywhere profoundly altered, especially in the fundus. While it is impossible to exclude the effects of postmortem changes, mucous cells are absent from the depths of the gastric pits as well as from the surface. The most striking changes are seen at, and just below, the base of the necks of the glands. Here the glandular pattern is distorted, and sloughing, degenerating cells are mingled with living cells. The degenerating cells stain deeply, have distorted, dark nuclei and often appear fused into ribbons or clumps. A few cytoplasmic masses without nuclei are seen. Most of the surviving cells appear abnormal. They have pale cytoplasm and vesicular nuclei, often with large nucleoli. There is an unusual variability in the size of these cells and in the size and number of their nuclei and nucleoli. Some are huge, syncytial masses with from five to ten nuclei. Mitotic figures are few and are seen only in cells of normal size. Deeper in the glands there are minor degenerative changes (nuclear pyknosis, cytoplasmic vacuolization and the like) in both chief and parietal cells. Acute and chronic inflammatory changes are present—inter-

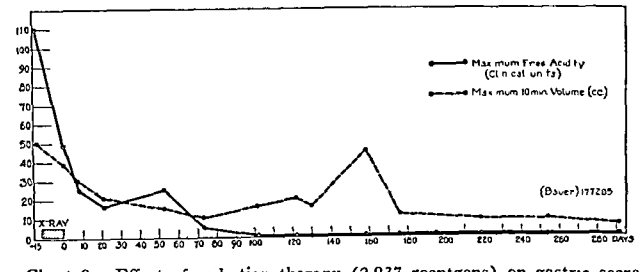


Chart 8.—Effect of radiation therapy (2,937 roentgens) on gastric secretion (histamine). Prolonged achlorhydria.

stitial foci of lymphocytes and plasma cells, in some cases with a few eosinophils and neutrophils—and accumulations of neutrophils within the lumens of some of the glands.

Comment.—It is interesting that this mixture of degenerative hyperplastic reaction is seen in the region which is the normal site of greatest cellular growth—at, and near, the necks of the glands. It is also interesting that the changes at the lower end of the esophagus, bordering the cardia (absent at a higher level), are qualitatively similar with an intermixture of cell degeneration and hyperplasia in the germinal basal layer, and with entirely similar large and multinucleate cells in the layers above. From other studies that I have made I think that the cell hypertrophy, giant-cell formation and the like of the type seen in these two regions represent an abnormal hyperplastic response to injury—a probably unsuccessful response. Transition forms seem to me to indicate that the injured cell increases in size, its nucleus enlarges and divides (amitotically), but no division of cells follows. The end stage is a huge cell—with multiple nuclei of varying sizes—which presumably degenerates.

The second patient received 2,937 roentgens from June 28 to July 9, 1937, and died Jan. 29, 1938, of malignant nephrosclerosis. The maximum free acidity (histamine) before treatment was 102. Complete achlorhydria (histamine) was present Aug. 23 and 30, Sept. 7, Oct. 2 and 30, Nov. 24 and Dec. 28, 1937. The histologic study made by Drs. Wells and Humphreys and reported by Dr. Humphreys follows:

Multiple sections show that there is a widespread, chronic gastritis, with focal thinning of the mucous membrane and both atrophy and focal hyperplasia of gastric glands. There is a general increase of fibrous tissue in the mucosa with a broad zone between the muscularis mucosae and, especially in the most thinned regions, increased amounts between the glands. This is heavily infiltrated with leukocytes—most of them plasma cells—but with a few neutrophils and occasional eosinophils. Even in the best preserved region—in the fundus near the greater curvature—glands are atrophic; many are lined by

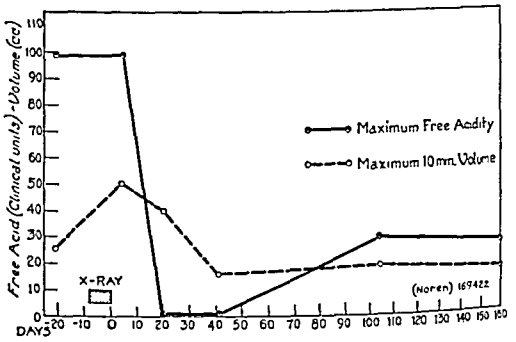


Chart 9.—Effect of radiation therapy (1,097 roentgens) on gastric secretion (histamine). Prolonged depression with rather small dose.

small, indeterminate cells and relatively large normal-appearing oxyphils. Chief cells are few. In several sections from greatly thinned regions—on or near the lesser curvature—the glands are very small, distorted and far apart and, structurally, look like atrophic tubules from the pyloric region. Fewer in number but scattered throughout the atrophic tubules are others which are much larger, lined by closely crowded, tall cells with dark basal nuclei. These look much more like intestinal crypts than gastric glands. The mucosa of the pylorus is not atrophic, its glands are hyperplastic and there is one focus of glands of the intestinal type which structurally resemble the glands of an adenoma. Mitotic figures are relatively numerous in most of the glands of the intestinal type. Changes in the surface epithelium could not be made out because of postmortem changes.

Comment.—I can find no changes here which could with certainty be attributed to irradiation or, conversely, which could not be accounted for by chronic, atrophic gastritis. It is the absence of significant chronic changes in the other case which makes it possible, with reasonable certainty, to attribute the alterations to the recent injury by x-rays.

In both cases the autopsies were unavoidably delayed, and the consequent postmortem changes interfered to a certain extent with the appraisal of the cellular alterations.

A third patient received 2,074 roentgens between Oct. 4 and 12, 1937. November 17 a posterior gastroenterostomy was undone. A piece of mucosa was

removed from the anterior wall of the fundus of the stomach for microscopic examination. Dr. Humphreys was unable to make out anything unusual. "There may be very slight mucosal atrophy (some of the glands seem small). The acid-secreting cells are certainly numerous. There are no significant inflammatory changes." A histamine test the day before the operation disclosed a maximum free acidity of 48 in the presence of a functioning gastro-enterostomy.

The gross appearance of the gastric mucosa in many of the patients in this series was studied gastroscopically from time to time by Dr. Rudolf Schindler, to whom we are greatly indebted. These observations will be reported in greater detail in a later communication. It may be noted at this time that the alterations were not entirely constant or consistent. Superficial gastritis of varying severity was frequently found. Definite necrosis of the mucosa was never observed. Hypertrophic gastritis frequently disappeared. In many instances the mucosa appeared normal even during the period of achlorhydria to histamine. The following gastroscopic protocols of the patient mentioned in connection with chart 8, who continues to have a histamine achlorhydria 322 days after the last radiation treatment, are illustrative. The patient received 2,937 roentgens between June 26 and July 8, 1937.

June 30, 1937: Circumscribed hypertrophic gastritis of the posterior wall of the stomach.

October 15: In the antrum and in the lower portions of the body, small amounts of adherent mucus were observed. The upper portions were entirely normal. Impression: Slight superficial gastritis.

December 3: The entire stomach was seen. The pylorus was round and open and did not contract during the examination. There was one mucosal hemorrhage, pinhead sized, in the greater curvature of the antrum, lying in normal mucous membrane. The mucosa of the lesser curvature and of the anterior wall of the body was covered by patches of gray, dirty, adherent mucus. In the lesser curvature a very small, shallow, elliptic, yellowish gray ulceration, sharply defined, was seen. Impression: (1) very small ulcer in the lesser curvature, (2) one mucosal hemorrhage in normal mucosa, (3) extensive superficial chronic gastritis of the body.

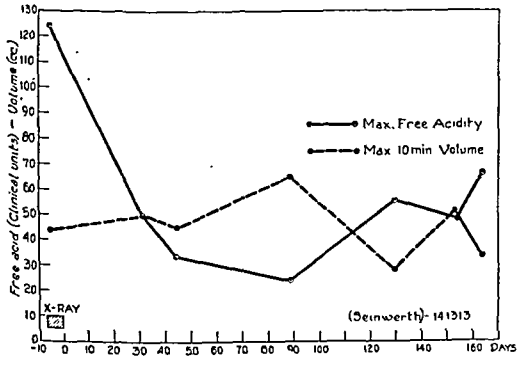


Chart 10.—Effect of radiation therapy (1,472 roentgens) on gastric secretion (histamine). Marked reduction with small dose.

Jan. 5, 1938: No ulcer was seen. The gastric mucosa of the antrum and the body was a little bit mottled and contained some patches of adherent mucus. Impression: (1) no ulcer visible, (2) very slight superficial gastritis.

April 1: The stomach was well seen. The mucosa looked normal today. Impression: Normal mucosa.

May 16: The entire mucosa of the antrum as well as of the body presented layers of adherent mucus which did not contain air bubbles: Impression: Extensive superficial gastritis of the entire stomach.

It may be added incidentally that the patient has been without symptoms and perfectly well clinically since his admission to the hospital June 5, 1937.

The status of the ulcer in each case was studied carefully but the observations are not included in this report because the patients were given the standard Sippy acid neutralization management in addition to the radiation therapy and also because insufficient time has elapsed for valid appraisal of the method. Various workers [19]

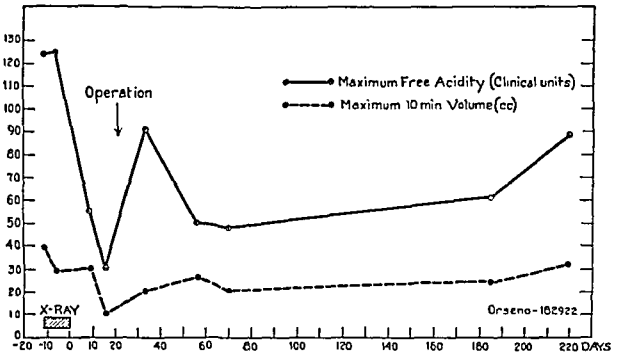


Chart 11.—Effect of radiation therapy (2,965 roentgens) on gastric secretion (histamine stimulation). Moderate reduction only in spite of injury to liver.

have used roentgen rays in the treatment of ulcer since the initial report by Wilms [20] in 1916. The results have been debatable, particularly if one recalls the demonstration by Sandweiss [21] that remissions in the symptomatology of peptic ulcer can be induced psychotherapeutically by the intravenous injection of distilled water. The largest series of cases described is that of Matoni,[22] who treated 140 patients with complete healing of the ulcer in 77.1 per cent, improvement in 13.6 per cent and no improvement in 9.3 per cent. The question arises as to whether the improvement resulted from the therapy or was independent of it. Great care must

19. These include:
Bryan, Lloyd, and Dormody, Hugh: Preliminary Report on the Effects of Roentgen Rays on Gastric Hyperacidity, Am. J. Roentgenol. **8**: 623 (Nov.) 1921.
Lenk, Robert: Röntgenbehandlung bei schlecht funktioneerenden Gastro-Enteroanastomosen (Vorläufige Mitteilung), Wien. klin. Wchnschr. **34**: 451 (Sept. 15) 1921.
Schulze-Berge, A.: Ueber Heilung von Magengeschwüren und verwandten Erkrankungen durch Röntgentiefenbestrahlung, Strahlentherapie **14**: 650, 1923.
Lenk, Robert; Holzknecht, Guido, and Sielmann, H.: Konservative Aetiologische Ulkustherapie, Wien. Arch. f. inn. Med. **6**: 137, 1923.
Lenk, Robert, and Holzknecht, Guido: Roentgen Ray Therapy of Gastric and Duodenal Ulcers and Other Benign Affections of the Gastro-intestinal Tract, Radiology **6**: 37 (Jan.) 1926.
Nauenberg, Walter: Die Röntgentiefentherapie des Ulcus ventriculi et duodeni, Arch. f. Verdauungskr. **38**: 20, 1926.
Schiller, Victor, and Altschul, Walter: "Die Röntgenbehandlung des Ulcuskrankheit, Strahlentherapie **24**: 736, 1927.
Lenk, Robert: Die Erfolge bei der Röntgentherapie des Ulcus ventriculi et duodeni, Wien. klin. Wchnschr. **40**: 1454 (Nov. 17) 1927.
Gatch, W. D.; Smith, L. A., and Moser, R. H.: The Control of Jejunal Ulcer by Deep Roentgen Therapy, with Case Report, presented at the thirty-seventh annual meeting of the Western Surgical Association, Omaha, Dec. 8, 1927.
Woenckhaus, E.: Ueber die Strahlenbehandlung des Ulcus duodeni und der Hyperazidität, Fortsch. a. d. Geb. der Röntgenstrahlen **37**: 880 (June) 1928.
Solomon: Traitement de l'hyperchlorhydrie et de l'ulcère de l'estomac par les rayons de roentgen, Paris méd. **1**: 123 (Feb. 4) 1928.
Grosglik, Adam: Zur Röntgenbehandlung des Magen-Duodenalgeschwürs, Strahlentherapie **40**: 286, 1931.
[illegible] R. K. Kotscher, M. L., and Aviossor, M. L.: Die [illegible] s Magen- und Duodenalgeschwürs, Röntgen- [illegible] 1936.
Holst, Leopold; Schaal, G., and Negovskij, N.: Die Röntgentherapie des Ulcus ventriculi und duodeni, Fortsch. a. d. Geb. d. Röntgenstrahlen **50**: 360 (Oct.) 1934.
20. Wilms: Röntgenbestrahlung bei Pylorospasmus, München. med. Wchnschr. **63**: 1073, 1916.
21. Sandweiss, D. J.: Comparative Results with Dietetic, Parenteral and Surgical Treatment in Peptic Ulcer, J. A. M. A. **108**: 700 (Feb. 27) 1937.
22. Matoni, H. H.: Die Röntgenbestrahlung von Mage- und Duodenalgeschwüren und deren Erfolge, Med. Klin. **19**: 1220 (Sept. 9) 1923.

be exercised in the evaluation of therapeutic "results" in the treatment of peptic ulcer. Our study of this group of patients is being continued in the hope that in time we may be able to evaluate more satisfactorily the role of radiation therapy in the management of

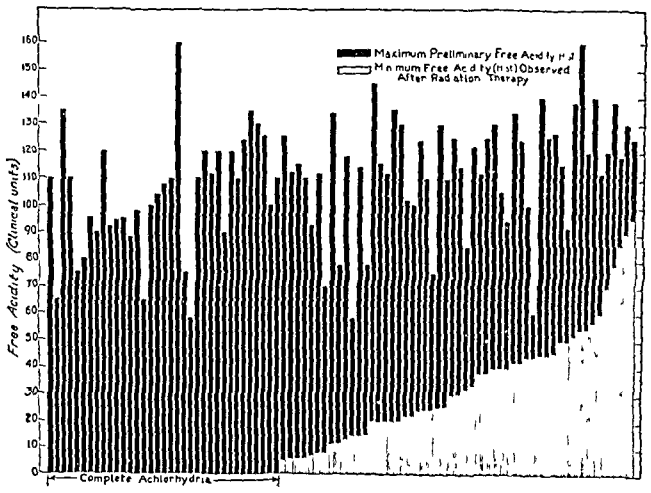


Chart 12.—Maximum reduction in free acidity (histamine) following radiation therapy: Summary of eighty-eight cases.

ulcer. It is perhaps significant that during the phase of achlorhydria relief of symptoms invariably occurred, accompanied in many cases by objective (roentgenologic or gastroscopic) evidence of progressive healing of the ulcer. In no instance did the symptoms recur or the ulcer increase in size during the period of achlorhydria. The final effect of irradiation, not only on the gastric

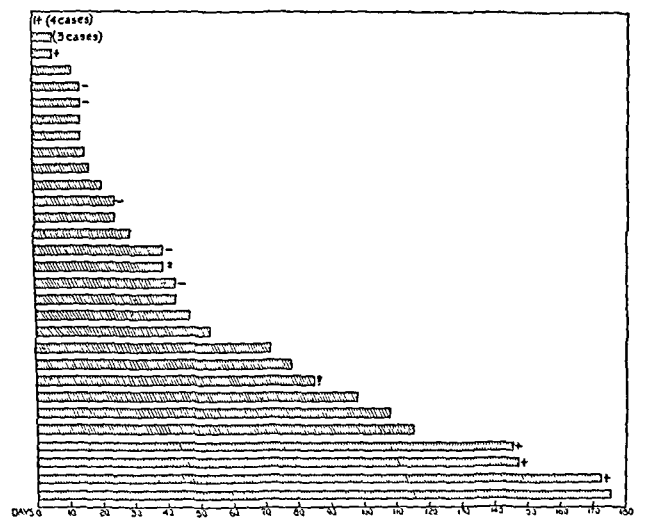


Chart 13.—Known duration of achlorhydria (histamine): thirty five cases.

secretion and the course of the ulcer but also on the normal tissue within the field of radiation, remains still to be determined.

SUMMARY AND CONCLUSIONS

1. Radiation therapy directed toward the upper two thirds of the stomach and applied in the manner that has been described in doses totaling from 1,100 to 3,600 roentgens definitely depresses gastric secretion in man.

2. The extent and duration of this depression are extremely variable and as yet unpredictable.

3. Development of a complete achlorhydria to histamine was demonstrated in thirty-five of the eighty-eight cases studied. The duration of the achlorhydria was shown to vary from a few days to more than nine months.

4. Susceptibility to irradiation does not depend on age, sex, body weight or initial glandular activity.

5. Morphologic evidence of cellular injury in the mucosa following irradiation consists in the demonstration (*a*) gastroscopically, of superficial gastritis variable in severity and inconstantly present, and (*b*) histologically, of alterations in cellular structure similar to those described by Dawson in the dog.

6. The potential dangers of radiation therapy used as described and in total doses of 3,000 roentgens or greater are those arising from injury to other organs, notably the intestine and the liver. Localized liver necrosis occurred in one case; in another a rather troublesome diarrhea appeared, presumably due to intestinal injury, and in a third a sudden but not serious drop in the red cell count was noted. No evidence of renal or pancreatic damage was observed in this series.

ADDENDUM

In the interval between completion of the paper and receipt of the proof, free acidity returned finally in the case illustrated in chart 8, in which the period of

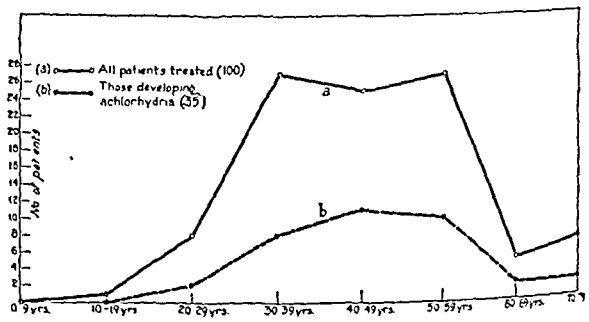


Chart 14.—Age distribution (decades).

achlorhydria was the longest that occurred in our series. The maximum free acidity (histamine) was 8 on the 405th day after therapy, 13, 15, 11 and 8 on the 444th, 472d, 499th and 530th days respectively. Repeated gastroscopic examinations have disclosed no evidence of recurrent ulcer but have revealed a persistent superficial gastritis. The patient, however, has continued in excellent clinical health without distress or symptoms of any kind since the institution of treatment twenty months ago.

Reference should also be made to the fact that, while the results of the combined radiation and Sippy management in the group mentioned have been satisfactory to us on the whole, there have been at least two notable exceptions—one gastric ulcer which did not heal and one recurrent gastric ulcer (cases 6 and 11 reported by Palmer, Schindler and Templeton). Achlorhydria was not produced by the radiation in either case.

An additional series of cases has been studied with a total radiation dosage of only 1,200 roentgens (three treatments of 200 roentgens each anteriorly and posteriorly), but the depression of secretion has been much less marked. A third series is now being undertaken with five treatments anteriorly and five posteriorly of 225 roentgens each, a total dosage of 2,250 roentgens, the formula being the same as in the initial series.

SULFAPYRIDINE IN THE TREATMENT OF PNEUMONIA IN INFANCY AND CHILDHOOD

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CINCINNATI

The results of the use of 2-(para-aminobenzenesulfonamido) pyridine, officially known as sulfapyridine, in animal experiments and the favorable effects obtained with it in the treatment of pneumonic infections in human beings warrant a trial of this drug with infants and children under carefully controlled conditions. Furthermore, whenever possible the results of such a study should be subjected to statistical analysis. For this purpose we have employed the methods of Fisher [1] because they appeared to be the most appropriate for the analysis of a small series.[2] Both the value and the possible harmful effects of sulfapyridine must be determined as soon as possible so that physicians may know how widely it should be used. No attempt will be made to review the literature on this subject, since adequate reviews are available.[3]

In a study of any treatment of pneumonia in children the low case fatality rate makes it essential that conclusions be based on other considerations, such as the course and duration of the disease and the incidence of complications. Furthermore, since the severity, type and complications of pneumonia may vary from one year to another, it is important that the group treated with sulfapyridine and a control group be studied simultaneously.

PLAN OF THE STUDY

When a diagnosis of pneumonia was made or suspected on a patient's admission to the hospital, he was allocated to one of two groups designated respectively "control" and "sulfapyridine" in such a way as to have the two groups, when the study was completed, as comparable as possible as to age, the duration of the pneumonia and its severity at the time of admission. All patients except those suffering from empyema on admission were included in one or the other of the groups.

Experience with other forms of treatment of pneumonia indicates that the results are in general related to the day of the disease on which treatment is instituted. It was decided therefore not to delay medication until bacteriologic or roentgenologic confirmation was obtained. In the sulfapyridine group the administration of the drug was begun as soon as blood, and material from the throat, had been secured for culture. A number of children who received sulfapyridine but who later were found not to be suffering from pneumonia were excluded from the study.

Early in the study patients who were treated with sulfapyridine were administered aliquot doses every three hours, every four hours or, in a few instances, every six hours in such an amount that 1 grain (0.06 Gm.) per pound of body weight was received each twenty-four hours, a large initial dose of one-half the amount calculated for the twenty-four hours being administered on admission in order to obtain quickly a therapeutic level in the blood. In accordance with the procedure which is usually adopted with sulfanilamide medication, sodium bicarbonate was administered in doses equal to those of sulfapyridine. In most instances medication was continued until the patient had been afebrile for about five days. Later in the study 1½ grains (0.1 Gm.) of sulfapyridine was administered per pound of body weight each twenty-four hours in order that the effects of higher levels in the blood might be observed. With two patients who were not responding well it was found that the level of sulfapyridine in the blood was less than 2 mg. per hundred cubic centimeters, and larger doses were then administered until the level rose. The drug was powdered and suspended in a half ounce or so of water for oral administration, and, since sulfapyridine is a relatively insoluble compound, fluids were administered liberally after each dose to promote its absorption.

At the beginning of the study determinations of the levels of free sulfapyridine in the blood were made on oxylated venous blood, the method of Marshall and Litchfield [4] with sulfanilamide being employed as a standard and a correction factor for sulfapyridine being determined. Later a photoelectric colorimeter (Evelyn) was used so that determinations could be made on 0.1 cc. of capillary blood from finger or ear, thus making possible daily determinations in the case of even the smallest patients.[5] So far as practicable, transfusions, oxygen therapy and other nonspecific measures were used for the same indications in the two groups.

Since sputum is not available or is difficult to obtain from children, material for culture was secured by swabs introduced deep into the oropharynx, with the patient's head hyperextended and his tongue sharply depressed, the swab being held in the throat until coughing was elicited. Duplicate specimens were obtained in this manner on admission of the patient to the hospital. One of these was planted in neopeptone-dextrose broth, and the other was streaked onto a blood agar plate. After incubation of from twelve to twenty-four hours the broth cultures were typed for pneumococci by the Neufeld method and the blood agar plates were examined for predominating organisms. When a broth culture yielded no pneumococci, two mice were inoculated intraperitoneally and the peritoneal exudate was subsequently examined. Even when broth cultures yielded pneumococci, mice were employed at times in the attempt to find additional types which might have been missed on direct examination of the broth cultures. Duplicate specimens from the throat were obtained again within twenty-four to forty-eight hours after admission and subjected to the procedures described.

Merck & Co., furnished the sulfapyridine (dagenan) used.

From the Children's Hospital Research Foundation, the Children's Hospital, the Pediatric Service of the Cincinnati General Hospital, and the Department of Pediatrics, University of Cincinnati College of Medicine.

1. (*a*) Fisher, R. A.: Design of Experiments, Edinburgh, Oliver & Boyd, 1937; (*b*) Statistical Methods for Research Workers, ed. 6, Edinburgh, Oliver & Boyd, 1936.

2. Advice regarding the statistical methods employed and the actual calculations from the data were furnished by Estelle W. Brown, statistician of the Children's Hospital Research Foundation.

3. Long, P. H.: Sulfapyridine, J. A. M. A. **112**: 538 (Feb. 11) 1939. Sulfapyridine, the New Sulfanilamide Derivative, editorial, ibid. **112**: 540 (Feb. 11) 1939. Barnett, H. L.; Hartmann, A. F.; Perley, A. M., and Ruhoff, M. B.: Treatment of Pneumococcic Infections in Infants and Children with Sulfapyridine, ibid. **112**: 518 (Feb. 11) 1939.

4. Marshall, E. K., Jr., and Litchfield, J. T., Jr.: Determination of Sulfanilamide, Science **88**: 85 (July 22) 1938.

5. For determinations with the photoelectric colorimeter the method of Marshall and Litchfield was modified by diluting 0.1 cc. of blood to 10 cc. with the saponin and acid solutions. The final concentration of trichloroacetic acid remained at 3 per cent (personal communication from Dr. Marshall).

Blood for culture was obtained from all patients on admission to the hospital, from 3 to 5 cc. being placed in tubes of neopeptone-dextrose broth and from 3 to 5 cc. in flasks of dried citrate so that colony counts on poured agar plates could be made.

When a myringotomy was performed the contaminated myringotomy knife was used for inoculation into a tube of the broth. In addition the material obtained from a swab was inoculated into broth and streaked on blood agar plates. When the patient's ears were draining on admission to the hospital the discharge was cultured in a similar manner. When bilateral suppurative otitis media was present the discharge from each ear was separately cultured.



The chart of a white boy aged 2 years from the sulfapyridine group. The onset was sudden, although there had been an infection of the upper respiratory tract for the previous ten days.

Date	1/24/39	1/25/39	1/26/39	1/27/39	1/28/39	1/29/39	1/30/39
Hospital days	0	1	2	3	4	5	6
Days of pneumonia	3	4	5	6	7	8	9
Treatment	Sulfapyridine 32 grains sponge	Sulfapyridine 48 grains	Sulfapyridine 48 grains	Sulfapyridine 48 grains	Sulfapyridine 48 grains	Sulfapyridine 48 grains	Sulfapyridine 30 grains
Red blood count	4.73	....	....	....	.....	.....	5.01
Hemoglobin	9.7	....	....	....	.....	.....	10.0
Cell hemoglobin	20.5	....	....	....	.....	.....	20.0
White blood count	21.4	....	....	....	.....	.....	5.7
Drug	....	7.7	4.7	4.0	5.0	.....	5.8
Polymorphonuclears	75	..	..	....	.....	.....	39
Lymphocytes	13	..	..	....	.....	.....	46
Mononuclears	12	..	..	....	.....	.....	8
Basophils	0	..	..	....	.....	.....	1
Eosinophils	0	..	..	....	.....	.....	6
Throat culture	Pn. XIV and XXI	Pn. XIV	.....	.....	.....	.....	.....
Blood culture	Negative	.....	.....	.....	.....	.....	.....
Other culture	Left ear: hemophilic staphylococcus	.....	.....	.....	.....	.....	.....
X-ray	Consolidation in right lower lobe	.....	Clearer	.....	Still slight increase in density, R.L.L.	.....	.....
Condition	Severe	Fair to good	Good	Good	Good	Good	Good
Cyanosis	Slight	None	None	None	None	None	None
Dyspnea	Slight	None	None	None	None	None	None
Complications	Left ear draining	Left ear draining	Left ear moist	Left ear draining	Left ear draining	Left ear draining	Left ear draining
Distention	None	None	None	None	None	None	None
Drug reaction	None	None	None	None	None	None	None
Chest findings	P.N. dull, R.L.L.; B.S. tubular near spine, R.L.L.; no bronchophony; a few inspiratory râles fine, R.L.L.; B.S. distant, right postaxillary line and extreme right base posteriorly	P.N. dull, R.L.L.; B.S. distant but not definitely tubular, R.L.L.; V.F. not obtained; no râles; left side of chest clear; patient much improved	P.N. dull, R.L.L.; B.S. high pitched and suppressed R.L.L.; a few fine inspiratory râles, R.L.L.; V.F. not obtained; is apparently recovered, sitting up in bed	P.N. impaired, R.L.L.; B.S. somewhat suppressed, R.L.L.; V.F. not altered but T.F. slightly increased, R.L.L.; no râles	P.N. impaired, R.L.L.; B.S. slightly suppressed, R.L.L.; a few fine inspiratory râles at angle of right scapula, small area; V.F. not altered	P.N. impaired, R.L.L.; B.S. slightly suppressed, R.L.L.; V.F. not altered; no râles	P.N. slightly if any impaired, R.L.L.; B.S. slightly distant, R.L.L.; V.F. not altered; no râles
Wt. 45.0							

Note: P.N. = percussion note; B.S. = breath sounds; T.F. = tactile fremitus; V.F. = vocal fremitus.

Fluids obtained by thoracentesis were cultured and the organisms identified in the usual manner.

Special arrangements were made by which all material for cultural studies and for chemical analyses were sent to the laboratories without delay.

At the Children's Hospital roentgenograms were made at intervals of two or three days from the time of admission until there was complete resolution of the exudate; at the Cincinnati General Hospital they were made less frequently.

The diagnosis of pneumonia was made by physical examination and observation of the clinical course; roentgenograms confirmed the diagnosis in all but three cases, but in these the clinical diagnosis was sufficiently certain to justify their inclusion in the study. It appeared proper to analyze croupous pneumonia and bronchopneumonia together, without reporting them in two groups. The differentiation between these two types of pneumonia even with the assistance of roentgenograms is not easy, and, furthermore, the course

TABLE 1.—*Analysis of Seventy Cases of Pneumonia*

	Control Group (Total, 35)	Sulfapyridine Group (Total, 35)
Age		
0 - 11 months	9	8
12 - 23 months	9	8
2 - 4 years	10	11
5 years and over	7	8
Severity		
Mild	4	1
Moderate	16	15
Severe	13	17
Very severe	2	2
Estimated duration of pneumonia on admission		
1 day	3	1
2 days	14	12
3 days	9	11
4 days	5	7
5 days	4	2
6 days	2	1
7 days and over	0	1
Average	2.9	3.1
Type of pneumonia		
Croupous pneumonia	22	20
Bronchopneumonia	11	13
Unclassified	2	2

of the pneumonic symptoms, an important differential point, was so influenced by sulfapyridine therapy that it was no longer helpful. The diagnoses as made by us are, however, listed in table 1.

To facilitate the keeping of records and the final analysis of the cases, a special graphic chart was evolved on which to record the material contained in the accompanying table and chart, i. e. the temperature, pulse rate, respiratory rate, treatment and results of clinical and laboratory observation. The data were recorded and physical examinations performed, to insure uniformity, by two members of the group making the study, one observing closely the patients in the Children's Hospital and the other those in the Cincinnati General Hospital. Frequent conferences were held to correlate the observations. The bacteriologic examinations and the determinations of the sulfapyridine levels of the blood were all made in the Children's Hospital by the same group of workers. It may be stated therefore that the patients in the two hospitals were observed under sufficiently similar conditions to warrant their combination in the study.

ANALYSIS OF THE MATERIAL

The course of pneumonia was observed and analyzed in seventy of our patients, thirty-five of whom received sulfapyridine. It happened that twenty-two in each group were patients in the Children's Hospital and thirteen in each group patients at the Cincinnati General Hospital.

Table 1 demonstrates the similarity of the control group and the sulfapyridine group with respect to the age of the patient, the severity of the pneumonia, the estimated duration of the pneumonia when the patient was admitted to the hospital, and the type of pneumonia. This satisfactory similarity was achieved in a series of this small size by the deliberate distribution of the patients as previously described.

TABLE 2.—*Types of Pneumococci Isolated from Throats**

Type of Pneumococcus	Control Group	Sulfapyridine Group	Type of Pneumococcus	Control Group	Sulfapyridine Group
I	6	6	XVI	3	1
II	1	0	XVII	1	0
III	1	1	XVIII	3	1
IV	1	2	XIX	3	7
V	2	0	XX	0	2
VI	6	6	XXI	1	1
VII	2	2	XXII	2	1
IX	0	1	XXIII	2	3
X	0	2	XXIV	0	1
XI	0	1	XXIX	0	2
XIII	2	0	XXXI	0	1
XIV	4	5	None	3	6
XV	1	0			

* This includes all pneumococci observed, whether alone or in combination with other types.

Tables 2 and 3 show the types of pneumococci observed in the cultures of material from the pharynx. The number of cases is too few to warrant analysis of the type of pneumococci in relation to severity or type of pneumonia or effect of therapy.

Of the seventy patients only one, who happened to belong in the sulfapyridine group and who later had empyema, had bacteremia, this being due to type VI pneumococci. This patient subsequently recovered.

In a later and more complete report there will be presented the results of the cultures of material from the ears and pleura.

Two patients who died within twenty-four hours of admission to the hospital were not included in this study. One was moribund on admission and received

TABLE 3.—*Types of Pneumococci in Cases in Which More Than One Type Was Identified*

Control Group	Sulfapyridine Group
III, XVIII	I, XXIII
IV, XVI	I, VI
V, VI, XXII	I, XIV, XIX, XX
VI, XIII, XVI, XVIII	I, XI, XVIII
VI, XIX	I, XX, XXXI
XIII, XVI	III, VI
XXI, XXIII	IV, XIX
XXIII, XXV	VII, XIV, XVI
	X, XXIX
	XIV, XXI

his initial dose of sulfapyridine but died within four hours. The seventy patients included in the study all recovered from their pneumonia.

ANALYSIS OF THE RESULTS

1. *The Course of the Pneumonia.*—The course of the pneumonia in sixty-six cases could be observed closely from admission to the hospital until recovery in a manner satisfactory for statistical analysis. Symbols were placed on the charts marking the first day on which there was a significant fall in temperature, the first day of clinical improvement which was subse-

quently maintained, and the first day on which recovery could be considered from a clinical standpoint to have occurred, as demonstrated in the accompanying chart. There were thirty-three patients in the control group and thirty-three in the sulfapyridine group. The remaining four patients of the original seventy were not included in this particular part of the study because three of them acquired parapneumonic empyema, so that the termination of their pneumonia could not be accurately ascertained, and in the fourth an adequate concentration of sulfapyridine could not be maintained in the blood and the course of his disease was not therefore considered to be that of pneumonia affected by sulfapyridine.

In the control group, as demonstrated in table 4, the patients, on an average, manifested their first maintained clinical improvement late in the seventh day from the onset of their pneumonia, their temperature fell significantly early in the ninth day and they could be considered as having recovered early in the twelfth day. In the sulfapyridine group, on an average, the patients manifested their first maintained clinical improvement late in the fourth day from the onset of the pneumonia, their temperature fell significantly late in the fifth day, and they could be considered as having recovered by the middle of the eighth day. Thus, as estimated from the temperature curves and the clinical impressions of the time at which improvement and recovery occurred, patients not receiving sulfapyridine had, on an average, three or four more days of illness than patients treated with sulfapyridine.

When the data are analyzed from the point of view of the duration of the pneumonia after the beginning of hospital treatment, the patients in the control group, on an average, manifested their first maintained clinical improvement early in the fifth day, their temperatures fell significantly early in the sixth day and they could be considered as having recovered late in the ninth day.

TABLE 4.—*Clinical Results in Sixty-Six Cases of Pneumonia* *

	Control Group, 33	Sulfapyridine Group, 33	Difference in Days	p†
Mean day of pneumonia at				
Clinical improvement	7.0	4.0	3.0	<0.01
Significant fall in temperature	8.1	4.7	3.4	<0.01
Clinical recovery	11.2	7.5	3.7	<0.01
Mean day of treatment at				
Clinical improvement	4.4	1.9	2.5	<0.01
Significant fall in temperature	5.3	1.9	3.4	<0.01
Clinical recovery	8.9	4.7	4.2	<0.01

* The data in this table were analyzed by the comparison of two means (Fisher,[10] section 24.1, p. 123).

† p = percentage chance that a deviation as great as or greater than that observed would arise by chance alone, any value of p less than 0.05 being significant.

In the sulfapyridine group, on an average, the patients manifested their first maintained clinical improvement and their first significant fall in temperature late in the second hospital day and could be considered as having recovered late in the fifth day. Thus, while under observation in the hospital, patients not receiving sulfapyridine had, on an average, three and one-half more days of fever and four more days of illness than patients treated with sulfapyridine.

As seen from the values of "p" in the last column of table 4, there is a real significance in the difference between the duration of the disease in the sulfapyridine group and in the control group.

2. *The Incidence of Complications.*—The occurrence of suppurative complications in the two groups of patients is analyzed in table 5. Although complications considered as a whole were less frequent in the sulfapyridine group than in the control group, statistical analysis does not prove that this difference is significant ("p" is between 0.3 and 0.2). However, the difference in the occurrence of suppurative otitis media in the two groups suggests that for this complication the difference might be a real one ("p" is just over 0.05).

3. *Failures and Relapses.*—Two patients receiving sulfapyridine pursued the characteristic course of pneumonia without apparent effect from the drug, although adequate levels were maintained in the blood. The treatment of the third patient must be considered as a failure, since the course of his disease was apparently not shortened. In his case it was impossible to secure continuously a level of the drug in the blood above 2 mg. per hundred cubic centimeters, but it is worth while noting that when the level was high his temperature fell and temporary improvement occurred and that when the level was low his fever recurred and he appeared more acutely ill. This sequence of events was repeated three times before the pneumonia terminated in recovery.

TABLE 5.—*Complications Which Developed in the Hospital in Seventy Cases of Pneumonia*

	Control Group	Sulfapyridine Group
Catarrhal otitis media	3	5
Suppurative otitis media	12	5
Acute mastoiditis	2	0
Empyema	3	1

χ^2 = 4.1159 — n = 3 — p is between 0.3 and 0.2.

Three of the patients in the sulfapyridine group and one in the control group had relapses. The three patients treated with sulfapyridine had manifested satisfactory initial responses to the drug. One had four relapses but responded fairly well to each renewed administration of sulfapyridine.

4. *The Duration of Abnormal Roentgenographic Densities.*—When the time at which roentgenographic evidence of pneumonia disappeared in twelve patients in the sulfapyridine group was compared with the time at which it disappeared in eight patients in the control group, no statistically significant difference was found ("p" = 0.5).

5. *Concentration of Sulfapyridine in the Blood.*—Since we were not employing the micromethod at the beginning of the study, there is available for the thirty-five patients who received sulfapyridine a total of only 121 determinations of the level of the drug in the blood. The average level was 4.7 mg. per hundred cubic centimeters, the highest 23.4 mg. and the lowest a trace. When the levels of the several determinations per patient were averaged the range was from 1.7 to 15.0 mg. per hundred cubic centimeters.

In several cases the levels of sulfapyridine in the blood were obtained at intervals of two hours. Although the levels in these cases were different, in each one a level obtained within three hours after the large initial dose of sulfapyridine was administered was maintained rather constantly for twenty-four hours.

Eliminating two patients—one whose highest blood level was 23.4 mg. and whose average level was 15 mg.

per hundred cubic centimeters and another who showed only a trace of the drug on one determination and whose blood levels could not be averaged—the average level in the blood of twenty-five patients receiving 1 grain of sulfapyridine per pound of body weight each twenty-four hours was 3.8 mg. per hundred cubic centimeters; for eight patients receiving 1½ grains per pound it was 4.6 mg. The average levels for these patients according to age were as follows: under 11 months, 4.1 mg.; from 12 to 23 months, 4.1 mg.; from 2 to 4 years, 3.6 mg., and 5 years and over, 4.4 mg.

Twenty children who made a favorable response to the drug within twenty-four hours of the beginning of its administration had at the time of response a mean level of sulfapyridine in the blood of 4.51 ± 0.31 mg. per hundred cubic centimeters (standard deviation of 1.40 ± 0.22 mg. per hundred cubic centimeters). Children manifesting a delayed response, no response or relapse had approximately the same average levels.

The optimum dosage of sulfapyridine needs further study. The figures reported here suggest that a dosage which secures a level of the drug in the bood of approximately 4 mg. per hundred cubic centimeters brings about a satisfactory response.

6. *Toxic Effects of Sulfapyridine.*—Eleven of the patients in the control group manifested cyanosis when they were admitted to the hospital, this symptom disappearing as improvement or crisis occurred. In the sulfapyridine group sixteen children manifested cyanosis on admission and eight children did not have this symptom at that time but acquired it while receiving the drug. Seventeen of these twenty-four cyanotic patients in the sulfapyridine group continued to manifest cyanosis after their temperature fell to normal; but of these, sixteen lost their cyanosis before the end of a period of five days subsequent to the fall in temperature and while they were still receiving sulfapyridine. Since none of our patients had cyanosis to a degree to cause concern, we did not feel that it was necessary to determine the amount of methemoglobin in the blood. It is worth while noting that the cyanosis seen in our patients receiving sulfapyridine was much less than that present in patients receiving equal amounts of sulfanilamide.

In the sulfapyridine group fifteen patients manifested the symptom vomiting, but so did eleven patients in the control group. There was no definite time relationship of the vomiting to the administration of sulfapyridine. In none of the treated patients was vomiting so severe that it was necessary to discontinue the use of the drug, and in all cases vomiting soon ceased although administration of the drug was being continued.

Irritability was noted in sixteen patients in the sulfapyridine group, as compared with eleven in the control group.

In two of the patients in the sulfapyridine group generalized rubelliform maculopapular cutaneous eruptions developed, these eruptions disappearing when administration of the drug was discontinued.

Complications such as icterus, acute hemolytic anemia, granulocytopenia, acidosis, and fever which could unquestionably be attributed to sulfapyridine were not encountered.

In this study therefore the toxic effects of sulfapyridine were negligible or slight. This is at variance with certain other reports.

SUMMARY AND CONCLUSIONS

1. In a study to determine the value of sulfapyridine in the treatment of pneumonia in infants and children, no distinction was made between croupous pneumonia and bronchopneumonia. We believe that it is necessary to study a control group simultaneously with a "sulfapyridine group" and to compare such factors as age, severity of the pneumonia, and the time at which there is clinical improvement, a significant fall in the temperature and clinical recovery. An analysis of these factors is especially important in a study of pneumonia in early life, since the case fatality rate is so low that it cannot be employed as a criterion for comparison. For example, all the patients in both groups in this study recovered.

2. We observed seventy patients with pneumonia, half of whom received sulfapyridine. Analysis of the characteristics of the disease in the sulfapyridine group and in the control group demonstrated that the two groups were suitable for comparison.

3. The administration of sulfapyridine apparently shortened the course of the pneumonia by approximately three to four days. By statistical analysis it was demonstrated that the fall in temperature and the clinical recovery were significantly earlier in the sulfapyridine group than in the control group.

4. The series of cases was too small to allow evaluation of the effect of sulfapyridine in preventing complications of pneumonia.

5. Two of the patients in the sulfapyridine group manifested a course apparently uninfluenced by the drug; two other patients had a relapse, and one had a series of relapses whenever the use of the drug was discontinued. One patient in the control group had a relapse.

6. The optimum dosage of sulfapyridine needs further study. Our observations indicate that a dosage which secures a level of free sulfapyridine in the blood of approximately 4 mg. per hundred cubic centimeters is therapeutically adequate.

7. There were marked individual variations in the levels of sulfapyridine in the blood obtained with the doses we employed, namely from 1 to 1½ grains (0.06 to 0.1 Gm.) per pound of body weight each twenty-four hours. To be sure that an adequate dosage is being maintained it is necessary to examine the blood frequently; that is, at least daily. The use of a photoelectric colorimeter makes it possible to perform determinations on 0.1 cc. of capillary blood.

8. Vomiting and cyanosis were present in about half the patients receiving sulfapyridine. The cyanosis was not sufficient to cause concern in any instance. A number of patients in the control group also manifested cyanosis and vomiting during the acute stage of their pneumonia. Two patients receiving sulfapyridine had cutaneous eruptions. None of the severer drug reactions were encountered.

9. These preliminary observations on the effect of sulfapyridine on the pneumonias of infancy and childhood and the apparent low toxicity of the drug in the doses we employed are sufficiently encouraging to warrant further study. It is our intention to continue to use the drug and to observe its effect in cases in which there are complications and, if possible, to evaluate its optimum dosage.

SUCCESSFUL TREATMENT OF DIABETIC GIRLS WITH PROTAMINE ZINC INSULIN

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Criticism adverse to the successful use of protamine zinc insulin in the treatment of diabetes led Dr. Joslin to request a brief summary of our experience with 128 diabetic girls at the Clara Barton Homestead Camp during the summer of 1938. The campers included children of all age groups, durations of diabetes and social classes. Their ages ranged from 5 to 20 years and the duration of diabetes from a few months to seventeen years. Ninety-eight were patients previously treated at the George F. Baker Clinic; thirty were referred from other sources. Of the number, eighty-four paid nothing toward the maintenance of the camp, forty contributed something and four paid the full fee or more.

The rules governing the treatment of our own patients prior to camp had been calories per day prescribed for age, 1,000 in infancy and 100 calories added per year of age up to 2,200 for adolescent girls; for each 2 Gm. of carbohydrate, 0.9 Gm. of protein and 1 Gm. of fat had been administered in three meals and three small lunches. Protamine insulin had been used in nearly all cases. Similar diets were continued at camp. One child required no insulin, four who previously had been treated with protamine zinc insulin were treated with regular insulin at parental request, eleven were treated with protamine zinc insulin alone and 112 with regular insulin plus protamine zinc insulin. The results of previous treatment on the physical state of the child will be reported later in detail by White and Wagner but to cursory inspection and examination the average diabetic girl of this group, even after several years' duration of the disease, was taller than the Baldwin and Wood standard by 1.2 inches, weighed 3.6 pounds more than the average for height and age and was free from complications.

The reports unfavorable to protamine zinc insulin which we wish to refute here, claim that the disease is not well controlled, that fluctuations of glycosuria occur, that severe reactions are prevalent and that diets liberal in carbohydrate and calories cannot be employed. For purposes of this study we selected on the basis of an average two week period of observation data of the second, tenth and twelfth camp days and have summarized these in table 1. In the table the children are grouped by age and for each age the number of cases, the average duration of the disease, average weight and height, and average of all blood sugar values for fasting, 11 a. m. and 4 p. m. The diet in carbohydrate, protein and fat, regular insulin and protamine insulin with the corresponding total quantities of sugar excreted are recorded for the second, tenth and twelfth days. From this table we excluded the child who required no insulin and the four treated with regular insulin only.

Control of diabetes was measured by the amount of dextrose in grams excreted in the twenty-four hour specimen of urine and the level of the blood sugar examined fasting, at 11 o'clock in the morning and at 4 in the afternoon. All three analyses were usually made on the same day. Control of diabetes based on the amount of dextrose excreted in twenty-four hours was classified as perfect if the patient was aglycosuric, excellent if the output in grams was 10 per cent or less than the carbohydrate intake, good if from 10 to 20 per cent and poor if more than 20 per cent. Thus in table 2 we record that only 4 and 6 per cent of the cases showed poorly controlled diabetes on the twelfth and tenth days respectively, and by our own definition 96 and 94 per cent, though not perfectly controlled, in the majority of instances were well controlled. It was also gratifying to note among children largely of the underprivileged class and many of whom were in the adolescent age group, that only 29 per cent had poorly controlled diabetes when they arrived at camp. This should be emphasized because some of these girls traveled long distances from other states. In fact, the homes of the patients were as follows: Massachusetts seventy-six, New York fourteen, Rhode Island twelve, Connecticut five, New Jersey five, Maine three, New Hampshire three, Vermont three, New Brunswick two, and Mississippi, Virginia, Georgia, Nebraska, Philippines, one each.

TABLE 1.—*Summary of 123 Diabetic Girl Campers Treated at Camp in 1938*

					Blood Sugar Average 5.0 Total Analyses			Record of Second Day						Record of Tenth Day						Record of Twelfth Day					
								Diet			Insulin			Diet			Insulin			Diet			Insulin		
Age, Yrs	Case No	Duration of Diabetes, Yrs	Weight, Lbs	Height, In	Fasting, per Cent	11 A. M., per Cent	4 P. M., per Cent	Carbohydrate, Gm.	Protein, Gm	Fat, Gm	Regular, Units	Protamine Zinc, Units	Sugar, Gm. per 24 Hour Urine	Carbohydrate, Gm.	Protein, Gm	Fat, Gm.	Regular, Units	Protamine Zinc, Units	Sugar, Gm. per 24 Hour Urine	Carbohydrate, Gm.	Protein, Gm.	Fat, Gm.	Regular, Units	Protamine Zinc, Units	Sugar, Gm. per 24 Hour Urine
5	6	2	47	45	0 14	0 17	0 17	164	69	77	9	+ 20	24	168	67	80	11	+ 23	6	169	67	78	12	+ 24	12
7	3	4	50	47	0 15	0 13	0 17	161	71	79	10	+ 21	27	181	71	75	5	+ 24	10	185	73	78	5	+ 23	27
8	5	3	60	50	0 12	0 15	0.18	172	74	79	7	+ 26	14	177	74	86	6	+ 27	9	188	70	82	5	+ 26	1
9	5	4	63	53	0 16	0 20	0 22	186	84	89	12	+ 25	50	204	87	89	8	+ 40	8	208	91	90	8	+ 38	12
10	6	7	68	53	0 13	0 15	0 23	195	89	96	10	+ 29	93	196	88	97	9	+ 38	20	196	89	97	8	+ 40	5
11	12	6	73	55	0 12	0 14	0 20	202	92	96	11	+ 34	23	203	93	96	11	+ 37	11	205	93	96	12	+ 38	11
12	10	4	87	58	0 13	0 14	0 19	195	90	92	15	+ 35	26	204	93	93	15	+ 37	9	206	94	93	16	+ 37	4
13	17	6	87	60	0 14	0 17	0 19	205	94	97	18	+ 35	30	215	99	97	14	+ 41	11	218	100	98	15	+ 39	19
14	13	4	103	61	0 13	0 10	0 14	196	96	98	19	+ 40	25	200	97	96	14	+ 39	11	201	97	97	18	+ 46	7
15	16	6	111	62	0 15	0.13	0 15	200	93	94	19	+ 43	25	208	95	92	16	+ 45	12	212	97	96	14	+ 50	20
16	4	6	115	63	0 16	0 16	0 16	208	98	89	25	+ 45	36	220	98	84	18	+ 49	18	214	98	84	16	+ 50	15
17	12	7	120	62	0 14	0 12	0 14	208	91	89	24	+ 39	26	210	93	92	18	+ 44	12	211	94	92	17	+ 45	18
18 20	14	8	126	63	0 14	0 15	0 17	210	95	94	24	+ 49	35	213	89	83	15	+ 50	22	210	89	93	17	+ 50	15

From the George F. Baker Clinic of the New England Deaconess Hospital, Elliot P. Joslin, medical director.

The average blood sugar was studied for age groups from 5 to 20 years and it showed an even more favorable state of control because it was nearly normal, whether analyzed fasting, at 11 o'clock or at 4 o'clock.

Fluctuations in the degree of glycosuria did occur. Thus, five of our thirteen groups divided according to present age showed more sugar in the urine on the twelfth than on the tenth day with almost exactly equal average diets and doses of insulin. This amounted to an excess of 3, 6, 7, 17 and 19 Gm. for each age period.

Severe hypoglycemic reactions occurred in 15 per cent, but 85 per cent showed none or very mild ones. Reactions were classified as severe if the patient lost consciousness or had convulsive seizures, or nausea and vomiting. None required treatment with dextrose intravenously; carbohydrate was administered by mouth or epinephrine by subcutaneous injection. The carbohydrate of the diet in the two week interval exceeded 200 Gm. in 80 per cent of the cases. The lowest prescribed diet was 133 Gm. to a 6 year old, the highest 264 to an 11 year old child. Desugarization was accomplished in all without undernutrition, with a slight increase of average carbohydrate and an almost unchanged average dose of insulin. Accuracy of regimen, because of the lack of opportunity for dietary indiscretions, and timed exercise were great aids in therapy. A few children required supplementary doses of regular insulin at noon or in the late afternoon. This was occasionally administered to twenty-two children, or 14 per cent, in the second week.

The purpose of the camp as an adjunct to the treatment of juvenile diabetes is only partly recreational but designed largely to serve the child by permitting a period of adjustment and training in an environment normal for the age, to give relaxation for worried and tired parents and to reduce the cost of medical care. The Clara Barton Homestead Camp ran ten weeks. It could have provided 180 different campers a two weeks period of treatment, but special health, economic and behavior problems reduced the number to 128 and prolonged their stay. The cost was approximately $5,000, of which the Women's Missionary Association of the Universalist Church paid by far the greatest amount,

TABLE 2.—*Control of Diabetes in 123 Girl Campers on the Second, Tenth and Twelfth Camp Days, Measured by the Ratio of Dextrose Output to Carbohydrate Intake*

Day of Observation	Number of Girls	Perfect, per Cent	Excellent, per Cent	Good, per Cent	Poor, per Cent
Second	123	14	32	25	29
Tenth	110	25	49	20	6
Twelfth	107	32	47	17	4

approximately $2,500 in addition to providing the plant, which represents a valuation of perhaps $20,000, the Fund for the Study and Care of Diabetes from the George F. Baker Clinic $1,500, and the children $1,000. This camp unit is one of six where some 250 of our children received treatment with similar results during the summer of 1938. The medical staff includes a head nurse, an assistant nurse, a dietitian, a laboratory technician, play supervisors, a housemother, but no physician on the grounds. Diets are weighed, charts of the hospital type are kept, the amount of sugar excreted in twenty-four hours is determined daily by the Sheftel method, and capillary blood sugars are done by the Folin method.

We believe that protamine zinc insulin was successful in the treatment of these 123 diabetic girls, controlling hyperglycemia and glycosuria even when diets liberal in calories and carbohydrates were prescribed. Reactions of moderate severity occurred in 15 per cent. Minor fluctuations of glycosuria occurred. In most instances protamine zinc insulin was supplemented by a simultaneous and smaller dose of regular insulin always before breakfast. In our opinion, camps provide a routine life normal for children and are desirable and almost necessary for the medical management of young diabetic patients in moderate circumstances.

THE MALE CLIMACTERIC

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It seems reasonable to believe that many if not all men pass through a climacteric period somewhat similar to that of women, usually in a less severe but perhaps more prolonged form. The cessation of menstruation in the female at the so-called change of life has been tangible evidence for ages that the woman is having a decline in her sex function and is approaching the end of her child-bearing period. This cessation of menstruation in the female, usually called the menopause, is not the climacteric but represents only visible evidence that the woman is having endocrine imbalance. The endocrine dysfunction, plus the imbalance of equilibrium between the two divisions of the autonomic nervous system, with evidence at times of disturbance in the psychic centers, is the climacteric. The true climacteric is due primarily to decline of function of the sex glands. Decline of sex function is not limited to women but is also a heritage of all men. With the decline of gonadal function in the male there is a decrease of potency and libido. However, since libido has more of a mental and psychic basis and is to a great extent volitional, this factor may be affected to a less extent. In many instances the loss of potency and the persistence of libido causes many men to consult the physician.

The onset of decline of sex function in men is usually later than in women. The average age of onset for women is about 40.8 years and for men approximately 48 to 52 years. Probably a greater number of men than women pass through the climacteric without evident disturbance. Again, because of the prevalent belief that men do not have a climacteric period (which has been based on cessation of menstruation in women) the condition has probably been overlooked or ignored in men. Cessation of menstruation does not necessarily imply complete loss of libido in all women; neither does decrease of gonadal activity or the climacteric in men eventuate in total loss of potency, and certainly not of libido. That some few men are capable of fertilization (production of viable spermatozoa) to the advanced age of 80 years and beyond is an accepted fact, but this does not militate against the evidence that many men show beginning decline of potency at about 50 years of age, and during this period in life they have the typical climacteric syndrome which is mitigated by treatment with male sex hormones.

To refresh the memory, the symptoms complained of by 197 women (fifty-three castrates, ninety-six meno-

pause and forty-eight involutional melancholia patients) having deficiency or absence of the ovarian follicular hormone are presented in tabular form.

The climacteric symptoms in men may be classified as in women as nervous, circulatory and general in distribution. Among the more prominent symptoms may be mentioned intense subjective nervousness, definite emotional instability characterized by irritability, sudden changes in mood, decreased memory and ability for mental concentration, decreased interest in the usual activities, a desire to be left alone, and depression and crying. They may have hot flushes, which may be accompanied by profuse perspiration or be followed by a chilly sensation. There may be tachycardia and palpitation even while lying in bed and tachycardia, palpitation and dyspnea on moderate effort, vertigo

Order of Frequency of Symptoms Complained of in 197 Cases

Order of Frequency of Symptoms	Per Cent
1. Menstrual disturbances	99.2
2. Nervousness, subjective	97.6
3. Hot flushes	89.0
4. Excitability	85.7
5. Fatigability and lassitude	83.7
6. Depression and crying	77.4
7. Constipation	76.2
8. Irritability	75.1
9. Tachycardia, palpitation and dyspnea	68.8
10. Vertigo	67.4
11. Decreased memory and concentration	66.8
12. Sleep disturbed	66.1
13. Amenorrhea	57.6
14. Headache	56.4
15. Psychosis	52.2
16. Occipitocervical aching	50.6
17. Scotomas	49.4
18. Numbness and tingling	48.3
19. Cold hands and feet	35.3
20. Formication	25.4
21. Vague pains (recorded for involutional melancholia)	77.1

with or without change of position, scotomas, tinnitus, numbness and tingling of the extremities, fatigability and disturbed sleep.

The neurocirculatory symptoms such as hot flushes and suddenly increased perspiration, chilly sensations, vertigo, scotomas, tachycardia and palpitation, and numbness and tingling occur irregularly; they may be of frequent occurrence for a few days and then there may be a short period of relative freedom, only to recur.

The symptoms which are mental and psychic, such as irritability, changes in mood, decreased memory and concentration, loss of interest, restlessness and depression and crying, are usually more constant.

The climacteric disturbance may be so severe in some men that they become despondent and develop a psychosis with thoughts of self destruction. It is very probable that many men have committed suicide and no one could understand the reason for their having done so. That men have involutional melancholia can be confirmed by psychiatrists, for most institutions caring for mental cases have had these patients.

Recently Miller, Hubert and Hamilton [1] reported treatment of six male patients with testosterone propionate; two were adult castrates, two had hypogonadism and two apparently had psychic impotence. The doses varied from 20 mg. daily to three times weekly and were carefully controlled by injections of appropriate series of the oily solvent only. In addition to markedly diminished sexual libido and inadequate penile erections, these patients, prior to treatment with testosterone propionate were disturbed, anxious and broken in spirit. They ranged from moderate to severe states of mental depression. The four definitely organic cases displayed additional symptoms. These patients suffered from vasomotor disturbances (hot flushes), such as women may experience at the menopause, and manifested very definite emotional instability characterized by sudden uncontrollable shifts in mood, by tendencies to break down into tears, by periods of extreme irritability and sometimes by sullen anger. They also exhibited moderate to extreme degrees of both physical and mental fatigability. They complained of difficulties in concentration and of general apathy. Adequate treatment with testosterone propionate was causally associated with remarkable clinical improvement characterized by a marked increase in the erectile capacity and sensitivity of the penis, in the strength of the sex urge and in the capacity to respond with the proper emotions not only to intercourse but also to other acts such as kissing or embracing. During adequate treatment the two castrates appeared restored to normal in these respects. Also normal sex function and motivation were accompanied by great changes in the entire mental attitude of all patients. Their previous despondency gave way to definite elation, which in one psychogenic case (E) tended to wear off. All patients were less broken in spirit and were more spontaneous in their interests and activity. It is particularly interesting to note that additional changes occurred in the organic cases which were not observed in those without demonstrable hormonal abnormalities. The symptoms listed as peculiar to the organic cases were alleviated. They exhibited more rational aggressiveness and less irrational irritability and sullen brooding. Nervousness and emotional instability were replaced by greater stability and control. Abnormal physical and mental fatigability disappeared. Energy and stamina returned.

REPORT OF CASES

The following patient was in the male climacteric when he consulted me:

Case 1.—*History.*—W. K., aged 50, married, whose weight had been stationary at 160 pounds (73 Kg.) for five years, had always had good health and been successful, and his social contact had been normal. He had been subjectively nervous for several years, which condition had become worse during the last three or four years. For seven or eight years he had been aware of being excitable and irritable and lately he had been mentally depressed and had cried many times for no good reason. He had noticed hot flushes occasionally for about eight years; these occurred two or three times a month and might last one hour. During the past three years he had had a numbness and tingling of the extremities even while lying in bed, tachycardia, palpitation and dyspnea more than usual on moderate effort, easy fatigability, frequent scotomas and vertigo occasionally with occipitocervical aching and frontal headaches six or seven times a month, which might last from twenty-four to thirty-six hours. During the past two years he had had decreased memory and ability for mental concentration, and when this was accompanied by the occipitocervical aching his mind seemed hazy and fogged. He was fatigued most of the time and had lost interest in things. He slept poorly and lay awake from one to three hours each night.

He had measles and pertussis in childhood. In 1930 his appendix was removed but he stated that it was normal and that he did not get relief from the operation. A hydrocele was operated on two years before.

He had been married three times and had no children. The family history was negative as regards the patient.

1. Miller, N. E.; Hubert, Gilbert, and Hamilton, J. B.: Mental and Behavior Changes Following Male Hormone Treatment of Adult Castration, Hypogonadism and Psychic Impotence, Proc. Soc. Exper. Biol. & Med. **38**: 538-540 (May) 1938.

Examination.—His temperature was 98 F. at noon. His height was 67 inches (170 cm.) and his weight 153½ pounds (70 Kg.). His upper and lower measurements and one half span were equal at 36 inches. The genitals were normal. There were no abnormal physical signs. The pulse rate was 84 and the blood pressure 140 systolic, 100 diastolic.

The hemoglobin was 106 per cent (Sahli). The red cells numbered 5,380,000 and the white cells 8,700. There were no abnormal blood cells.

Urinalysis revealed neutral reaction, normal albumin and sugar tests and microscopically an occasional leukocyte but no casts.

The basal metabolic rate (two tests) was minus 2.5 per cent and minus 4.5 per cent.

The fluoroscopic examination of the chest, the heart, the stomach and the colon gave negative results.

The diagnosis was male climacteric.

Treatment and Results.—One cc. of testosterone propionate (perandren [2]) 10 mg. in oil was injected intramuscularly three times a week. After four weeks of treatment his subjective symptoms had markedly improved and he remarked that the depressed feeling was gone and he felt cheerful. He was treated for three months and his symptoms disappeared. After he had discontinued treatment for three months the symptoms began to return.

The following patient is a partial castrate with atrophy of the remaining testicle:

CASE 2.—*History.*—W. C. H., aged 42, married, stated that his sexual development was normal except for a left inguinal hernia, which was operated on in 1913. This was almost immediately followed by a hydrocele on that side. The hydrocele was then operated on and the left testicle atrophied. In 1927 a right herniotomy was done and the surgeon removed the left testicle because it was atrophied. The hernia on the right side recurred and he was again operated on for this. The day following the last operation the testicle was greatly swollen and painful, and since then he had lost the function of this gland.

For six weeks following the last operation he had decline of sexual potency to complete loss. He had sexual desire but had no erection for several months until he was treated, as will be described. With this loss of testicular function he became intensely nervous subjectively and had hot flushes almost every hour, which were accompanied by profuse perspiration. He was depressed and cried frequently for no reason. His memory and ability for mental concentration were decreased. He was restless and was ill at ease and worried. During the past three months he had had fatigability and a dull frontal headache each afternoon, which persisted until after he retired.

He was married and had a grown son and daughter.

Examination.—His height was 69 inches (175 cm.) and his weight 183 pounds (83 Kg.). His pulse rate was 76 per minute and the blood pressure was 130/80. The patient appeared to be ten years older than his age. There were no abnormal physical signs except the genital condition. The left testicle was absent; the right testicle was moderately decreased in size and its consistency was very hard. The epididymis was shrunken, hard and sclerosed.

The blood and urine were normal.

The diagnosis was castrate, left side; testicular atrophy, right side.

Treatment and Result.—The patient was given injections of testosterone propionate (perandren) 10 mg. in oil intramuscularly three times a week during the first month, twice a week the second month and once a week the third month. After the third injection he had an erection and coitus with an orgasm. He had not had an erection for nine months previous to this time. On a dosage of three injections a week during the first month he had three to four erections each week.

During the second month on a 10 mg. dose twice a week the erections occurred only once a week. During the third month on a 10 mg. dose once a week he had no more erections.

During the first month of treatment, on a dosage of 10 mg. three times a week, all his subjective symptoms disappeared. It requires three injections weekly to maintain him at normal. After the third month he discontinued treatment and quickly reverted to his original condition, both physically and subjectively.

2. Mr. Robert C. Mautner and the Ciba Company, Summit, N. J., supplied the testosterone propionate used.

COMMENT

Patient 1 had the symptoms complained of by women in the climacteric. These symptoms were relieved by injections of testosterone propionate and his interest in normal activities returned.

Patient 2 is a unilateral castrate with atrophy of the remaining testicle following a herniotomy. He had the same symptoms that are complained of by female castrates, with loss of sex function. His subjective symptoms were relieved, a cheerful attitude returned and the function of the erectile tissue of the genitals was restored as long as he received adequate doses of testosterone propionate.

CONCLUSIONS

1. It is evident that (some) men develop a typical climacteric syndrome at about the age of 50. It is reasonable to believe that with decline of gonadal function this should occur in men.

2. Testosterone propionate relieved the subjective symptoms in two male patients and restored the function of erectile tissue in the male sex organs of a castrate.

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THE INFLUENCE OF MALARIAL INFECTIONS ON THE WASSERMANN AND KAHN REACTIONS

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Many contradictory opinions and results regarding the ability of malaria to provoke nonspecific, positive reactions with both the complement fixation and the flocculation test for syphilis have found their way into the literature. Lloyd and Mitra [1] summarized the reports on the question of falsely positive reactions which had been published up to the time they wrote, and they added data on eighty-five cases of their own. They believe that there is no evidence that malaria causes positive serologic reactions with modern technics. In a subsequent publication the senior author [2] of the former paper expressed the opinion that "the occurrence of positive reactions in malaria is partly a question of technic and partly a question of concomitant syphilis . . . *it is only with very sensitive technics* that a positive Wassermann will be obtained in malaria and even then the reaction is weak . . ." Kolmer [3]

Drs. Mark F. Boyd and T. B. Turner gave helpful suggestions and criticism during the prosecution of this study.

From the Station for Malaria Research, Tallahassee, Fla. (Dr. Kitchen); the laboratory of the Georgia State Department of Health, Atlanta, Ga. (E. L. Webb) and the Florida State Hospital, Chattahoochee, Fla. (Dr. Kupper).

The studies and observations on which this paper is based were conducted with the support and under the auspices of the International Health Division of the Rockefeller Foundation, in cooperation with the Florida State Board of Health and the Florida State Hospital.

1. Lloyd, R. B., and Mitra, G. C.: The Wassermann Reaction in Malaria, Indian J. M. Research **14**: 135 (July) 1926.

2. Lloyd, R. B.: Interpretation of Wassermann Results in India; Twelve Years' Experience in Calcutta, Indian M. Gaz. **67**: 1 (Jan.) 1932.

3. Kolmer, J. A.: Specificity, Sensitiveness and Practical Value of Kolmer-Wassermann Reaction, Am. J. Syph. **13**: 248 (April) 1929.

stated that in his experience malaria, among other infections, had no influence per se on the Wassermann reaction, although the serums in acute febrile diseases might become somewhat more anticomplementary than usual. In a subsequent paper he [4] reported uniformly negative reactions in nonsyphilitic patients with tertian and estivo-autumnal malaria and stated "I am of the firm belief that the serums of nonsyphilitic malarial patients do not yield falsely positive reactions with my new method, even when the blood is drawn just before, during or after a paroxysm of chills and fever." Of interest in this connection are the results of an extensive study [5] conducted under the sponsorship of the United States Public Health Service. Specimens of serums

TABLE 1.—*Nonsyphilitic Patients with Malaria Examined for Reaction to Serologic Test for Syphilis*

Case	Sex	Age	Type of Infection*	Days from Inoculation to First Parasites	Days from Inoculation to First Fever	Duration of Clinical Attack, Days	Termination of Clinical Activity†	First Positive Serologic Test, Days After Inoculation	Days from First to Last Positive Test
Series 1									
268	♂	30	V	11	13	41	S	17	33
270	♂	31	V	12	11	39	S	26	26
273	♀	22	V	11	12	31	S	18	19
274	♀	30	V	11	11	46	S	21	18
276	♂	23	V	11	13	12	S	29	8
278	♀	47	V	16	18	53	S	12	57
280	♀	37	V	12	14	45	S	33	32
284	♂	21	V	16	17	37	S	32	11
286	♂	24	V	16	17	40	Q	21	29
271-1126	♂	21	V and F	11	12	72	Q	17	66
277-1128	♂	60	V and F	11	13	16	Q	35	11
1127	♂	24	F	11	12	17	Q	12	19
1129	♀	41	F	11	12	45	Q	16	27
1130	♂	23	F	10	12	62	Q	5	54
1133	♀	46	F	13	13	45	S	23	8
1137	♀	28	F	11	12	16	S	11	43
285	♂	14	(V) Malaria did not develop					0	0
287	♂	26	(V) Malaria did not develop					0	0
288	♂	20	(V) Malaria did not develop					11	32
1136	♀	30	(F) Malaria did not develop					30	9
Series 2									
304	♂	18	V	10	11	7	Q	24	43
306	♀	28	V	11	14	59	S	20	36
308	♀	28	V	11	10	11	S	20	19
313-1151	♀	23	F V	11 15	16 20	40 34	S S	23 24	54 29
1147	♂	25	F	11	12	8	S	27	22
1148	♂	20	F	11	12	8	S	20	43
1149	♂	23	F	11	10	28	S	20	8
1150	♂	31	F	9	10	34	S	27	11
305	♀	23	(V) Malaria did not develop					0	0
307	♀	32	(V) Malaria did not develop					0	0
285	♂	14	(V) Uninoculated					0	0

* V = vivax, F = falciparum
† S = spontaneous, Q = quinine

from nonsyphilitic persons with malaria or other diseases were distributed to a number of serologists who performed Wassermann or Kahn tests. Kolmer's laboratory reported positive Wassermann reactions for 19.4 per cent of the specimens obtained from patients with malaria. In the four laboratories in which these complement fixation tests were done the percentage of positive results for the malaria patients ranged from 8.6 to 20.6. Hazen and his associates [6] obtained positive results in 8 per cent of tests on 266 patients with malaria, presumably nonsyphilitic, and noted a higher proportion of positive reactions among females, particularly among those under the age of 10 years and from 60 to 69 years of age.

Other authors, namely Taussig and Orgel,[7] who cite the nonspecific results of a number of observers as varying from 4.9 to 80 per cent, Curth,[8] and Wilson and Levin,[9] who report one instance of a positive complement fixation on the cerebrospinal fluid in malaria, have also found various proportions of falsely positive reactions from malarial blood. On the other hand, Needles,[10] Menk,[11] Greer [12] and Heinemann [13] had the opposite experience. Saunders and Turner [14] also concluded that malaria does not cause fixation of complement with the method they used but that it might act as a provocative agent to raise a low titer reagin to the complement fixation threshold.

The present study was undertaken in an attempt to clarify this confusing situation by a new approach utilizing the opportunity presented by a decision to administer malaria therapy to a group of nonsyphilitic patients with functional psychoses. This permitted the systematic observations to be described and provided a restricted, although small, population.

The patients included in the study were divided into two series, in both of which there were persons who had malaria and nonmalarial controls. Table 1 presents pertinent data on all the patients. In all but two instances the histories of the patients, when obtainable, were negative for previous syphilitic infection. Two patients (270 and 1147) stated that they had had genital lesions that had not been treated. Physical examination failed to reveal evidence of syphilis in any of the patients. Moreover, routine serologic examination of the blood and spinal fluid made on all of them on admission to the hospital had given negative results.

FIRST SERIES

The first study group was composed of twenty persons. Nine of these were inoculated with Plasmodium vivax, two with Plasmodium falciparum and the remaining nine with the two species simultaneously. All inoculations were made with infected mosquitoes between May 5 and June 21, 1937. Specimens of serum to serve as controls were withdrawn from each patient prior to the first recognition of parasites in the peripheral blood; from two to four samples of serum were secured from each before inoculation. Subsequent specimens were taken at semiweekly intervals throughout the course of the malarial attack and until the results were negative. The Wassermann tests and some of the Kahn tests were performed by Mr. R. E. Morgan in the laboratory of the Florida State Hospital; the remaining Kahn tests were done in the branch laboratory of the State Board of Health at Tallahassee through the cooperation of Miss Estelle Bryan. The antigen used in this series of Wassermann tests was an

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13. Heinemann, H.: Untersuchungen über den diagnostischen Wert der Methoden von Wassermann, Sachs-Georgi und Meinicke (D. M.) bei Malarialandern (Das verhalten des Blutserume bei Malaria), Münchener med. Wchnschr. **68**: 1551 (Dec. 2) 1921.

14. Saunders, G. M., and Turner, T. B.: Wassermann Reaction in Malaria, South. M. J. **28**: 542 (June) 1935.

alcoholic extract of beef heart fortified with 0.4 per cent cholesterol as furnished by Mulford Colloid Laboratories. The complement was titrated prior to performance of the test. A preliminary incubation period of thirty minutes at 37 C. before the addition of the hemolytic system was followed by one hour's incubation at 37 C. In the case of the Kahn tests the standard antigen was employed. In the tests performed at the hospital the standard Kahn antigen used was that supplied by the Digestive Ferments Company. The central laboratory of the Florida State Board of Health prepares its own antigen, which is standardized in Kahn's laboratory.

SECOND SERIES

The second group comprised ten inoculated persons and one uninoculated control. In the control (case 285 of the first series), clinical malaria had failed to develop following inoculation. Five of these patients were inoculated with P. falciparum and five with P. vivax. Two of the vivax inoculations were unsuccessful. One of the patients inoculated with P. falciparum (313-1151) was reinoculated with P. vivax while convalescing from a falciparum infection. This patient's clinical experience, therefore, has been classified statistically as two separate attacks, one of falciparum and one of vivax, making a total of nine infections in series 2. As in the previous series, these patients were all inoculated with infected mosquitoes, the inoculations taking place between Nov. 19 and Nov. 23, 1937. The serologic tests in this group were carried out in the laboratories of the Georgia State Board of Health, Atlanta, through the collaboration of Dr. T. F. Sellers, director, and differed from the previous run in that the presumptive Kahn test was done in addition to the Wassermann and standard Kahn tests. The Kahn tests in this series were performed as outlined by Dr. Kahn, and the antigens used were standardized in his laboratory. The complement fixation technic employed was a three tube Kolmer modification in which 10 units of the latter's cholesterolized antigen was used. Two full units of guinea pig complement was used, and both amboceptor and complement were titrated prior to use. Primary incubation was carried out for from fourteen to eighteen hours at 6 to 8 C. followed by from ten to fifteen minutes at 37 C. The hemolytic system was then added, and incubation at 37 C. was continued until ten minutes after the negative controls showed complete hemolysis.

Prior to inoculation, from five to eleven specimens of serum were obtained from each patient in this series. Following inoculation, specimens were collected at semiweekly intervals until three completely negative results were reported for each patient.

In addition to these tests a duplicate specimen of serum from each of two patients (304 and 1147) in series 2 was frozen and stored at about —7 C. in a freezing chamber each time blood was taken from these persons for cufrent examination. The specimens were finally sent to the laboratory in the frozen state and tested simultaneously.

RESULTS

It will be noted in table 1 that double infections developed in only two (271-1126 and 277-1128) of the nine doubly inoculated patients in series 1. The nature of these infections has been described in another publication.[15] Three of the nine experienced vivax attacks

15. Boyd, M. F., and Kitchen, S. F.: Vernal Vivax Activity in Persons Simultaneously Inoculated with P. Vivax and P. Falciparum, Am. J. Trop. Med. **18**: 505 (Sept.) 1938.

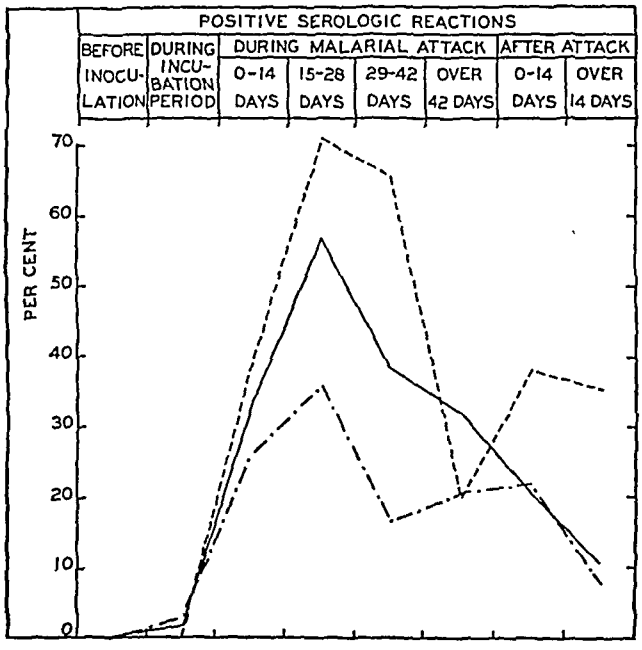
TABLE 2.—*Results of Serologic Tests for Syphilis in Relation to Malarial Activity*

Case	Type of Test*	Stage of Attack When Specimen Secured: Before Inoculation		During Incubation Period		During Malarial Attack		After Malarial Attack: 0-14 Days		After Malarial Attack: Over 14 Days		Results from All Stages		
		No. Pos.	No. Neg.	No. Pos.	No. Neg.	No. Pos.	No. Neg.	No. Pos.	No. Neg.	No. Pos.	No. Neg.	Positive	Negative	Total
Series 1														
268	W	0	1	0	1	8	2	4	0	1	2	13	6	19
	K	0	2	0	4	9	9	1	5	0	5	10	25	35
270	W	0	1	0	1	4	5	1	1	1	1	6	9	15
	K	0	2	0	3	3	11	1	2	1	2	5	20	25
273	W	0	1	0	2	3	3	0	3	..	..	3	9	12
	K	0	2	0	4	6	8	0	5	..	..	6	19	25
274	W	0	1	0	2	5	6	0	3	..	..	5	12	17
	K	0	2	0	4	8	12	0	4	..	..	8	22	30
276	W	0	1	0	1	0	2	3	1	..	..	3	5	8
	K	0	1	0	4	0	6	2	4	..	..	2	15	17
278	W	0	1	0	5	12	3	..	..	..	..	12	9	21
	K	0	2	1	6	12	10	..	..	..	..	13	18	31
280	W	0	1	0	3	5	9	0	1	..	..	5	14	19
	K	0	2	0	4	4	17	0	1	..	..	4	24	28
284	W	0	2	0	4	3	5	..	..	..	..	3	11	14
	K	0	2	0	6	1	13	..	..	..	..	1	21	22
286	W	0	2	0	4	7	2	..	..	..	..	7	8	15
	K	0	2	0	5	3	12	..	..	..	..	3	19	22
271-1126	W	0	1	0	1	16	3	0	1	..	..	16	6	22
	K	0	2	0	4	12	21	0	2	..	..	12	29	41
277-1128	W	0	1	0	1	0	5	1	2	1	3	2	12	14
	K	0	1	0	4	0	10	0	6	0	5	0	26	26
1127	W	0	1	0	1	3	0	1	0	..	..	4	2	6
	K	0	2	0	4	0	8	0	1	..	..	0	15	15
1129	W	0	1	0	1	3	15	0	1	..	..	3	18	21
	K	0	2	0	4	2	24	0	1	..	..	2	31	33
1130	W	0	1	1	0	7	12	1	–	0	4	9	17	26
	K	0	2	0	4	2	26	0	1	0	4	2	37	39
1133	W	0	1	0	4	2	10	0	2	..	..	2	17	19
	K	0	2	0	5	1	18	0	2	..	..	1	27	28
1137	W	0	1	0	2	2	3	3	0	3	2	8	8	16
	K	0	1	0	4	2	5	5	1	1	7	8	18	26
285	W	0	2	0	6	Malaria did not develop						0	8	8
	K	0	2	0	10							0	12	12
287	W	0	2	0	9	Malaria did not develop						0	11	11
	K	0	2	0	14							0	16	16
288	W	0	2	4	8	Malaria did not develop						4	10	14
	K	0	2	0	17							0	19	19
1136	W	0	1	2	12	Malaria did not develop						2	13	15
	K	0	1	1	21							1	22	23
Series 2														
304	W	0	2	0	4	0	6	1	5	0	20	1	37	38
	PK	0	2	0	4	0	6	6	2	10	9	16	23	39
	SK	0	1	0	4	0	5	5	3	3	15	8	28	36
306	W	0	3	0	3	8	7	0	3	0	1	8	17	25
	PK	0	2	0	3	10	6	0	2	0	1	10	14	24
	SK	0	1	0	3	8	8	0	4	0	1	8	17	25
308	W	0	3	0	1	0	4	0	3	0	5	0	16	16
	PK	0	2	0	2	1	3	4	0	1	3	6	10	16
	SK	0	1	0	1	1	3	2	2	0	4	3	11	14
1151	W	0	4	0	3	5	5	0	2	0	3	5	17	22
	PK	0	3	0	3	9	3	4	0	2	1	15	10	25
	SK	0	2	0	3	7	6	1	3	0	3	8	17	25
313	W	..	..	..	..	5	2	0	3	0	1	5	6	11
	PK	..	..	..	..	9	1	0	2	0	1	9	4	13
	SK	..	..	..	..	3	7	0	4	0	1	3	12	15
1147	W	0	4	0	5	0	4	4	3	5	4	9	20	29
	PK	0	4	0	6	0	4	2	5	7	3	9	22	31
	SK	0	3	0	5	0	4	1	6	3	7	4	25	29
1148	W	0	4	0	2	1	7	0	4	0	2	1	19	20
	PK	0	3	0	2	5	6	1	1	0	2	6	14	20
	SK	0	2	0	2	3	8	0	4	0	2	3	18	21
1149	W	0	3	0	3	0	7	0	4	0	1	0	18	18
	PK	0	3	0	3	3	3	0	4	0	1	3	14	17
	SK	0	2	0	3	1	7	0	4	0	1	1	17	18
1150	W	0	4	0	2	4	4	0	4	..	..	4	14	18
	PK	0	3	0	2	4	6	0	4	..	..	4	15	19
	SK	0	2	0	2	3	7	0	4	..	..	3	15	18
305	W	0	3	0	17	Malaria did not develop						0	20	20
	PK	0	2	0	17							0	19	19
	SK	0	1	0	16							0	17	17
307	W	0	3	0	17	Malaria did not develop						0	20	20
	PK	0	2	0	17							0	19	19
	SK	0	1	0	17							0	18	18
285	W	0	1	0	22	Uninoculated						0	23	23
	PK	0	1	0	22							0	23	23
	SK	0	1	0	22							0	23	23

* W = Wassermann, K = Kahn, PK = Presumptive Kahn, SK = Standard Kahn.

alone, which together with the six other successful vivax inoculations in this series provided nine infections with that species. In the remaining four doubly inoculated persons the infections were predominantly falciparum, bringing the total of falciparum attacks up to five. In series 2, patient 313-1151 was inoculated successively with P. falciparum and P. vivax, and there were in addition three single vivax and four falciparum infections.

In four persons (285, 287, 288 and 1136) in the first series clinical malaria failed to develop, and no malarial parasites were observed in their blood at any time. Of these, one (288) showed four positive Wassermann reactions. Another (1136) exhibited two positive Wassermann reactions, one anticomplementary specimen and one positive Kahn reaction. In case 288, an elevation of the temperature to 38.3 C. (100.9 F.) was observed two days after the first positive serologic reaction. No possible explanation other than a hookworm infection was discoverable. The other person (1136) experienced no elevation of temperature, but a diagnosis of tubo-ovarian disease had been made. While these conditions may have had no significance, they were the only infections found in the two persons exhibiting positive serologic reactions.



Positive serologic reactions with each type of test.- Solid line, Wassermann; broken line, presumptive Kahn; dots and dashes, standard Kahn.

In the second series were two persons (305 and 307) in whom malaria did not develop, and one uninoculated person (285 of the first series) was included to serve as a negative control. None of these three patients showed positive reactions or malarial parasites at any time during the period of observation. April 19, 1938, however, patient 285 experienced a rigor. Smears prepared from his peripheral blood on April 22, when he first came to the attention of the malaria therapy service, proved to contain P. vivax. The clinical course was pure tertian. It seems likely that this patient's infection resulted from his inoculation of June 21, 1937. This would mean an incubation period of more than ten lunar months, which is new in our experience. Wassermann, presumptive Kahn and standard Kahn tests were performed on his serum April 22. The complement fixation test was doubtful, but both of the Kahn reactions were strongly positive. These positive serologic reactions obtained from a person in whom malaria developed and who had had so many negative control reactions previously serve to corroborate our other observations.

As may be further noted in table 1, the incubation periods (terminated by the first recognition of parasites in thick blood films) observed for the twenty-five malarial infections ranged from nine to sixteen days. In fifteen cases it was eleven days. In nine each of the vivax and falciparum cases it fell within the first twelve days. The initial fever was observed to occur on the tenth to the twentieth day after inoculation, with the greatest incidence on the twelfth day (eight cases).

In table 2 are presented the number of positive and negative serologic results observed in each case. These results are further classified according to the type of test and in relation to the stages of the malarial infection. The four divisions selected for the latter purpose are, as will be seen in the table, (1) before inoculation, (2) during the incubation period, (3) during the malarial attack (terminated by the final paroxysm or elevation of the temperature to at least 37.8 C. and (4) after the malarial attack. It should be remarked that the results in case 313-1151 in series 2 have been listed separately for each infection, namely those for the falciparum infection under case 1151 and those for the succeeding vivax attack under case 313. The second attack in this instance followed so closely on the first that it was not possible to present complete data for it in the table. The results obtained for the persons who were not inoculated or in whom malaria did not develop are placed for convenience under the column headings "before inoculation" or "during incubation period."

It will be observed that in each of the twenty-five attacks in both series positive serologic reactions were obtained on at least two occasions at some time during the course of the malarial infection.

It will also be noted that no specimen obtained prior to the time of inoculation yielded a positive result; thus the observations made on admission in all the cases were substantiated. During the incubation period, as table 2 further shows, each of two patients (278 and 1130) exhibited one positive reaction. In the former case the Kahn reaction was positive twelve days after inoculation, although it was not until four days later that parasites were first observed. Between the first and subsequent positive reactions, a period of fourteen days, three negative Wassermann and five negative Kahn reactions were obtained. In case 1130 the first positive Wassermann was noted five days after inoculation and five days prior to the first appearance of parasites. This result, however, was followed by five consecutive positive reactions to the complement fixation test. In addition to these two patients, one other (268) showed one doubtful Wassermann reaction ten days after inoculation and one day before the first detection of parasites. The four subsequent Wassermann reactions in this instance were positive.

It is apparent that considerable variation existed among these cases with reference to the incidence of positive reactions as well as in the distribution of the latter in relation to the stage of the malarial infection. In series 1 there were two patients (1127 and 277-1128) who at no time throughout the course of the infection gave a positive Kahn reaction. One of these (1127), however, did give 100 per cent positive Wassermann

reactions during the attack. There was no instance of 100 per cent negative Wassermann reactions in this series. In series 2 there were two persons (308 and 1149) who failed to exhibit a single positive Wassermann reaction but none showing totally negative Kahn reactions.

As may be seen in table 2, there were in all four persons (276, 277-1128, 304 and 1147) who failed to show positive serologic reactions prior to the conclusions of the malarial attack. In two of these (277-1128 and 304) it had been necessary to terminate the attack because of the development of an intercurrent infection. The clinical duration of the plasmodial infection in the other two had been relatively short (twelve days in case 276 and eight days in case 1147).

In nineteen of the twenty-five attacks studied, the first positive reactions were encountered some time during the febrile phase of the disease. The first positive reactions varied, however, in their time of appearance from the day of onset to seventeen days after the initiation of clinical activity. It may be determined from table 1 that in seventeen of the nineteen, or 68 per cent of all twenty-five infections, initial positive reactions were exhibited during the first two weeks of the paroxysmal stage.

Referring again to table 1, it is seen that there was considerable difference in the length of the interval between inoculation and the appearance of the first serologic reaction among the persons in the first series and less variation among those of the second series. Nevertheless the average duration of this "seronegative" period was twenty and 22.8 days, respectively, in the two groups. Seventy-two per cent of the positive reactions in the twenty-five persons experiencing attacks of malaria made their first appearance during the third and fourth weeks after inoculation. It is noticeable that our patients, having reached the "seropositive" state, marked by the appearance of the first positive test, showed a wide divergence in the duration of the interval from the first to the last positive serologic reaction. This period varied from eight to sixty-six days in duration, the average length being twenty-nine days. It was less than three weeks in 40 per cent of the attacks, more than three weeks in 60 per cent, more than four weeks in about half and more than five weeks in 32 per cent.

It may be remarked here that there was a considerable degree of irregularity in the serologic positivity among these infections during the "seropositive" period. In all, only fourteen persons showed consistently positive results from the first to the last positive reaction with one or more tests. Six patients of the first series exhibited consistency with the Wassermann reaction and one of these with the standard Kahn as well. In the second group, eight patients showed regularity in serologic positivity with the complement fixation (three cases), presumptive Kahn (six cases) and standard Kahn tests (four cases). The remaining patients of the two series presented doubtful and negative results interspersed among the positive reactions. In some of the latter cases the appearance of intervening negative or doubtful results appeared to be associated with a brief subsidence of the paroxysms, which frequently occurs in the course of the clinical attack, but in the majority of the serologic irregularities no such relationship was demonstrable. Alterations in the parasite density were considered as a potential factor, but here again the association was not constant. In many instances no possible cause, and certainly no constant factor, was apparent.

With further reference to the period from the first to the last positive serologic reaction there were observed during that time, in all, 320 positive and 307 negative reactions. These positive and negative reactions were considered in relation to the duration of clinical activity in the twenty-five cases, which was divided into that of twenty-eight days or less and that of more than twenty-eight days. In this way a four square table was constructed for each type of test. It was found that the positive results from the Wassermann test alone increased significantly (chi square, 9.9) with prolonged clinical activity.

In some instances the paroxysms terminated before the patient became seronegative, while in other instances the patients became seronegative before the termination of the paroxysms. These contradictory occurrences were divided about equally, although in a few cases the administration of quinine had apparently shortened the clinical course.

Table 3, which was prepared to supplement the data given in table 2, shows the total percentage of positive results obtained with each type of test during the different stages of the infection. The accompanying chart presents the same data in graphic form, combining the results obtained in the two groups. It is apparent that in both series the greatest proportion of positive reactions from each test occurred during the second two weeks of clinical activity. In the first series the second greatest proportion occurred during the first two weeks and in the second series during the third two weeks of

TABLE 3.—*Results of Serologic Tests for Syphilis in Relation to Malarial Activity*

		Before Inoculation			During Incubation Period			During Period of Malarial Attack										After Termination of Clinical Activity					
								0-14 Days			15-28 Days			29-42 Days			Over 42 Days			0-28 Days			Over 28 Days		
Series 1	Type of Test*	No. Tested	No. Pos.	Per Cent Positive	No. Tested	No. Pos.	Per Cent Positive	No. Tested	No. Pos.	Per Cent Positive	No. Tested	No. Pos.	Per Cent Positive	No. Tested	No. Pos.	Per Cent Positive	No. Tested	No. Pos.	Per Cent Positive	No. Tested	No. Pos.	Per Cent Positive	No. Tested	No. Pos.	Per Cent Positive
Patients tested		16	0	0	16	2	12.5	16	13	81.3	14	13	93	12	8	66.6	7	3	43	10	5	50	6	2	33.3
Blood specimens tested	W	18	0	0	33	1	3.3	50	22	44	53	33	62.2	39	16	41	23	9	39	22	9	41	23	4	17.4
	SK	29	0	0	69	1	1.5	96	21	25	77	25	32.5	56	7	12.5	38	9	23.7	33	8	24	27	1	3.7
Series 2																									
Patients tested		9	0	0	9	0	0	9	6	66.6	6	5	83.4	5	4	80	2	1	50	9	5	55.5	6	4	66.6
Blood specimens tested	W	27	0	0	23	0	0	34	6	17.6	24	11	45.8	15	5	33.3	5	0	0	44	5	11.4	57	5	8.8
	PK	22	0	0	25	0	0	34	13	38.2	24	17	71	15	10	66.6	5	1	20	44	17	38.7	57	20	35
	SK	14	0	0	23	0	0	35	10	25.5	24	11	46	15	5	33.3	5	0	0	44	9	20.4	55	6	10.5

* W = Wassermann, PK = Presumptive Kahn, SK = Standard Kahn.

that stage of the infection. The increase in the percentage of positive reactions noted during the first two weeks following the active phase of the disease is no doubt due in part to the patients who did not exhibit positive serologic reactions until after the paroxysms ceased.

The chronologic relation of each positive serum reaction (all tests) to the nearest paroxysm has been determined and presented in table 5. Each serologic result was classified according to (1) the number of days by which it preceded the first paroxysm of the attack, (2) whether it occurred on the same day as a paroxysm or (3) the number of days by which it followed the immediately preceding paroxysm. The results of this classification were then divided into seven day intervals. The percentage of positive reactions for each group is recorded. It will be noted that during the week preceding the clinical onset the positive specimens formed only 5.1 per cent of those collected in that period, while in the case of the specimens obtained on the same day as a paroxysm the incidence of positive reactions rose to 35.5 per cent. During the days subsequent to the last previous paroxysm this proportion continued to rise until a maximum of 52 per cent positive specimens were collected during the third week. After the third week the positive results fell rather rapidly to the low point of 8.3 per cent, observed during the sixth and seventh weeks.

The proportion of positive serologic reactions in these persons was studied for possible correlation with the species of plasmodium involved and the sex and age of the patients; the results are shown in table 4. This revealed that during the attack the cases of vivax infections exhibited the greater percentage of positive reactions with the Wassermann and standard Kahn tests; but with the presumptive Kahn test the greater proportion of positive reactions was found in the falciparum cases. Following the malarial attack, the falciparum infections contributed the larger percentage of positive Wassermann reactions, whereas the positive reactions with the two Kahn tests were found in relatively greater numbers among the attacks due to P. vivax. Of all specimens obtained from persons with vivax infections, 28.1 per cent gave positive reactions, while such reactions were exhibited by 20.4 per cent of all specimens secured from falciparum-infected patients.

It will also be noted in table 4 that the males contributed the greater proportion of positive Wassermann reactions during the attack but that the females exhibited relatively more positive Kahn reactions as well as total positive reactions. Following cessation of the attack, the males showed a greater percentage of positive Wassermann reactions and of total positive reactions. Of all specimens of serum secured from males, 22.7 per cent gave positive reactions whereas of those from females 28.7 gave positive reactions. It is apparent that the lower age group (those up to 35 years) consistently exhibited proportionately more positive results both during and after the attack. The same group showed 26.8 per cent positive reactions among the total tests on their serums, as against 18.3 per cent of positive reactions for the group whose ages exceeded 35.

All positive serologic reactions obtained with each of the three tests were considered in relation to the duration of the clinical attack of malaria. For this purpose the latter were divided into two groups, namely those lasting twenty-eight days or less and those lasting more than twenty-eight days. It was found that only in the case of the Wassermann test did the incidence of positive reactions vary directly to a significant degree (chi square, 13) with the clinical duration of the attack.

The cerebrospinal fluid was examined in four cases during the active phase of the malarial attack. One of these (271-1126, on the fifteenth day of the disease) showed a strongly positive Wassermann reaction, a normal colloidal gold reaction and a leukocyte count of 28 per cubic millimeter. Prior to the induction of malarial therapy the serologic reaction of this patient's cerebrospinal fluid had been completely negative (5 leukocytes per cubic millimeter). Unfortunately a specimen was not obtained following recovery because of the patient's unexpectedly early parole from the institution.

In comparing the results obtained on the frozen duplicate serums simultaneously examined from patients 304 and 1147 with those on the unfrozen specimens currently examined, some differences were noted. In case 304 the unfrozen specimens showed positive presumptive Kahn reactions considerably longer than the frozen ones, but one of the latter provided the only positive Wassermann reaction obtained from that individual. The serum of the other patient (1147) yielded fewer positive presumptive Kahn reactions in the case of the frozen specimens, but otherwise the difference was not marked.

COMMENT

That malarial infections may influence, even profoundly, the reaction of the serologic tests for syphilis can scarcely be doubted. The systematic observations

TABLE 4.—*Percentage of Positive Serologic Reactions by Stage of Infections in Relation to Plasmodial Species, Sex and Age of Patients*

Class	No. of Cases	Before Attack Type of Test* W	PK	SK	All	During Attack Type of Test W	PK	SK	All	After Attack Type of Test W	PK	SK	All	Totals: All Tests No. Tested	No. Positive	Per Cent Positive
Vivax	13	0	0	1.5	0.7	51.7	55.6	52.4	41.7	10.2	37.5	11	15.5	775	187	24.1
Falciparum	10	2.1	0	0	0.7	28.7	48.8	15.7	23.5	17	23.2	6.1	15.3	704	114	16.2
Male	14	1.7	0	0	0.6	45.4	35	20.1	30.2	29.1	45.6	17	28	752	171	22.7
Female	11	0	0	2.3	0.9	12.8	69	31.4	40.2	15.4	52.4	17.3	28.2	557	100	18.7
Up to 35 years	20	1.2	0	0	0.4	47.6	51.9	22.9	38.3	21.5	47.4	19	27.7	1,069	286	26.8
Over 35 years	5	0	0	5.3	1.9	34.4	0	19.1	25.3	18.2	0	0	7.7	240	44	18.3

* W = Wassermann, PK = Presumptive Kahn, SK = Standard Kahn

TABLE 5.—*Positive and Negative Serologic Results in Relation to Individual Paroxysms*

Type of Result	Preceding Weeks	Simultaneous with Paroxysms	Interval in Weeks Following Last Previous Paroxysm 1	2	3	4	5	6	7
Positive	2	162	65	35	27	8	3	1	1
Negative	37	295	98	46	25	24	16	11	11
Total	39	457	163	81	52	32	19	12	12
Per cent positive	5.1	35.5	39.8	43.2	51.9	25	15.8	8.3	8.3

on the Kahn and Wassermann tests as carried out on our series of nonsyphilitic patients showed that all in whom a clinical attack of malaria developed exhibited positive results at some time during the course of the infection. That such results ought to be attributed to coincident syphilis, as suggested by some authors, does not appear to be reasonable. The negative results obtained in our cases both prior and subsequent to the positive results, together with the absence of any clinical evidence of syphilis, would support our contention, and the range in sensitivity of the serologic reactions which obtained in this study appears to add weight to our positive results. It is realized that a positive reaction with the presumptive Kahn test does not necessarily mean the presence of a syphilitic infection; it is more sensitive than the standard test and serves as a check on the latter as well as to establish the absence of syphilis in the case of a negative result. Nevertheless it was felt that it would be of interest to include in this paper the results obtained with the presumptive test. One might have expected the Wassermann test as performed on specimens in series 2 to be more sensitive than as carried out in series 1. The results, however, did not indicate this.

In view of the results observed in the present study it seems quite probable that one factor contributing toward the conflicting results recorded in the literature may well be the stage of the infections at which the samples of serums were collected by various workers. Noteworthy in this connection is the irregularity in the time of appearance of the first positive serologic reaction observed in our cases and the interspersion of negative reactions among the positive.

It is possible that the maximum frequency of positive results noted during the third week following paroxysms (table 5) may have some significance with regard to the mechanism of falsely positive reactions. Similarly, the partial duplication of a paretic serologic reaction in a spinal fluid may have some significance in view of the therapeutic value of malaria in dementia paralytica. Our data do not offer any explanation of these obscure observations.

Perhaps the most important question brought out by these results is that of how much reliance to place on positive serologic reactions obtained in an endemically malarious area. In our opinion it is of greatest importance that malaria be ruled out before such positive results are accepted. Emphasis is lent to this by reason of the positive reactions observed for variable periods in a number of cases after the cessation of clinical activity. In all but one instance in which this occurred parasites were still detectable in the blood smears. In this one case an intercurrent nephritis had developed, and it cannot be determined from our data just how much influence this condition may have exerted even for some time after the termination of the malarial infection by means of quinine. It is not unlikely that a certain number of patients in malarious areas have been treated for syphilis on the basis of positive serologic reactions alone, when the latter were in fact due to malarial infection.

SUMMARY

A systematic study of the Wassermann and Kahn reactions was made before, during and after twenty-five naturally induced attacks of malaria in nonsyphilitic patients. Positive reactions were obtained in every case in which malaria developed clinically. Two cases showed no positive results from the complement fixation tests and two others showed no positive Kahn reactions.

There was an instance of malaria provoking positive serologic reactions and a considerably increased cell count in the cerebrospinal fluid.

Seventy-two per cent of the positive reactions made their first appearance during the third and fourth weeks following inoculation. The first positive reactions were observed both before and after the period of clinical activity in a few instances, but in 68 per cent of the attacks they occurred within the first two weeks of the febrile period. The duration of the "seropositive" period exceeded three weeks in 60 per cent of the cases and extended beyond four weeks in 48 per cent. During this time 320 positive and 307 negative serologic reactions were obtained.

When the results from all tests were totaled, there was observed a tendency for vivax infections to induce a greater proportion of positive serologic results than falciparum infections. Likewise the relative number of positive reactions was higher among females with malaria than among males, and among persons up to 35 years of age than among those over that age.

The percentage of positive reactions was highest during the period from fifteen to twenty-one days after the last previous paroxysm.

COMPLEMENT AND ASCORBIC ACID IN HUMAN SCURVY

AN EXPERIMENTAL STUDY

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Ecker, Pillemer, Wertheimer and Gradis [1] showed that a correlation exists between the concentration of ascorbic acid in the blood serum of guinea pigs and the complementary activity of the serum. These authors further demonstrated that, in vivo, the relationship holds true until a definite level of ascorbic acid is reached at about 1 mg. per hundred cubic centimeters of serum. It was also found that serums treated in vitro with optimal quantities of ascorbic acid improved in their complementary powers and showed greater stability.

From these observations the suggestion was finally made that the complementing activity of the serums of scorbutic guinea pigs and of men may be used as a biologic index of vitamin C deficiency.

Since these studies have appeared, Chu and Chow [2] independently also noted that a qualitative relationship exists between vitamin C intake and complement titer in human plasma. The authors stated that an adequate explanation of the phenomenon is not clear at present.

Chu and Chow studied two groups of subjects. The first group consisted of two children and one woman.

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1. Ecker, E. E.; Pillemer, L.; Wertheimer, D., and Gradis, H.: J. Immunol. 34: 19 (Jan.) 1938.

2. Chu, Fu-T'ang, and Chow, B. F.: Proc. Soc. Exper. Biol. & Med. 38: 679, 1938.

In this group simultaneous determinations of reduced vitamin C and complement were made over extended periods in which the vitamin C intake was raised or lowered by the addition of ascorbic acid to, or its withdrawal from, a constant basal diet. They noticed in all three cases that the use of ascorbic acid or of vegetables led to an increase of complementary function, while a withdrawal induced a decrease. In their second series, thirty-eight patients of different ages were studied. The patients suffered from a variety of diseases. The vitamin values were divided into three groups: deficiency, presaturation and saturation. A low vitamin C content was in the majority of cases accompanied by a low complement titer, while a high vitamin C value was associated with a high complement titer.

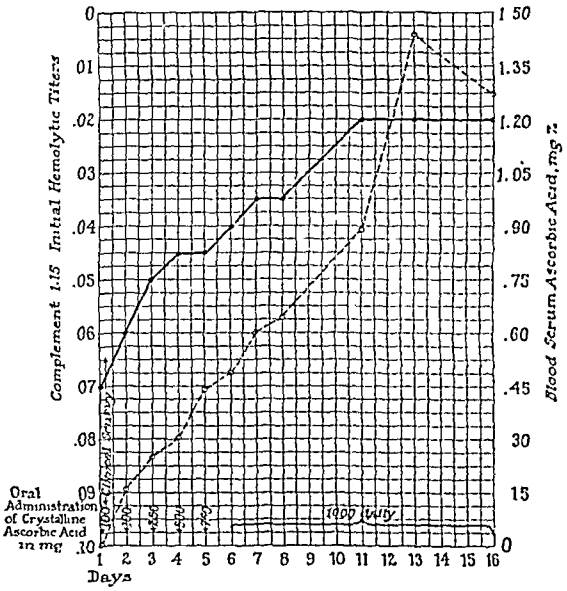


Chart 1.—*Demonstrating the correlation existing between ascorbic acid content of the serum of patient 1 and initial complement titers. In the charts the solid line indicates complement 1:15 serum dilution; broken line, blood ascorbic acid, mg. per hundred cubic centimeters.*

These observations substantiate the experimental studies of Ecker, Pillemer, Wertheimer and Gradis and establish a new relationship between these factors, which is obviously of clinical as well as of theoretical importance.

The present report is an experimental study of two cases of typical human scurvy. These cases corroborate the results obtained by us in cases of scurvy in guinea pigs and introduce a new biologic method for the determination of the point of saturation of vitamin C.

REPORT OF CASES AND ACCOMPANYING EXPERIMENTAL WORK

CASE 1.—*History.*—I. B., a white woman aged 36, admitted to Lakeside Hospital June 25, 1938, complained of a brownish vaginal discharge of about two weeks' duration. The patient had had one miscarriage and no further pregnancies. She had the usual childhood diseases without sequelae. Tonsillectomy was performed eleven years before. She stated that she had had a severe gingivitis eight or nine years before the present illness which responded to local therapy.

The patient was of the thin and nervous type and was subnormal mentally. For about twelve years she had suffered from pains in her back, hands and shoulders. She had frequent attacks of dysmenorrhea during that time and chronic constipation. Five years before admission she had diarrhea often initiated by emotional factors. Two years later constipation became so marked that she had no bowel movement without an enema. A year later a barium sulfate enema showed no abnormality of the colon, but even then the gums were dirty and of foul odor. Amenorrhea began a year later and continued until two months before admission. For the last seven months she had placed herself on a diet totally deficient in vegetables and fresh fruits. She noted that her gums were swollen and that they bled easily. One month before admission she noted a brownish vaginal discharge and red spots on her legs. About one week prior to her admission she had muscular soreness in the left thigh.

Examination.—The temperature was 37.4 C. (99.3 F.), pulse rate 100, respiratory rate 20 and blood pressure 102 systolic, 80 diastolic. The patient was thin, pale, underdeveloped and poorly nourished. There were no abnormalities of the eyes, ears, nose or throat. Her breath was foul and her gums were swollen, hanging down over the molars like thick curtains. They were a deep purplish red and bled readily on pressure. The chest was clear and the heart was normal as to size and rhythm. No murmurs were heard. There was some tenderness over the fourth, fifth and sixth ribs on the left. The abdomen was normal, as were the rectal and pelvic areas, except for a small amount of blood-stained discharge from the vagina. Over the anterior portion of the legs there were many small pinhead sized red lesions (macular), each of which appeared to be grouped about the hair follicles. The reflexes were normal. There was no evidence of subperiosteal hemorrhages.

Laboratory Results: Red blood cells numbered 3.85 million, hemoglobin content 74 per cent; white blood cells 8,000; the differential count was normal. Kline's exclusion test gave negative results. Blood urea nitrogen was 8.3 mg. per hundred cubic centimeters; nonprotein nitrogen 25.7 mg., creatinine 1

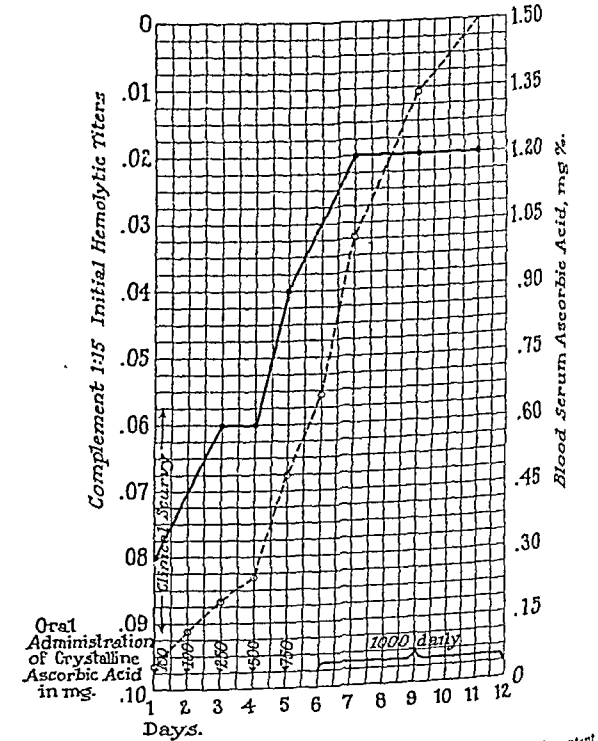


Chart 2.—*Demonstrating the correlation between ascorbic acid content of the serum of patient 2 and the initial complement titers.*

mg. Examination of the stool was negative. Bleeding time was 2.5 minutes, clotting time 2.5 minutes. Clot retraction was normal. The Rumpel-Leede test produced many petechiae after the cuff was applied for five minutes at a pressure of 90 mg. of mercury. Serum ascorbic acid was absent. There was no ascorbic acid in the urine. The electrocardiogram was normal and the circulation time was normal.

Course.—The patient was placed on a vitamin C-deficient diet and on her sixth day in the hospital she received 100 mg.

of crystalline ascorbic acid by mouth. The same dose was given on the second day. On the following four days she received respectively 250, 500, 750 and 1,000 mg. for a period of one week. Three days after the therapy was initiated the Rumpel-Leede test became negative. On the fifth day of the regimen her gums began to shrink and there was no bleeding on pressure. The vaginal discharge disappeared and the patient continued to improve.

During her hospital course the blood was examined daily. The ascorbic acid content of her serum was

TABLE 1.—*The Daily Reactivations of the Serum in Case 1* **

Days	Complement 1:15 in Cc.	1 Cc. of 1:10 Complement plus Ascorbic Acid, Cc.	1 Cc. of 1:10 Complement plus Glutathione SH, Cc.	1 Cc. of 1:10 Complement plus Potassium Cyanide, Cc.	1 Cc. of 1:10 Complement plus Hydrogen Sulfide, Cc.
1	0 07	0 03	0 01	0 03	0 035
2	0 06	0 03	0 04	0 04	0 04
3	0 05	0 03	0 01	0 04	0 04
4	0 045	0 03	0 01	0 03	0 01
5	0 045	0 03	0.03	0 04	0 04
6	0.04	0.02	0 03	0 03	0 03
7	0 035	0 03	0.03	0 03	0 03
8	0 035	0 03	0 04	0 01	0 03
9	0 02	0 025	0 025	0 025	0 025
10	0 02	0.02	0 02	0 03	0 04
11	0 02	0 025	0 03	0.03	0.03

* Solutions employed: 0 5 cc of 0 002 normal solution of potassium cyanide in 7.2 buffer solution M/15; 0 5 cc of hydrogen sulfide water (saturated) 20 per cent in buffer solution M/15; 0.15 mg. ascorbic acid in 0.5 cc. of 7.2 phosphate buffer M/15, and the same of glutathione SH.

immediately titrated with dichlor-phenolindophenol. At the same time the initial complement titer of the serum was estimated. On admission her initial complement titer was 0.07 cc. of a 1:15 dilution, a rather low figure. The strength of human complement is about one half of that of the guinea pig. The patient's weakened complement was also daily reactivated with ascorbic acid, glutathione SH, hydrogen sulfide and potassium cyanide. The method described by Ecker, Pillemer, Martiensen and Wertheimer [3] was followed. It has been shown by these workers that the weakened complement obtained from scorbutic guinea pigs can be reactivated by various reductants, such as hydrogen sulfide, ascorbic acid and sodium hydrosulfite. Normal complement was also reversibly inactivated by a variety of oxidizing agents, provided the inactivation was strictly controlled. The oxidizing agents employed were iodine, hydrogen peroxide, quinone and oxygen. The same also held true for cuprous oxide and phenylmercuric chloride. Complement inactivated by these agents was regenerated by the various reductants mentioned and by heat-inactivated complement and by complement lacking the third or the fourth component.

Chart 1 shows the results obtained following the gradual administration of crystalline ascorbic acid.

The curves clearly demonstrate the parallel rise of ascorbic acid and of complement. This rise continued until a concentration of about 1 mg. of ascorbic acid per hundred cubic centimeters of serum was reached. At this point the complement titer reached its maximum, while the concentration of ascorbic acid increased to a maximum of 1.44 mg. per hundred cubic centimeters. This finding corresponds to the phenomenon observed by Ecker and his associates in the case of the guinea pig.

Table 1 shows the figures obtained after the daily reactivations.

3. Ecker, E. E.; Pillemer, L.; Martiensen, E. W., and Wertheimer, D.: J. Biol. Chem. **123**: 351 (March) 1938.

This table shows conclusively that the weakened complement can be reactivated and that ascorbic acid showed the best reactivating qualities. However, glutathione SH, potassium cyanide and hydrogen sulfide all brought about reactivations. As the titer of the complement improved under the treatment with ascorbic acid, the reactivations became less marked until no further reactivation was possible.

These observations clearly indicate that the complement of the guinea pig and of man is controlled by oxidation and reduction and that the complement in cases of vitamin C deficiency occurs in a greatly oxidized state.

CASE 2.—*History.*—J. G., a man aged 59, a Hungarian, was well until July 5, 1938, one week before admission to the City Hospital, at which time he noticed swelling and bluish discoloration of his feet, ankles and legs. His diet had consisted chiefly of black coffee and cookies and an occasional "hamburger" during the past four months. The patient suffered from muscular tenderness and found walking painful.

Examination.—Physical examination showed emaciation, dryness of the skin and ill defined, confluent patches of subcutaneous hemorrhages over the dorsum of both feet, legs and lower thighs (posteriorly). Numerous perifollicular hemorrhages were observed on the lower part of the thighs and legs. There was definite tenderness of the muscles and tendons. About the nine carious teeth the gums appeared to be spongy and bled readily. No pus appeared about the margins of the gums. The patient did not complain of tenderness of the bones and joints. The Rumpel-Leede test gave a negative reaction, as well as the cupping test.

Laboratory Results: Bleeding time was 1.5 minutes and clotting time 6 minutes. Clot retraction occurred in thirteen hours. There was increased fragility of the erythrocytes. Red blood cells numbered 3.2 millions and the white blood cell count was normal. Examination of the urine was negative for blood but the stools gave a positive reaction.

Course.—The patient was placed on a vitamin C deficient diet and after two control bleedings were made he was given crystalline vitamin C by mouth. The doses given were the same as in the first case. The patient was bled daily and his serum ascorbic acid content and complement titer were determined. On July 19 his general condition was definitely

TABLE 2.—*The Daily Reactivations of the Serums in Case 2* **

Days	Complement 1:15 in Cc	1 Cc. Complement plus Ascorbic Acid, Cc.	1 Cc. Complement plus Glutathione SH, Cc.	1 Cc. Complement plus Potassium Cyanide, Cc.	1 Cc. Complement plus Hydrogen Sulfide, Cc.
1	0 08	0 06	0.05	0.06	0 06
2	0 07	0.05	0.05	0 06	0 06
3	0 06	0 04	0 04	0.05	0 05
4	0.06	0 04	0 04	0 04	0 04
5	0 04	0.03	0 03	0 03	0 01
6	0 03	0 02	0 03	0.03	0 03
7	0 02	0 02	0.025	0 03	0 03
8	0 02	0.02	0 025	0 03	0 03

* The amounts of the reductants, etc., were given in the first table.

improved. July 21 he showed no muscular tenderness and his gait was practically normal. July 26 the hemorrhages on his lower extremities showed great improvement. The gums were still edematous but less red and bled only after considerable manipulation. The patient continued to improve.

The parallelism between his serum ascorbic acid content and complementary titers is given on chart 2. His initial complement titer on admission was 0.08 cc. of a 1:15 serum dilution and his ascorbic acid content about 0.06 mg. per hundred cubic centimeters. Following the oral administration of the vitamin a gradual rise of both factors occurred. When the ascorbic acid content reached a concentration of about 1 mg. per

hundred cubic centimeters of serum the initial complement titer reached its maximum at about 0.02 cc. of a 1:15 serum dilution. A further increase of the ascorbic acid content to 1.9 mg. per hundred cubic centimeters of serum did not increase the complementing power.

The curves in both cases are fundamentally identical except that in the second case the curves are steeper, indicating a more rapid response to the treatment.

Again, the serums secured from the daily bleedings were reactivated by the reductants already mentioned (table 2).

Ascorbic acid and glutathione SH showed the most marked reactivating effects.

COMMENT

These two cases conclusively demonstrate the relationship between complementary activity and the ascorbic acid content of the serums of scorbutic persons during the course of treatments.

Since the complementary activity can be carefully determined, it is proposed that this factor be studied in all cases of suspected vitamin C deficiencies, including the infections.

A low complementary titer will probably lower the general immunity of the patient. Experimentally, Moore [4] has shown this to be the case in a strain of complement-deficient guinea pigs. These animals were more highly susceptible to infections than comparable animals with a normal complement titer.

In the case of vitamin C deficiency, complementary activity has been conclusively shown to be important. Complement titration, therefore, becomes of value in all cases of clinical or subclinical scurvy and will also indicate the point of saturation in the course of treatments. According to Wright and Lilienfeld,[5] Harris and Ray [6] and Archer and Graham,[7] subclinical scurvy is very common. In a recent report Sloan [8] stated that the assay of a single sample of urine is a rough and frequently false measure of vitamin saturation. The Rumpel-Leede test is also not too reliable. This test was negative in the second case described in this paper. So far, the most dependable method is the determination of the rate of absorption of a dose of the vitamin injected into the blood stream. The determination of the complementary activity of the blood furnishes a biologic index of the amount of ascorbic acid present. It may well replace the quantitative chemical estimation of the ascorbic acid in those instances in which both methods cannot be utilized.

SUMMARY

Two patients with typical human scurvy were kept on a vitamin C free diet and treated orally with graded doses of crystalline vitamin C. The initial complement titers as well as the ascorbic acid content of the blood serums of the patients were determined daily. The original complement titers were very low, namely 0.07 and 0.08 cc. of a 1:15 serum dilution. The ascorbic acid contents of the serums were practically nontitrable. After the daily oral administration of crystalline vitamin C in graded doses the curves of vitamin C concentrations and complementary titers ran a practically parallel course until the weakened complement was completely restored by the ascorbic acid at a concentration of a little over 1 mg. per hundred cubic centimeters of serum. Additional doses of the ascorbic acid failed to raise the final initial complement titers, namely 0.02 cc. of a 1:15 serum dilution.

These observations conclusively confirm the original observations made by Ecker, Pillemer, Wertheimer and Gradis [1] in the guinea pig and the later observations of Chu and Chow [2] in man.

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4. Moore, H. D.: J. Immunol. **4**: 425 (Nov.) 1919.
5. Wright, T. S., and Lilienfeld, Alfred: Pharmacologic and Therapeutic Properties of Crystalline Vitamin C (Cevitamic Acid), Arch. Int. Med. **57**: 241 (Feb.) 1936.
6. Harris, L. J., and Ray, S. N.: Lancet **1**: 71 (Jan. 12) 1935.
7. Archer, H. E., and Graham, George: Lancet **1**: 710 (March 28) 1936.
8. Sloan, R. A.: J. Lab. & Clin. Med. **23**: 1015 (July) 1938.

END RESULT OF A TUBERCULOSIS CASE FINDING PROJECT

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To call this paper or any other paper the end result of a case finding project is really a mistake. The nature of the disease tuberculosis is such that no end result can be determined within the space of five, ten or even fifteen years. Hence our presentation, which is a three to five year follow-up, can hardly be termed an end result. There are, however, certain important facts that have been determined by this work and these we wish to present.

Prior to the advent of the x-ray and tuberculin test, physicians depended on contact history, subjective symptoms and physical examination for the diagnosis of tuberculosis. The objection to these methods was that the cases uncovered were almost invariably in an advanced stage and treatment was either prolonged or unsuccessful. With the perfection of the x-rays, suspected cases could be checked. This led to earlier diagnosis but it was still not conducive to group work. With the tuberculin test and increased knowledge of tuberculosis, physicians turned to group testing. The true purpose of this work is to discover disease in the incipient stage, when treatment is more successful.

In any case finding project, one can determine (using two or three tests) almost 100 per cent of those infected with tuberculosis. Large scale testing can be done at a relatively low cost. The positive reactors could be roentgenographed and tuberculous disease determined long before the patient shows subjective signs.

Lay education has progressed apace. Each year larger numbers accept these examinations. People are more and more beginning to understand the "apparent outward" significance of a positive reaction and the value of early diagnosis.

There is no question that these improved methods of case finding and progressing education have lowered the infection rate in tuberculosis and certainly the death rate has shown a steady drop. However, in our zeal to uncover new cases of this disease is it possible we have neglected those already discovered? This question is born of an investigation conducted by the Tuberculosis Institute of Chicago and Cook County.

From 1933 to 1936 we discovered some sixty-five cases of tuberculosis in the high school students of Chicago and its suburbs. Forty-five of these were diagnosed either suspected or incipient disease, nineteen as moderately advanced and one as far advanced. Each case

From the Tuberculosis Institute of Chicago and Cook County.

was reported and referred for treatment. Late in 1937 and early in 1938 a follow-up study was conducted to learn the status of these individuals. To say that the results were disappointing would be a gross understatement. They were astonishing. It was difficult to believe that for all our success in early diagnosis, improved methods and facilities for treatment, and progressive education the death rate and morbidity were so high, our control of these cases so poor, and the number of deaths greater in the incipient than in the advanced group.

Of the sixty-five patients seven had died (10.85 per cent) within three to five years. What is so paradoxically striking is that of the twenty patients with advanced tuberculosis one (5 per cent) has died, while of the forty-five patients in an early stage six (13.33 per cent) have died. Further, the remaining nineteen patients with advanced tuberculosis are holding their own but of the incipient group eight are now in an advanced stage, a total mortality or morbidity increase of fourteen cases, almost 33 per cent (table 1).

In the search for the reason for these disproportionate observations let us consider table 2.

Let us analyze these figures. Of the forty-five patients with the disease in the incipient stage twenty-two (49.11 per cent) had active treatment. The other twenty-three were put under observation. In the twenty advanced cases active treatment was given in nineteen (95 per cent). In the type of treatment it will be noted that in the incipient group the largest percentage of the twenty-two actively treated fall into the bed rest class, twelve or 54.54 per cent, and seven (31.81 per cent) into the pneumothorax class, while only three (13.63 per cent) had both. In the advanced group almost the opposite is noted; eight (42.10 per cent) fall into the class who had both bed rest and pneumothorax, six (31.57 per cent) had pneumothorax alone and four 21.05 per cent) had only bed rest. Complete bed rest was employed in the one phrenic case. We are not presenting these figures as an index of the relative values of different treatment but merely to show the more active measures used in the advanced cases.

Let us review briefly the seven deaths. One was a case diagnosed far advanced tuberculosis. Of the six in the incipient group one patient was in the pneumothorax class but was very irregular in attendance. The other five were in the observation group. Of the eight cases which had increased disease in the incipient group, all were in the observation class.

TABLE 1.—*Mortality*

	Number	Deaths	Increased Involvement
Incipient tuberculosis.....	45	6 (13.33%)	8 (17.77%)
Advanced tuberculosis.....	20	1 (5%)	0

It would seem then that the chief reasons for the discrepancy in our results was either lack of active treatment for the early cases, inadequate observation or both.

A review of the literature was disappointing. While there were many follow-ups on positive reactors which disclosed numerous cases of tuberculosis and numerous articles showing results of various types of treatment and occasional reports on rechecks of arrested cases, no reports such as ours could be found. For some time we have wondered whether these poor results are peculiar to this region. We feel that a thorough follow-up of tuberculosis observation cases in any group would disclose similar results. At the St. Louis meeting of the Mississippi Valley Conference in 1938 Dr. Chadwick in a striking paper showed that over a ten year period of follow-up in Massachusetts the death rate from these early cases in school children was up to 73 per cent. These figures demonstrate quite well the inadequacy of treatment and follow-up.

For all this we, the physicians, must accept the blame, for if the patient is negligent it is because we have failed to teach and impress him. What usually obtains

TABLE 2.—*Treatment*

	Number	Active Treatment	Type of Treatment	Discontinued Observation
Advanced tuberculosis	20	19 (95%)	Bed rest..... 4 (21.05%) Pneumothorax 6 (31.57%) Both..... 8 (42.10%) Phrenic..... 1	0
Incipient tuberculosis	45	22 (49.11%)	Bed rest..... 12 (54.54%) Pneumothorax 7 (31.81%) Both..... 3 (13.63%)	
		Observation 23		12

is as follows (table 2): In the twenty-two incipient cases actively treated the results are good, as in the advanced cases actively treated. Most of our grief comes from the observation group. It would seem then that the latter group should be abolished. This would no doubt solve our problem. This, however, is often impossible. The story of those in this observation class is usually as follows:

A patient outwardly in good health and ofttimes obese will be found to have a suggestive or minimal lesion. Attempts at confining such a person to bed or using pneumothorax are often rebelled against. His knowledge of tuberculosis is at best rudimentary. His appetite is good, he has lost no weight, he is not tired, he has no cough and no fever. Suddenly he is told by a physician that he has tuberculosis or a suspicious case of tuberculosis. He is advised bed rest but refuses to submit. In this he is often unwittingly aided by his physician. The doctor, well meaning but not versed in tuberculosis, failed to read a minimal lesion into the x-ray examination. So as a compromise the patient is advised to lead a normal life, avoid fatigue, take a high caloric, high vitamin diet, and avail himself of fresh air and sunshine and return for observation. Let us say he does this; he is seen every month or two by the tuberculosis clinic, where he is not given any additional treatment or advice but told to keep coming back. Soon he falls into disbelief and fails to return and resumes a strenuous life. The next time he is seen he may have an advanced case.

Also the tendency is to minimize the observations. This is done because we do not wish to frighten the patient and because often we, as physicians, cannot reconcile tuberculosis to a minimal, seeming harmless lesion on the roentgenogram in a robust physical specimen. Again, two seemingly identical patients may be treated alike, both put on observation and controlled work, and one will get along well while the other breaks down. There is no method of determining which of these lesions will progress to far advanced tuberculosis.

The answer lies probably in active treatment more frequently and in closer surveillance of the observa-

tion cases so any tendency to increased involvement may be noted and treated with active measures.

There is yet another group of patients who are being neglected. This group is made up of patients who have a positive tuberculin test with a negative chest roentgenogram. The tendency is to say that they are healthy and that no special care is needed.

In our work we have many such cases; just recently we have had two fatalities in this group. Both of these students had a positive tuberculin reaction and were diagnosed as having healthy chests. They were dead of tuberculosis within two and one-half years.

Not only must the medical profession continue its progress in this disease against known cases but must extend its efforts to include routine roentgenograms of all positive reactors and annual retesting for all negative reactors. Then and only then shall we be completely successful in our campaign against tuberculosis.

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A CEREBELLAR SIGN

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The pendular movement of the arm in walking is frequently found to be reduced or absent in patients with pyramidal or extrapyramidal disease. My purpose in this article is to point out that unilateral decrease or cessation of the arm-swinging movement in walking may be due also to disease of the cerebellum. This finding may constitute a fine and early sign of the involvement of the homolateral cerebellar hemisphere. When in 1930 I reported this clinical observation to my former teacher, the late Dr. Kinnier Wilson, he said that he considered it of great interest and worthy of further study. In the same year I read a short paper [1] on this cerebellar sign at the Congress of the German Neurologists in Dresden. In an article in 1931 Mann [2] concluded from his own experience that this sign deserves "marked attention." Marburg [3] referred to my first observation as extremely interesting and as standing alone in the literature and stated in his monograph on the cerebellum [4] that these changes of the swinging movement of the arm in walking "appear to be an extraordinarily important sign of an affection of the lateral lobes of the cerebellum." Bing [5] gave the same opinion.

These comments, together with later confirmatory observations, warrant a short review of the subject.

My attention was drawn to this sign during observation, some years ago, of a girl aged 12 who complained of headache and vomiting of three months' duration. Examination showed the following signs: pressure pulse; choked disks; nystagmus, of larger amplitude to the right, a very slight adiadokokinesis of the right hand, a fine intention tremor of the right arm and a slight uncertainty in walking in the position of a rope dancer, with a tendency to deviate more to the right. However, the most striking sign the patient presented was a complete loss of the pendular movement of the right arm in walking. The arm, hanging down, was completely flaccid. This was still more conspicuous because this arm did not show any pyramidal or extrapyramidal sign and only slight cerebellar signs. It was remarkable that the patient was not particularly handicapped in the use of her right hand and arm. The clinical diagnosis was "tumor of the posterior fossa, in all probability within the right cerebellar hemisphere and more likely in the upper than in the lower part." At the operation performed by Dr. Sauerbruch in Berlin a sharply defined tumor (a fibrosarcoma the size of a hazelnut) was removed from the middle of the right cerebellar hemisphere.

Four months afterward the child had no complaints. The disks were not choked but there were slight nystagmus, questionable adiadokokinesis of the right hand and a trace of intention tremor of the right arm. The pendular movements of the right arm in walking had become normal.

The condition had progressed thus far at the time of my first communication in 1930. Annual examinations were made during the following three years and the results remained the same. In the fourth year the child complained of dizziness and double vision. Neurologic and ophthalmic examinations did not reveal any new sign except that the pendular movements of the right arm had again become distinctly diminished. A month later the patient was admitted to the surgical clinic of Dr. Sauerbruch in Berlin complaining of dizziness, double vision and strabismus. The clinic reported to me that the patient had palsy of the right rectus lateralis and rectus superior muscles and nystagmus to the right. A diagnosis was made of cyst or recurrence of tumor. Incision was made over the formerly treated area; a cyst in the right cerebellar hemisphere was punctured, and under this cyst a solid tumor the size of a hen's egg was found and extirpated. One branch of the tumor extended into the depths as far as the worm and projected into the fourth ventricle. When discharged from the clinic, the patient had fully recovered.

These operations had to some extent the value of a crucial experiment on the problem of the influence of the cerebellum on the swinging movement of the arm in walking. First, after removal of a tumor from the right cerebellar hemisphere the lost pendular movement of the right arm reappeared. Second, the renewed loss of the pendular movement of the homolateral arm was the first sign that indicated recurrence of the lesion.

Because of the observations made in this case, swinging of the arm in walking was studied in other cases of cerebellar disease. This movement was found to be definitely decreased or even lost in unilateral cerebellar diseases, such as tumor of the cerebellum or of the cerebellopontile angle, and in other conditions difficult to classify involving one cerebellar hemisphere. Particularly remarkable among the cases observed was one in which [6] the syndrome indicated the presence of a tumor on the lower surface of the right cerebellar hemisphere. In this instance the pendular movement in walking was markedly reduced on the right side. After large doses of iodine had been given and roentgen

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1. Wartenberg, Robert: Ein Kleinhirnsymptom, Deutsche Ztschr. f. Nervenh. **116**: 145, 1930.
2. Mann, L.: Ueber ein häufig zu beobachtendes Syndrom bei Commotio bzw. Contusio cerebri, Deutsche med. Wchnschr. **2**: 2172 (Dec. 25) 1931.
3. Marburg, O.: Personal communication to the author.
4. Marburg, O., in Bumke, Oswald, and Foerster, Otfrid: Handbuch der Neurologie, Berlin, Julius Springer, 1936, vol. 5, p. 565.
5. Bing, Robert: Lehrbuch der Nervenkrankheiten, ed. 5, Berlin, Urban & Schwarzenberg, 1937.
6. This case was described in a doctor's thesis by a pupil of mine (Limburg, H.: Ueber Rückbildung von Hirntumorsymptomen, Freiburg im Baden, 1935).

treatment had been applied, all the signs of the tumor subsided markedly and the pendular movement of the right arm became nearly normal. The condition may have been arachnoiditis serosa cystica of the posterior fossa. In most cases of unilateral acoustic tumor with cerebellar involvement the loss of the arm-swinging movement on the homolateral side was found to be complete; this sign appeared early and constituted a conspicuous part of the clinical picture. At the beginning of involvement of the cerebellum during the development of a tumor at the cerebellopontile angle, sometimes only two signs of this involvement were detectable. These were a slight deviation to the affected side in walking and decrease of pendular movement of the arm on the same side.

In two cases of olivopontocerebellar atrophy a diminution of the arm-swinging movement was found, more pronounced on the predominantly affected side. In some neurologic cases difficult to diagnose, special attention to this sign was helpful and led finally to the correct diagnosis.

A remarkable syndrome was found in cases of injury to the brain that affected chiefly one side of the posterior fossa. This consisted of the following unilateral signs: (1) palsy or weakness of the conjugate movement of the eyes in one direction, (2) loss of the vestibular reactions on the side affected, and (3) loss or decrease of pendular movement of the arm on the same side. A similar syndrome has been described by Mann.[2] He found in cases of concussion and of contusion of the brain the following signs, all of which appeared unilaterally on the side affected: (1) impairment of movement of the eye to one side; (2) a positive Romberg sign; (3) past pointing in Bárány's test; (4) loss of the swinging movement of the arm in walking (called by Mann the "Wartenberg sign") and (5) diminution of the corneal reflex. The unilateral loss of the pendular movement of the arm was in these cases part of a syndrome which pointed definitely to a unilateral disease of the posterior fossa. Mann assumed that this syndrome indicated a unilateral traumatic involvement of the corpus restiforme or neighboring structures.

In cerebellar disease, chiefly disturbance of synergy in the legs is seen, because, generally speaking, in man the arms are subject in a lesser degree to the coordinating influence of the cerebellum than are the legs. In the cases just described a disturbance of synergy in an arm resulted in a loss or decrease of its pendular movement in walking, and in our cases this sign has been found in combination with other signs and symptoms that point definitely to disorders of the cerebellum or at least of the posterior fossa.

My justification for relating this disorder of the pendular movement of the arm to involvement of the cerebellum lies in the fact that this sign was found in strictly unilateral injuries of the cerebellum. In 1918 Thomas[7] described the gait of two of his patients (Ghi. and Hy) who had unilateral injuries of the cerebellum, stating that in the first week of their stay in the hospital the arm on the affected side swung in walking, but "later on the arm appeared to become immobilized intentionally and constantly in the same position, as if to avoid swinging." In another work[8] the same author, describing signs of impairment of function of the cerebellum, wrote "The upper extremity swings or else it is held motionless and no longer accompanies the movements of the lower extremity." In describing the clinical signs of unilateral cerebellar injury, Holmes[9] stated: "Another example of asynergia is furnished by the fact as the patient walks the affected arm hangs inertly by his side and does not swing synchronously with the movements of the opposite leg." In his Croonian lectures on the clinical symptoms of cerebellar disease,[10] the same author described the gait of a patient with a unilateral cerebellar lesion as follows: "In walking, the homolateral arm usually hangs inertly by his side and is not swung actively forward as he advances the opposite foot; sometimes, however, it is held against the thorax or abducted from it with the elbow partially flexed." Babonneix and Sigwald[11] noted the loss of pendular movement of one arm in a case of cerebellar tumor, and Folly[12] reported the same finding in a case of meningeal hemorrhage over one cerebellar hemisphere. Dusser de Barenne[13] mentioned that in cerebellar lesions "the normal pendular movement of the arm as a movement coordinated with the heterolateral leg is disturbed." Henner[14] said the same thing. Marburg,[4] who observed this phenomenon years ago, mentioned in his monograph on the cerebellum a case of strictly unilateral involvement of the cerebellum in which the pendular movements of the arm were absent on the affected side.

In the light of my own experience and from data gathered from the literature, there is little doubt that the unilateral decrease or loss of the pendular movement of the arm constitutes a sign which can be produced by a lesion of the cerebellar hemisphere. However, it should be pointed out that, aside from the references I have cited, there is little mention of this subject in the literature. Alteration of the pendular movement of the arm in unilateral cerebellar disease is mentioned in hardly any textbook of neurology in English, German or French. Numerous personal communications indicate that this sign is but little known. It is not, for example, even referred to in the Proceedings of the Association for Research in Nervous and Mental Diseases of 1926 devoted to discussion of the cerebellum, in the report of the Symposium on the Cerebellum held at the combined meeting of the Section of Neurology of the Royal Society of Medicine and the American Neurological Association in London in 1927 or in the review of cerebellar symptoms and signs by Mills and Weisenburg.[15] It is not mentioned in Cushing's monograph on "Tumors of the Nervus Acusticus,"[16] a disease in which I have found this sign pronounced and of diagnostic importance.

From the physiologic standpoint this disturbance of the normal swinging movement of the arm in walking in a disease of the cerebellar hemisphere is easily understandable. The fundamental sign of a cerebellar lesion is asynergia, which has been defined by Babinski as "the inability to accomplish simultaneously the various

7. Thomas, André: Etudes sur les blessures du cervelet, Paris, Vigot Frères, 1918, p. 83.
8. Thomas, André: Pathologie du cervelet, Roger-Widal-Teissier Nouveau traité de médecine, Paris, Masson & Cie, 1925, vol. 19, p. 807.
9. Holmes, Gordon: The Symptoms of Acute Cerebellar Injuries Due to Gunshot Injuries, Brain **40**: 461 (Dec.) 1917.
10. Holmes, Gordon: Croonian Lectures on the Clinical Symptoms of Cerebellar Disease, Lancet **2**: 59 (July 8) 1922.
11. Babonneix, L., and Sigwald, J.: Tumeur du cervelet, Rev. neurol. **1**: 76 (Jan.) 1930.
12. Folly, E.: Hémisyndrome cérébelleux droit d'origine traumatique, Rev. neurol. **1**: 1155 (June) 1930.
13. Dusser de Barenne, J. G.: Handbuch der Neurologie des Ohres **1**: 646.
14. Henner, in Bericht uber den I. Internationalen Neurologen Kongress, Bern, 1931, p. 332.
15. Mills, C. K., and Weisenburg, T. H.: Cerebellar Symptoms and Cerebellar Localization, J. A. M. A. **63**: 1813 (Nov. 21) 1914.
16. Cushing, Harvey: Tumors of the Nervus Acusticus, Philadelphia, W. B. Saunders Company, 1917.

movements that constitute an act." The normal coordination of the various contracting muscles is disturbed. This may be noted, for instance, in the dissociation of the ordinarily synergic movements of finger and wrist and in the failure of synchronism in the movements of the head and eyes in looking toward one side. The loss of synergic movement in walking—i. e. the simultaneous bringing forward of one arm and the contralateral leg—belongs in the same group of disturbances. Here the synergic movement of the trunk with that of the muscles of the extremity is disturbed.

Thus it is certainly justifiable from both a clinical and a physiologic standpoint to attribute the unilateral reduction or cessation of pendular movement of the arm in walking to an involvement of the homolateral cerebellar hemisphere.

This sign may be produced by extrapyramidal and pyramidal disease, but it is my object in this article simply to point out that it may also be a sign of exclusively cerebellar disease. It is my definite impression that a cerebellar disease influences the pendular movement earlier and more pronouncedly than does a cerebral disorder.

The clinical importance of this sign lies in the fact that it is easily detectable, can hardly be simulated and constitutes an early sign of cerebellar involvement, as is shown especially in the first case described in this paper. In 1930 Holmes [17] stated "Only today I saw what I believe is an early tumour of the right side of the cerebellum, and in this case the only signs were a little nystagmus to the right and absence of the normal swinging movements in the right arm."

The whole problem of the clinical significance of the pendular movement of the arm deserves more attention and study. It raises intricate problems which still await solution. I have observed a few cases with signs of increased intracranial pressure, in which no explanation could be found for the unilateral loss of swinging movement of the arm in walking. Also puzzling was a case reported by Fischer and Pötzl [18] in which resection of one cerebellar hemisphere had been followed by return of the pendular movements to normal. Concerning the question of exact localization of this sign, it may be of interest that in a case of tumor of the cerebellar worm, verified post mortem, the swinging movement of both arms had been normal. This has also been true in cases of multiple sclerosis with marked cerebellar gait.

In the light of knowledge of the relation of the cerebrum to the cerebellum, and especially in view of recent experiments by Aring and Fulton,[19] it would be of interest to study the swinging movement of the arm in unilateral frontal disease.

17. Holmes, Gordon: Personal communication to the author.
18. Fischer, M. H., and Pötzl, O.: Physiologische Untersuchungen nach Resektion der rechten Kleinhirnhemisphäre am Menschen, Ztschr. f. d. ges. Neurol. u. Psychiat. **119**: 163 (March 20) 1929.
19. Aring, C. D., and Fulton, J. F.: Relation of Cerebrum to Cerebellum, Arch. Neurol. & Psychiat. **35**: 439 (March) 1936.

Fertility.—Among all those producing children in the United States in 1934 there were forty-four women past their forty-seventh birthday, and therefore practically at the end of their fecund life, who brought forth in that year their first and only live births. In the same year there were two women of an extremely different order of proven breeding capacity. Each one of them, apparently quite in her stride, produced her twenty-seventh child.—Pearl, Raymond: The Natural History of Population, New York, Oxford University Press, 1939.

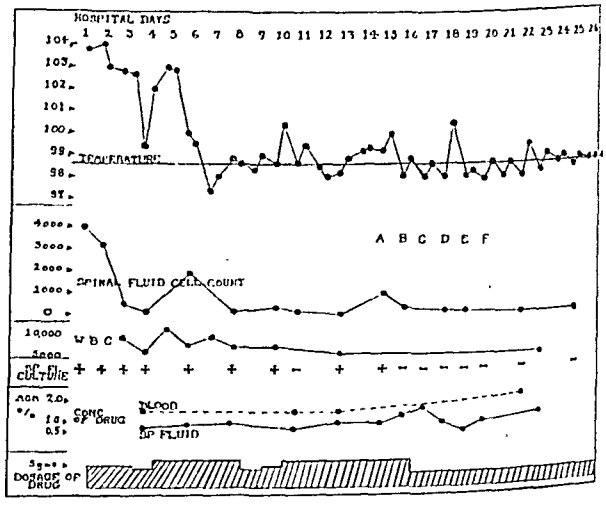
Clinical Notes, Suggestions and New Instruments

PNEUMOCOCCIC MENINGITIS SUCCESSFULLY TREATED WITH SULFAPYRIDINE

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Two reports [1] of the successful treatment of pneumococcic meningitis with 2-(*p*-aminobenzenesulfonamido) pyridine (sulfapyridine) have recently appeared from England. In view of the rarity of recovery from this disease and the apparent effectiveness of this new drug [2] in the condition, the following case is presented:

B. A., a white girl aged 14 years, admitted to the Charles V. Chapin Hospital Nov. 16, 1938, had had a nonproductive cough for two weeks but did not feel sick until three days before admission. At this time headache, projectile vomiting, increasing restlessness and a rise in temperature suddenly developed. She was delirious on admission. The temperature was 103.6 F., the pulse 104, the respiratory rate 26. The blood pressure was 98 systolic, 62 diastolic. Her neck was stiff and the Kernig sign



Course of treatment in the case of pneumococcic meningitis here presented. *A* indicates the intraspinal injection of 10 cc. of complement; *B*, 6 cc. of complement and 6 cc. of type XX rabbit serum; *C*, 5 cc. of type XX rabbit serum; *D*, 10 cc. of complement and 10 cc. of type XX rabbit serum; *E*, 9 cc. of complement and 9 cc. of type XX rabbit serum; *F*, 6 cc. of complement and 6 cc. of type XX rabbit serum.

was present. Physical examination showed no other abnormalities. In particular the lungs were clear, and no origin of the infection was found in the ears, nose or throat. A lumbar puncture revealed cloudy fluid, under increased pressure, which on culture yielded pneumococcus type XX. Two blood cultures yielded negative results.

The day after admission the oral administration of the drug was begun. The daily dose was approximately that recommended by Evans and Gaisford.[3] The clinical improvement, as shown in the accompanying chart, was prompt and striking. One week after admission her temperature had returned to normal, the spinal fluid had cleared markedly and she was alert and asymptomatic. Cultures of the spinal fluid, however, continued to yield positive results, so intraspinal treatment with complement (from the patient's own serum) and specific anti-pneumococcus rabbit serum was begun on the fifteenth hospital day. Following this the cultures became negative and remained

From the Charles V. Chapin Hospital.
The drug used in this case was supplied by Merck & Co., Rahway, N. J., under the trade name of "Dagenan." The type XX antipneumococcus rabbit serum was supplied by Lederle, New York.
1. Reid, G. C. K., and Dyke, S. C.: Pneumococcal Meningitis, Lancet **2**: 619 (Sept. 10) 1938. Robertson, K.: Case of Pneumococcal Meningitis Treated with M & B 693, Lancet **2**: 728 (Sept. 24) 1938.
2. Whitby, Lionel: Chemotherapy of Bacterial Infections, Lancet **2**: 1095 (Nov. 12) 1938.
3. Evans, G. M., and Gaisford, W. F.: Treatment of Pneumonia with 2-(*p*-Aminobenzenesulphonamido) Pyridine, Lancet **2**: 14 (July 2) 1938.

so. The patient was discharged well six weeks after admission and ten days after all treatment was discontinued.

No toxic symptoms of any importance were noted that could be ascribed to the drug. There was some headache and nausea early in the treatment, but these may well have been due to the infection. The carbon dioxide combining power of the blood remained normal and there was only a slight drop in the hemoglobin content to 79 per cent. Sugar determinations of the spinal fluid showed a lowering to 28 mg. per hundred cubic centimeters and a return toward normal that lagged somewhat behind the other laboratory observations.

The concentrations of the drug as shown on the chart seem remarkably low, never exceeding 2.2 mg. per hundred cubic centimeters in the blood and 1.7 mg. in the spinal fluid. This can be only partly explained by the method used, that of Schmidt,[4] which, as shown by parallel determinations by us, gives results for this drug about 25 per cent lower than that of Marshall.[5]

Capsular degeneration of pneumococci and their failure to type after exposure to this drug was first mentioned by Whitby.[6] In this case capsule stains were inconclusive, but the organisms showed capsular swelling in specific typing serums as long as they were obtained from the spinal fluid. No significant change in their high virulence for mice was noted during the course of treatment. At no time were agglutinins for this organism present in the patient's serum.

Apparently in this case drug therapy, while producing marked clinical improvement, was not alone effective in eradicating the meningeal infection. The final cure was brought about by a combination of drug and serum therapy.

203 Thayer Street.

DERMATITIS FROM ORTHODICHLOROBENZENE

JOHN G. DOWNING, M.D., BOSTON

Orthodichlorobenzene has become industrially important in the past few years. In addition to its other uses it serves as an effective solvent in lacquers, varnishes and waxes. It is used extensively for the preservation of wood because of its destructive effect on termites. Orthochlorophenol is also used as a wood preserver.

Orthodichlorobenzene consists of benzene with two of its hydrogen atoms replaced by chlorine; the prefix "ortho" means that the two chlorine atoms are on adjacent carbon atoms. Orthochlorophenol consists of phenol in which the hydrogen atom on one of the carbon atoms has been replaced by chlorine.

The toxicity of these materials will bear observation. Little is known of the chlorobenzenes or chlorophenols, but of the chloronaphthalenes, which are related products, some are apparently nontoxic to the liver when inhaled while those that are toxic when inhaled are severe irritants of the skin. It is therefore considered of value to report the following case:

S. B., a glazier aged 47, examined Oct. 5, 1937, had been handling window sashes which had been dipped in a mixture containing various chemicals. He inserted window glass in the sash with a putty which he himself had prepared with linseed oil. Near the end of July he noticed an itchy eruption, consisting of water blisters, on his face, hands and arms. He was treated at three local hospitals without relief; he used various local applications which enabled him to continue work, although on three occasions he had to stop for several days. While he was away from work his eruption was relieved, only to break out again when he returned.

Physical examination October 5 showed an eczematoid dermatitis of the hands, arms and face. The patient was to be tested with the various substances with which he came in contact at his work, but while preparing them I applied a small amount of the window sash solution to the skin and within a few minutes there was a marked positive reaction. Later I tested the patient by dropping on the skin the various ingredients contained in the dipping solution, namely mineral spirits, chlorortho phenylphenol and orthodichlorobenzene. The tests were negative except for that with orthodichlorobenzene. Two minutes after this was dropped on one arm intense erythema and edema developed at the site of the application and for one-half inch surrounding it. Later a large bullous lesion formed in the center of this area.

This case demonstrates the irritative properties of orthodichlorobenzene and shows that chemicals of unknown property should not be applied to the skin in the usual patch test manner, namely in an occlusive dressing, but should be dropped or painted on the skin and observed carefully for at least an hour.

520 Commonwealth Avenue.

4. Schmidt, E. G.: The Determination of Sulfanilamide, J. Biol. Chem. **122**: 757 (Feb.) 1938.
5. Marshall, E. K., Jr.: Determination of Sulfanilamide in Blood and Urine, J. Biol. Chem. **122**: 263 (Dec.) 1937.
6. Whitby, L. E. H.: Chemotherapy of Pneumococcal and Other Infections, Lancet **1**: 1210 (May 28) 1938.

Council on Pharmacy and Chemistry

PRELIMINARY REPORT OF THE COUNCIL

"VITAMIN K," A PRINCIPLE USEFUL IN CERTAIN HEMORRHAGIC CONDITIONS

THE COOPERATIVE COMMITTEE ON VITAMINS, REPRESENTING A COMBINED COMMITTEE OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND THE COUNCIL ON FOODS, CONSIDERED THE EVIDENCE FOR A PRINCIPLE CALLED "VITAMIN K," REPORTED TO BE USEFUL IN THE TREATMENT OF CERTAIN HEMORRHAGIC CONDITIONS. THE COMMITTEE RECOMMENDED THAT A PRELIMINARY REPORT BE ISSUED ON THIS PRINCIPLE AND THE RECOMMENDATION WAS ADOPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY. DR. SNELL OF THE MAYO FOUNDATION, WHO HAS BEEN WORKING WITH THIS PRINCIPLE, PREPARED THE APPENDED REPORT WHICH HAS BEEN ADOPTED BY THE COUNCIL FOR PUBLICATION AS A PRELIMINARY REPORT. THE COUNCIL AGREES WITH THE AUTHOR THAT THE PRINCIPLE KNOWN AS VITAMIN K APPEARS TO HAVE THERAPEUTIC USEFULNESS IN THE HEMORRHAGIC MANIFESTATIONS OF HEPATIC AND BILIARY DISEASE. THE COUNCIL HAS AUTHORIZED ITS COMMITTEE ON NOMENCLATURE TO STUDY THE QUESTION OF A SUITABLE NONPROPRIETARY NAME WHICH SHALL NOT BE THERAPEUTICALLY SUGGESTIVE. THE COUNCIL VOTED ALSO TO CONSIDER WITH VIEW OF ACCEPTANCE BRANDS OF "VITAMIN K" UNDER STRICTLY LIMITED CLAIMS FOR USEFULNESS IN THE HEMORRHAGIC DIATHESIS OF HEPATIC AND BILIARY DISEASE; THE COUNCIL AUTHORIZED PUBLICATION OF THE APPENDED REPORT.

PAUL NICHOLAS LEECH, Secretary.

VITAMIN K: ITS PROPERTIES, DISTRIBUTION AND CLINICAL IMPORTANCE

A PRELIMINARY REPORT

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In 1935 Dam [1] of Copenhagen observed that newly hatched chicks maintained on a diet which was deficient in certain fat-soluble materials, but otherwise adequate in respect to protein, minerals and all known vitamins, suffered from a fatal hemorrhagic diathesis characterized by bleeding from the pinfeathers, hemorrhages into the subcutaneous tissues and muscles and gizzard erosions. The hemorrhagic tendency in these chicks was associated with, and apparently due to, a fall in the concentration of prothrombin in the blood. The condition could be controlled or prevented by administration of the nonsaponifiable, nonsterol fraction of hog liver fat or by feeding alfalfa.[2] The protective, antihemorrhagic factor present in these last mentioned materials was tentatively named by Dam the "koagulations vitamin," or vitamin K.

DISTRIBUTION, PHYSICAL AND CHEMICAL PROPERTIES

Vitamin K, or at least substances possessing similar biologic properties, are widely distributed in nature. In the plant kingdom the distribution appears to be con-

1. Dam, Henrik: The Antihaemorrhagic Vitamin of the Chick, Biochem. J. **29**: 1273-1285 (June) 1935.
2. Almquist, H. J., and Stokstad, E. L. R.: Dietary Hemorrhagic Disease in Chicks, Nature **136**: 31 (July 6) 1935.

fined almost entirely to the photosynthetic portion of the plant, considerable amounts having been found in alfalfa, kale, spinach, dried carrot tops, chestnut leaves, tomatoes and oat sprouts. In addition, vitamin K is found in soy bean oil and some other vegetable oils but is not present in significant amounts in fish liver oils.

The vitamin can also be prepared from fish meal, rice bran or casein after the extracted material has been allowed to putrefy, bacteria apparently effecting the synthesis of the vitamin under such conditions. Almquist and his associates [3] have isolated a "fish meal organism" which closely resembles Bacillus cereus and which contains, and is capable of producing in fish meal, considerable amounts of vitamin K. The vitamin is also present in dried Escherichia coli, Bacillus subtilis, Staphylococcus aureus and many other micro-organisms, presumably being contained in the lipoid fraction of these bacteria. Vitamin K may also be produced by bacterial activity in the intestinal tract and is present in the droppings of chicks and in both normal and acholic feces of man.

The physical and chemical properties of the vitamin are now being investigated, but little exact information is available at present. Almquist [4] has prepared a colorless, crystalline, fat-soluble material which is heat stable but which is rapidly destroyed by alkalis or sunlight. This substance is probably a complex, unsaturated hydrocarbon of high molecular weight; [5] it contains a small amount of nitrogen but no sulfur or phosphorus. Thayer, Doisy and their collaborators [6] also have isolated a crystalline compound of high potency from alfalfa leaves. The crystals have a melting point of 69 C. and appear as small, transparent plates. These investigators pointed out that the vitamin may be adsorbed on these crystals and that there is evidence of more than one substance with antihemorrhagic activity in their extracts. Almquist [7] has shown that the factor preventing gizzard erosions in chicks is not identical with vitamin K, and Lichtman and Chambers [8] have recently prepared a sterol, an alkali stable material with vitamin K activity, from liver fat. Possibly several closely related substances having some antihemorrhagic properties are present in crude extracts of alfalfa or putrefied fish meal. Present methods of assay are hardly sufficiently specific to identify such compounds, depending as they do on biologic methods alone. The antihemorrhagic properties of any given material can be determined only by its activity on K-avitaminous chicks. Some attempts have been made to establish a unit of measurement for the vitamin on this basis. Dann [9] has defined a unit as the least amount per gram of a chick's body weight daily which is necessary to prevent prolongation of clotting time beyond normal limits. Dam's unit is defined as the amount of antihemorrhagic material contained in 1 Gm. of dried spinach. Until more information is available with regard to the chemical and biologic properties of the vitamin, any attempts to establish a "unit" are necessarily somewhat arbitrary and of limited value.

3. Almquist, H. J.; Pentler, C. F., and Mecchi, E.: Synthesis of the Antihemorrhagic Vitamin by Bacteria, Proc. Soc. Exper. Biol. & Med. **38**: 336-338 (April) 1938.
4. Almquist, H. J.: Further Studies on the Antihemorrhagic Vitamin, J. Biol. Chem. **120**: 635-646 (Sept.) 1937.
5. Klose, A. A.; Almquist, H. J., and Mecchi, E.: Properties of the Antihemorrhagic Vitamin (Vitamin K), J. Biol. Chem. **125**: 681-686 (Oct.) 1938.
6. Thayer, S. A.; MacCorquodale, D. W.; Binkley, S. B., and Doisy, E. A.: The Isolation of a Crystalline Compound with Vitamin K Activity, Science **88**: 243 (Sept. 9) 1938.
7. Almquist, H. J., and Stokstad, E. L. R.: A Nutritional Deficiency Causing Gizzard Erosions in Chicks, Nature **137**: 581-582 (April 4) 1936.
8. Lichtman, A. L., and Chambers, W. H.: Reduced Blood Coagulation Time by Injection of Sterol Extract of Liver, Science **88**: 358-359 (Oct. 14) 1938.
9. Dann, Flementine P.: Personal communication to the author.

CLINICAL USE OF VITAMIN K

The use of the antihemorrhagic vitamin in clinical medicine depends on the following facts: (1) that in obstructive jaundice and in disease of the parenchyma of the liver there is a deficiency of prothrombin in the plasma, and (2) that this deficiency represents one manifestation of K-avitaminosis, although the stools of such patients can be shown to contain the vitamin. The deficient formation of prothrombin in such patients depends in part on a failure of absorption of fat soluble substances when bile is excluded from the intestinal tract, or when the secretion of bile salts by the liver is reduced. There is also another and perhaps a more important factor, namely the ability of the liver to utilize vitamin K in the formation of prothrombin. To discuss all the clinical and experimental data bearing on this subject is beyond the scope of this report, but certain studies may be cited.

Quick [10] was apparently the first to call attention to a deficiency of prothrombin in the blood of jaundiced patients; he established this point by the method of adding optimal amounts of thromboplastin to recalcified plasma, leaving prothrombin as the only variable and then recording the coagulation time of this mixture. Smith and his associates [11] have amply confirmed this observation by a quantitative study of prothrombin in cases of jaundice. Hawkins and Brinkhous [12] have demonstrated by the last-mentioned method a similar deficiency of prothrombin in dogs with complete biliary fistula and have shown that the feeding of bile to these animals will produce a rise in the concentration of prothrombin and cessation of bleeding, if present. Bile feeding has been shown to produce a comparable effect in cases of obstructive jaundice. The role of hepatic injury in the synthesis of prothrombin has been studied by Smith, Warner and Brinkhous,[13] who found that in experimental chloroform intoxication a marked deficiency in prothrombin could be produced. An earlier observation bearing on this point was made by Roderick,[14] who noted a deficiency of prothrombin in cattle with toxic sweet clover disease, a condition which is associated with necrosis of the liver.

Reports on the treatment of the hemorrhagic diathesis in obstructive jaundice have recently appeared from the University of Iowa [15] and from the Mayo Clinic.[16]

10. Quick, A. J.; Stanley-Brown, Margaret, and Bancroft, F. W.: A Study of the Coagulation Defect in Hemophilia and in Jaundice, Am. J. M. Sc. **190**: 501-511 (Oct.) 1935.
11. Warner, E. [illegible] and Smith, H. P.: Quantitative Study of Blood [illegible] Under Experimental Conditions, Am. [illegible] Deficiency
12. Hawkins, [illegible] the Cause of Bleeding in Bile Fistula Dogs, J. Exper. Med. **69**: 795-801 (June) 1936.
13. Smith, H. P.; Warner, E. D., and Brinkhous, K. M.: Prothrombin Deficiency and the Bleeding Tendency in Liver Injury (Chloroform Intoxication), J. Exper. Med. **66**: 801-811 (Dec.) 1937.
14. Roderick, L. M.: The Pathology of Sweet Clover Disease in Cattle, J. Am. Vet. M. A. **74**: 314-326 (Feb.) 1929; A Problem in the Coagulation of the Blood: "Sweet Clover Disease of Cattle," Am. J. Physiol. **96**: 413-425 (Feb.) 1931.
15. Warner, E. D.; Brinkhous, K. M., and Smith, H. P.: Bleeding Tendency of Obstructive Jaundice: Prothrombin Deficiency and Dietary Factors, Proc. Soc. Exper. Biol. & Med. **37**: 628-630 (Jan.) 1938. Brinkhous, K. M.; Smith, H. P., and Warner, E. D.: Prothrombin Deficiency and the Bleeding Tendency in Obstructive Jaundice and in Biliary Fistula: Effect of Feeding Bile and Alfalfa (Vitamin K), Am. J. M. Sc. **196**: 50-57 (July) 1938.
16. Snell, A. M.; Magath, T. B.; Boland, E. W.; Osterberg, A. E.; Butt, H. R.; Bollman, J. L., and Walters, Waltman: Symposium: The Hemorrhagic Diathesis in Cases of Jaundice: Its Relation to Vitamin K: A Preliminary Report, Proc. Staff Meet., Mayo Clin. **13**: 65-80 (Feb. 2) 1938. Snell, A. M.; Butt, H. R., and Osterberg, A. E.: Treatment of the Hemorrhagic Tendency in Jaundice, with Special Reference to Vitamin K, Am. J. Digest. Dis. & Nutrition **5**: 590-596 (Nov.) 1938. Butt, Snell and Osterberg.[19]

These studies, which were made independently, show that a definite reduction in the prothrombin clotting time (Quick), an increase in the quantitative level of prothrombin in the blood, and even control of actual hemorrhagic states can be accomplished by the oral administration of extracts of alfalfa or of putrefied fish meal, together with bile or bile salts. It has been emphasized that adequate preoperative treatment with these materials will greatly reduce the hemorrhagic tendency commonly observed in cases of jaundice. However, such treatment may not ensure normal blood coagulation in the postoperative state, since a marked fall in the concentration of prothrombin may occur in many cases following operation. The large excess of prothrombin in mammalian blood may be sufficient to protect such patients, but in others serious bleeding may take place. Even in patients presenting marked depletion of prothrombin the control of the hemorrhagic state is possible by the use of large doses of vitamin K concentrates and bile salts. Rapid correction of the coagulation defect has been observed even in the presence of complete biliary obstruction and hepatic injury; the rate of prothrombin formation seems to follow the chemical laws of mass action.

In view of the fact that standard methods of determining the coagulation time of blood give little warning of the possibilities of hemorrhage in cases of jaundice, it is advisable either to use vitamin K concentrates and bile salts as a routine part of preoperative and postoperative treatment or to be guided by some of the various indirect methods now in use for the detection of a deficiency in prothrombin. Of these the Quick prothrombin time is perhaps the most satisfactory for general use; the quantitative determination of prothrombin by the method of Smith and his collaborators [11] is technically difficult but very reliable. Dam and his associates [17] in their investigations have used a modification of the Fisher method for determining the clotting time of avian blood. The earlier one is able to detect by laboratory means the first signs of impending prothrombin deficiency, the less vitamin concentrate is required for its control and the less the danger of serious loss of blood.

The amounts of material required for prophylactic or curative treatment are still under investigation. For the former, the daily use of from 400 to 800 mg. of an alfalfa concentrate (2,000 to 4,000 Dann units) with 1 to 2 Gm. of bile salts has been advised; for the latter from 1 to 3 Gm. (5,000 to 15,000 Dann units) plus fistula bile, lyophilized bile or from 2 to 4 Gm. of animal bile salts may be administered by duodenal tube at appropriate intervals. One or two such doses are usually sufficient to raise the concentration of prothrombin to a safe level. Dam and Glavind [18] have advocated the parenteral use of vitamin K concentrate in oil and have shown a gradual reduction in clotting time following such treatment. The Mayo Clinic investigators,[19] however, have found that doses of 1 Gm. or more of the material, administered parenterally, are decidedly less effective and much more slowly utilized by the body than are similar amounts given directly into the intestinal tract.

Up to the present, little is known of the effect of vitamin K in other hemorrhagic diseases. In the light of present knowledge there is no reason to expect a favorable effect if the prothrombin content of blood is normal. In cases of sprue and in cases of extensive regional ileitis, deficiency in prothrombin because of an insufficient intestinal absorption of vitamin K has been noted, and in such circumstances there are theoretical reasons for administration of the vitamin. Purpuric states, hemophilia and essential hematuria are not affected by vitamin K therapy; on the other hand, recurrent hemorrhagic retinitis and certain forms of functional menorrhagia are said to have shown some response.

Indiscriminate use of vitamin K in hemorrhagic diseases of all types should be discouraged, although to date there has been no evidence of any toxic effects even with very large doses. Work is in progress at present on the chemical structure of the vitamin and related compounds, on the relation of the vitamin to prothrombin and on the metabolism of the latter substance in other diseases. Until these studies are completed, therapeutic efforts with vitamin K are best confined to the hemorrhagic diathesis of hepatic and biliary disease, in which the results appear to be almost specific.

17. Dam, Henrik, and Glavind, Johannes: The Clotting Power of Human and Mammalian Blood in Relation to Vitamin K, Acta med. Scandinav. **96**: 108-128, 1938.

18. Dam, Henrik; Glavind, Johannes; Lewis, Liese, and Tage-Hansen, Erik: Studies on the Mode of Action of Vitamin K, Skandinav. Arch. f. Physiol. **79**: 121-133 (Aug.) 1938.

19. Butt, H. R.; Snell, A. M., and Osterberg, A. E.: Further Observations on the Use of Vitamin K in the Prevention and Control of the Hemorrhagic Diathesis in Cases of Jaundice, Proc. Staff Meet., Mayo Clin. **13**: 753-764 (Nov. 30) 1938.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

CINCHOPHEN (See New and Nonofficial Remedies, 1938, p. 177).

CINCHOPHEN-THE UPJOHN COMPANY.—A brand of cinchophen-N. F.

Manufactured by The Upjohn Company, Kalamazoo, Mich.
Tablets Cinchophen-The Upjohn Co., 5 grains.
Tablets Cinchophen-The Upjohn Co., 7½ grains.

EPHEDRINE SULFATE (See New and Nonofficial Remedies, 1939, p. 228).

EPHEDRINE SULFATE-MERRELL.—A brand of ephedrine sulfate-U. S. P.

Manufactured by Wm. S. Merrell Co., Cincinnati, Ohio. No U. S. patent or trademark.
Ampule Solution Ephedrine Sulfate-Merrell, 0.05 Gm. (¾ grain), 1 cc.

MERCURIC SUCCINIMIDE (See New and Nonofficial Remedies, 1938, p. 299).

Ampule Solution Mercury Succinimide-Merrell, 0.01 Gm. (⅙ grain), 1 cc.
Prepared by the Wm. S. Merrell Co., Cincinnati, Ohio. No U. S. patent or trademark.

NICOTINIC ACID (See THE JOURNAL, July 2, 1938, p. 27, and the Revised Supplement to N. N. R., 1938, p. 22).

Nicotinic Acid-Merck.—A brand of nicotinic acid-N. N. R.

Manufactured by Merck & Co., Rahway, New Jersey. No U. S. patent or trademark.

SODIUM THIOSULFATE (See New and Nonofficial Remedies, 1938, p. 450).

Ampuls Solution Sodium Thiosulfate-Maltbie, 1 Gm. (15½ grains), 10 cc.
Prepared by The Maltbie Chemical Company, Newark, N. J.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 15, 1939

CANINE ABORTION AND HUMAN PARATYPHOID

Veterinarians have long suggested that dogs are susceptible to human paratyphoid B infections and that under certain conditions they may be the sole source of transmission of this disease to man. Two years ago a local epidemic of paratyphoid was noted in an isolated Swedish village. Two weeks before the beginning of the epidemic a pregnant setter of the village had suffered a severe gastro-enteritis and had aborted. After the development of the epidemic the local physician [1] took samples of stools, urine and blood from the convalescent dog. The blood sample gave a positive Widal reaction with a standard laboratory strain of Salmonella paratyphi B (schottmülleri). Both convalescent urine and stools, however, were negative at the time of the examination.

A year later a second local paratyphoid epidemic was noted in another isolated Swedish village. This epidemic also was accompanied with one or more cases of canine abortion. An atypical paratyphoid bacillus was isolated in the human cases. The dogs were not examined. As a precautionary measure, however, a valuable pregnant dog was sent from this village to an isolated farm about 4 kilometers distant. Two days after arrival the dog became desperately ill with enteritis and aborted. Following this abortion, four members of the rural family caring for the dog became ill with typical paratyphoid infection. Blood and stools were collected by the attending physician [2] from the four patients and from the dog and sent to the National Laboratory at Stockholm for bacteriologic examination. An atypical paratyphoid strain was isolated from each of the five stools. All five blood samples gave positive agglutinin reactions with this strain, the canine serum agglutinating it in a dilution of 1:250.

Fractional antigens were isolated from this bacillus and compared with similar fractions from standard laboratory strains. At least four heterophile antigenic factors were demonstrated or deduced from cross agglutination tests, together with one fairly specific factor, which was tentatively assumed to be diagnostic of the canine bacillus. The name Salmonella abortus canis was suggested for this canine paratyphoid B bacillus.

Theoretically the new micro-organism may be pictured as a relatively primitive, less highly specialized type of the paratyphoid bacillus, a possible ancestor of more highly specialized strains isolated in strictly human cases. The cultural stability of this canine variant has not yet been tested.

1. Caspersen, J.: Ztschr. f. Hyg. u. Infektionskr. **120**: 611, 1938.
2. Magnusson, K. E.: Ztschr. f. Hyg. u. Infektionskr. **121**: 136 (Oct.) 1938.

BAKER AND KOCH "CANCER CURES" TRY NEW ZEALAND

According to a report in the *British Medical Journal* the American "cancer cures" promoted by William F. Koch and Norman Baker have been investigated by a committee of qualified medical experts in New Zealand.[1] On Aug. 31, 1938, fifteen patients who had been treated by the Koch and Baker fluids were carefully examined by members of the committee. It was decided that six of the patients had cancer and six were probably cancerous, while three definitely did not have cancer. The examiners were especially interested in four cases of cancer of the breast which had been treated with local injections of the Baker [2] fluid around the periphery of the breast ten days prior to examination and also with intravenous injection of Koch's [3] fluid the day before. In each case the whole of the breast and a varying but extensive surrounding area were completely gangrenous, black and malodorous.

Dr. Williams, who administered the treatments, gave the committee the impression that Baker's fluid destroyed all cancerous tissue exclusively and selectively and that the Koch fluid searched out all cancerous cells throughout the body, wherever they might be, and destroyed them.

The patients were seen again on September 14, and two of them were decidedly worse. In all cases the cancerous breast had sloughed away, together with surrounding tissue extending in one instance from the center of the breast bone to the posterior margin of the armpit. With one exception there had been no signs of healing, and it was noted that it would require a long time for healing of such large areas to occur. There was a great amount of mutilation.

1. The committee which investigated these remedies consisted of Sir James Elliott, M.D., chairman, Mr. H. Hardwick-Smith, F.R.C.S., Dr. J. O. Mercer and Dr. T. R. Ritchie. Sir James Elliott is president of the New Zealand Branch of the British Empire Cancer Campaign, Dr. Mercer is a recognized pathologist (M.R.C.P.), and Dr. Ritchie is director of the Division of Public Hygiene of the Department of Health. This committee was acceptable to a Dr. Williams, who apparently is the one who requested the test.

2. Previous references to Norman Baker and his treatment of cancer appeared in THE JOURNAL **94**: 1146, 1241, 1340 (April 12, 19 and 26) 1930; **95**: 285 (July 26) 1930; **96**: 43, 1167, 2042 (Jan. 3, April 4 and June 13) 1931; **98**: 890, 1012 (March 12 and 19) 1932; **99**: 1355 (Oct. 15) 1932; **104**: 929 (March 16) 1935; **105**: 375 (Aug. 3) 1935; **109**: 375, 616, 798 (July 31, Aug. 21 and Sept. 4) 1937; **110**: 749 (March 5) 1938; **111**: 566 (Aug. 6) 1938; **112**: 435 (Feb. 4) 1939.

3. Previous references to William F. Koch and his treatment of cancer appeared in THE JOURNAL **76**: 466 and 537 (Feb. 12 and 19) 1921; **82**: 2054 (June 21) 1924; **86**: 1469 (May 8) 1926; **88**: 928 (March 19) 1927; **103**: 116 (July 14) 1934; **106**: 929 and 2189 (March 14 and June 20) 1936; **107**: 519 (Aug. 15) 1936.

About this time the investigations were ordered ceased by Dr. Williams, apparently for the reason outlined in a letter in which he said:

"Since both Baker and Koch have written to me in the strongest terms, declining to submit their products to test in their absence, I have no alternative to breaking up negotiations with your committee."

The committee, although thwarted in carrying its investigations to their indicated conclusion, stated:

"We have no doubt that Baker's fluid is a powerful sclerotic agent and can cause great local destruction. Compared with surgical treatment, destruction by a sclerosing or caustic fluid seems like a reversal to the treatment of the Middle Ages, causing unnecessary mental distress, delayed healing, and increased risk of septic infection. We have had no evidence whatever to show that Baker's fluid has any selective powers in the destruction of cancer cells. There is no real difficulty in removing the breast surgically or by crude destruction, but this is very far from a cure of the breast cancer and may delude the public mind. . . . From our general knowledge [4] and from the observations we were permitted to make in investigating the cases at Wanganui, we have no reason whatever to suppose that Koch's fluid has any effect in curing a generalized cancer. . . . This claim that a cure has been found for cancer should never be made and promulgated until prolonged tests have shown that the claim is a reasonable one. . . .

"Your committee considers that it is in the public interest that a statement should be made that our hope of finding anything useful in the treatment recommended by Dr. Williams and his colleagues has proved illusory."

The story speaks for itself. Nevertheless, it should be emphasized that the use of these treatments was permitted without any evidence in the scientific literature to support the use of either fluid. The committee's reference to the dark ages is particularly apt. In a day when medical science progresses on the basis of established fact, as determined by careful experimentation and even more careful clinical trial, with frequent reports in the literature covering the various steps, there is absolutely no excuse for the employment of methods of treatment completely devoid of scientific support.

4. The committee stated that it was influenced by investigations made of both the Baker and the Koch treatment in the United States of America under more favorable conditions, which had been uniformly condemnatory.

THE NUTRITIVE VALUE OF WHEAT FLOUR AND BREAD

Bread, throughout the ages, has been the symbol for food. The annual per capita consumption of wheat bread alone in the United States is over 80 pounds, and the yearly consumption of all types of bread is almost 90 pounds. Bread is a concentrated food and is one of the cheapest sources of energy. During the past three decades a large number of investigations have thrown light on the nutritive quality of bread. A recent report of Copping [1] reviews the present status of our knowledge of the problem.

Although bread is an important food, it is by no means a complete foodstuff. It consists essentially of flour and water, charged with carbon dioxide as a result of action of leavening agents, and baked. Its nutritive value depends principally on the flour used in its preparation. There is considerable variation in the nutritive value of flour. The process of milling wheat does not seriously affect the protein or the carbohydrate content of the flour, but it does appreciably reduce the amount of fat and ash present. Only about 70 per cent of the screened wheat is recovered in the preparation of standard grade white flour. By further milling finer flours are obtained and in these cases the extraction is even less.

The question of the extent to which various degrees of milling affect the nutritive value of the flour obtained from wheat is of particular importance. Although the preparation of flour from wheat by milling does not greatly alter the proportion of protein, experience indicates that the nutritive value of the protein of whole wheat is superior to that of the protein of various flours milled from it. In other words, in the modern process of milling the biologic value of wheat protein is lowered for nitrogen repair as well as for growth of the animal organism. The process of milling seriously affects the ash content of flour. The removal of wheat bran and wheat germ in the preparation of white flour effects a reduction in mineral content to about one half for calcium, one fourth for potassium, one fifth for phosphorus and one fifth for iron. The loss of calcium and phosphorus is probably not of great importance, as wheat, like most other cereals, shows an ill proportioned ratio of calcium to phosphorus. In this connection it has long been suspected that in the absence of vitamin D many cereals exert an anticalcifying effect and, as a consequence, an anticalcifying factor was alleged to be present in cereals. Recently, however, Mottram and Palmer [2] have shown that the rachitogenic effect of a pure cereal diet can be counteracted by merely adding sufficient calcium to produce a favorable calcium: phosphorus ratio. The loss of iron in the process of milling wheat is, however, of importance, since Rose and her co-workers [3] have shown that iron present in whole wheat meal is well absorbed and is efficiently used in the regeneration of hemoglobin.

Although wheat flour is practically devoid of vitamin D and vitamin C and ordinarily possesses but an insignificant amount of provitamin A, its content of the B group of water-soluble vitamins is not inconsiderable. An examination of white wheat bread, however, reveals that it contains only about one fourth to one sixth as much thiamin (vitamin B_1) as whole wheat bread. Investigation has also shown that bread prepared from whole wheat flour contains a larger percentage of the vitamin B complex than that prepared from white flour. Whole wheat grain contains an appreciable amount of provitamin A, carotene, but since this constituent imparts to the flour a yellow color which is considered undesirable, bleaching agents are often

1. Copping, A. M.: Nutrition Abstr. & Rev. **8**: 555 (Jan.) 1939.

2. Mottram, J. C., and Palmer, N.: Cereal Chemistry **14**: 682, 1937.

3. Rose, Mary S.; Vahlteich, Ella M., and Bloomfield, Emily L.: Proc. Soc. Exper. Biol. & Med. **26**: 322 (Jan.) 1929.

used which destroy the color as well as a large percentage of the carotene. The germ of wheat has important nutritive properties. Rejection of wheat germ in the process of milling involves loss of an important source of these factors. Although little is known of the human requirement for these accessory food factors found in wheat germ, it seems probable, in the light of animal experimentation, that they are important for the nutrition of man.

Although it seems unfortunate that so much of the nutritive value of wheat grain is sacrificed by the modern process of milling, the predominant position of the cereals in the dietary justifies the position occupied by bread. By suitable supplementation with other foods, the essential economy of bread can be enjoyed without sacrificing the nutritional excellence of the dietary as a whole.

Current Comment

AMERICAN OPHTHALMOLOGICAL SOCIETY

In June of this year the American Ophthalmological Society will celebrate its seventy-fifth anniversary. On June 7, 1864, this society, the first in the United States devoted exclusively to ophthalmology, was formed. That first meeting was held at the New York Eye Infirmary with eighteen in attendance from New York, Boston, Philadelphia and Poughkeepsie. The society has always stood for the highest ideals in practice of medicine. Its imminent anniversary celebration serves to emphasize the increasing maturity of American scientific medicine.

EFFECTS OF VITAMIN B COMPLEX ON EXPERIMENTAL HYPERTHYROIDISM

The effect of crystalline thiamin chloride (vitamin B_1 hydrochloride) and the vitamin B complex (yeast) on experimental hyperthyroidism was studied by Drill and Sherwood [1] on rats fed various diets. The study was designed (1) to feed rats a synthetic diet containing sufficient amounts of yeast for growth, (2) to feed thyroid gland to rats receiving the same diet and produce a loss of weight, and (3) to administer crystalline thiamin chloride and additional yeast to the hyperthyroid rats while they were still receiving thyroid gland, in an effort to enable them to regain their lost weight. As a result of their carefully balanced and controlled experiments on rats, these investigators found that thiamin chloride and yeast will enable hyperthyroid rats which have lost weight to regain their lost weight while still receiving thyroid gland. One important factor in this result is the fact that thiamin chloride and yeast concentrate greatly stimulated the food intake of hyperthyroid rats. It is not, however, the only factor; although thiamin chloride will stimulate the food intake, the rats will not gain weight under the conditions employed until a rich source of the vitamin B complex is added to the diet. Furthermore, hyperthyroid rats limited to 13 Gm. of food will not stop losing weight even when thiamin chloride and yeast are administered, nor will thiamin chloride and yeast enable hyperthyroid rats that are entering into the diestrum to maintain a normal estrous cycle. In fact, the estrual cycle of normal rats is not influenced by the daily injection of 500 micrograms of thiamin chloride for as long as forty-four days. These interesting experiments shed additional light on the function of these vitamin complexes in relation to the action of the thyroid gland, at least in the experimental animal used.

1. Drill, V. A., and Sherwood, C. R.: The Effect of Vitamin B_1 and the Vitamin B_2 Complex on the Weight, Food Intake, and Estrual Cycle of Hyperthyroid Rats, *Am. J. Physiol.* **124**: 683 (Dec. 1) 1938.

SYNERGIC ALLERGY IN TUBERCULOSIS

The demonstration by Sabin and Joyner [1] of the Rockefeller Institute that a mixture of tuberculoproteins and phosphatides causes a degree of sensitivity in laboratory animals comparable to that occurring in natural infections is important as a contribution to the newer theories of synergic immunity. The result renews hope of the ultimate development of a nonviable tuberculosis vaccine. Earlier work with antigenic fraction from the tubercle bacillus has been uniformly disappointing. Forty years of intensive research with these antigens led to the generally accepted conclusion that a nonviable tuberculosis vaccine cannot be clinically effective. While this conclusion has been recently challenged by Opie, it is still the accepted belief of most immunologists. The studies by Sabin and her co-workers seemed to confirm this belief. Different chemical fractions of tubercle bacilli were found to produce widely different local and humoral reactions in experimental animals, none of which could be regarded as a complete immunity. Following Burky's [2] demonstration of synergic effects with mixed antigens, the Rockefeller Institute immunologists began a study of the possibility of sensitizing or immunizing animals with mixtures of two or more of their earlier antigenic fractions. Their initial success is from a mixture of ordinary tuberculoproteins and tuberculophosphatides. Confirming the work of other investigators they found that guinea pigs can be sensitized by repeated intradermal injections with tuberculoprotein but that animals so sensitized will not react to the routine tuberculin test. Guinea pigs sensitized by multiple intradermal injections with tuberculophosphatide also show atypical sensitivity, since they do not exhibit the Koch phenomenon. The phosphatide and tuberculoproteins, however, apparently supplement each other in antituberculosis immunity. Following intradermal injections with a mixture of these two antigenic factions, routine diagnostic reactions are given by the sensitized guinea pigs that are qualitatively and quantitatively identical with those of tuberculous animals. Whether or not this synergic sensitivity is accompanied by an equally effective synergic immunity has not yet been determined. Even though a full immunity is not obtained with the present antigenic mixture, this work represents a distinct advance in the basic theory of immunity in tuberculosis.

1. Sabin, Florence R., and Joyner, Austin L.: *J. Exper. Med.* **68**: 659 (Nov.) 1938.
2. Burky, E. L.: J. Allergy **5**: 466 (July) 1934.

ORGANIZATION SECTION

THE ST. LOUIS SESSION

AMERICAN MEDICAL ASSOCIATION, NINETIETH ANNUAL SESSION
ST. LOUIS, MO., MAY 15-19, 1939

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The ninetieth annual session of the American Medical Association will be held in St. Louis, May 15-19, 1939.

The House of Delegates will convene at 10 a. m., Monday, May 15. In the House the representation of the various constituent associations for 1938, 1939 and 1940 is as follows:

Alabama	2	New Hampshire	1
Arizona	1	New Jersey	4
Arkansas	2	New Mexico	1
California	7	New York	19
Colorado	2	North Carolina	2
Connecticut	2	North Dakota	1
Delaware	1	Ohio	7
District of Columbia	1	Oklahoma	2
Florida	2	Oregon	1
Georgia	3	Pennsylvania	11
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	2
Indiana	4	South Dakota	1
Iowa	3	Tennessee	3
Kansas	2	Texas	6
Kentucky	3	Utah	1
Louisiana	2	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	2
Massachusetts	7	West Virginia	2
Michigan	5	Wisconsin	3
Minnesota	3	Wyoming	1
Mississippi	2	Alaska	1
Missouri	4	Hawaii	1
Montana	1	Isthmian Canal Zone	1
Nebraska	2	Philippine Islands	2
Nevada	1	Puerto Rico	1

The fifteen scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The Scientific Assembly of the Association will open with the general meeting, to be held at 8 p. m., Tuesday, May 16. The sections will meet Wednesday, Thursday and Friday, May 17, 18 and 19, as follows:

CONVENING AT 9 A. M., THE SECTIONS ON

- Practice of Medicine.
- Obstetrics and Gynecology.
- Laryngology, Otology and Rhinology.
- Pathology and Physiology.
- Preventive and Industrial Medicine and Public Health.
- Urology.
- Orthopedic Surgery.
- Miscellaneous Topics: Session on Anesthesia.

CONVENING AT 2 P. M., THE SECTIONS ON

- Surgery, General and Abdominal.
- Ophthalmology.
- Pediatrics.
- Pharmacology and Therapeutics.
- Nervous and Mental Diseases.
- Dermatology and Syphilology.
- Gastro-Enterology and Proctology.
- Radiology.

The Registration Department will be open from 8:30 a. m. until 5:30 p. m., Monday, Tuesday, Wednesday and Thursday, May 15, 16, 17 and 18, and from 8:30 a. m. to 12 noon, Friday, May 19.

IRVIN ABELL, President.
H. H. SHOULDERS, Speaker, House of Delegates.
OLIN WEST, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state associations are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included:

STATE DELEGATES

ALABAMA
J. N. Baker, Montgomery.
A. A. Walker, Birmingham.

ARIZONA

ARKANSAS
Edward E. Barlow, Dermott.
William R. Brooksher, Fort Smith.

CALIFORNIA
Elbridge J. Best, San Francisco.
Lyell C. Kinney, San Diego.
J. P. Nuttall, Santa Monica.
Edward M. Pallette, Los Angeles.
George G. Reinle, Oakland.
Robert A. Peers, Colfax.
William R. Molony Sr., Los Angeles.

COLORADO
John Andrew, Longmont.
Walter W. King, Denver.

CONNECTICUT
George Blumer, New Haven.
Walter R. Steiner, Hartford.

DELAWARE
William H. Speer, Wilmington.

DISTRICT OF COLUMBIA
Henry Cook Macatee, Washington.

FLORIDA
Herbert L. Bryans, Pensacola.

GEORGIA
Olin H. Weaver, Macon.
William H. Myers, Savannah.
Charles W. Roberts, Atlanta.

IDAHO
E. N. Roberts, Pocatello.

ILLINOIS
G. Henry Mundt, Chicago.
R. K. Packard, Chicago.
Charles J. Whalen, Chicago.
John J. Pflock, Chicago.
E. S. Hamilton, Kankakee.

INDIANA
Don F. Cameron, Fort Wayne.
F. S. Crockett, LaFayette.
George R. Dillinger, French Lick.
H. G. Hamer, Indianapolis.

IOWA
Thomas F. Thornton, Waterloo.
V. L. Treynor, Council Bluffs.

KANSAS
Howard L. Snyder, Winfield.

KENTUCKY
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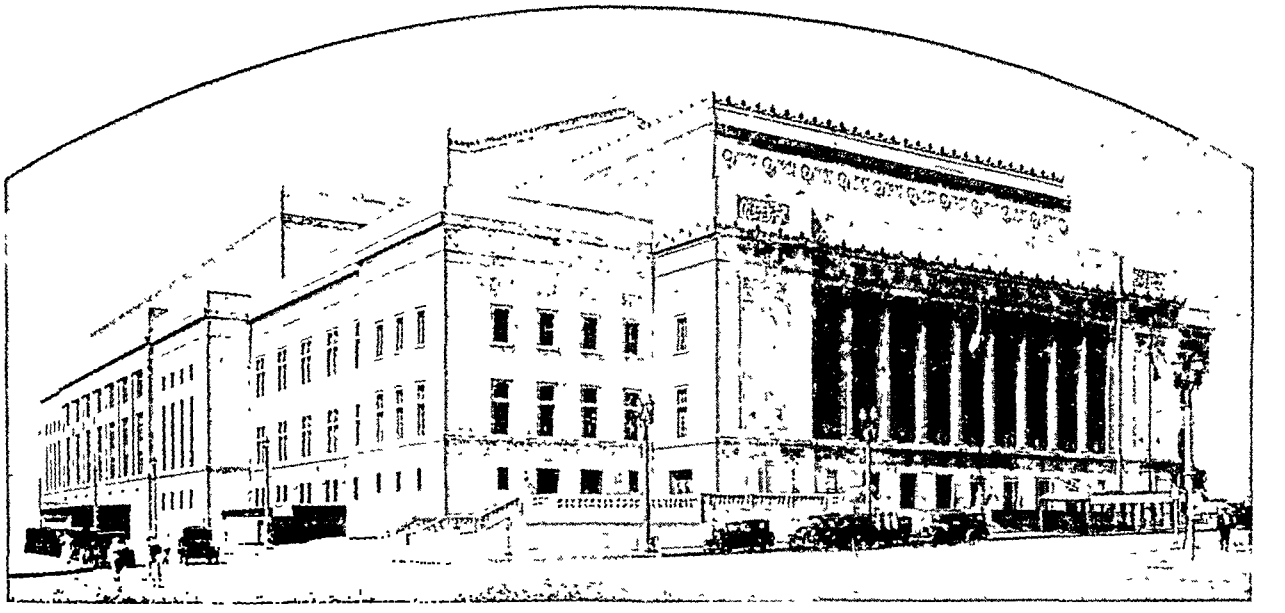
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ST. LOUIS, THE HUB OF THE NATION, WELCOMES YOU!

Famous for its magnificent buildings, parks and boulevards, St. Louis has steadily advanced into metropolitan areas since the French pioneers landed in 1764, at what is now the foot of Walnut Street. Like the landing of the Pilgrim Fathers, the coming of the "First Thirty," as this band became known, marked the beginning of a great empire. On the morning of February 16, August Chouteau led his men to the plateau overlooking the river. The blows of axes sounded through the woods and the building of St. Louis began.

Within three years the colonists had established fur trading monopolies with the twenty-eight principal Indian nations. Each year saw the city's influence widen. St. Louis became the starting point of expeditions in all directions, some military, to establish forts; some scientific, to explore, and others to establish communities to open commercial avenues. One of these was the Lewis and Clark expedition in 1804, opening the Northwest



MUNICIPAL AUDITORIUM WHERE THE ANNUAL SESSION WILL BE HELD

The Frenchmen of St. Louis also paved the way for the American occupation of Louisiana. A branch of the Chouteau family founded Kansas City. Robidoux of St. Louis established St. Joseph. One of the Menards founded Galveston.

Fully a hundred western cities and towns owe their beginning to St. Louisans.

The year 1811 marked the appearance of the Mississippi steamboat. Five years later the first steamboat came up the river, and for fifty years river trade grew by leaps and bounds.

St. Louis today is one of the most modern cities in America. Geographically it meets you half way, and in hospitality it goes the whole way. Visitors will enjoy seeing the Art Museum, the Cahokia Mounds, Chain of Rocks Park, the Confederate Memorial, the Dent House, Eads Bridge, Forest Park, Grant's Log Cabin, Jefferson Memorial, the Lindbergh Trophies, the Old Court House, "Ol' Man River," Shaw's Garden, the St. Louis Municipal Airport, the Zoological Gardens and many other attractions.

THE PLAZA

Some of the principal public buildings in St. Louis are grouped about a fine plaza, developed after long term planning and made possible by bond issues exceeding $100,000,000. This most unusual group of new buildings comprises the Municipal Auditorium, the Civil Courts Building, the federal court and custom house, and the $1,000,000 Soldier Memorial Building; facing the Plaza also are the City Hall and Municipal Courts Building, while nearby are the Public Library, the new post office and the new police headquarters. St. Louis has become architecturally renowned also through its thirty-one story telephone building, the huge railway exchange building, the majestic new cathedral and the Scottish Rite Cathedral. It was among the first large American cities to adopt city planning and has not only its plaza but widened boulevards, sunken gardens and other examples of serene beauty in the downtown section.

THE MUNICIPAL AUDITORIUM

The new $6,000,000 St. Louis auditorium, where the sessions will be held, makes an impression of massive dignity and power as one approaches across the expansive plaza of this great temple dedicated to the people. Within its walls softly padded avenues lead into three large assembly units: the great opera house, the stupendous arena and the expansive exposition hall. Here is the most complete convention building in the world. From the opera house stage, a loud speaker system casts even the weakest voice throughout the building. When the 30 ton fireproof steel curtain between the opera house and the arena is raised, the two enormous areas become one large amphitheater, seating 16,000 people.

No necessary detail for the large assembly was overlooked in the planning of this auditorium. Conveniently woven into the larger pattern are smaller assembly halls with stages, committee rooms, offices, a cafeteria, a refreshment bar, a ticket lobby and a foyer. The entire building is air conditioned. A million cubic feet of fresh air a minute comes into fourteen fan rooms and is conveyed to every part of the building at the rate of 30 cubic feet a minute per person. The opera house seats are richly upholstered over box springs. Audiences and speakers alike enjoy the restfulness that pure air, diffused lighting and dignified furnishings provide.

The Municipal Auditorium is on Market Street between Twelfth Boulevard and Eighteenth Street, three blocks from the Union Depot and within walking distance of many of the best hotels. Ample parking facilities are adjacent. The entrance itself is spacious, with its ticket windows and space for registration booths. A broad stairway leads from both ends to the Grand Lobby, as elegant as a king's palace, with marble columns, gilded ceiling, opal flashed chandeliers, velvet drapes and deep carpets, a restful place indeed to visit with old friends. Four

doors open from the Grand Lobby into a balcony which affords a view of the enormous combined assembly halls.

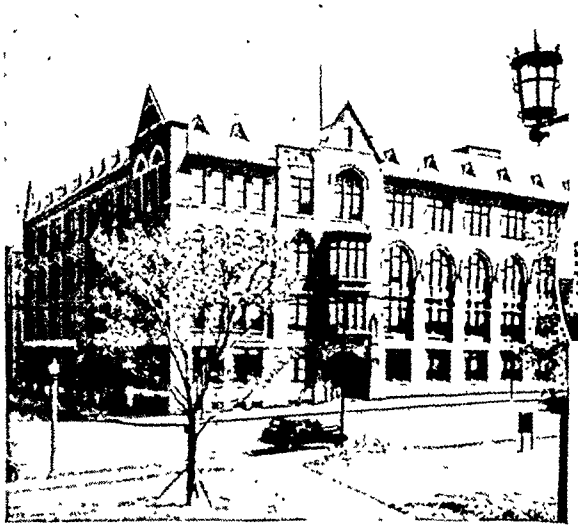
Two of the four smaller assembly rooms are on the third flour, each with a capacity for 800 people. Stairways, elevators and ramps make it easy to reach any of the four flours and the numerous halls and committee rooms. On the ground floor below the convention hall is the Exposition Hall, a spacious area adaptable to almost any type of exhibit.

THE ZOO

Internationally famous is the St. Louis Zoo. Experts come to St. Louis from elsewhere in this country and from abroad to study the unusual arrangements by which animal dens have been transformed into near-to-nature haunts.

Within the zoo's 77 acres in Forest Park are more than 1,964 mammals, birds, fish, reptiles and amphibians. Here are the "cageless" bear pits, the new monkey house, the largest steel-enclosed bird cage in the world, the swan lakes, which also serve as a sanctuary for wild ducks and geese on their migrations, the new reptile house, and Peacock Valley, with its chain of thirteen lakes teeming with aquatic life.

Steel and concrete structures house lions, tigers, leopards, elephants, hippopotamuses and other creatures.



ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE



WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

THE BOTANICAL GARDEN

The Missouri Botanical Garden (Shaw's Garden), which ranks second only to the famous Kew Gardens of England, contains the largest collection of plant life in the Western Hemisphere. It comprises a city garden of about 75 acres, an out of town extension of more than 1,600 acres, and a tropical extension at Balboa, Panama. More than 11,000 species of plants from all parts of the globe may be seen there.

One of the best botanical libraries in the country, one of the largest herbariums in the United States, laboratories for scientific work and a school for gardening combine the features of a pleasure ground with the facilities of an institution of research. The garden was established by the will of Henry Shaw and is maintained entirely by his endowment. The orchid collection is said to be the finest on the American continent. The garden is open daily to the public, and admission is free.

ST. LOUIS AS A MEDICAL CENTER

While attaining success in industry, St. Louis at the same time has developed into one of the medical centers of the United States, having unusual facilities for the care of the sick, for medical research and for the instruction of medical students at two great medical schools.

WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

By the union in 1899 of two medical schools, Washington University School of Medicine was founded. Fifteen years later it moved from Eighteenth and Locust streets to new buildings at Euclid Avenue and Kingshighway Boulevard, facing Forest Park. Affiliated with it are the Barnes Hospital, St. Louis Children's Hospital, McMillan Eye, Ear, Nose and Throat Hospital, and Oscar Johnson Institute. Further teaching facilities are afforded by the St. Louis City Hospital, including the City Isolation Hospital and the City Sanitarium. The Washington University Dispensary serves as an outpatient clinic. Washington University School of Medicine has also museums in the various departments. Recently a collection of anatomic specimens prepared with unusual skill was purchased. Adjoining the main reading room of the excellent library is the famous Beaumont collection of manuscripts, letters and other material of the pioneer American physiologist, presented by his granddaughter, the late Lilly Beaumont Irwin.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE

Established in 1837 in a small hospital on Washington Avenue, the St. Louis University School of Medicine ten years later moved to its own building at Seventh and Clark avenues. Eight years later the affiliation between the medical school and the university was severed. The medical school, then independent, was known as the St. Louis Medical College. Beaumont Medical College, organized in 1886, and the Marion Sims School of Medicine, organized in 1890, combined in 1901 into the Marion Sims-Beaumont Medical College. These medical schools merged in 1901, and in 1903 St. Louis University assumed control of them. The reorganization provided not only full time department heads for the fundamental departments but in 1927 the present group of medical buildings on Compton Hill, at Grand Boulevard and Caroline Street. Here the University Hospital embraces the Firmin Desloge Hospital, St. Mary's Hospital and Mount St. Rose Sanitarium. The educational and medical activities of the Sisters of St. Mary have been placed under the control of the university. Teaching facilities are furnished also by the Alexian Brothers', St. Anthony's and St. John's hospitals, the staffs of which are appointed by the university; associated also are St. Ann's Maternity Hospital, St. Ann's Foundling Society and the St. Louis Obstetric Dispensary. Additional teaching facilities are afforded by the St. Louis City Hospital.

OTHER ST. LOUIS HOSPITALS

In addition to the hospitals connected with the two medical schools, there are the Bethesda General Hospital, Barnard Free Skin and Cancer Hospital, Christian Hospital, De Paul Hospital, Jewish Hospital, Lutheran Hospital, Missouri Baptist Hospital, Missouri Pacific Hospital, St. Louis City Hospital No. 1, St. Luke's Hospital, St. Ann's Maternity Hospital, Evangelical Deaconess Home and Hospital, Frisco Employees' Hospital, Shriners' Hospital for Crippled Children and the United States Marine Hospital.

THE ST. LOUIS MEDICAL SOCIETY

The St. Louis Medical Society, founded in 1836, now occupies a new, beautiful $400,000 home at 3839 Lindell Boulevard, constructed especially for the society after months of ceaseless effort by committees and other members to obtain the funds. Here a large lounge offers relaxation from the cares of practice and a congenial spirit for informal conferences. On the walls are tablets for Bernard Farrar, the first president of the society, William Beaumont, president in 1841, and John T. Hodgen, president in 1876. The Bartscher room, a memorial to Dr. Hugh Bartscher from his mother, who left $41,000 for this purpose, contains historical collections, rare books, medals and art exhibits. The Glasgow reading room is named in honor of Drs. William C. Glasgow and Frank A. Glasgow, whose sister, Mrs. Newton R. Wilson, gave $50,000 to the building fund. About 300 persons visit this reading room each month. Two librarians are in constant attendance. The library on the second floor contains more than 30,000 volumes and receives 325 current journals. A collection of about 800 rare medical books and pictures, given by the late James M. Ball, is on exhibit. The auditorium will accommodate 700 persons, and there are smaller meeting rooms, a large dining room and rooms for entertainment. The St. Louis Medical Society has 1,000 active members. It publishes a weekly bulletin and has numerous committees studying problems of public welfare and public health as well as economic and scientific problems. It sponsors weekly broadcasts on public health on time allotted through the courtesy of a local broadcasting station.

FOREST PARK

In Forest Park St. Louis has one of the largest fully developed parks in the United States, comprising nearly 1,381 acres, so spacious that natural features may be combined with formal landscaping, artificial lagoons and lakes, fountains and aquatic plants. In addition to the features already briefly described there are three golf courses, twenty-five baseball diamonds, thirty-eight tennis courts and soccer fields, 200 Japanese cherry trees and the city art museum, which was a feature of the Louisiana Purchase Exposition in 1904, at the close of which the $1,000,000 building was presented to the city.

The Jewel Box, operated in conjunction with the eighteen greenhouses maintained by the park department, is internationally famous for its exhibits of plants and flowers and reproductions of foreign gardens. Last year three new rosariums were created, one in front of the Jewel Box, which when lighted at night shows the splendor of thousands of roses.

The general offices of the Division of Parks and Recreation are in room 330, Municipal Courts Building, Fourteenth and Market streets.

SUMMER OPERA OUTDOORS

St. Louis is known the world over for its summer opera, conducted by the Municipal Theater Association in an open air amphitheater in Forest Park a short distance from the municipal auditorium. This summer will see the twenty-first season. Since 1919 nearly 10,000,000 people have enjoyed 1,374 performances, including five world premiers and four American premiers. Ten thousand seats are available at reasonable prices and there are 1,700 free seats. About 30,000 reserved seats are distributed annually to the underprivileged through more than 100 welfare agencies.

The stage is flanked by two oak trees 70 feet high, beside which are illuminated towers. Almost 1,000 guarantors have invested a total of $100,000 to insure each season against loss, but never has a guarantor lost a penny. This opera is fully divorced from the old idea that opera must be supported by gifts from the rich or from the state; it is a triumph of democratic ideals. Nature designed the open auditorium and man arranged it so that every one has an unobstructed view. There is parking space for 5,000 automobiles within two minutes' walking distance of the entrance.

JEFFERSON MEMORIAL

Erected as a memorial to Thomas Jefferson by the federal government, the city and the Louisiana Purchase Exposition and standing on the site of the main entrance to the exposition,



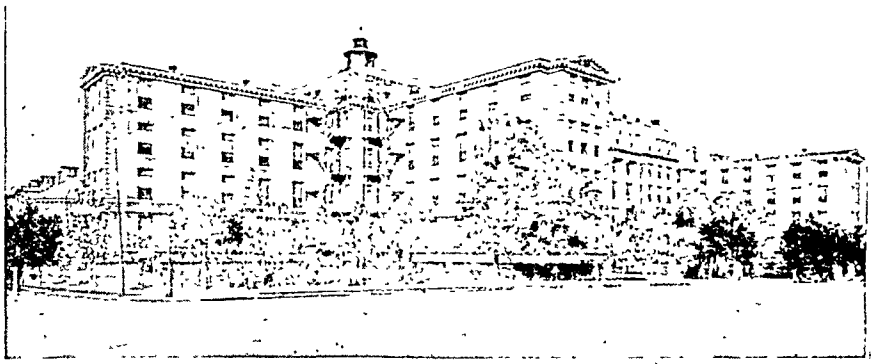
HOME OF ST. LOUIS MEDICAL SOCIETY BUILDING ON LINDELL NEAR VANDEVENTER

Jefferson Memorial is a combination of a museum, library, statue, archway and community center and thus is a fitting monument to one of the most democratic citizens in American history. Of supreme interest is the famous Lindbergh collection. Colonel Lindbergh chose the Jefferson Memorial, with the Missouri Historical Society as custodian, as the permanent resting place of the trophies and mementos which came to him in connection with his flight in the *Spirit of St. Louis* across the Atlantic and his tour of Mexico, Central America and South America. In the memorial also are relics of the Mound Builders, curios of Indian tribes, original manuscripts of the French and Spanish days in Missouri, relics of the pioneers and of the Revolutionary, Mexican, Spanish-American and World wars, ancient records of Missouri courts, the third largest collection of Jefferson manuscripts in the country, a large portion of the manuscripts of the Hamilton-Burr controversy, and records of the Lewis and Clark Expedition.

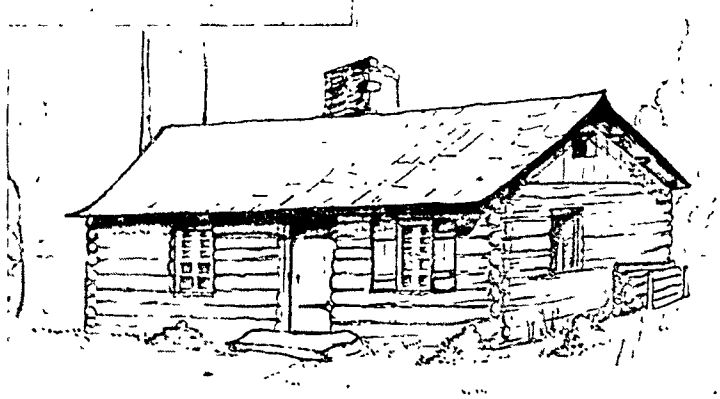
St. Louis Hospitals



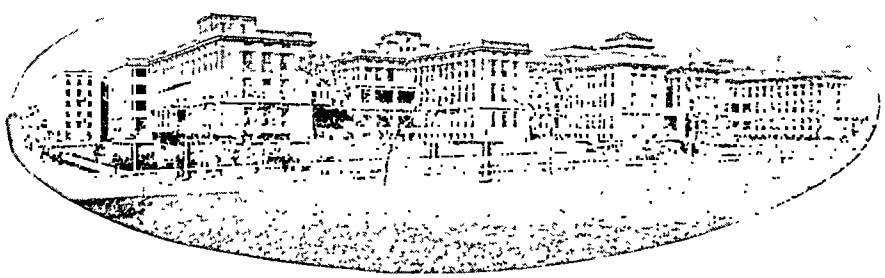
NEW DEACONESS HOSPITAL AT 6150 OAKLAND AVE., FACING FOREST PARK



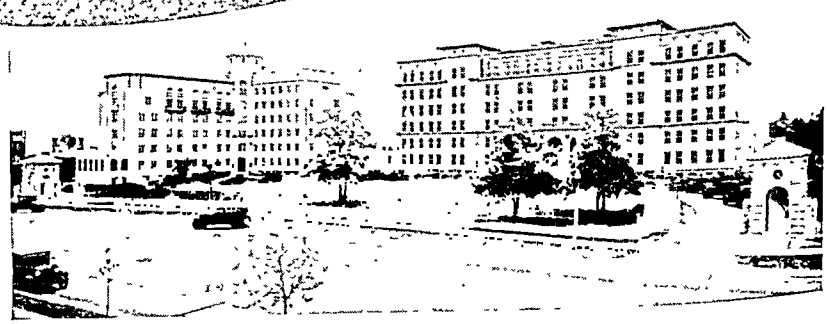
THE CITY HOSPITAL 1515 LAFAYETTE AVE.



ORIGINAL LOG CABIN HOSPITAL, THE FIRST WEST OF MISSISSIPPI RIVER



BARNES HOSPITAL GROUP, KINGSHIGHWAY BLVD. AND EUCLID AVE., FACING FOREST PARK



ST. MARY'S HOSPITAL AND NURSES' HOME AT CLAYTON AND BELLEVUE AVE.

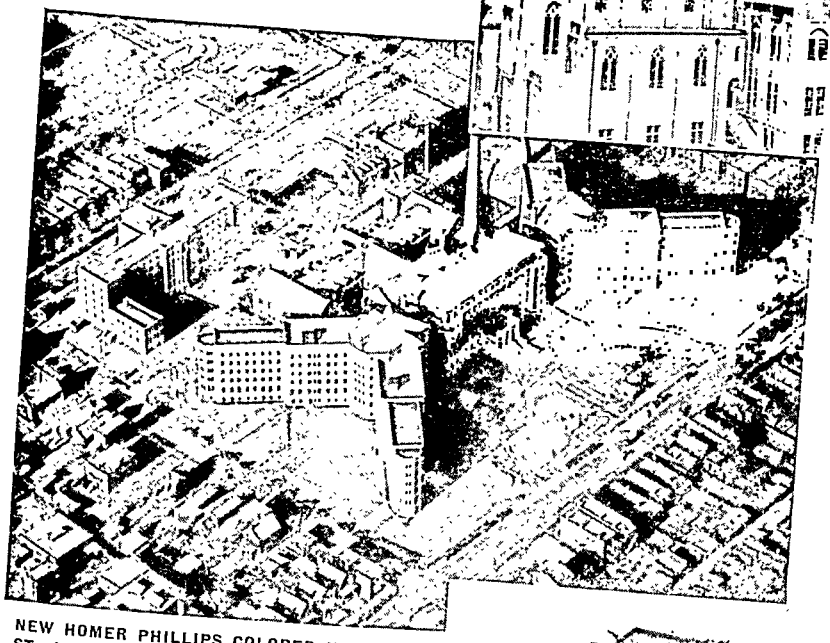
St. Louis Hospitals



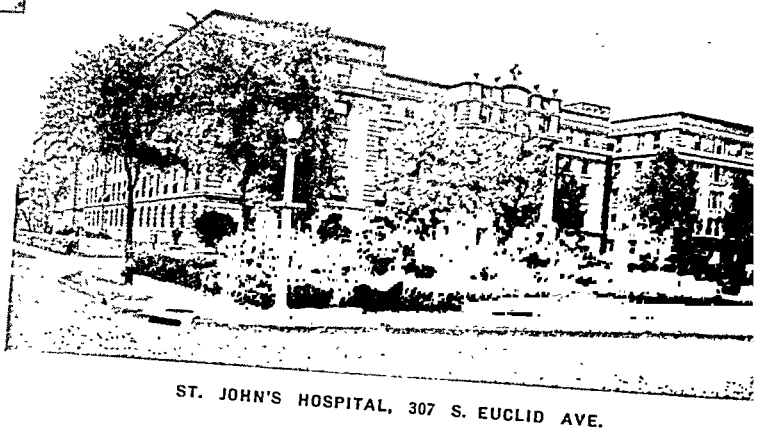
NEW DE PAUL HOSPITAL
2415 KINGSHIGHWAY BLVD.



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ST. JOHN'S HOSPITAL, 307 S. EUCLID AVE.

HISTORICAL LANDMARKS

St. Louis is rich in history, traditions and landmarks of dauntless men. In the Lucas Market Place Ulysses S. Grant once sold cord wood. Here is the home in which he married Julia Dent. At the door of the Old Court House, the scene of the Dread Scott trial, there still stands the auction block on which slaves were sold. The oldest building in the city is Rock House, on the river front at Chestnut Street, near where the "first thirty" landed in 1764; a few blocks away is the cathedral on the site of which mass was first celebrated in St. Louis. There is the site of the old Government House, where the Louisiana territory was transferred from France to the United States, and the home of William Clark, the explorer.

TRANSPORTATION

Railroad Rates to St. Louis

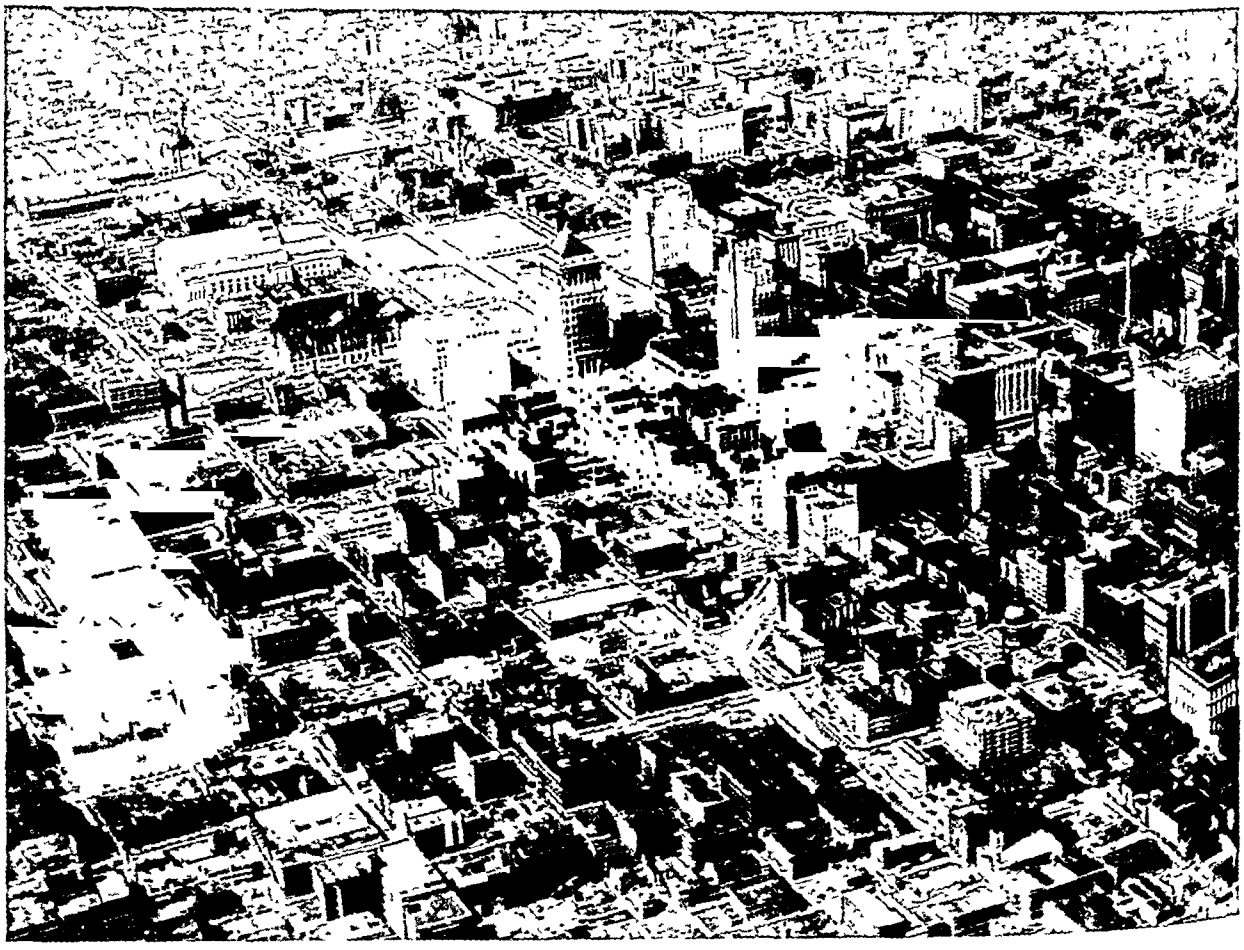
Because of the reduction in one way fares effective June 1, 1936, for travel in sleeping and parlor cars, which closely approximates the former convention fare basis, the use of convention fares has been discontinued in the territories of the Central Passenger, Trunk Line, New England, Southern and Southwestern Passenger Associations.

In the territory of the Southern Passenger Association, daily round trip fares are in effect to St Louis on the basis of 2½ cents a mile in each direction with limit of six months in addition to date of sale going and returning the same route, also via diverse routes, tickets being honored in sleeping or parlor cars on payment of charges for space occupied In addition, reduced fares are in effect on a slightly lower basis from certain points in the extreme western part of the territory to St Louis for tickets bearing limit of thirty days in addition to date of sale. These fares are subject to change but in all probability these or comparable fares will be available.

In the territory of the Southwestern Passenger Association, for travel in sleeping or parlor cars, thirty day limit fares are on the basis of fare and one half or 2¼ cents a mile in each direction. In case a longer limit than thirty days is desired, tickets at slightly higher fares are available. In addition, round trip tickets good for transportation in coaches only may be obtained at a fare of 5 per cent less than double the one way 2 cents a mile coach fare, and these tickets have a limit of thirty days in addition to date of sale. These tickets may be obtained without the presentation of credentials

In the territory of the Trans-Continental and Western Passenger Associations, low round trip fares, for which no certificates of any kind will be necessary, will be in effect daily for travel in sleeping and parlor cars, on payment of the usual charges for space occupied Low intermediate class fares, good for transportation in tourist sleeping cars, will also be available on payment of charges for space occupied

All members who expect to attend the session are urged to confer with their home ticket agents, who will be able to give them more specific information regarding fares and routes

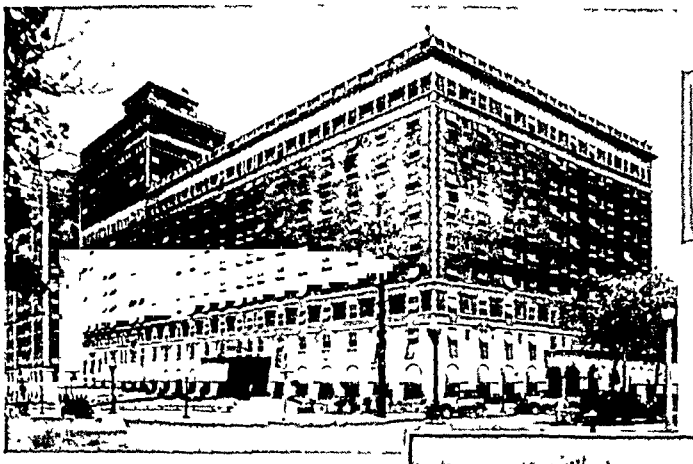


AIR VIEW OF DOWNTOWN ST. LOUIS

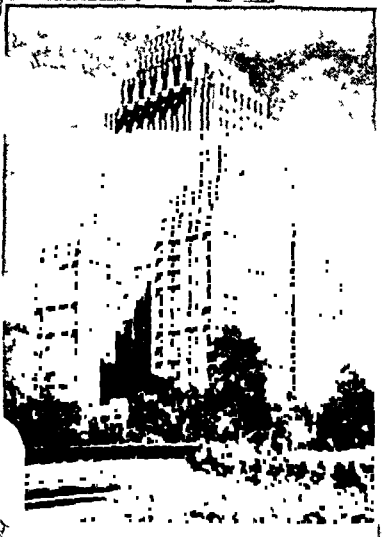
Air Travel

By air, St Louis is just a few hours from most important cities in the United States, Canada and Mexico, and no more than overnight from the most distant. Sleeper accommodations are available on overnight journeys on most of the transcontinental services. Your nearest Airline Ticket Office, Travel Bureau, Hotel Transportation Desk or Western Union or Postal Telegraph Office will gladly arrange your itinerary.

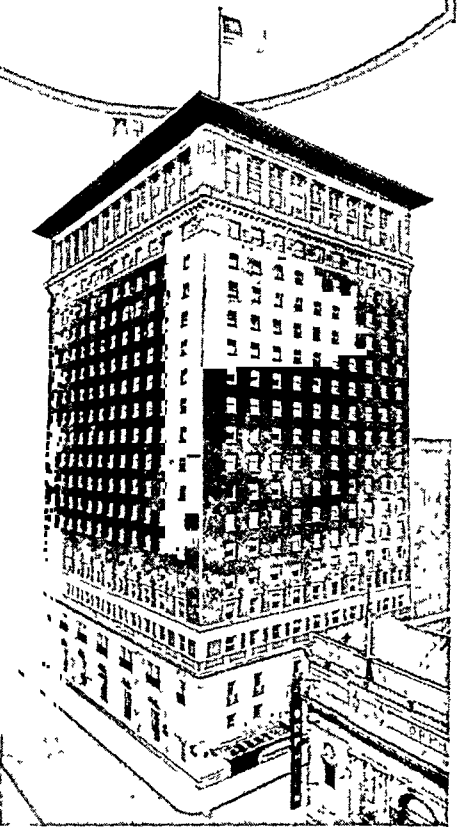
St. Louis Hotels



CORONADO HOTEL



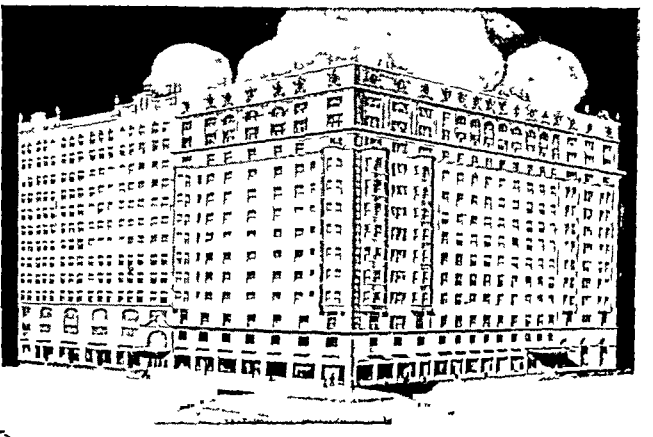
PARK PLAZA HOTEL



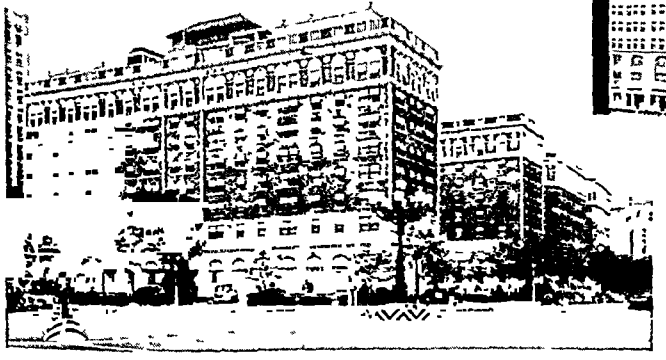
HOTEL STATLER



HOTEL MARQUETTE



JEFFERSON HOTEL



HOTEL CHASE

REGISTRATION

The Bureau of Registration will be located in the Municipal Auditorium, Market Street, between Fourteenth and Fifteenth streets. Members of the Subcommittee on Registration of the Local Committee on Arrangements will be on hand to assist those who desire to register. A branch postoffice in charge of government postoffice officials will be available for visitors, and an information bureau will be operated in connection with the Bureau of Registration.

Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to THE JOURNAL and paid their Fellowship dues for the current year The annual Fellowship dues provide a subscription to THE JOURNAL for one year. Fellowship cards are sent to all Fellows after payment of annual dues, and these cards should be presented at the registration window Any

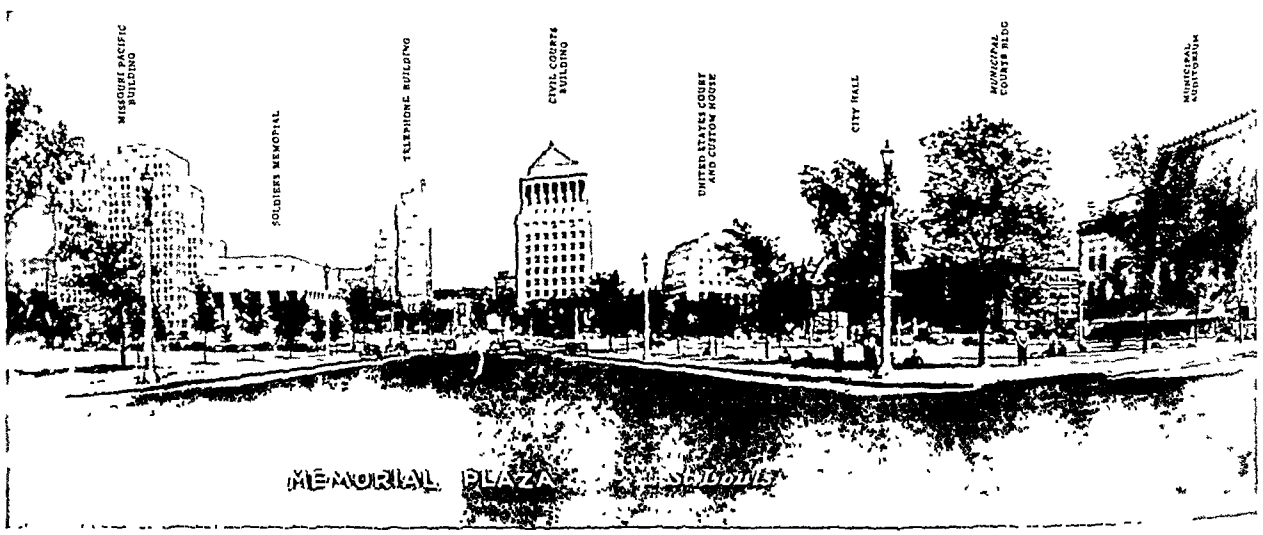
Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the *white* registration card, which will be found on the tables in front of the Registration Bureau

Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the *blue* registration card and sign the application on the back These cards will be found on the tables.

Entries on the registration cards should be written plainly or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*, published on Tuesday, Wednesday, Thursday and Friday of the week of the session

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out *white* registration card, together with their pocket cards, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it, and supply the Fellow with a badge, a copy of the official program and other printed matter of interest to those attending the annual session



THE MUNICIPAL AUDITORIUM IS ON THE RIGHT

who have not received cards for 1939 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago.

Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in component county medical societies are members of constituent state associations and of the American Medical Association. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to St. Louis so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to THE JOURNAL who have not received pocket cards for 1939 should write to the American Medical Association in order to obtain application blanks and information as to further requirements.

Register Early

Fellows living in St. Louis, as well as all other Fellows who are in St. Louis on Monday and Tuesday, should register as early as possible. The names of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends if they have registered.

As previously stated, it will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago, so that their Fellowship may be entered not later than April 24. Any applications that are received later than April 24 will be given prompt attention, but the Fellowship pocket card may not reach the applicant in time for him to register at the St Louis session.

It will be possible for members of the organization to qualify as Fellows at St. Louis. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the *blue* registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at St. Louis bring with them their state membership cards for 1939. The state membership card should be presented along with the filled in *blue* registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests."

As already stated, registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home.

Registration for General Officers and Delegates at the Hotel Statler

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly in Section III of the Assembly Room, adjacent to the Ball Room of the Hotel Statler. This arrangement is

made for the convenience of the members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the Ball Room of the Hotel Statler. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock, Monday morning, May 15, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

ST. LOUIS HOTELS

A list of St. Louis hotels is presented for the benefit of those who expect to attend the annual session of the American Medical Association, May 15-19. Dr. Neil S. Moore is chairman of the Subcommittee on Hotels of the Local Committee on Arrangements and may be addressed at 910 Syndicate Trust Building, St. Louis, Mo. The advertising announcement and coupon for reservations appear on advertising page 107 of this issue. It is quite probable that no further reservations can be accepted by some of the hotels named in the list, but the chairman of the subcommittee on hotels will use his utmost endeavor to secure satisfactory accommodations for all who may apply. Since all reservations are cleared through the subcommittee on hotels, it will greatly expedite matters if requests for reservations are addressed directly to Dr. Moore, who, as stated, may be reached at 910 Syndicate Trust Building, St. Louis, Mo.

Schedule of Rates

Hotels	For 1 Person	For 2 Persons: Double Bed	For 2 Persons: Twin Beds	Suites
AMERICAN, 6 N. 7th St.	$2.00	$3.00	$4.00	
AUDITORIUM, 1803 Pine St.		3.50	4.50	
BELCHER BATH, 407 Lucas St.		2.50	3.00	
BILTMORE, 3643 Washington Ave.		3.00	3.50	
CHASE, 212 N. Kingshighway	3.00- 5.00	4.50- 6.00	5.00- 8.00	
CLARIDGE, 18th and Locust		3.00- 6.00	4.00- 7.00	
CONGRESS, 275 N. Union Blvd.			6.00	$11.00-$13.00
CORONADO, 3701 Lindell Blvd.	2.00- 5.00	4.50- 6.00	5.00- 7.00	7.00- 12.00
DESOTO, 1014 Locust St.	2.50- 4.00	4.00- 6.00	5.00- 7.00	
FAIRGROUNDS, 3644 Natural Bridge		4.00- 5.00		
FOREST PARK, 4910 West Pine			5.00	5.00- 10.00
GATESWORTH, 245 Union Blvd.		4.00	4.00- 5.00	10.00- 15.00
JEFFERSON, 415 N. 12th Blvd.	2.50- 6.00	3.50- 8.00	5.00- 8.00	6.00- 10.50
KINGS-WAY, 108 N. Kingshighway	1.50- 4.00	2.50- 6.00	4.00- 7.00	
LENNOX, 825 Washington Ave.	3.50- 6.00	5.00- 8.00	5.50- 8.00	
LINDELL PLAZA, 4300 Lindell		2.50- 3.00	3.00- 3.50	
MAJESTIC, 200 N. 11th St.	2.00- 3.00	3.00- 4.50	4.00- 5.00	
MARK TWAIN, 116 N. 8th St.		4.00- 5.00	4.50- 6.00	
MARQUETTE, 18th and Washington		2.50- 3.50	3.00- 4.00	
MARYLAND, 205 N. 9th St		3.00- 5.00		
MAYFAIR, 8th and St. Charles St.	3.00	5.00- 6.00	5.50- 8.00	
MELBOURNE, 3601 Lindell Blvd.	2.50- 4.00	4.00- 6.00	4.50- 7.00	
PARKEDGE, 4907 West Pine		2.00- 2.50		
PARK MANOR, 5560 Pershing		2.00- 2.50		
PARK PLAZA, 220 N. Kingshighway	3.50- 4.00	6.00- 7.00	8.00-10.00	
ROOSEVELT, 4901 Delmar		3.00		
STATLER, 9th and Washington	2.50	4.50- 7.00	5.00- 9.00	12.00
WARWICK, 1428 Locust	2.00- 3.00	3.00- 4.00	4.00- 5.00	
WASHINGTON, 610 N. Kingshighway		2.00- 3.00	2.50- 3.50	
YORK, S S. 6th St.	2.00- 2.50	4.00	4.50	

MEETING PLACES

HOUSE OF DELEGATES: Ball Room of the Hotel Statler, Washington Avenue at Ninth and St. Charles streets.

OPENING GENERAL MEETING: Opera House of Municipal Auditorium.

GENERAL SCIENTIFIC MEETINGS: Opera House of Municipal Auditorium and Gold Room of Hotel Jefferson.

SECTIONS OF SCIENTIFIC ASSEMBLY

PRACTICE OF MEDICINE: Gold Room of Hotel Jefferson.

SURGERY, GENERAL AND ABDOMINAL: Opera House of Municipal Auditorium.

OBSTETRICS AND GYNECOLOGY: Opera House of Municipal Auditorium.

OPHTHALMOLOGY: Assembly Room 1 of Municipal Auditorium.

LARYNGOLOGY, OTOLOGY AND RHINOLOGY: Assembly Room 1 of Municipal Auditorium.

PEDIATRICS: Gold Room of Hotel Jefferson.

PHARMACOLOGY AND THERAPEUTICS: Assembly Room 2 of Municipal Auditorium.

PATHOLOGY AND PHYSIOLOGY: Assembly Room 2 of Municipal Auditorium.

NERVOUS AND MENTAL DISEASES: Assembly Room 4 of Municipal Auditorium.

DERMATOLOGY AND SYPHILOLOGY: Assembly Room 3 of Municipal Auditorium.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH: Ivory Room of Hotel Jefferson.

UROLOGY: Assembly Room 3 of Municipal Auditorium.

ORTHOPEDIC SURGERY: Assembly Room 4 of Municipal Auditorium.

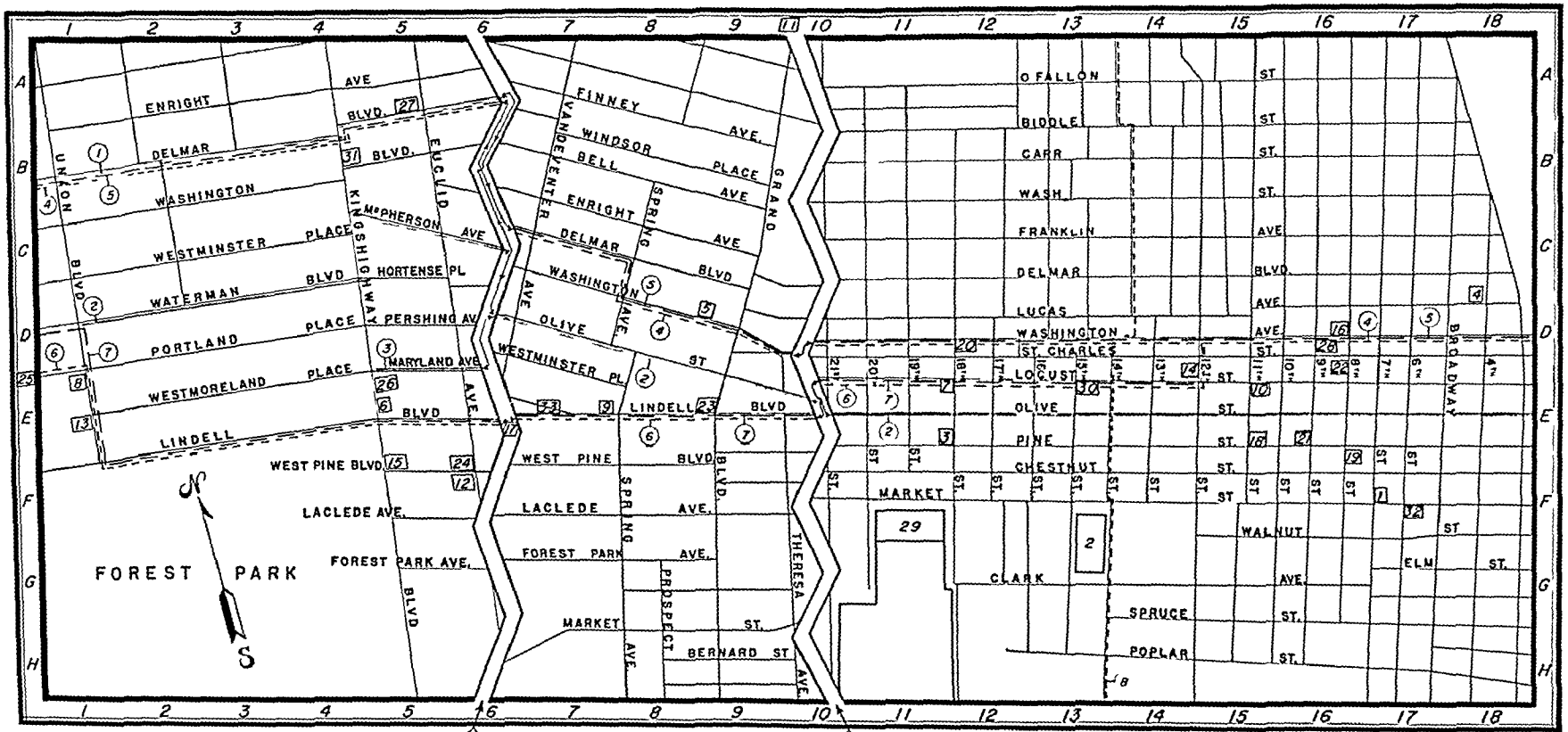
GASTRO-ENTEROLOGY AND PROCTOLOGY: Ivory Room of Hotel Jefferson.

RADIOLOGY: Ball Room of Hotel DeSoto.

MISCELLANEOUS TOPICS, SESSION ON ANESTHESIA: Ball Room of Hotel DeSoto.

GENERAL HEADQUARTERS, SCIENTIFIC EXHIBIT, REGISTRATION BUREAU, TECHNICAL EXHIBITS, INFORMATION BUREAU AND BRANCH POSTOFFICE: Municipal Auditorium, Market Street, between Fourteenth and Fifteenth streets.

MAP OF ST. LOUIS AND KEY TO MAP



(1) DELMAR - OLIVE STREET CAR
(2) UNIVERSITY - OLIVE STREET CAR
(3) MARYLAND - OLIVE STREET CAR
(4) DELMAR SERVICE CAR ROUTE 1

ABOUT 1¾ MILES OF AREA BETWEEN PART OF EUCLID AVE AND PART OF VANDEVENTER AVE OMITTED — LINDELL PLAZA HOTEL LOCATED ABOUT MIDWAY IN THIS AREA ON LINDELL BLVD

ABOUT 1¼ MILES OF AREA BETWEEN PART OF THERESA AVE AND 22ND ST OMITTED

(5) DELMAR BUS #91
(6) LINDELL BUS #93
(7) LINDELL - WATERMAN SERVICE CAR ROUTE 3
(8) CHEROKE BUS #20

ST LOUIS, MISSOURI
SHOWING THE PRINCIPAL HOTEL AREAS

KEY TO MAP

1	American Hotel	F 17	8	Congress Hotel	D 1	15	Kings Way Hotel	F-5	22	Mayfair Hotel	D 16	28	Statler Hotel	D 16
2	Auditorium (Municipal)	F 13	9	Coronado Hotel	E 7	16	Lennox Hotel	D 16	23	Melbourne Hotel	E 9	29	Union Station	F 11
3	Auditorium Hotel	F 11	10	DeSoto Hotel	E 15	17	Lindell Plaza Hotel	E 6	24	Parkedge Hotel	F 6	30	Warwick Hotel	E 13
4	Belcher Bath Hotel	D 18	11	Fairgrounds Hotel	Margin 10	18	Majestic Hotel	E 15	25	Park Manor Hotel	Margin E	31	Washington Hotel	B 4
5	Biltmore Hotel	D 9	12	Forest Park Hotel	F 6	19	Mark Twain Hotel	F 16	26	Park Plaza Hotel	E 5	32	York Hotel	F 17
6	Chase Hotel	E 5	13	Gatesworth Hotel	E 1	20	Marquette Hotel	D 12	27	Roosevelt Hotel	A 5	33	St Louis Medical Society	F 7
7	Claridge Hotel	E 12	14	Jefferson Hotel	D 14	21	Maryland Hotel	F 16						

GENERAL SCIENTIFIC MEETINGS

MONDAY, MAY 15—2 P. M.

OPERA HOUSE, MUNICIPAL AUDITORIUM

PROGRAM BY ST. LOUIS PHYSICIANS

Emergency Treatment of Heart Failure.
ALPHONSE MCMAHON.

A Comparison of the St. Louis Type of Encephalitis with Other Neurotropic Virus Diseases. G. O. BROUN.

Operative Procedures on the Sympathetic Nervous System.
WILLIAM T. COUGHLIN.

Primary Carcinoma of the Lung.
M. F. ARBUCKLE and EVARTS A. GRAHAM.

Use of the Polysaccharide Skin Test in the Serum Treatment of Lobar Pneumonia.
L. D. THOMPSON, JOSEPH EDWARDS and C. L. HOAGLAND.

Electrical Transcriptions of Speech Following Closure and Elongation of Cleft Palates. JAMES BARRETT BROWN.

Roentgen Aids in Chest Diagnosis. L. R. SANTE.

TUESDAY, MAY 16

MEDICAL DIVISION: GOLD ROOM OF THE HOTEL JEFFERSON

9 A. M.

Allergy and Dermatology.
MARION B. SULZBERGER, New York.

The Treatment of Insomnia. LOUIS J. KARNOSH, Cleveland.

Focal Infections and Systemic Disease: A Critical Appraisal. HOBART A. REIMANN and W. PAUL HAVENS, Philadelphia.

The Autonomic Nervous System and Experimental Cardiovascular Disease. G. E. HALL, Toronto, Canada.

Diagnosis and Treatment of Pellagra, Beriberi and Flavin Deficiency (Lantern Demonstration).
TOM D. SPIES, Cincinnati.

Obliterative Arterial Disease of the Lower Extremities: Diagnosis and Principles of Treatment (Lantern Demonstration). LELAND S. MCKITTRICK, Boston.

2 P. M.

PANEL DISCUSSION ON PNEUMONIA

Each speaker is limited to fifteen minutes. Following the presentation of papers there will be a discussion based on questions submitted from the audience. Each question will be referred to one of the speakers for answer.

ERNEST E. IRONS, Moderator, Chicago

Pneumonia as a Public Health Problem: Geographic Distribution of Types; State Programs.
ADOLPH S. RUMREICH, Washington, D. C.

Etiology, Experimental and General; Pathology (Infection; Mechanism of Invasion; Bacteremia, Variations, Types, Significance in Relation to Therapy).
O. H. ROBERTSON, Chicago.

Serum Therapy: Types; Type Serums; Standardization; Clinical Results. JESSE G. M. BULLOWA, New York.

Chemotherapy (Brief Historical Outline); Ethylhydrocupreine; Sulfanilamide; Sulfapyridine; Comparison with Serum Therapy. COLIN M. MACLEOD, New York.

Oxygen Therapy: Indications and Methods of Application; Relation to Other Therapy.
M. A. BLANKENHORN, Cincinnati.

General Therapy; Use of Specific Therapies Combined with Individualized Care of Patient; Heart Complications; Pneumonia as a Major Emergency.
ROGER I. LEE, Boston.

TUESDAY, MAY 16

SURGICAL DIVISION: OPERA HOUSE OF MUNICIPAL AUDITORIUM

9 A. M.

Surgical Treatment of Peptic Ulcer (Lantern and Motion Picture Demonstration).
WILLIAM F. RIENHOFF JR., Baltimore.

Progress in the Treatment of Patients with Severe Burns (Motion Picture Demonstration).
ROY D. MCCLURE, Detroit.

The Treatment of Peritonitis (Lantern Demonstration).
THOMAS G. ORR, Kansas City, Mo.

Diseases of the Heart and Pericardium in Which Surgical Therapy May Be Indicated (Lantern and Motion Picture Demonstration). ALFRED BLALOCK, Nashville, Tenn.

Surgical Aspects of Carcinoma of the Stomach.
ALFRED J. BROWN, Omaha.

The Automobile and the Fractured Spine (Lantern Demonstration). H. EARLE CONWELL, Birmingham, Ala.

2 P. M.

PANEL DISCUSSION ON BILIARY TRACT DISEASE

Each speaker is limited to twenty minutes. Following the presentation of papers there will be a discussion based on questions submitted from the audience. Each question will be referred to one of the speakers for answer.

FRANK H. LAHEY, Moderator, Boston

Physiology of the Biliary Tract. ANDREW C. IVY, Chicago.

Differential Diagnosis of Jaundice.
I. S. RAVDIN, Philadelphia.

The Bleeding Tendency in Jaundice.
JOHN G. MATEER, Detroit.

Acute Cholecystitis. H. W. CAVE, New York.

Strictures and Injuries to Bile Ducts.
WALTMAN WALTERS, Rochester, Minn.

Common and Hepatic Duct Stones.
FRANK H. LAHEY, Boston.

SYMPOSIUM ON HEALTH PROBLEMS IN EDUCATION

A third Symposium on Health Problems in Education, under the sponsorship of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, together with the Section on Pediatrics, the Section on Preventive and Industrial Medicine and Public Health, the Section on Ophthalmology and the Section on Laryngology, Otology and Rhinology of the American Medical Association, will be held in Assembly Room 1, Municipal Auditorium, St. Louis, May 16, at 2 p. m. Dr. S. Judd Beach, Portland, Maine, will preside. The following program will be presented:

Symposium on School Health Policies

School Health Problems:

From the Point of View of a School Physician.
J. H. HUMPHREY, St. Louis.

From the Point of View of a School Administrator.
HENRY J. GERLING, St. Louis.

From the Point of View of a Practicing Physician.
WINGATE M. JOHNSON, Winston-Salem, N. C.

From the Point of View of a Physical Educator.
N. P. NEILSON, Washington, D. C.

The Tuberculosis Problem in the Schools.
CAMILLE KERESZTURI, New York.

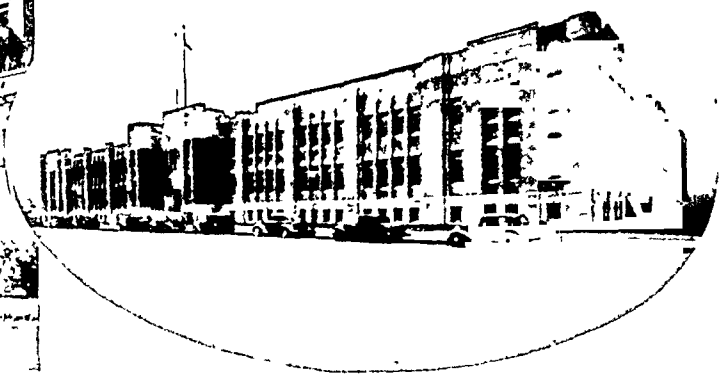
The Status of Health Education in the Schools.
LLOYD W. KING, Jefferson City, Mo.

Community Participation in a Health Program.
T. R. MEYER, Clayton, Mo.

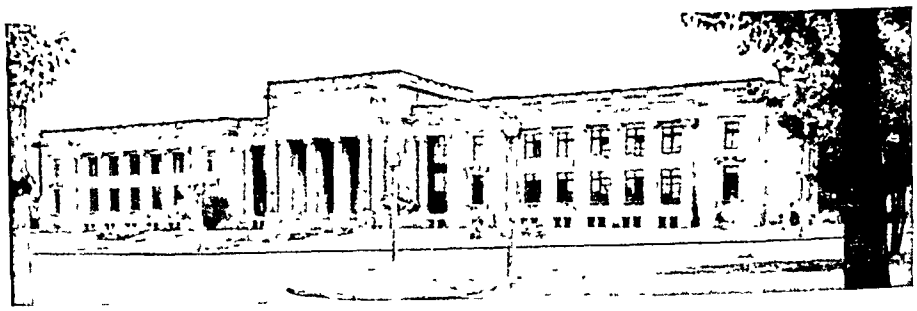
Museums and the New Armory



ART MUSEUM IN FOREST PARK



NEW ARMORY AT SPRING AND MARKET STREETS



JEFFERSON MEMORIAL IN FOREST PARK

LOCAL COMMITTEE ON ARRANGEMENTS

Executive Committee

ROBERT E. SCHLUETER, Chairman

ALPHONSE McMAHON, Vice Chairman

JAMES L. MUDD, Secretary

PERCY H. SWAHLEN, Treasurer

Honorary Vice Chairmen: ALPHONSE M. SCHWITALLA and PHILIP A. SHAFFER.

Advisory Committee: WILLARD BARTLETT, LOUIS H. BEHRENS, LOUIS C. BOISLINIERE, M. B. CLOPTON, MAX A. GOLDSTEIN, EDWARD J. GOODWIN, W. W. GRAVES, JOSEPH GRINDON, HERMAN A. HANSER, BRANSFORD LEWIS, CHARLES H. NEILSON, ELSWORTH SMITH, MEYER WIENER.

Subcommittees

Subcommittee on Sections and Section Work: Llewellyn Sale, Chairman.

Practice of Medicine: Augustus P. Munsch, Chairman.

Surgery, General and Abdominal: Arthur O. Fisher, Chairman.

Obstetrics and Gynecology: Solomon A. Weintraub, Chairman.

Ophthalmology: M. Hayward Post, Chairman

Laryngology, Otology and Rhinology: James B. Costen, Chairman.

Pediatrics: Julius A. Rossen, Chairman.

Pharmacology and Therapeutics: Lee Pettit Gay, Chairman

Pathology and Physiology: Downey L. Harris, Chairman

Nervous and Mental Diseases: Hillel Unterberg, Chairman

Dermatology and Syphilology: Garold V. Stryker, Chairman

Preventive and Industrial Medicine and Public Health. Joseph F. Bredeck, Chairman.

Urology: Dalton Keats Rose, Chairman.

Orthopedic Surgery: J. Albert Key, Chairman.

Gastro-Enterology and Proctology: Joseph W. Larimore, Chairman.

Radiology: L. R. Sante, Chairman.

Miscellaneous Topics, Session on Anesthesia: Alexander J. Kotkis, Chairman.

Subcommittee on Registration: Henry P. Thym, Chairman, Paul F. Fletcher, Vice Chairman; John A. Barger, Secretary.

Subcommittee on Fellowship: Lee D. Cady, Chairman.

Subcommittee on Technical Exhibits: E. P. Buddy, Chairman.

Subcommittee on Scientific Exhibit: James B. Brown, Chairman; E. L. Keyes, Vice Chairman.

Subcommittee on Hotels: Neil S Moore, Chairman; H. H. Kramolowsky, Vice Chairman; Roy E. Mason, Secretary.

Subcommittee on Printing: Charles H. Eyermann, Chairman; Vincent L. Jones, Vice Chairman; William G. Becke, Secretary.

Subcommittee on Badges: Frederick C. E. Kuhlmann, Chairman; William E. Holdenried, Secretary.

Subcommittee on Publicity: Phelps G. Hurford, Chairman; R. O. Muether, Vice Chairman; Solon Cameron, Secretary.

Subcommittee on Finance: Curtis H. Lohr, Chairman.

Subcommittee on Women Physicians: Emma Phelan, Chairman; Katherine M. Schaaf, Vice Chairman

Subcommittee on Clinics: Frederick A. Jostes, Chairman.

Subcommittee on Transportation: Robert F. Hyland, Chairman.

Subcommittee on Entertainment: R. Emmet Kane, Chairman; William E. Leighton, Vice Chairman; Jerome I. Simon, Secretary.

Opening General Meeting: Carl F. Vohs, Chairman; Victor E. Hrdlicka, Vice Chairman; Dean Sauer, Secretary.

President's Reception and Ball: Cyrus E. Burford, Chairman; William H. Vogt, Vice Chairman; Charles E. Hyndman, Secretary.

Foreign Guests: Walter Baumgarten, Chairman; Ralph A. Kinsella, Vice Chairman.

Alumni and Fraternity Reunions: Theodore P. Brookes, Chairman; Herbert S. Langsdorf, Vice Chairman; Thomas M. Martin, Secretary.

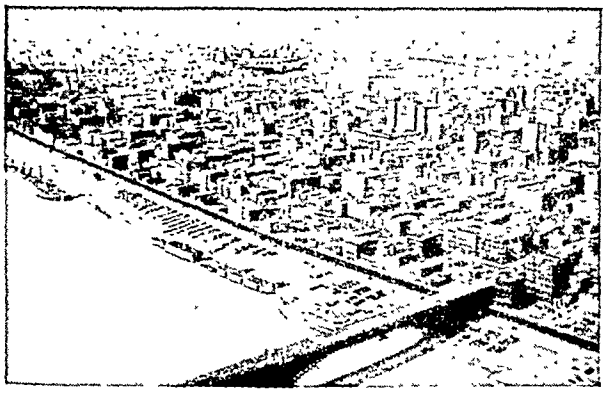
Golf: Grayson Carroll, Chairman; Charles E. Eimer, Secretary.

Women's Activities: Mrs. Willard Bartlett, Chairman; Mrs. David P. Barr, Mrs. O P. J. Falk, Mrs. E. Horace Johnson and Mrs. Alexander J. Kotkis, Vice Chairmen.

ENTERTAINMENT

Dinner for Delegates

A dinner and entertainment is being arranged for Monday, May 15, 6:45 p. m., in the Ball Room of the Hotel Statler for members of the House of Delegates and officers of the American Medical Association. The features of this dinner will be so unique that no delegate or officer should be absent or late.



RIVER, RAIL AND PLANE, THREE MODES OF TRAVEL TO ST. LOUIS

Luncheon for Delegates

A luncheon for the officers and the members of the House of Delegates of the American Medical Association is being planned for Tuesday noon, May 16, between the morning and afternoon sessions of the House of Delegates at the Hotel Statler.

Opening General Meeting

The Opening General Meeting will be held on Tuesday evening, May 16, in the Opera House of the Municipal Auditorium. The program will begin at 8 o'clock.

President's Reception and Ball

The President of the American Medical Association will be honored with a reception and ball to be held Thursday evening, May 18, at 9 o'clock at the Hotel Jefferson.

Alumni and Group Dinners

Notice has been received of the following alumni and group dinners and smokers to be held during the time of the session:

ALPHA OMEGA ALPHA, Thursday, May 18, 6:30 p. m., at the Hotel Jefferson. Dr. Ludvig Hektoen will present the William W. Root lecture. Adjourn promptly at 9 p. m. for President's Reception.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, Wednesday, May 17, 7 p. m., in the Tower Room of the Hotel Congress. Informal. Price, $2.50. Tickets may be purchased at the Banquet ticket booth in the Municipal Auditorium. Dr. Robin C. Buerki will be the guest speaker.

CREIGHTON UNIVERSITY SCHOOL OF MEDICINE ALUMNI, Wednesday, May 17, 7:30 p. m., in the Crystal Room of the Hotel Coronado.

HARVARD UNIVERSITY MEDICAL SCHOOL ALUMNI, Wednesday, May 17, 7:30 p. m., at the University Club.

MISSOURI MEDICAL COLLEGE, Class of 1894, Table at Washington University Medical School Alumni Banquet, Wednesday, May 17, in the Gold Room of the Hotel Jefferson.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL ALUMNI, Wednesday, May 17.

RUSH MEDICAL COLLEGE, UNIVERSITY OF CHICAGO, ALUMNI, Wednesday, May 17, 7 p. m., at the Hotel Statler. Reservations: Dr. Austin A. Hayden, Hotel Statler, St. Louis.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY, Thursday, May 18, 6:30 p. m., in the Crystal Room of the Hotel Jefferson.

SECTION ON PRACTICE OF MEDICINE, Wednesday, May 17, at the University Club.



TYPICAL ST. LOUIS RESIDENCE

ST. LOUIS UNIVERSITY, Class of 1915, Tuesday, May 16, 7:30 p. m., at the Hotel DeSoto.

ST. LOUIS UNIVERSITY MEDICAL SCHOOL ALUMNI, Wednesday, May 17, 7 p. m., at the Missouri Athletic Association.

ST. LUKE'S HOSPITAL FORMER INTERNS, Tuesday, May 16, 7 p. m., at St. Luke's Hospital.

UNIVERSITY OF LOUISVILLE ALUMNI, Wednesday, May 17, 6:30 p. m., at the Hotel Melbourne. Dr. Raymond A. Kent will deliver the principal address.

WASHINGTON UNIVERSITY MEDICAL SCHOOL ALUMNI, Wednesday, May 17, 7 p. m., in the Gold Room of the Hotel Jefferson.

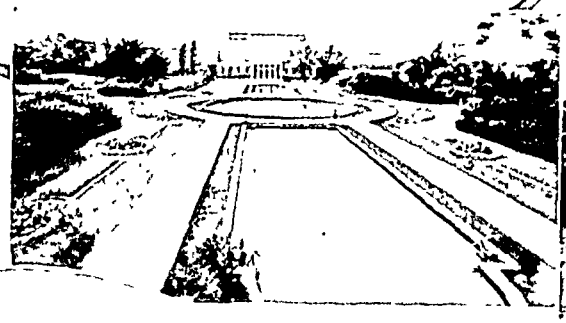
Fraternity and Club Luncheons

Notice has been received of the following fraternity and club luncheons:

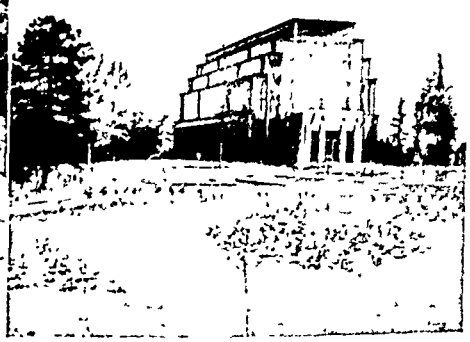
ALPHA KAPPA KAPPA FRATERNITY, Wednesday, May 17, 12:30 p. m., at the Missouri Athletic Association.

ALPHA MU PI OMEGA MEDICAL FRATERNITY, Wednesday, May 17, 12:30 p. m., at the University Club.

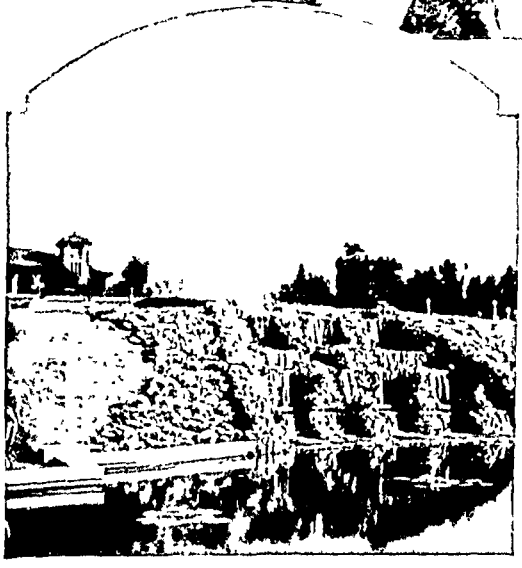
Views in Forest Park



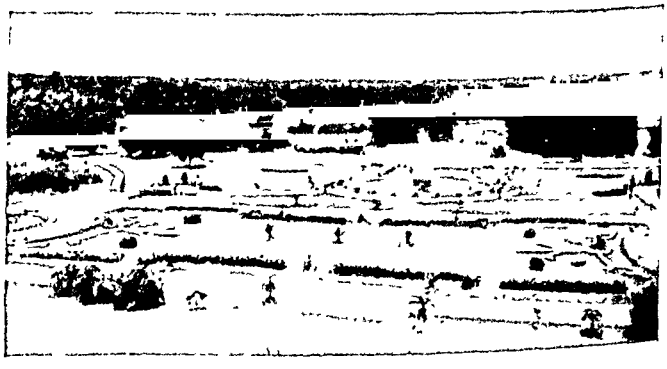
SHAW'S GARDEN



THE JEWEL BOX



FOUNTAIN, CASCADE AND LILY POND



FOUNTAIN AND GARDENS

ASSOCIATED DIPLOMATES OF THE NATIONAL BOARD OF MEDICAL EXAMINERS, Wednesday, May 17, 12 m., at the Hotel Mayfair.

NEW YORK EYE AND EAR INFIRMARY ALUMNI, Wednesday, May 17, 1 p. m., at the Hotel Park Plaza.

PHI BETA PI, Wednesday, May 17, at the Hotel DeSoto.

Mississippi Steamboat Trip

There will be a steamboat trip on the Mississippi River for all interested from 12:30 to 3:30 p. m., Thursday, May 18. Price, $1. Usual light refreshments will be available at reasonable prices.

American Physicians' Art Association

The American Physicians' Art Association will hold its second art exhibition in the Museum of Art, St. Louis, May 14-20. The headquarters of the Art Association in St. Louis will be in booth 15A of the Municipal Auditorium. Art pieces will be accepted for this art show in the following classifications: (1) oils, both (*a*) portrait and (*b*) landscape; (2) water colors; (3) sculpture; (4) photographic art; (5) etchings; (6) ceramics; (7) pastels; (8) charcoal drawings; (9) book binding; (10) wood carving; (11) metal work (jewelry) There will be more than sixty valuable prize awards.

The William Beaumont Exhibit and the Exhibit of Medals

Many visitors to St. Louis during the annual session of the American Medical Association will be interested in the collection of letters and notebooks relating to Dr. William Beaumont, the pioneer American physiologist, who served in St. Louis as an army surgeon and later became a busy practitioner of medicine in St. Louis. Dr. Beaumont was one of the early presidents of the St. Louis Medical Society. The most important scientific collection of Beaumontiana in existence can be seen at the Library of Washington University School of Medicine, Euclid Avenue and Kingshighway.

At the Library of the St. Louis Medical Society will be a display of medals, plaquettes and coins in the Hugo W. Bartscher Room on the library floor. This exhibit consists of tokens of honors conferred on physicians and commemorative disks of epoch making contributions to medicine. Some of these are curious "touch pieces," coins that were given to victims of the King's Evil (scrofula or struma) when the rulers of Great Britain "touched" such patients to cure them by the "divine power of royalty." Plastic disks and plates are actually miniature monuments to achievements in medical science. They are not ordinarily exhibited to the public It is gratifying that the owners have lent their possessions to this unique cooperative display.

WOMEN'S ACTIVITIES

Program of Entertainment by Woman's Auxiliary

Entertainment for all women attending the St. Louis session of the American Medical Association and of the national Woman's Auxiliary, May 15-19, has been arranged by the Committee on Women's Activities.

St. Louis women and preconvention guests are requested to register in advance at Women's Headquarters at Hotel Chase in St. Louis Saturday May 13 between 1 and 4 p. m. or on Sunday May 14 between 10 a. m. and 4 p. m. Registration will continue from 8:30 a. m. to 4 p. m., Monday, Tuesday, Wednesday and Thursday, May 15, 16, 17 and 18, and from 8:30 a. m. to 11 a. m., Friday, May 19. All visiting women are requested to register as soon as possible after arrival.

SATURDAY, MAY 13

4:00 p. m. — Finance Committee Meeting.

SUNDAY, MAY 14

10:00 a. m. to 4:00 p. m. — Registration. Hostess Committee to receive visitors in afternoon.

4:00 p. m. to 7:00 p. m. — Tea for the National Board of Directors and all visiting ladies in honor of Mrs. Charles C. Tomlinson, National President, as guests of Mrs. Willard Bartlett, 53 Westmoreland Place, the Board of St. Louis Auxiliary, the Convention Vice Chairman, the Chairman and Cochairmen of subcommittees assisting.

MONDAY, MAY 15

9:30 a. m. — National board meeting, Regency Room, Hotel Chase.

1:30 p. m. to 4:45 p. m. — Visits to St. Louis County private gardens and teas. Visits will be made to the private gardens of Mr. and Mrs. Horton Watkins, Mrs. Joseph W. Lewis, Dr. and Mrs. Borden S. Veeder, Mr. and Mrs. Oliver K. Bovard, Dr. and Mrs. Vilray P. Blair, Mr. and Mrs. Frank Mesker, Mr. Joseph Desloge and Mr. and Mrs. Samuel W. Fordyce. Bus fare 75 cents. Busses leave Hotel Statler, St. Charles Street entrance, at 12:45 p. m.; Hotel Jefferson, Locust Street entrance, at 1:05 p. m., and Hotel Coronado and Hotel Chase at 1:30 p. m., returning to hotels about 5 p. m. In case of rain, there will be a drive and teas.

TUESDAY, MAY 16

8:00 a. m. — Southern Breakfast, Hotel Chase, with Mrs. Willis Kelly West, President of the Auxiliary to the Southern Medical Association, presiding.

9 a. m. to 12 m. — Opening of convention of Woman's Auxiliary to the American Medical Association. General session, Regency Room, Hotel Chase, with Mrs. Charles C. Tomlinson, *President, presiding.* Invocation by Rev. John W. MacIvor.

12:30 p. m. — Luncheon St. Louis Woman's Club, 4600 Lindell Boulevard, in honor of Past Presidents of Woman's Auxiliary to American Medical Association, $1.25.

1:45 p. m. — Optional conducted tours, rain or shine, $1.

(*a*) Forest Park area: Portland Place, Westmoreland Place, Lindbergh Trophies (inspection), Art Hill, Zoological Gardens (specially trained animal performance in amphitheater), Jewel Box Conservatory, Municipal Theater, Hospital Group of Washington University, New St. Louis Cathedral.

(*b*) Arts Tour: Portland Place, Westmoreland Place, Lindbergh Trophies (inspection), Museum of Fine Arts (inspection), Zoological Gardens, Hospital Group of Washington University, Missouri Botanical Gardens (inspection).

Busses leave Hotel Statler, St. Charles Street entrance, at 12:45 p. m.; Hotel Jefferson, Locust Street entrance, at 1:05 p. m.; Hotel Coronado and Hotel Chase at 1:30 p. m.; St. Louis Woman's Club at 1:45 p. m.

4:00 p. m. — Tea, St. Louis Medical Society Building, as guests of the Woman's Club, St. Louis University School of Medicine.

Busses wait one hour at St. Louis Medical Society Building and return passengers to starting points 5:30 to 6 p. m.

8:00 p. m. — Opening General Meeting of the American Medical Association in the Opera House of the Municipal Auditorium. (Special busses from Hotel Chase to Auditorium and return, 50 cents round trip.)

WEDNESDAY, MAY 17

9.00 a. m. — Annual Meeting of Woman's Auxiliary to the American Medical Association, Regency Room, Hotel Chase, Mrs. Charles C. Tomlinson, presiding.

1:00 p. m. — Annual luncheon, Chase Club, $1.25. Speaker, Rock Sleyster, President, American Medical Association.

2:30 p. m. — Exhibits and music.

3:30 p. m. — Group conferences.

7:00 p. m. — The Woman's Auxiliary to the St. Louis Medical Society invites all visiting ladies to the Seventeenth Anniversary reception and buffet supper at the St. Louis Medical Society Building in honor of the Founders and of the National President.

8:30 p. m. — Fashion Show in Auditorium of St. Louis Medical Society Building.

THURSDAY, MAY 18

Forenoon Postconvention meetings, Mrs. Rollo K. Packard, Incoming President, presiding.

9:00 a. m. — Executive Committee meeting.

10:00 a. m. Board of Directors meeting.

12:30 p. m. to 3:30 p. m. Mississippi River steamboat trip for men and women, $1. Usual light refreshments available at reasonable prices. Transportation by special bus for those who buy tickets in advance, 50 cents. Special busses leave Hotel Chase at 11:50 a. m. and Hotel Coronado at 12 noon for boat dock.

7:00 p. m. Annual Bring Your Husband Dinner, Hotel Chase, $2.

9:00 p. m. President's Reception and Ball, Hotel Jefferson. Hosts, American Medical Association (Bus arrangements from Hotel Chase to Hotel Jefferson, 25 cents)

FRIDAY, MAY 19

9:00 a m. Golf. Blind bogey and medal play, St Louis Country Club. Trophy and prizes offered Green fee, $1.50. Luncheon, $1 Transportation provided.

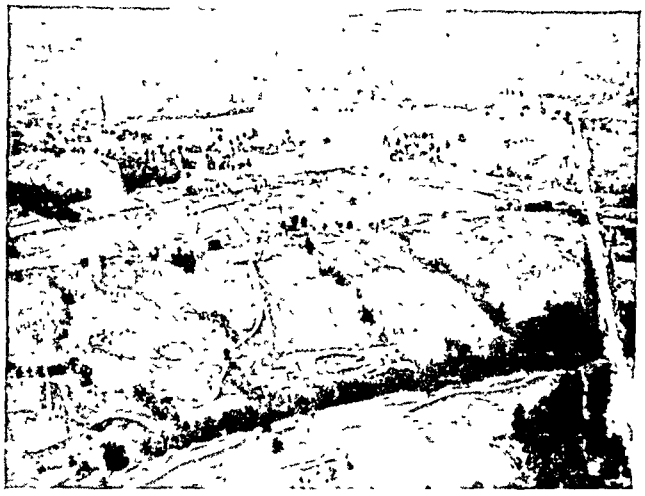
Morning open for individual plans or sightseeing tour of historic St. Louis.

GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-fifth annual tournament at the Norwood Hills Country Club on Monday, May 15. Members may tee off from 7:30 a. m. to 2:30 p. m.

FIFTY TROPHIES AND PRIZES

Thirty-six holes of golf will be played in competition for the fifty trophies and prizes in the nine events. Trophies will be awarded for the Association Championship, thirty-six holes



NORWOOD HILLS COUNTRY CLUB, WHERE A. M. G. A. GOLF TOURNAMENT WILL BE HELD MAY 15

gross, the Will Walter Trophy; the Association Handicap Championship, thirty-six holes net, the Detroit Trophy; the Championship Flight, First Gross, thirty-six holes, the St. Louis Trophy; the Championship Flight, First Net, thirty-six holes, the President's Trophy; the Eighteen Hole Championship, the Golden State Trophy; the Eighteen Hole Handicap Championship, the Ben Thomas Trophy; the Maturity Event, limited to Fellows over 60 years of age, the Minneapolis Trophy; the Oldguard Championship, limited to competition of past presidents, the Wendell Phillips Trophy, and the Kickers Handicap, the Atlantic City Trophy. Forty other prizes will be awarded for the various classes.

FELLOWS IN EVERY STATE OF THE UNION

E. S. Edgerton of 106 West Main Street, Wichita, Kan., is president. George Washington Hall of Chicago and James W. Morgan of San Francisco are vice presidents of the A. M. G. A., which was organized in 1915 by Will Walter, Wendell Phillips and Gene Lewis and now totals 1,464 members representing every state in the Union. The living past presidents include Thomas Hubbard of Ashtabula, Ohio, Fred Bailey of St. Louis, Robert Moss of LaGrange, Texas, Charlton Wallace of New York, Will Walter of Evanston, Ill., James Eaves of Oakland, Calif., D Chester Brown of Danbury, Conn., W. D. Sheldon of Rochester, Minn., Walter Schaller of San Francisco, Edwin Zabriskie of New York, Frank A. Kelly of Detroit, John Welsh Croskey of Philadelphia, Homer K. Nicoll of Chicago, Charles Lukens of Toledo, M. M. Cullom of Nashville, W. Albert Cook of Tulsa, Okla., and Walt P. Conaway of Atlantic City.

GRAYSON CARROLL HEADS ST. LOUIS GOLF COMMITTEE

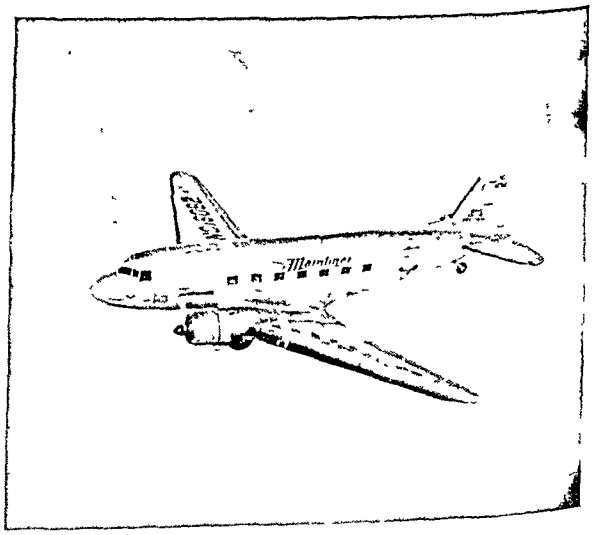
The St Louis committee is under the chairmanship of Grayson Carroll, 539 North Grand Boulevard. St Louis. He will be assisted by Jack Eimer as secretary, Fred Bailey and Ross Woolsey.

TWO EIGHTEEN HOLE COURSES

The twenty-fifth tournament of the American Medical Golfing Association at the Norwood Hills Country Club promises to be a wonderful affair. The club is one of the most elaborate in the country, with two beautiful courses. The A. M. G. A. officers anticipate that some 250 to 300 medical golfers from all parts of the United States will play thirty-six holes in St. Louis on May 15.

APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are eligible and are cordially invited to become members of the



FLYING TO ST. LOUIS

A. M. G. A. Write Executive Secretary Bill Burns, 2020 Olds Tower, Lansing, Mich., for an application blank. Participants in the tournament are required to furnish their home club handicap, signed by the club secretary. No handicap over 30 is allowed, except in the Kickers (blind bogey). Only active Fellows of the A. M. G. A. may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

THE OPENING GENERAL MEETING

Opera House, Municipal Auditorium

Tuesday, May 16—8 p. m.

Music.
Call to Order by the President, IRVIN ABELL.
Invocation. Right Rev. WILLIAM SCARLETT.
Welcome to St. Louis:
HON. LLOYD C. STARK, Governor of Missouri.
HON. BERNARD F. DICKMANN, Mayor of St. Louis.
JAMES R. MCVAY, President, Missouri State Medical Association.
ALPHONSE MCMAHON, President, St. Louis County Medical Society.
Selections by American Legionnaires Glee Club, MR. CLAY BALLEW, Director.
Announcements. ROBERT E. SCHLUETER, Chairman, Local Committee on Arrangements.
Introduction and Installation of President-Elect ROCK SLEYSTER, Wauwatosa, Wis.
Address. ROCK SLEYSTER, President.
Music.
Presentation of Medal to Retiring President IRVIN ABELL. ARTHUR W. BOOTH, Chairman of the Board of Trustees.
Presentation of Distinguished Service Medal, ROCK SLEYSTER, President.
Music.

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program, nor is the list complete. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the Opening General Meeting, list of entertainments, map of St. Louis, and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

SECTION ON PRACTICE OF MEDICINE

MEETS IN GOLD ROOM OF HOTEL JEFFERSON

OFFICERS OF SECTION

Chairman—N. C. GILBERT, Chicago.
Vice Chairman—L. H. BRIGGS, San Francisco.
Secretary—FRED M. SMITH, Iowa City.
Executive Committee—JOHN H. MUSSER, New Orleans; FRANCIS G. BLAKE, New Haven, Conn.; N. C. GILBERT, Chicago.

Wednesday, May 17—9 a. m.

The Treatment of Massive Hemorrhage Due to Peptic Ulcer (Lantern Demonstration).
JOHN S. LA DUE, Minneapolis.
Complications Following the Administration of Sulfanilamide (Lantern Demonstration).
CURTIS F. GARVIN, Cleveland.
The Frank Billings Lecture. GEORGE DOCK, Pasadena, Calif.
The Symptomatology of Lymphoma: Its Endless Variety.
JAMES H. MEANS, Boston.
The Reaction of Peripheral Blood and Bone Marrow in Chronic Hemorrhage and in Essential Thrombocytopenic Purpura (Lantern Demonstration).
LOUIS R. LIMARZI and EMIL SCHLEICHER, Chicago.
The Differential Diagnosis and Therapeutic Rationale in Thrombocytopenic Purpura (Lantern Demonstration).
CHARLES A. DOAN, B. K. WISEMAN and SLOAN J. WILSON, Columbus.

Thursday, May 18—9 a. m.

Election of Officers
Parathyroid Insufficiency with Symmetrical Cerebral Calcification: Report of Three Cases, in One of Which the Patient Was Treated with Dihydrotachysterol (Lantern Demonstration).
L. MCKENDREE EATON and SAMUEL F. HAINES, Rochester, Minn.
Chairman's Address. N. C. GILBERT, Chicago.
Coronary Artery Reflexes in Acute Occlusion (Experimental) (Lantern Demonstration).
G. E. HALL, Toronto, Canada.
The Mechanism of Death in Pulmonary Embolism (Lantern Demonstration).
GEZA DE TAKATS and GEORGE K. FENN, Chicago.
The Morgagni-Adams-Stokes Syndrome with Special Reference to Prognosis and Treatment (Including the Use of Digitalis and Epinephrine in Oil) (Lantern Demonstration).
F. L. CHAMBERLAIN and PAUL D. WHITE, Boston.
The Delayed Appearance of Heart Disease After Rheumatic Fever (Lantern Demonstration).
EDWARD F. BLAND, Boston.
Fifteen Years' Observation of Children with Rheumatic Heart Disease (Lantern Demonstration).
WILLIAM D. STROUD, Philadelphia.

Friday, May 19—9 a. m.

JOINT MEETING WITH SECTION ON PHARMACOLOGY AND THERAPEUTICS

Treatment of the Menopause (Lantern Demonstration).
ELMER L. SEVRINGHAUS, Madison, Wis.
An Evaluation of Therapy of Peptic Ulcer.
CLARENCE F. G. BROWN, Chicago, and R. E. DOLKART, Boston.
Treatment of Pneumonia (Lantern Demonstration).
M. HERBERT BARKER, Chicago.
Bromide Intoxication: Report of Fifteen Cases (Lantern Demonstration). LEWIS P. GUNDRY, Baltimore.
Clinical and Experimental Studies on Vitamin K (Lantern Demonstration). H. P. SMITH, Iowa City.
The Preoperative and Postoperative Use of Vitamin K in Cases of Obstructive Jaundice (Lantern Demonstration).
HUGH R. BUTT, ALBERT M. SNELL and ARNOLD E. OSTERBERG, Rochester, Minn.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN OPERA HOUSE OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—HENRY W. CAVE, New York.
Vice Chairman—FRED W. BAILEY, St. Louis.
Secretary—ARTHUR W. ALLEN, Boston.
Executive Committee—ROBERT S. DINSMORE, Cleveland; HUGH H. TROUT, Roanoke, Va.; HENRY W. CAVE, New York.

Wednesday, May 17—2 p. m.

Reactions of the Peritoneum to Trauma and Infection: Further Experimental Studies (Lantern Demonstration).
FREDERICK A. COLLER, HENRY K. RANSOM and CHARLES SHERRILL RIFE, Ann Arbor, Mich.
Stages in Peritonitis Based on the Defense Mechanism in Relation to Treatment (Lantern Demonstration).
BERNHARD STERNBERG, Toledo, Ohio.
Complications of Appendical Peritonitis (Lantern Demonstration). GEORGE D. LILLY, Miami, Fla.
One Hundred per Cent Oxygen: Indications for Its Use and Methods of Administration to Surgical Patients (Lantern and Motion Picture Demonstration).
WALTER M. BOOTHBY, CHARLES W. MAYO and W. RANDOLPH LOVELACE II, Rochester, Minn.
Surgical Lesions in the Paratrigeminal Area (Lantern Demonstration).
LOYAL DAVIS and JOHN MARTIN, Chicago.
Cerebral Complications Following Surgical Operation (Lantern Demonstration).
ALBERT BEHREND and HELENA E. RIGGS, Philadelphia.

Thursday, May 18—2 p. m.

Thrombophlebitis: The Etiologic Factor of Vasospasm and the Treatment by Sympathetic Block (Lantern Demonstration).
ALTON OCHSNER and MICHAEL E. DEBAKEY, New Orleans.

Arteriosclerotic Gangrene: Relation of the Amputation Stump to Morbidity and Mortality (Lantern Demonstration).
FREDERIC W. TAYLOR, Indianapolis.

Major Amputations in Advance Peripheral Arterial Obliterative Disease (Lantern Demonstration).
HENRY H. FAXON, Boston.

Chairman's Address: Chronic Intractable Ulcerative Colitis; a Surgical Problem (Lantern Demonstration).
HENRY W. CAVE, New York.

Control of the Hemorrhagic Tendency in Obstructive Jaundice by the Use of Vitamin K (Lantern Demonstration).
JOHN D. STEWART, Boston.

Congenital Lesions of the Neck (Lantern Demonstration).
CONRAD J. BAUMGARTNER, Los Angeles.

Ludwig's Angina, Retropharyngeal Abscess and Other Deep Abscesses of the Head and Neck (Lantern Demonstration).
MANUEL GRODINSKY, Omaha.

Friday, May 19—2 p. m.

Election of Officers

Surgical Aspects of Carcinoma of the Large Bowel (Lantern Demonstration).
HARVEY B. STONE and SAMUEL MCLANAHAN, Baltimore.

Hypoproteinemia in Surgical Patients (Lantern Demonstration).
I. S. RAVDIN, ALFRED STENGEL JR. and CECILIA RIEGEL, Philadelphia.

The Immediate and Late Results of Surgical Treatment of Acute Perforation of Peptic Ulcer (Lantern Demonstration).
HAROLD LINCOLN THOMPSON, Los Angeles.

Pathogenesis of Thyrotoxicosis with Crisis (Lantern Demonstration).
HAROLD L. FOSS, Danville, Pa.

Lateral Aberrant Thyroid Tumors (Lantern Demonstration).
GEORGE CRILE JR., Cleveland.

The Management of True Intrathoracic Goiter (Lantern Demonstration).
FRANK H. LAHEY, Boston.

SECTION ON OBSTETRICS AND GYNECOLOGY

MEETS IN OPERA HOUSE OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—HARVEY B. MATTHEWS, Brooklyn.

Vice Chairman—LUDWIG A. EMGE, San Francisco.

Secretary—NORMAN F. MILLER, Ann Arbor, Mich.

Executive Committee—M. PIERCE RUCKER, Richmond, Va.; E. D. PLASS, Iowa City; HARVEY B. MATTHEWS, Brooklyn.

Wednesday, May 17—9 a. m.

SYMPOSIUM ON LESIONS OF THE VULVA

Anatomy of the Lower Genital Tract (Lantern Demonstration).
ROLLO E. MCCOTTER, Ann Arbor, Mich.

Venereal and Nonvenereal Granulomas of the Vulva (Lantern Demonstration).
EMMERICH VON HAAM, Columbus.

Benign and Malignant Tumors of the Vulva (Lantern Demonstration).
CLAIR E. FOLSOME, Ann Arbor, Mich.

Atrophy of the Vulva (Lantern Demonstration).
FRED L. ADAIR and M. EDWARD DAVIS, Chicago.

Backache During Pregnancy and Its Management (Lantern Demonstration).
EDMUND LISSACK, Concordia, Mo.

The Role of Hypothyroidism in the Causation of Abortion, Especially of the "Missed" Variety (Lantern Demonstration).
E. L. KING, New Orleans.

Thursday, May 18—9 a. m.

The Responsibility of the Medical Profession in the Movement of Birth Control.
GEORGE W. KOSMAK, New York.

The Effects of Obstetric Analgesia on the Newborn Infant (Lantern Demonstration).
JACOB KOTZ, Washington, D. C.

Studies in Neonatal Asphyxia (Lantern Demonstration).
DAVID C. KIMBALL, WYMAN C. C. COLE and L. E. DANIELS, Detroit.

Postoperative Care of the Urinary Bladder (Lantern Demonstration).
RICHARD W. TELINDE and J. DONALD WOODRUFF, Baltimore.

Chairman's Address: Obstetric Shock; Its Causes, Recognition and Management (Lantern Demonstration).
HARVEY B. MATTHEWS, Brooklyn.

Friday, May 19—9 a. m.

Election of Officers

The Diagnosis and Treatment of Hyperthyroidism Associated with Pregnancy.
BERNARD PORTIS and HAROLD A. ROTH, Chicago.

Diagnosis and Treatment of Varicosities of the Broad Ligament (Lantern Demonstration).
W. O. JOHNSON, Louisville, Ky.

Stress Urinary Incontinence and Its Relation to Cystocele (Lantern Demonstration). JOSHUA W. DAVIES, New York.

A Study of Cervical Polyps (Lantern Demonstration).
S. LEON ISRAEL, Philadelphia.

The Treatment of Retrodisplacements of the Uterus (Lantern Demonstration). WALTER T. DANNREUTHER, New York.

SECTION ON OPHTHALMOLOGY

MEETS IN ASSEMBLY ROOM 1 OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—S. JUDD BEACH, Portland, Maine.

Vice Chairman—FREDERICK C. CORDEZ, San Francisco.

Secretary—DERRICK VAIL, Cincinnati.

Executive Committee—WILLIAM L. BENEDICT, Rochester, Minn; PARKER HEATH, Detroit; S. JUDD BEACH, Portland, Maine.

Wednesday, May 17—2 p. m.

Chairman's Address (Lantern Demonstration).
S. JUDD BEACH, Portland, Maine.

Thoughts on Office Practice. ALLEN GREENWOOD, Boston.

A Simple Method of Plotting, Recording and Interpreting Disturbances of Ocular Motility (Lantern Demonstration).
WALTER B. LANCASTER, Boston.

The Treatment of Secondary Glaucoma (Lantern Demonstration). SANFORD R. GIFFORD, Chicago.
Discussion to be opened by EDWARD C. ELLETT, Memphis, Tenn.

Iridencleisis in Glaucoma (Lantern Demonstration).
EVERETT L. GOAR and JACOB F. SCHULTZ, Houston, Texas.
Discussion to be opened by CLYDE A. CLAPP, Baltimore.

The Value of Early Operation in Chronic Primary Glaucoma (Lantern Demonstration).
ALGERNON B. REESE, New York.
Discussion to be opened by HARRY S. GRADLE, Chicago.

Cyclodialysis with Metal Implant in the Treatment of Glaucoma (Lantern and Motion Picture Demonstration).
MANUEL U. TRONCOSO, New York.
Discussion to be opened by OTIS R. WOLFE, Marshalltown, Iowa.

Thursday, May 18—2 p. m.

Ocular Leprosy in the United States (Lantern Demonstration).
JOHN J. PRENDERGAST, St. Paul.
Discussion to be opened by GIDEON M. VAN POOLE and FORREST J. PINKERTON, Honolulu, Hawaii.

Primary Tumors of the Optic Nerve: A Phenomenon of von Recklinghausen's Disease; a Clinical and Pathologic Study with a Report of Five Cases and a Review of the Literature (Lantern Demonstration).
FREDERICK A. DAVIS, Madison, Wis
Discussion to be opened by PERCIVAL BAILEY, Chicago, and JESSE M. LEVITT, Brooklyn.

Malignant Melanoma of Uvea—So-Called Sarcoma: Problems in Diagnosis (Lantern Demonstration).
THEODORE L. TERRY, Boston.
Discussion to be opened by EVERETT C. MOULTON, Fort Smith, Ark., and ALLEN GREENWOOD, Boston.

Experimental Studies on Ocular Tuberculosis: IV. Studies in the Immune-Allergic Rabbit (Lantern Demonstration).
ALAN C. WOODS and EARL L. BURKY, Baltimore.
Discussion to be opened by MARTIN HAYWARD POST, St. Louis, and ALBERT L. BROWN, Cincinnati.

A Study of Exfoliation of the Lens Capsule, "Glaucoma Capsularis," with a Report of Forty Cases (Lantern Demonstration).
S. RODMAN IRVINE, Los Angeles.
Discussion to be opened by DANIEL B. KIRBY, New York, and PARKER HEATH, Detroit.

Cataract Following Inhalation of Paradichlorobenzene (Lantern Demonstration). MILTON L. BERLINER, New York.
Discussion to be opened by JAMES E. LEBENSOHN, Chicago.

Friday, May 19—2 p. m.

Executive Session

Election of Officers

Observations on the Eye and Their Significance in Traffic Court Cases (Lantern Demonstration).
LOWELL S. SELLING, Detroit.
Discussion to be opened by ARTHUR J. BEDELL, Albany, N. Y., and ALBERT C. SNELL, Rochester, N. Y.

Ophthalmology's Place in the Prevention of Blindness.
F. PARK LEWIS, Buffalo.
Discussion to be opened by EDWARD V. L. BROWN, Chicago, and CONRAD BERENS, New York.

Progressive Myopia, Keratoconus and Keratoglobus: Their Etiology and Treatment. JULIAN Y. MALONE, Milwaukee.
Discussion to be opened by WILLIAM L. BENEDICT, Rochester, Minn., and MEYER WIENER, St. Louis.

Interstitial Keratitis Caused by Specific Sensitivity (Lantern Demonstration).
ABBOTT M. DEAN, F. W. DEAN and GUY R. MCCUTCHAN, Council Bluffs, Iowa.
Discussion to be opened by ALBERT D. RUEDEMANN, Cleveland, and ALBERT N. LEMOINE, Kansas City, Mo.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

MEETS IN ASSEMBLY ROOM 1 OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—H. MARSHALL TAYLOR, Jacksonville, Fla.
Vice Chairman—HAROLD A. FLETCHER, San Francisco.
Secretary—LEROY A. SCHALL, Boston.
Executive Committee—ROBERT F. RIDPATH, Philadelphia; GORDON B. NEW, Rochester, Minn.; H. MARSHALL TAYLOR, Jacksonville, Fla.

Wednesday, May 17—9 a. m.

The Arterial and Venous Circulation of the Nose and the Accessory Sinuses and the Surgical Significance (Lantern Demonstration). SIMON L. RUSKIN, New York.
Discussion to be opened by O. JASON DIXON, Kansas City, Mo., and LOUIS J. BIRSNER, St. Louis.

Sinus Surgery: Critical Analysis of Diagnosis and Technic in Operations on the Maxillary Sinus (Lantern Demonstration). ROY F. NELSON, Oakland, Calif.
Discussion to be opened by WILLIAM MITHOEFER, Cincinnati, and MILLARD F. ARBUCKLE, St. Louis.

Argyria (Lantern Demonstration).
BEN L. BRYANT, Los Angeles.
Discussion to be opened by FRANK J. NOVAK JR., Chicago, and GORDON F. HARKNESS, Davenport, Iowa.

Infection of the Mouth and Face (Lantern Demonstration).
THOMAS E. CARMODY, Denver.
Discussion to be opened by AUGUST L. BECK, New Rochelle, N. Y., and HOWARD C. BALLENGER, Chicago.

Cancer of the Larynx (Lantern Demonstration).
GABRIEL TUCKER, Philadelphia.
Discussion to be opened by FREDERICK A. FIGI, Rochester, Minn., and LEROY A. SCHALL, Boston.

Thursday, May 18—9 a. m.

Election of Officers

Chairman's Address: Otitis and Sinusitis in the Swimmer (Motion Picture Demonstration).
H. MARSHALL TAYLOR, Jacksonville, Fla.

Otitic Meningitis (Lantern Demonstration).
DANIEL S. CUNNING, New York.

Recurrence of Otitic Infections Due to Beta-Hemolytic Streptococci Following Inadequate Sulfanilamide Therapy (Lantern Demonstration).
JOHN M. CONVERSE, New York.
Discussion on papers of DRS. CUNNING and CONVERSE to be opened by WELLS P. EAGLETON, Newark, N. J., and BERNARD J. MCMAHON, St. Louis.

Plastic Reconstruction Following Radical Operation for Osteomyelitis of the Frontal Bone (Lantern Demonstration).
V. H. KAZANJIAN, Boston.
Discussion to be opened by HARRIS P. MOSHER, Boston; VILRAY P. BLAIR, St. Louis, and ROBERT H. IVY, Philadelphia.

Diplacusis (Lantern Demonstration).
GEORGE E. SHAMBAUGH JR., Chicago.
Discussion to be opened by ARTHUR W. PROETZ, St. Louis, and GEORGE M. COATES, Philadelphia.

Abnormal Movements Following Injury to the Facial Nerve (Lantern Demonstration).
EDMUND P. FOWLER JR., New York.
Discussion to be opened by JOSEPH A. SULLIVAN, Toronto, Canada, and ERNEST SACHS, St. Louis.

Friday, May 19—9 a. m.

JOINT MEETING WITH SECTION ON PEDIATRICS

Rational Treatment of Sinusitis in Children (Lantern Demonstration). JOHN J. SHEA, Memphis, Tenn.
Discussion to be opened by LEE WALLACE DEAN JR., St. Louis, and HARRIS HOSEN, Port Arthur, Texas.

The Diagnosis and Treatment of Otitis Media in Children (Lantern Demonstration).
HORACE J. WILLIAMS, Philadelphia.
Discussion to be opened by DEAN M. LIERLE, Iowa City, and BORDEN S. VEEDER, St. Louis.

The Clinical Importance of Respiratory Infections in Rheumatic Fever (Lantern Demonstration).
T. DUCKETT JONES and JOHN R. MOTE, Boston.
Discussion to be opened by WILLIAM P. WHERRY, Omaha, and WILLIAM D. STROUD, Philadelphia.

Upper Respiratory Allergy in Infancy and Children (Lantern Demonstration).
GEORGE PINESS and HYMAN MILLER, Los Angeles.
Discussion to be opened by FRENCH K. HANSEL, St. Louis, and FRANCIS M. POTTENGER JR., Monrovia, Calif.

SECTION ON PEDIATRICS

MEETS IN GOLD ROOM OF HOTEL JEFFERSON

OFFICERS OF SECTION

Chairman—EDWARD CLAY MITCHELL, Memphis, Tenn.
Vice Chairman—JEAN V. COOKE, St. Louis.
Secretary—ALBERT D. KAISER, Rochester, N. Y.
Executive Committee—RALPH M. TYSON, Philadelphia; CLIFFORD SWEET, Oakland, Calif.; EDWARD CLAY MITCHELL, Memphis, Tenn.

Wednesday, May 17—2 p. m.

A Study of Cerebral Hemorrhage in the Newborn.
M. HINES ROBERTS, Atlanta, Ga.
Discussion to be opened by RALPH M. TYSON, Philadelphia, and HUGO EHRENFEST, St. Louis.

The Effect of Various Complementary Feedings on the Gain in Weight and Stimulation of Breast Milk During the Newborn Period (Lantern Demonstration).
HEYWORTH N. SANFORD, Chicago.
Discussion to be opened by CLIFFORD G. GRULEE, Evanston, Ill., and WILLIAM J. ORR, Buffalo.

Chairman's Address: Child Health in National Defense (Lantern Demonstration).
EDWARD CLAY MITCHELL, Memphis, Tenn.

Smallpox Vaccination of Infants: Revaccinations After Two to Three Years in Children Primarily Vaccinated with Culture Virus (Rivers), Compared with Those Primarily Vaccinated with Calf Lymph Virus (Lantern Demonstration). HARRY H. DONNALLY, Washington, D. C.
Discussion to be opened by JAMES P. LEAKE and CHARLES ARMSTRONG, Washington, D. C.

Convulsions in Infancy and Childhood: A Report of One Thousand Cases (Lantern and Motion Picture Demonstration). M. G. PETERMAN, Milwaukee.
Discussion to be opened by HENRY F. HELMHOLZ, Rochester, Minn., and H. R. COODER, Los Angeles.

Respiratory Infections: Types and Clinical Course as Observed in Florida Pediatric Practice (Lantern Demonstration).
WARREN W. QUILLIAN, Coral Gables, Fla.
Discussion to be opened by ROBERT A. STRONG, New Orleans, and HORTON R. CASPARIS, Nashville, Tenn.

Thursday, May 18—2 p. m.

Election of Officers

Varying Manifestations of Thyroid Gland Aberrancies in Infants, Children and Adolescents (Lantern Demonstration).
CHARLES GILMORE KERLEY, New York.
Discussion to be opened by E. KOST SHELTON, Los Angeles, and THEODORE T. ZUCK, Cleveland.

PANEL DISCUSSION

MANAGEMENT OF PNEUMONIA IN INFANCY AND CHILDHOOD

Leader: CHARLES HENDEE SMITH, New York
Assistants: ALEXIS F. HARTMANN, St. Louis
A. V. STOESSER, Minneapolis
ROSA LEE NEMIR, Brooklyn
BENJAMIN W. CAREY JR., Detroit

The subjects to be discussed are
Importance of Differentiating Pneumococcic (Lobar) Pneumonia and Bronchopneumonia.
Typing and Its Significance.
Treatment: Sulfapyridine; Future of Serum; General.

Friday, May 19—9 a. m.

JOINT MEETING WITH SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY IN ASSEMBLY ROOM 1 OF MUNICIPAL AUDITORIUM

Rational Treatment of Sinusitis in Children (Lantern Demonstration). JOHN J. SHEA, Memphis, Tenn.
Discussion to be opened by LEE WALLACE DEAN JR., St. Louis, and HARRIS HOSEN, Port Arthur, Texas.
The Diagnosis and Treatment of Otitis Media in Children (Lantern Demonstration).
HORACE J. WILLIAMS, Philadelphia.
Discussion to be opened by DEAN M. LIERLE, Iowa City, and BORDEN S. VEEDER, St. Louis.
The Clinical Importance of Respiratory Infections in Rheumatic Fever (Lantern Demonstration).
T. DUCKETT JONES and JOHN R. MOTE, Boston.
Discussion to be opened by WILLIAM P. WHERRY, Omaha, and WILLIAM D. STROUD, Philadelphia.
Upper Respiratory Allergy in Infancy and Children (Lantern Demonstration).
GEORGE PINESS and HYMAN MILLER, Los Angeles.
Discussion to be opened by FRENCH K. HANSEL, St. Louis, and FRANCIS M. POTTENGER JR., Monrovia, Calif.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN ASSEMBLY ROOM 2 OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—ERWIN E. NELSON, New Orleans.
Vice Chairman—IRVING S. WRIGHT, New York.
Secretary—EDGAR V. ALLEN, Rochester, Minn.
Executive Committee—N. C. GILBERT, Chicago; RUSSELL L. HADEN, Cleveland; ERWIN E. NELSON, New Orleans.

Wednesday, May 17—2 p. m.

Treatment with Preparations Containing Vitamins A and D.
P. C. JEANS, Iowa City.
Discussion to be opened by IRVINE MCQUARRIE, Minneapolis, and ALEXIS F. HARTMANN, St. Louis.
Treatment with Vitamin C (Lantern Demonstration).
IRVING S. WRIGHT, New York.
Discussion to be opened by S. B. WORTIS, New York.
Treatment with Male Sex Hormones (Lantern Demonstration).
WILLARD O. THOMPSON and NORRIS J. HECKEL, Chicago.
Discussion to be opened by E. PERRY MCCULLAGH, Cleveland, and F. C. KOCH, Chicago.
Treatment of Auricular Fibrillation (Lantern Demonstration).
H. L. SMITH, Rochester, Minn.
Discussion to be opened by ROY W. SCOTT, Cleveland.
Treatment of Edema by Rectal Administration of Diuretics.
I. J. BRIGHTMAN, Brooklyn, and R. A. LEHMAN, New York.
Discussion to be opened by HAROLD J. STEWART, New York.
Treatment of Pneumonia with Sulfapyridine (Lantern Demonstration).
HERBERT K. ENSWORTH and NORMAN H. PLUMMER, New York.
Discussion to be opened by RUSSELL L. CECIL, New York, and H. F. FLIPPIN, Philadelphia.

Thursday, May 18—2 p. m.

Election of Officers

Chairman's Address: Variability in Response to Drugs (Lantern Demonstration).
ERWIN E. NELSON, New Orleans.
Treatment of the Anxiety States with Special Attention to Certain Physiologic Manifestations (Lantern Demonstration).
WILLIAM J. KERR and P. A. GLIEBE, San Francisco; MAYO H. SOLEY, San Mateo, Calif., and NATHAN W. SHOCK, Berkeley, Calif.
Discussion to be opened by FRED H. ALLEN, Philadelphia, and FRANKLIN G. EBAUGH, Denver.
Nonsurgical Aspects of the Kidney Stone Problem (Lantern Demonstration).
FULLER ALBRIGHT, RICHARD CHUTE and HIRSH W. SULKOWITCH, Boston.
Discussion to be opened by CHARLES C. HIGGINS, Cleveland, and WILLIAM F. BRAASCH, Rochester, Minn.
The Action of Drugs on the Caliber of the Coronary Vessels (Lantern Demonstration). LOUIS N. KATZ, Chicago.
Discussion to be opened by FRED M. SMITH, Iowa City.
The Effects of Pituitary Extracts on Metabolism (Lantern Demonstration).
J. B. COLLIP, A. H. NEUFELD and O. F. DENSTEDT, Montreal, Canada.
Discussion to be opened by ELMER L. SEVRINGHAUS, Madison, Wis., and DAVID P. BARR, St. Louis.
The Present Status of Lipocaic (Lantern Demonstration).
LESTER R. DRAGSTEDT, Chicago.
Discussion to be opened by DAVID H. ROSENBERG, Chicago.

Friday, May 19—9 a. m.

JOINT MEETING WITH SECTION ON PRACTICE OF MEDICINE, GOLD ROOM OF HOTEL JEFFERSON

Treatment of the Menopause (Lantern Demonstration).
ELMER L. SEVRINGHAUS, Madison, Wis.
An Evaluation of Therapy of Peptic Ulcer.
CLARENCE F. G. BROWN, Chicago, and R. E. DOLKART, Boston.
Treatment of Pneumonia (Lantern Demonstration).
M. HERBERT BARKER, Chicago.
Bromide Intoxication: Report of Fifteen Cases (Lantern Demonstration). LEWIS P. GUNDRY, Baltimore.
Clinical and Experimental Studies on Vitamin K (Lantern Demonstration). H. P. SMITH, Iowa City.
The Preoperative and Postoperative Use of Vitamin K in Cases of Obstructive Jaundice (Lantern Demonstration).
HUGH R. BUTT, ALBERT M. SNELL and ARNOLD E. OSTERBERG, Rochester, Minn.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN ASSEMBLY ROOM 2 OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—M. B. VISSCHER, Minneapolis.
Vice Chairman—F. W. HARTMAN, Detroit.
Secretary—J. J. MOORE, Chicago.
Executive Committee—W. E. GARREY, Nashville, Tenn.; ROY R. KRACKE, Emory University, Ga.; M. B. VISSCHER, Minneapolis.

Wednesday, May 17—9 a. m.

Chairman's Address: The Restriction of the Coronary Flow as a Factor in Heart Failure (Lantern Demonstration).
M. B. VISSCHER, Minneapolis.
Experimental Studies on the Pathogenesis of Nephritis (Lantern Demonstration). J. P. SIMONDS, Chicago.
A Method for Producing Persistent Hypertension by Cellophane (Lantern Demonstration). IRVINE H. PAGE, Indianapolis.
Biologic Effects of Testosterone Propionate on the Human Female (Lantern Demonstration).
SAMUEL H. GEIST, UDALL J. SALMON and JOSEPH A. GAINES, New York.
Temperature Factor in Cancer and Embryonal Cell Growth (Lantern Demonstration).
LAWRENCE W. SMITH and TEMPLE S. FAY, Philadelphia.
The Correlation of the Pathologic Lesions and the Anoxia Resulting from Alcohol (Lantern Demonstration).
F. W. HARTMAN, Detroit.

Relations Between Specific Immunity, Allergy and Anaphylaxis in Tuberculosis (Lantern Demonstration).
H. J. CORPER, MAURICE L. COHN and A. P. DAMEROW, Denver.

Thursday, May 18—9 a. m.

Election of Officers

SYMPOSIUM ON SULFANILAMIDE

Experimental Chemotherapy with Sulfanilamide and Related Compounds. SANFORD M. ROSENTHAL, Washington, D. C.

Action of Sulfanilamide Analyzed by Tissue Culture Methods (Lantern Demonstration). JOSEPH T. KING, Minneapolis.

Anticatalase Property of Sulfanilamide in Relation to the Drug's Bacteriostatic Action (Lantern Demonstration).
RALPH R. MELLON, Pittsburgh.

The Influence of Proteolytic Products on the Effectiveness of Sulfanilamide (Lantern Demonstration).
JOHN S. LOCKWOOD, Philadelphia.

Effect of Sulfapyridine Alone and with Serum and in Serum of Treated Pneumonia Patients on Pneumococcus Infected Marrow Cultures (Lantern Demonstration).
JESSE G. M. BULLOWA, New York; EDWIN E. OSGOOD, Portland, Ore., and SAMUEL C. BUKANTZ, New York.

Friday, May 19—9 a. m.

JOINT MEETING WITH SECTION ON NERVOUS AND MENTAL DISEASES

The Neurotropic Viruses (Lantern Demonstration).
L. S. KING, Princeton, N. J.
Discussion to be opened by ROBERT G. GREEN, Minneapolis, and RICHARD B. RICHTER, Chicago.

SYMPOSIUM ON VITAMIN DEFICIENCIES AND RELATED NEURAL DISORDERS

Vitamin Deficiencies and the Nervous System: A Consideration of the Contribution of Animal Experimentation.
GEORGE R. COWGILL, New Haven, Conn.

The Physiologic Action of the Vitamin B Complex.
F. H. LEWY, Philadelphia.

The Neuropathology of Vitamin B Deficiency.
HARRY M. ZIMMERMAN, New Haven, Conn.

Clinical Aspects of Vitamin B Deficiencies (Lantern Demonstration).
CHARLES D. ARING, TOM D. SPIES and J. P. EVANS, Cincinnati.
Discussion to be opened by ARTHUR WEIL, Chicago, and HANS H. REESE, Madison, Wis.

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN ASSEMBLY ROOM 4 OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—FRANCIS C. GRANT, Philadelphia.

Vice Chairman—RICHARD M. BRICKNER, New York.

Secretary—PAUL C. BUCY, Chicago.

Executive Committee—HENRY R. VIETS, Boston; SAMUEL D. INGHAM, Los Angeles; FRANCIS C. GRANT, Philadelphia.

Wednesday, May 17—2 p. m.

The Use of Guanidine Compounds in the Treatment of Myasthenia Gravis (Lantern Demonstration).
ANN S. MINOT, KATHARINE DODD and S. S. RIVEN, Nashville, Tenn.

Myasthenia Gravis (Lantern Demonstration).
HENRY R. VIETS and ROBERT S. SCHWAB, Boston.
Discussion to be opened by FOSTER KENNEDY, New York, and J. C. McKINLEY, Minneapolis.

Chairman's Address: The Surgical Treatment of Pituitary Adenomas (Lantern Demonstration).
FRANCIS C. GRANT, Philadelphia.

Irradiation in the Treatment of Pituitary Adenomas (Lantern Demonstration). M. C. SOSMAN, Boston.
Discussion to be opened by GEORGE W. CHAMBERLIN, Philadelphia, and ERNEST SACHS, St. Louis.

The Role of Potassium Chloride in the Treatment of Ménière's Syndrome (Lantern Demonstration).
MADELAINE R. BROWN, Boston.

Ménière's Disease: Medical and Surgical Treatment (Lantern Demonstration).
A. W. ADSON and M. N. WALSH, Rochester, Minn.
Discussion to be opened by F. D. LATHROP, Ann Arbor, Mich., and CLAUDE C. COLEMAN, Richmond, Va.

Thursday, May 18—2 p. m.

Election of Officers

The Posttraumatic Psychoneurotic State and Traumatic Encephalopathy (Lantern Demonstration).
WALTER F. SCHALLER, San Francisco.
Discussion to be opened by GEORGE W. HALL, Chicago, and SIDNEY I. SCHWAB, St. Louis.

The Differential Diagnosis of Anxiety Neurosis (Lantern Demonstration).
STANLEY COBB and M. E. COHEN, Boston.
Discussion to be opened by DAVID SLIGHT, Chicago, and LESLIE B. HOHMAN, Baltimore.

Results of Treatment in a Psychiatric Outpatient Department (Lantern Demonstration).
H. T. CARMICHAEL and J. H. MASSERMANN, Chicago.
Discussion to be opened by LLOYD H. ZIEGLER, Wauwatosa, Wis., and KARL A. MENNINGER, Topeka, Kan.

Probable Topography of the Sleep-Regulating Center (Lantern Demonstration). JOSEPH H. GLOBUS, New York.
Discussion to be opened by PERCIVAL BAILEY, Chicago, and JOHN F. FULTON, New Haven, Conn.

Delayed Paralysis of Nerves from Indirect Trauma.
J. M. NIELSEN, Los Angeles.
Discussion to be opened by L. J. POLLOCK, Chicago, and R. B. RANEY, Los Angeles.

Friday, May 19—9 a. m.

JOINT MEETING WITH SECTION ON PATHOLOGY AND PHYSIOLOGY, ASSEMBLY ROOM 2 OF MUNICIPAL AUDITORIUM

The Neurotropic Viruses (Lantern Demonstration).
L. S. KING, Princeton, N. J.
Discussion to be opened by ROBERT G. GREEN, Minneapolis, and RICHARD B. RICHTER, Chicago.

SYMPOSIUM ON VITAMIN DEFICIENCIES AND RELATED NEURAL DISORDERS

Vitamin Deficiencies and the Nervous System: A Consideration of the Contribution of Animal Experimentation.
GEORGE R. COWGILL, New Haven, Conn.

The Physiologic Action of the Vitamin B Complex.
F. H. LEWY, Philadelphia.

The Neuropathology of Vitamin B Deficiency.
HARRY M. ZIMMERMAN, New Haven, Conn.

Clinical Aspects of Vitamin B Deficiencies (Lantern Demonstration).
CHARLES D. ARING, TOM D. SPIES and J. P. EVANS, Cincinnati.
Discussion to be opened by ARTHUR WEIL, Chicago, and HANS H. REESE, Madison, Wis.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN ASSEMBLY ROOM 3 OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—BEDFORD SHELMIRE, Dallas, Texas.

Vice Chairman—ROBERT C. JAMIESON, Detroit.

Secretary—C. F. LEHMANN, San Antonio, Texas.

Executive Committee—PAUL A. O'LEARY, Rochester, Minn.; JOSEPH V. KLAUDER, Philadelphia; BEDFORD SHELMIRE, Dallas, Texas.

Wednesday, May 17—2 p. m.

Chairman's Address: Weeds Causing Contact Eczema (Lantern Demonstration).
BEDFORD SHELMIRE, Dallas, Texas.

Contact Dermatitis from Opium Derivatives: Special Reference to Occupational Aspects (Lantern Demonstration).
JAMES W. JORDON and EARL D. OSBORNE, Buffalo.
Discussion to be opened by M. B. SULZBERGER, New York.

Acne in a Group of University Students (Lantern Demonstration). FRANCIS W. LYNCH, St. Paul.
Discussion to be opened by JOSEPH GARDNER HOPKINS, New York.

Vitamin Therapy in Dermatology, with Particular Reference to Vitamin D Effects in Acne and Disease of Altered Calcium Usage (Lantern Demonstration).
MERLIN T.-R. MAYNARD, San Jose, Calif.
Discussion to be opened by PAUL GROSS, New York.

Roentgen Dosages in Dermatology.
GEORGE M. MACKEE and ANTHONY C. CIPOLLARO, New York.
Discussion to be opened by HARRY R. FOERSTER, Milwaukee.

Gentian Violet Treatment of Ringworm of the Scalp.
W. F. SPILLER and W. B. SHARP, Galveston, Texas.
Discussion to be opened by LESLIE M. SMITH, El Paso, Texas.

Hypertherm Treatments in Dermatology.
ELMORE B. TAUBER and LEON GOLDMAN, Cincinnati.
Discussion to be opened by PAUL A. O'LEARY, Rochester, Minn., and JULIEN E. BENJAMIN, Cincinnati.

Dermatofibrosarcoma Protuberans, with a Report of Six Cases (Lantern Demonstration).
GEORGE W. BINKLEY, Cleveland.
Discussion to be opened by JOHN H. LAMB, Oklahoma City.

Thursday, May 18—2 p. m.

Corneal Examination and Slit Lamp Microscopy in Diagnosis of Late Congenital Syphilis, Especially in Adults (Lantern Demonstration).
JOSEPH V. KLAUDER and ALFRED COWAN, Philadelphia.
Discussion to be opened by JAMES R. DRIVER, Cleveland.

A Study of Discrepancies in Serologic Reports: The "Positive Hinton-Negative Wassermann" Problem (Lantern Demonstration).
G. MARSHALL CRAWFORD and LEON F. RAY, Boston.
Discussion to be opened by UDO J. WILE, Ann Arbor, Mich.

The Value and Use of Mapharsen by the General Practitioner in Office Practice (Lantern Demonstration).
CHARLES R. REIN and FRED WISE, New York.
Discussion to be opened by GIRSCH D. ASTRACHAN, New York.

Granuloma Inguinale: Notes on Its Clinical Syndrome; Protozoan Nature of the Disease; Experimental Production (Lantern Demonstration).
ROBERT B. GREENBLATT, Augusta, Ga.
Discussion to be opened by HARRY M. ROBINSON, Baltimore.

The Action of Sodium Thiosulfate, Thiophenylsulfonic Acid and Formaldehyde Sulfoxylate in Arsenical and Mercurial Poisoning in Rabbits.
KATHLEEN B. MUIR, EVANGELINE STENHOUSE and S. WILLIAM BECKER, Chicago.
Discussion to be opened by CHARLES C. DENNIE, Kansas City, Mo.

Sugar Metabolism of the Skin (Lantern Demonstration).
THEODORE CORNBLEET, Chicago.
Discussion to be opened by HERMAN SHARLIT, New York.

Metabolic Studies in Patients with Pemphigus (Lantern Demonstration). JOHN H. TALBOTT, Boston.
Discussion to be opened by RICHARD S. WEISS, St. Louis, and C. GUY LANE, Boston.

Friday, May 19—2 p. m.

Election of Officers

Dermatitis of the Ears (Lantern Demonstration).
H. L. WILLIAMS JR., HAMILTON MONTGOMERY and WILLIAM N. POWELL, Rochester, Minn.
Discussion to be opened by JAMES HERBERT MITCHELL, Chicago.

Pruritus Ani et Vulvae (Lantern Demonstration).
WILLIAM HOWARD HAILEY and HUGH E. HAILEY, Atlanta, Ga.
Discussion to be opened by CARL W. LAYMON, Minneapolis.

The Senear-Usher Syndrome.
UDO J. WILE and HARRY L. ARNOLD JR., Ann Arbor, Mich.
Discussion to be opened by FRANCIS E. SENEAR, Chicago.

Generalized Herpes Zoster (Lantern Demonstration).
LESLIE P. BARKER, New York.
Discussion to be opened by NELSON PAUL ANDERSON, Los Angeles.

Poikiloderma (Lantern Demonstration).
ONIS G. HAZEL, Oklahoma City.
Discussion to be opened by FRED M. JACOB, Pittsburgh.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN IVORY ROOM OF HOTEL JEFFERSON

OFFICERS OF SECTION

Chairman—I. C. RIGGIN, *Richmond, Va.*
Vice Chairman—H. S. DIEHL, *Minneapolis.*
Secretary—W. A. SAWYER, Rochester, N. Y.
Executive Committee—L. D. BRISTOL, New York; ROBERT T. LEGGE, Berkeley, Calif.; I. C. RIGGIN, Richmond, Va.

Wednesday, May 17—9 a. m.

Chairman's Address. I. C. RIGGIN, *Richmond, Va.*

Traumatic Heart Disease (Lantern Demonstration).
LOUIS F. BISHOP JR., New York.

Some Peculiarities in the Geography of Cancer (Lantern Demonstration).
JOSEPH W. MOUNTIN and HAROLD F. DORN, Washington, D. C.

The Hazards of Farming (Lantern Demonstration).
JOHN H. POWERS, Cooperstown, N. Y.

Depressed Skull Fractures (Lantern Demonstration).
MARK A. GLASER and FREDERICK P. SHAFER, Los Angeles.

Thursday, May 18—9 a. m.

A Study of the Pneumonias with Reference to Overcrowding and Cross Infection (Lantern Demonstration).
JULIEN E. BENJAMIN, Cincinnati.

Tuberculosis Among Hospital Personnel.
LEOPOLD BRAHDY, New York.

Tuberculosis Control. ROBERT E. PLUNKETT, *Albany, N. Y.*

The Intravenous Drip Method of Therapy Applied to Syphilis (Lantern Demonstration).
HAROLD T. HYMAN, LOUIS CHARGIN, JOHN L. RICE and WILLIAM LEIFER, New York.

The Relationship of Syphilis to Tuberculosis (Lantern Demonstration). SAMUEL GOLDBLATT, *Cincinnati*

Friday, May 19—9 a. m.

Election of Officers

Industrial Importance of Allergic Diseases to the Southern Pacific Railroad Company (Lantern Demonstration).
EDWARD MATZGER, San Francisco

Hard Facts About Psychiatry.
C. C. BURLINGAME, Hartford, Conn

Present Status of Benzene. P. A. DAVIS, Akron, Ohio

Dermatitis Among Plate Printers (Lantern Demonstration).
PAUL A. NEAL, Washington, D. C.

Pollinosis as a Problem in Preventive Medicine (Lantern Demonstration). R. V. ELLIS, Minneapolis.

SECTION ON UROLOGY

MEETS IN ASSEMBLY ROOM 3 OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—WILLIAM P. HERBST, Washington, D. C.
Vice Chairman—GRAYSON L. CARROLL, St. Louis.
Secretary—VINCENT J. O'CONOR, Chicago.
Executive Committee—HENRY W. E. WALTHER, New Orleans; ALBERT J. SCHOLL, Los Angeles; WILLIAM P. HERBST, Washington, D. C.

Wednesday, May 17—9 a. m.

SYMPOSIUM ON URINARY INJURIES

Diagnostic and Operative Factors in Traumatic Rupture of the Kidney (Lantern Demonstration).
FRANKLIN FARMAN, Los Angeles.

Rupture of Kidney (Lantern Demonstration).
GEORGE C. PRATHER, Boston.

Injuries of the Ureter (Lantern Demonstration).
CARL F. RUSCHE, Los Angeles

Intraperitoneal and Extraperitoneal Rupture of the Urinary Bladder (Lantern Demonstration).
E. J. MCCAGUE, Pittsburgh

Care of Traumatic Injuries of the Male Urethra (Lantern Demonstration). WILLIAM L. HORNADAY, Des Moines.

Traumatic "Epididymo-Orchitis."
GEORGE H. EWELL, Madison, Wis.

Thursday, May 18—9 a. m.

A New Method of Uretero-Intestinal Anastomosis with Utilization of Peritoneum (Lantern Demonstration).
ROY E. BRACKIN, Kenilworth, Ill.

Hypospadias (in the Male): The Operative Technic for the Correction of Penile Deformity and Reconstruction of the Urethra (Lantern Demonstration).
CHARLES M. MCKENNA, Chicago.

Chairman's Address: Renal Tuberculosis (Lantern Demonstration). WILLIAM P. HERBST, Washington, D. C.

Late Results Following Nephrectomy for Renal Neoplasm (Lantern Demonstration). J. T. PRIESTLEY, Rochester, Minn.

The Clinical Aspects of the Endocrine Function of the Testes in Man (Lantern Demonstration).
WILLIAM E. LOWER and E. P. MCCULLAGH, Cleveland.

The Endocrine Function of the Testes (Lantern Demonstration).
JAMES F. MCCAHEY, Philadelphia.

Friday, May 19—9 a. m.

Election of Officers

Genital Tuberculosis (Lantern Demonstration).
ELI A. MILLER, Denver, and M. J. LUSTOK, Spivak, Colo.

Factors in Recurrence of Renal Calculi (Lantern Demonstration). CHARLES C. HIGGINS, Cleveland.

Calcium and Phosphorus Excretion on Patients with Urinary Calculi. RUBIN FLOCKS, Iowa City.

Do Alkalis Used in the Treatment of Peptic Ulcer Cause Kidney Stones? (Lantern Demonstration.)
HERMAN L. KRETSCHMER and RALPH C. BROWN, Chicago.

The Treatment of Ureteral Calculus with Particular Reference to Transurethral Manipulation (Lantern Demonstration). GERSHOM J. THOMPSON, Rochester, Minn.

Ureteral Meatotomy: Its Significance and Description of a New Technic (Lantern Demonstration).
JOHN DUFF, New York.

SECTION ON ORTHOPEDIC SURGERY

MEETS IN ASSEMBLY ROOM 4 OF MUNICIPAL AUDITORIUM

OFFICERS OF SECTION

Chairman—OSCAR L. MILLER, Charlotte, N. C.

Vice Chairman—ROBERT V. FUNSTEN, Charlottesville, Va.

Secretary—GUY A. CALDWELL, New Orleans.

Executive Committee—FREMONT A. CHANDLER, Chicago; JOHN DUNLOP, Pasadena, Calif.; OSCAR L. MILLER, Charlotte, N. C.

Wednesday, May 17—9 a. m.

Excision of Patella in Cases of Hypertrophic Arthritis (Lantern Demonstration). E. J. BERKHEISER, Chicago.
Discussion to be opened by A. H. MEYER, Memphis, Tenn., and JACOB KULOWSKI, St. Joseph, Mo.

Sympathicoblastoma: A Report of Four Cases (Lantern Demonstration).
FREMONT A. CHANDLER and JOHN R. NORCROSS, Chicago.
Discussion to be opened by FRANK R. OBER, Boston, and G. K. CARPENTER, Nashville, Tenn.

Regeneration of the Growth Epiphyses of Long Bones (Lantern Demonstration).
EDWARD L. COMPERE, SAMUEL W. BANKS and WILLIAM N. KRIGSTEN, Chicago.
Discussion to be opened by WILLIS C. CAMPBELL, Memphis, Tenn., and ARTHUR T. LEGG, Boston.

Tuberculosis of the Knee in Infancy and Childhood (Lantern Demonstration). FRANCIS M. MCKEEVER, Los Angeles.
Discussion to be opened by W. P. BLOUNT, Milwaukee, and R. B. OSGOOD, Boston.

Low Back Pain: Correlation of the Signs and Symptoms of the Various Noninfectious Lesions (Lantern Demonstration). JOSEPH A. FREIBERG, Cincinnati.
Discussion to be opened by PHILIP LEWIN, Chicago, and G. C. BATTALORA, New Orleans.

The Cook Fenestrated Jacket for Correction of Scoliosis (Lantern Demonstration).
CARL E. BADGLEY and M. JOHN ROWE JR., Ann Arbor, Mich.
Discussion to be opened by C. H. CREGO JR., St. Louis, and L. G. HOWARD, Boston.

Thursday, May 18—9 a. m.

Reconstructive and Stabilizing Surgery in the Treatment of Residual Suppurative Arthritis of the Hip Joint: A Study of Forty-Five Unselected Cases (Lantern Demonstration). HALFORD HALLOCK, New York.
Discussion to be opened by J. ALBERT KEY, St. Louis, and FRANK D. DICKSON, Kansas City, Mo.

Excision of Scapula: Report of a Case Showing Excellent Functional Result (Lantern Demonstration).
EDWIN W. RYERSON, Chicago.
Discussion to be opened by J. W. SEVER, Boston, and ROLAND HAMMOND, Providence, R. I.

Acute and Chronic Osteomyelitis: Bacteriologic, Pathologic and Clinical Studies (Lantern Demonstration).
A. R. SHANDS JR., Wilmington, Del., and LENOX D. BAKER, Durham, N. C.
Discussion to be opened by JAMES B. WEAVER, Kansas City, Mo., and W. S. DUNCAN, Cleveland.

Chairman's Address: Simplified Internal Fixation of Inlay and Onlay Bone Grafts (Lantern Demonstration).
OSCAR L. MILLER, Charlotte, N. C.

Diagnosis and Treatment of Slipped Epiphyses (Lantern Demonstration).
RALPH K. GHORMLEY and ROBERT D. FAIRCHILD, Rochester, Minn.
Discussion to be opened by PHILIP D. WILSON, New York, and J. T. NICHOLSON, Philadelphia.

Imbalance of the Foot (Lantern Demonstration).
REX L. DIVELEY, Kansas City, Mo.
Discussion to be opened by J. E. M. THOMSON, Lincoln, Neb., and H. R. BOHLMAN, Baltimore.

Friday, May 19—9 a. m.

Election of Officers

Compression Reconstruction of Recent Intracapsular Femoral Neck Fractures: Internal Fixation by Universal Length Z Nail (Lantern Demonstration).
VERNON P. THOMPSON and JOHN S. STEPHENS, Los Angeles.
Discussion to be opened by V. L. HART, Minneapolis, and F. W. CARRUTHERS, Little Rock, Ark.

Severe Fractures of the Upper Ulna (Lantern Demonstration). W. K. WEST, Oklahoma City.
Discussion to be opened by J. T. O'FERRALL, New Orleans, and EUGENE M. REGEN, Nashville, Tenn.

A Study of Amputations in the Lower Extremities (Lantern Demonstration).
PAUL C. COLONNA and FREDERICK H. VOM SAAL, Oklahoma City.
Discussion to be opened by R. G. PACKARD, Denver, and R. M. CLEARY, Buffalo.

Sideswipe Fractures at the Elbow (Lantern Demonstration). ROBERT D. SCHROCK, Omaha.
Discussion to be opened by G. O. EATON, Baltimore, and R. C. ROBERTSON, Chattanooga, Tenn.

Primary Operative Reduction of Fractures of Long Bones as a Method of Choice: An Evaluation of Principles (Lantern Demonstration). CLAY RAY MURRAY, New York.
Discussion to be opened by H. EARLE CONWELL, Birmingham, Ala.; M. L. KLINEFELTER, St. Louis, and PAUL B. MAGNUSON, Chicago.

Treatment of Supracondylar Fractures of the Femur by Manipulation and Acute Flexion (Lantern Demonstration).
L. D. SMITH, Milwaukee.
Discussion to be opened by J. D. WILSON, Columbus, Ohio, and C. F. CLAYTON, Fort Worth, Texas.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN IVORY ROOM OF HOTEL JEFFERSON

OFFICERS OF SECTION

Chairman—DESCUM C. MCKENNEY, Buffalo.

Vice Chairman—A. H. AARON, Buffalo.

Secretary—J. A. BARGEN, Rochester, Minn.

Executive Committee—LOUIS A. BUIE, Rochester, Minn.; HENRY L. BOCKUS, Philadelphia; DESCUM C. MCKENNEY, Buffalo.

The annual banquet of the section will be held on Thursday, May 18, 6:30 p. m., in the Crystal Room of the Hotel Jefferson.

Wednesday, May 17—2 p. m.

AIDS TO THE MANAGEMENT OF PEPTIC ULCER

A Comparative Study of Methods Utilized to Determine the Presence of Ulceration in the Gastrointestinal Tract (Lantern Demonstration).
A. L. LEVIN and MORRIS SHUSHAN, New Orleans.

Peptic Ulcer Treated by Posterior Pituitary Preparations: Clinical and Experimental Observations.
M. HILL METZ, ROBERT W. LACKEY, P. E. WIGBY, A. B. SMALL and C. O. PATTERSON, Dallas, Texas.

The Use of Hydrated Trisilicate of Magnesium for Peptic Ulcer (Lantern Demonstration).
MANFRED KRAEMER, Newark, N. J.
Discussion to be opened by WALTER L. PALMER, Chicago, and MAURICE FELDMAN, Baltimore.

THE ESOPHAGUS

The Management of Benign Strictures of the Esophagus (Motion Picture Demonstration).
PORTER P. VINSON, Richmond, Va.
Discussion to be opened by JOHN H. FITZGIBBON, Portland, Ore.

INTESTINAL PARASITES

The Incidence and Results of Treatment in Subclinical Amebiasis.
FRANK H. CONNELL and HARRY T. FRENCH, Hanover, N. H.
Discussion to be opened by JAMES L. BORLAND, Jacksonville, Fla.

SYSTEMIC CONDITIONS WITH GASTROINTESTINAL SYMPTOMS

The Role of the Gastrointestinal Tract in the Production of Cardiac Symptoms (Lantern Demonstration).
LLSTER M. MORRISON and WILLIAM A. SWALM, Philadelphia.
Psychosomatic Factors Concerned in Recurrent Diarrhea.
SIDNEY A. PORTIS and JACOB KASANIN, Chicago.
Geriatrics: Its relation to an Adequate Energy Producing and Protective Diet (Lantern Demonstration).
E. L. TUOHY, Duluth, Minn.
Discussion to be opened by SEALE HARRIS, Birmingham, Ala., and WILLIAM EGBERT ROBERTSON, Philadelphia.

Thursday, May 18—2 p. m.

Election of Officers

THERAPEUTIC ADVANCES IN DISEASE OF THE ILEOCECAL REGION

Appendicitis: Newer Methods of Treatment (Lantern Demonstration).
JOHN S. HORSLEY JR., GUY W. HORSLEY and J. SHELTON HORSLEY, Richmond, Va.
The Management of Patients with Diffuse Peritonitis Caused by Perforated Appendicitis (Lantern Demonstration).
THEW WRIGHT, A. H. AARON, J. SUTTON REGAN and ELMER MILCH, Buffalo.
Ileocecal Spasm: The Cause for the Appendicular Syndrome (Lantern Demonstration).
BENJAMIN M. BERNSTEIN, Brooklyn.
Discussion to be opened by *J. DERYL HART, Durham, N. C.*

STUDIES ON CANCERS AT DIFFERENT AGES

The Importance of Carcinoma as a Cause of Indigestion (Lantern Demonstration).
ANDREW B. RIVERS, Rochester, Minn.
Cancer of the Rectum in Young Persons (Lantern Demonstration).
CURTICE ROSSER and J. G. KERR, Dallas, Texas.
Discussion to be opened by BURRILL B. CROHN and HENRY A. RAFSKY, New York.

IMPORTANT POINTS IN THE MANAGEMENT OF NEOPLASMS OF THE LARGE INTESTINE

Polyps of the Colon and Rectum and Their Relation to Malignancy (Lantern Demonstration).
NEIL W. SWINTON and SHIELDS WARREN, Boston.
The Lynch Versus the Miles Operation (Lantern Demonstration).
JEROME M. LYNCH and G. JOHNSON HAMILTON, New York.
The Advantages of Perineal Over Abdominal Colostomy with Technic for Transferring the Abdominal Opening to the Perineum (Lantern Demonstration).
W. WAYNE BABCOCK, Philadelphia.
Discussion to be opened by CLAUDE F. DIXON, Rochester, Minn.

Friday, May 19—2 p. m.

JOINT MEETING WITH SECTION ON RADIOLOGY IN BALL ROOM OF HOTEL DE SOTO

THE SMALL INTESTINE: ANATOMIC, ROENTGENOLOGIC, PATHOLOGIC AND CLINICAL CONSIDERATIONS

The Roentgen Anatomy of the Small Intestine (Lantern Demonstration).
GEORGE W. CHAMBERLIN, Philadelphia.
The Roentgenologic Manifestations of Non-Neoplastic Lesions of the Small Intestine (Lantern Demonstration).
HARRY M. WEBER, Rochester, Minn.
The Small Intestine in Nutritional Deficiency (Lantern Demonstration).
DAVID ADLERSBERG and MICHAEL WEINGARTEN, New York.
Epidemic Enteritis: Etiology and Relation to Other Infections of the Small Intestine (Lantern Demonstration).
E. C. ROSENOW, Rochester, Minn.
Clinical Aspects of Chronic Disorders of Small Intestine (Lantern Demonstration).
EVERETT D. KIEFER, Boston.
Discussion to be opened by T. GRIER MILLER, Philadelphia; SARA M. JORDAN, Boston, and ROSS GOLDEN, New York.

SECTION ON RADIOLOGY

MEETS IN BALL ROOM OF HOTEL DE SOTO

OFFICERS OF SECTION

Chairman—R. G. TAYLOR, Los Angeles.
Vice Chairman—MERRILL C. SOSMAN, Boston.
Secretary—JOHN T. MURPHY, Toledo, Ohio.
Executive Committee—ROSS GOLDEN, New York; B. R. KIRKLIN, Rochester, Minn.; R. G. TAYLOR, Los Angeles.

Wednesday, May 17—2 p. m.

Experimental Peritonitis: Its Prevention by Roentgen Therapy (Lantern Demonstration).
W. A. ALTEMEIER and H. C. JONES, Detroit.
Visualization of the Chambers of the Heart, the Pulmonary Circulation and the Great Blood Vessels in Man: Further Observations (Lantern Demonstration).
GEORGE P. ROBB and ISRAEL STEINBERG, New York.
Chairman's Address: Anomalies of the Sacrolumbar Articulations (Lantern Demonstration).
R. G. TAYLOR, Los Angeles.
The Treatment of Carcinoma of the Ovary (Lantern Demonstration).
ROBERT I. WALTER, ARNOLD L. BACHMAN and WILLIAM HARRIS, New York.
Bronchiogenic Carcinoma: A Diagnostic Enigma (Lantern Demonstration).
EDWARD L. JENKINSON and ARTHUR F. HUNTER, Chicago.
Discussion to be opened by LEROY SANTE, St. Louis.
Angio-Endothelioma of Bone (Lantern Demonstration).
J. FLETCHER LUTZ and LEWIS C. PUSCH, York, Pa.

Thursday, May 18—2 p. m.

Election of Officers

Neurologic Aspects of Intervertebral Disk Protrusions (Lantern Demonstration).
R. GLEN SPURLING and F. KEITH BRADFORD, Louisville, Ky.
Myelography with the Use of *Thorium Dioxide* Sol as a Contrast Medium (Lantern Demonstration).
B. H. NICHOLS and WILLIAM A. NOSIK, Cleveland.
The Diagnosis of Intervertebral Disk Protrusions by Intraspinal Injection of Air.
W. EDWARD CHAMBERLAIN and BARTON R. YOUNG, Philadelphia.
The Roentgenologic Diagnosis of Intraspinal Protrusion of the Intervertebral Disks by Means of Radiopaque Oil (Lantern Demonstration).
JOHN D. CAMP, Rochester, Minn.
Protruded Intervertebral Disks, with a Note Regarding Hypertrophy of Ligamenta Flava (Lantern and Motion Picture Demonstration).
J. GRAFTON LOVE, Rochester, Minn.

Friday, May 19—2 p. m.

JOINT MEETING WITH SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

THE SMALL INTESTINE: ANATOMIC, ROENTGENOLOGIC, PATHOLOGIC AND CLINICAL CONSIDERATIONS

The Roentgen Anatomy of the Small Intestine (Lantern Demonstration). GEORGE W. CHAMBERLIN, Philadelphia.
The Roentgenologic Manifestations of Non-Neoplastic Lesions of the Small Intestine (Lantern Demonstration).
HARRY M. WEBER, Rochester, Minn.
The Small Intestine in Nutritional Deficiency (Lantern Demonstration).
DAVID ADLERSBERG and MICHAEL WEINGARTEN, New York.

Epidemic Enteritis: Etiology and Relation to Other Infections of the Small Intestine (Lantern Demonstration). E. C. ROSENOW, Rochester, Minn.

Clinical Aspects of Chronic Disorders of Small Intestine (Lantern Demonstration). EVERETT D. KIEFER, Boston.
Discussion to be opened by T. GRIER MILLER, Philadelphia; SARA M. JORDAN, Boston, and ROSS GOLDEN, New York.

SECTION ON MISCELLANEOUS TOPICS, SESSION ON ANESTHESIA

MEETS IN BALL ROOM OF HOTEL DE SOTO

OFFICERS OF SECTION

Chairman—RALPH M. WATERS, Madison, Wis.

Secretary—CHARLES N. COMBS, Terre Haute, Ind.

Wednesday, May 17—9 a. m.

Chairman's Address. RALPH M. WATERS, Madison, Wis.

The Effect of Certain Anesthetics on the Blood (Lantern Demonstration). PAUL W. SEARLES, Buffalo.
Discussion to be opened by CHARLES J. BEILACH, Chicago.

The Principles of Inhalation Anesthesia for Thoracic Surgery. E. A. ROVENSTINE, New York.
Discussion to be opened by JOSEPH W. GALE, Madison, Wis.

Prevention of Ignition of Anesthetic Gases by Static Spark (Lantern Demonstration). PHILIP D. WOODBRIDGE, Boston.
Discussion to be opened by EVERETT A. TYLER, Philadelphia, and RALPH M. WATERS, Madison, Wis.

Trichlorethanol: A Preliminary Clinical Report (Lantern Demonstration). PAUL M. WOOD, New York.
Discussion to be opened by P. K. KNOEFEL, Louisville, Ky.

Intravenous Pentothal (Lantern Demonstration).
HENRY S. RUTH, Merion Station, Pa., and RALPH M. TOVELL, Hartford, Conn.
Discussion to be opened by GEORGE J. THOMAS, Pittsburgh.

Acapnial Shock: Its Relation to Narcosis (Lantern Demonstration). M. H. SEEVERS, Madison, Wis.
Discussion to be opened by HENRY K. BEECHER, Boston.

Oxygen Tolerance Versus Oxygen Dosage. JOHN H. EVANS, Buffalo.
Discussion to be opened by F. A. D. ALEXANDER, Albany, N. Y.

Direct Arterial and Venous Pressure Measurements During Clinical Anesthesia (Lantern Demonstration).
P. P. VOLPITTO, R. A. WOODBURY and W. F. HAMILTON, Augusta, Ga.
Discussion to be opened by John S. LUNDY, Rochester, Minn.

THE SCIENTIFIC EXHIBIT

". . . to teach them this art, if they should wish to learn it, without fee or stipulation . . ."

Two hundred and forty small "classrooms," all in session at the same time; a "faculty" of more than five hundred of the leading investigators, teachers and practitioners of medicine; a "student body" of seven or eight thousand physicians from the United States and other countries—that is the Scientific Exhibit of the American Medical Association as it will appear at the St. Louis Session.

The year 1939 marks the fortieth anniversary of the Scientific Exhibit. Credit for its establishment goes to members of the Indiana State Medical Association. In 1899 they brought to the meeting of the American Medical Association at Columbus, Ohio, a considerable amount of exhibit material from their own state meeting which had just taken place at Indianapolis. Such interest was created that a committee was appointed for the continuation of the feature. At first the exhibits were confined to specimens of pathologic anatomy, but in 1903 their scope was broadened to include all phases of medicine and the term "Scientific Exhibit" applied.

The Scientific Exhibit constitutes an intensive week of postgraduate medical instruction. The trustees of this unique educational institution are the Trustees of the American Medical Association, who appoint three of their own members as the "Committee on Scientific Exhibit" and appropriate many thousands of dollars annually for its maintenance. A strong advisory committee, together with representatives from the fifteen sections of the Scientific Assembly of the Association, insures a high standard of excellence from the educational standpoint.

Physicians are given an excellent opportunity in the Scientific Exhibit for study and conference. Demonstrators are on hand at all times to answer questions and explain the work portrayed. Many of the papers read before various sections of the Scientific Assembly are illustrated by exhibits, making it possible for the physician who has heard the report to come to the Scientific Exhibit for further information on the subject.

The fifteen sections of the Scientific Assembly are represented in the Scientific Exhibit, with exhibits grouped by specialties. The purpose of the meeting, however, is for the benefit of the physician in general practice rather than of the specialist, although the latter will find plenty to occupy his time, for each exhibit is presented by a specialist in one field or another.

There will be several interesting features at the St. Louis Session. The special exhibits on fractures and on anesthesia will include much practical material; the exhibit symposium on heart disease will cover the subject quite completely; the exhibit symposium on medical education, hospitals and licensure is devoted largely to graduate medical education as it is conducted by different state medical associations. Motion picture programs will be conducted continuously and simultaneously by several of the sections in commodious areas adjacent to the exhibits.

Graduate medical education is the theme of the Scientific Exhibit. Nowhere is the Oath of Hippocrates better exemplified than by the participants in the Scientific Exhibit who give freely of their time and energy for the benefit of other physicians.

The Scientific Exhibit is located in the Convention Hall of the St. Louis Municipal Auditorium, on the same floor as the Opera House and on the floor above the Technical Exhibit. It is reached from the Technical Exhibit by ramps and elevators.

Admission to the Scientific Exhibit will be limited to persons wearing Fellowship or other badges of the convention and to guests to whom special cards of admission have been issued. The public will not be admitted to the Scientific Exhibit.

SPECIAL EXHIBIT ON ANESTHESIA

The exhibit on anesthesia is presented for the third time this year under the auspices of a committee appointed by the Committee on Scientific Exhibit of the Board of Trustees as follows: John S. Lundy, Rochester, Minn.; Henry S. Ruth, Philadelphia; Philip D. Woodbridge, Boston, and Ralph M. Waters, chairman, Madison, Wis.

An additional advisory committee is comprised of A. M. Caine, New Orleans; John Evans, Buffalo; A. E. Guedel, Los Angeles; Huberta M. Livingstone, Chicago; G. S. Mechling, Oklahoma City; F. T. Romberger, Lafayette, Ind.; A. L. Schwartz, Cincinnati; L. F. Sise, Boston; B. C. Sword, New Haven, Conn.; G. J. Thomas, Pittsburgh; Dorothy Wood, San Francisco, and Paul M. Wood, New York.

The exhibit deals with the administration of anesthetics as under the following topics:

1. The airway.
2. Open drop technic.
3. Open and semiopen technics for administration of gases, and apparatus required.
4. Carbon dioxide absorption technic, and apparatus required.
5. Rectal technic.
6. Intravenous technic.
7. Various local and block technics.
8. Principles and method of record keeping.

Demonstrations will be given continuously throughout the week, and motion pictures will be shown in an area adjacent to the exhibit. A pamphlet will be distributed.

The following anesthetists will take part in the demonstration:

John A. Adriani, New York, N. Y.
F. A. D. Alexander, Albany, N. Y.
Virginia Apgar, New York, N. Y.
Henry Beecher, Boston, Mass.
C. M. Betlach, Chicago, Ill.
H. F. Bishop, Valhalla, N. Y.
R. F. Bonham, Houston, Texas
R. F. Corwin, Dayton, Ohio
S. C. Cullen, Iowa City, Iowa
Hugh Cunningham, Milwaukee, Wis.
Lilly Dismuke, New Orleans, La.
H. E. Doudna, Oklahoma City, Okla.
W. B. Draper, Denver, Colo.
H. S. Eggers, Louisville, Ky.
Urban Eversole, Boston, Mass.
B. Herzberg, Phoenix, Ariz.
J. H. Hutton, Portland, Ore.
J. Kreiselman, Washington, D. C.
S. S. Lyons, New York, N. Y.
W. B. Neff, San Francisco, Calif.
George Paschal, San Antonio, Tex.
G. M. Rosenheimer, South Bend, Ind.
P. W. Searles, Buffalo, N. Y.
Gladys Smithwick, Lexington, Ky.
J. A. Stiles, San Francisco, Calif.
T. L. Tidmore, Atlanta, Ga.
R. M. Tovell, Hartford, Conn.
P. P. Volpitto, Augusta, Ga.
R. J. Whitacre, E. Cleveland, Ohio

SPECIAL EXHIBIT ON FRACTURES

The exhibit on fractures is continued again this year along somewhat the same lines as last year. The special exhibit committee appointed by the Committee on Scientific Exhibit of the Board of Trustees is composed of the following: Frank D. Dickson, Kansas City, Mo.; Walter Estell Lee, Philadelphia; Kellogg Speed, chairman, Chicago.

The following subjects will be considered:

1. Plaster of Paris: Making and Storing.
2. Application of Plaster of Paris.
3. Fracture of the Lower End of the Radius.
4. Fracture of the Spine—Compression.
5. Supracondylar Fracture of the Humerus.
6. Emergency Treatment of Fractures of the Lower Extremity.

Demonstrations will be given continuously throughout the week. A pamphlet has been prepared for distribution in connection with the exhibit.

The following physicians will take part in the demonstration:

George Apfelbach, Chicago, Ill.
G. W. Batman, Indianapolis, Ind.
G. C. Battalora, New Orleans, La.
Carl E. Black, Jacksonville, Ill.
Mat Bloomfield, Joliet, Ill.
W. P. Blount, Milwaukee, Wis.
George K. Carpenter, Nashville, Tenn.
Dwight F. Clark, Evanston, Ill.
C. F. Clayton, Fort Worth, Texas
George J. Curry, Flint, Mich.
R. J. Dittrich, Fort Scott, Kans.
James R. Elliott, Kansas City, Mo.
Egbert G. Fell, Chicago, Ill.
C. R. G. Forrester, Chicago, Ill.
Clarence B. Francisco, Kansas City, Mo.
Alfred E. Gallant, Los Angeles, Calif.
Halford Hallock, New York, N. Y.
Maxwell Harbin, Cleveland, Ohio
V. L. Hart, Minneapolis, Minn.
Frederick A. Jostes, St. Louis, Mo.
M. L. Klinefelter, St. Louis, Mo.
Jacob Kulowski, St. Joseph, Mo.
James W. Martin, Omaha, Neb.
Thomas E. Meany, Chicago, Ill.
Earl D. McBride, Oklahoma City, Okla.
Duncan McKeever, Kansas City, Mo.
Arthur R. Metz, Chicago, Ill.
Herbert P. Miller, Rock Island, Ill.
R. J. Mroz, Rockford, Ill.
Frank G. Murphy, Chicago, Ill.
Jesse Nicholson, Philadelphia, Pa.
L. M. Overton, Des Moines, Iowa
E. Payne Palmer, Phoenix, Ariz.
Francis G. Pipkin, Kansas City, Mo.
Darwin B. Pond, Chicago, Ill.
Willis J. Potts, Oak Park, Ill.
M. E. Pusitz, Topeka, Kans.
Sheppard Remington, Chicago, Ill.
Dean L. Rider, Chicago, Ill.
R. C. Robertson, Chattanooga, Tenn.
Charles Rombold, Wichita, Kans.
L. D. Smith, Milwaukee, Wis.
Charles A. Stone, St. Louis, Mo.
W. G. Stuck, San Antonio, Tex.
Henry B. Thomas, Chicago, Ill.
John R. Tobin, Elgin, Ill.
D. R. Ulmer, Terre Haute, Ind.
H. W. Virgin Jr., Madison, Wis.
W. K. West, Oklahoma City, Okla.
C. E. Yount, Prescott, Ariz.

SECTION EXHIBITS

Section on Practice of Medicine

The Section on Practice of Medicine, in addition to a large number of exhibits on various phases of internal medicine, presents groups of exhibits on arthritis, on the endocrines and on pneumonia. The section is likewise contributing to the Exhibit Symposium on Heart Disease. The representative to the Scientific Exhibit from the Section on Practice of Medicine is Fred M. Smith, Iowa City.

ROBERT M. STECHER, City Hospital, Cleveland:

Heberden's Nodes; The Incidence of Hypertrophic Arthritis of the Fingers: Exhibit of photographs, charts and explanatory matter illustrating the clinical appearance of Heberden's nodes and showing the incidence of the disease; incidence analyzed by race, sex, age and occupation; two families with five and four siblings having severe Heberden's nodes presented; from the incidence of the disease for the age, sex and degree of severity of the condition for each of these individuals the probability of such family involvement has been calculated; a strong familial susceptibility is demonstrated.

OLIVER ABEL JR. and WALTER J. SIEBERT, St. Louis:

Fibrositis; The Chief Cause of Pain in Rheumatism: Exhibit of slides and charts showing laboratory data and roentgen studies; treatment by vaccines, physical therapy and the like, with results of treatment; associated fibrositis, the principal cause of pain in hypertrophic osteo-arthritis.

K. K. SHERWOOD, Seattle.

Diagnosis of Chronic Arthritis: Exhibit of colored drawings and photomicrographs illustrating the cardinal differences between hypertrophic and atrophic arthritis; analysis of the symptoms in a series of 250 cases of atrophic and 250 cases of hypertrophic arthritis arranged to emphasize the points of differentiation; physical changes similarly compared emphasizing the different joint distribution of the disease; analysis of the symptoms of physical changes of 250 patients who thought they had rheumatism but in whom the main disease was proved nonarthritic, emphasizing the frequent points of differentiation; summary of the symptoms and signs of adult tuberculosis of the bones, of metastatic tumors of the bones, of primary bone tumors and of Paget's disease.

F. LOWELL DUNN and E. E. SIMMONS, Omaha:

Fever Therapy in Rheumatic Fever: Exhibit of transparent charts and photographs of the results of fever therapy in rheumatic fever, including the effect on sedimentation rate and rheumatic carditis; motion picture of technic of fever therapy with Kettering type of cabinet, and of cases of rheumatic carditis.

ELLIOTT P. JOSLIN and HOWARD F. ROOT, Boston, with LOUIS I. DUBLIN and HERBERT H. MARKS, New York:

The Current Diabetes Situation: Exhibit of charts of existing trends in the incidence, diagnosis, prognosis, mortality and treatment of diabetes and its complications with especial emphasis on the prevention and early detection of the disease.

ELMER L. DEGOWIN, JOHN E. HARRIS and E. D. PLASS, State University of Iowa, University Hospitals, Iowa City:

Preservation of Blood for Transfusion: Exhibit of specimens of human blood drawn and stored in Iowa City and subsequently transported to St. Louis; rates of hemolysis in different preservatives are demonstrated; colored charts depicting the following chemical and physical changes at various ages of storage: (1) hemoglobin in plasma, (2) potassium in plasma, (3) dextrose content of plasma, (4) specific conductance of plasma, (5) p_H of plasma, (6) respiratory activity of erythrocytes, (7) studies on blood preserved anaerobically, the optimum conditions and preservatives for storage.

J. RUSSELL TWISS, R. FRANKLIN CARTER and CARL H. GREENE, New York:

Biliary Colic: Etiology, Diagnostic Significance and Treatment: Exhibit showing that intermittent attacks of acute pain originating in the biliary tract are usually considered to be caused by gallstones, but experimental work and clinical experience have proved that colic may occur without stones; recurrent colic following cholecystectomy constitutes a major problem in the management of disease of the biliary tract; study of biliary colic has therefore been made which includes a review of recent concepts concerning its physiologic origin; charts are presented summarizing the clinical and operative conditions in 140 cases of biliary colic in patients with and without gallstones; similar charts are presented of forty cases presenting colic following cholecystectomy; an analysis of the methods of determining the cause of the colic and its treatment are given in each group with general conclusions based on these observations.

W. M. FOWLER and ADELAIDE P. BARER, University Hospitals, Iowa City:

Metabolism and Therapeutic Use of Iron: Exhibit of drawings, charts and graphs presenting data on the metabolism of iron, showing the amount absorbed and utilized with varying dosages and the therapeutic effect in certain types of anemia.

JOHN D. CURRENCE, New York Post-Graduate Medical School and Hospital, Columbia University, New York:

Hyperpyrexia: Exhibit of charts depicting factors in fever therapy such as rationale, indications, contraindications, physiologic effects, methods of application, complications of hyperpyrexia, preparation of patient, pathologic changes in fatal cases, mechanism of shock caused and its treatment, and specific applications.

ROBERT OLESEN, U. S. Public Health Service, Washington, D. C.:

Pneumonia Control: Exhibit of posters depicting by pictorial and graphic means the principal points in the control of pneumonia.

M. HERBERT BARKER, the Department of Medicine of Northwestern University Medical School, and O. H. ROBERTSON, the Department of Medicine, the University of Chicago, Chicago.

Pneumonia: Exhibit reviewing the modern concept of pneumonia, its etiology, pathogenesis, pathology, epidemiology, general and specific therapy in detail and the Illinois state control program; presentation by means of models, roentgen studies, photomicrographs, illustrative placards and motion pictures.

DAVID J. COHN, Michael Reese Hospital, Chicago:

The Biology, Chemistry and Physics of Oxygen Therapy: Exhibit of charts and mechanical demonstrations illustrating the fundamental principles underlying the therapeutic administration of oxygen, such as the partial pressure relationships between the gases in the atmosphere, the alveoli, the blood and the tissues, as well as the chemistry of the hemoglobin-oxygen-carbon dioxide cycle; charts and models illustrating the basic physical and engineering principles, knowledge of which is necessary for the scientific construction of oxygen therapy apparatus, including the laws of heat transfer, hygrometry and the diffusion of gases in the atmosphere and through materials; methods of gas analysis in the air and in the blood and tissues.

WILLIAM WASHINGTON GRAVES, St. Louis University School of Medicine, St. Louis:

Human Constitution: New Approaches to the Problems (Inherited Variations and "The Age-Incidence" Principle): Exhibit dealing with new approaches to the problems of human constitution based on (1) simple classifications of variations peculiar to inherited characters of structure, function, measurements and indexes; (2) the application of "the age-incidence principle of investigation" in qualitatively evaluating them; (3) a summary of results derived from the application of the author's classification of human scapulae and (4) the classification of other inherited variations which, when adequately investigated, may become, like scapular types, useful in the problems of human constitution as expressed in inherited predisposition to health or disease and inherited capacities for educability, adaptability in general and longevity.

HAYNES H. FELLOWS and WILLIAM H. ORDWAY, Metropolitan Life Insurance Company, New York:

Pulmonary Tuberculosis; A Long Range Program for Control Among Personnel: Exhibit of (1) case finding with description of the routine and periodic search for early cases of pulmonary tuberculosis among employees and applicants for employment, with special emphasis on the experience with fluoroscopy; (2) sanatorium care for the patient until he is ready to return to work; (3) rehabilitation by restoring patients to their former jobs or placing them in similar work; (4) results obtained in each phase of this program; influence of certain factors on the working capacity subsequent to discharge, namely, stage of tuberculosis on admission to the sanatorium and condition on discharge; mortality rates subsequent to discharge from the sanatorium as related to these factors.

G. O. BROUN, K. R. ANDREWS and M. J. HUBER, St. Louis University School of Medicine, St. Louis:

Prevention of Cholesterol Atherosclerosis in the Rabbit; Comparison of Preventive Action of Lipocaic and Choline: Exhibit of (*a*) gross specimens of the aorta of rabbits fed normal diet, fed high cholesterol diet, fed high cholesterol diet plus lipocaic in varying amounts and fed high cholesterol diets and choline in varying amounts; (*b*) photomicrographs of aorta of same series of animals; (*c*) charts showing blood cholesterol changes of the same series of animals.

AUGUST A. WERNER, St. Louis:

Sex Hormones, Clinical Studies: Exhibit showing the effects of the sex-related hormones on human beings, including the production of the growth phase in the endometrium of castrate women by administration of theelin (estrogenic substance) and the development of the premenstrual endometrium in castrate women by injections of theelin and progesterone; the syndrome complained of by castrates, women having hypo-ovarianism, the menopause and involutional melancholia; the male climacteric and its treatment with testosterone propionate; cryptorchidism and its treatment with anterior pituitary gonadotropic extract and anterior pituitary-like substance.

ROBERT E. SCHLUETER and ETHEL A. WASHBURN, St. Louis:

Medical History: Exhibit of pictures and other objects of importance in medical history pertaining to early medicine in St. Louis and Missouri.

HENRY H. TURNER, Oklahoma City:

Clinical Endocrinology: Exhibit of photographs illustrating various accepted types of endocrinopathies and the results of treatment, a syndrome of infantilism, webbed neck and cubitus valgus; results of some original work in the treatment of hypogonadism with testosterone propionate; effects of the anterior pituitary-like substances in the treatment of acne and cretinism, some of which have been observed and treated over a period of from ten to twelve years, and numerous other clinical endocrinopathies.

BENSON BLOOM and C. S. KIBLER, Tucson, Ariz., and S. J. GRAUMAN, Milwaukee:

Potassium in Hay Fever: Exhibit of charts showing effect of potassium chloride in various allergic conditions; demonstration of effect of potassium chloride on hay fever.

DANIEL L. SEXTON, St. Louis:

Hormone Treatment in Cryptorchidism and Hypogenitalism: Exhibit of cases of cryptorchidism and hypogenitalism in boys ranging in age from 5 to 23 years; comparison of the results of treatment with the anterior pituitary-like hormone (A. P. L.) and the male sex hormone (testosterone propionate).

Section on Surgery, General and Abdominal

The Section on Surgery, General and Abdominal, in addition to its other exhibits, is presenting a group of exhibits on cancer, together with a continuous motion picture on various surgical subjects in an adjoining area. The representative from this section to the Scientific Exhibit is Grover C. Penberthy, Detroit.

CONRAD J. BAUMGARTNER, Los Angeles:

Lesions of the Neck: Exhibit showing moulages of lesions of the neck; models made primarily to be used for teaching purposes and as a supplement and substitute for clinical material accompanying lectures on lesions of the neck.

WALTER M. BOOTHBY, C. W. MAYO, W. R. LOVELACE and A. H. BULBULIAN, Rochester, Minn.:

The Use of Oxygen in Medicine, Surgery and Aviation; Historical Development; A New Method of Administration: Exhibit of photographs illustrating the historical development of oxygen therapy and a detailed description of a new type of simple inhalation apparatus by means of which oxygen can be administered efficiently and economically either in the home or in the hospital; the value of high concentrations of oxygen approximating 100 per cent in contrast to the usual well known utilization of concentrations of from 50 to 60 per cent; it is of special value in pulmonary embolism, coronary thrombosis, post-surgical and traumatic shock, preventing headache following encephalography, relieving abdominal distention and aiding in the control of gas gangrene and tetanus.

FRANK J. TAINTER, St. Louis University School of Medicine, St. Louis:

Oral and Plastic Surgery: Exhibit of wax casts of faces; drawings of plastic operations; magic lantern slides of bone grafts of the jaw.

CHARLES F. SHERWIN and A. M. TRIPODI, St. Louis University School of Medicine, St. Louis:

General, Plastic and Tumor Surgery: Exhibit of photographs and drawings of interesting surgical cases, plastic surgery and tumors; repair of old muscle tendon avulsions, congenital diaphragm of duodenum, plastic reconstruction of lower lip; experimental pancreatic surgery.

HARRY E. MOCK and John L. LINDQUIST, Chicago:

Skull Fractures and Cerebral Injuries: Exhibit of charts, plaster models, paintings and drawings and roentgenograms depicting the management of skull fractures and cerebral

injuries, based on a review of proved skull fractures; simple methods and necessary views to be taken to demonstrate the presence of a skull fracture; cerebral pathologic changes following injury; diagnosis of conditions causing prolonged unconsciousness.

WILLIAM T. COUGHLIN, St. Louis University School of Medicine, St. Louis:

Correction of Deformities of Hard and Soft Parts of Face: Exhibit of drawings, photographs, transparencies, plaster of paris impressions, apparatus and the like showing the steps in the various procedures necessary for the repair of defects of the bony skeleton and soft parts of the face.

JAMES L. MUDD, St. Louis University School of Medicine, St. Louis:

Lobectomy for Bronchiectasis: Exhibit of roentgen films of the chest showing preoperative and postoperative bronchography, case histories (on transparencies), photographs and photomicrographs of pathologic specimens.

HILGER PERRY JENKINS, LEO HRDINA and FOREST M. SWISHER, Chicago:

Comparative Study of Catgut and Silk: Exhibit of transparencies of photographs and photomicrographs demonstrating a histologic study of the reaction of the tissues to silk and to different kinds of catgut carried out from specimens removed from patients at operation or obtained at autopsy; specimens obtained from implants of assorted suture material in abdominal muscles of dogs; the rate of healing of wounds sutured with catgut and silk in the presence of contamination; osteogenesis in healed laparotomy incisions of patients.

CLAIRE L. STRAITH and E. HOYT DEKLEINE, Detroit:

Plastic Surgery in Children: Exhibit of enlarged photographs depicting various deformities occurring in children and the results obtained by plastic procedures, with inserts and captions describing the technic used to accomplish the result; demonstration of the great advantage of operating on childhood deformities as early as practicable to minimize or avoid the inferiority complexes which so often develop in these children and sometimes produce marked personality changes.

ROBERT ELMAN, CHARLES L. HOAGLAND, L. H. HEMPLEMANN JR. and WILSON G. BROWN, Washington University School of Medicine, St. Louis:

Acute Pancreatic Disease: Exhibit demonstrating a rapid clinical method for the detection of acute pancreatic disease by measuring the concentration of blood amylase; curves showing the behavior of blood amylase during the course of the disease; plastic models showing the relation of the pancreatic and bile ducts in the human being, illustrating the probable pathogenesis; charts and specimens suggesting the appropriate treatment and the importance of differentiating pancreatic necrosis from transient inflammation.

ALBERT BEHREND, HELENA E. RIGGS, MOSES BEHREND and JEFFERSON H. CLARK, Philadelphia:

Cerebral Complications Following Surgical Operations: Exhibit showing a full length human figure with organs in situ; photomicrographic colored transparencies; legends of explanation printed.

WILLIAM E. HOWES, JOSEPH TENOPYR, W. W. HALA, W. P. CORRIERO and IRVING SILVERMAN, Caledonian Hospital, Brooklyn.

Organization and Development of a Tumor Clinic in a Private Voluntary Hospital (100 Beds): Exhibit of charts showing personnel; records; apparatus, including surgical, laboratory, roentgen therapy and radium therapy requirements; biopsy, with two unique types of biopsy needles developed in the clinic; photomicrographs showing typical sections taken with these needles from breast, liver, lung and in some cases before and after irradiation; mortality statistics, including all cases enrolled in the two and one-half years since organization.

LOUIS H. JORSTAD and BRUCE C. MARTIN, St. Louis:

Tumors of the Head and Neck—Diagnosis and Treatment: Exhibit of moulages in natural colors of actual cases of benign and malignant tumors of the mouth, lip and face, demonstrating methods of treatment by radium and surgery, showing half of the face and corresponding half of the oral cavity sufficient for orientation; cases for surface and interstitial radium; procedures for immediate reconstruction of defects in selected cases; resection of lymph bearing tissue of the neck-draining areas of the head depicted in moulage; roentgenograms of benign and malignant tumors of the bones of the skull; photomicrographs of each type of lesion and a minimum of descriptive material.

W. E. ADAMS, Chicago:

Surgical Treatment of Intrathoracic Tumors: Exhibit of experimental and clinical studies, which include tumors involving most structures of the chest; i. e., chest wall, mediastinum, lung and esophagus.

WILLIAM J. HOFFMAN, New York:

Cancer; Its Treatment by Surgery and Irradiation: Exhibit of transparencies illustrating various types of cancer of the skin, lip, tongue, tonsil, hard palate, cheek, ear, nose, neck, breast, hands, lymph nodes of the neck, axilla and groin, and their treatment by surgery, irradiation and combinations of the two; indications for surgery and for irradiation illustrated and emphasized.

JEROME M. LYNCH and G. JOHNSON HAMILTON, New York:

Carcinoma of the Rectum and Sigmoid: Exhibit of charts, drawings, transparencies and photomicrographs depicting the manner of metastatic spread and the danger of biopsy; an operation is suggested which eradicates these danger points but still has a low mortality, illustrated by animated drawings and photographs of end results; various stages in the development of carcinoma are shown.

V. P. BLAIR, JAMES BARRETT BROWN and LOUIS T. BYARS, Washington University School of Medicine, St. Louis:

Cancer of the Mouth and Face: Exhibit of photographs showing lesions and diagnostic points; plans of treatment of typical instances.

EVARTS A. GRAHAM and BRIAN BLADES, Washington University School of Medicine, St. Louis:

Thoracic Surgery: Exhibit showing new developments in thoracic surgery, illustrated with photographs, charts, etc.

EARL C. PADGETT, Kansas City, Mo.:

The Calibrated Skin Graft; A New Principle and a New Type of Graft: Exhibit of translite films depicting typical operative results; demonstration of a new skin grafting machine; method of cutting skin in one sheet of absolutely uniform thickness from any area of the body in any pattern and of any thickness desired; motion picture demonstration.

IRWIN SCHULZ, W. P. BLOUNT, CHARLES FIDLER, G. WILLIAM FOX, ROBERT MONTGOMERY, ARTHUR A. SCHAEFER, A. C. SCHMIDT, H. C. SCHUMM and STANLEY J. SEEGER, Milwaukee Children's Hospital, Milwaukee:

Fractures in Children; Principles of Treatment: Exhibit of photographs, roentgenograms, diagrams and charts presenting an end result study of fractures of the humerus, elbow, forearm, femur and tibia in children; statistical summaries of the incidence, location and results; roentgenograms of representative cases; photographs of methods and comments regarding principles of treatment. The principles of treatment of fractures in adults cannot be applied to children; open reduction is contraindicated in most types of fracture and is urgently needed in others; adaptive changes which occur with growth must be fully appreciated in treating fractures in children.

BERNHARD STEINBERG, Toledo Hospital, Toledo, Ohio:

Stages in Peritonitis—Based on Defense Mechanism in Relation to Treatment: Exhibit showing that general peritonitis is divided into three stages: the primary stage in which the various defenses, cellular and humoral, are capable of mobilization (preventive treatment designed to mobilize effectively these elements is presented and a procedure outlined for a ready recognition); the second stage, one of bacterial multiplication and toxin production in which the defense mechanism is inhibited or paralyzed and the treatment of this stage is indicated; the third stage, one of irrevocable damage.

HAROLD M. TRUSLER and JAMES F. GLORE, Indiana University Medical Center, Indianapolis:

Treatment of Burns and the Repair of Burn Scar Deformities: Exhibit of charts, illustrations, and photographs concisely and coherently portraying four important phases in the treatment of major burns: (1) treatment of burn shock; (2) initial treatment of burned areas; (3) treatment of granulation tissue in preparation for skin grafting; (4) plastic repair of deformities and contractures due to burn scars, including illustrations of split skin grafting, Z-plasty, pedicle or rolled flap reconstruction and other major reconstructive surgical procedures.

R. H. JACKSON, J. N. SISK and A. S. JACKSON, Jackson Clinic, Madison, Wis.:

Diseases of the Gallbladder Ducts and Liver: Exhibit of models and charts illustrating diseases of the gallbladder and liver and the various steps in cholecystectomy; slides amplifying these conditions and illustrating the pathologic changes; technic of T-tube drainage of the common duct; charts and drawings demonstrating surgical methods used in treating disease of the biliary system; a study of anatomic variations of the cystic artery and a series of cholecystograms.

J. W. THOMPSON, St. Louis:

Experimental and Clinical Study of a New Suture Material: Exhibit of transparencies and drawings of microphotography of healing wounds, comparing the properties of a new suture material of a bovine membrane with catgut, silk and linen; drawings illustrating the technic of performing operations for hernia; photographs and transparencies showing end results in patients with hernia who have been operated on.

N. FREDERICK HICKEN and R. RUSSELL BEST, Omaha Clinic, Omaha:

Discharges from the Nipple: Their Clinical Significance and Diagnosis: Exhibit showing that spontaneous discharges from the nipple, other than during lactation, signify abnormal physiologic and pathologic changes; carcinoma, sarcoma, papilloma, degenerating benign tumors, mazoplasia, trauma, infection and cystic degeneration of the breast may or may not produce a discharge from the nipple; the escaping secretions may consist of blood serum, pus, altered milk and products of degenerating tumor or desquamating epithelial cells from the ducts, depending on the nature of the provocative factor; symptoms and physical changes are correlated by transilluminations, mammographies, roentgenologic and microscopic studies; classification and results of studies are presented by colored translites, drawings and moulages.

D. HENRY POER, Atlanta, Ga.:

Survey of Thyroid Diseases in Georgia: Exhibit of charts, graphs and translite photographs to show types and relative incidence of goiter; studies of hypothyroidism and cretinism; experimental studies in thyroparathyroidectomized animals; results in treatment of tetany with *ditachysterol*; blood iodine studies; statistical and pictorial study of thyroid diseases in a nonendemic area of the United States for comparative purposes.

ROLAND M. KLEMME, St. Louis:

Accurate Differential Section for Treatment of Trigeminal Neuralgia; Athetosis and Its Treatment: Exhibit of moulages and models of heads showing steps of operation and treatment of trigeminal neuralgia; charts of patients before and after operation.

JOSEPH FELSEN and BENJAMIN LEWIS, New York:

Acute Segmental Appendicitis: Experimental and Clinical Studies: Exhibit of gross photographs, photomicrographs, drawings and mounted specimens of rabbit and human appendixes showing acute segmental appendicitis as a pathologic and clinical study in the human being supplemented by the reproduction of characteristic lesions in rabbits by means of vascular occlusion, which may be the result of mechanical factors or the action of toxins or bacteria from a distant focus; the role of the indirect hematogenous excretory mechanism is stressed in intestinal infection; whether mechanical or excretory in origin, thrombosis of the appendical vessel is followed by a sharply segmental area of mucosal necrosis which corresponds to the distribution of the involved vessel; intramural bacterial invasion from the appendical lumen occurs with a tendency to fan-shaped spread toward the serosa.

HAROLD LINCOLN THOMPSON, Los Angeles:

Surgical Treatment of Peptic Ulcer: Exhibit of drawings illustrating the problems encountered in the surgical treatment of gastric and duodenal ulcer.

MANUEL GRODINSKY and EDWARD HOLYOKE, Omaha:

The Anatomic Basis of Deep Abscesses of the Head, Neck and Adjacent Regions: Exhibit of transparencies, made from (1) diagrammatic drawings based on dissections, injections and sections of human material, and (2) tracings on bleached photographs of sections of adult and fetal material; moulages made from transverse sections of adult material; posters explaining the transparencies and moulages, and indicating the clinical implications with special reference to Ludwig's angina, retropharyngeal abscess and other deep abscesses.

MOTION PICTURES

Motion pictures on surgery will be shown continuously in an area adjoining the exhibits by the following:

CONRAD J. BAUMGARTNER, Los Angeles:

JOSEPH F. JAROS, Chicago:

JEROME M. LYNCH, New York:

Section on Obstetrics and Gynecology

The representative to the Scientific Exhibit from the Section on Obstetrics and Gynecology is H. Close Hesseltine, Chicago.

A. LOUIS DIPPEL and WEBSTER H. BROWN, Johns Hopkins Hospital, Baltimore:

Roentgen Visualization of the Placenta in Placenta Praevia and Other Conditions: Exhibit of films showing that by means of soft tissue roentgen technic the placenta as well as the uterine wall may be readily visualized in pregnant women; in cases of suspected placenta praevia this method obviates the necessity of vaginal examination; exhibit based on sixty cases of suspected placenta praevia in which the placenta was localized by this method and placenta praevia either diagnosed or ruled out.

CON FENNING, University of Utah, Salt Lake City:

Indirect External Hysterography; Equipment and Recordings: Exhibit of equipment showing the compact, portable, completely self-contained unit and its individual components; four sets of representative recordings of uterine activity secured from the human being during various periods of pregnancy.

CHARLES EDWIN GALLOWAY and TOM D. PAUL, Evanston, Ill.:

Colored Photography of the Pathologic Cervix: Exhibit of photographs of various pathologic lesions shown as lantern slides in a view box and as colored pictures hung on the wall; projector showing lesions on a screen; camera for clinical photography work.

WYMAN C. C. COLE and DAVID C. KIMBALL, Detroit:

Etiologic Factors in Neonatal Asphyxia: Exhibit of charts, graphs and slide-film projection presenting a statistical and clinical analysis of 5,000 consecutive newborn babies delivered at the Woman's Hospital, Detroit; particular attention to the role of sedatives and anesthetics.

NORRIS W. VAUX, P. BROOKE BLAND, EDWARD A. BURT and DAVID R. MORGAN, Philadelphia:

Intracranial Injuries of the Newborn: Exhibit demonstrating intracranial injuries occurring in the newborn; intracranial hemorrhage, tears of the tentorium and falx cerebri and injuries to the brain substance.

A. W. DIDDLE and WILLIAM F. MENGERT, Iowa City, and D. M. EARL, New York:

The Position of the Uterus in the Living: Exhibit of roentgenographic and photographic studies of living adult females, both normal and with varying degrees of prolapse, made after adequate visualization of the uterus; by reflected light the photograph only is apparent, while by transillumination the uterine position and the skeletal structures are imposed on the photograph of the body form.

WILLIAM H. VOGT, WILLIAM C. STUDE, PAUL FLETCHER and ROY V. BOEDEKER, St. Louis University School of Medicine, St. Louis:

Aspects of Obstetric Practice in St. Louis and in Missouri: Exhibit showing public health aspect and postgraduate instruction to the physician in the practice of obstetrics; analgesia in obstetric practice; cesarean section in a series of selected hospitals in St. Louis.

SAMUEL L. SIEGLER, Brooklyn:

Artificial Ovulation in the Human Being with the Hormone of Pregnant Mare's Serum and Its Clinical Application: Exhibit depicting artificial ovulation in the rabbit, monkey and human being with the hormone of pregnant mare's serum and its clinical application, in the human being in amenorrhea and sterility and anovulatory menstruation, functional bleedings and spermatogenesis; colored transparencies showing stages in the production of ovulation in the three forms mentioned; photomicrograph of the artificially produced follicles by the hormone of pregnant mare's serum in various stages; photomicrographs and drawings illustrating the development of the follicle and its migration to the surface; graphs showing the biologic assay and methods of extraction of the hormone of pregnant mare's serum; a graph of actual ovulation during the cycle; photomicrographs of endometrial studies of anovulatory bleedings and the effect of the hormone of pregnant mare's serum; charts showing the clinical application of the hormone of pregnant mare's serum.

DOUGLAS P. MURPHY, Philadelphia:

Characteristics of the Uterine Contractions of Late Pregnancy: Exhibit of a tocograph with tracings taken at intervals of several days throughout the last two months of pregnancy, as secured from five patients; graphs to indicate the progressive increases in the various characteristics of the recorded waves; tracings taken from a collection of records made on 100 other patients to illustrate peculiar characteristics of uterine motility.

MOTION PICTURES

F. B. ZENER, NORMAN A. DAVID and H. F. VEHRS, University of Oregon Medical School, Portland:

Vioform N. N. R. in the Combined Treatment of Vaginal and Intestinal Trichomonas.

WILLIAM H. VOGT, St. Louis University School of Medicine, St. Louis:

Obstetric Practice.

Section on Ophthalmology

The section exhibit committee of the Section on Ophthalmology consists of Georgiana Dvorak-Theobald, Oak Park, Ill., chairman; Theodore E. Sanders, St. Louis, and Derrick T. Vail Jr., Cincinnati.

JOHN J. PRENDERGAST, St. Paul:

Ocular Leprosy: Exhibit of photographs of gross and microscopic lesions and sections, and microscopic sections.

L. T. POST, Washington University School of Medicine, St. Louis:

Studies on Inclusion Blenorrhea: Exhibit demonstrating the incidence, pathologic changes and diagnosis of inclusion blenorrhea; specimens showing the anatomy of the levator muscle in relation to ptosis and the use of fluorescence in lens surgery.

LEO L. MAYER, Chicago:

Optic Pathways in the Brain: Exhibit of an enlarged pictured section of one half of the cerebrum, the cuts united by strings showing the optic pathways and legend of the surrounding important structures; drawings of the brain from lateral, ventral, dorsal views showing the pathways (schematic).

THEODORE J. DIMITRY, New Orleans:

Evolution of a Sucking Disk for Extraction of Cataractous Lens in Capsule: Exhibit of drawings of and the different instruments used in the past and at the present time to remove the lens by a vacuum gripping; original instruments and one not larger than a fountain pen, showing that the disk placed in contact with the lens is quite flat.

JAMES H. ALLEN, University Hospital, Iowa City:

Staphylococcic Conjunctivitis: Exhibit showing clinical stages of staphylococcic conjunctivitis both by colored drawings and by models of the external eye; colored drawings illustrating the experimental reproduction of the disease by means of toxin and by means of staphylococcus inoculations in rabbits and in human volunteers; rabbits in which the disease has been reproduced by both methods demonstrated.

FREDERICK A. DAVIS, University of Wisconsin Medical School, Madison:

Primary Tumors of the Optic Nerve, a Phenomenon of Von Recklinghausen's Disease: Exhibit of photographs and photomicrographs with descriptions, showing primary tumors of the optic nerve associated with this syndrome.

LOUIS BOTHMAN and R. W. BENNETT, University of Chicago, Chicago:

Photography of the Eye: Exhibit of stereoscopic photographs of unusual and rare diseases of the fundus and stereophotographs of diseases of the anterior segment.

W. H. LUEDDE, C. T. EBER, L. C. DREWS, J. T. ELZ and F. W. LUEDDE, St. Louis:

Ophthalmic Physiology and Pathology: Exhibit of photomicrographs and charts illustrating the mechanism of accommodation; photomicrographs in color illustrating interesting conditions in ophthalmic pathologic conditions, with special review of interesting specimens in Wintersteiner collection; demonstration and measurement of simultaneous color contrast; clinical studies of retinal tears and retinitis pigmentosa.

Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Section on Laryngology, Otology and Rhinology is Lee Wallace Dean Jr., St. Louis.

HARRY N. GLICK, St. Louis:

Anatomy and Surgery of Temporal Bone: Exhibit of charts and photographs and dry and wet specimens to show anatomy of fetal, infant and adult temporal bone; dry and wet anatomic material showing various operative procedures on the temporal bone.

THEODORE E. WALSH and PAUL R. CANNON, University of Chicago, Chicago:

Some Effects of Commonly Used Nasal Medications on the Lungs: Exhibit of transparencies of photomicrographs of lungs of animals treated intranasally with various commonly used nasal medications, together with some photomicrographs of human material; specimens of lungs of animals similarly treated, cleared by the Spalteholtz method; medications considered under the headings of oils, antiseptics and astringents; the increasing incidence of lipoid pneumonia in human beings, in adults as well as in children, showing the ease with which nasal medicaments may reach the lungs and the importance of knowing what effects such medicaments may have on normal lungs.

C. C. BUNCH, Washington University School of Medicine, St. Louis:

Deafness from Acoustic Trauma: Exhibit presenting an audiometric study of patients who have been deafened or made hard of hearing because of excessive stimulation by loud noises; cases of deafness in metal workers, hunters and soldiers, telephone operators, tractor drivers and the like, comparisons being made between deafness of this type and that from other common types of nerve involvement or other involvement of the inner ear.

MILLARD F. ARBUCKLE and A. C. STUTSMAN, St. Louis:

Bronchoscopy as an Aid in the Diagnosis and Treatment of Disorders of the Chest: Exhibit demonstrating the diagnosis of nonopaque foreign body in tracheobronchial tree; endobronchial neoplasms; diagnosis and treatment of lung abscess; lung mapping for localization and extent of bronchiectasis and other disorders.

MAX CUTLER, Chicago Tumor Institute, Chicago:

Cancer of the Larynx: Exhibit of charts, models and photographs, gross specimens, photomicrographs and roentgenograms of the soft tissue demonstrating (*a*) anatomy of the larynx, (*b*) clinical types and anatomic locations of laryngeal carcinomas, (*c*) clinical examination and methods of diagnosis of laryngeal carcinomas, (*d*) histopathology, (*e*) treatment and (*f*) results.

EDWARD C. ARMBRECHT, Wheeling, W. Va.:

Oral Surgery: Exhibit of photographs taken before and after operation of oral surgical conditions found in patients, such as

fractures of the jaw, oral tumors, cleft lip and cleft palate and miscellaneous conditions comprising impacted teeth, unusual deformities of the teeth, oral manifestations of certain systemic diseases, foreign bodies found in the mouth and so on; charts analyzing series of cases on fractures of the jaw, blood observations and anesthesia in oral cases.

JAMES B. COSTEN, St. Louis:

The Mandibular Joint Syndrome; A Symptom Complex of Pain and Ear Symptoms Produced by Disturbed Function of the Temporomandibular Joint: Exhibit of photostat enlargements of descriptive legends detailing the symptoms; anatomic drawings illustrating the structural basis of the disease; enlarged copies of roentgenograms of typical mandibular joint destruction; selected number of roentgenograms showing no destruction but showing uneven position of the condyles within the fossa; examples of trismus.

J. R. LINDSAY, University of Chicago, Chicago:

Suppuration in the Petrous Pyramid; Pneumatization of the Pyramid; Histopathology of Suppuration; X-Ray Demonstration: Exhibit showing that the development of pneumatized areas around the labyrinth and in the apex of the temporal bone follows certain definite patterns, and that exact knowledge of these patterns of pneumatization is essential for accurate diagnosis in acute and chronic suppuration and for a systematic and efficient method of surgical approach; each type or pattern of pneumatization demonstrated by selected temporal bone sections, photographs of gross specimens and diagrams for orientation; roentgenograms illustrating both normal pneumatization and the appearance when suppuration is present in each of these areas, both acute and chronic; serial sections from fatal cases of petrositis which illustrate the pathologic changes of suppuration in each of the pneumatized areas demonstrated anatomically.

DOROTHY WOLFF, VICTOR GOODHILL, ROBERT OWSLEY, J. W. WOODROW, S. LAURENCE KEMPLER and LEONARD G. ROSENTHAL, Washington University, St. Louis:

Anatomy and Pathology of Middle and Inner Ear: Exhibit of colored lantern slides showing anatomy and pathologic changes of temporal bone; microprojection of microscopic slides of temporal bone; phylogenetic explanation of juxtaposition of cochlea and organ of equilibrium; graduate student preparation of dissections of membranous labyrinth in fish and human beings; human fetal and term bony labyrinth dissections; human woods metal casts; bony labyrinth dissections of birds.

T. E. CARMODY, Denver:

Pathologic Conditions of the Mouth and Face: Exhibit of pathologic conditions of the mouth and face and the operative procedure for treatment; cleft lips and palate, carcinoma, tumors of lips, tongue and gums, osteomyelitis of the jaw, plastic surgery of the nose and face and the like, illustrated with still and motion pictures, many in color.

LOUIS J. BIRSNER, Washington University School of Medicine, St. Louis:

Anatomic Exhibit: Exhibit of specimens.

MOTION PICTURE

T. E. CARMODY, Denver:

Pathologic Conditions of the Mouth and Face.

Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is Arthur F. Abt, Chicago.

ISAAC SCHOUR and H. G. PONCHER, University of Illinois College of Medicine, Chicago:

Calcium Metabolism and Teeth: Exhibit of charts, transparencies and reconstruction models which demonstrate on the basis of experimental and clinical data that growing and adult teeth differ in their response to calcium metabolism: (1) during their period of growth and calcification the enamel and dentin reflect accurately changes in calcium metabolism but are not subject to calcium withdrawal and, when fully developed, present a permanent record which cannot be altered by calcium therapy; (2) the calcification pattern of the enamel and dentin constitutes a kymographic reflection of the developmental pattern of the growing individual (prenatal, infancy and childhood periods, demarcated by the neonatal, infancy and childhood rings); (3) the periodontal tissues grow continuously and therefore give a transitory record of the present in the adult as well as the young individual.

THEODORE O. ELTERICH, Pittsburgh:

Problems in Childhood Endocrinology, Mental Deficiency and Associated Constitutional Anomalies: Exhibit of illustrated case histories of interesting children encountered and followed over a period of years, demonstrating respectively disturbances of the pituitary, thyroid and adrenal glands and the pancreas and gonads; observations on cases of pseudohermaphroditism, hermaphroditism, hypertelorism and several unusual types of constitutional anomalies; data indicating at least partial relationship of endocrine factors to such clinical conditions as pseudohypertrophic muscular dystrophy, asthma and chondrodystrophy.

ALEXIS F. HARTMANN, HENRY L. BARNETT, ANNE M. PERLEY and MARY B. RUHOFF, St. Louis:

The Use of Sulfapyridine in Infants and Children: Exhibit describing the drug and its chemical constitution, absorption-excretion data, toxicity and effect on bacterial infections; clinical charts on cases of pneumonia, peritonitis, meningitis and other infections, including Streptococcus viridans endocarditis; toxicity and changes in acid-base balance (similar to sulfanilamide), methemoglobinemia and cyanosis and control with methylene blue (similar to sulfanilamide).

MAURICE L. BLATT and ELLIS H. HARRIS, Chicago:

A Diet for the Premature Infant: Exhibit showing collection of breast milk, preparation of formulas in the diet kitchen, equipment and methods of feeding premature infants, the stool of the premature infant, growth of premature infants on specific diets; mortality rates arranged according to birth weight.

PRISCILLA WHITE and RICHARD WAGNER, Boston:

Diabetes in Youth: Exhibit showing the etiology, incidence, distinctive features of onset, constitutional factors, complications, treatment, hypoglycemia and prognosis of diabetes in youth; infants of diabetic mothers.

WILLIAM W. ANDERSON, Atlanta, Ga.:

Congenital Lung Cysts: Exhibit dealing with the occurrence, the incidence in the very young, the rapid expansion in intercurrent infection, as pneumonia, the air-trap and air-expansile type and the theories as to the formation of congenital lung cysts.

H. D. PALMER, Rockford Hospital, Rockford, Ill.:

Congenital Heart Disease: Exhibit showing the various forms of congenital heart disease illustrated by oil painted models cast from actual specimens; photographs, photomicrographs, roentgen films (on lantern slides shown in small illuminated boxes), drawings and specimens arranged to show the details of the various manifestations exhibited.

Section on Pharmacology and Therapeutics

The representative to the Scientific Exhibit from the Section on Pharmacology and Therapeutics is Wallace M. Yater, Washington, D. C. In addition to other exhibits, the section is contributing to the Exhibit Symposium on Heart Disease and to the group of exhibits on pneumonia.

SINCLAIR LUTON, St. Louis:

Major Error Involved When Droppers, Including the U. S. P. XI, Are Used in Measuring Fluid Digitalis Preparations: Exhibit illustrations, photographs and the like of historical material; graphs (1809-1900) showing differences in drop commonly printed in standard textbooks; graph showing opinion of forty clinicians as to the size of digitalis drop, with dosage error; table showing results obtained when fourteen commonly used droppers are used with ten "tinctures" of digitalis and with water and apertures measured; graph based on this table demonstrating the exact figures with a given combination, together with the dosage error; dosage error circle graph; statement as to dosage error to be avoided by dry digitalis; proper measuring (no droppers); charts showing results of U. S. P. XI dropper with water and tincture of digitalis; bottles with tincture in suitable vehicles.

FREDERICK STEIGMANN, Chicago:

Therapy of Icterus: Exhibit of drawings and microscopic slides showing the sites of origin of the different types of jaundice, their pathogenesis, etiology and variations in bile pigment

metabolism; posters showing etiologic and diagnostic factors in jaundice; a detailed therapy of icterus shown by means of posters; the "rest-and-work therapy" methods for liver disease complicated by jaundice, with the emphasis placed on the causal treatment.

THOMAS FITZ-HUGH JR., Philadelphia, and ADOLPH J. CREVOFF and HARRISON F. FLIPPIN, Hospital of University of Pennsylvania:

Idiosyncratic Effects of Certain Drugs on the Blood and Blood-Forming Tissues: Exhibit of charts, photomicrographs, slides and transparencies presenting the newer knowledge of allergic-like reactions of the blood and of blood-forming tissues to certain drugs; the clinical syndromes of hematologic importance which result from such causes, together with lists of drugs and proprietaries that have been suspected or proved as causes; certain possible conditioning mechanisms illustrated in support of the theory of "conditioned toxicity"; a file of reprints, case histories and journal articles.

GEORGE W. THORN, R. PALMER HOWARD, KENDALL EMERSON JR., and WARFIELD M. FIROR, Johns Hopkins University and Hospital, Baltimore:

Studies on Desoxycorticosterone (A Synthetic Adrenal Cortical Substance): Exhibit of charts, photographs and roentgenograms of patients who have been treated successfully both by injections of the synthetic hormone in oil and by subcutaneous implants of pellets of crystalline material; demonstration of the apparatus used for making pellets and a demonstration of the pellets used in implantation.

HUGH R. BUTT and JESSE L. BOLLMAN, Mayo Clinic, Rochester, Minn.:

Vitamin K in the Control of Hemorrhage in Jaundice: Exhibit of charts and figures showing the sources of vitamin K, its effect on the experimental animal and its effect on the human, with the hemorrhagic diathesis of jaundice; comparison of the quantitative and qualitative methods of measuring the prothrombin level in the blood of these patients and the effect of vitamin K on the level of prothrombin will be illustrated; effects of the vitamin and bile in the prevention and control of the hemorrhagic diathesis in jaundice is illustrated by charts and typical case histories.

SAMUEL H. SEDWITZ, Youngstown, Ohio, and C. E. SANDERS, Kansas City, Kan.:

Various Modes of Treatment of Peripheral Vascular Diseases: Exhibit showing treatment of patient on vasoscillator bed with intermittent venous compression; "homemade" suction pressure apparatus; intermittent venous compression (Collens-Wilensky), mecholyl by iontophoresis, whirlpool bath and paraffin bath; charts of classification of diseases and treatment; photographs of patients before and after treatment; demonstration of a stool for patient's use while resting.

ARTHUR F. ABT and CHESTER J. FARMER, Northwestern University Medical School, Chicago:

Vitamin C; Pharmacology and Therapeutics: Exhibit dealing with the pharmacology of vitamin C; sources of vitamin C; normal requirements of vitamin C; methods of determining the vitamin C in blood, urine and feces; pitfalls of various methods proposed; influence of dietary intake on the blood level and the excretion in urine and feces; requirements for pregnant and lactating women and for the breast-fed and artificially fed infant; renal excretion of vitamin C; effects of artificial fever on vitamin C blood levels; intravenous administration and excretion in urine and feces; subjects dealing with the therapeutics of vitamin C; avitaminosis due to malabsorption, achlorhydria and destruction in the intestinal tract; vitamin C requirements in infectious diseases as in scarlet fever, diphtheria and rheumatic fever; therapeutic need in gastric ulcer; sensitivity to arsphenamine and in wound healing; relationship to conditions of the teeth and cataract; demonstration of scurvy.

Section on Pathology and Physiology

In addition to a large group of exhibits on pathology and physiology, the section is contributing to the Exhibit Symposium on Heart Disease. The representative to the Scientific Exhibit from the section is Frank W. Konzelmann, Philadelphia.

F. P. MCNAMARA, Finley Hospital, Dubuque, Iowa:

Significance of Necropsy Studies in a 100 Bed Hospital: Exhibit based on an analysis of 550 necropsies in a 100 bed hospital consisting of tables and charts which show the principal lesions encountered, the primary and contributory causes of death, the gradual increase in the number and percentage of necropsies and the improvement in antemortem diagnosis; copies of the necropsy records and of reprints based on clinical and necropsy studies showing the value of necropsies in stimulating the utilization of material available in every hospital for continuous postgraduate education.

C. ALEXANDER HELLWIG, St. Francis Hospital, Wichita, Kan.:

The Diffuse Colloid Goiter (Structure, Function and Experimental Production): Exhibit of transparencies, photographs and photomicrographs illustrating structure and function of the colloid goiter; specimens of surgical goiter illustrating that diffuse colloid goiter is the most important type of goiter in North America; experimental colloid goiter in white rats, produced by calcium-rich diet and relatively high iodine content.

B. S. KLINE, A. M. YOUNG and R. STRAUS, Mount Sinai Hospital, Cleveland:

Healing with Pseudodiverticulum Formation Following Perforation in Acute Appendicitis: Exhibit of specimens, photographs and photomicrographs showing acute inflammation of the walls, perforation, progressive healing and pseudodiverticulum formation.

EDWARD R. JANJIGIAN, Danville State Hospital, Danville, Pa.:

The Basmeter, A New Method of Estimating the Basal Metabolic Rate: Exhibit of drawing of the basmeter with a small model of the basmeter and a sliding rule; charts and tables, showing the factors influencing the basal metabolic rate, their distribution and the like; tables evaluating the reliability of the basal tests; tables showing fundamental metabolic steps in metabolism of carbohydrates, proteins and fats, and their bearing on basal metabolism; technic of determining the basal rate on the basmeter and comparison of results with those of the basal machines; summary of certain points to bear in mind in diagnosis and surgery of the thyroid.

KERMIT CHRISTENSEN, St. Louis University School of Medicine, St. Louis:

Innervation Studies; Autonomic Innervation of the Orbit and of the Teeth: Exhibit of charts and photomicrographs showing the innervation of the orbit and the teeth.

ALRICK B. HERTZMAN, St. Louis University School of Medicine, St. Louis:

Photo-Electric Plethysmography; Clinical Applications to the Peripheral Circulation: Exhibit of photo-electric plethysmographs for the digits (fingers and toes), the nasal septum and the skin; plethysmograms from normal and abnormal conditions; use of the skin plethysmograph for estimating the cutaneous blood supply.

CHARLES GESCHICKTER, Johns Hopkins Hospital, Baltimore:

Forms of Mammary Cancer and Their Experimental Production in the Rat: Exhibit of photographs, charts, gross specimens and whole mounts of mammary glands illustrating clinical and experimental pathologic changes of mammary cancer; adenocarcinoma, duct carcinoma and scirrhous cancer (infiltrating form) with metastases to the lung has been produced in the male and female rats of the standard Wistar strain normally free from breast tumors; the exhibit shows the pathologic condition of the experimental tumor and the method of production and the corresponding human forms of mammary cancer and their known etiologic factors.

WILLIAM C. LANGSTON, WILLIAM J. DARBY and PAUL L. DAY, University of Arkansas, Little Rock:

Nutritional Cytopenia (Vitamin M Deficiency) in the Monkey: Exhibit of charts and photographs illustrating the anemia and leukopenia in monkeys resulting from vitamin M deficiency; evidence presented that this cytopenia is not the result of a deficiency of vitamin A, vitamin D, thiamin, riboflavin, ascorbic acid, nicotinic acid or inorganic elements; certain liver extracts and yeast were effective in preventing and curing the cytopenia; yellow bone marrow preparation and nucleic acid were ineffective; stained blood specimens for microscopic examination.

J. WILLIAM WHITE, Scranton, Pa.:

Carcinoma of the Uterine Cervix: Exhibit of placards showing etiology, incidence, pathologic changes, symptoms, signs, classification, regional metastatic spread, statistics, diagnosis and treatment; photomicrographs and microscopic slides showing various types of cervical cancer; drawings of early cancer of the cervix; models of stages of the disease and models, records and diagrams of radium applications.

HERBERT T. KELLY, EDMUND L. HOUSEL and WILLIAM M. EMREY, Philadelphia:

Deficiency Disease: Exhibit of charts and illustrations indicating the importance of the minor quantities of the diet, which are of major importance in the maintenance of the state of good health; a simplified syndrome of these conditions together with their effect; chart indicating the quantitative composition (vitamins, calories and minerals) of the various items of the American diet by which a quantitative assay of an average twenty-four hour intake for the individual patient may quickly and easily be determined; emphasis placed on the factors of supply, demand, absorption and utilization so that a rational therapy may be determined.

JOSEPH ERLANGER and A. S. GILSON JR., Washington University Medical School, St. Louis:

The Mechanism of the Production of the Sounds Emitted by an Artery During Pressure Determinations: Exhibit of records showing the movements of the freed wall of an artery in situ at the point at which and while it is being decompressed as in making blood pressure determinations, and also of apparatus with which such records can be obtained; development of the relevant phenomena (the preanacrotic or breaker phenomenon and the sounds) in a simple model.

TEMPLE FAY and LAWRENCE W. SMITH, Temple University School of Medicine, Philadelphia:

Temperature Factors in Cancer and Embryonal Cell Growth: Exhibit demonstrating a bedside unit used in the refrigeration therapy of cancer along with the various instruments devised for treatment of different parts of the body; a series of cleared chick embryos incubated at progressively reduced temperatures showing the fundamental biologic character of the temperature factor in cell growth; transparencies of chick embryos and progressive biopsy specimens from cancer patients under treatment.

ALBERT KUNTZ, P. A. CONRATH and W. F. ALEXANDER, St. Louis University School of Medicine, St. Louis:

The Autonomic Nervous System: Exhibit of charts illustrating the anatomic relationships of the sympathetic and parasympathetic divisions of the autonomic nervous system and the innervation of visceral organs, accompanied with anatomic preparations.

BENJAMIN T. TERRY, Tacoma General Hospital, Tacoma, Wash.:

Rapid Section Technic: Exhibit showing how to cut, stain and have ready for microscopic examination in sixty seconds sections of fresh unfixed tissue; how to cut, stain and have ready for immediate microscopic examination sections of fixed malignant tissues; the technic for sectioning and staining difficult tissues; directions and diagrams given away for making an inexpensive, efficient cutter, cutting board and stain.

Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is Roland P. Mackay, Chicago. Motion pictures will be shown in an adjoining area in addition to the exhibits.

CHARLES P. LARSON, Western State Hospital, Fort Steilacoom, Wash.:

Occurrence of Brain Tumors in Mental Hospital Patients: Exhibit of watch-glass mountings of different types of brain tumors which were found during the course of routine autopsies performed on patients dying at the Western Washington State Mental Hospital; statistical survey of the number and types of brain tumors encountered in a three-year period showing that in 13.5 per cent of all the autopsies performed during this period some type of intracranial tumor was found; charts demonstrating the correlation between the mental status of the patient and the situation of the tumor.

G. WILSE ROBINSON and G. WILSE ROBINSON JR., Neurological Hospital, Kansas City, Mo.:

Delirium: Exhibit showing the causes, pathologic changes and treatment, pointing out that delirious manifestations always arise from the same pathologic condition and that when delirium does arise it indicates a serious physical condition, somewhat similar to shock, although its effects are localized, and that the pathologic condition behind the delirium must be treated as well as the primary condition which, through a series of cycles, has produced delirium.

WALTER L. BRUETSCH and MAX A. BAHR, Central State Hospital and Indiana University School of Medicine, Indianapolis:

Psychoses with Chronic Rheumatic Brain Disease: Exhibit of charts showing the frequency of rheumatic changes of the brain found at autopsy of institutionalized mental patients; photographs illustrating the nature of the gross and microscopic lesions in the brain and heart of these patients.

RALPH M. STUCK, Denver:

Surgical Epilepsy: Exhibit of artists' drawings and displays telling the important facts to be gathered in the history, showing normal anatomic physiology and most of the pathologic lesions in epilepsy amenable to surgery.

ABRAHAM MYERSON and LEO ALEXANDER, Boston State Hospital, Mattapan, Mass.:

Mineral Studies of the Brain by Means of Microincineration and Spectroscopy: Exhibit of apparatus used; photomicrographs of normal and pathologic brain tissue; reproductions of spectroscopic graphs.

J. F. FULTON and MARGARET A. KENNARD, Yale University, New Haven, and CARLYLE F. JACOBSEN, Washington University, St. Louis:

Functions of the Frontal Lobe with Particular Reference to the Motor and Premotor Areas (Areas 4 and 6 of Brodmann): Exhibit of a series of diagrams, brain models and motion picture showing functions of the frontal lobe with particular reference to the motor and premotor areas.

MOTION PICTURES

Motion pictures will be shown continuously throughout the week, among which will be the following:

J. RUDOLPH JAEGER, Denver:

Lumbar Sympathectomy for Traumatic Sciatic Neuritis.
Repair of Bone Defect in Skull.
Spinal Cord and Cauda Equina Injury.
Frontal Lobe Tumor.
Diagnosis of Brain Lesions by Injection of Air.
Herniated Intervertebral Disk (with Sciatic Neuralgia).
Tic Douloureux (Diagnosis and Treatment by Alcohol Injection and Operation).

HENRY R. VIETS and ROBERT SCHWAB, Boston:

Myasthenia Gravis; a Historical, Clinical and Therapeutic Survey.

J. F. FULTON and MARGARET A. KENNARD, Yale University, New Haven, and CARLYLE F. JACOBSEN, Washington University, St. Louis:

Functions of the Frontal Lobe with Particular Reference to the Motor and Premotor Areas (Areas 4 and 6 of Brodmann).

A. E. BENNETT, Omaha, Neb.:

Convulsive Shock Therapy in Affective Psychoses.

Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section on Dermatology and Syphilology is Hamilton Montgomery, Rochester, Minn. In addition to the exhibits, motion pictures will be shown in an adjoining area.

ELMORE B. TAUBER and H. G. REINEKE, University of Cincinnati College of Medicine, Cincinnati:

Atypical Forms of Bone Syphilis: Exhibit of charts, photographs and roentgenograms, showing an unusual series of bone syphilis; the typical bone syphilis of prenatal and acquired syphilis compared with selected cases of bone syphilis of very unusual types; cases will show that the complete examination and follow-up studies, in addition to the roentgenograms, will frequently make the diagnosis of unusual forms of bone syphilis.

ERWIN P. ZEISLER, Chicago:

Diseases of the Tongue, Lips and Oral Mucosa: Exhibit of photographs, colored drawings and photomicrographs illustrating the differential diagnosis of syphilitic and nonsyphilitic disease and of cancerous and precancerous lesions of the mouth; a pictorial review of oral disorders with particular reference to those seen in dermatologic practice.

JOSEPH B. HOMAN, Department of Medical Art, University of Cincinnati College of Medicine, Cincinnati:

Value and Limitations of Infra-Red Photographs in Dermatology: Exhibit of charts describing the exact technic of infra-red photography; various types of large photographs illustrate the practical value and limitations of such photography.

MORRIS MOORE, Barnard Free Skin and Cancer Hospital, St. Louis:

Mycotic Infections of Man: Exhibit of clinical photographs of the various mycoses, superficial and deep, in the epidermis, dermis and internal viscera; photomicrographs showing the organism in situ and the histopathologic changes; illustrations and drawings of various fungi; cultures of the fungi in Petri dishes; experimental work on mycoses showing inoculation of the chorio-allantoic membrane of the chick with pathogenic fungi, photomicrographs and the like; experimental work on pityriasis versicolor and seborrheic dermatitis.

GEORGE SCHWARTZ, Boston:

Color Photography in Skin Diseases: Exhibit of lantern slides taken in color with Kodachrome film, showing various cutaneous diseases and syphilis; exact reproduction of the natural color that is characteristic of the particular cutaneous disease shown and the almost lifelike reproduction of the minute details of the lesions, such as macule, papule, vesicle or bulla; pictures of all the common cutaneous diseases and many of the rare ones; some slides show the entire distribution of the lesions on the face and body, while others are close-ups of the individual lesion.

BEDFORD SHELMIRE and H. L. GRAHAM, Dallas, Texas:

Survey of Common Weeds Causing Contact Eczema; Patch-Testing with Their Oils: Exhibit of mounted specimens and photographs in natural habitat of some sixty common weeds considered in survey; charts showing sensitization index of various weeds and occupations of persons affected; demonstration of plant oils, their method of extraction and mode of application to the skin for patch-testing; maps showing national distribution of weeds employed in survey; charts exhibiting reactions in noneczematous controls.

J. K. HOWLES and WILLIAM BRANKS STEWART, Louisiana State University, New Orleans:

Cutaneous Manifestations of Syphilis: Exhibit of paintings from life and plaster molds painted from life on the various cutaneous manifestations of syphilis, including primary, secondary and tertiary lesions.

MOTION PICTURES

Motion pictures will be shown on a regular schedule, among which will be the following:

JOHN G. DOWNING, Boston:

A Clinical and Laboratory Study of Fungous Diseases Demonstrated by a Colored Motion Picture.

MYLES STANDISH, Hartford, Conn.:

Psoriasis.

SAMUEL AYRES, Los Angeles:

Acne Rosacea.

FRED WISE, New York:

Common Lesions of the Eyelids.

C. FERD LEHMANN, San Antonio, Texas:

Leprosy.

LOUIS A. BRUNSTING and HAMILTON MONTGOMERY, Rochester, Minn.:

Skin Lesions of the Legs.

Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is Paul A. Davis, Akron, Ohio.

CARL F. JORDAN, Iowa State Department of Health, Des Moines:

Rocky Mountain Spotted Fever: Exhibit of mounted specimens of some of the animal hosts (chipmunk, ground squirrel, rabbit and dog) and a diagram indicating the various stages in the life history of the common dog tick Dermacentor variabilis; live and preserved specimens of the different stages of the wood tick, natural size and magnified; information relative to the clinical and epidemiologic aspects of Rocky Mountain spotted fever and the reported occurrence of the disease in the northern and southern central states area.

ROBERT A. BLACK, O. C. WENGER, LAWRENCE J. LINCK and MARVIN B. OSTERMAN, Chicago Board of Health, Chicago:

Chicago Syphilis Control Program: Exhibit depicting the activities of the Chicago Syphilis Control Program, which is a cooperative enterprise, conducted by the Chicago Board of Health, with the assistance of the Illinois Department of Public Health, United States Public Health Service and the Works Progress Administration; activities include statistical research, public education, free laboratory service, information, consultation service, follow-up and drug distribution service, mechanical system for automatic reporting on treatment-progress and control of venereal disease; a city-wide case finding program.

PHILIP L. VARNEY, Washington University School of Medicine, St. Louis:

Modern Therapy and Prophylaxis of Tetanus: Exhibit showing that the most advanced present day methods of therapy and prophylaxis of tetanus have greatly increased the chances for survival of tetanus patients and, if properly applied, should eliminate the possibility of the development of idiopathic tetanus; mortality rates in properly and improperly treated patients compared; a step-by-step outline of the proper methods, illustrated by means of apparatus, photographs, charts and graphs, including the procedures and equipment used in the preparation of plain and alum-precipitated toxoid and methods for its administration.

CHARLES WALTER CLARKE, New York:

Quackery and Other Unqualified Practices in Relation to Syphilis and Gonorrhea: Exhibit of collection of patent nostrums on the present market with analyses of their contents; charts and maps showing extent and distribution of unqualified practices; common quack advertising; photographs and literature; information about quack practitioners; also about kind and extent of drugstore counter prescribing.

BERT R. BOONE, United States Public Health Service, Washington, D. C.:

Stethography in School Children: Exhibit of photomurals portraying the methods and the technic in obtaining heart sound tracings from elementary school children; tracings and charts describing several important characteristics and variations of heart sounds found in school children; illuminated glass panels showing, by means of appropriate mechanisms, the continuous production of typical heart sound tracings in an enlarged form.

D. L. HARRIS, Washington University School of Medicine, St. Louis:

Rabies; Epidemiology and Prophylaxis: Exhibit of charts, tables and photomicrographs showing pathologic changes and diagnosis of the disease and pathologic aspect of "treatment paralysis."

J. J. BRONFENBRENNER, DONALD M. HETLER, JACK MEHL BURNETT and FRANCES LOVE, Washington University School of Medicine, St. Louis:

Experimental Alimentary Allergy and Its Prevention: Exhibit of charts and photographs illustrating the fact that, by keeping guinea pigs on a scorbutogenic diet, it is possible to increase the rate of absorption through the digestive tract to such a point that all the animals are sensitized by feeding of soluble protein; allergic state can be elicited not only by the systemic introduction of antigen but also by the production of an anaphylactic syndrome as a result of test feeding; if sufficient vitamin is supplied to such hypersensitive, scorbutic animals, they no longer respond to oral administration of the antigen, while their sensitivity to systemic introduction of antigen remains unimpaired.

R. V. ELLIS and C. O. ROSENDAHL, University of Minnesota, Minneapolis:

Hay Fever Causes for Minnesota: Exhibit of charts presenting mounted herbarium specimens of the principal plants which produce hay fever-causing pollens in Minnesota; maps showing regional distribution and density of population for the plants mentioned; photomicrographs of pollen from each of the plants; graphs showing season and quantitative pollution of the air for each kind of pollen over a period of several years; charts evaluating the relative importance of the several causes in terms of clinical data.

Section on Urology

The representative to the Scientific Exhibit from the Section on Urology is R. S. Ferguson, New York.

HERBERT E. LANDES and HAROLD C. VORIS, Loyola University Clinics, Chicago:

Clinical Cystometry, an Aid to the Diagnosis of Neurologic and Urologic Lesions: Exhibit of (1) photograph of cystometer used in original studies; (2) portable cystometer used in later studies; (3) cystometrograms characteristic of various neurologic and urologic lesions; (4) chart showing nerve pathways involved in bladder function.

V. S. COUNSELLER and J. T. PRIESTLEY, Mayo Foundation, Rochester, Minn.:

Surgery of the Genito-Urinary Tract: Exhibit showing methods of subtotal vesical resection, of uretero-enterostomy and total cystectomy for cancer of the bladder outlined by photographs, charts and models; recent technical improvements in removing large stag-horn renal calculi are illustrated among the material collected pertaining to surgery of the kidney; plastic surgery for hypospadias and other genital abnormalities is shown.

W. F. BRAASCH and J. L. CRENSHAW, Mayo Foundation, Rochester, Minn.:

Recent Advances in Urologic Diagnostic Methods: Exhibit of roentgenograms, photographs and descriptive material stressing the importance of diagnosis in cases of hematuria; interesting cases of calculous disease, of infections in the urinary tract and the methods of diagnosing and treating them are outlined; the importance of microscopy and of ordinary laboratory methods in the handling of urologic cases emphasized in a manner interesting to both the general practitioner and the specialist.

H. L. WHITE, PETER HEINBECKER and T. FINDLEY JR., Washington University School of Medicine, St. Louis:

Some Hypophysial Influences on Renal Function: Exhibit of charts, diagrams, photographs and microscopic slides showing (1) the lesion responsible for the production of experimental diabetes insipidus; (2) the nonessentiality of the anterior lobe for polyuria; (3) acute responses to ingestion of water by hypophysectomized dogs and dogs with diabetes insipidus; (4) creatinine and urea clearances and maximum concentrating power of the urine in hypophysectomized dogs and dogs with diabetes insipidus; (5) urinary responses of normal and hypophysectomized dogs and rats to administration of anterior lobe and thyroid; (6) responses of clinical diabetes insipidus to ingestion of water and salt.

GEORGE H. EWELL, Jackson Clinic, Madison, Wis.:

Urography; Diseases and Injuries of the Genito-Urinary Tract: Exhibit of pyelograms, cystograms and urethrograms showing the value of roentgen examinations combined with urologic examination in the diagnosis and treatment of diseases and injuries of the genito-urinary tract; photographs and transparent drawings demonstrating some types of abnormalities in the genito-urinary tract; demonstration of the more common urologic conditions and many unusual cases.

GRAYSON CARROLL, BRANSFORD LEWIS and LOUIS KAPPEL, St. Louis:

Study of the Effect of Drugs on the Ureter: Exhibit of anatomic charts of the nerve supply of the urinary tract; tracings from intact human ureter showing effect of drugs; demonstration of simple method used to obtain these tracings; intravenous urograms demonstrating the effect of various drugs on the ureter; explanatory pamphlet.

G. J. THOMPSON, E. N. COOK, J. L. EMMETT, Mayo Foundation, Rochester, Minn.:

Transurethral Surgery: Exhibit of anatomic models, photographs, charts and descriptive matter pertaining to diseases of the ureter, bladder, prostate, seminal vesicles and urethra; the selection of cases, preoperative methods of treatment, transurethral operative technic and postoperative nursing care; working models illustrating practical points.

ROGER W. BARNES, Los Angeles:

Surgical Treatment of Vesical Diverticula: Exhibit of models showing the different steps in the technic of a new method for the surgical treatment of large vesical diverticula; also the technic for surgical treatment of small vesical diverticula, done through the cystoscope; drawings illustrating the technic, and cystograms, both preoperative and postoperative.

Section on Orthopedic Surgery

In addition to the exhibits of this section, there will be motion pictures on orthopedic surgery in an adjoining area. The representative to the Scientific Exhibit from the Section on Orthopedic Surgery is Frederick A. Jostes, St. Louis.

VERNON P. THOMPSON and JOHN S. STEPHENS, Los Angeles:

Compression Reconstruction of Recent Intracapsular Femoral Neck Fracture: Exhibit of drawings, models, skiagrams and specimens showing the influence of shear, compression, rotation and obliquity on the fragments; the effect of the reconstruction; the usual oblique femoral neck fracture allows muscle pull and weight bearing to exert a sharing action; removal of a small wedge from the top of the neck converts a relatively vertical fracture line into a relatively horizontal one; a compression relationship of the fragments is thereby established, secured by internal fixation.

MILDRED TROTTER, Washington University, St. Louis:

Accessory Sacro-Iliac Articulations: Exhibit of pelves which present the variations; tables showing the incidence according to race, sex and age in a series of 776 skeletons of the Washington University Department of Anatomy; prepared skeletons and wet preparations; microscopic sections.

JAMES GRAHAM, Springfield, Ill.:

Weak Foot; Pathogenesis and Treatment: Exhibit of models, sketches and roentgenograms portraying an anatomic and clinical study of the mechanical factors at play in the pathogenesis of the three common clinical varieties of weak foot (postural type, shortened achilles type and anatomic type); treatment of these varieties of weak foot; mechanical apparatus, with emphasis placed on the simplification of mechanical technic; relationships of abnormal body postures and weak feet to the field of general medicine and a more widely applicable approach to the therapy of these extremely common and troublesome conditions.

PAUL C. COLONNA and FREDERICK VOM SAAL, Crippled Children's Hospital, Oklahoma City:

Study of Amputations in the Lower Extremity: Exhibit of charts, photographs of patients and roentgenograms, models and various types of practical appliances; a critical analysis of about seventy-five unselected amputation stumps of the lower extremity, reviewing the cause, complications and end results; the use of temporary and permanent prosthesis with individual time intervals for weight bearing is described.

J. DEWEY BISGARD, Omaha:

Experimental Scoliosis: Exhibit of transparencies and gross specimens of spines of goats in which scoliosis was produced by arresting growth on one side of the vertebral bodies by destruction of the growth cartilage and also by laying grafts along one side of several contiguous bodies; growth of vertebral bodies was also measured by placing steel shot in the vertebra when the animals were approximately 2 weeks old and recording the growth by means of roentgenograms from that time until termination of major growth eight months later; the feasibility of fusing the spine by fusing vertebral bodies in certain cases is suggested.

PHILIP LEWIN, Chicago:

Backache and Sciatica: Exhibit of charts, transparencies and models demonstrating every phase of the subject from the standpoints of anatomy, etiology, pathologic changes, symptoms, differential diagnosis, treatment and end results.

WILLIS C. CAMPBELL and J. S. SPEED, Memphis, Tenn.:

Treatment of Ununited Fractures of the Neck of the Femur: Exhibit of illustrations of various procedures for ununited fractures of the neck of the femur, such as bone graft operation; reconstruction operations; osteotomies; roentgenograms of cases where these procedures have been used.

L. D. SMITH, Milwaukee:

Supracondylar Fracture of the Femur; Treatment by Acute Flexion: Exhibit of a model of a femur and tibia, showing a supracondylar fracture of the femur; traction of the leg increases the disalinement of the distal fragment; acute flexion of the knee releases the deforming muscle pull, tightens the quadriceps tendon anteriorly against the two bone fragments and alines them; the position maintains reduction and permits ambulation.

AUGUSTUS THORNDIKE JR. and ROBERT J. JOPLIN, Harvard Medical School, Boston:

Cellulose Compound Bandage; a Waterproof Splinting Material: Exhibit demonstrating the application of this bandage material; transparencies of actual cases on which this splinting material was used.

G. MOSSER TAYLOR, Los Angeles:

Manipulative Therapy: Exhibit of charts, art drawings and demonstrations with a living subject, outlining the indications, contraindications and complications, the critical positions for the maneuvers and the manipulations of all the joints in a regular well organized manner.

C. H. CREGO and H. R. MCCARROLL, St. Louis:

Early Treatment of Congenital Dislocation of the Hip, with Skeletal Traction: Exhibit showing results obtained in the treatment of early congenital dislocation of the hip with skeletal traction; a comparative study of the three types of congenital dislocation of the hip—posterior dislocation, upward subluxation and primary anterior dislocation; "before and after" photographs of individual patients of each group together with roentgenograms of a large series of cases bringing out the salient features of each type; materials used in an inexpensive form of skeletal traction with demonstrations on dolls.

MOTION PICTURES

Motion pictures on orthopedic surgery will be shown on a regular schedule throughout the week, among which will be the following:

FREDERICK A. JOSTES, St. Louis:

Backache, A Manipulative Method of Treatment Without Anesthesia.

H. THEODORE SIMON, New Orleans:

The More Common Fractures of the Upper and Lower Extremities; A Newer Method of Demonstrating Fundamental Principles of Treatment.

VERNON P. THOMPSON and JOHN S. STEPHENS, Los Angeles:

Compression Reconstruction of Recent Intracapsular Femoral Neck Fractures.

G. MOSSER TAYLOR, Los Angeles:

Manipulative Therapy.

EDWARD L. COMPERE, Chicago:

Rehabilitation of Poliomyelitis Victims.

LEO MAYER, New York:

Operative Treatment of Surgery of the Paralyzed Upper Extremity.

Section on Gastro-Enterology and Proctology

The representative to the Scientific Exhibit from the Section on Gastro-Enterology and Proctology is Sara M. Jordan, Boston.

DAVID ADLERSBERG and MICHAEL WEINGARTEN, Beth Israel Hospital, New York:

The Small Intestine in Nutritional Deficiency: Exhibit showing the effects of nutritional deficiency in the small intestine, consisting of (1) a characteristic symptom complex, (2) evidence of impaired fat digestion, (3) roentgen changes in the appearance of the small intestine; these changes are demonstrated in sprue and pellagra, in ulcerative colitis and in a group of cases of subclinical deficiency termed chronic nongranulomatous enteritis.

WILLIAM J. MARTIN JR. and JOSEPH C. BELL, Louisville, Ky.:

Sigmoidoscopic and Roentgenologic Diagnosis of Polypoid Lesions of the Large Bowel: Exhibit of roentgenograms of polypoid lesions of the large bowel, with both single and double contrast technic; charts outlining etiologic theories, sex incidence, age incidence, location incidence of malignant changes and the like, based on information obtained from sigmoidoscopic examinations; these are compared as to incidence, location and so forth, with the frank cases of carcinoma of the lower part of the bowel, demonstrated by sigmoidoscopic examination during the same period of time.

JOSEPH W. LARIMORE, St. Louis:

Diseases of the Intestine and the Colon: Exhibit of lantern slides, classified, arranged and illuminated, showing diseases of the intestine and colon.

W. WAYNE BABCOCK, DANIEL J. PRESTON and FRANCIS L. ZABOROWSKI, Temple University Medical School, Philadelphia:

Technical Improvements in Abdominal Surgery: Exhibit showing (*a*) technic in the formation of perineal colostomy, or the transfer of an objectionable abdominal colostomy to the perineum; (*b*) statistics and colored slides from more than 200 resections of the large bowel, illustrating technic and results; (*c*) internal exteriorization for increased safety of stage operations within the abdomen, especially those for the acute gallbladder or for appendical abscess; (*d*) the use of Sump drains for prolonged peritoneal drainage in the prevention and treatment of spreading peritonitis; (*e*) technic of enterostomy for ileus; (*f*) the rapid closure of small biliary fistulas; (*g*) the successful early closure of duodenal and other troublesome fistulas; (*h*) metallic sutures and ligatures for the more secure closure of clean and contaminated abdominal wounds; (*i*) muscle-splitting rectus retracting incision for resection of colon.

FRANK H. LAHEY, Lahey Clinic, Boston:

Diseases of the Gastrointestinal Tract: Exhibit covering the subjects of carcinoma of the esophagus, peptic ulcer, carcinoma of the stomach, diseases of the small intestine, ulcerative colitis, carcinoma of the rectum, and polyps of the colon and rectum.

HENRY A. RAFSKY, New York:

Diagnostic Criteria in the Differentiation Between Peptic Ulcer and Gastric Cancer: Exhibit of transparencies showing a series of cases in which the differentiation between peptic ulcer and gastric cancer presented diagnostic and therapeutic problems; routine procedures were not as a rule sufficient to make the distinction, and in most of the cases special methods of examination were necessary; investigations consisted of the secretory response, mucosal studies of the stomach, gastroscopy and various laboratory tests; evaluation of these diagnostic criteria will be discussed and their clinical application illustrated.

HARRY E. BACON and HESSER C. LINDIG, Temple University Medical School, Philadelphia:

Extrarectal Metastatic Growths from Malignant Conditions of the Upper Part of the Abdomen: Exhibits presenting a diversified series of cases in colored photomicrographs, roentgen examinations and moulage specimens to permit palpation and visualization of artificial growths; differential diagnosis shown by illustrations; frequently misinterpreted and misdiagnosed extrarectal metastatic growths from malignant growths of the upper part of the abdomen and the mamma.

WALTMAN WALTERS, Mayo Clinic, Rochester, Minn.:

Operative Technic in Treatment of Stricture of the Common Bile Duct: Exhibit showing different types of operative procedure; indications for the various methods and results of their application.

Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is E. E. Downs,* Woodbury, N. J.

W. EDWARD CHAMBERLAIN and BARTON R. YOUNG, Temple University Hospital, Philadelphia:

A Harmless Method of Visualizing Ruptured Intervertebral Disks and Spinal Canal Tumors: Air Myelography. Exhibit of transparencies presenting roentgenograms, descriptive data and titles, and photographs illustrating technic.

* Deceased.

JOHN D CAMP, J. G LOVE and M N WALSH, Mayo Clinic, Rochester, Minn.

Intraspinal Protrusion of the Intervertebral Disks Exhibit illustrating the diagnosis of intraspinal protrusion of intervertebral disks as based on the patient's history and physical, orthopedic, neurologic and roentgenologic examinations, the value of lumbar puncture in the examination of the spinal fluid is indicated and the technic of the reversed Queckenstedt test described, the anatomy of the normal intervertebral disk and ligamentum flavum and the relation of these structures to the nerve roots illustrated by moulages, details of the roentgen examination of the spinal subarachnoid space by means of contrast agents shown by transparencies, roentgenograms and moving models, anatomic variations of the spinal subarachnoid space and the roentgenologic characteristics of protruded intervertebral disks and hypertrophy of the ligamentum flavum depicted by roentgenograms and transparencies, moulages illustrating the technic of the surgical removal of protruded intervertebral disks and the resection of the ligamentum flavum, the hypertrophy of which is an almost constant accompaniment of disk protrusion

EDITH H QUIMBY and JOHN POOL, Memorial Hospital, New York

Protection from Roentgen Rays and Radium Exhibit of charts, diagrams, photographs, tables, and other information regarding protection against different types of radiation, various aspects of protection, considered with respect to the patient, the physician, the technician, and the neighbors, types of injury resulting from undue exposure to radiation, data given according to which the necessary protection may be achieved

PAUL C SCHNOEBELEN, HERMAN M MEYER and I C MIDDLEMAN, St Louis

Roentgen Examination in Acute Intestinal Obstruction Exhibit showing the value and use of roentgen examination early in cases suspected of intestinal obstruction, serial films show a progressive accumulation of gas and fluid levels early in complete obstruction of small bowel, the signs of complete small intestinal obstruction discussed and demonstrated, case reports with conditions found at operation, literature reviewed and charts prepared for demonstration, complete obstruction in three cases demonstrated by roentgen examination four hours after onset of symptoms, cases proved by operation

LEROY SANTE, St Louis

Roentgenologic Aids in Abdominal Diagnosis Exhibit emphasizing some roentgenologic aids in diagnosis of certain surgical conditions of the abdomen and presenting evidence of the accuracy and value of certain less accepted roentgenologic signs and methods as seen in intestinal obstruction and paralytic ileus, ruptured hollow viscus from trauma and disease, significance of flank shadow in diagnosis of abdominal exudates and subdiaphragmatic abscess diagnosed by aid of pneumoperitoneum

HOWARD E SNYDER, Winfield, Kan

The Ambulatory Management of Fractures of the Lower Extremity Exhibit of photographs of patients and their roentgenograms before, during and after treatment by an ambulatory method, explanatory printed matter grouped with the photographic material for each patient, fractures of the foot, ankle, leg and thigh included, applied and unapplied models of a new type of walking iron are shown

JAMES F KEITY and D ARNOLD DOWELL, Creighton Medical School, Omaha

Prevention and Treatment of Gas Gangrene and Other Infections with a Mobile Roentgen-Ray Unit Exhibit consisting of clinical data on patients with gas gangrene treated with the mobile roentgen-ray unit, development of the roentgen ray as a means of prevention of gas gangrene, different clinical groups of gas gangrene infection and the roentgen treatment for each group outlined, status of the roentgen ray in this condition, increasing value of therapy with the roentgen ray unit in acute inflammations

L H GARLAND and HAROLD ARTHUR HILL, San Francisco

Diagnosis of Bony Union in Fractures of the Femoral Neck Exhibit of transparencies and original roentgenograms showing the classification and end results of treatment in fractures of the femoral neck and emphasizing that, since the classification is frequently valuable as a guide in selection of treatment and since the duration of certain types of internal fixation frequently depends on a roentgen diagnosis of bony union, exactitude in roentgen technic is important, complete details are presented concerning the type of technic used and the criteria on which a diagnosis of bony union may be made

EDMUND P HALLEY, Decatur and Macon County Hospital, Decatur, Ill., and PERRY J MELNICK, University of Illinois College of Medicine, Chicago

Carcinoma of the Breast, Value of Preoperative Irradiation and a Short Irradiation-Operation Interval Exhibit presenting histopathologic evidence for the value of preoperative irradiation in carcinoma of the breast and for a short time interval between irradiation and surgery, characteristic irradiation changes, previously found in experimental animal tumors, were found in this series of irradiated human breast cancers when amputation was done from three to four weeks after irradiation, from six to eight weeks after irradiation (the usual time interval) these changes were no longer present, but regrowth of the tumor and spread along the lymphatics frequently were found, photomicrographs and clinical data presented from this material

EXHIBIT SYMPOSIUM ON HEART DISEASE

The exhibit symposium on heart disease is presented in cooperation with the American Heart Association under the guidance of a committee, the chairman of which is Thomas M McMillan, Philadelphia

GEORGE P ROBB and ISRAEL STEINBERG, New York

Visualization of the Chambers of the Heart, the Pulmonary Circulation and the Great Blood Vessels in Man Exhibit shows the apparatus and technic of the method, contrast roentgenograms with appropriate controls showing the superior vena cava and tributary veins, the four chambers of the heart and their walls, the pulmonic and aortic valves, the pulmonary circulation and the thoracic aorta with the branches from the arch, illustration of the abnormalities found in the following types of heart disease (1) congenital, (2) rheumatic, (3) syphilitic, (4) hypertensive, (5) arteriosclerotic, (6) cor pulmonale, demonstration of abnormalities of the lung and mediastinum including stenosis, occlusion and displacement of the major division of the pulmonary artery occurring in mediastinal and hilar neoplasm and adenitis, enlargement of the pulmonary artery and decreased vascularity of the lung associated with pulmonary fibrosis

RALPH KINSELLA and R O MUETHER, St Louis

Experimental Reproduction and Cure of Streptococcic Endocarditis Exhibit showing steps and apparatus used in the reproduction such as instruments, drawings of operative field and photographs of injured valves, charts of cure with merthiolate and sulfanilamide, reproduction of endocarditis by feeding streptococci by mouth

JOHN H GIBBON, MARY H GIBBON and CHARLES KRAUL, Philadelphia

Studies on Massive Pulmonary Embolism with Demonstration on an Experimental Therapeutic Method Exhibit of charts and graphs illustrating physiologic effects produced by partial occlusion of the main pulmonary artery and the effects produced by occlusion of the branches of that artery, demonstration of apparatus used for the temporary maintenance of life in an animal with the pulmonary artery completely occluded

S C ROBINSON and MARSHALL BRUCER, Chicago

The Range of Normal Blood Pressure, Statistical and Clinical Study of 15 000 Persons Exhibit showing the distribution of systolic, diastolic, mean and pulse pressures in both sexes and in all age groups, the gross hypertensives are removed and the delimited sample is subjected to the same statistical treatment, conclusions concerning the range of normal blood pressure are drawn, added evidence for these conclusions is presented from a study of 500 persons with five to ten year continuous records, mortality data used as a check on the conclusions, from this evidence a new and more rational range of normal blood pressure is presented, a new view of hypertension is introduced, in addition the exhibit depicts the relation of obesity and body build to blood pressure

EDGAR A. HINES JR., Mayo Clinic, Rochester, Minn.:

The Significance of Vascular Hyperreactivity in Essential Hypertension: Exhibit of charts and demonstration with sound amplification of blood pressure readings showing (1) technic of the cold pressor test for measuring vascular reactivity; (2) the important role played by vascular hyperreactivity in the development of essential hypertension, particularly in regard to hereditary factors.

LOUIS N. KATZ and ANNE L. BOHNING, Michael Reese Hospital, Chicago:

Electrocardiogram in Coronary Disease: Exhibit of serial curves (including chest leads) to show electrocardiographic deviations occurring in coronary occlusion and in coronary sclerosis.

WILLIAM M. KINNEY, Joplin, Mo.:

Pulmonary-Vascular and Cardiac Changes in Silicosis: Exhibit of serial films of patients with silicosis to show cardiac enlargement which takes place as the disease progresses; photographs of hearts removed from silicotic patients at autopsy; photomicrographs of sections of myocardium and lung to show the myocardial changes and pulmonary vascular changes.

WILLIAM B. KOUNTZ, St. Louis:

Coronary Flow: Exhibit of charts showing the coronary flow in the human heart; each type of heart disease represented both from an anatomic and functional standpoint; photomicrographs and photographs of the coronary system as demonstrated by roentgen studies; physiologic and anatomic principles which cause variation in coronary flow shown by motion pictures.

WENDELL G. SCOTT and SHERWOOD MOORE, Washington University School of Medicine, St. Louis:

Advances in Roentgen Diagnosis of Heart Disease: Exhibit demonstrating the anatomic relationships of the heart and great vessels as seen in the frontal, lateral and in the right and left oblique positions; the clinical advantages in using these positions are discussed; the value of roentgen kymograms and of laminagraphs obtained by body section radiography is demonstrated in the roentgen diagnosis of the various types of heart disease; motion picture showing kymography and laminagraphy.

HUBERT B. PEUGNET and FRANK URBAN, Washington University School of Medicine, St. Louis:

Effect of Vitamin C on the Contraction Height of the Frog Heart: Exhibit showing effect of vitamin C on the contraction height of the frog heart; using isolated hearts of Rana pipiens perfused at room temperature with bicarbonate Ringer's solution and vitamin C.

BENJAMIN A. GOULEY, Philadelphia:

Lung Changes Produced by Rheumatic Fever and Their Role in the Development of Rheumatic Heart Disease: Exhibit of microscopic sections of the parenchymal and vascular pulmonary lesions in rheumatic fever; demonstration of the chronic pulmonary lesions seen in association with chronic rheumatic heart disease.

S. A. WEISMAN, University of Minnesota, Minneapolis:

Clinical and Experimental Studies on Quinidine: Exhibit of charts illustrating the length of time quinidine remains in the blood, heart muscle and other organs after intravenous and oral administration; follow-up study on the ambulatory treatment of auricular fibrillation and the method used.

JULIUS JENSEN, St. Louis:

The Heart in Pregnancy: Exhibit of tables and graphs summarizing the present knowledge of the subject of the heart in pregnancy; the various physiologic changes in the cardiovascular system during pregnancy; the effects of the various factors which influence the prognosis and treatment in pregnant women with rheumatic heart disease and other forms of heart disease.

G. E. HALL, University of Toronto, Toronto:

Heart Disease; an Experimental Study: Exhibit depicting (*a*) experimental disturbance in regulation of autonomic nervous system shown by electrocardiograms, photomicrographs and clinical charts of animals with "heart disease" produced by injections of acetylcholine, vagus stimulation, adrenalectomy and the like, with a possible correlation; (*b*) coronary artery reflexes in acute experimental occlusion shown by cleared specimens, mortality tables, diagrams of reflex arc, electrocardiograms and photomicrographs, establishing the presence of a nervous mechanism in the serious effects of coronary occlusion; (*c*) possible clinical interpretation of experimental results shown by cleared heart specimens of human beings of varying ages and a series of cleared dog hearts showing progressive revascularization of infarcted area with corresponding electrocardiograms; photomicrographs showing similar healing process.

MELVIN H. KNISELY, University of Chicago, Chicago:

The Fused Quartz Method of Illuminating Living, Internal Organs for Microscopic Study: Exhibit showing the fused quartz method of illuminating living, internal organs for microscopic study; colored microscopic motion pictures of the capillary circulation in Amblystoma tigrinum brain and in frog lungs, kidney glomeruli, adrenal gland, striated and smooth muscle, and liver, showing that in no two organs is the capillary circulation the same and that the capillary circulation is in each organ integrated with the functioning of that organ.

ST. LOUIS CARDIAC CLUB, St. Louis:

Syphilis of the Cardiovascular System: (For description of exhibit see Educational Classification.)

GRAHAM ASHER, GEORGE WALKER and FRANK HOECKER, University of Kansas, Kansas City:

Lag-Screen Electrocardiograph for the Instant and Continuous Viewing of Electrocardiograms: Exhibit of charts, diagrams and photographs describing the lag-screen electrocardiograph giving the physical principles and clinical uses; demonstration of a lag-screen belt built in an electrocardiograph machine and two forms of separate attachments, also a cathode ray all-electric lag-screen electrocardiograph machine.

COMMITTEE FOR THE STANDARDIZATION OF BLOOD PRESSURE READINGS, New York:

Standard Method for Taking Blood Pressure Readings: (For description of exhibit see Educational Classification.)

J. D. SPILLANE, Massachusetts General Hospital, Boston:

Diseased Hearts and Volumetric Reconstructions: Exhibit of life-size models of diseased hearts illustrating the commoner forms of heart disease and their effects on the size and shape of the heart and its chambers and on surrounding structures; photographs illustrating the method employed in making the models.

AMERICAN HEART ASSOCIATION, New York:

Educational and Exhibit Material of the American Heart Association: (For description of exhibit see Educational Classification.)

CLAYTON J. LUNDY, Rush Medical College, Chicago:

The Electrocardiographic Registration of the Heart in Health and Disease: Exhibit of charts depicting the electrocardiographic registration of the heart in health and disease, especially the normal heart beat, extrasystoles, paroxysmal tachycardia, auricular fibrillation, auricular flutter, heart block, arteriosclerotic heart disease and rheumatic heart disease; motion pictures on these subjects will be shown in an adjoining area.

MOTION PICTURES

Motion pictures on subjects related to heart disease will be shown continuously in an area adjoining the exhibits on heart disease. Among the pictures to be shown will be the following:

GRAHAM ASHER, Kansas City:

Electrocardiograph Readings.

WILLIAM H. STEWART, New York:

Cardiac Cine-Fluorography: Motion pictures of the fluoroscopic image of common cardiac lesions.

CLAYTON J. LUNDY, Rush Medical College, Chicago:

The Normal Heart Beat; Extrasystoles: Six Types; Paroxysmal Tachycardia: Six Types; Auricular Fibrillation; Auricular Flutter; Heart Block: two reels (Includes Bundle Branch Block); Arteriosclerotic Heart Disease: three reels—(a) Coronary Thrombosis, (b) Early Chronic Coronary Arteriosclerosis; Heart Disease, (c) Late Stages of Coronary Arteriosclerosis; Rheumatic Heart Disease: one reel—(a) Early Signs, (b) Late Signs.

EDUCATIONAL CLASSIFICATION

Government and National Organizations

The educational exhibits include those exhibits from national and state organizations and government institutions which are put on in the name of the institution rather than of individuals and which are intended to show progress in the particular activities with which those institutions deal.

These exhibits are not open to medal awards, but a certificate of merit is presented to the best exhibit in the classification.

The exhibits listed under Exhibit Symposium on Medical Education, Hospitals and Licensure also belong in this classification.

ASSOCIATION OF LIFE INSURANCE MEDICAL DIRECTORS OF AMERICA, New York:

Life Insurance Medicine; Procedures and Studies: Exhibit of films and charts illustrating teleoroentgenkymography; normal films together with those showing various types of heart disease; films and charts showing spontaneous pneumothorax; charts showing the efficiency of the Kline test; mortality from hypertension, tobacco and other sources; charts indicating results from sugar tolerance tests.

ST. LOUIS CARDIAC CLUB, St. Louis:

Syphilis of the Cardiovascular System: Exhibit demonstrating the effects of syphilis on the cardiovascular system by pathologic specimens, gross and microscopic illustrations, charts of diagnosis and aids thereto; method of treatment, prognostic and statistical charts; importance as a form of preventable heart disease; public health aspects and relation to syphilitic control.

COMMITTEE FOR THE STANDARDIZATION OF BLOOD PRESSURE READINGS, New York:

Standard Method for Taking Blood Pressure Readings: Exhibit of charts and apparatus showing the standard technic adopted by the Committee for the Standardization of Blood Pressure Readings of the American Heart Association and the Cardiology Society of Great Britain and Ireland; common causes of error in taking blood pressure readings will be emphasized.

AMERICAN HEART ASSOCIATION, New York:

Educational and Exhibit Material of American Heart Association: Exhibit of material including books, pamphlets and leaflets on various phases of cardiovascular disease.

AMERICAN SOCIETY FOR CONTROL OF CANCER, New York:

Diagnosis of Cancer: Exhibit showing a clinic on cancer, with cases of cancer in each booth, showing cancer of the extremities, head, neck and mouth, illustrating standard forms of treatment such as surgical, roentgen and radium and these methods in combination.

MISSOURI CANCER COMMITTEE, AMERICAN SOCIETY FOR THE CONTROL OF CANCER, St. Louis:

Fight Cancer With Knowledge: Exhibit showing factors in a campaign for the control of cancer.

AMERICAN COLLEGE OF SURGEONS, Chicago:

Cancer and Hospitals: Exhibit of charts showing the work of the College on cancer in hospitals.

AMERICAN MEDICAL ASSOCIATION:

Council on Physical Therapy: Exhibit consisting of demonstrations of apparatus pertaining to hearing amelioration; charts on the work of the Council regarding the standardization of audiometers and the investigation of hearing aids.

AMERICAN SOCIETY FOR THE HARD OF HEARING, Washington, D. C.:

Exhibit giving information regarding the prevention of deafness, the conservation of hearing, hearing tests, lip reading and hearing devices; posters and charts emphasizing the four-point program of the Society, viz. prevention, conservation, alleviation and rehabilitation.

BUREAU OF ANIMAL INDUSTRY, UNITED STATES DEPARTMENT OF AGRICULTURE, Washington, D. C.:

Animal Pathology and Parasites: Exhibit includes wax models of specimens showing abnormal conditions with normal conditions for comparison; specimens of ticks and lice; and transparent tube of worm parasites.

BUREAU OF HOME ECONOMICS, UNITED STATES DEPARTMENT OF AGRICULTURE, Washington, D. C.:

Study of Vitamin A Requirements and Vitamin A Intake of Families of Wage Earners: Exhibit of charts visualizing the variations in vitamin storage, vitamin A requirements and carotene requirements of human subjects in parallel with vitamin A intake of the wage earner families; display of publications, small charts and graphs.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, New York:

The Doctor's Part in Sight Conservation: Exhibit illustrating the various aspects of prevention of blindness and their relationship to the medical profession, together with a presentation of the services which the Society is prepared to extend to the doctor as an individual, as well as to the medical profession as a whole.

MISSOURI STATE MEDICAL ASSOCIATION, COMMITTEE ON CONSERVATION OF EYESIGHT, St. Louis:

Exhibit of charts, displays and pictures showing how the Committee on Conservation of Eyesight of the Missouri State Medical Association is endeavoring to educate the citizens of the state as to the necessity of proper care of their eyes; how a speakers' committee is always able to furnish a speaker and a motion picture for lay audiences with special efforts to appear before junior high and high schools, college and civic clubs, as well as medical societies; exhibits shown at medical and other conventions.

AMERICAN PHARMACEUTICAL ASSOCIATION, Washington, D. C.:

National Formulary Preparations: Exhibit of National Formulary preparations of interest to prescribing physicians; examples of preparations of therapeutic importance representing convenient and satisfactory dosage forms, and of vehicles designed to aid the physician in prescribing attractive and palatable prescriptions.

AMERICAN PHYSIOTHERAPY ASSOCIATION, Chicago:

Exhibit of unusual photographic studies of muscles; residual effect of anterior poliomyelitis; miniature physical therapy department with posters showing photographs made by Harvard Infantile Paralysis Commission; three dimension model of a physical therapy department.

AMERICAN MEDICAL ASSOCIATION:

Bureau of Investigation: Exhibit of charts showing the recent work of the Bureau of Investigation.

AMERICAN MEDICAL ASSOCIATION:

Cooperative Exhibit of the Council on Pharmacy and Chemistry, the Council on Foods, and the Council on Physical Therapy, in conjunction with the Bureau of Legal Medicine and Legislation: Material to illustrate how the new Food, Drug and Cosmetic Act may change some heretofore prevailing practices with which changes physicians should be familiar.

COMMITTEE ON NONSPECIFIC THERAPY OF SYPHILIS, DIVISION OF VENEREAL DISEASES, UNITED STATES PUBLIC HEALTH SERVICE, Washington, D. C.:

Comparative Evaluation of Malaria with Mechanotherapy in the Treatment of Dementia Paralytica: Exhibit of graphic illustrations showing relative effects of two methods of therapy in dementia paralytica on the end clinical results and on the blood and spinal fluid reactions; data forming the basis for the evaluation have been consolidated from the records of ten of the larger clinics of the United States.

AMERICAN HUMAN SERUM ASSOCIATION, Milwaukee:

Human Convalescent Serum: Exhibit of photographs and apparatus used in the collection, preparation and dispensation of human convalescent serum as well as charts showing the results of prophylaxis and treatment following the use of human convalescent serum in various contagious diseases.

CHILDREN'S BUREAU, UNITED STATES DEPARTMENT OF LABOR, Washington, D. C.:

Services for Crippled Children Under the Social Security Act: Exhibit depicting various aspects of the program of services for crippled children developed throughout the country under the

Social Security Act, illustrating location, diagnosis, hospitalization and aftercare of crippled children, and the part which is being played in the work of the official state agencies by physicians and surgeons, public health nurses, social workers and others.

AMERICAN ASSOCIATION OF MEDICAL SOCIAL WORKERS, Chicago:

Exhibit of charts showing centers approved for education in medical social work and distribution of graduates; books, pamphlets and reports of studies on the social component in illness; participation in the teaching social aspects to medical students and others.

MUNICIPAL TUBERCULOSIS SANITARIUM, Chicago:

Municipal Tuberculosis Sanitarium School Survey: Exhibit of charts giving accurate figures of number of children tested, the number found positive by tuberculin (Mantoux) test and subsequent roentgenograms; demonstration of the technic of the Mantoux test.

NATIONAL TUBERCULOSIS ASSOCIATION, New York:

Pulmonary Tuberculosis and Chest Diseases: Demonstrations of roentgen ray films on pulmonary tuberculosis and chest diseases will be made by specialists in this field.

U. S. PHARMACOPEIAL CONVENTION, Philadelphia:

United States Pharmacopeia, Eleventh Revision: Exhibit of pharmacopeial preparations and chemicals and a demonstration of the use of these in prescription practice.

AMERICAN OCCUPATIONAL THERAPY ASSOCIATION, New York, N. Y.:

Exhibit of charts, photographs, case histories and other objects presenting the principles of occupational therapy and the results of such treatment.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Denver:

Registry of Medical Technologists: Exhibit of charts teaching the importance of employment by hospitals and physicians of properly trained medical technologists; charts giving data regarding approved training schools; descriptive literature; blank forms.

AMERICAN COLLEGE OF CHEST PHYSICIANS, St. Louis:

Differential Diagnosis of Pleurisy with Effusion: Exhibit of roentgenograms of the chest, accompanied by a brief history of each case and with autopsy reports in some cases, illustrating about twenty different types of underlying pathologic lesions of the chest, probably causing the effusion; diagnosis of pleurisy with effusion is an incomplete one unless the underlying pathologic lesion is recognized in the diagnosis.

EXHIBIT SYMPOSIUM ON MEDICAL EDUCATION, HOSPITALS AND LICENSURE

The exhibit symposium on medical education, hospitals and licensure is presented with the cooperation of the Council on Medical Education and Hospitals.

IOWA STATE MEDICAL SOCIETY, Des Moines:

Ten Years of Graduate Medical Education in Iowa: Exhibit of a composite map showing all the courses which have been presented in Iowa during the past ten years; maps showing the progress Iowa has made each year and programs which have been presented; the total enrolments in the courses, the complete activities for the period of ten years, and the details of the courses; programs include the subjects, lecturers and locations of the courses which have been conducted in the state.

OKLAHOMA STATE MEDICAL ASSOCIATION, COMMITTEE ON POSTGRADUATE MEDICAL STUDY, Oklahoma City:

Graduate Teaching in Obstetrics: Exhibit portraying the administration and operation of the two year program on graduate teaching in obstetrics in the state of Oklahoma; colored maps showing locations of teaching centers and location of every registrant; aids used in teaching and pertinent information regarding the courses; pamphlet giving the history and methods of operation of postgraduate medical teaching in Oklahoma since 1925.

MEDICAL SOCIETY OF VIRGINIA, University:

Graduate Medical Instruction in Virginia: Exhibit of maps and charts showing instruction in pediatrics, instruction in obstetrics, statistics on pediatrics and statistics on obstetrics; printed sample programs.

TENNESSEE STATE MEDICAL ASSOCIATION, Nashville:

Educational Program: Exhibit of a chart showing Educational Committee with subcommittees, with maps of Tennessee, letters of appreciation from doctors taking the courses, claiming results to themselves by reason of the instruction, and charts and teaching aids used in the programs; course outlines, forms of letter announcements and mimeographed descriptive pamphlets for distribution.

NORTH CAROLINA STATE MEDICAL SOCIETY, Raleigh:

Graduate Medical Education in North Carolina: Exhibit of descriptive, statistical and illustrated material showing graduate medical education programs of the North Carolina State Medical Society, the North Carolina State Board of Health, the University of North Carolina, Duke University and Wake Forest College from 1929 to 1939.

AMERICAN HOSPITAL ASSOCIATION, Chicago:

Library and Service Bureau: Exhibit of graphs, charts, package libraries, publications, books and literature of hospital interest.

ST. LOUIS CLINICS, St. Louis:

Exhibit demonstrating the activities of the St. Louis Clinics, an organization which holds annual clinical conferences; illustration of the various institutions in St. Louis used for these clinical conferences and including all of the grade A hospitals in St. Louis and those of the two medical schools.

AMERICAN MEDICAL ASSOCIATION:

Council on Industrial Health: Exhibit of posters on principal problems affecting industrial health, present agencies involved in control of industrial hazards, and present status of undergraduate and graduate teaching of industrial hygiene.

AMERICAN MEDICAL ASSOCIATION:

Council on Medical Education and Hospitals: Exhibit featuring the survey of medical education and status of medical colleges; graduate education and continuation courses for physicians; approved residencies in specialties-list and revised essentials; approved internships-list and revised essentials; hospital facilities in the United States; approved schools of laboratory technic; physical therapy and occupational therapy; publications of the Council.

DELAWARE-BLACKFORD COUNTY MEDICAL SOCIETY, Muncie, Ind.:

Middletown Modernizes Medicine; The Indiana Plan as Adapted by the Delaware-Blackford County Medical Society: Exhibit outlining the medical and lay education program as applied by an average sized county medical society; this program is an outgrowth of the Indiana Plan and includes lay education along the lines of preventive medicine and graduate medical education.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES, Chicago:

Exhibit of charts showing results of educational studies made on applicants for admission to medical schools; accomplishment of students listed according to arts colleges in which preparation for study of medicine was made; correlation of scholarship in arts and in medical colleges; analysis of entrance credentials and correlation with work in medical school; comparative accomplishment of men and women students; data on the various activities of the Association of American Medical Colleges.

ADVISORY BOARD FOR MEDICAL SPECIALTIES, Pittsburgh:

Exhibit of charts, graphs and literature describing the work of the Advisory Board for Medical Specialties and of the examining Boards for Certification in medical specialties, including the American Boards of Ophthalmology, of Otolaryngology, of Obstetrics and Gynecology, of Dermatology and Syphilology, of Pediatrics, of Psychiatry and Neurology, of Radiology, of Orthopedic Surgery, of Urology, of Pathology, of Internal Medicine, and of Surgery (of Anesthesiology as an affiliate of the American Board of Surgery).

NATIONAL BOARD OF MEDICAL EXAMINERS, Philadelphia:

Exhibit of charts describing the work and progress of the National Board of Medical Examiners and a graphic presentation of the results of its examinations.

The TECHNICAL Exposition

A showing by more than 240 Firms

IMPROVED APPARATUS and INSTRUMENTS

LATEST BOOKS • SPECIAL FOODS

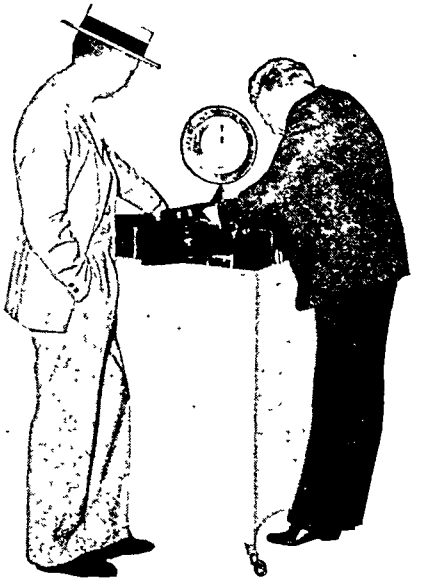
NEW REMEDIES

★ To a busy man an opportunity to see a compact, comprehensive panorama of new developments in his field is too important to miss. He realizes the value of a quick check-up on new ideas to guard against overlooking something of definite value. For medical men, the yearly Technical Exposition offers this opportunity.

★ Here, in a short five-day span, the huge cornucopia of medical sciences and services will be displayed for the benefit of the physician who comes to the Convention. From the time he sets foot in the huge Convention Hall, until his departure, he will be in lively contact with the vibrant progressive pageant of industry serving the profession. Like milestones of progress, exhibits will highlight new improvements in products or services—forward strides in manufacturing—technical advances of benefit to the doctor.

★ In a true spirit of service, nearly one thousand highly trained men, representing over 240 firms, will be on hand to help bring the exhibits to life—make them a dramatic summary of the year's progress in pharmaceuticals, biologicals, medical books, instruments, apparatus, electrical equipment, dietetic products, and other specialized articles and services. The physican can feel free to inspect all exhibits without any feeling of obligation.

★ Thus, St. Louis, "the city of a thousand sights" will add a thousand educational stimuli through the medium of the Technical Exposition. From 8: 30 A. M. to 6: 00 P. M. each day and until noon on Friday, the Exposition will be in full activity. By visiting the exhibits before, after, or between meetings, the physician will not only add to his store of knowledge, but will meet old friends and make many new ones.



APPARATUS AND INSTRUMENTS

A. S. ALOE COMPANY

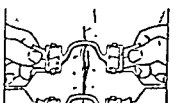
With its home offices in St. Louis, the Aloe Company is enabled to show an elaborate exhibit, actually an entire aisle comprising complete equipment for the physician and his office. Featured will be the new Aloe X-Ray, designed expressly for every necessity in general practice; Aloe Steeline Furniture; the new Aloe Short Wave Diatherm; and complete clinical laboratory equipment. Booths 68, 69, 70, 71 and 72.

AMERICAN HOSPITAL SUPPLY CORP.

At Booth 133 you will see new improvements in equipment for vascular gymnastics and intermittent venous occlusion. There will be periodic demonstrations of intravenous therapy, illustrated discussions on prevention of peritonitis, reports on the latest motorless suction siphonage units, and the nasal administration of oxygen by a device which properly humidifies oxygen. Be sure to save at least 15 minutes to investigate these exhibits.

AMERICAN MEDICAL SPEC. CO., INC.

In Booth 159 will be found four interesting and outstanding specialties: (1) the Wound Bridge and its applications; (2) the Amsco Oscillometer which takes blood pressure without need of a stethoscope; (3) the Flexo Pessary and (4) the A.B.C. Zipper Blood Pressure Cuff. Representatives will be glad to demonstrate all of these items.



AMERICAN SAFETY RAZOR CORP.

Registered nurses will be on hand to welcome visitors to the A. S. R. Surgeon's Blades exhibit. If you want to know more about these keen, uniform blades, be sure to visit Booth 223 and talk to Miss Stewart and Miss Bard, who, from personal experience and observation can answer your questions. They will gladly explain the various uses of the blades—9 types in all, to suit every need.

(Continued on next page)

AMERICAN STERILIZER COMPANY

This exhibit, occupying Booth 4 and a portion of Booth 3, will show the visitor operating tables, surgical lights, and sterilizers of latest design.

BARD-PARKER COMPANY, INC.

Among the Bard-Parker products exhibited at Booth 186 will be Rib-Back Blades, Renewable Edge Stainless Steel Scissors, Lahey Lock Forceps and Hematological Case for obtaining blood samples at the bedside.

BECTON, DICKINSON & CO.

In Booths 206, 207, 208 and 209 Becton, Dickinson will again provide a demonstration of glass blowing as applied to the making of all glass hypodermic syringes and fever thermometers. In addition to this, complete displays of instruments associated in the various fields of practice will be available to all physicians.

CAMERON SURGICAL SPECIALTY CO.

The new Cameron Projectoray and Lempert-LeMee Headlite will be demonstrated in Booths No. 55 and 238. Latest developments in electrically lighted diagnostic and operating instruments for all parts of the body will be shown. Of special interest will be the new inexpensive office model Radio Knife, Combination Spark-Gap & Tube Electro-Surgical Unit, and other electro-surgical units for cutting, coagulating, desiccation and fulguration in all sizes from the office model up to the hospital unit.

E & J MANUFACTURING CO.

An unusually interesting illustration of respiration during mechanical resuscitation will be offered by E & J Company's exhibit of "breathing mother and baby," Booth 266. Behind the transparent "chest wall" of the "mother" one will be able to observe rhythmic rise and fall of the "lungs" and the excursion of the "diaphragm" during resuscitation treatment. Plan to see this educational display.



FOREGGER COMPANY, INC.

A new type of individual flow meter apparatus for anesthesia, helium and oxygen therapy equipment, resuscitation apparatus and a complete line of intratracheal apparatus and accessories will be on display at the Foregger Booth, No. 53. The helium apparatus to be shown will be of interest not only to the hospital personnel and anesthetist but to the general practitioner as well inasmuch as it is suitable for office and bedside use.



HAMILTON-SCHMIDT SURGICAL CO.

Specialties of several manufacturers will be shown by Hamilton-Schmidt, local representatives, at Booth 33: Physical therapy equipment of Burdick Corp.; office equipment of Hamilton Mfg. Co.; Bard-Parker and Stille instruments; and Sterisol intravenous ampoules.

KITCHEN KATCH-ALL CORP.

A simple, but efficient All-Nite Vaporizer which provides plain or medicated vapors for periods up to 12 hours, will be demonstrated at Booth 100. Also a Miniature Hospital Formula Room Outfit for baby at home will be shown.

MACGREGOR INSTRUMENT COMPANY

A complete line of Vim products will be displayed in Booth 92. Included in this unusual exhibit will be a full line of Vim Needles of Firth-Brearley Stainless Steel, Vim Green Emerald Syringes and some new Vim specialties. In addition, the MacGregor Instrument Co. will show a complete assortment of the English-made Iron Arm Surgeons' Needles.

V. MUELLER & COMPANY

Such items of unusual interest as the new Cope-deMartel clamp, Devine and Ochsner-DeBakey spur crushers, simplified Scuderi-Callahan fracture instruments, and Dr. Dimitri's new Cataract Suction Disc are a few of the many highlights of V. Mueller's big exhibit in Booths 38 and 39. In addition to the comprehensive instrument display, the Herb-Mueller Ether-Vapor and Vacuum Apparatus and other modern equipment will attract much attention.

OHIO CHEMICAL & MFG. CO.

In Booth 167 will be found a complete line of the well-known Heidbrink Kinetometer Gas Machines and Oropharyngeal Outfits, in addition to other types of therapy equipment which are especially adapted for hospital use. There will also be a full display of Ohio equipment, supplies and gases in which there are some new developments which merit investigation.

PELTON & CRANE COMPANY

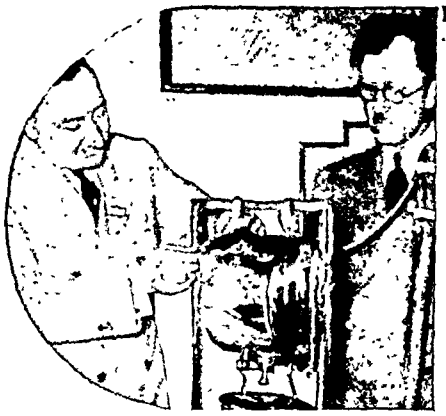
In Booth 280, Aisle A, Pelton and Crane will exhibit all models of standard 3-Speed and Super-Automatic Sterilizers, both table models and cabinet outfits. Also on display will be Pelton cuspidors and operating lights. The exhibit will be in charge of Mr. J. L. Bunch, who will welcome your questions and appreciate your visit.

GEORGE P. PILLING & SON CO.

The Miller-Abbott double lumen tube for small intestinal intubation will be included in the Pilling exhibit, Booth 183; also the Crutchfield tongs for treatment of the fractured dislocations of the cervical vertebrae; the armamentarium of Dr. Max Halle used in nasal surgery; the Kasper headlight; the bronchoscopic instruments as made for and used by the Chevalier Jackson Clinics; thoracic instruments; and new and important instruments in general and rectal surgery.

PROMETHEUS ELECTRIC CORP.

The complete Prometheus line of medical and surgical products will be on display at Booth 218. Among the items shown will be pressure sterilizers, stainless steel instrument sterilizers, hospital equipment and infra-red lamps. Various improvements and re-styling of items make this one of the most interesting of Prometheus exhibits.



LIST OF EXHIBITORS

Abbott Laboratories	North Chicago, Ill.
Adlanco X-Ray Corp.	New York City
Agfa Ansco Corp.	Binghamton, N. Y.
Allergen-Proof Encasings, Inc.	Cleveland
Allergia Products Co.	Newton, Mass.
Allison Co., W.	
Almay Pharmacet	
Aloe Co., A. S.	St. Louis
Amer. Can Co.	New York City
Amer. Congress on Obs. and Gyn.	Chicago
Amer. Cystoscope Makers, Inc.	Bronx, N. Y.
Amer. Hospital Supply Corp.	Chicago
American Medical Association	Chicago
Amer. Med. Specialties Co., Inc.	New York City
Amer. Optical	
Amer. Physicia	
Amer. Researcl	
Amer. Safety I	
Amer. Seal-Kap Corp.	Long Island City
Amer. Sterilizer Co.	Erie, Pa.
Appleton-Century Co., Inc., D.	New York City
Arlington Chemical Co.	Yonkers, N. Y.
Armour Laboratories	Chicago
Aznoe's Nat. Phys. Exchange	Chicago
Bard-Parker Co., Inc.	Danbury, Conn.
Bauer and Black	Chicago
Baum Co., Inc., W. A.	New York City
Bausch & Lomb Optical Co.	Rochester, N. Y.
Beck-Lee Corp.	Chicago
Becton, Dickinson & Co.	Rutherford, N. J.
Bell & Howell Co.	Chicago
Best Foods, Inc.	New York City
Bilhuber-Knoll Corp.	Orange, N. J.
Birtcher Corp.	Los Angeles
Blakiston's Son & Co., Inc., P.	Philadelphia
Borden Co.	New York City

WILMOT CASTLE COMPANY

Among the items to be shown by the Castle Company, Booth 197, will be a display of modern surgical lights. The representatives will be glad to demonstrate the ease with which these lights can be positioned and adjusted.

CLAY-ADAMS COMPANY

New developments in centrifuges, anatomical models, charts, skeletons, obstetrical manikins, surgical and laboratory instruments, and specialties will be shown in Booth 114. A feature of the display will be a new low-priced Bay-Jacobs miniature Obstetrical Manikin made up of an aluminum female pelvis and fetal skull. The centrifuge exhibit will include a new arrangement.



CRESCENT SURGICAL SALES CO., INC.

Convention visitors are invited to call at Booth 61 and see just how Crescent's Mikro-Keen and Rigipoised blades, with forty years' experience back of them, are made. Free samples will be available for the asking.

DEVILBISS COMPANY

The complete DeVilbiss line of atomizers, steam vaporizers and nebulizers will be on display at Booth 163. Specially featured in the exhibit will be illustrations based on x-ray research, graphically showing the coverage afforded by the atomizer in application of solutions to the nose and throat. Copies of the illustrations for reference may be secured from the DeVilbiss representative in charge.

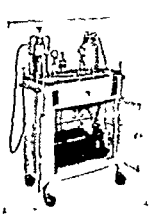
SAFETY GAS MACHINE CO., INC.

The McCurdy & Augustana Models equipped with their new improved CO_2 Absorber unit, which increases the efficiency and lowers the breathing resistance, will be shown in Booth 107. The exhibit will be in charge of an experienced anaesthetist who will be glad to advise on anaesthetic department problems.

SCANLAN-MORRIS COMPANY

Several new items of surgical equipment will be included in the Scanlan-Morris exhibit, Booth 224. Their latest major operating table will be demonstrated, together with the famous Operay Multibeam and Surg-O-Ray surgical lights. A clinic sterilizing outfit, consisting of autoclave and 3-gal. water sterilizer, will be on display. Visitors will also have opportunity to inspect samples of genuine Swedish made Stille instruments.

J. SKLAR MANUFACTURING CO.



The Sklar exhibit, Booth 2, will feature new suction and pressure apparatus, including the Improved Tompkins Portable Rotary Compressor, the DeLuxe Tompkins, the new Imperatorl Apparatus for ear, nose and throat work, Ralks' Ideal Unit and Moorhead Unit for office and clinic, and the new, improved, heavy duty hospital model of the Bellevue Suction and Pressure Unit.

STORZ INSTRUMENT COMPANY

In Booth 26 the Storz Instrument Company will show, among other new models of instruments, their new and improved American made stainless steel Fulforce Adenotome A wide selection of instruments and equipment for the eye, ear, nose and throat specialist will be on display Mr Eric Storz and Mr Fred S Watson, who will be in attendance, will be glad to discuss these instruments and demonstrate the line of Gomco Surgical Pumps

MAX WOCHER & SON COMPANY

True to tradition, Wocher's will feature several brand-new items of interest to medical and surgical men, at Booths 135 and 143 Foremost among these is the new Ries-Lewis Explosion-Proof Operating Light, which banishes fear of explosion due to faulty lighting equipment Worthy of note is the fact that this light bears the seal of approval of the Underwriters Laboratories In addition, there will be shown the Mont R Reid operating table and other instruments and equipment

ZIMMER MANUFACTURING COMPANY

The complete line of Zimmer orthopedic equipment will be shown in Booth 289 The exhibit will be an interesting one for any surgeon who handles fractures, inasmuch as the firm has specialized in stainless steel bone instruments Splints of improved design, stainless steel bone plates and screws, Smith-Petersen nails and accessories, hyper-extension frames, fracture bed and orthopedic braces will be featured

DIAGNOSTIC EQUIPMENT

BECK-LEE CORPORATION

Booth 12 should be of interest to all physicians Here, Beck-Lee will show both portable and mobile models of quartz string galvanometer electrocardiographs, designed by Charles F Hindle A visit to their booth would be instructive and valuable to physicians interested in complete and accurate cardiac diagnosis

CURVLITE PRODUCTS, INC

Some of the most widely publicized medical and dental instruments of the last decade will be on display at the Curvlite exhibit, Booth 148 Demonstrations will show how Curvlite instruments permit the transmission of light directly through the instruments themselves into the operative or diagnostic area—cold, brilliant light without interference with the operator

ELECTRO SURGICAL INSTRUMENT CO

At the Electro Surgical exhibit, Booth 109, there will be shown a complete line of electrically lighted surgical instruments, including the improved Braasch-Bumpus resectoscope, Bue, Lynch, Tuttle, and Paulson proctosigmoidoscopes, Jackson, Israel and Lynah bronchoscopes, Holmes nasopharyngoscopes and antroscopes, transilluminators, Braasch and Davis cystoscopes, urethroscopes, and rheostats

FROBER-FAYBOR COMPANY

Among the instruments to be shown by Frober-Faybor at Booth 11 will be their low-priced Visual Photometer, Visual Aptometer, and several Bio-Photometer models —all clinical instruments for determining light thresholds in relation to light, sight, visual purple and vitamin A A research model of a new Audiometer for determining sound thresholds and a Frober-Faybor Colorimeter (rapidly gaining use in running blood tests) will also be on display

GASTRO-PHOTOR LABORATORIES

The new, improved stomach camera, an outstanding development of modern diagnostic apparatus, will be shown at Booth 111 A large number of normal and pathological gastrophotographs will be on display

GRADWOHL LABORATORIES

An exhibition of Gradwohl reagents and equipment for laboratory purposes will be found at Booth 119 Special attention will be devoted to the well-known Giemsa stain for hematological work Blood grouping tests by means of potent testing sera will also be emphasized, and testing sera of high degree of potency will be shown

HERZ-LASKER CORPORATION

At Booth 296 visitors will have opportunity to inspect the Offner Electrocardiograph, a revolutionary innovation in cardiography, which records heart currents directly in ink on a moving chart so that no dark room development is needed The machine can also be used to record the heart sounds and in addition serves as an electro stethoscope Other items to be exhibited are the Weiss Sinusoidal Galvanic Machine, the Erlanger Ionization Unit, and the Mittelmann Dosage Meter

JONES METABOLISM EQUIPMENT CO

The Jones Motor Basal metabolism apparatus will be featured in Booth 64 Visitors will be interested in demonstration of a special feature of this unit—it contains no water and requires no calculation in the determination of the basal metabolic rate

THE KELLEY-KOETT MFG CO, INC

In Booths 225, 246, 247 and 248, Keleket will display new x-ray apparatus providing for complete radiographic and fluoroscopic diagnosis A new mobile unit offering a complete 90 Peak KV 30 MA on wheels for will be demonstrated) be on display a complete self-contained diagnostic x-ray unit which offers facilities for fluoroscopy, radiography and Potter Bucky diaphragm radiography in three positions

LAMOTTE CHEMICAL PRODUCTS CO

LaMotte Blood Chemistry Outfits will be exhibited in Booth 79 Recent developments to be shown include the LaMotte outfits for determining sulfanilamide in blood and urine and the LaMotte Falling Drop Densiometer for determining blood proteins Information will also be available concerning the determination of sulfapyridine in blood and urine



E LEITZ, INC

Ortholux, a modern research microscope in a reversed type of stand with built-in permanently aligned illumination system and a new universal type of substage, will be exhibited in Booth 62 Medical microscopes for bright and dark field, various microtomes, projectors, photomicrographic equipment (including the Panphot—a combination universal microscope and reflex camera) and Leica cameras will also be gladly demonstrated

TAYLOR INSTRUMENT COMPANIES

The Tycos exhibit, Booth 151, will display an interesting working model showing the inside of a Tycos Aneroid Sphygmomanometer and demonstrating how metal diaphragm chambers operate the Tycos, instead of a coil spring Don't miss the action display showing how a Mercurial Manometer becomes inaccurate when tipped slightly, such as when resting upon a bed Be sure to see also the new, flat glass Binoc fever thermometer and the Pavaex "glass boot" for treating circulatory diseases

WELCH ALLYN COMPANY

At the Welch Allyn Booth, No 136, will be seen the latest advances that have been made in the manufacture of laryngoscopes, the demand for which in cases of asphyxiation is growing throughout the country, and also the new complete endoscopic sets with telescopic attachments which have added remarkably to visualization The newest features in eye, ear, nose and throat instruments will also be incorporated in the instruments shown at this booth

LIST OF EXHIBITORS

Buck X Ograph Co	St Louis
Burdick Corp ..	Milton, Wisc
Calco Chemical Co, Inc	Bound Brook N J
Cambridge Instr Co, Inc	New York City
Cameron Surg Spec Co	Chicago
Camp & Co S H	Jackson Mich
Carnation Co .	Milwaukee
Castle Co Wilmot	Rochester, N Y
Cavo Co	San Antonio Texas
Cerevim Products Corp	New York City
Cerophyl Laboratories	Kansas City, Mo
Chappel Bros Inc	Rockford Ill
Chicago Diet Sup House Inc	Chicago
Chicago Medical Book Co	Chicago
Church & Dwight Co, Inc	New York City
Ciba Pharm Prod, Inc	Summit N J
Clikloid Surg Dressing Co	Marshalltown, Iowa
Clapp Inc Harold H	Rochester N Y
Clay-Adams Co Inc	New York City
Collins Inc Warren E	Boston
Conformal Footwear Co.	St Louis
Cooperative Medical Adv Bur	Chicago
Corn Prod Sales Co	St Louis
Cradle Car Service Inc	St Louis
Cream of Wheat Corp	Minneapolis
Crescent Surgical Sales Co	New York City
Curvlite Products Inc	New York City
Cutter Laboratories	Berkeley, Calif
Davies Rose & Co, Ltd	Boston
Davis Co F A	Philadelphia
Davis & Geck Inc	Brooklyn
Day s Ideal Baby Shoe Co	Mrs Danvers Mass
DePuy Mfg Company	Warsaw Ind
Devereux Schools Inc	Berwyn, Penna
DeVilbiss Co	Toledo
Dictograph Prod Co Inc,	New York City



DIETETIC PRODUCTS

AMERICAN CAN COMPANY

All registrants at the Convention are cordially invited to call at Booths 47 and 48 where information will be available concerning those aspects of commercially canned foods which are of greatest interest to the medical profession Literature on canned foods, designed specifically for the physician's use, will also be on display

BEST FOODS, INC

Doctors are invited to visit Booth 109 and taste New Nucoa, a wholesome spread for bread—a delicious, easily digested and nourishing vegetable margarine The exhibit, featuring the addition of Vitamin A to the product, will also display composite results of recent assay work conducted by three independent food laboratories This will be an excellent opportunity to become acquainted with the digestibility of Nucoa, which has been demonstrated by work on human beings

CARNATION COMPANY

In the Carnation exhibit in Booth 181 will be displayed an interesting model of the famous Carnation Milk Farms where high producing stock is developed to improve the dairy herds supplying the many Carnatio . . The work of the " in supervising r the scientific processin . rnation Milk will be interestingly shown also

CEREVIM PRODUCTS CORPORATION

Refresh yourself and really enjoy the Convention. Stop at the Cerevim exhibit, Booth 6, periodically for a free, nourishing lunch and energy pick-up—all you want of Cerevim and milk. Ask to see the new, modern treatise [illegible], "The Dietary Requirements of Laboratory Guinea Child." It contains a complete dietary [illegible] from infancy through adolescence, and has a hard-cover binding suitable for a reference library.

CEROPHYL LABORATORIES

A cordial invitation to visit their Booth, No. 112, is extended by Cerophyl Labs. (a division of American Dairies, Inc.). Here you will find on display the new development, Cerophyl, a natural and rich source of Vitamin A, B Complex, C, the grass juice factor, and the newly discovered Vitamin K. Representatives will be on hand to discuss Cerophyl, acceptance of which by the Council on Foods was announced in the J. A. M. A. of February 25, 1939.

HAROLD H. CLAPP, INC.

As originators of commercially prepared strained and chopped foods, Clapp will feature this year three new additions to their line of chopped foods for older babies. These new products, called Junior Dinners, are composed respectively of beef, lamb, and liver combined with selected vegetables and designed to provide the young child with hearty, balanced main dishes. Booth 21.

shown in the new drip grind as well as regular grind. Also Kaffee Hag, another fine blend of decaffeinated coffee, will be served. Other General Foods products of interest to physicians will be on display.

FOLEY MANUFACTURING COMPANY

The Foley Strainer for baby foods (Foley Food Mill) which mashes all cooked vegetables and fruits fine enough for the smallest baby and all smooth diets will be shown at Booth 15. You are invited to call and see how efficiently and economically foods can be prepared the Foley way.



GERBER PRODUCTS COMPANY

The new Gerber Cereal Food will be shown at Gerber's Booth, 211. Samples and professional literature about this cereal product, as well as the other Gerber baby foods, will be available.

HAWAIIAN PINEAPPLE COMPANY, LTD.

The Hawaiian Pineapple Company's exhibit, Booth 265, will feature the Hawaiian background distinctive of its products. Dole Pineapple Juice will be served to all visitors of the booth, and interesting dietetic and recipe material featuring the varied uses of Dole Products, will be distributed.

which are being fed to infants as young as one or two months of age. The display will include photomicrographs comparing textures of solid foods, and roentgenograms comparing their digestion.

M & R DIETETIC LABS., INC

Similac, a completely modified milk for infants deprived of breast feeding, will be displayed by M & R Dietetic, Booth 241. Qualified representatives will gladly explain the value of the zero curd tension of Similac as it applies to both normal and special feeding cases.



MEAD JOHNSON & COMPANY

Several new products will be featured at the Mead Johnson booths 15, 16, 50, 198 and 199. In Room 15-A they will show several new motion pictures. They have made part of this large room available for an art exhibit by the American Physicians' Art Association.

MELLIN'S FOOD COMPANY

At Booth 83 opportunity will be offered for a discussion of the application of Mellin's Food in the feeding of infants whose individual condition sets them apart from so-called normal babies, and whose diet needs to be adjusted in a manner calculated to correct digestive disturbances



LIST OF EXHIBITORS

Dietene Co	Minneapolis
Drug Products Co., Inc.	Long Island City
Duke Laboratories, Inc.	Long Island City
DuPont Film Mfg. Corp.	New York City
E & J Mfg. Co.	Glendale, Calif.
Earnshaw Knitting Co.	Newton, Mass.
Eastman Kodak Co.	Rochester, N. Y.
Electro Surg. Instr. Co.	Rochester, N. Y.
Emerson Co., [illegible]	
Enochs Mfg. [illegible]	
Eureka X-Ray [illegible]	
Firestone Tire & Rubber Co.	Akron, Ohio
Fischer & Co., H. G.	Chicago
Fischer Corp., The	Glendale, Calif.
Flint, Eaton & Co.	Decatur, Ill.
Foley Mfg.	
Foregger Co [illegible]	
Fougera & Co [illegible]	
Frober-Faybor Co.	Cleveland
Gastro-Photor Labs.	New York City
General Electric Co	Cleveland
General Electric X-Ray Corp	Chicago
General [illegible]	New York City
Gerber P[illegible]	Michigan
Gevaert C[illegible]	York City
Goetze Niemer Co.	Kansas City, Mo
Gradwohl Laboratories	St. Louis
Graybar Electric Co	New York City
H[illegible] Mfg Co	Two Rivers, Wis
H[illegible]	St Louis
H[illegible]	Newark, N J
H[illegible]	San Francisco
Heil Corp.	St Louis
Heinz Co., H. J.	Pittsburgh
Herz-Lasker Corp	New York City
Hilker & Bletsch Co	Cincinnati

CHICAGO DIETETIC SUPPLY HOUSE

Physicians who call at Booth 123 will learn how diabetic diets can be interesting and varied the year around. Here they will be invited to see and taste some of the many canned fruit and juice items packed without sugar by Chicago Dietetic Supply. Here, too, they may learn the answer to patients' dessert problems by seeing a wide variety of sugar free desserts. Competent people will be in attendance.



CORN PRODUCTS REFINING CO.

At Booth 36, the special feature of the Corn Products exhibit will be Dextrose (Karo Brand) as an efficient food energy sugar. Dextrose (Karo Brand) is a new development of this Company's Research Department. Karo (Blue and Red Label), two other well established products with which you are familiar, will also be a part of this exhibit.



DIETENE COMPANY

A special purpose low caloric food that takes the counting out of calories, will be exhibited at Booth 11. All physicians are invited to stop and learn why Dietene is sometimes called "The Modern Diet Kitchen in a Package." Representatives will explain the Dietene regime by which patients can subsist on a low calorie diet and at the same time be protected against deficiencies of important food factors.

GENERAL FOODS CORPORATION

While at the Convention, stop at Booth 138 and have a cup of delicious Sanka Coffee, a choice blend of Central and South American coffees, from which 97% of the caffein has been removed. Sanka will be

H. J. HEINZ COMPANY

Heinz Junior Foods, a new variety for older babies, will be on display in Booth 126. The Heinz representative will be on hand ready to give information concerning this new product, as well as the Heinz Strained Foods on display. Visitors who register at the booth will be sent helpful literature.



HILKER & BLETSCH COMPANY

A new vitamin food product recently accepted by the Council on Foods—Vitamin B1 Wafer (V-B-W) will be exhibited in Booth 142. The wafer, which contains 100 International units by both biological and chemical assay, will be featured for reducing diets and other therapeutic diets inadequate in vitamin B1. Included in the exhibit will be the delicious Vitamin C Beverage (V-C-B) which contains approximately the same amount of vitamin C and caloric content as fresh orange juice.

IRRADIATED EVAPORATED MILK INST.

Information and advice on infant feeding, special diets, milk allergy, and many other important uses of irradiated evaporated milk will be presented at Booth 284. Technical booklets on infant feeding and reprints of clinical research, also free copies of "The Story of Irradiated Evaporated Milk," a new book answering questions about this product, its nutritive value and uses, will be available.

LIBBY, McNEILL & LIBBY

You are cordially invited to visit Booth 171 and see the exhibit of Libby's specially Homogenized Foods for Babies, single vegetables as well as combinations of vegetables, fruits and cereal, and soup,

NATIONAL DAIRY COUNCIL

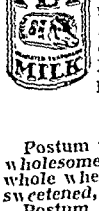
A new and timely exhibit with central theme, "You Need Vitamins Every Day—Get Them From the Foods You Eat," is to be presented in Booth 288. Illuminated transparencies in natural color picture food sources of each of the vitamins. A balanced meal pattern based on a moderate cost adequate diet will show the importance of dairy products in everyday meals

NESTLE'S MILK PRODUCTS, INC.

Nestle's will have a very attractive exhibit in space 215, where Lactogen, Hylac and Nestle's Food will be on display. All physicians interested in infant feeding are cordially invited to visit the Nestle booth

PET MILK SALES CORPORATION

An actual working model of a milk condensing plant in miniature will be exhibited at the Pet Milk Booth, No. 191. This exhibit offers an opportunity to obtain information about the production of irradiated Pet Milk and its uses in infant feeding and general dietary practice. Miniature Pet Milk cans will be given to each physician who visits the exhibit.



POSTUM EXHIBIT

Postum will be served at Booth 82. This wholesome cereal beverage, made from whole wheat and bran, roasted and slightly sweetened, will be exhibited in two forms —Postum Cereal, made like coffee, and Instant Postum, made instantly in the cup or pot. Visitors to this booth will find that served hot or iced, Postum is delicious, economical, and easy to prepare. Postum-Made-with-Milk is an easy way to keep milk interesting.

SCIENTIFIC SUGARS CO.

Specialties in the field of infant diet materials and in Vitamin B Complex therapy will be featured in the Scientific Sugars Booth, No. 46. The firm will show a product made by the aqueous extraction of yeast but substantially free from yeast cells, fats, resins, and inert materials present in dried yeast. Physicians will find that the product is palatable, readily miscible with fruit juices, and excellent to use as a vehicle for iron compounds and other medications. The milk modifier, Cartose, will also be on display.

S.M.A. CORPORATION



At Booths 120 and 275 two beautiful new displays featuring S.M.A. and associated infant feeding prep- [illegible] specialties developed in the S.M.A. laboratories. Be sure to stop at this exhibit for an interesting chat.

STOKELY BROTHERS & COMPANY

The showing of Stokely's Baby Foods, at Booth 276, will afford opportunity to learn more about their comminuting process, particularly designed to produce a smooth, uniform texture and retain the natural color and garden-fresh flavor of the fruits and vegetables. Full details concerning this process, as well as the products, will be available at the booth.

VEGEX, INCORPORATED

The results of feeding the whole vitamin B complex will be shown at the Vegex exhibit, including yeast extract and liver extract feedings, separately and together. The series will include thiamin, riboflavin and nicotinic acid fed separately and together with yeast and liver extracts. Vegex, served as a drink and with butter as a sandwich spread, will give an appetizing delight to physicians stopping at the exhibit. Booth 96.

VITEX LABORATORIES, INC.

As usual, those attending the meeting can obtain refreshing drinks of vitamin D milk served at the Vitex milk bar. Booth 110.

HEARING AIDS

DICTOGRAPH PRODUCTS CO., INC.

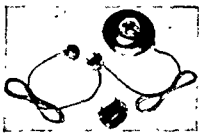
At Booth 274 will be displayed the Acousticon, which brings custom-fitted hearing to your deafened patients, through the Audogauge, which selects the assembly best suited to compensate for hearing [illegible] t to otologists [illegible] thod embody- [illegible] whereby, as a [illegible] the correct vacuum tube wearable portable Acousticon can be fitted to the most difficult case.

SONOTONE CORPORATION

An exhibit of instruments and methods used in fitting electrical hearing aids, including the New Sonotone Continuous Tone Audiometer—a 1939 development—and the Sonotone Audioscope, as well as bone and air conduction hearing aids, will be shown in Booth 156. Also the new Sonotone Audiometer for group testing of school children will be demonstrated. Doctors interested in hearing problems are especially invited to receive a copy of new book on hearing aids.

GRAYBAR ELECTRIC COMPANY, INC.

As national distributors of Western Electric Scientific Equipment, Graybar will feature instruments of interest to the medical profession such as the new Ortho-Technic Hearing Aid, both bone and air conduction, the 4B and 6A Audiometers and the Electrical Stethoscope. Attention will be focused on a map showing the zoning of the 82 Graybar Houses in relation to a nationwide service. Space 149.



MAICO COMPANY, INC.

The widely-used Maico professional audiometer used by otologists in hearing tests and a simplified low-priced model audiometer for public health, school, and general work will be exhibited at Booth 281. Also on display will be amplifying electro-stethoscopes and the Ruckmick Affectometer, which can be used as a lie detector or to measure emotional stability.

F. A. DAVIS COMPANY

For your special pleasure it is suggested that you relax at Booth 219 and examine these new Davis Company books: Reimann's "Treatment in General Medicine," with its new unique up-keep service; Bland's "Practical Gynecology"; Goldberg's "Clinical Tuberculosis"; Delario's X-ray and Radium Therapy"; Lederer's "Ear, Nose and Throat"; Blum's "Pediatric Symptomatology and Diagnosis" and Bland's "Practical Obstetrics."

PAUL B. HOEBER, INC.

New books to be included in the Hoeber exhibit, Booth 91, are Reynolds' [illegible] m's [illegible] nt- [illegible] nd [illegible] ical [illegible] hi- [illegible] of [illegible] ets of Alvarez' new "Mechanics of the Digestive Tract" and of Ewalt, Parsons, Warren and Osborne's "Fever Therapy Technique" will also be shown.

LEA & FEBIGER

At Booth 89 Lea & Febiger will exhibit the following new works: Witherspoon's "Clinical [illegible] y," Eller on "Tumor [illegible] ris, Lachmann and [illegible] natomy," Haden on [illegible] on "Elementary Anatomy [illegible] ," Spaeth on "Ophthalmic [illegible] on "Fractures and [illegible] on "Refraction." New editions will include Kanavel's "Infections," and Brown's "Oral Surgery." The exhibit will be in charge of Mr. Leo A. Cleary.

LIST OF EXHIBITORS

Hoeber, Inc., Paul B.....New York City
Hoffmann-LaRoche, Inc.....Nutley, N. J.
Holland-Rantos Co., Inc.....New York City
Hospital Liquids, Inc.....Chicago
Humphreys Roentgen Co.....Aurora, Ill.
Hygeia—The Health Magazine.....Chicago
Hynson, Westcott & Dunning, Inc.....Baltimore
International Vitamin Corp.....New York City
Irradiated Evap. Milk Inst.....Chicago
Jetter & Scheerer Prod., Inc.....New York City
Johnson & Johnson.....New Brunswick, N. J.
Jones Metabolism Equipment Co.....Chicago
Juvenile Wood Products, Inc...Fort Wayne, Ind.
Kelley-K[illegible]
Keystone [illegible]
Kitchen [illegible]
Knox Gelatine Co.....Johnstown, N. Y.
Lakeside Laboratories, Inc....Milwaukee, Wisc.
LaMotte Chemical Prod. Co.....Baltimore
Lea & Febiger.....Philadelphia
Lederle Laboratories, Inc.....New York City
Leitz, Inc., E.....New York City
Lepel High Frequency Labs., Inc..New York City
Lewis Mfg. Co.....Walpole, Mass.
Libby, McNeill & Libby.....Chicago
Liebel-Flarsheim Co.....Cincinnati
Lilly & Co., Eli.....Indianapolis
Linde Air Products Co.....New York City
Lippincott Co., J. B.....Philadelphia
Luzier's, Inc.....Kansas City, Mo.
M & R Dietetic Labs., Inc.....Columbus
MacGregor Instrument Co.....Needham, Mass.
Macmillan Co.....New York City
Maico Co., Inc.....Minneapolis



MEDICAL BOOKS

D. APPLETON-CENTURY COMPANY

The entire line of Appleton-Century medical works will be shown in Booth 236, including the thirteen volume "Practitioners Library of Medicine and Surgery" edited by George Blumer; the set of "Postgraduate Surgery" edited by Rodney Maingot; and the new 13th edition of Osler's "Principles and Practice of Medicine" with a new editor, Henry A. Christian. Many new volumes will be shown, such as "The Fundamentals of Internal Medicine" by Wallace M. Yater, and "Gross Anatomy" by A. Brazier Howell.

P. BLAKISTON'S SON & CO., INC.

Their complete list of medical texts and references, including the books published since the last convention, will be found in the Blakiston exhibit, Booth 65. Two books of particular interest are: Robinson's "Practi[illegible] Marie's *Spanish* [illegible] the latter designed to be distinctly helpful in clinical investigations and research. The exhibit will be in charge of Messrs. H. T. Turner and E. R. Stetson.

CHICAGO MEDICAL BOOK COMPANY

The display at Booth 49 will present a complete assortment of all the latest medical books of all the publishers, including many new American and English monographs to be seen nowhere else. Here, under one exhibit, you can examine at your leisure all of the recent books. Don't fail to visit this most interesting exhibit.

J. B. LIPPINCOTT COMPANY

Among the newer Lippincott publications on display will be Thorek's "Modern Surgical Technic" and Kracke's "Diseases of the Blood and Atlas of Hematology" from which illustrations are being displayed at the World's Fair Medical Exhibit. Other important new works include: Rigler's "Outline of Roentgen Diagnosis," Barborka's "Treatment by Diet" and Imperatori's "Diseases of the Nose and Throat." Booth 1.

MACMILLAN COMPANY

The results obtained from sulfanilamide and sulfapyridine therapy in bacterial infections have centered attention on these new drugs. At the Convention in St. Louis the Macmillan Company will have on display the forthcoming book on this subject by Perrin H. Long and Eleanor A. Bliss, nationally known authorities. Also on exhibit will be many other new medical publications. Booth 59.

L. S. MATTHEWS & CO., INC.

Booth 43 will exhibit a comprehensive stock of the best and latest standard medical books, with some curious items and antique volumes in medicine, and a fine collection of reproductions of famous paintings on medical subjects by eminent artists. Get acquainted with the Matthews trade-in plan. Your call at the booth will be appreciated.

C. V. MOSBY COMPANY

In Booth 101 will be shown the following important new medical books by Mosby: Campbell's "Operative Orthopedics," tenth edition of Sutton's "Diseases of the Skin," the new Brickel "Surgical Treatment of the Hand and Forearm In-

fections," Behan's "Cancer," second edition of Gradwohl's "Clinical Laboratory Methods and Diagnosis," and the new second edition of Meakins' "Practice of Medicine." About 150 other standard and currently popular volumes will complete the display.

OXFORD UNIVERSITY PRESS

On display in Booth 117 will be several new Oxford books covering physiology of anesthesia, clinical electrosurgery, silicosis and asbestosis, carbon monoxide asphyxia, orthopedic appliances, shock and related capillary phenomena, craniocerebral injuries and the well known "Oxford Loose-Leaf Medicine," with Oxford monographs on diagnosis and treatment.

W. B. SAUNDERS COMPANY

In Booths 66 and 67 will be shown a complete line of the Saunders books, among them many new books and new editions, including Callander's "Surgical Anatomy," the 1939 *Mayo Clinic* Volume, Wolf's "Endocrinology," Fluhmann's "Menstrual Disorders," Pelouze's "Gonorrhea," McNally's "Medical [illegible] icology," Murphy's [illegible] trow and Trumper's [illegible]."



SURGERY, GYNECOLOGY AND OBSTET.

"T[illegible] employed in an in[illegible] of the pages of [illegible]ons by Surgeons," its superb printing and illustration, and

OFFICE FURNITURE

W. D. ALLISON COMPANY

In Booth 216 will be shown a representative display of fine physicians' wooden furniture by Allison. Many improvements have, of course, been added since the last convention in San Francisco. It will be of interest to you to see this equipment.

ENOCHS MANUFACTURING CO.

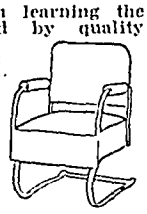
While at the Convention it will pay you to spend a few moments inspecting the latest offerings in fine furniture for physicians' offices. At the Enochs Booth, No. 56, will be shown complete office suites designed to meet the needs of the general practitioner or the specialist. In attendance will be an office planning expert who will be glad to help you with your arrangement problems.

HAMILTON MANUFACTURING CO.

In keeping with the present trend toward new and modern professional furniture, Hamilton will feature its newest group, the Nu-Tone Suite. This is an over-size Deluxe set of furniture that provides extra conveniences and extra comforts. The table which will be shown is 3" wider and 4" longer than the ordinary table with a massive effect that helps to establish a tone of dignity and professional restraint in any office. This new Hamilton furniture will be on display in Booths 211 and 215.

ROYAL METAL MANUFACTURING CO.

If you are interested in learning the many advantages afforded by quality chromium furniture for reception rooms and offices you will want to take time for a visit at Booth 40. Here, in keeping with the demand for this type of furniture, an entire line Royalchrome for office and reception room will be shown. A plan will be made for your particular needs without obligation.

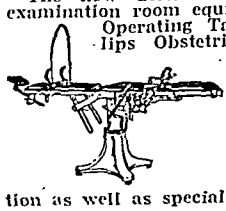


PHILADELPHIA HOSP. SUPPLY CO.

At Booth 298, the Meth Manufacturing Co. and distributor, Philadelphia Hospital Supply Co., will show a new suite of physician's wood furniture in Burl walnut, which has not been shown in its entirety at any medical convention to date. There will also be on display two other suites of physician's furniture, custom built, of genuine American walnut.

SHAMPAINE ASEPTIC STEEL FURN. CO.

The new Steelux line of physicians' examination room equipment, the Century Operating Table, and the Phillips Obstetrical Table will be featured in Booths 30 and 31. The new *Martin Table*, especially designed for rectal work, will be demonstrated with regard to its adaptability to all types of general examination as well as specialized work.



OPTICAL INSTRUMENTS

AMERICAN OPTICAL COMPANY

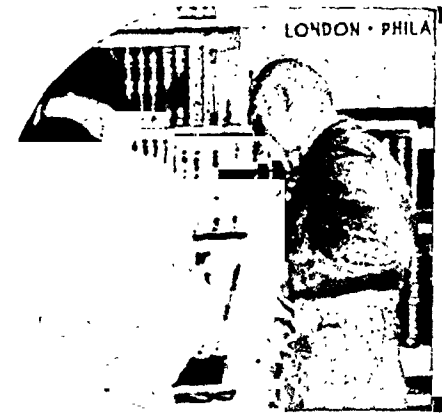
This exhibit, in Booths 261 and 262, will feature two of the firm's newest instruments, the Additive Phoroptor which provides three points of vital interest to users —prescription accuracy, ease of operation, and patients' comfort—and the Adaptometer, which provides a method of determining the presence of night blindness. Representatives will demonstrate how it permits a quick and reliable differentiation between normal and abnormal adaptation cases.

KEYSTONE VIEW COMPANY

The Keystone exhibit, Booth 217, will feature the Synoptiscope, for strabismus diagnosis and training. Also on display will be the Tel-Eye-Trainer, which is particularly adapted to post-operative fusion training and asthenopia due to faulty eye coordination other than strabismus. Other exhibits will include Keystone's home training materials including the Correct-Eye-Scope, the Eye Comfort Stereoscope and accessories.

CARL ZEISS, INC.

At Booth 175 a collection of Zeiss microscopes, including the latest models, and accessories, will be featured. Camera attachments for photomicrography, as well as Contax Cameras for medical and general photography, will also be shown. Ophthalmic equipment, such as slit lamp outfits, perimeter, retinal and anterior segment cameras, test sets for contact lenses, etc., will be on display. Demonstration by experienced technical representatives and information will be gladly furnished.



LIST OF EXHIBITORS

Mallinckrodt Chem. Works	St. Louis
Maltine Co.	New York City
Marcelle Cosmetics	Chicago
Mattern Mfg. Co., F.	Chicago
Matthews & Co., Inc., L. S.	St. Louis
McCaskey Register Co.	Alliance, Ohio
McIntosh Electrical Corp.	Chicago
McKesson Appliance Co.	Toledo, Ohio
McKesson & Robbins, Inc.	New York City
McNeil Laboratories, Inc.	Philadelphia
Mead Johnson & Co.	Evansville, Ind.
Mechanical Laboratories, Inc.	Miami, Fla.
Medical Bureau	Chicago
Medical Case History Bureau	New York City
Medical Protective Co.	Wheaton, Ill.
Mellin's Food Co.	Boston
Mennen Co.	Newark, N. J.
Merck & Co. Inc.	Rahway, N. J.
Merrell Co., Wm. S.	Cincinnati
Meyer Co., Wm.	Chicago
Mosby Co., C. V.	St. Louis
Mueller & Co.,	Chicago
National Dairy	
National Drug	
National Live S	
Nelson & Sons, Thomas	[illegible]
Nestlé's Milk Products, Inc.	New York City
Northwestern Mut. Life Ins. Co.	Milwaukee, Wis.
Ohio Chem. & Mfg. Co.	Cleveland
Osborne, Robe	[illegible] City
Oxford Univ.	[illegible]cago
Oxygen Equip	
Parke, Davis & Co.	Detroit
Patch Co., E. L.	Boston
Patterson Screen Co.	Towanda, Pa.
Pelton & Crane Co.	Detroit

UNIVERSITY PRESSES

Booth 178 will display books and journals from the following university presses: University of Chicago; Columbia University; University of Minnesota; University of Pennsylvania; Princeton University; Stanford University; Yale University; and Collegiate Press. A cordial invitation to examine the publications on display is extended to all visitors.

WILLIAMS & WILKINS CO.

As publishers of the famous William Wood books, exhibit 102 will include advance copies of new editions of Stedman's "Medical Dictionary" and May's "Eye." Important new books, such as Fomon's "Traumatic and Plastic Surgery," Yeomans' "Sclerosing Therapy," Cowdry's "Problems of Ageing," and new editions of Allen's "Sex and Internal Secretions," Harrison's "Failure of Circulation," with 200 other new and standard books and periodicals will complete the showing.

AMERICAN MEDICAL ASSOCIATION

The journals, pamphlets, reprints and books published by the A. M. A. will be shown at Booths 127 and 150. In conjunction with this exhibit there will be a showing of "Hygeia," The Health Magazine, at one end, and the state medical journals of the Cooperative Medical Advertising Bureau, at the other end. The "American Medical Directory," "Index Medicus" and other well-known A. M. A. publications will be on display.

SPENCER LENS COMPANY

The Spencer Lens exhibit will feature medical microscopes, equipped for bright field and dark field work; also for blood counting with the Bright-Line Haemacytometer. Several types of Spencer microtomes will be set up for demonstration. Delineascopes for the projection of color slides, lantern slides, filmslides or opaque material will be exhibited. The new Quebec Colony Counter and a new Colorimeter will also be shown. Booths 263 and 264.



PHARMACEUTICALS AND BIOLOGICALS

ABBOTT LABORATORIES

You will find a hearty welcome at the Abbott exhibit, Booths 234 and 235, where a [illegible] showing of their newer [illegible]ducts will be on display. [illegible] representatives will take pleasure in discussing new as well as old research items with you. A chat about your experiences with Abbott products (whether favorable or otherwise) will help all to keep 'abreast-of-the-times'.

AMERICAN RESEARCH PRODUCTS

An informative display featuring Vitamin D in the form of Viosterol (A.R.P.I. Process) in Oil, for the pharmaceutical trade, and Vitamin D in evaporated milk, for the fluid milk dealers, will await physicians visiting Booth 131. The story of what the product Embo (Wheat Embryo) can accomplish in cases of Vitamin B deficiency also will be told. Nationally known products of the parent company, General Mills, Inc., will be an interesting part of the exhibit.

ARLINGTON CHEMICAL COMPANY

Featured in Booth 118 will be the Arlington pollen extracts for diagnosis and treatment of hay fever, which are offered this year at a considerable reduction in price. Also a handy diagnostic protein outfit, consisting of eighty of the most common causative factors in allergic conditions, and a full line of food, epidermal and fungi proteins for diagnosis and desensitization. Dr. J. H. Frazer will be in charge.

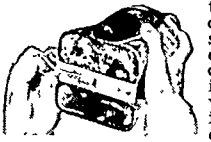
ARMOUR LABORATORIES

Treatment of dyscrasias of the hematopoietic organs with particular reference to the erythrocyte and granulocyte series will be featured at the Armour exhibit, Booths 188 and 189. Graphs will show the increase in number of granulocytes and erythrocytes brought about by the administration of different preparations. The necessity for, and importance of careful and correct thyroid assay will be explained graphically.

tions about and discuss the well-known Ciba specialties, among which are Digifoline, Dial, Lipoiodine, Nupercaine and Vioform. Your call will be welcomed.

CUTTER LABORATORIES

The complete line of Cutter biologicals and closely allied specialties, including their dextrose and other solutions in saftiflasks, will be exhibited. A new development is the ingenious hanging device now being built into the bottom of each saftiflask. It is completely out of the way until needed. In use, forms a sturdy hanger. Booth 226.



DAVIES, ROSE & COMPANY, LTD.

This year, as in the past, visitors will find the exhibit of Davies, Rose both interesting and informative. In Booth 23 Messrs. R. J. Mansfield, William F. Krause, and A. R. Gorham will be in attendance to explain in detail to callers the outstanding qualities of this firm's laboratory productions.

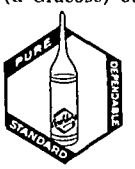
DRUG PRODUCTS CO. INC.

Visit Booth 157 where Hyposols and Pulvoids will be on display. Pulvoids Digitalis Folium, a mode of digitalis [illegible] standardized by the [illegible], Pulvoids Sulf- Sodium Cacodylate, all accepted by the Council on

a showing of the following "Council-Accepted" International Vitamin products: Halibut Liver Oil Plain in Liquid and Capsule form; Halibut Liver Oil with Vitamin D Concentrate in Liquid and Capsule form; Cod Liver Oil Concentrate in Liquid and Capsules; Cod Liver Oil Vitamin Concentrate in Tablets; and Viosterol (A. R. P. I. Process) in Oil.

LAKESIDE LABORATORIES, INC.

Their Council-Accepted Ampoule preparations, particularly ampoules of Dextrose (d Glucose) 50%, Sodium Cacodylate, Mercury Succinimide, Ephedrine Sulfate, Ephedrine Sulfate capsules for oral use, and Ephedrine Hydrochloride 3% for topical use, will be exhibited by Lakeside Laboratories in Booth 73. Members of the research staff will be in attendance.



LEDERLE LABORATORIES, INC.

The Lederle exhibit in Booths 201 and 202 will feature, in animated chart and diagram form, latest therapy on pernicious anemia, pneumonia and scarlet fever. Other new and interesting Lederle drugs and biologicals will also be shown.

ELI LILLY AND COMPANY

Eli Lilly, who pioneered the large-scale manufacture of insulin for the treatment of diabetes and of liver extract for the treatment of pernicious anemia, will dis-

LIST OF EXHIBITORS

Pet Milk Co.	St. Louis
Petrolagar Labs., Inc.	Chicago
Philadelphia Hosp.	
Philip Morris & Co.	
Phillips-Drucker	St. Louis
Picker	rk City
Pilling	delphia
Prior Co., Inc., W. F.	Hagerstown, Md.
Prometheus Electric Corp.	New York City
Puritan Compressed Gas Corp.	Kansas City, Mo.
Pyramid Rubber Co.	Ravenna, Ohio
Radium Chemical Co., Inc.	New York City
Radium Emanation Corp.	New York City
Rare Chemicals, Inc.	Nepera Park, N. Y.
Riedel-de Haen, Inc.	New York City
Rose Mfg. Co., Inc., E. J.	Los Angeles
Royal Metal Mfg. Co.	Chicago
S. M. A. Corp.	Chicago
Safety Gas Machine Co., Inc.	Chicago
Sanborn Co.	Cambridge, Mass.
Sandoz Chemical Works, Inc.	New York City
Saunders Co., W. B.	Philadelphia
Scanlan-Morris Co.	Madison, Wisc.
Schering Corp.	Bloomfield, N. J.
Scientific Sugars Co.	Columbus, Ind.
Sealright Co., Inc.	Fulton, N. Y.
Searle & Co., G. D.	Chicago
Selby Shoe Co.	Portsmouth, Ohio
Shampaine Aseptic Steel Furniture Co.	St. Louis
Sharp & Dohme	Philadelphia
Siebrandt Mfg. Co., J. R.	Kansas City, Mo.
Sklar Mfg. Co., J.	Brooklyn
Smith-Dorsey Co.	Lincoln, Neb.
Smith Co., Upsher	Minneapolis
Smith, Kline & French Labs.	Philadelphia
Smith & Nephew, Inc.	New York City



CALCO CHEMICAL CO., INC.

Urginin ar[illegible] be featured [illegible] of Urginin a[illegible] fibrillation, [illegible] myocardial [illegible] vascular-renal disorders; and of Trichlorethylene in tic douloureux and painful conditions about the face and in certain types of cardiac pain, will be discussed. Other Council-Accepted specialties will also be on exhibit.

CHAPPEL LABORATORIES

An invitation is extended to all members of the medical profession to visit the technical exhibit of Council-Accepted, anti-anemia preparations made by Chappel. The development of Chappel pharmaceuticals has progressed as a result of scientific and clinical research, and representatives will attempt to demonstrate some of the aspects of these investigations in their Booth, No. 93.

CHURCH & DWIGHT CO., INC.

As makers of those two dependable old products, Arm and Hammer and Cow Brand Baking Soda since 1846, Church and Dwight are happy to invite you to visit their exhibit in Booth 76. Here attendants will be glad to discuss with you the many uses of Bicarbonate of Soda in medicine and tell you how quantity production and wide distribution have made this product available at low cost.



CIBA PHARMACEUTICAL PROD., INC.

Physicians are cordially invited to visit the Ciba Booth, No. 205, where the Assistant Medical Director and representatives of the firm will be glad to answer ques-

Pharmacy and Chemistry, will be presented. In addition, the advantages of the Pulvoids method of manufacture as compared to mass made tablets will be shown.

E. FOUGERA & COMPANY, INC.

How Lipiodol (Lafay), the original iodized oil, not only meets all the requirements for a nontoxic, nonirritating, radiopaque contrast medium for visualization of body cavities and tissue spaces, but presents unique advantages for this purpose, will be shown and discussed at the Fougera exhibit in Booth 145.

HOSPITAL LIQUIDS, INC.

Intravenous Solutions in Filtrair Dispensers will be exhibited at the Hospital Liquids display; Booth 169. Physicians will find interesting the manner in which solutions are kept pyrogen-protected and how they can be depended upon for sterility, security and safety in administration. Competent representatives will be on hand to discuss problems of parenteral therapy.



HYNSON, WESTCOTT & DUNNING

An exhibit featuring Mercurochrome and various pharmaceutical specialties of H. W. & D. manufacture will be found in Booth 177. There will also be a display of diagnostic apparatus and ampule solutions which have been developed in the firm's laboratories in cooperation with physicians. Competent representatives will be in attendance to demonstrate the products and to answer questions.

INTERNATIONAL VITAMIN CORP.

Complete information on all matters pertaining to vitamins will be available for physicians at Booth 267. Included will be

play these products in their exhibit, Booths 212, 213 and 214. Important drugs such as Sodium Amytal, Ephedrine, Carbarsone, and a representative list of biologicals will be included. Also an interesting laboratory demonstration of the physiological effects of the female sex hormones Estrone and Estriol will be presented.

MALLINCKRODT CHEMICAL WORKS

Physicans, their wives, and friends are invited to visit the Mallinckrodt Chemical exhibit, Space 170, where representatives will be glad to be of service in discussing any of the Mallinckrodt medicinal chemicals and specialties, such as ether, barium sulfate, Iodeikon, Isoiodeikon, Hippuran, the arsenicals, mandelates, sulfanilamide and soda lime.

MALTINE COMPANY

The various steps in the manufacture of Maltine with Cod Liver Oil, the result of more than six decades of continuous research and experience, will be shown in the Maltine exhibit, Booth 10. There will be shown illuminated slides, including photomicrographs indicating the minuteness and uniformity of the oil globules after the oil has been incorporated by vacuum process.



MC KESSON & ROBBINS, INC.

McKesson drug products approved by the A. M. A. will be featured in Space 110, together with an educational exhibit in pictures of the work carried on at the company's research laboratories and manufacturing plant at Bridgeport, Conn. Dr. A. L. Omohundro, director of laboratory research, will be in charge of the company's exhibit and will be assisted by the members of the laboratory staff.

MC NEIL LABORATORIES

In Booth 291 representatives of McNeil Labs. will exhibit and discuss such important contributions as Digitalis Duo-Test, which is assayed by both the frog and guinea-pig method; Rosebud Vaginal Tampons, the soft, cup-shaped tampons which help to prolong vaginal medication; Lubricant "McNeil," a velvety smooth jelly for digital and instrumental examination; Emulsion Castor Oil, a palatable, stable emulsion containing 50% (by volume) medicinally pure castor oil.

MERCK & COMPANY INC.

The Merck exhibit will feature such outstanding discoveries of the past few years as Thiamin Chloride and Nicotinic Acid. In the center panel of the display will be a striking enlarged illuminated photograph of the crystals of vitamin B_1 hydrochloride. Below, the intricacies of the vitamin B complex will be graphically illustrated. Nicotinic Acid and Thiamin Chloride will occupy large panels left and right of the center. Booths 271 and 272.

WM. S. MERRELL COMPANY

An interesting series of dioramas will show methods of procuring raw materials for use in Merrell pharmaceutical products. Diothane Hydrochloride, Fibrogen, and other Merrell therapeutic agents will be on display, and representatives will explain their action and use. Booth 22.

Salysal, "Rare Chemicals," the salicylic ester of salicylic acid designed to provide improved salicylate therapy by reducing local gastric irritation to a minimum; and Optochin Hydrochloride, ethylhydrocupreine, for pneumococcal infections of the eye.

RIEDEL-DE HAEN, INC.

At Booth 24 the Riedel-de Haen exhibit will feature Decholin and Decholin Sodium for the treatment of hepatic and biliary tract disorders. It will also present the scientific background of deoxycholic acid, the fat-digestant component of bile used to promote absorption of vitamin K.

SANDOZ CHEMICAL WORKS, INC.

Among the Council-Accepted pharmaceuticals of Sandoz in Booths 195 and 196, special attention will be given to Gynergen (ergotamine tartrate) extensively employed for the dramatic relief of migraine as well as for dependable uterine hemostasis; the gluconate preparation of calcium (Calglucon) whose advantages for oral, intramuscular and intravenous calcium therapy were first discovered in the Sandoz Research Laboratories; Scillaren and Scillaren-B, dependable cardiodiuretics; and Sandoptal, an efficient hypnotic.

G. D. SEARLE & COMPANY

A shadowgraph demonstration of various heart conditions will be on exhibition at the Searle Booth, No. 187. This ingenious device, developed by Dr. George Levene of Boston, enables the physician to view in

samples also available on tincture, capsules and tablets Digitalis Upsher Smith of U.S.P. XI potency. A cordial welcome to all visiting physicians.

E. R. SQUIBB & SONS

A new display featuring recent additions to the Squibb line of Council-Accepted nd pharmaceutical ound at Booths 85, ttendants, including he Squibb laboratthus affording an opportunity for personal discussion of special problems involving the use of the most recent therapeutic developments.

FREDERICK STEARNS & COMPANY

Doctors are cordially invited to visit the attractive Stearns Booth, No. 176, to view and discuss outstanding contributions to medical science developed in the firm's Scientific Laboratories. Representatives will be pleased to supply information on such outstanding products as Neo-Synephrin Hydrochloride. Information on Appella Apple Powder-Stearns for use in infantile diarrheas and dysenteries will be readily available.

WHITE LABORATORIES

Representatives of White Labs., Booth 210, will concentrate on furnishing practical information, backed by tests of time, as well as animal and clinical experience. These representatives will present Council-Accepted White's Cod Liver Oil Concentrate (liquid, tablets and capsules), together with pertinent information.

LIST OF EXHIBITORS

Snuggle Rug Co.	Goshen, Ind.
Sonotone Corp.	Elmsford, N. Y.
Sorensen Co., Inc., C. M.	Long Island City
Spencer Corset Co., Inc.	New Haven, Conn.
Spencer Lens Co.	Buffalo
Squibb & Sons, E. R.	New York City
Standard X-Ray Co.	Chicago
Stearns & Co., Fred	Detroit
Stokely Brothers	
Storz Instrument	
Surgical Publishir	
Tampax, Incorporated	New York City
Taylor Instrument Cos.	Rochester, N. Y.
Thomas, Charles C.	Springfield, Ill.
Tower Co., Inc.	Seattle, Wash.
U.M.A., Inc.	New York City
Union Carbide Co.	New York City
Union Mfg. Co.	Memphis, Tenn.
Universal Cotton Products Corp.	Minneapolis
Univ. Presses, Books of	Chicago
Vegex, Inc. and Vitamin Food Co., Inc.	N. Y. C.
Vitex Laboratories	N. J.
Walk-Over Shoe	Mass.
Wallace & Tiernan	N. J.
Welch Allyn Co.	Auburn, N. Y.
Westinghouse X-Ray Co., Inc.	Long Island City
White Laboratories, Inc.	Newark, N. J.
Williams & Will	
Wilson Rubber	
Winthrop Chem.	
Wise, Alumni R	
Wocher & Son	
Wright & Co. Inc., E. T.	Rockland, Mass.
Wyeth & B	
Zeiss, Inc.,	
Zimmer Mfg. Co.	Warsaw, Ind.



PARKE, DAVIS & COMPANY

Members of the staff of Parke, Davis will be at your service to tell you about some of [illegible] numerous scientific [illegible] Mapharsen, Adrenalin, [illegible] Theelin, Theelol, and biological products will be a part of this attractive exhibit. Booths 79, 80 and 81.

E. L. PATCH COMPANY

While many vitamin products have come and gone during recent years, there has recently been a decided trend back to Cod Liver Oil as a source of natural vitamins A and D. Patch's Cod Liver Oil will be featured at the Patch Company exhibit, Space 77. Patch representatives will be on hand to greet their friends in the medical profession and discuss the advantages of Cod Liver Oil as a source of the natural vitamins A and D.

PETROLAGAR LABORATORIES, INC.

At an interesting Petrolagar exhibit, Booth 121, representatives will be pleased to discuss the various uses of the product for the treatment of constipation. When you stop in to chat with one of the Petrolagar representatives, ask him to show you the new list of scientific motion pictures. There are numerous subjects especially suitable for classroom or lecture purposes.

PURITAN COMPRESSED GAS CORP.

The "Puritan Maid" brand of nitrous oxid, ethylene, oxygen, carbon dioxid, and carbon dioxid-oxygen mixtures, will be included in the exhibit of Puritan Compressed Gas Corp., Booth 108. Mr. George J. Hooper will be in charge of the exhibit and other authorized representatives will be in attendance.

RARE CHEMICALS, INC.

At Booth 161 Rare Chemicals will feature Gitalin (Amorphous), a rapid, dependable, glucosidal fraction of digitalis purpurea;

motion many of the typical pathologic alterations in cardiac contour and rhythm. A number of Searle representatives will be present and you are cordially invited to discuss with them various preparations.

SHARP & DOHME, INC.

Their complete line of Propadrine Hydrochloride products will be featured this year by Sharp & Dohme. In addition, there will be on display other items of interest in both the [illegible] and biological field. All [illegible] this Convention are [illegible] visit at Booths 193 and 191. Competent, well-informed representatives will be on hand to furnish information.

SMITH-DORSEY COMPANY

Physicians are cordially invited to visit the Smith-Dorsey Booth, No. 295, where they will find on display a number of products which meet the requirements of the Council on Pharmacy and Chemistry. Representatives in charge of the exhibit will be glad to furnish full information about products shown.

SMITH, KLINE & FRENCH LABS.

Physicians are invited to stop at Booth 155 to obtain complimentary samples of Benzedrine Inhaler. Representatives will be glad to answer questions about Benzedrine Sulfate Tablets, Benzedrine Solution and Pentnucleotide. Physicians may help themselves from convenient literature dispensers without the bother of leaving their names. They will not be solicited to register.

UPSHER SMITH COMPANY

Booth 158, Aisle G, between registration tables and main entrance, will feature Pyrethrum Ointment, Council-Accepted non-irritating scabies treatment, which has a pleasant odor and is clean and easy for your patients to use. Information and

WINTHROP CHEMICAL CO., INC.

[illegible] is extended by Booth 95, where ly discuss the latest preparations made available by this firm. You will receive valuable booklets dealing with anesthetics, analgesics, antirachitics, antispasmodics, antisyphilitics, diagnostics, diuretics, hypnotics, sedatives and vasodilators.

JOHN WYETH & BROTHER, INC.

In Booth 230, Dean Cornwell's heroic canvas, "Beaumont and St. Martin" will be exhibited by John Wyeth & Brother. This is the first showing of this painting at an American Medical Association Convention and is the first painting in a series to be presented by Wyeths. The series is entitled "Pioneers in American Medicine," and will dramatize the contributions of Americans to the advancement of medicine. Arrangements for reproductions of the painting may be made at the booth.

PHYSICAL THERAPY AND X-RAY

ADLANCO X-RAY CORPORATION

In Booth 27 the Adlanco X-Ray exhibit will feature the Siemens Planigraph, which permits fluoroscopy and radiography of any predetermined layer within the patient's body without anterior and posterior obstructions. The "Original Ultratherm" ultra short wave apparatus, as well as the smallest shock-and-ray-proof x-ray unit "Heliosphere," will also be exhibited. A call to inspect these new and important contributions will be well worth while.

(Continued on advertising page 84)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Society News.—Dr. Sumner L. S. Koch, Chicago, discussed "Surgical Management of Fractures, Lacerations and Infections of the Hand" before the Los Angeles Surgical Society March 24. —— Among others, Dr. Wilbur Bailey addressed the Trudeau Society in Los Angeles March 28 on "Spontaneous Pneumothorax of Nontuberculous Origin."

Changes in Health Officers.—The *Weekly Bulletin* of the California Department of Public Health recently announced the following changes in health officers:

Dr. Albert B. Gray, Dorris, succeeding Dr. Paul F. Dieffenbacher.
Dr. David G. Schmidt, Larkspur, succeeding Dr. Cornwall C. Everman.
Dr. James D. Coulter, Portola, of Plumas County.
Dr. *Harry M. Grayman of Dos Palos to succeed Dr. Edwin A.* Patterson.
Dr. James L. Faulkner, Red Bluff, of Tehama County, succeeding Dr. Otho T. Wood.
Dr. William E. Fountain, Merced, of Merced County, succeeding Dr. Clarence C. Fitzgibbon.

Dr. Reuben L. Kaufman, who has served for many years as district health officer at Whittier, under the Los Angeles County Health Department, has been appointed health officer of Riverside County to succeed the late Dr. Wendall A. Jones.

COLORADO

Society News.—At a special meeting Dec. 28, 1938, the Colorado Hospital Association adopted new by-laws to make the structure of the state association conform more closely to those of the American Hospital Association.

Personal.—Dr. Thaddeus M. Koppa, Cheyenne, Wyo., has been appointed in charge of the Otero County health unit, pending the return of Dr. Lynn J. Lull, Branford, Conn., who is taking a year's graduate study at Yale University.

DELAWARE

Society News.—The Delaware Academy of Medicine, Wilmington, was addressed March 3 by Dr. Robert B. Osgood, Boston, on "The Ethics of Medicine."——Dr. Amos R. Koontz, Baltimore, addressed the New Castle County Medical Society, Wilmington, recently on "The Use of Fascia in Surgery."

Delaware Society to Observe Sesquicentennial.—Plans are under way to observe in October the sesquicentennial of the Medical Society of Delaware. The organization was incorporated by a special act of the legislature Feb. 3, 1789, thus making it the third oldest medical society and the second oldest medical corporation in the United States, according to the state medical journal. New Jersey holds first place in both categories, with Massachusetts in second place as a society. The *celebration will be held in Wilmington.*

ILLINOIS

Personal.—Dr. Louis J. Frederick has been appointed health commissioner of Joliet, succeeding the late Dr. Edward J. Higgins.

Chicago

Necropsy Rate in Research Hospital.—A delayed report from the Research and Educational Hospital of the University of Illinois, Chicago, indicates that this institution has a record of 83.2 per cent necropsies for the year 1938. Other approved internship hospitals having over 70 per cent necropsies were reported on page 924 of the Hospital Number of THE JOURNAL March 11.

Public Session on the Hard of Hearing.—The Chicago Medical Society will hold a public meeting on "What Chicago Does for Its Hard of Hearing" at the Chicago Woman's Club April 19. The principal speakers will include Frank L. Beals, assistant superintendent, Chicago schools; Dr. Robert Black, acting president, board of health; Dr. Walter H. Theobald, secretary, Chicago Laryngological and Otological Society; Dr. Samuel Salinger, clinical professor of otorhinolaryngology, Loyola University School of Medicine; Miss Irene Hubbell, president, and Dr. Austin A. Hayden, chairman, board of directors of the Chicago League for the Hard of Hearing, and Edward J. Kelly, mayor.

Society News.—Among others, Drs. Arthur K. Koff and Edith L. Potter addressed the Chicago Gynecological Society March 17 on "Dangers of Excessive Development of Human Fetus." —— The Chicago Society of Allergy was addressed March 20 by Dr. Israel Davidsohn on "Heterophilic Phenomena in Immunology."——Dr. Isadore Pilot addressed the Chicago Club for the Study of Rheumatic Diseases March 22 on "Different Features of Bacterial and Rheumatic Arthritis," and Drs. Catharine E. Logan and Eugene F. Traut, Oak Park, Ill., "Clinical and Bacteriologic Improvement in Chronic Arthritis Following the Use of Sulfanilamide." —— A symposium on commitment to mental hospitals was presented before the Illinois Psychiatric Society March 2 by Drs. Francis J. Gerty, Thomas M. French and Abraham A. Low.

INDIANA

Director of Research on Sickness Insurance.—Dr. Walter U. Kennedy, Newcastle, has been appointed director of research on sickness insurance of the Indiana State Medical Association. The position is a new one. Dr. Kennedy graduated at Barnes Medical College, St. Louis, in 1898.

Marriage Law Now in Effect.—A law has been enacted in Indiana governing applicants for licenses to marry. Applicants must submit to tests for venereal diseases. Application for a license must be made in the home county of the bride or in the home county of the bridegroom if the bride does not reside in Indiana; if neither is a resident of the state a license will be refused. Notice of intention to marry must be publicly certified five days before the ceremony.

Semiannual District Meeting at Peru.—The sixty-first semiannual meeting of the Eleventh Indiana Councilor District Medical Association will be held at Peru May 10. A clinic on renal diseases, conducted by Dr. Howard M. Odel, Rochester, Minn., will open the session. The speakers in the afternoon will include Drs. Herbert M. Rhorer, Kokomo, who will give the presidential address; Ernest O. Asher, New Augusta (subject not announced); Ora G. Brubaker, North Manchester, "The Acute Ear," and Dr. Odel, "Essential Hypertension—Diagnosis and Management." Andrew W. Cordier, Ph.D., Manchester College, North Manchester, will give an address at the banquet, under the auspices of the Miami County Medical Society, on "Germany and Her Neighbors."

KANSAS

The Wichita Medical Supplement.—The Wichita *Sunday Beacon* dedicated an eight page section March 19 to the "men of medicine of Wichita." Carrying a caption "A Dedication and Tribute to the 'Regular' Family Doctor," the first page shows a reprint of the painting "The Doctor" by Fildes. Articles describe the activities of the Sedgwick County Medical Society and its auxiliary. There are also discussions of diseases and of hygiene. The *Eagle* and the *Beacon*, in separate supplements, have thus honored the local profession for the past five years.

MAINE

Society News. — The Cumberland County Medical Association was addressed in Portland recently by Dr. Roger I. Lee, Boston, among others, on "The Doctor's Dilemma, When and If the Government Goes Into the Practice of Medicine in a Big Way."——At a meeting of the Portland Medical Club recently Dr. Edward A. Greco discussed "The Heart in Lung Diseases."——The Kennebec County Medical Association held a clinical session in Waterville February 16; the speakers included Drs. Edward H. Risley on "Ruptured Gallbladder and Incarcerated Inguinal Hernia" and Edwin R. Irgens, "Plastic Operation for Deformity of Face Secondary to Operation for Carcinoma of Antrum."——Dr. Everett D. Kiefer, Boston, discussed "Management of Ulcerative Colitis and Functional Colonic Disorders" before the Knox County Medical Society in Rockland February 14.——Dr. Siegfried J. Thannhauser, Boston, addressed the Oxford and Penobscot county medical societies in Rumford and Bangor respectively on diseases of the liver.——Dr. Adam P. Leighton, Portland, addressed the Maine Pharmaceutical Association recently in Augusta on "The Relationship of the Doctor to the Druggist."

MARYLAND

Buildings for Tuberculous Patients.—Buildings to house 200 additional patients are under construction from funds provided by the state legislature, according to the Baltimore *Health News.* These beds are expected to be ready for occupancy October 1. A request is to be made of the legislature

by the board of managers of the state tuberculosis sanatorium commission for funds for an additional hundred beds at Henryton, a sanatorium for Negroes, and for funds to establish a branch hospital for Negro patients on the Eastern shore. It is also hoped to have a building in operation October 1 for the sole purpose of surgical treatment of tuberculosis of the lungs.

Annual Meeting of Medical and Chirurgical Faculty.—Dr. Victor F. Cullen, acting president, will open the annual meeting of the Medical and Chirurgical Faculty of Maryland in Baltimore April 25 with an address on "Tuberculosis of the Past and Present." Trimble lectures will be given by Drs. John Alexander, Ann Arbor, Mich., and Haven Emerson, New York, on "Management of Bronchiectasis and Abscess of the Lung" and "Administrative Medicine" respectively. Dr. Wiley D. Forbus, Durham, N. C., will deliver the first Stokes lecture on "Variations in Morphological Reaction to Injury." There will be a symposium on appendicitis by Drs. Victor D. Miller and Arthur M. Shipley, and a round table luncheon with the following speakers:

Dr. Thomas B. Aycock, Surgery of the Chest.
Dr. Bartus T. Baggott, Early Diagnosis of Tuberculosis.
Dr. Thomas R. Chambers, Rectal Surgery.
Dr. Richard G. Coblentz, Cerebral Trauma.
Dr. John A. Campbell Colston, Urology.
Dr. Ira A. Darling, Sykeville, The Responsibility of a State Mental Hospital to the Community.
Dr. Nicholson J. Eastman, Obstetric Hemorrhage.
Dr. John S. Fenby, Common Problems in Pediatrics.
Dr. Whitmer B. Firor, Radiation Therapy of Inflammatory Conditions.
Dr. Francis J. Geraghty, The Treatment of Pneumonia with Sulfapyridine.
Dr. Charles Loring Joslin, The Treatment of Pneumonia in Infants and Children with Sulfapyridine.
Dr. John Mason Hundley Jr., Malignancy of the Female Generative Tract.
Dr. Raymond Hussey, Relationship of Heart Disease to Pulmonary Disease.
Dr. Edward A. Looper, Remarks on Diseases of the Accessory Sinuses.
Dr. Llewellyn Williams Lord, Eczema.
Dr. Joseph E. Moore, Legislation Regarding Syphilis.
Dr. Moses Paulson, Practical Aspects of the Diarrheas and Dysenteries of the Adult.
Dr. Floyd Elmer Shaffer, Sparrows Point, Accident Surgery.
Dr. Richard W. TeLinde, Office Gynecology.
Dr. Allen F. Voshell, Problem Fractures.
Dr. Frank B. Walsh, Ophthalmology.

MASSACHUSETTS

George Bigelow Memorial.—The Boston Medical Library has received $1,038.30 to provide a permanent fund, the income of which will be used to purchase books on public health, cancer, medical economics and related subjects to serve as a memorial to the late Dr. George H. Bigelow. A section in Holmes Hall has been set apart for these books. The books are to be selected by a committee composed of the librarian of the Boston Medical Library, the dean of the Harvard School of Public Health and the commissioner of public health. As a nucleus for the collection, the Commonwealth Fund of New York has contributed fourteen volumes of its publications and a few writers on public health have donated copies of their books. It is hoped that additional gifts of books or money for the Bigelow Library will be made from time to time and sent to the librarian of the Boston Medical Library. According to the *New England Journal of Medicine*, two friends of Dr. Bigelow who prefer to be anonymous have presented to the library a bookplate, designed by Miss Mary Sears, to be placed in each book purchased by the fund. Each donor has received a print of the bookplate, which carries an excellent likeness of Dr. Bigelow. The fund was collected by a memorial committee, members of which were Drs. Henry D. Chadwick, Boston, chairman; Dr. Clarence L. Scamman, New York; Dr. Charles F. Wilinsky, Boston; Frank Kiernan, A.B., New York; Dr. Gaylord W. Anderson, Minneapolis; Dr. Walter P. Bowers, Clinton; Ida M. Cannon, R.N., and Curtis M. Hilliard, A.B., Boston; Dr. Benjamin Harrison Ragle, Boston; Dr. Wilson G. Smillie, New York, and Mr. Horace Morison.

MICHIGAN

Consultant on Maternal Health.—Dr. Alexander M. Campbell, Grand Rapids, has been appointed full time consultant to the bureau of maternal and child health of the state department of health. He will carry on a program jointly sponsored by the state medical society, the W. K. Kellogg Foundation, the University of Michigan and the state department of health, working with the maternal health committees of the county medical societies in the state, newspapers reported February 12.

New Maternity Service.—A new health service providing medical, nursing and hospital care for expectant mothers who otherwise would not be able to secure such care was to be started in Schoolcraft County March 15. Organized by the state department of health with social security funds, the service is under the immediate supervision of Dr. Ervin J. Brenner, director of the Alger-Schoolcraft Health Department in cooperation with the local physicians. Funds will be provided to pay physicians for complete obstetric service, including antepartum and postpartum care. Hospital care will be available when needed and the family physicians will be given nursing assistance for both home and hospital deliveries. Physicians wishing to use this service should submit their applications to Dr. Brenner's office in Manistique.

Meeting of Industrial Physicians.—The Michigan Society of Industrial Physicians and Surgeons will hold its annual meeting at the Hotel Olds, Lansing, April 19. The speakers will include:

L. J. Carey, LL.B., Detroit, general counsel, Michigan Mutual Liability Insurance Company, Medical Service for the Small Employer.
Dr. Gordon B. Myers, Detroit, professor of medicine, Wayne University College of Medicine, Sulfanilamide in Surgical Infections.
Dr. William L. Benedict, professor of ophthalmology, University of Minnesota Graduate School of Medicine, Rochester, Preventable Industrial Eye Accidents.
Dr. Frank T. McCormick, Detroit, Medical Relations in Industrial Surgery.

Warnings and precautions in management against disabling results from injuries will be given by the following: Drs. Alfred H. Whittaker, injuries to hips; Grover C. Penberthy, Detroit, elbows; Carl E. Badgley, Ann Arbor, backs; Max M. Peet, Ann Arbor, skulls.

NEVADA

Annual Registration Due May 1.—All persons holding licenses to practice medicine in Nevada are required by law to pay annually to the treasurer of the Board of Medical Examiners, on or before May 1, a tax of $2. Failure to do so operates to forfeit a licentiate's right to practice medicine and his license to practice can be reinstated thereafter only on the payment of a $10 penalty.

NEW MEXICO

Biennial Report of State Health Department.—The biennial report of the state department of public health for 1937 and 1938 indicates that the department has been enlarged by a division of health education, a school health consultant and a milk sanitarian. With funds provided by the Children's Bureau of the U. S. Department of Labor, a demonstration unit has been established in San Miguel County as a training field for public health nurses. Sixteen nurses have been added to the department's staff during the biennium, bringing the total number to seventy-four. Influenza was the most prevalent communicable disease in 1937 and measles in 1938; measles came second in 1937 and syphilis in 1938; 130 fewer cases of typhoid were reported in 1938 than the average for the five preceding years. Tuberculosis is one of New Mexico's major problems. In 1937 there were 1,392 cases reported of which 542 originated outside the state. The state's infant death rate, highest in the United States, is chiefly caused by diarrhea and enteritis. A dysentery research project, which has been in progress for several years, continues to operate. Through the U. S. Public Health Service the state has initiated a venereal disease control project in Bernalillo County. The engineering division in cooperation with the University of New Mexico made a survey of fluorine in public water supplies. Samples from 359 supplies were examined. Of 157 communities of considerable size, thirty-five were found to have water containing fluorine above the danger point of 0.9 parts per million. In the division of maternal and child health, established in 1936 under the provisions of the Social Security Act, the largest part of the funds have been used to increase the number of public health nurses working in rural areas. Maternity and child health clinics are conducted by physicians who are members of the state medical society. Since 1937, 900 of these clinics have been conducted, most of them by local physicians. A midwife consultant nurse has been added to the staff to instruct midwives, of whom there are about 800 in the state. The state laboratory has moved into a new building. In 1937 the laboratory examined 60,220 specimens and in addition performed 50,657 agglutination tests for Bang's disease in cooperation with the U. S. Bureau of Animal Industry. In 1938, 72,563 specimens were examined and 39,684 agglutination tests were performed. Tests for syphilis were made on 22,596 specimens in 1937 and 26,784 in 1938.

NEW YORK

Society News.—The New York State Association of Public Health Laboratories will hold its twenty-third annual meeting at Grasslands Hospital, Valhalla, May 8.——Dr. John E. Jennings, Brooklyn, addressed the Medical Society of the County of Nassau at Garden City March 28 on "Management of Carcinoma of the Colon."——Drs. Enrico C. Soldini, Staten Island, and Nathan Rosenthal, New York, addressed the Richmond County Medical Society in February at St. George on "Management of the Diabetic Patient" and "Diseases of the Blood" respectively.——Dr. Charles Gordon Heyd, New York, addressed the Medical Society of the County of Albany March 22 on "Diagnosis and Treatment of Cancer of the Colon and Rectum."

Alumni Clinical Day in Buffalo.—Alumni of the University of Buffalo School of Medicine will have their annual clinical day April 22 at the Hotel Statler, Buffalo. The speakers will be:

Dr. Elmore B. Tauber, professor of dermatology and syphilology, University of Cincinnati College of Medicine, Cincinnati.
Dr. Horton Casparis, professor of pediatrics, Vanderbilt University School of Medicine, Nashville, Tenn.
Dr. Edward H. Dennen, professor of gynecology and obstetrics, New York Polyclinic Medical School and Hospital, New York.
Dr. Harry E. Mock, associate professor of surgery, Northwestern University Medical School, Chicago.
Dr. Ernest Perry McCullagh, director of the department of endocrinology and metabolism, Cleveland Clinic, Cleveland.
David L. Thomson, Ph.D., professor of biochemistry, McGill University Faculty of Medicine, Montreal, Que.

The annual dinner will be held at the Statler.

New York City

Biggs Memorial Lecture.—Mr. Frederick Osborn, research associate in anthropology at the American Museum of Natural History, delivered the fourteenth Hermann Michael Biggs Lecture of the New York Academy of Medicine, April 6, on "Significance to Medicine of Present Population Trends."

Seventh Harvey Lecture.—Charles H. Danforth, Ph.D., professor of anatomy, Stanford University School of Medicine, San Francisco, will deliver the seventh Harvey Society Lecture of the current series at the New York Academy of Medicine April 20. Dr. Danforth will speak on "Genic and Hormonal Factors in Some Biological Processes."

Dinner to Eve Curie.—The New York City Cancer Committee of the American Society for the Control of Cancer will sponsor a dinner in honor of Mlle. Eve Curie, daughter of Pierre Curie and Madame Curie, discoverers of radium, Tuesday April 18. The dinner will be at the Cosmopolitan Club, 129 East Sixty-Fifth Street. Mlle. Curie is the author of the recent biography of her mother.

Friday Afternoon Lectures in Brooklyn.—The spring series of Friday afternoon lectures sponsored by the Medical Society of the County of Kings included the following lectures:

Dr. James Alexander Miller, Modern Approach to the Early Diagnosis of Pulmonary Tuberculosis, March 17.
Dr. Joseph E. Milgram, Subdeltoid Bursitis—Its Pathology, Differential Diagnosis and Office Treatment, March 24.
Dr. Theodore J. Curphey, New Contributions to Laboratory Medicine—Their Clinical Interpretations and Significance, March 31.
Dr. Harry M. Greenwald, Diagnostic and Therapeutic Aspects of Splenic Enlargement, April 14.

Large Chronic Disease Hospital Completed.—Construction has been completed at the new Hospital for Chronic Diseases on Welfare Island and the hospital will be opened about July 1, it was announced February 4, when a group of 1,500 physicians, nurses and social workers inspected the new institution. The hospital has four four-story ward buildings, with a seven story administration building in the center. The bed capacity of the hospital will be 1,600, and the building has cost almost $8,000,000. When it is opened 800 patients will be brought from other city institutions, thus relieving overcrowded buildings originally intended for acutely ill patients.

Society News.—A symposium on mental health problems was presented at a meeting of the Medical Society of the County of New York March 27 by Drs. Gerald R. Jameison, Severo Eugene Barrera, Karl M. Bowman and Lawrence S. Kubie.——The program of the Medical Society of the County of Kings March 21 included as speakers: Drs. Joseph Slavit, on "Socialized Medicine"; Kingsley Roberts, "Group Practice and Its Relationship to the Future of American Medicine"; Charles Gordon Heyd, "Medical Expense Indemnity Insurance," and Haven Emerson, "The National Health Program."——Drs. Burrill B. Crohn and Richard Lewisohn addressed the Bronx County Medical Society March 15 on medical and surgical aspects, respectively, of ulcer of the stomach and duodenum.——Dr. James A. Cahill Jr., Washington, D. C., addressed the Queensboro Surgical Society April 19 on "Trauma of the Abdomen and Chest."

Industrial Workers Tested for Tuberculosis.—The New York City Department of Health with the assistance of the Works Progress Administration is conducting tests among the 15,000 fur workers in New York to determine the prevalence of tuberculosis in this occupation. When the program among the fur workers is completed it is hoped that other occupational groups may be examined. Although this is the beginning of the tuberculosis service among industrial workers, the health department has examined more than 160,000 in its tuberculosis program among other groups, begun in December 1933. The tests have been given to 5,000 residents of or transients at the Municipal Lodging House, 14,000 high school children, 8,857 members of the National Youth Administration, 2,500 residents of West New Brighton, Staten Island, 4,000 men in the Rikers Island Penitentiary, 1,000 women in the Women's House of Detention, 1,000 Hunter College students, 1,000 students of the College of the City of New York and 600 of New York University. The percentage of infection among these groups runs from 0.5 per cent to 16 per cent. The highest percentage was found among the transients and homeless men of the Municipal Lodging House.

NORTH CAROLINA

Duke Celebrates Centennial.—Duke University announces a formal celebration of its centennial April 21-23. The entire scholastic year 1938-1939 was designated as a time for celebration of the century of development that has resulted in the Duke University of today. The university is built around Trinity College, which goes back to 1838-1839, when a group of Methodists and Quakers established a school they called Union Institute. The school kept this name until 1851, when it became a teachers' college and was called Normal College. Just before the Civil War the college was affiliated with the North Carolina Methodist Conference and named Trinity College, which continues today as the undergraduate college for men in the university. Duke was organized in 1924. In November 1938, the university presented a three day symposium on medical problems as part of the centennial observance (THE JOURNAL, Oct. 8, 1938, page 1389). At the coming ceremonies there will be discussions of "Southern Contributions to American Education," "Education and the Public" and "The University and the Nation."

OHIO

Personal.—Dr. Emily J. Widdecombe, Kent, for many years secretary of the Portage County Medical Society, was recently honored for her service. The society presented her a gold and amethyst bracelet.——Dr. Clyde W. Dawson, Columbus, has been appointed orthopedist in the medical section of the state industrial commission.——Dr. Edward S. Folk has recently been elected mayor of Canton.

Postgraduate Assembly at Youngstown.—The Mahoning County Medical Society will present its twelfth Annual Postgraduate Assembly in Youngstown April 20 with a group from the University of Pennsylvania School of Medicine, Philadelphia, as its guests. The following program is announced:

Dr. Charles C. Wolferth, Cardinal Features of Coronary Disease; Physical Examination of the Heart with Special Reference to Heart Sounds.
Dr. Eugene P. Pendergrass, Silicosis and Silicosis with Infection; Roentgen Therapy of Infections.
Dr. Richard A. Kern, General Principles of Allergy and Clinical Manifestations of Allergy (Part 1); Clinical Manifestations of Allergy and Principles of Diagnosis and Treatment (Part 2).
Dr. Joseph Stokes Jr., Recent Advances in the Study and Treatment of Certain Virus Diseases; Prophylaxis and Treatment in Certain Acute Infectious Diseases.

PENNSYLVANIA

Society News.—Dr. William Devitt, Allenwood, was elected president of the Pennsylvania Tuberculosis Society for the fifth time at its annual meeting in Pittsburgh February 14-15. Dr. Charles Howard Marcy, Pittsburgh, was elected secretary.

Philadelphia

Joint Obstetric Meeting.—The Obstetrical Society of Philadelphia entertained the New York Obstetrical Society, Obstetrical Society of Boston, the Pittsburgh Obstetrical and Gynecological Society and the Washington Gynecological Society April 6. Clinics were held in various hospitals during

the day and the Philadelphia group gave a dinner in the evening at the University Club, at which Dr. Benjamin P. Watson, New York, presided.

Society News.—Speakers at a meeting of the Philadelphia Urological Society March 27 were Drs. Charles H. de T. Shivers and Kenneth P. Henderson, Atlantic City, N. J., on "Tumors of the Bladder; A Review of 101 Cases" and Clarence R. O'Crowley, Newark, N. J., "Polycystic Kidneys."——Dr. Howard H. Bradshaw, among others, addressed the Laennec Society of Philadelphia, March 28, on "Neurogenic Tumors of the Thorax."——Dr. John F. Fulton, Sterling professor of physiology, Yale University School of Medicine, New Haven, addressed the Jefferson Neurological Society, March 22, at Jefferson Medical College, on "Hypothalamus and Regulation of Autonomic Function."

SOUTH DAKOTA

State Medical Meeting at Aberdeen.—The fifty-eighth annual session of the South Dakota State Medical Association will be held in Aberdeen April 24-26 under the presidency of Dr. John F. D. Cook, Pierre. The following guest speakers are on the program:

Dr. Edward D. Allen, Chicago, Diagnosis and Treatment of Leukorrhea; Diagnosis and Treatment of Endometriosis.
Dr. Don C. Sutton, Chicago, Arteriosclerosis—Etiology, Symptoms and Treatment.
Dr. Hewitt B. Hannah, Minneapolis, An Analysis of Factors in Personality Influencing Health.
Dr. Henry W. Meyerding, Rochester, Minn., Backache.
Dr. Henry L. Williams Jr., Rochester, Minn., Physiologic Phenomena Which Are Misinterpreted as Nasal Disease.
Dr. Joseph C. Ohlmacher, Vermillion, Practical Cooperation Between the Practicing Physician and the Diagnostic Laboratory.
Dr. Clifford J. Barborka, Chicago, Recent Advances in Nutrition.
Dr. Edwin M. Miller, Chicago, Bowel Obstruction in the Newborn.
Dr. Harry Culver, Chicago, Epithelial Tumors of the Bladder.
Dr. Fay H. Squire, Chicago, Diagnosis and X-Ray Picture of Peptic Ulcer During Medical Management.
Dr. Gerald J. Van Heuvelen, Pierre, Venereal Disease Control.

There will be clinics by Drs. Meyerding, Sutton, Culver, Barborka, Squire and Miller. The South Dakota Academy of Ophthalmology and Otolaryngology will hold its meeting Tuesday April 25 with the following speakers: Drs. Henry L. Williams Jr., Rochester, Minn., "Effect of Radium in Maintaining Patency in the Nasofrontal Duct" and "External Operations on the Frontal Sinus"; Walter H. Fink, Minneapolis, "Routine Ocular Muscular Investigation"; Henry P. Rosenberger, Bismarck, N. D., "Suppurations in the Neck," and Edward A. Rudolph, Aberdeen, "Perforating Injuries of the Eye."

TENNESSEE

Personal.—Dr. Fray O. Pearson, Livingston, has been appointed health officer of Hamilton County to succeed Dr. Jesse C. Eldridge, Chattanooga, resigned.——Dr. J. W. Erwin, Blountville, has been appointed health officer of Sullivan County to succeed Dr. Fred L. Moore, Blountville, who resigned to join the faculty of Long Island College of Medicine, New York.

New Graduate Courses at Vanderbilt.—A new series of graduate courses at Vanderbilt University School of Medicine, Nashville, is to be made available to physicians under the auspices of the Commonwealth Fund of New York, according to the *Journal of the Tennessee State Medical Association.* Four courses of one month's duration will be given, medicine and surgery from June 15 through July 17 and pediatrics and obstetrics from July 17 through August 17.

Society News.—Dr. James B. Neil, Knoxville, addressed the Knox County Medical Society, Knoxville, March 7 on prostatic resection.——Dr. Douglas Chamberlain, Chattanooga, addressed the Chattanooga and Hamilton County Medical Society March 23 on "Ménière's Disease" and Dr. Gene H. Kistler, Chattanooga, March 16 on "Pruritus Ani."——Drs. Duane M. Carr and James S. Speed, Memphis, addressed the Madison County Medical Society, Jackson, March 7 on treatment of pulmonary tuberculosis and causes of low back pain respectively.

TEXAS

Hospital News.—Dr. Michael A. Cunningham, medical director of the Holy Cross Sanatorium, Holy Cross, N. M., has been appointed superintendent and medical director of the Jefferson County Tuberculosis Hospital, Beaumont. Mrs. Caroline Van Zandt, who has been superintendent for several years, will remain at the hospital in an administrative capacity.

District Meeting.—Guest speakers at a meeting of the Northwest Texas District Society at Mineral Wells, February 14, were Drs. Willis C. Campbell, Memphis, Tenn., on "Surgery of the Hip"; Tinsley R. Harrison, Nashville, Tenn., "The Value of Drugs in the Management of Cardiac Disease"; Stanley George Wolfe, Shreveport, La., "Diagnosis and Treatment of Undulant Fever"; Edward H. Schwab, Galveston, "Diagnosis of Coronary Occlusion," and Homer Prince, Houston, "Practical Points in Treating Infected Allergic Patients."

Society News.—At a meeting of the Dallas County Medical Society March 9 the speakers were Drs. Charles L. Martin on "Treatment of Sterility by Fallopian Tube Inflation with X-Ray Control"; John E. Ashby, "Drugs in the Treatment of Congenital Syphilis," and Tate Miller, "Colitis."——Drs. Louis F. Hamilton and Ira L. Howell addressed the El Paso County Medical Society, El Paso, February 13 on "Uterine Fibroids" and "Amnesia" respectively.——Drs. Neil D. Buie and Howard O. Smith, Marlin, addressed the Falls County Medical Society, Marlin, January 9 on "Bright's Disease" and "Cancer of the Breast" respectively.——Dr. Louis F. Knoepp, Beaumont, addressed the Jefferson County Medical Society, Beaumont, January 9 on "Presacral Neurectomy."

UTAH

Society News.—Dr. Orin A. Ogilvie, Salt Lake City, recently addressed the Weber County Medical Society on the diagnosis, prognosis and treatment of malignant tumors of the skin.

Personal.—Dr. George N. Curtis, Salt Lake City, has been appointed medical director and superintendent of the Salt Lake County General Hospital, Salt Lake City, to succeed Dr. Robert J. Alexander, according to *Modern Hospital.*

VIRGINIA

Professor Retires.—Dr. Halstead S. Hedges has resigned as professor of diseases of the eye at the University of Virginia Department of Medicine, Charlottesville, after thirty-four years in that position. Dr. Hedges graduated from the university medical department in 1889 and took his medical degree there in 1892. After several periods of study in New York he was appointed professor in 1905.

Regional Meeting.—A symposium on diseases of the chest was presented at a meeting of the Southside Virginia Medical Association in Franklin March 21. The speakers were Drs. John A. Proffitt, Burkeville, "Early Signs and Symptoms of Tuberculosis of the Chest"; Porter P. Vinson, Richmond, "Aids in the Early Diagnosis of Primary Carcinoma of the Bronchus"; Wright Clarkson, Petersburg, "The X-Ray in the Diagnosis of Diseases of the Chest"; Louis H. Clerf, Philadelphia, "Bronchiectasis: A Consideration of Its Causes and Its Prevention" and Isaac A. Bigger, Richmond, "Surgery of the Chest."

Society News.——Dr. Priscilla White, Boston, addressed the Richmond Academy of Medicine March 7 on "Some of the Newer and Interesting Phases of Diabetes."——Dr. Edwin E. Barksdale, Danville, addressed the Patrick Henry Medical Society in Martinsville January 13 on cutaneous diseases of importance to the general practitioner.——At a meeting of the Roanoke Academy of Medicine January 9 the speakers were Drs. Charles W. Dorsey on "Obstetrical Analgesia, Amnesia and Anesthesia"; Charles H. Peterson, "Use of the Roentgen Ray in Diagnosis and Treatment of Mediastinal Diseases," and Roger H. Du Bose, modification of fresh cow's milk with use of honey.

WISCONSIN

Personal.—The village of Cashton and the surrounding community honored Dr. Cornelius H. Cremer with a reception February 17 celebrating his fiftieth anniversary in the practice of medicine. Dr. Cremer, 74 years old, is president of the state board of medical examiners. About 1,200 persons attended the celebration.

Society News.—Dr. Robert F. McNattin, Chicago, addressed the Brown-Kewaunee-Door County Medical Society, Green Bay, March 9 on "Treatment of Benign and Malignant Lesions by Radiation Therapy."——Dr. Albert W. Bryan, Madison, Wis., discussed "Management of Neurosis" before the Barron-Washburn-Sawyer-Burnett County Medical Society, Barron, March 7.——Dr. Horton C. Hinshaw, Rochester, Minn., addressed the La Crosse County Medical Society, La Crosse, March 14 on "Recent Advances in Treatment of Pneumonia."——Dr. Ovid O. Meyer, Madison, addressed the

Outagamie County Medical Society, Appleton, March 16 on "Diagnostic Considerations in Diseases of the Spleen" and Dr. Victor F. Marshall, Appleton, on "Some Indications for Splenectomy."——Dr. Walter A. Fansler, Minneapolis, addressed the Pierce-St. Croix County Medical Society, New Richmond, March 16 on "Treatment of Hemorrhoids and Anal Fissure." ——Drs. Benjamin B. Souster and Gordon R. Kamman, St. Paul, addressed the Polk County Medical Society, Amery, March 16 on "The Mechanism of the Heart Beat and Electrocardiography" and "Psychiatric Disorders Occurring in Middle Life" respectively.

Lectures and Clinics for Practitioners.—Lectures and clinics for practicing physicians will be held in Appleton April 18, in Madison April 19 and in Eau Claire April 20, a new activity under the auspices of the council on scientific work of the State Medical Society of Wisconsin. The speakers will be:

Dr. Alexis F. Hartmann, St. Louis, Immunologic Program in Family Practice.
Dr. Cleveland J. White, Chicago, Office Management of Syphilis.
Dr. Richard W. TeLinde, Baltimore, Office Gynecology; Practical Aspects of Gynecologic Endocrinology.
Dr. Francis D. Murphy, Milwaukee, Treatment of Acute Medical Emergencies.
Dr. Carl W. Eberbach, Milwaukee, The Acute Abdomen.
Dr. Leland S. McKittrick, Boston, Early Recognition and Early Eradication of Cancer.
Dr. Marion A. Blankenhorn, Cincinnati, Deficiency Diseases as Seen in Office Practice and Vitamin Therapy.

GENERAL

St. Louis University Alumni Dinner.—The alumni of St. Louis University School of Medicine will hold a reunion dinner at the Missouri Athletic Association, St. Louis, May 17, 6:30 p. m. Additional information may be obtained from the alumni office, 221 North Grand Boulevard, St. Louis.

Guggenheim Foundation Awards.—The *John Simon Guggenheim Memorial Foundation* has announced its annual award of fellowships. They include the following in the field of the biologic sciences:

Leland S. McClung, Ph.D., instructor in research medicine, Hooper Foundation for Medical Research, University of California, for studies of certain disease-producing and food-spoiling bacteria.
Dr. Henry N. Harkins, instructor in surgery, University of Chicago, for research into the nature and causes of surgical shock.
Alfred George Marshak, Ph.D., Boston, physiologist, for investigation into the mechanism of chromosome division.
Isidore Gersh, Ph.D., instructor in anatomy, Johns Hopkins University School of Medicine, Baltimore, for studies of the intracellular distribution of certain organic compounds.

Special Society Elections.—Dr. James D. Bruce, Ann Arbor, Mich., was named president-elect of the American College of Physicians at the annual meeting in New Orleans March 30. Dr. Oliver H. Perry Pepper, Philadelphia, was installed as president and the following vice presidents were elected: Drs. Allen A. Jones, Buffalo; Gerald B. Webb, Colorado Springs, Colo., and James Morrison Hutcheson, Richmond, Va.——Dr. John J. Morton Jr., Rochester, N. Y., was elected president of the American Society for the Control of Cancer at the annual meeting of the board of directors in New York March 4. George H. Smith, Ph.D., New Haven, Conn., is vice president and Dr. Frank E. Adair, New York, secretary.

Special Itineraries to Biologists' Meeting.—Three separate itineraries have been planned for persons attending the Federation of American Societies for Experimental Biology in Toronto April 27-29. Itinerary number 1, leaving Chicago April 25 at 11:59 p. m., includes a day in Detroit with a trip to the Ford plant and museum. Trip number 2 will leave April 25 at 8 p. m. and trip number 3 Wednesday April 26, 8 p. m. Rates for these all-expense tours represent substantial savings. Those who wish to make the trip must signify their intentions not later than Monday April 17. Further information may be obtained from Dr. Arno B. Luckhardt, department of physiology, University of Chicago, Chicago; telephone: Midway 0800, local 963.

Pan-Pacific Surgical Meeting.—The third congress of the Pan-Pacific Surgical Association will be held in Honolulu September 15-28 under the presidency of Dr. J. Hardie Neil, Auckland, N. Z. Motion pictures will be featured especially at the meeting and those who wish to present films are urgently requested to send them, registered, to Dr. Howard L. Updegraff, chairman of the section on surgical movies, 6777 Hollywood Boulevard, Hollywood, Calif., for technical editing. Among other features will be a hospital institute. The program chairman for the United States is Dr. Frederick L. Reichert, San Francisco. Surgeons interested in obtaining further information may write to Dr. Reichert or to Dr. Forrest J. Pinkerton, Honolulu, secretary of the association.

American Pediatric Society.—The fifty-first annual meeting of the American Pediatric Society will be held April 27-29 at Skytop Lodge, Skytop, Pa. Among the addresses on the program will be:

Drs. Gilbert M. Jorgensen and Henry S. Christian, New York, Treatment of Pneumococcal Infections in Children with Sulfapyridine.
Dr. Edward C. Curnen Jr., Boston, Serum Treatment of Type XIV Pneumonia.
Dr. Henry J. Gerstenberger, Cleveland, Experience with the Use of Phosphate for Treatment of Infantile Rickets.
Dr. Frederic W. Schlutz, Chicago, Physical Fitness of the Child as Reflected by Cardiovascular and Blood Serum Changes During Exercise.
Dr. Joseph Stokes Jr. and Dorothy R. Shaw, Philadelphia, Comparative Studies of the Antibody Response of Individuals Vaccinated with Human Influenza Virus.
Dr. Alfred Hand, Philadelphia, Two Complete Recoveries from Cretinism.
Dr. Irvine McQuarrie and Mildred R. Ziegler, Minneapolis, Experimental Studies Concerning the Pathologic Physiology of Insulin Convulsions.

Dr. Clifford G. Grulee, Evanston, Ill., is president of the society.

Commission on Graduate Medical Education Meets.—"Considerable progress is being made in the clarification of the place of the internship, the residency, the short postgraduate courses and other educational opportunities in the broad field of graduate medical education," declared Dr. Willard C. Rappleye, New York, chairman of the Commission on Graduate Medical Education, following a meeting of the commission in New York City April 1. "With the cooperation of medical and hospital leaders, the commission hopes to offer constructive suggestions regarding needs now existing in the field of graduate medical education and opportunities for developing more adequate educational facilities by medical schools, hospitals, national and local medical organizations and specialty societies. It is felt that the need for more adequate graduate and postgraduate medical training is pressing and has been sharpened by the formation of the twelve specialty boards. It is gratifying to find that interest in these fields is now so widespread that it appears certain that hospitals, medical schools and other agencies will develop satisfactory programs to meet this need in the near future." The commission expects to complete its work within a year and at that time will publish a full report of its observations and conclusions.

National Academy of Sciences.—The annual meeting of the National Academy of Sciences will be held at its headquarters, 2101 Constitution Avenue, Washington, D. C., April 24-25. The speakers on the scientific program include:

Dr. Warren H. Lewis, Baltimore, Changes in Viscosity and Cell Activity.
Karl Sax, Sc.D., Arnold Arboretum, Jamaica Plain, Mass., The Time Factor in X-Ray Irradiation.
Dr. August Krogh, Copenhagen, Denmark, The Active Uptake of Ions by Organisms.
Duncan A. MacInnes, Ph.D., and Lewis G. Longsworth, Ph.D., New York, Electrophoretic Studies in Blood Studies on Blood Sera.
Gioacchino Failla, D.Sc., and Kanematsu Sugiura, New York, Experimental Results Supporting the "Fluid Flow" Theory of the Biological Action of Ionizing Radiations.
Dr. Herbert M. Evans and Gladys A. Emerson, Ph.D., Berkeley, Calif., Degrees of Sterility in the Female Rat Held on E-Free Rations.
Dr. Henry Borsook, Dr. Marshall Y. Kremers and C. G. Wiggins, Pasadena, Calif., Relief of Symptoms in Major Trigeminal Neuralgia (Tic Douloureux) Following the Administration of Massive Doses of Vitamin B Supplemented in Some Instances by Concentrated Liver Extract.
Dr. Walter B. Cannon, Boston, A Law of Denervation.

Warning Against Impostor.—Wake Forest College, N. C., and the University of Pennsylvania School of Medicine, Philadelphia, have reported activities indicating that an impostor is attempting to use credentials of a graduate of the two schools. Herman William Farber, formerly of Weldon, N. C., graduated from Wake Forest in 1930 with the bachelor's degree and from the two year school of medicine in 1932. He then finished his medical course at the University of Pennsylvania, graduating in 1934. In September 1938 both schools received letters signed Herman William Farber and requesting copies of his diplomas because the originals had been destroyed by fire. In addition the letters asked for official transcripts of credits for presentation to state licensing boards. Wake Forest sent the transcripts of Farber's college record, both liberal arts and medicine, to Farber at Evansville, Ind., as he requested. Later he wrote to ask if the Wake Forest officials would affix the college seal to the transcripts. The college agreed to do this but reports that the transcripts were never received. Late in October the duplicate diplomas were sent to Farber in care

of General Delivery at Evansville. The real Dr. Farber is living in Richmond, Va.; he has had his diploma since graduation and has never been in Evansville.

Annual Meeting of Health Officers.—The fifty-fourth annual meeting of the Conference of State and Provincial Health Authorities of North America will be held at the U. S. Public Health Service, Washington, D. C., April 21-22, under the presidency of Dr. Felix J. Underwood, Jackson, Miss. The speakers will include:

Lowell J. Reed, Ph.D., Baltimore, The Standard Million of Population.
Dr. Wilson C. Williams, Nashville, Tenn., Coordination of Health Education Between State Departments of Health and Public Instruction.
Dr. John O. Bower, Philadelphia, Public Health Aspects of Appendicitis.
Dr. Gregoire F. Amyot, Vancouver, B. C., British Columbia Program for Medical Care.
Dr. George C. Dunham, U. S. Army, Typhoid Vaccine, Duration of Immunity, Methods of Administration.
Dr. Wilbur A. Sawyer, New York, The Health Officer's Interest in Virus Diseases.
Dr. Haven Emerson, New York, Current Practice in Communicable Disease Control.
Dr. Eugene L. Bishop, Chattanooga, Tenn., What Constitutes Public Health from an Administrative Standpoint.

Sunday morning April 23, through the courtesy of Col. Joseph F. Siler and Lieut. Col. George C. Dunham, medical corps, U. S. Army, a demonstration of the manufacture of typhoid vaccine and pneumonia vaccine, among other things, will be given at the Army Medical School laboratory.

FOREIGN

Society News.—The fourth World Congress of Workers for the Crippled will convene in London July 16-22 under the auspices of the International Society for Crippled Children and the English Central Council for the Care of Cripples. The program will deal with the industrial cripple, education and preventive orthopedics in childhood. Those desiring accommodation on the convention ship, the S. S. *American Merchant*, may secure space by writing to H. W. Roden, Travel Bureau, Mellon National Bank, Pittsburgh.

Cameron Prize Awarded to Professor Domagk.—The University of Edinburgh has awarded the Cameron Prize for 1939 to Prof. Gerhard Domagk, director of the Institute for Experimental Pathology, I. G. Farbenindustrie, Elberfeld, Germany, for his discovery of the treatment of bacterial diseases by compounds of the sulfonamide group. Dr. Domagk is 43 years old and a graduate in medicine of the University of Kiel. The Cameron Prize, amounting to about £200, is awarded annually to the person who in the opinion of the university senate has in the previous five years made any highly important and valuable addition to practical therapeutics.

Congress on Life-Saving and First Aid.—The fifth International Congress on Life-Saving and First Aid to the Injured will be held in Zurich and St. Moritz, Switzerland, July 23-28. All agencies concerned with life-saving and first aid are invited to send delegates. Eight sections are being organized: rescue work and first aid in catastrophic events and international traffic; first aid to the injured in general; organization of first aid, rescue work and first aid (including protective measures); first aid on the coast and inland waters; first aid at sporting events and the history and idea of life-saving and first aid. The languages of the congress will be French, German, Italian and English. Inquiries should be addressed to the Secretariat of the fifth International Congress for Life-Saving and First Aid to the Injured, Schmelzbergstrasse 4, Zurich, Switzerland.

Missionary Society One Hundred Years Old.—The Canton Medical Missionary Society has been in existence 100 years. Because of the military occupation of the city, commemoration of the centenary has been postponed. The society was founded by three missionaries, two of whom were physicians, in 1838 for the principal purpose of conducting the Canton Hospital, founded three years earlier. A further object was to establish and maintain hospitals and dispensaries throughout China. The present hospital was opened in 1935. At that time also the cornerstone was laid for the Dr. Sun Yat Sen Medical College. During the past year it has cared for hundreds of victims of aerial bombing and is still functioning, though full of poor patients, admitted chiefly from refugee camps, according to a newspaper account. Dr. William W. Cadbury is superintendent of the hospital. The society has constantly worked with the foreign mission boards, which have provided and maintained the physicians to staff its hospitals; present operation of the hospital is made possible by contributions from the International and the American Red Cross.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 18, 1939.

Gas Masks for Babies

The whole civilian population of the country has been supplied with masks protective against gas attacks from the air, but the problem of producing a mask suitable for young children has proved difficult. After three years of continuous research a mask has been made for children under the age of 2 years. It resembles a helmet and consists of a hood of impervious fabric fitted with a large window of cellulose acetate. The hood encloses the head, shoulders and arms of the child and is closed round the waist by a draw-tape. The baby inside can thus move its arms and put its hand to its mouth—an important point, it was found, in keeping the baby quiet. The hood is surrounded by and fastened to a light metal frame, which is lengthened on the under side and fitted with an adjustable tailpiece as a support and protection for the child's back. The tailpiece is turned up at the end to form a seat, which prevents the child from slipping out of the hood. The child is made secure in the helmet by means of a T shaped supporting strap connected to the end of the tailpiece. The hood is padded on the under side, where the child rests. Air is supplied to the inside of the hood by a rubber bellows. The air passes through a container which removes all poison gas, and it enters the hood at the top through an orifice which deflects it upward so that it sweeps out all vitiated air from the hood and also prevents the stream from blowing directly on the child's head. The space in the hood is large enough to allow pumping to be stopped for several minutes if required. Tests have shown that these masks are worn without inconvenience to the child and that they are effective in an atmosphere of lethal gas. For children between the ages of 2 and 5 years a special mask, similar to that for adults but with modifications introduced for the sake of comfort and further security, is being produced.

A Gestation Period of 174 Days

In the divorce court the fact that the earliest possible date for conception after marriage allowed a maximum of only 174 days for a child who survived birth was given as sole evidence of adultery on the part of the wife. In giving judgment the president said that this was the most remarkable case with which he had had to deal. There was not a shred of evidence that the wife was conducting any sort of association with another man. He quoted from Taylor's textbook, "Principles and Practice of Medical Jurisprudence": "It would be in the highest degree unjust to impute illegitimacy to offspring or want of chastity to parents merely from the fact of a 6 months child being born and surviving birth." He could dispose of the case on that passage, but there was also the evidence of the very experienced midwife that this and one other child were the most extreme cases of premature birth which she had seen in her experience of thirty years. The president was satisfied that the child was conceived in wedlock and dismissed the husband's petition but granted the wife a divorce on the grounds of the husband's adultery. It should be noted that in this case the age of the child at birth was exactly 6 lunar months and therefore less than 6 calendar months.

The Improved Health of the People

In the House of Commons the labor party claimed that malnutrition was prevalent, for which the government should provide a remedy. It may be pointed out that our people are the best fed in Europe and that the expenditure on the social

services, which include free meals for school children, is enormous. In the debate it was stated that the purchasing power of the working class was four times what it was at the time of the battle of Waterloo. Mr. Elliot, minister of health, said that the government had introduced the subject of nutrition into national discussion and had taken action in the light of the newer knowledge. The consumption of milk by school children had gone up and they were keeping up pressure on agriculturists to insure a pure supply. The following statistics showed the extent to which malnutrition was being repelled. In 1927 infant mortality was 70 per 1,000 and today it was 58; maternal mortality was 4.11 per 1,000 against 3.26 today. Maternal mortality from puerperal sepsis had fallen from 1.97 in 1927 to 0.98. The tuberculosis mortality had fallen from 79 in 1927 to 56 today. All indications pointed to an improvement in nutrition of children. A comparison between 1927 and 1937 showed that boys in Leeds were more than 1 inch (2.5 cm.) taller and 3½ pounds (1.5 Kg.) heavier and in Huddersfield were 1½ inches (3.7 cm.) taller and more than 5 pounds (2.5 Kg.) heavier.

PARIS

(From Our Regular Correspondent)

March 11, 1939.

Treatment of War Injuries Accompanied by Severe Hemorrhage

At the February 14 meeting of the Académie de médecine of Paris, two leading army surgeons, Maissonet and Barthélemy, reviewed recent progress in the treatment of certain types of war injuries. A severe hemorrhage can threaten life under one of three conditions: 1. An artery of medium caliber is divided, but, during a battle, the injured soldier cannot be transported immediately and the bleeding continues for several hours, until extreme anemia supervenes. 2. An artery of large caliber is sectioned. Even though immediate care is given in both these forms of injury, the wound is either fatal or the soldier is found exsanguinated. 3. Multiple injuries to soft parts are individually of minor importance but the sum total is such that the soldier is found in an extremely anemic state. The treatment of these three types of injuries should be both local and general. As to the first, if an artery of moderate caliber in an extremity has been divided, after application of a tourniquet on the proximal side the soldier should be sent to the nearest casualty clearing station for more thorough treatment. If a large artery of an extremity has been sectioned, the only hope is that some one can close the opening digitally until a tourniquet is applied. For use in case of injury to a large artery of the neck, every front line surgeon should be provided with a set of sterile instruments for opening the wound and applying forceps to the bleeding vessel preparatory to transportation of the wounded man behind the lines. Many lives can be saved by this procedure. In the case of multiple wounds none of which involve an artery or vein of any importance, only firm compression with dressings is indicated, because treatment of multiple injuries at the front involves too much shock.

The general treatment includes blood transfusion and serotherapy. These should be employed only at a casualty clearing station equipped with facilities to permit care of the wounds at the same time. The use of citrated refrigerated blood is the only feasible method of transfusion except during a battle with sudden changes of the front lines, when it may be difficult to reach the injured with automobiles or airplanes carrying the conserved blood. During the Spanish war it was found that conserved blood was invaluable except during offensives and periods of instability of the front lines. By serotherapy is understood here the replacement of the blood which has been lost by the intravascular injection of artificially prepared substitutes, such as saline or acacia solutions. The disadvantages of the saline solutions are that they lack viscosity and osmotic pressure, the latter because of an insufficient quantity of colloids. Sherrington and Copeman have shown that saline solutions leave the circulation in less than an hour and a half after injection. Normet in 1929 proposed the addition of small quantities of the citrates of sodium, calcium, magnesium, iron and manganese to a 0.9 per cent saline solution. Gosset, Tzanck and Charrier (*Presse médicale,* Dec. 20, 1930, p. 1745) found that Normet's polycitrate solution, although not a substitute for blood, was not excreted as rapidly as physiologic solution of sodium chloride.

The best substitute for blood transfusion has been found to be injection of acacia solution as proposed by Bayliss; this solution is retained in the vessels long enough to enable the blood-forming organs to begin to function. Blood transfusion or, if no blood is available, injection of physiologic solution of sodium chloride or the Bayliss solution should be performed simultaneously with and not before local hemostasis. Every casualty clearing station should have an ample supply of flasks containing either the sterilized Normet polycitrate solution or the Bayliss acacia solution. In addition, every such advance center should have ready, as soon as an offensive begins, a supply of conserved refrigerated blood susceptible of being utilized within eight days of its collection from civilian donors as explained in a previous letter.

Sulfanilamide for Meningococcus B Meningitis

A case was reported at the January 20 meeting of the Société médicale des hôpitaux of Paris by the navy surgeons Germain and Gautron in which recovery from meningitis due to meningococcus B followed the use of sulfanilamide. A sailor aged 42 presented the typical clinical picture of meningitis. Cultures of the cerebrospinal fluid revealed the presence of meningococcus B. Without waiting for the results of the examination of the spinal fluid, the patient was given sulfanilamide immediately on admission to the hospital, at first 8 Gm. daily by mouth. During the first three days and again on the fifth day, from 20 to 30 cc. of an 0.8 per cent solution was given intraspinally. Altogether, 107 Gm. of sulfanilamide was given. Twenty-four hours after treatment was begun there were a drop in the temperature and a decrease in the headache and somnolence. At the end of forty-eight hours the temperature was normal, there was less rigidity of the neck and cultures of the spinal fluid were sterile. The only complication was a slight cyanosis of forty-eight hours' duration. Recovery was complete eighteen hours after the beginning of treatment.

Death of Dr. Antoine Béclère

The dean of French radiologists, Dr. Antoine Béclère, died February 25 in Paris at the age of 82. About a year after the discovery of the x-rays Béclère was present during a radioscopic examination for suspected pulmonary tuberculosis. He immediately foresaw the future of this new method of diagnosis and began to devote his energies to its clinical application, being one of the first to recommend the use of a dark room and of a fluoroscope in the examination of lesions of the chest. He soon extended the roentgen method to the diagnosis of pathologic changes in other viscera and then began to study the effects of roentgen therapy on neoplasms. He was elected a member of the Academy of Medicine of Paris as a recognition of his contributions to the development of roentgenology. During the World War Dr. Béclère was in charge of a school in which radiologists were trained for service in army hospitals. After the war and until a few weeks before his death, he took a vigorous part in the activities of the various medical societies in France and foreign countries. He suggested the use of iodized oil as an opaque medium in

the diagnosis of uterine and tubal lesions. During the past twenty years he had become interested in the relation of ovarian and testicular tumors to the hypophysial hormones and in many other research problems. In 1936 many of his former pupils met to celebrate the eightieth birthday of this untiring worker, who until a few days before his death was busy editing a paper on experimental studies at the Radium Institute of Paris. In addition to serving a term as president of the Academy of Medicine, the leading society here, Dr. Béclère was an honorary member of many French and foreign medical organizations.

BERLIN

(From Our Regular Correspondent)

Feb. 27, 1939.

The Quinine-Calcium Treatment of Pneumonia

Professor Kalk, a pupil of Professor von Bergmann and director of a large Berlin hospital, recently discussed the quinine-calcium treatment of pneumonia before the Berlin Medical Society. The pneumonia mortality has at present come to exceed that of tuberculosis; in many hospitals every fifth patient and in some instances every second patient succumbs to the disease. Moreover, as it is now seventeen years since the introduction of quinine therapy by von Bergmann, comparison of this method with serotherapy has become possible. Within the past four years Kalk has observed more than 2,000 cases of pneumonia. The picture often varies according to the age group; bronchopneumonia preponderates among children, lobar pneumonia is most important among younger adults, whereas bronchopneumonia again comes to the fore among the elderly. This linear scheme may be extended into the immunobiologic circular scheme of the negative and positive anergy. Kalk regards pneumonia as a secondary illness; in virtually all his cases a meticulous study disclosed the history of some infection, such as a mild influenza or a cold, which had been manifested from two to three weeks previously. When later the patient experienced chills, the earlier, minor disturbance would tend to be forgotten. This circumstance suggests the concept of nonspecific sensitization, as developed by von Bergmann and the Berlin pathologic anatomist Professor Rössle.

Kalk discussed the influence of weather on the pneumonias and reported observations of the interrelation of normal atmospheric temperature and relative humidity. If the temperature is lowered and the moisture content of the air is high (as in oceanic drops in temperature originating in the west) the pneumonic morbidity curve will exhibit a sharp upturn, conditioned by the great concomitant deprivation of heat; the coolness of the weather may be still further enhanced by strong winds. The author found that vitamin C deficiency increases susceptibility to pneumonia and acts unfavorably on the course of the disease.

Professor Kalk himself has had pneumonia six times and in three of these instances cut short his illness by the use of quinine. He is a confirmed advocate of parenteral quinine therapy combined with the administration of calcium. If utilized in time, this procedure bids fair not only to arrest the pneumonia but also to inhibit infiltration. If infiltration is already present, the procedure appears as a rule to induce earlier resolution. Parenteral quinine-calcium therapy is thus effective at times when the use of quinine alone does not suffice. Kalk was able to obtain like results in bronchopneumonia by the utilization of similar quinine preparations.

The pneumonia mortality among Kalk's clinical material has shown a decline of from around 23 per cent to 16 per cent since the utilization of quinine-calcium preparations. In army hospitals, according to the latest reports, the decline has been from 9.8 per cent to 4.9 per cent. The army figures provide the best possible illustration of how effective this therapy can be if it is introduced in the initial stage of the illness; this timely treatment is particularly feasible in the army, thanks to the highly efficient organization of the medical corps. Kalk discusses reports of lesions allegedly caused by quinine therapy. He considers the use of the term "lesions" here unjustifiable. In a total of 60,000 injections of quinine only seven, according to the author's observations, were followed by the formation of an abscess; in addition, paralysis of the peroneal muscles was observed in but one instance. From the foregoing data it will be seen that in view of the enormous advantage of this therapy one cannot correctly speak of it as "dangerous." As to serotherapy, Kalk simply remarks that, although at present thirty-two different strains of pneumococci are differentiated, thus far the mortality has been lowered only in cases based on types I and II, and then never by as much as 50 per cent. For this reason as well as on account of the greater expense involved, the author feels unwilling to recommend serotherapy. It would seem that Kalk has never carried on any large scale studies of serotherapy, such as would form a true basis for comparison. But even in the absence of a comparative evalution his data on the favorable results of quinine-calcium therapy are still interesting.

AUSTRALIA

(From Our Regular Correspondent)

March 1, 1939.

The Association for the Advancement of Science

The twenty-fourth biennial meeting of the Australian and New Zealand Association for the Advancement of Science was held in Canberra January 11-18. Attracted by the unique circumstances of meeting at the federal capital and by the fact that the association executive had succeeded in securing the presence of several overseas notables, a record membership of 1,200 delegates attended the meeting. Overseas visitors included Prof. Ralph Carr and Dr. Anita Muhl, representing the American Association for the Advancement of Science; Prof. F. T. Brooks, representing the British Association; Sir E. John Russell, Rothampstead Agricultural College; Prof. N. V. Sidgwick (Cambridge), noted chemist; Sir John Flett, Sir George Simpson and Mr. H. G. Wells. The sections represented were mathematics, physics, astronomy, optometry, geology, zoology, history, anthropology, economics, statistics and social science, engineering and architecture, medical science and national health, education, psychology and philosophy, agriculture and forestry, veterinary science, botany, physiology, pharmaceutic science, geography and oceanography. The congress was perhaps disappointing to the extent that little official attempt was made to relate the discoveries of science to the personal experience of everyday life and no constructive recommendation of any social significance emerged from it.

THE AUSTRALIAN JOURNAL OF SCIENCE

The Australian National Research Council, which was derived from the association some years ago, has, after a period of independent existence, now become in effect a committee of the association. The council has commenced the publication of a journal of the type of *Nature*. This journal now appears bimonthly as the *Australian Journal of Science*. The journal aims to cover a field including short advance summaries of research, periodic accounts of recent work in various branches of science, book reviews, proceedings of scientific societies, doings in Australian universities and museums, current news, personal information and correspondence.

HEART SIZE IN RELATION TO EXERCISE

Dr. Fritz Duras, director of physical education in the University of Melbourne, submitted a paper on heart size in relation to exercise. He discussed the results he had obtained from the

measurement of heart size after various types and intensities of exercise. Measurements were made of the lateral diameter on a fluoroscopic screen. He had found that heart size decreased during static work, increased during moderate dynamic work and increased only slightly, if at all, during more strenuous work. After exercise the size of the heart fluctuated about a continually increasing mean size and might not return to preexercise measurement for forty-eight hours. He also considered the possibility of complete relaxation of heart muscle being prevented by fatigue. The normal heart could not be damaged even by the most strenuous exercise but the normality must be established by proper medical examination.

MAXIMUM POWER OF HUMAN WORK

Considering the maximum power of human work, Dr. F. S. Cotton of Sydney has found champion cyclists to be able to work for five minute periods at rates in excess of one-half horse power. These figures are materially higher than the highest recorded figures for this period of work, namely those of Olympic oarsmen, in spite of the fact that the latter figures included a somewhat arbitrary allowance for work not used in propelling the boat.

TISSUE INJURY BY RADIANT ENERGY

Drs. C. H. Kellaway and E. R. Trethewie reported the results of recent experiments carried out at the Walter and Eliza Hall Institute, Melbourne. Injury by radiation caused the isolated lung preparation to liberate histamine in a manner similar to a number of pharmacologically active substances, such as venoms and peptone. The injurious effect of light on tissues sensitized by dyes was not confined to regions normally exposed to radiation. Histamine was destroyed by photodynamic action in the presence of oxygen, as for instance in suspensions of ground lung tissue, when the histamine content disappeared on exposure to light. The response of histamine of an isolated jejunum preparation of a guinea pig sensitized with hematoporphyrin protoporphyrins rapidly diminished on exposure to light. Methylene blue caused increased sensitivity of the intestine to histamine in the dark; in bright illumination the effect rapidly diminished. Eosin had a slow contracting effect on the intestine, which in bright illumination failed to relax readily following histamine contractions. The injury to muscle cells in these experiments was such that they failed to respond to the histamine, which was almost certainly set free and which might also have been destroyed by photodynamic action.

CHEMISTRY OF HEMOGLOBIN METABOLISM

In a paper on the chemistry of hemoglobin metabolism, Dr. R. Lemberg of Sydney said that it had heretofore been assumed that hematin and porphyrin were intermediate products in the change from hemoglobin to bile pigments, the removal of protein being followed by that of iron and the porphyrin transformed into bilirubin. It could now be shown that the real intermediate products were bile pigment-hematin compounds and biliverdin, the oxidative opening of the porphyrin ring occurring before the removal of protein and iron. The reaction began with the hydrogenation of oxyhemoglobin. Among the intermediate compounds were those with "easily detachable iron." Finally, biliverdin was reduced by dehydrogenase systems to bilirubin. In the intestine bilirubin was reduced to urobilin. The iron from the bile pigment-hematin compounds was used for the synthesis of hemoglobin, but nothing was known about the synthesis of the porphyrin ring in the animal body. In different circumstances oxidations might occur at the side chains and not on the porphyrin nucleus. Under these conditions biologically important catalysts might be formed.

Dr. Lemberg exhibited his own preparations of many of the blood pigments and their intermediate products.

SYMPOSIUM ON ANIMAL PIGMENTS

Contributing to a symposium on animal pigments, J. W. Legge of Sydney discussed the physiologic disintegration of hemoglobin in the animal body. He supported Lemberg's theory and presented evidence for the formation of intermediate bile pigment-iron-protein by oxidation of the a-methene bridge of the porphyrin molecule of hemoglobin. With choleglobin, the best known of these compounds, reversible combination with oxygen and carbon monoxide could be observed spectroscopically. By action of ascorbic acid on hemoglobin in air a second similar compound was formed. Both compounds occurred in normal erythrocytes and were formed when blood containing dissolved hemoglobin was perfused through the spleen, or after in vivo hemolysis by the action of distilled water, arsine or phenylhydrazine. From these intermediate compounds, removal of iron and protein gave biliverdin. Both dehydrogenases could reduce this to bilirubin.

VIRUS ACTIVITY OF SOME PROTEIN MOLECULES

R. J. Best of Waite Institute, Adelaide, described his recent work which had resulted in the separation of certain viruses in a chemically pure state and had demonstrated that they were proteins. He showed evidence for the identity of protein and infective principle in the case of certain plant viruses and described some aspects of the gross physical structure of the virus as revealed by x-ray analysis and optical means. He mentioned a few of the properties of viruses most likely to influence biologic activity and touched on problems relating to strain variation, mutation and possible methods by which viruses might multiply. The virus molecules built themselves into long chains, quite readily visible microscopically in polarized light. These chains were readily broken up mechanically but on standing they formed again. In subsequent discussion it was considered questionable whether the purified virus proteins could be regarded as crystals, as they were only two dimensional. True crystals on the other hand were characterized by definite angles between faces in three planes. The multiplication of virus could not be considered apart from its association with the host. It was built on the cell mosaic of the host cell. It was doubtful whether the increase of virus protein in infected cells could be regarded as a multiplication of these protein molecules. It might be considered that the virus modified the metabolism of the cell in such a way that some virus protein was produced by it in place of its normal protein. It was also suggested that the virus might be regarded as a proteolytic enzyme which, acting on the cell proteins as substrate, produced from them virus protein as one of the products of its action.

Marriages

LAURA C. GAETJENS, Oradell, N. J., to Mr. J. Perry Morris of Norfolk, Va., in Pensacola, Fla., February 19.

EDGAR GILMORE GIVHAN JR., to Miss Margaret Woodward Spencer, both of Birmingham, Ala., February 22.

JAMES B. GILLESPIE, Urbana, Ill., to Mrs. Emily Reeve of Paxton, in San Antonio, Texas, February 27.

CARL NORMAN GIERE, Minneapolis, to Miss Helen Louise Butler of Fort Sill, Okla., January 27.

EDWARD HUMPHREYS HERRING to Mrs. Lucile Sherrod Collins, both of Raleigh, N. C., January 7.

PAUL HAYNE CULBREATH JR., Ellenton, S. C., to Miss Sara Miller of Hodges, Dec. 29, 1938.

PHILIP H. NIPPERT, Atlanta, Ga., to Miss Lucille Garrison of Miami, Fla., February 8.

LEWIS KARL HOHERMAN to Miss Esthermae Bogan, both of Philadelphia, recently.

SOL NEIDICH to Miss Evelyn Rudowitz, both of Beaufort, S. C., Dec. 25, 1938.

JOHN S. HAINES, Baltimore, to Miss Clara Elizabeth Ward, January 14.

Deaths

William Hallock Park ⊕ *eminent as a medical contributor* to the field of public health and noted as a bacteriologist and immunologist, died in New York April 6 of heart disease. Dr. Park was born in New York Dec. 30, 1863. After graduation from the College of the City of New York in 1883 he received the degree of doctor of medicine at Columbia in 1886. Following three years of internship at Roosevelt Hospital he went to Vienna during 1889-1890, returning to New York to take up practice as a specialist in diseases of the nose and throat. While engaged in this work he carried on research at the College of Physicians and Surgeons, concerning himself particularly with diphtheria. This work commanded the attention of Dr. Hermann M. Biggs, who at the time was professor of bacteriology and hygiene at New York University and also in charge of one of the divisions of the New York City Health Department. Dr. Park was appointed bacteriologic diagnostician of diphtheria in the city health department and director of its research laboratory in 1894. There the first municipal bacteriologic laboratory in the United States was organized. The methods of diagnosis, control and prevention of communicable disease originated under Dr. Park have since been adopted throughout the world. For forty-two years, until the time of his retirement, Dr. Park continued his labors as active head of the public health laboratory, serving as consulting bacteriologist to the New York State Department of Health from 1914 onward, medical examiner in bacteriology from 1917 and consulting bacteriologist at the U. S. Quarantine Service from 1921.

In 1898 Dr. Park was appointed adjunct professor of bacteriology and hygiene at the New York University; in 1899 he became associate professor and in 1900 professor, holding this position until 1933, when he became first incumbent of the Biggs chair of preventive medicine. For one year he served as dean of the medical college. From 1895 to 1932 he was visiting bacteriologist to the Willard Parker Hospital and later served as consultant. In 1910 he received the honorary LL.D. degree from Queens University. In 1926 he was awarded the degree of doctor of science by New York University, in 1929 by Yale University and in the same year by Columbia University. During his career he also received many honors such as the Public Welfare Medal of the National Academy of Sciences in 1932 and the George M. Kober Medal of the Association of American Physicians in 1937. In 1933 he received also the Townsend Harris Medal for his achievements in medicine. In 1935 he received the Roosevelt Medal because of his contributions to the control of diphtheria. On his seventy-first birthday, Dec. 30, 1934, his assistants in the New York City Department of Health presented him with a bronze bas relief plaque of himself to be placed in the Willard Parker Hospital. When the William Hallock Park Laboratory, named and dedicated in his honor in 1936, was established President Franklin D. Roosevelt wrote him a letter in which he said, "Your contribution to medical progress will continue to benefit the people of New York, of this nation and of the world long after this splendid laboratory has crumbled to dust."

From time to time Dr. Park was called to deliver lectures before famous organizations. Thus he gave the Nathan Louis Hatfield lectures of the College of Physicians of Philadelphia in 1935. He received the Achievement Award of the Columbia Alumni Association of the Graduate Schools in 1934. In 1933, at a great celebration, he immunized against diphtheria the millionth child to be inoculated in New York City, the first of the second million being immunized by Dr. Béla Schick. When it was proposed to develop a method of inoculation against infantile paralysis in 1934, he voluntarily submitted himself to be one of the first three injected.

Dr. Park was a frequent contributor to medical literature. His works included "Pathogenic Micro-Organisms," of which the tenth edition appeared in 1933; "Public Health and Hygiene" in 1927; "Who's Who Among the Microbes" in 1929. Among the research problems to which he turned his attention in addition to methods of immunization against diphtheria were the character of the tubercle bacillus, the nature of dysentery, the typhoid bacillus and typhus carriers, intraspinal injection of tetanus antitoxin, the bacteriology of respiratory infections and the treatment of pneumonia.

He was a member of most of the leading societies in the fields of his scientific interest, and he had served as president of the American Society of Experimental Pathology and of the American Public Health Association. His death at the advanced age of 75 terminated a career of great importance and of vast benefit to the people and the medical profession of our country.



WILLIAM HALLOCK PARK, M.D., 1863-1939

Donald Gregg ⊕ Wellesley, Mass.; Harvard University Medical School, Boston, 1907; fellow of the American College of Physicians; member of the American Neurological Association, American Psychiatric Association, New England Society of Psychiatry, Association for Research in Nervous and Mental Diseases and the American Psychopathological Association; president of the Massachusetts Society for Mental Hygiene; instructor in physical diagnosis, 1910, and assistant professor of tropical medicine in 1911 at the University of the Philippines, Manila; medical superintendent of the Channing Sanitarium; aged 58; died, January 6, in Massachusetts General Hospital.

Leonard Woolsey Bacon, New Haven, Conn.; Yale University School of Medicine, New Haven, 1892; member of the Connecticut State Medical Society; served during the World War; assistant in medical clinic 1892-1894, assistant in surgical clinic 1895-1897; instructor in operative surgery 1897-1905 and instructor in surgery 1905-1906 at his alma mater; for many years on the staff of the Grace Hospital; aged 73; died, January 8, of arteriosclerosis at his home in Hamden.

Henry Corbin McClenahan, San Francisco; Tulane University of Louisiana School of Medicine, New Orleans, 1895; member of the California Medical Association; veteran of the Spanish-American War; at one time assistant in clinical neurology and associate to the chair of legal medicine and psychiatry, Cooper Medical College; aged 67; died, Dec. 11, 1938, of arteriosclerosis, myocarditis and hypertension.

William Cott Hobdy ⊕ San Francisco; Columbia University College of Physicians and Surgeons, New York, 1896; formerly connected with the U. S. Public Health Service; on the staffs of the Stanford University and Franklin hospitals; aged 68; died, Dec. 26, 1938, of carcinoma of the liver with metastases.

Emil Gustave Winter, Indianapolis; Eclectic Medical Institute, Cincinnati, 1907; Indiana University School of Medicine, Indianapolis, 1908; served during the World War; formerly county deputy coroner; aged 52; on the staff of the Methodist Hospital, where he died, Dec. 18, 1938, of acute coronary occlusion.

William Gray Thigpen, Montgomery, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1901; member of the Medical Association of the State of Alabama; served during the World War; aged 59; died, Dec. 11, 1938, in the Veterans Administration Facility, Biloxi, Miss., of pneumonia.

Nicholas De Haas, Fremont, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1893; past president of the Newaygo County Medical Society; aged 68; was chief of staff, 1916-1917 at the Gerber Memorial Hospital, where he died, January 18, of carcinoma of the stomach.

Robert Hubert Fegers, Keokuk, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1906; member of the Iowa State Medical Society; aged 55; on the staffs of the Graham Protestant Hospital and St. Joseph's Hospital, where he died, Dec. 26, 1938.

Harry Joseph McGuire, Tulsa, Okla.; Rush Medical College, Chicago, 1926; member of the Oklahoma State Medical Association; formerly city health superintendent; on the staff of the Morningside Hospital; aged 38; died, Dec. 24, 1938, of cerebral hemorrhage.

William Henry Robin, New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1891; member of the Louisiana State Medical Association; formerly health officer of New Orleans and Orleans Parish; aged 69; died, February 9, of heart disease.

John Henry Carpenter ⊕ Chicago; National Medical University, Chicago, 1901; member of the Radiological Society of North America; at one time x-ray technician to Cook County Hospital; aged 65; died, January 18, of carcinoma of the esophagus.

Samuel Walter R. Langdon ⊕ Stockton, Calif.; University of California Medical Department, San Francisco, 1900; formerly health officer; on the staff of the Stockton State Hospital; aged 65; died, Dec. 30, 1938, of cardiovascular renal disease.

John Thomas Dawson, Seattle; Toledo Medical College, 1895; member of the Washington State Medical Association; veteran of the Spanish-American War; on the staff of the Providence Hospital; aged 65; died, January 12, of coronary thrombosis.

Alonzo Wells Connor, Neeses, S. C.; Medical College of the State of South Carolina, Charleston, 1895; formerly member of the state legislature; aged 67; died, January 2, of diabetes mellitus, cardiac insufficiency and prostatitis.

Frank R. Ross, Houston, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1897; member of the State Medical Association of Texas; aged 63; died, Dec. 4, 1938, in a local hospital of lung abscess.

Charles Clary Rathbone, Los Angeles; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893; aged 73; died, Dec. 27, 1938, of chronic myocarditis and arteriosclerosis.

Frank Cyril Barltrop Campbell, Owen Sound, Ont., Canada; University of Toronto Faculty of Medicine, 1921; at one time health officer of Henderson and Pulaski counties, Ky.; aged 40; died, Dec. 3, 1938.

John Henry Shipley, Rippey, Iowa; Drake University Medical Department, Des Moines, 1889; member of the Iowa State Medical Society; aged 72; died, Dec. 10, 1938, of valvular heart disease.

Edwin Augustus Kuhns, Emlenton, Pa.; Jefferson Medical College of Philadelphia, 1884; aged 80; died, Dec. 16, 1938, of carcinoma of the ascending colon with involvement of the liver.

Charles L. Reading, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1891; aged 68; died, Dec. 14, 1938, in the Allentown (Pa.) State Hospital, of chronic myocarditis.

Jerry Calvin Falvey, Longview, Texas; Memphis (Tenn.) Hospital Medical College, 1911; aged 52; died, Dec. 19, 1938, in the Wilson Memorial Hospital, Johnson City, N. Y., of endocarditis.

David Louis Axilrod, Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1903; aged 61; died, January 14, in the Asbury Hospital of cerebral hemorrhage.

George Krauss, Allentown, Pa.; Jefferson Medical College of Philadelphia, 1896; served during the World War; on the staff of the Allentown Hospital; aged 65; died, Dec. 30, 1938, of myocarditis.

Orville Leon Hanlon ⊕ Ridlonville, Maine; Medical School of Maine, Portland, 1901; past president of the Oxford County Medical Society; aged 63; died, Dec. 10, 1938, of coronary thrombosis.

James Edward Stubbert, Oakland, Calif.; University of the City of New York Medical Department, 1881; aged 79; died, Dec. 3, 1938, of myocarditis, arteriosclerosis and prostatic obstruction.

Perry Lee Atkins, Grants, N. M.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1901; aged 61; died, January 27, in a hospital at Albuquerque, of lobar pneumonia.

Caswell H. Jennings, Wheatland, Ind.; Medical College of Indiana, Indianapolis, 1895; formerly coroner of Greene County; aged 67; died, Dec. 25, 1938, in Terre Haute of coronary occlusion.

William Raney Black, Seminole, Okla.; Chattanooga (Tenn.) Medical College, 1906; member of the Oklahoma State Medical Association; aged 60; died, Dec. 22, 1938, of angina pectoris.

John Edward Brinkman ⊕ Waterloo, Iowa; Illinois Medical College, Chicago, 1898; past president of the Black Hawk County Medical Society; aged 64; died, Dec. 23, 1938, of angina pectoris.

Ephraim G. McCormick, Prairie Grove, Ark.; Missouri Medical College, St. Louis, 1881; member of the Arkansas Medical Society; aged 83; died, Dec. 12, 1938, of cerebral hemorrhage.

Fred Augustus Bragdon, Springvale, Maine; Medical School of Maine, Portland, 1883; member of the Maine Medical Association; aged 80; died, January 24, of carcinoma of the liver.

George McGehee Stewart, Covington, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1901; aged 76; died, Dec. 27, 1938, in Jackson of arteriosclerosis.

William H. Cowell, Shawboro, N. C.; Kentucky School of Medicine, Louisville, 1893; aged 68; died, Dec. 27, 1938, of chronic myocarditis and hypertrophic cirrhosis of the liver.

Reno N. Williams, Sanders, Ky.; Hospital College of Medicine, Louisville, 1898; member of the Kentucky State Medical Association; aged 77; died, Dec. 26, 1938, of heart disease.

Harvey Albert Dever, El Reno, Okla.; Medico-Chirurgical College of Kansas City, Mo., 1904; aged 64; died, Dec. 25, 1938, in St. Anthony's Hospital, Oklahoma City, of pneumonia.

George Adelbert Delamater, Butler, Mo.; Chicago Homeopathic Medical College, 1893; aged 73; died, Dec. 22, 1938, in South Winter Haven, Fla., of coronary thrombosis.

William V. Marshburn, Yorba Linda, Calif.; University of Louisville (Ky.) Medical Department, 1886; aged 83; died, Dec. 14, 1938, of hypostatic pneumonia and uremia.

Elmer D. Shadday, Montpelier, Ind.; Kentucky School of Medicine, Louisville, 1901; county health officer; aged 65; died, Dec. 19, 1938, of coronary sclerosis and myocarditis.

Edward V. Cherney, Springfield, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1903; aged 57; died, January 27, of Parkinson's disease.

Francis X. McPhillips, Vancouver, B. C., Canada; Manitoba Medical College, Winnipeg, 1889; formerly on the staff of St. Paul's Hospital; aged 72; died, Dec. 23, 1938.

Albert Charles McGeagh, Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1902; aged 63; died, Dec. 22, 1938, of coronary thrombosis.

Abraham L. Thomas, Chicago; Chicago Medical College, 1879; member of the Illinois State Medical Society; aged 88; died, Dec. 19, 1938, of carcinoma of the stomach.

Charles Solomon Cantough, Reading, Pa.; Jefferson Medical College of Philadelphia, 1914; aged 47; died, Dec. 16, 1938, in St. Joseph's Hospital of coronary thrombosis.

Hugh McCormick, New Auburn, Wis.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1892; aged 72; died, Dec. 17, 1938, of coronary thrombosis.

Charles Luther Kirtley, Challis, Idaho; Rush Medical College, Chicago, 1901; aged 65; died, Dec. 1, 1938, of coronary occlusion, nephritis and arteriosclerosis.

George Nicholas Vogelei, Chicago; Chicago College of Medicine and Surgery, 1913; aged 50; died, Dec. 27, 1938, of angina pectoris.

Henry W. Partlow, Olympia, Wash.; Detroit College of Medicine, 1893; aged 75; died, Dec. 4, 1938, of carcinoma of the sigmoid.

Caleb E. Carter, Tenaha, Texas; Memphis (Tenn.) Hospital Medical College, 1902; aged 69; died, January 15, of pneumonia.

William Lages, Fredericktown, Mo.; Missouri Medical College, St. Louis, 1891; aged 76; died, Dec. 19, 1938.

Samuel W. Downing, Salem, Mo.; Missouri Medical College, St. Louis, 1894; aged 68; died, Dec. 9, 1938.

Herbert Charles Fry, Brooklyn; Long Island College Hospital, Brooklyn, 1898; died, Dec. 4, 1938.

Correspondence

PRIORITY IN TECHNIC FOR PRESERVATION OF SERUM

To the Editor:—In THE JOURNAL, January 14, page 134, Dr. Leon Friedman stated that "Riehl and Schereschewsky in 1919 were the first to use glass capillary pipets, sealed by fusing in a flame, to preserve specimens of serum" for examination of Spirochaeta pallida.

I have seen priority in this useful method of preserving specimens containing Spirochaeta pallida credited to so many workers that I am at last impelled to state that I first used it in 1909 at the Military Hospital, Rochester Row, London, for preservation of specimens for teaching purposes, and it was described and illustrated in my "Diagnosis and Treatment of Venereal Diseases in General Practice," first published in January 1918.

In connection with the observation of Riehl, quoted by Dr. Friedman, that in such conditions Spirochaeta pallida remained motile up to fourteen days after collection, it may be of interest to recall that this time was greatly exceeded in experiments reported by McNabb and his associates (*Canad. Pub. Health J.* **24**:405 [Sept.] 1933) and by myself (*Lancet* **1**:156 [Jan. 20] 1934). To state the case as briefly as possible, the Canadian workers initiated an experiment to test whether transportation over long distances in capillary tubes would be practicable for specimens to be examined for Spirochaeta pallida by the dark-ground method. The specimens were collected in triplicate in London and sent first to Toronto, where motile spirochetes were found. Three were returned to me with one specimen collected in Toronto, and motile spirochetes were again found in all of them. I returned them to Toronto, sealed with wax between slide and coverslip, and after examination in Toronto the same slides were returned to me; motile spirochetes were still found in them both in Toronto and in London. Thus three specimens of chancre fluid crossed the Atlantic four times and one three times, and after these journeys the spirochetes in them were still motile. The lapses of time from the taking of the respective specimens to my last report to the Toronto workers were eighty days, seventy-one days, sixty-eight days and forty-six days. Actually after dispatch of this report motility continued to be noted in one specimen up to the eighty-fourth day after collection.

Dr. Friedman mentions that his specimens were expelled from the tubes by pressure from a small rubber bulb. I suggest that a much easier method is to heat the blind end of the tube in a small flame.

L. W. HARRISON, London, S.W. 1, England.
68 Eccleston Square.

DANIEL DRAKE—INFORMATION, PLEASE, ABOUT LETTERS WRITTEN BY HIM

To the Editor:—For more than twelve years I have been engaged in the preparation of a bibliography of Daniel Drake. The list of published writings is apparently almost completed. Some manuscript material and many letters have already been located. However, Daniel Drake was a voluminous letter writer, and undoubtedly there must be many letters in private hands or in libraries. I shall sincerely appreciate information concerning any letters or manuscript material by Daniel Drake. Due credit will be given in the published work, which will not go to press for several months.

EMMET FIELD HORINE, M.D., Louisville, Ky.
Associate Professor of Clinical Medicine, University of Louisville School of Medicine.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

GOLD FOR TUBERCULOSIS

To the Editor:—I note in my December 2 issue of the *Iowa State Register* an article regarding the care of tuberculosis with a gold solution. Gold has been used in the treatment of tuberculosis all through the years of my fifty years of practice. Would you please advise me whether this solution has been found of real value and now a real cure for this disease. It would seem strange that Dr. Kime of Fort Dodge, Iowa, should find it necessary to go to far away India to publish a complete digest of this material and its methods of use in the Bombay, India, *Medical Digest*. It is also said that this method has been in part revealed by British and American medical journals. I am anxious to know whether this treatment has been found real and a cure for the tuberculosis victim. Would you please let me hear from you.

M.D., Iowa.

ANSWER.—Gold has been used in the treatment of various diseases for approximately twelve hundred years and for more than three centuries it has been employed intermittently in the treatment of tuberculosis. Interest in the gold treatment was revived in 1915. Experimental work as well as the treatment of patients with gold salts revealed the fact by 1920 that their administration is not always safe for the patient and that apparent benefits were due to hyperemia in the vicinity of the tuberculous lesion. There being no accurate method of controlling the degree of hyperemia, the reactions could be sufficiently severe to cause pulmonary hemorrhage.

In 1924 Møllgaard presented the results of some experimental work with a gold preparation known as *sanocrysin*. Since that time a large volume of work has been done with gold salts both experimentally and clinically. One of the most extensive studies conducted on tuberculous patients in this country was by Henrichsen, Sweany and Hruby of Chicago, whose following conclusions represent a fair statement of the present status of the gold treatment for tuberculosis:

"1. About 50 per cent of tuberculous patients having a stationary or downward progressive advanced tuberculosis of the B or C types, when given sanocrysin in well regulated doses, will show (1) a rather prompt cessation of symptoms (drop of temperature and pulse, increase of weight and improvement of general condition), which changes tend to be permanent if the patient observes the usual measures of hygiene; (2) a clearing of tuberculous infiltration, with marked fibrosis and contraction of cavities, as shown by roentgenograms; and (3) changes from unfavorable laboratory findings.

"2. The remainder of the treated patients may be divided about equally into three classes: Those who show a temporary improvement for a few weeks to a few months, those who show no favorable change, and those who will not tolerate the drug at all.

"3. By all the methods of control available and carefully analyzed figures, we can conclude that there is a shortening of the convalescent period or prolongation of life or both in the treated patients of group 1.

"4. There seems to be a real indication for the drug's use as a supportive treatment in collapse therapy when patients are not doing well and when there is a beginning spread to the other side, or when there is need to clear up a slight involvement of one side in preparation for collapse therapy on the other.

"5. Sanocrysin may be used to speed the convalescence of patients with favorable prognosis, but this is usually unnecessary.

"6. The drug may be added to the armamentarium of the tuberculosis specialist for use when other measures are unavailable, as well as for other 'reacting' types when the skill of the physician is able to direct a successful course.

"7. More experiment is warranted, so that indications, contraindications and more favorable types may be better established, in all ages, stages, complications, types of the disease, and in both sexes."

For many years Dr. Kime has advocated the administration of gold in the treatment of tuberculosis. He has had ample time to demonstrate the efficaciousness of his treatment to his fellow workers in the state of Iowa as well as in the nation, particularly those who limit themselves largely to the field of tuberculosis. He has frequently discussed papers on the treat-

ment of this disease but neither his method nor his results have gained much favor among physicians

The superintendent of one of the Iowa sanatoriums gave Dr Kime's "gold cure" an extensive trial approximately ten years ago with no favorable response on the part of any patient Dr Kime then preferred charges against the superintendent on the ground of lack of cooperation and the like However, the superintendent was vindicated and continued in his position

Unfortunately, in the past good results have been reported from special forms of treatment when modern methods of examination were not used and the evidence available would not always justify a diagnosis of clinical tuberculosis It is on such cases that most spectacular results have frequently been reported Therefore, in his publication in the Bombay *Medical Digest* it is hoped that all cases reported by Dr Kime are described with reference to diagnostic procedures so that no question can be raised by any physician as to the actual existence of clinical disease when his treatment was begun He should also have available to any physician who desires to review his material personally x-ray films of the chest in the beginning and periodically throughout the course of treatment, sputum reports from official laboratories, tuberculin tests, red cell sedimentation rates and every other bit of information that experts in tuberculosis would require in reaching a definite diagnosis Furthermore, he should make available to the profession unmistakable evidence that his patients have remained well over a sufficiently long period of time to convince the expert that remissions have not been mistaken for "cures"

CANCER NOT TRANSFERABLE FROM ANIMAL TO MAN

To the Editor —In a pamphlet entitled "Cancer as a Public Health Problem" George W Cox, a state health officer of Austin, Texas writes, as follows (p 4)

"At this time we have no facilities in the State Department of Health for the antemortem inspection of meat Last year one report shows 125 animals were rejected for slaughter because they were cancerous It is obvious that we may be eating a great deal of meat from cancerous animals The question as to the danger of eating such meat has never been investigated, but it may have a bearing on our increasing cancer incidence If it were possible for the State Department of Health to render this service, this danger along with others of similar magnitude would be controlled'

This paragraph appears to be endorsed by Dr J W E H Beck general chairman of the public health committee of the Texas department of the American Legion, in a circular letter dated March 14 The statement by Dr Cox and Dr Beck's letter lead me to ask Is there any danger of transmission of cancer in cattle to man? M D, Texas

ANSWER —There is no possibility and hence no danger of a transferring of cancer from cattle to human beings in the manner suggested by Dr Cox, because cancer is not transmissible even by transplantation from one mammalian species to another, e g from cattle to man Human cancer is not an infectious or contagious process like tuberculosis or actinomycosis The statement by Dr Cox should be corrected promptly because it may cause unfounded and unnecessary alarm with respect to an important source of human food

TONSILLECTOMY AND SYPHILIS

To the Editor —A man of 25 came to me on July 1, 1938, with chronically inflamed much hypertrophied tonsils His blood Wassermann reaction was found to be 3 plus The absence of a history or sign of a penile lesion caused me to believe that the tonsils were the point of origin of his syphilis Six intravenous treatments with 0 6 Gm of neoarsphenamine and twelve intramuscular treatments of sodium bismuth thioglycollate caused his blood to show 2 plus He is now in the second such course of treatment His tonsils have receded much in size but are still moderately red they are now about three times the normal size Would you advise tonsillectomy? If so when? M D Wisconsin

ANSWER —A diagnosis of syphilis should never be made on the basis of a single positive or, especially, partly positive serologic test for syphilis in the absence of history or physical signs There are too many opportunities for technical and biologic laboratory error to justify such a diagnosis If, in the patient in question, the diagnosis of syphilis hinges on one "3 +" complement fixation test followed after treatment by one "2 +" test, one cannot be certain that the patient actually has syphilis The serologic diagnosis should certainly be verified by check of the complement fixation test, by one or more reliable flocculation technics, and in one or more laboratories other than that which performed the original test

Whether the patient has syphilis or not, his tonsils, if chronically infected should be removed and operation may be performed immediately The only factors which influence surgical operations on syphilitic individuals are (*a*) the possible accidental infection of members of the operating team and (*b*) possible failure of wound healing because of the association of trauma with syphilitic lesions As to the former, the risk of infection to members of the operating team is almost wholly dependent on the duration of infection in the patient If he has early syphilis, i e of less than two years' standing, and if he has not been previously treated, there is some risk If, on the other hand, he has late syphilis, i e of more than five years' standing, whether or not he has been previously treated, there is little or no risk In either case and whether the patient's syphilitic infection is early or late, the administration of a course of an arsphenamine immediately prior to operation does away with the risk of infection (Parenthetically, it should be remarked that laryngologists who operate without gloves are particularly prone to the development of extragenital chancres, and no operation, even that of tonsillectomy, should be undertaken with bare hands under any circumstances, whether the patient is known to have syphilis or not)

The failure of wound healing is negligible without treatment and is entirely obviated by treatment before and after operation

In the patient in question, therefore, tonsillectomy may be performed immediately without risk to patient or operator, but in the meantime the diagnosis of syphilis in the patient should be verified

WIDAL TEST AND INTERCURRENT INFECTION

To the Editor —Following a three weeks siege of bronchial pneumonia caused by mixed infection with Streptococcus viridans predominating, a patient had an exhaustive bronchial cough for two weeks with temperature between 99 and 101 F Roentgenograms of the chest and examination of the sputum were negative but the Widal reaction was found positive in a dilution of 1 40 How long after immunization to typhoid will the Widal reaction be positive? Will prolonged low grade fever tend to cause a positive Widal reaction in a patient who has been immunized to typhoid several times, the last previous inoculation being three years ago? In this case an unhealed area in a bronchiectatic space could account for the fever but why the positive Widal reaction?

R A BUTLER M D, Safety Harbor, Fla

ANSWER —The Widal reaction may persist at low levels for years after an attack of typhoid or after vaccination with killed typhoid bacilli The agglutinin titer usually reaches its height, sometimes over 1 1,280, about two weeks after the last injection of vaccine, and then in the average case first diminishes rather rapidly for several months and at a slower rate thereafter It is not at all uncommon to find a low titer of 1 40 or 1 80 for several years During this time any intercurrent infection or vaccination against some other disease may cause a temporary increase in the titer which is sometimes referred to as an anamnesic reaction Such an occurrence is often confusing in making diagnoses

A Widal titer of 1 40 is not high enough to be of significance in making a diagnosis of typhoid In the case referred to it is highly probable that the atypical pneumonia or possible bronchiectasis was responsible for the presence of the Widal reaction

SOLUTIONS OF COMMON SEDATIVES

To the Editor —I should like full information concerning the preparation of sterile stock solutions of the common sedatives such as soluble phenobarbital and sodium amytal I have tried autoclaving such solutions, only to have the powder precipitate as a solid cake Why? Would autoclaving the dry powder and then dissolving it with aseptic technic solve the problem? Should the solution be passed through an Arnold sterilizer? What is the effect of heat on the solution? How long would such solutions keep in bottles in the wards? M D, District of Columbia

ANSWER —Barbituric acid and its many derivatives, which are used as sedatives and hypnotics, are not acids in the true sense of the word They do form soluble salts when combined with the alkali metals These salts are combinations of a weak "acid" and a strong base and as such are unstable when in solution When such solutions are subjected to boiling or to autoclaving or are allowed to stand for some time, hydrolysis takes place In the case mentioned, the hydrolysis liberates the free barbituric acid derivative which is insoluble This precipitates and forms the "cake"

A sterile solution could be prepared by heating the dry powder to about 125 C for some time (The United States Pharmacopeia directs that the powdered soluble phenobarbital is to be heated for six hours at 140 C in preparation for analysis) This could be dissolved in sterile water under aseptic technic No further treatment of the solution is necessary

The question as to how long such solutions would keep in bottles in the wards is difficult to answer The U S Pharmacopeia states that aqueous solutions of soluble barbiturates are alkaline in reaction and are unstable Several experiments with buffer solutions were tried, but the solutions either became cloudy or precipitated on standing One pharmaceutical house has a solution of a soluble barbiturate derivative on the market

This is dissolved in ethylene glycol and hence is not suitable for intravenous use. The fact that soluble barbiturate derivatives are marketed dry in ampules, to be put into solution with sterile water just before use, is evidence of the difficulties in preparing stable solutions of the soluble barbiturate derivatives.

BLEPHARITIS FROM MONILIA

To the Editor:—I have a patient who is afflicted with chronic blepharitis caused by *Monilia albicans*. His refractive error, practically negligible, has been corrected. Is there any specific treatment for blepharitic moniliasis? What is the prognosis? M.D., Connecticut.

ANSWER.—It would seem that blepharitis due to *Monilia albicans* is an exceedingly rare condition or at least that it is practically never recognized as such by ophthalmologists. No recommendations for treatment have been found in the literature. The logical treatment would seem to be the use of one of the drugs employed in treating monilia infections of the skin and mouth. Soaking the lids with a moist pack of 5 per cent sodium thiosulfate would be safe and might prove of value. The use of sodium thiosulfate in a 2 per cent ointment would offer another method of application. If there is also conjunctival infection, a 1 or 2 per cent solution of sodium thiosulfate would not damage the cornea. It is likely that the more commonly employed ointments, such as 2 per cent yellow mercuric oxide or 3 per cent ointment of ammoniated mercury might be of value as in other forms of blepharitis, provided the crusts are first removed with an applicator soaked in 3 per cent sodium bicarbonate.

INJURY TO RAMUS COMMUNICANS

To the Editor:—What effect has injury to the ramus communicans in the region of the twelfth dorsal and first lumbar vertebrae on the stomach? Would any chronic disturbance result? How? M.D., New York.

ANSWER.—It is doubtful that an injury to the ramus communicans in the region of the twelfth dorsal and first lumbar vertebrae would have any great effect on the stomach itself. The efferent innervation to the stomach is from the vagus and the white rami from the fifth to the twelfth thoracic nerves through the sympathetic trunk without interruption, to the celiac ganglion, celiac plexus to end in the musculature of the stomach. The location of the injury mentioned may result in changes in the large bowel and produce a chronic disturbance in this region by interrupting the synapse. This disturbance may be in the form of increased irritability of the bowel resulting from lack of inhibitory control.

LIVER EXTRACT FOR PSORIASIS

To the Editor:—A patient of mine suffering from psoriasis has called to my attention the recently published treatment for this disease by means of liver extract. I will appreciate any information you can give me on this question. The patient is a married woman of 25, apparently healthy in all other respects, has had psoriasis for about twelve years, and the only effective treatment so far has been ultraviolet exposures and the application of Dr. White's crude tar ointment. However, as soon as treatment is stopped, the lesions tend to recur.

STANLEY Z. WEISSHAUS, M.D., New York.

ANSWER.—Liver extract, like innumerable other injections, has been used with variable and indifferent results in the treatment of psoriasis. The use of crude coal tar ointment plus ultraviolet rays as described by Goeckerman (*Northwest. Med.* **24**:229 [May] 1925; *Arch. Dermat. & Syph.* **24**:446 [Sept.] 1931) is a good method of treatment when used persistently.

APPENDICAL ABSCESS

To the Editor:—I read on page 464 of THE JOURNAL for February 4, a query from Dr. Raymond H. McPherron of Chicago on the opening of an appendical abscess extraperitoneally. I felt that Dr. McPherron, in following up this idea, might be further interested in the principle of chemotaxis as applied to drainage in these cases, which principle has, I believe, been life saving in my hands and, I also believe, a subject much overlooked in the literature as well as in practice, in spite of the fact that it has been in use and attention has been called to it on numerous occasions by various authors. I submit here a few references on that subject, which I hope will be of value:

Eastman, J. R.: Prevention of Peritoneal Contamination in Drainage of Abdominal Abscess, THE JOURNAL, March 24, 1923, p. 833. (This article refers to similar work by A. J. Ochsner.)
McCutcheon, Morton; Wartman, W. B., and Dixon, H. M.: Chemotropism of Leukocytes in Vitro, *Arch. Path.* **17**: 607 (May) 1934.
Schuster, D.: Experimental Studies of Local Bacterial Processes of Inflammation, Especially of Chemotaxis, *Mitt. a. d. Grenzgeb. d. Med. u. Chir.* **36**: 441, 1923.
Benoist, E. E.: Maintenance of Relative Asepsis in Abdominal Surgery, *Mississippi Doctor*, November 1936, p. 41.

E. E. BENOIST, M.D., Natchez, Miss.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Fifth Annual Meeting, held in Chicago, Feb. 13 and 14, 1939

(Continued from page 1414)

DR. JULIAN F. DU BOIS, Sauk Centre, Minn., in the Chair

THE FEDERATION OF STATE MEDICAL BOARDS

FEBRUARY 14—AFTERNOON

Looking at Health Insurance Abroad

MR. J. GEORGE CROWNHEART, Madison, Wis.: As we discuss compulsory sickness insurance this afternoon we must keep uppermost in mind that, in the final analysis, we are talking about the care of individuals.

As I traveled the state of Wisconsin with a committee during the last eighteen months, going into some thirty-nine counties, sitting day after day with people from all walks of life and talking to them about their health and the health of their friends, I was impressed particularly with the fact that health problems frequently differed from county to county and even within counties. I would leave that as a background for our discussion.

The examination of sickness insurance abroad was undertaken in the sense of "Is the legislation in any one country, as it stands or with some modification, something that can be taken back and applied in Wisconsin to provide more people with a better sickness and health service?"

After completing the study, I was conscious of the fact that in England, Norway, Sweden, Denmark, Germany and France certain factors are common to the system regardless of whether the laws differ in their actual writing. I should like to discuss some of the elements which, one may fairly assume, are inherent to practice under compulsory sickness insurance.

First, the legislature establishes the premium. It says "This is the amount of money that we must raise for each person who is insured." Every pay check abroad, no matter how small, is taxed under compulsory sickness insurance. Persons under income limits that here would entitle them to receive service, without themselves contributing to it, abroad help the government to finance this service for themselves. Then the employer makes his contribution. Sometimes the government adds something, and sometimes it doesn't. But, regardless of that, in the initial legislation the premium is established. Now, I think that this would be all right were it not that physicians and medical science do not stand still. In the very time in which there has been compulsory sickness insurance abroad, the wide use of x-rays, first in diagnosis and then in therapeutics, has developed; insulin for diabetes, liver extract for pernicious anemia and other remedies have been discovered, and all of them initially cost more money. Socially they are cheap, but initially they require a greater outlay of funds than was anticipated at the time the legislation was passed. When small pay checks are being taxed, it is not politically expedient to increase that tax year after year. The administrator balances his books in the only way available to him by ignoring, for the great mass of his insured population, the steady advance of medical science.

Second, the fact that millions of dollars are involved does not mean that there is more money for each person who is ill. Millions of dollars were involved in Wisconsin in poor relief. An effort was made to find out why more work could not be done in the prevention of illness for people who were receiving this government service. It was discovered that, despite the fact that there were millions, there was only about $27 a month for each family of four for food, fuel, shelter, clothing, sickness care and health service.

The same principle holds in compulsory sickness insurance. Although millions are raised there is no more for each individual case of illness. Actually, there may be increasingly less from year to year. It is not known what the load is going to be, so most countries resort to the only thing possible

under the circumstances; they pin down the amount involved to make certain that their budget will be sufficient to cover the year, and they do it by making the physician the real insurer. They say, "Doctor, we now insure 50 per cent, 60 per cent, 80 per cent of the people in your community. Would you like to be part of the system?" Possibly he says yes. Then they say, as they do in England, "All right, we will pay you $2.25 a year for each person who selects you as his family physician at the time he is insured." The selection is generally not made at the time the illness occurs, on the basis of the individual illness, but at the time the person enters the insurance system, so the physician becomes the real insurer. He has accepted the stipulated amount for an unknown amount of service during the year.

If the physician were left alone at that point, he could probably figure out some way of jumping those handicaps, but he isn't. The government is interested in what the physician does because it has to pay for that, too.

In each system there is the little book, in which is set forth that which the physician may do, having in mind economical prescribing. If one talks to a physician who has gone out beyond the book, he may say "I did prescribe drugs not in the book, but my patient wasn't getting along well, and I read of something that had passed beyond the experimental stage, and I tried it, and my patient is back to work, but now I must explain to the regional medical officer about a patient he never saw, of whose family history he knows nothing, and tell him why I went out of the book and prescribed the more expensive procedure. You understand, of course, that the extra cost is subtracted from my next quarterly pay check."

Then something else happens. These systems do not administer themselves any more than an insurance company administers itself. In England one must admire the wonderfully high concept of civil service, far surpassing our own. Yet under such ideal conditions one finds that the administrative cost, after it is broken down, is 17 cents of the sickness dollar. In other countries it is as low as 10 per cent and 12 per cent but, when it is broken down, one is not altogether convinced that all which here would be regarded as administrative costs have been included.

One is told at the International Labor Office at Geneva that to collect the money, to check on the employer to make certain he has made the proper deductions, to check on the person who is sick in his home for more than a normal time, to check (in England) the 66,000,000 prescriptions a year to see that the physician has stayed within the little book and the pharmacist has priced the drugs right, to check on the treatment that is being given to the patient who requires more than a normal period of hospitalization, and to administer the whole scheme requires a group of employees varying from one for every fifty to one for every hundred persons insured.

Something else is even more important. In the National Hospital at Oslo, Norway, and I choose that one hospital merely because it comes to mind, I was tremendously impressed with the work that was being done under the handicaps of an old institution, handicaps which I think to physicians in my own state would seem almost insuperable. Yet down the street is a modern seven story office building with every type of modern business equipment, and here the system is administered. As the observer goes through this building, he cannot forget the building in which the sick are being cared for. He is impressed by the fact that under these systems the administration takes a dominant role.

As one spends hour after hour with the administrators of these systems, one is impressed constantly by a certain attitude and asks oneself why it prevails. Finally the answer comes from the lips of the administrator, and it is repeated time and time again: "Not all our people are sick at one time, only 2 or perhaps 4 per cent. All we know is that last year we hardly had money enough to get through the year. These sick people have been paying their contribution out of every week's pay check, and 2 per cent seems a lot when the pay check is small. They have been paying over a long period and they want the benefits. I have a 96 or a 98 per cent unknown demand. I don't know what it will be before the year is over. I have no other source of money. It must come from what I have raised, and this amount must last. We have a surplus, not in the vast amount that we think necessary, but at least a year's budget. So we must be watchful of our funds."

This attitude worries the observer, because the administrator, instead of assuming the role of guardian of the sick, becomes, as the years go by, more and more a trustee of money, and this conflicts with the concept of sickness care which prevails in our own country.

The regulations in Germany as well as in other countries contain a warning to the physician that, while in so-called private practice what he does is at the expense of the individual, under insurance practice it is at the expense of a third party.

An observer from the United States studying abroad finds creeping into the situation the hours of labor concept of legislation in Norway and the assignment of night calls exclusively to the young physician in Copenhagen, Denmark. He finds medicine in the role, whether it wishes to be there or not, of a salvager instead of the dynamic force, ever pushing back disease, that it is in the United States.

Then there is the overload on the physician. It is due in part to the fact that the amount that can be paid per person on the panel is so low that there must be a sufficient number on the panel to compensate and in part to the fact that, because the system is concerned even with pennies, the administrators would prefer that the physician limit his prescriptions in amount and that the patient go back three or four times, if need be, to have the prescription repeated instead of receiving a prescription for the full amount, in which case some of the medicine might be wasted. The overload does exist. The concept of sickness insurance to compile records on which further progress may be made in the prevention of disease is never realized. The concept of prevention in the sense of treating illness early is not found, because of the overload. It was not my observation that the physician abroad was any less humanitarian than the physician in my own state, but I was impressed that under rules and regulations he may find himself unable to do the thing that he is trained to do.

I spoke to an administrator in one country about the possibility of having periodic health examinations. I said "It seems to me, from my work on the governor's committee in Wisconsin, that over a period of years these would be the cheapest method, entirely aside from the humanitarian aspect in the care of the sick." "Well," he said, "that might be so. Undoubtedly it would over a long period, but how could we do it? We are swamped now by our demands. Are you suggesting that we should uncover more demands? Such a situation would be hopeless, from our point of view."

On my second visit to Oslo, it had just been determined to extend the sickness insurance downward from the age of 16 to 14. The medical association there had asked for the school medical record to be sent to the physician of choice for those who were then to be insured at the age of 14. It was explained that this couldn't be done because the school record was on a card that was one fourth inch too wide for the sickness insurance envelop but that, if the physician who wanted the record would write to the teacher of the school involved, a copy could be had at such times as he might wish it. Under these systems even the size of records become of commanding importance.

The effect extends beyond the insured. I quote from the report on British health services: "The nation needs sickness services, but a nation which regards them as a substitute for health services is going to find the confusion expensive in money and suffering. . . . It is no less necessary for those concerned with national health to examine the diseases of insurance schemes than it is to study heart disease and cancer."

There is a social purchase price for whatever economic security is involved in compulsory sickness insurance: 1. It is sold as a social service, but its operation as an insurance plan defeats this end. 2. It is sold in its preventive aspects, but its budget and operations reduce medical practice to the role of salvage. 3. Its beneficent intent is accepted as a guaranty of a quality of service that it is increasingly impossible to render. 4. To insure a balanced budget requires a control over the service that is rendered the sick, and that control is exercised in every country and not in accordance

Medical College of Virginia	(1937)	83
University of Wisconsin Medical School	(1936)	85
McGill University Faculty of Medicine	(1937)	85
Eberhard-Karls-Universität Medizinische Fakultät, Tübingen	(1923)	77
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Osteopath *		76

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University School of Medicine		(1917), (1934)	Dist. Colum.
Georgetown University School of Medicine		(1934)	Dist. Colum.
Howard University College of Medicine		(1937)	Tennessee
Indiana University School of Medicine		(1930), (1937)	Indiana
University of Louisville School of Medicine		(1936)	Kentucky
Louisiana State University Medical Center		(1938)	Louisiana
Johns Hopkins University School of Medicine		(1934), (1937)	Maryland
University of Michigan Medical School		(1936)	Penna.
St. Louis University School of Medicine		(1937)	Missouri
New York University College of Medicine		(1935)	New Jersey
Ohio State University College of Medicine		(1923)	Ohio
University of Cincinnati College of Medicine		(1938)	Ohio
Temple University School of Medicine		(1937)	N. Carolina
Meharry Medical College		(1937)	Tennessee
University of Tennessee College of Medicine		(1932)	Tennessee
Medical College of Virginia		(1935)	New Jersey
University of Virginia Department of Medicine		(1937)	New Jersey
University of Wisconsin Medical School		(1932), (1933)	Wisconsin, California
University of Toronto Faculty of Medicine		(1929)	New York

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
George Washington University School of Medicine		(1936)	N. B. M. Ex.
Jefferson Medical College of Philadelphia		(1935)	N. B. M. Ex.
University of Texas School of Medicine		(1924)	U. S. Navy

* *Licensed to practice osteopathy and surgery.*

Book Notices

Insulin: Its Chemistry and Physiology. By Hans F. Jensen, Ph.D., *Associate, Laboratory for Endocrine Research, The Johns Hopkins University, Baltimore.* Cloth. Price, $2. Pp. 252. New York: Commonwealth Fund; *London: Oxford University Press, 1938.*

In preparing this monograph on insulin, Dr. Jensen has performed a valuable service, particularly to those workers interested in diabetes and in investigations concerning carbohydrate metabolism. He has thoroughly reviewed the important literature up to 1938. To indicate the completeness of the work, one needs only to mention that, in the bibliography appended to the chapter on the physiologic action of insulin alone, 624 references are cited. Although the emphasis throughout is placed on the chemistry and physiologic action of insulin, sufficient reference to clinical application is made to make the work interesting and valuable for the clinician. Every doctor treating diabetic patients would profit by reading the introductory paragraph to chapter 6 on insulin substitutes. Among other statements the following excellent advice is given:

> An appreciable number of substances exist which will depress the blood sugar level in animals. More careful work has generally shown that, in spite of the superficial similarity in effect, the physiological action of these compounds is quite different from that exhibited by insulin itself. It is therefore obvious that every new insulin substitute should first be carefully studied in normal and depancreatized animals before its clinical trial on diabetic patients is attempted.

As a result of investigative work which is constantly in progress, our knowledge regarding carbohydrate metabolism, the action of insulin and related topics is always in a state of flux. Consequently it is desirable that from time to time new summaries be written. The monograph by Dr. Jensen can be thoroughly recommended.

Clinical Laboratory Methods and Diagnosis: A Textbook on Laboratory Procedures with Their Interpretation. By S. B. H. Gradwohl, M.D., Director of the Gradwohl Laboratories and Gradwohl School of Laboratory Technique, St. Louis, Mo. Second edition. Cloth. Price, $12.50. Pp. 1,607, with 536 illustrations including 44 color plates. St. Louis: C. V. Mosby Company, 1938.

This edition has been thoroughly revised and brought down to date. Each chapter contains enough of physiology and pathology for comprehension and interpretation of the tests that are mentioned. In the preface Gradwohl states that more than 100 pages have been added to the chapter on hematology, that complete data on the theories of blood development are given and that twenty-four color plates have been added. The views of several authorities are always included; footnote references to printed matter are abundant. The entire section on helminthology was written by Prof. Pedro Kouri of Havana, Cuba. Besides the customary chapters on each division of routine laboratory work, this book contains several interesting chapters on postmortem examinations, toxicologic technic and detection of crime by laboratory methods. This is valuable information for the rare occasions when even the smallest laboratory is called on to trace a questionable cause of illness or death. The manner of presentation is clear and interesting. The least doubt or confusion which may arise in the reader's mind is at once clarified by an example. Several approved tests for each determination are given. Technic is presented to the most minute detail. Preparation of reagents and equipment for each test are included with the test. The volume is somewhat bulky and rather expensive. Nevertheless it is an excellent textbook for technicians. It is particularly recommended for hospital laboratories and for physicians with private laboratories.

Untersuchungsmethoden für Arzneispezialitäten. Zusammengestellt von der Spezialitäten-Kommission des Internationalen Apothekerbundes. Second edition. Boards. Price, 3.50 florins; 5 marks. Pp. 148, with 10 illustrations. Leyde: Fédération internationale pharmaceutique; Amsterdam: Dekker en Nordemann N. V., 1938.

This edition is greatly improved. Besides the general technical methods, numerous specific determinations of chemical entities are given and clearly arranged in table form. Micro methods were used whenever they were found to be superior to the time and material consuming conservative standards. Many chemical assays of newer therapeutics are taken from New and Nonofficial Remedies. The committee members must be thanked for their enormous effort to place such a timely book of practical and precise analytic procedures in pharmaceutic chemistry again into the hands of international, private and government agencies connected with the enforcement of food, drug and cosmetic laws.

Maternity Care in a Rural Community, Pike County, Mississippi, 1931-1936. By Maxwell E. Lapham, M.D., Assistant Professor of Obstetrics, School of Medicine, the Tulane University of Louisiana, New Orleans. Paper. Price, 25 cents. Pp. 65. New York: Commonwealth Fund, 1938.

This is part of a stock taking of a public health program established in Pike County, Miss., in 1931 with the assistance of the Commonwealth Fund. Attention is focused on maternal mortality, which was 5.3 and 9.4 per thousand live births for white persons and Negroes respectively. "In regard to the Negro maternal deaths, it seems likely that the relatively poor economic conditions under which the patients lived caused a lowered resistance and greater tendency to develop some of the common conditions causing death, such as infection and toxemia." While, on the basis of an analysis which it is stated should be clearly understood as "in part speculative," it was determined that a certain percentage of the maternal deaths were due to "neglect and failure to obtain medical care on the part of the patient or midwife, and possibly ill advised interference on the part of the physician, . . . nearly half of the controllable deaths were due to neglect on the part of the patient or the patient's family." A suggested maternity program gives specific suggestions for the improvement of medical, midwife and nursing service.

Forelæsninger over klinisk Endokrinologi og beslægtede Emner. Første Række. *Af Herman Nielsen. [Lectures on* Clinical Endocrinology and Related Subjects. First Series.] Paper. Price, 12.50 kroner. Pp. 198, with 38 illustrations. Copenhagen: Levin & Munksgaard, 1938.

This monograph presents a series of clinical lectures on endocrinology and related conditions presented before university medical students. It comprises a clinical description of acromegaly, diabetes insipidus, adrenal disorders, Addison's disease, Cushing's syndrome, the climacteric, Paget's disease, scleroderma, Hand-Schüller-Christian disease, xanthomatosis and related disturbances in lipoid metabolism. The clinical descriptions are remarkably clear and usually from patients presenting the symptom complex under discussion. The illustrations are a distinct addition to the text. A familiarity with the published literature is equally evident. The chapter on xanthomatosis and the reticulo-endothelial system adds a new interest to the xanthoma problem. It emphasizes the principle that the xanthoma cell is a cell of the reticulo-endothelial system infiltrated with lipoids. The various manifestations of

xanthomatosis are regarded as expressions of disturbed lipoid and cholesterol metabolism. Of the many monographs that have appeared on clinical endocrinology, this is one of the most attractive and informative that have been published.

A Textbook of Histology: Functional Significance of Cells and Intercellular Substances. *By E. V. Cowdry, Professor of Cytology in the* School of Medicine, Washington University, St. Louis, Mo. Second edition. Cloth. Price, $7. Pp. 600, with 323 illustrations. Philadelphia: Lea & Febiger, 1938.

This edition has been enlarged by a hundred pages, and many new figures have been added. These should aid the student to understand more completely the sections he studies under the microscope. An introduction, partly historical, is intended to orient the students in their study. In various ways, such as directions for the examination of fresh tissues, the book has been improved for use as a laboratory guide. But these additions are not enough to make the study of histology easy for the average student. Freshman medical students probably need more explicit descriptions and guides than this textbook provides. This book should probably be supplemented in the laboratory by a small guide, such as Schaffer's. The great importance of the book, however, is that it heralds a new era in medical textbooks. It is a pioneer of the textbooks of the future. The author attempts (1) to present the subject of histology as a field in which progress is being made daily, (2) to awaken the student's intellectual curiosity to the problems which this subject presents, and (3) to initiate the student into that correlation of facts from many fields of investigation which will prove most useful to him in his later medical work. He carries out the first two aims by discussing both sides of controversial questions, with liberal extracts from the recent literature. The third aim is aided by tables, in which the significant anatomic and physiologic characteristics of tissues and organs are briefly enumerated. Whether the book will succeed in this threshold attempt, as well as impart the necessary histologic facts to the average medical student, is doubtful. It should be highly stimulating to teachers of the subject and to the more intellectually qualified medical students.

Nursing Care of Communicable Diseases: Prophylactic Technics for the Prevention and Control of Disease. By Mary Elizabeth Pillsbury, R.N., M.A. With a chapter on Fungous Diseases. By Grace Maguire Swanner, M.D. And a Brief Picture of Public Health Nursing. By Mary E. Edgecomb, R.N., Science Adviser: Jean Broadhurst, Ph.D., Professor of Bacteriology, Teachers College, Columbia University, New York City. Fifth edition. Cloth. Price, $3. Pp. 603, with 137 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1938.

There is assembled in this edition an unusual amount of valuable information. The scope of the subject is broad; the material is concise and well arranged. Part I, which comprises approximately one third of the volume, contains chapters every nurse should read. The importance and technic of medical asepsis are emphasized. Cause, mode of transmission and resistance to disease are discussed. The functions of the nurse in disease control and measures for public health control are outlined. Prophylactic technic for the nurse and methods for establishing immunity against various infections are set forth. Part II relates to a large number of the better known communicable diseases and gives specific instructions regarding the nursing care of each. In part III is found miscellaneous information, which includes a historical review of the care of communicable diseases. The value of the book is enhanced by illustrations and charts. It should be of great assistance not only to the nurse in training but to the graduate and to the medical student as well. For one who contemplates entering the field of public health this treatise will prove to be a splendid acquisition.

La amibiasis en Chile. Por el Dr. Amador Neghme Rodriguez, jefe de laboratorio de la cátedra de parasitologia, Santiago. Paper. Pp. 48, with illustrations. Santiago: Imp. el imparcial, 1938.

In this monograph one will find a brief summary of the most commonly known literature on amebiasis and the results of the author's observations on amebiasis in Chile. After more than two years of study on cultural methods and after devising a new modification, he has concluded that culturing Endamoeba is more of scientific interest than of practical use. After discussing briefly some well known facts concerning the epidemiology of amebiasis, he gives the results of studies made in Chile during the years 1934 to 1937 inclusive. Two hundred and eighty-five patients were examined in the laboratory of parasitology of the school of biology and medical sciences. Forty-three (50.08 per cent) harbored Endamoeba histolytica (the author prefers the term E. dysenteriae). In the Hospital del Salvador there were 827 patients examined in 1937 and 11.36 per cent were infected with E. histolytica, while in other hospitals the rates of infection varied from 7.67 per cent to 11.26 per cent. Among 790 soldiers examined the rates varied from 2.7 to 10.12 per cent. The author has infected cats with cultures of amebas by rectal inoculation as well as by inoculation directly into the ileum, both before and after splenectomy.

Virus Diseases and Viruses. By Sir Patrick P. Laidlaw, M.A., B.Ch., F.R.C.P. The Rede Lecture 1938. Boards. Price, 90 cents; 2s. 6d. Pp. 52. New York: Macmillan Company, Cambridge: University Press, 1938.

This brief "lecture" on virus diseases and viruses represents some of the views of one of the most distinguished contributors in the field. Perhaps its most important aspect is the author's theory on the origin of viruses, which is entitled to receive the careful attention of workers in the field.

Have You Had Your Vitamins? By Harry N. Holmes, Ph.D. Cloth. Price, $1. Pp. 60, with 3 illustrations. New York & Toronto: Farrar & Rinehart, Inc., 1938.

Written by a distinguished professor of chemistry at Oberlin College, this little book is intended for the intelligent housewife and "others interested in vitamin therapy." Those persons who feed vitamin pills to their families will find plenty of support in the "conservative advice" of the author. With the unfortunate publicity that shotgun vitamin mixtures are receiving it would seem that the advice in this book is superfluous.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Atrophy of Optic Nerve Attributed to Exposure to Heat and Glare of Furnace.—For about ten years the workman in this case had been employed by the defendant petroleum company to fire furnaces and boilers. On May 28, in adjusting a valve on a particular boiler, he was forced to look at the flame for five minutes to adjust the flame to a target in the boiler, a task he had performed many times before. Thereafter he became blind and instituted suit under the workmen's compensation act of Louisiana. The trial court gave judgment against the workman and he appealed to the court of appeal of Louisiana, first circuit.

The evidence before the trial court showed that the workman had had syphilis for several years before the incident to which he attributed the loss of his sight and that his vision had been impaired. A physician who had examined the workman about fourteen months after the alleged industrial accident testified that he found him suffering from an advanced stage of neurosyphilis and that the optic nerve was atrophied. There was medical evidence to the effect that syphilis is the principal cause of atrophy of the optic nerve, although it is not the sole cause. Medical experts testified that heat and glare, without some severe burns around the eyes, would not cause atrophy of the optic nerve and that exposure to heat and glare in firing a boiler would not affect or aggravate a syphilitic condition so far as it relates to the optic nerve. If, said the court of appeal, the glare and heat from the boiler or furnace served to aggravate or hasten the atrophy of the optic nerve because of the weakened condition of the nerve brought on by syphilis, and if this heat and glare on that particular day was unusual and out of the ordinary routine of the day's work, it could be said that the heat and glare from the boilers had a causal connection with the blindness, and the workman would be entitled to compensation. *There was, however, no evidence to this effect.* On

the contrary, the evidence showed that the atrophy of the optic nerve and the resulting blindness were caused by syphilis, not by the exposure of the workman to the heat and glare of the boilers. The workman therefore failed to show that his disability was caused or superinduced by an accident or injury in the course of his employment. The judgment in favor of the employer was accordingly affirmed.—*Laughlin v. Magnolia Petroleum Co. (La.), 182 So. 178.*

Insanity: Constitutionality of Statute Authorizing Court to Appoint Commission to Determine Sanity.—Noelke was prosecuted for the murder of his wife and infant daughter. He entered pleas of not guilty and of insanity. In accordance with an Indiana statute, which provides that when an insanity defense is pleaded the court shall appoint two or three competent disinterested physicians to examine the defendant and testify at the trial, the trial court appointed three physicians to examine Noelke and testify as to his sanity. At the trial the three physicians were permitted to testify, over Noelke's objection, that, from their examinations and observations, they were of the opinion that he was of sound mind. From a conviction of murder in the first degree, Noelke appealed to the Supreme Court of Indiana.

Noelke contended that the statute was unconstitutional in that the effect of the testimony of these physicians as to his sanity, based on their observation and examination of him, was to compel him to testify against himself contrary to the constitution of Indiana, which provides: "No person, in any criminal prosecution, shall be compelled to testify against himself." The Supreme Court, however, cited several court decisions holding that testimony by a medical expert as to sanity, based on his observation and examination, is competent and does not amount to compelling an accused to give evidence against himself. Witnesses appointed by the court to examine and observe a person who is accused of a crime and who has filed a plea of insanity affords the court and jury testimony as free from influence and prejudice as is humanly possible to obtain. Such examinations by experts must be confined within constitutional limitations. In the judgment of the court, no constitutional right of Noelke had been violated and the judgment of conviction was affirmed.—*Noelke v. State (Ind.), 15 N. E. (2d) 950.*

Society Proceedings

COMING MEETINGS

American Medical Association, St. Louis, May 15-19. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

Alabama, Medical Association of the State of, Montgomery, April 18-20. Dr. D. L. Cannon, 519 Dexter Ave., Montgomery, Secretary.

American Academy of Tuberculosis Physicians, St. Louis, May 13-14. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.

American Association for the Study of Goiter, Cincinnati, May 22-24. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.

American Association for Traumatic Surgery, Hot Springs, Va., May 8-9. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.

American Association of Genito-Urinary Surgeons, Williamsburg, Va., May 24-26. Dr. Charles C. Higgins, 2050 East 93d St., Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Cleveland, June 5-8. Dr. V. S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., April 30-May 1. Dr. Henry E. Sigerist, 1900 Monument St., Baltimore, Secretary.

American Association on Mental Deficiency, Chicago, May 3-6. Dr. E. Arthur Whitney, Washington Road, Elwyn, Pa., Secretary.

American Bronchoscopic Society, Rye, N. Y., May 26. Dr. Lyman [illegible] Ave., Boston, Secretary.

[illegible]ssociation, Montebello, Canada, May 31-June 3. University of Pennsylvania Medical Laboratories, Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., May 1-2. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.

American Gynecological Society, White Sulphur Springs, W. Va., May 22-24. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.

American Heart Association, St. Louis, May 12-13. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.

American Laryngological Association, Rye, N. Y., May 24-26. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Chicago, May 10-11. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medico-Legal Association, Chicago, May 12-13. Dr. Michel Pijoan, 124 Commonwealth Ave., Boston, Secretary.

American Neurological Association, Atlantic City, N. J., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Buffalo, N. Y., June 5-8. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Otological Society, New York, May 22-23. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.

American Pediatric Society, Sky Top, Pa., Apr. 27-29. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Physiological Society, Toronto, Canada, Apr. 26-29. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.

American Psychiatric Association, Chicago, May 8-12. Dr. Arthur H. Ruggles, Butler Hospital, Providence, R. I., Secretary.

American Rheumatism Association, St. Louis, May 15. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.

American Radium Society, St. Louis, May 15-16. Dr. Frederick W. O'Brien, 465 Beacon St., Boston, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 1. Dr. Isaac Starr, University of Pennsylvania Hospital, Philadelphia, Secretary.

American Society for Experimental Pathology, Toronto, Canada, April 26-29. Dr. Paul R. Cannon, Dept. of Pathology, University of Chicago, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Toronto, Canada, Apr. 26-29. Dr. G. Philip Grabfield, 319 Longwood Ave., Boston, Secretary.

American Society for the Study of Allergy, St. Louis, May 15-16. Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Texas, Secretary.

American Society of Biological Chemists, Toronto, Canada, Apr. 26-29. Dr. C. G. King, Univ. of Pittsburgh, Dept. of Chemistry, Pittsburgh, Secretary.

American Society of Clinical Pathologists, St. Louis, May 12-14. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.

American Surgical Association, Hot Springs, Va., May 11-13. Dr. Charles G. Mixter, 319 Longwood Ave., Boston, Secretary.

American Therapeutic Society, St. Louis, May 12-13. Dr. Joseph F. Elward, 1726 Eye St. N.W., Washington, D. C., Secretary.

American Urological Association, White Sulphur Springs, W. Va., May 29-June 1. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Arkansas Medical Society, Hot Springs National Park, May 8-10. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Associated Anesthetists of the United States and Canada, St. Louis, May 15. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary General.

Association for the Study of Internal Secretions, St. Louis, May 13-14. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Association of American Physicians, Atlantic City, N. J., May 2-3. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

Association of Military Surgeons of the United States, Washington, D. C., May 8-10. Dr. H. L. Gilchrist, Army Medical Museum, Washington, D. C., Secretary.

California Medical Association, Del Monte, May 1-4. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, New Haven, May 25-26. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, April 25-27. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Executive Secretary.

Federation of American Societies for Experimental Biology, Toronto, Canada, Apr. 26-29. Dr. D. R. Hooker, 19 West Chase St., Baltimore, Secretary.

Florida Medical Association, Daytona Beach, May 1-3. Dr. Shaler Richardson, 111 W. Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, Apr. 25-28. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Illinois State Medical Society, Rockford, May 2-4. Dr. H. M. Camp, 224 S. Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, Apr. 25-27. Dr. Robert L. Parker, 3510 Sixth Ave., Des Moines, Secretary.

Kansas Medical Society, Topeka, May 1-4. Mr. C. G. Munns, 112 W. 6th St., Topeka, Executive Secretary.

Louisiana State Medical Society, Alexandria, Apr. 24-26. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 25-26. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.

Massachusetts Medical Society, Worcester, June 6-8. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.

Minnesota State Medical Association, Minneapolis, May 31-June 2. Dr. B. B. Souster, 11 West Summit Ave., St. Paul, Secretary.

Mississippi State Medical Association, Gulfport, May 9-11. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.

National Gastroenterological Association, New York, June 1-2. Dr. G. Randolph Manning, 1819 Broadway, New York, Secretary.

Nebraska State Medical Association, Grand Island, May 2-4. Dr. R. B. Adams, 414 Federal Securities Bldg., Lincoln, Secretary.

New Hampshire Medical Society, Manchester, June 8-9. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 6-8. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New Mexico Medical Society, Gallup, May 11-13. Dr. L. B. Cohenour, 219 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Syracuse, April 24-27. Dr. Peter Irving, 2 East 103d St., New York, Secretary.

New York State Association of Public Health Laboratories, Valhalla, May 8. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.

North Carolina, Medical Society of the State of, Cruise to Bermuda, May 9-14. Dr. T. W. M. Long, Roanoke Rapids, Secretary.

North Dakota State Medical Association, Fargo, May 8-10. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.

Ohio State Medical Association, Toledo, May 3-4. Mr. C. S. Nelson, 79 E. State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Oklahoma City, May 1-3. Dr. L. S. Willour, Third and Seminole, McAlester, Secretary.

Rhode Island Medical Society, Providence, June 7-8. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., Apr. 29. Dr. W. C. Spain, 116 E. 53d St., New York, Secretary.

Society of Surgeons of New Jersey, Elizabeth, May 31. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.

South Dakota State Medical Association, Aberdeen, Apr. 24-26. Dr. Clarence E. Sherwood, Madison, Secretary.

Texas, State Medical Association of, San Antonio, May 8-11. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

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Decreased Resistance to Hypoglycemia on Successive Days of Administration of Insulin. W. C. Corwin, Rochester, Minn.—p. 227.

Intramyocardial Pressure and Its Relation to Aortic Blood Pressure. J. R. Johnson and J. R. Di Palma, Brooklyn.—p. 234.

Thyroid Stimulation by Cold, Including the Effect of Changes in Body Temperature on Basal Metabolism. G. C. Ring, Boston.—p. 244.

Effects of Preganglionic Denervation on the Superior Cervical Ganglion. A. Rosenblueth and W. B. Cannon, Boston.—p. 276.

Some Chemical and Physiologic Properties of the Gonadotropic Antagonist. C. A. Bunde and A. A. Hellbaum, Oklahoma City.—p. 290.

Plasma Prothrombin Levels in Various Vertebrates. E. D. Warner, K. M. Brinkhous and H. P. Smith, Iowa City.—p. 296.

Vasoconstriction in the Hand from a Deep Inspiration. M. G. Mulinos and I. Shulman, New York.—p. 310.

Acute Riboflavin Deficiency in the Dog. H. R. Street and G. R. Cowgill, New Haven, Conn.—p. 323.

Reproductive Performance of Albino Rats with Previous Vitamin A Depletion Histories. L. G. Browman.—p. 335.

Function of Muscles in Locomotion. H. Elftman, New York.—p. 357.

Gonadotropic Content of Hypophysis Throughout the Life Cycle of the Normal Female Rat. H. D. Lauson, June B. Golden and E. L. Sevringhaus, Madison, Wis.—p. 396.

Physiologic Action of Natural and Artificial Radioactivity. J. G. Hamilton and G. A. Alles, Berkeley, Calif., and San Francisco.—p. 410.

American Journal of Public Health, New York

29: 1-94 (Jan.) 1939

The National Health Conference and the Future of Public Health. A. J. Altmeyer, Washington, D. C.—p. 1.

Attitude of the American Medical Association Toward the National Health Program. I. Abell, Louisville.—p. 11.

The Public Health Aspects of Medical Care: From the Standpoint of Public Health. C.-E. A. Winslow, New Haven, Conn.—p. 16.

*Questionable Value of Skin Testing as a Means of Establishing an Epidemiologic Index of Tuberculous Infection. L. L. Lumsden, W. P. Dearing and R. A. Brown, New Orleans.—p. 25.

Preparation and Analysis of Diagnostic Antipneumococcus Serum. H. Welch, E. K. Borman and F. L. Mickle, Hartford, Conn.—p. 35.

Pneumococcus Diagnostic Serum. E. S. Robinson, Boston.—p. 43.

Is the Private Health Agency on the Way Out? B. Marquette, Cincinnati.—p. 46.

Is There a Place for the Voluntary Health Agency in View of the New Public Health Activities of the Federal Government? H. E. Kleinschmidt, New York.—p. 49.

The State Public Health Nursing Unit and Its Relation to Special Services. Jane D. Nicholson, Washington, D. C.—p. 55.

Laboratory Administration as Regards Syphilis Serology. J. F. Mahoney and Margaret R. Harrison, Stapleton, Staten Island, N. Y.—p. 61.

Epidemiologic Index of Tuberculosis.—Lumsden and his associates question the value of cutaneous testing with tuberculin preparations based on an analysis of about 12,000 persons who were given tuberculin cutaneous tests. A purified protein derivative of tuberculin from two firms was used. School children were the first to be studied. Of 177 (4,400 children tested in two counties) white children ranging in age from 6 to 19 years at the first school tested only 14.7 per cent showed positive reactions. This percentage was surprisingly low in view of the much higher percentage of positive reactions reported by others. The authors' results were strikingly variable with different tuberculins which indicate to them that different preparations of tuberculin now used extensively by health agencies vary greatly in potency and/or specificity and signify that the percentage of positive reactors to cutaneous tests among school children, and inferentially among other general population groups, depends largely on the particular preparation of tuberculin used in making the tests. Satisfactory epidemiologic measurements cannot be made with such varying "yardsticks." The authors state that their observations appear to cast doubt not only on the validity of recorded and exploited rates of subclinical tuberculous infection which have been established in different communities for the same period or in one community for different periods of time solely on a basis of results of cutaneous testing with different preparations of tuberculin but also on the significance of the observations in two or more communities tested at the same time, method, dosage and preparation of tuberculin. The results of tuberculin testing and those of x-ray study of the chests were far apart as epidemiologic indicators.

American Journal of Tropical Medicine, Baltimore

19: 1-96 (Jan.) 1939

Malaria: Retrospect and Prospect. M. F. Boyd, Tallahassee, Fla.—p. 1.

Comments on Some of the Unsolved Problems of Research and Disease Control in the Tropics. J. F. Siler, Washington, D. C.—p. 7.

Failure of Aedes Aegypti to Transmit Yellow Fever Cultured Virus (17D). L. Whitman, Rio de Janeiro, Brazil, South America.—p. 19.

Demonstration of Sporozoites in Human Tissues. M. F. Boyd and S. F. Kitchen, Tallahassee, Fla.—p. 27.

Eighth Year's Observations on Malaria in Panama. H. C. Clark and W. H. W. Komp, Panama, Republic of Panama.—p. 33.

Infection of Mature and Immature Erythrocytes by Plasmodium Falciparum and Plasmodium Malariae. S. F. Kitchen, Tallahassee, Fla.—p. 47.

Further Observations on the Duration of Immunity to the Homologous Strain of Plasmodium Vivax. M. F. Boyd and C. B. Matthews, Tallahassee, Fla.—p. 63.

Observation on the Incubation Period of Plasmodium Falciparum. M. F. Boyd and C. B. Matthews, Tallahassee, Fla.—p. 69.

Endocrinology, Los Angeles

24: 1-136 (Jan.) 1939. Partial Index

Sodium Pregnandiol Glucuronide: Significance of Its Excretion in the Urine. E. C. Hamblen, Catharine Ashley and Margaret Baptist, Durham, N. C.—p. 1.

*Therapeutic Use of the Sex Sterols in Functional Menometrorrhagia. E. C. Hamblen, Durham, N. C.—p. 13.

Progestin Studies: Pregnandiol Excretion. R. F. Stover and J. P. Pratt, Detroit.—p. 29.

The Immature Rat Uterus in the Assay of Estrogenic Substances, and a Comparison of Estradiol, Estrone and Estriol. H. D. Lauson, C. G. Heller, June B. Golden and E. L. Sevringhaus, Madison, Wis.—p. 35.

Atypical Uterine Growths Produced by Prolonged Administration of Estrogenic Hormones. W. O. Nelson, Detroit.—p. 50.

The Specific Metabolic Principle of the Pituitary. L. W. Billingsley, D. K. O'Donovan and J. B. Collip, Montreal.—p. 63.

Release of Colloid from Thyroid Gland by Centrifugal Force. J. F. McClendon, Minneapolis.—p. 82.

Calorigenic Potency of Free Thyroxine by Mouth. W. O. Thompson, P. K. Thompson, S. G. Taylor 3d and L. F. N. Dickie, Chicago.—p. 87.

Pseudosexual Precocity; the Adrenal Cortical Syndrome in Preadolescent Girls: Report of Successfully Operated Case. W. A. Reilly, H. Lisser and F. Hinman, San Francisco.—p. 91.

Lactogenic Hormone: Severe Reactions from Its Use. A. A. Werner, St. Louis.—p. 119.

Sex Sterols in Menometrorrhagia.—Hamblen discusses a form of treatment which employs the cyclic administration of estrogen and progesterone or of progesterone alone. Observations were made on twelve patients with functional uterine bleeding. They received a total of forty-six series of treatments. During the period of treatments regular cyclic bleeding occurred and when the injections were discontinued none of the patients experienced a return of excessive bleeding. Some evidence is presented that these cyclic treatments alter the pathologic aberrations of the pituitary-ovarian-endometrial system, thereby overcoming theoretical ovarian and endometrial refractivity and the associated alterations in the gonadotropic effects of the pituitary. The method of treatment has been essentially as follows: A remission from bleeding is induced, if necessary, by estrogenic therapy or curettage. One week later, injections of estrogen in daily doses of from 10,000 to 20,000 international units are begun and continued for fourteen consecutive days. Progesterone is then given daily in doses of 5 international units for the next seven days. At the conclusion of this treatment, and frequently before it is finished, bleeding occurs. This has been found, as a rule, to be comparable in amount and in duration to that experienced by healthy women. No treatments are given during the week set aside for bleeding. Injections of progesterone are discontinued when bleeding begins. If these are continued, experience has been that excessive and prolonged bleeding often results. One week after the onset of bleeding, treatments are repeated in the same fashion. If bleeding lasts longer than seven days, injections of estrogens cause it to stop. Series of this combined therapy are given for from three to six months.

Journal of Urology, Baltimore

41: 1-102 (Jan.) 1939

*Fused Kidney: Gross Pathologic Changes in Thirty-Five Cases. Rosemary Shoemaker and W. F. Braasch, Rochester, Minn.—p. 1.
Pharmacology of Sulfanilamide. E. K. Marshall Jr., Baltimore.—p. 8.
Sulfanilamide and Disulfanilamide Concentrations in Blood and Urine. E. P. Alyea, W. E. Daniel and Anne Yates, Durham, N. C.—p. 14.
Experimental and Clinical Observations on Sulfanilamide in Urinary Infections. S. A. Vest, Justina H. Hill and J. A. C. Colston, Baltimore.—p. 31.
Treatment of Gonococcic Infections with Sulfanilamide. J. I. Farrell, Chicago.—p. 44.
Sulfanilyl Sulfanilamide in Treatment of Gonorrhea in the Male. C. R. O'Crowley, W. L. James and H. L. Sutton, Newark, N. J.—p. 51.
Treatment of Urinary Infections in Children with Sulfanilamide. Pearl Summerfeldt and D. R. Mitchell, Toronto.—p. 59.
Limitations, Dangers and Failures of Sulfanilamide in Treatment of Urinary Tract Infections. J. L. Crenshaw and E. N. Cook, Rochester, Minn.—p. 64.
Sulfanilamide in Treatment of Acute Gonorrhea in the Male. H. A. Bogaev, E. T. Litt and D. M. Davis, Philadelphia.—p 75.
Growth of Neisseria Gonorrhoeae on the Chorio-Allantoic Membrane of Chick Embryo. Justina H. Hill and Anne C. Pitts, Baltimore.—p. 81.
Possible Anatomic Relations Between Pituitary Body and Prostate Gland: I. Normal Pituitary Body. H. M. Jones, Rochester, Minn.—p. 84.
Self Induction Analgesia with Nitrous Oxide for Urologic Examinations and Minor Procedures. H. H. Young, Baltimore.—p. 95.

Pathologic Changes in Fused Kidney.—Shoemaker and Braasch state that at the Mayo Clinic during the years from 1905 to April 1938 thirty-five instances of fused kidney were observed in the course of postmortem examinations. The incidence was 1:385 necropsies, which is higher than that of most authors (1:700). The advent of intravenous urography, however, has increased the incidence to about 1:200 persons (Gutierrez). In twenty-four cases the ureters, pelves and calices were normal except for their position in relation to the renal parenchyma. In eleven cases there was some degree of dilatation of the ureters, pelves or calices. In five of these eleven cases the dilatation was limited to the calices and pelvis and may be considered the result of the anomaly. There were eight cases of hypertrophy of the prostate gland and one of stricture of the urethra. In six of these there also was some dilatation of the upper part of the urinary tract. In four the dilatation was probably secondary to the obstructing lesion in the lower part of the urinary tract (prostatic hypertrophy in three cases and stricture of the urethra in one). Dilatation was secondary to a vesicocolonic fistula in another case. Pyelograms were made in only three cases. In two the possibility of fused kidney was suggested by pyelography but in another the diagnosis could not be made by this means. Sections were examined microscopically in twenty-one cases. Ten of these specimens appeared grossly normal. There were three cases of pyelonephritis (two with abscess formation). The remaining specimens were normal microscopically or pathologic changes were observed which would be found as often in anomalous as in normal kidneys. Coexistent congenital anomalies were present in eleven cases.

Laryngoscope, St. Louis

49: 1-68 (Jan.) 1939

Annual Digest of the Literature of Tuberculosis in the Field of Otolaryngology: Abstract of the Literature of the Past Few Years. F. R. Spencer, Boulder, Colo.—p. 1.
Bacteriology of Suppurative Meningitis. A. A. Eggston, New York.—p. 16.
Differential Diagnosis of Otitic Meningitis. J. G. Dwyer, New York.—p. 21.
Avenues of Infection of Otitic Meningitis. M. F. Jones, New York.—p. 23.
Operative Treatment of Otitic Meningitis. W. C. Bowers, New York.—p. 26.
*Chemotherapy in Meningitis Secondary to Ear and Sinus Infections. E. Appelbaum, New York.—p. 30.
Surgical Treatment of Chronic Dacryocystitis: The Transseptal Approach. S. W. Garfin, Boston.—p. 46.
Anesthesia in Peroral Endoscopy. F. J. Putney, Philadelphia.—p. 55.
Tonsillectomy: Dissection Technic. S. Israel, Houston, Texas.—p. 59.

Chemotherapy in Meningitis.—Appelbaum believes that future progress in the treatment of meningitis secondary to infections of the ears and sinuses will depend mainly on the development of a more effective chemotherapeutic agent, capable perhaps of attacking the primary foci of infection. He has begun to use sulfapyridine in pneumococcic meningitis and hopes to report on it at some future date. The use of sulfanilamide in cases of meningitis due to the hemolytic streptococcus has yielded marvelous results. The prompt and complete eradication of the primary foci of infection is of particular importance in the forms of meningitis under consideration. Sulfanilamide therapy marks an important advance. By means of this drug and its derivatives one can now treat successfully many of the otherwise almost uniformly fatal infections.

Southern Surgeon, Atlanta, Ga.

8: 1-112 (Feb.) 1939

Diaphragmatic Hernia: Report of Cases Illustrating Its Varieties. P. E. Truesdale, Fall River, Mass.—p. 1.
Interposition Operation for Prolapsus Uteri. Q. U. Newell, St. Louis.—p. 28.
Operative Treatment of Vesicovaginal and Related Fistulas. W. W. Babcock, Philadelphia.—p. 34.
Carcinoma of the Male Breast. I. M. Wise, Mobile, Ala.—p. 44.
Bronchial Tumors, Diagnoses and Treatment. E. W. Davis, Washington, D. C.—p. 47.
Surgical Management of Incompetent Genital Supports in the Female. B. T. Beasley, Atlanta, Ga.—p. 68.

West Virginia Medical Journal, Charleston

35: 57-104 (Feb.) 1939

Recent Developments in the Surgical Treatment of Lesions of the Biliary Tract. W. Walters, Rochester, Minn.—p. 57.
Social Medicine and Health Insurance in Europe. W. England, Parkersburg.—p. 65.
Ruptured Uterus. W. E. Hoffman, Charleston.—p. 74.
Preliminary Care of the Traumatic Wound. B. I. Golden, Elkins.—p. 77.
Study of the Treatment of Fractures of the Spine Operative and Nonoperative. H. A. Swart, Charleston.—p. 80.
*Effects of Basketball on Junior High School Boys. A. B. Bowyer and N. S. Anderson, Buckhannon.—p. 89.

Effects of Basketball on Junior High School Boys.—Bowyer and Anderson show that with the new ten second rule the game of basketball is extremely strenuous on junior high school boys from 12 to 16 years of age. To determine whether there is any harmful effect on the hearts of boys of this age playing basketball they have checked the blood pressure and heart rates of boys before and after each basketball game. They also made a preseason and postseason test. The mean or average of the preseason systolic pressure was 108 plus or minus 2.78 and the mean of the postseason pressure was 111.6 plus or minus 2.95. The true difference between the means was 3.6, which was a gain in systolic pressure. The critical ratio was 0.89, which indicates that the mean of the preseason and postseason test is not statistically significant. The authors, therefore, drew the conclusion from their studies that basketball under the old rules did not have any harmful effects on junior high school boys. With their conclusions of 1936-1937 showing no harmful effects, they continued the study under the new rules. One of the most interesting comparisons is made between a hard game and an easy one. In the easy game sixteen boys played at some time or other. There was not a boy on the squad who played the whole game. The heart rates taken twenty minutes after the easy game show that in all the boys but one it had returned to normal, and in this one it was only a fraction higher. The results of a hard game show that the blood pressure of some of the boys goes down, while the pressure of others is increased by exercise. When the blood pressure goes below normal, it indicates a period of staleness or acute fatigue. The boys who did not play the full game would return to normal very quickly after the game. From this the authors decided that a full game of basketball under the new rule was too strenuous on junior high school boys. Their conclusion is substantiated by S. J. Morris of the Health Unit of West Virginia University. The mean pulse rate of the four hardest games of the authors' squad was found to be 146 five minutes after the game. After twenty minutes the heart rate was still 115. The preseason and postseason tests were taken under ideal conditions without the emotional strain of a game. The postseason test shows that the boys' heart rates are higher while their blood pressures are lower. The high heart rates and low blood pressure indicate periods of fatigue that naturally place a strain on the circulatory system. The authors are unable to say with any final degree of authority, but the probabilities are that if this type of strenuous exercise is practiced year after year during the adolescent period it will produce a weakened circulatory system, which may develop into a handicap in later life. They conclude that basketball as played under the present rules is too strenuous for junior high school boys unless several boys, given each at least one quarter of the four to rest in, participate in one game.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

12: 1-64 (Jan.) 1939

Calcification of the Costal Cartilages. J. B. King.—p. 2.
*Chronic Fluorine Poisoning Seen from the Roentgenologic Standpoint. P. F. Moller.—p. 13.
*Radiologic Manifestations in Bilharziasis. M. Ragheb.—p. 21.
Review of the International Radiologic Literature for January to June 1938. Compiled by A. Orley.—p. 28.
Influence of Wavelength on Biologic Effectiveness of Radiation. H. G. Crabtree and L. H. Gray.—p. 39.
"Tolerance Concentration" of Radon in Atmosphere. J. Read and J. C. Mottram.—p. 54.

Chronic Fluorine Poisoning.—Moller points out that the principal x-ray sign of fluorine poisoning is the changes in the bones. In the cases of severest poisoning the bones, especially the spongy bones, are enormously changed, both in structure and in outline. What first impresses one in looking at roentgenograms of the vertebral column and the pelvis is the almost complete disappearance of normal bony structure, which has been replaced by an almost absolute milky white opacity. The isolated trabeculae appear thick, dense and of a woolly indistinctness. The outlines of the vertebrae too are absolutely lacking in sharpness. The transverse processes are wide, thick and covered with small excrescences, and the spinous processes shine through as a dense, irregular band. This is because, in severe poisoning, the ligaments and fibrocartilaginous attachments also are the seat of extensive calcification. The ligaments on the anterior and lateral aspects of the vertebral bodies form, when calcified, actual bridges between those bodies, and in some cases the picture resulting from the calcifications resembles that of ankylopoietic spondylitis. The posterior ends of the ribs are covered along the edges with large, irregular excrescences resembling hoarfrost needles. In the extremities the compact layers of bone are greatly thickened and the marrow cavities narrowed. The normal cristae are prominent, and at the points of attachment of the large muscles there are large irregular calcifications of the fibrocartilages. The small bones of the hands and feet present the same appearance, but the density is not so great. In the most severe poisoning changes in the cranium also occur. The roentgenologist should be acquainted with the curious osseous changes resulting from such poisoning.

X-Ray Manifestations of Bilharziasis.—The extent of bilharzial infestation can be determined roentgenologically. Ragheb states that bilharziasis exhibits itself on the roentgenogram in two forms: 1. The deposition of ova in the submucosa is followed by ulceration and subsequent calcareous depositions. 2. The deposition of ova is followed by the formation of papillomas; the papillomas, in their turn, may ulcerate or become calcified and then will give the appearance of a calculus. The first form is predominant in the bladder, ureters and seminal vesicles. The second form is usual in the intestine, kidney and pelvis of the kidney.

Journal of Pathology and Bacteriology, Edinburgh

48: 1-244 (Jan.) 1939. Partial Index

Inorganic Nuclear Content as an Index of Tumor Radiosensitivity. I. A. B. Cathie.—p. 1.
Effect of Liver Damage on the Action of Some Barbiturates. G. R. Cameron and G. S. W. de Saram.—p. 49.
Serologic Typing of Streptococcus Pyogenes and Its Application to Certain Infective Conditions. H. Neisser.—p. 55.
Toxin of Brucella Bronchiseptica and the Relationship of This Organism to Haemophilus Pertussis. D. G. Evans and H. B. Maitland.—p. 67.
Production of Vaginal Mucification with the Synthetic Estrogen Triphenyl Ethylene. A. M. MacDonald and J. M. Robson.—p. 95.
Morbid Anatomy of Gravis, Intermedius and Mitis Diphtheria: Observations on Series of Fifty-One Postmortem Examinations. J. W. McLeod, J. W. Orr and Hester E. de C. Woodcock.—p. 99.
Use of Blood Agar for Identification of Types of Corynebacterium Diphtheriae. H. Wilson and N. E. Goldsworthy.—p. 125.
Diphtheria in Liverpool, with Special Reference to Type Incidence and Severity. H. R. Shone, J. R. Tucker, V. Glass and H. D. Wright.—p. 139.
Incidence and Significance of Types of Diphtheria Bacilli in the Ukraine. K. Zinnemann and I. Zinnemann.—p. 155.
Haemophilus Influenzae of the Respiratory Type as Cause of Purulent Meningitis. J. Mulder.—p. 175.

Journal de Médecine de Lyon, Lyons

20: 69-104 (Feb. 5) 1939

*Painful Vertebral Osteoporoses. P. P. Ravault, J. Graber-Duvernay and G. Léger.—p. 69.
Preclinical Period. P. Delore.—p. 87.

Painful Vertebral Osteoporoses.—Attention has been called to a curious syndrome characterized anatomically by a striking elective decalcification of the vertebral bodies, likely to produce gross morphologic modifications of the vertebral column; clinically, pain occupies a predominant place. This painful vertebral syndrome of osteoporotic origin must be differentiated from other painful disorders of the vertebral column. It responds to a therapy which in certain cases produces extremely favorable results. Ravault and his associates agree with Decourt that these cases of painful vertebral osteoporoses must be considered as localized forms of osteomalacia. Then they describe the clinical histories of eight personally observed cases and in the subsequent discussion they take up the subjective, objective, roentgenologic and humoral signs of the disorder. After discussing the etiology and pathogenesis they give their attention to the diagnosis and particularly the *differentiation from such disorders as Pott's disease, vertebral* cancer, Kümmell-Verneuil's disease, vertebral rheumatism and senile kyphosis. The therapy of painful vertebral osteoporoses has two chief aims: recalcification and counteracting of the pains. The first object is accomplished by injectable calcium preparations, by vitamins D and A and by the application of ultraviolet rays or heliotherapy. If success is obtained, the pains gradually subside. However, this successful outcome of the treatment is far from being constant; there are some cases which are not improved. A suitable diet may be of assistance in the treatment. The authors recommend especially milk, egg yolks, potatoes, cabbage, peas and fruits. The diet should be rich in vitamins and should stimulate the appetite. In counteracting the pains, the remedies for nervous disorders such as acetylsalicylic acid and antipyrine are not efficient, since their effect is always transitory. The same can be said about the treatment with diathermy and with short waves. Roentgen therapy was found to produce exacerbation of the pains in one instance. On the other hand, the authors found the intradermal injection of histamine effective in a patient who was not improved by the recalcification treatment. One patient was improved only by a series of shocks induced with a sulfur preparation. Finally, orthopedic measures may prove helpful.

Revue d'Orthopédie, Paris

26: 1-96 (Jan.) 1939

Vertebral Angioma. I. Iacobovici.—p. 5.
Para-Articular Calcifications of Shoulder: Tendinous Ruptures and Pericapsular Bursitis. P. Mallet-Guy and P. Frieh.—p. 20.
*Metastatic Osseous Suppurations with Staphylococcus in Course of Evolution of Furuncles and of Anthrax in Adults. R. Peycelon.—p. 33.
Rare Case of Congenital Osseous Syphilis. J. Marian.—p. 45.
Isolated Fractures of Tarsal Scaphoid: Observations on a Case. P. Decoulx and R. Demarez.—p. 51.
Operative Treatment of Scapulohumeral Periarthritis. M. Delitch.—p. 57.
Reduction Under Fluoroscopic Screen of Luxation of Elbow with Interposition of Detached Epitrochlea. H. Tillier.—p. 63.

Metastatic Osseous Suppurations in Adults.—Peycelon points out that acute infectious processes of the skeleton which are truly primary are relatively rare in adults. Many of those which appear in adults are recurrences of osteomyelitic processes of adolescence which had either been forgotten by the patient or had not been recognized at that age. The majority of acute osteomyelitic processes of adults appear as metastatic suppurations. The port of entry can nearly always be found by reference to recent clinical manifestations such as an acute pulmonary process, angina and cutaneous lesions. The localization of the metastatic osseous suppuration of adults presents some unusual aspects: one is that its site of predilection is the long bones, particularly the femur. Nevertheless the flat bones are not exempt, for the author observed it in the iliac crest and in the acetabulum. The most curious aspect, however, is the mediodiaphysial localization of the infectious osseous focus in adults, because this diaphysial site contrasts with the juxta-epiphysial topography of such lesions in adolescents. As regards the anatomoclinical aspects, the author differentiates three forms: (1) the panosteitis, which involves

all parts of the bone from the periosteum to the medullary cavity, (2) the cortical osteitis, which is more superficial, and (3) the most superficial form, which is more a periostitis than a true osteitis. In this report the author gives his attention chiefly to this last metastatic staphylococcic periostitis. He describes the histories of six cases, the dominating characteristic of which is the superficial nature of the lesions; only the surface of the bone is touched by the staphylococcic infection. The roentgenograms show a localized periosteal thickening at a point of the diaphysis and this periosteal reaction remains isolated and is not accompanied by even a limited cortical destruction. The patients had been treated for cutaneous suppurations, when they complained of painfulness and slowly a tumefaction appeared. The therapy was indicated by the roentgenologic and clinical aspects. Following the simple incision of the periosseous abscess, the development was uneventful in the six reported cases. Cure was rapidly established, without passage into chronicity or fistula. Thus, the prognosis seems favorable.

Deutsche Zeitschrift für Chirurgie, Berlin

251: 449-552 (Jan. 28) 1939. Partial Index

*Isolated Avulsion of Trochanter Minor in Epiphysis Line a Typical Sport Injury in Young Persons. K. Herzog.—p. 449.
Significance of Small Bone Shadows on Vertebral Edges. H. Rosenthal.—p. 463.
Acute Purulent Coxitis in Venereal Lymphogranuloma. E. Fulde and J. Herzberg.—p. 479.
Surgical Treatment of Certain Forms of Tuberculosis of Knee Joint. E. Ducrey.—p. 491.
Clinical Aspects and Therapy of Pancreatic Adenoma. H. Krauss.—p. 512.
Spontaneous Rupture of Inferior Vena Cava on Basis of Chronic Thrombophlebitis with Massive Hemorrhage into Retroperitoneal Space. F. Osswald.—p. 520.
Therapeutic Results in Fracture of Forearm. W. Bufe.—p. 539.

Avulsion of Trochanter Minor.—According to Herzog, avulsion of the trochanter minor is now more frequent than was formerly the case. He is convinced that the better recognition since the beginning of the roentgenologic era has not been entirely responsible for the greater incidence but that the increase in athletic activities is largely accountable, because nearly all recently observed cases were sustained in the course of athletic games. The occasions and movements that lead to avulsion of the trochanter minor are usually so similar that this lesion can be regarded as a typical injury from sport. The author describes the clinical histories of two youths aged 17 and 13 who sustained trochanteric avulsion, the one in the course of a hockey game and the other during a football game. That young persons are especially prone to sustain an "isolated" avulsion of the trochanter minor is due to the fact that during these years the epiphysial line of the trochanter minor is the site of least resistance to traction in that the mechanical system, which consists on the one hand of the iliopsoas muscle and the portions of the femur, reaching from the sites of attachment of this muscle to the hip joint and, on the other hand, of the bony pelvis and the vertebral column. This locus minoris resistentiae changes during the different ages. After ossification of the epiphysial line, during maturity, the muscle is the part that is most readily injured, and muscular strains and tears occur. Beyond the age of 50 the bone has the least resistance, and fractures of the trochanter minor may develop. Avulsion of the trochanter minor occurs almost exclusively in young persons who are less than 18 years old. This is understandable if it is considered that at about the age of 18 osseous fusion takes place between the trochanter minor and the femur. Discussing the mechanism of the trauma that elicits the trochanteric avulsion, the author shows that the force which results in the tearing away is elicited by aborted reflex movements; that is, an evolving movement is suddenly changed into a different one. Following a discussion of the clinical signs, he shows that the roentgenologic aspects are decisive for the diagnosis. The prognosis is favorable. Conservative treatment always results in osseous fusion. The patient is placed so that the knee and the hip are slightly bent and the thigh is rotated slightly outward. This position is retained by means of sand bags. Pains and swelling usually disappear rapidly following this immobilization. The roentgenogram reveals formation of callus after from three and one half to four weeks.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

82: 6217-6264 (Dec. 31) 1938. Partial Index

*Favus and School. H. W. Siemens and A. J. M. Krens.—p. 6224.
Therapy of Intermittent Claudication. P. Formijne.—p. 6231.

Favus in School Children.—Siemens and Krens deplore the lack of attention paid to the social importance of the contagious skin diseases, particularly favus. They emphasize the importance of enlightening the public and of impressing on the school boards the necessity of detecting and treating all children who have favus. They stress the following points: 1. All schools should be inspected by physicians. 2. Children with favus should be permitted to attend school only if they wear a bandage completely covering the lesions and if they can bring proof that they are undergoing regular treatment by a physician. In order to reach the cases of favus in persons who no longer attend school, ordinances should be passed which prohibit persons with favus from working in places in which they can infect others.

Acta Pædiatrica, Stockholm

23: 141-257 (Dec. 31) 1938. Partial Index

*Cerebral Defects in Children Delivered by Cesarean Section. T. Brander.—p. 145.
Is Rickets Due Simply to Vitamin Deficiency? E. Földes.—p. 178.
Myelosarcomatosis with Clinical Aspects of Chloroma. Cornelia de Lange.—p. 183.
Congenital Cardiac Disease: Four Cases. E. Mannheimer and P. J. Nordenfelt.—p. 200.
Aspects of Hematocolpos. C. Hirschberger.—p. 229.
Congenital Anomaly in Bauhini's Valve and in Appendix as Cause of Peritonitis in the Newborn. P. I. Tuovinen.—p. 234.
Tabes Dorsalis in Children. S. Wendt.—p. 245.

Cerebral Defects in Children Delivered by Cesarean Section.—Brander says that it is generally believed that the abdominal cesarean section insures against intracranial birth injuries. However, in reviewing the literature he found seventy-two cases of intracranial lesions verified post mortem in children who had been delivered by abdominal cesarean section (cases of vaginal cesarean section excluded). In some of these cases a tearing of the tentorium was discovered. There are also numerous observations on symptoms of intracranial birth injuries, such as defective intelligence, epileptiform convulsions and spastic pareses. The author describes the clinical histories of three children with mental defects who had been delivered by cesarean operation. He admits that in the cases of severe cerebral defects the hereditary conditions are not always sufficiently clear. Moreover, the reports in which the diagnosis of intracranial lesions in children delivered by cesarean operation cannot be doubted contain nothing about the obstetric complications that led to the cesarean operation. In this connection the author points out that the fetus may have been injured by attempted forceps extraction before the cesarean operation was resorted to. The same applies to cases in which prolonged labor pains, perhaps in connection with Walcher's position, preceded the operation. If at this time the head of the child was tightly wedged into the pelvic inlet it may be injured not only before but also during the cesarean operation. Intracranial birth injuries in connection with the cesarean operation occur more frequently in vaginal than in abdominal cesarean section, and of the abdominal methods the corporal involves less dangers for the fetus than does the cervical method. Moreover, the extraction by the foot seems to be more dangerous than freeing the head first, and instrumental development of the head is of course more harmful than is its manual extraction. In cases in which the fetus is large, too short incisions may increase the danger of an intracranial lesion. Complications may arise if the surgical incision injures the placenta. The danger of intracranial hemorrhages in the course of cesarean operations is greater in premature deliveries, in the hemorrhagic diathesis and in pregnancy toxicoses. Asphyxia supposedly may cause intracranial hemorrhages; on the other hand, it is probable that intracranial injury may become manifest in asphyxia. That methods of resuscitation may cause intracranial hemorrhages in children delivered by cesarean operation has likewise been observed. Moreover, in two reported cases of fatal intracranial hemorrhages after cesarean delivery, uterine tumors were discovered.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, No. 16 — COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS — APRIL 22, 1939

COMPLICATIONS DUE TO ARSENICAL THERAPY IN SYPHILITIC PREGNANT WOMEN

REPORT OF SEVEN MATERNAL DEATHS

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PHILADELPHIA

Recent writings convey the impression that pregnant syphilitic women tolerate arsenical therapy well.[1] In fact, the fear of serious reaction to the intravenous treatment of these patients with the arsphenamines has become so remote that some authorities recommend this prophylactic procedure for the unborn child, even "on suspicion" that the prospective mother may be diseased.[2] McCord,[3] who has apparently never seen a serious treatment reaction or death in the medical supervision of more than 2,000 syphilitic pregnant women, remarks that "such therapy seems to be safe for the mother." The Cooperative Clinical Group, with Cole [4] as spokesman, feels that, regardless of antecedent therapy, in order to insure the birth of a healthy child it is desirable to treat intensively throughout each pregnancy every woman who has ever had syphilis, whether the serologic tests of the blood for syphilis are positive or negative or the infection is early or late. Hoffmann,[5] voicing the opinion of one of the most progressive schools of European medical thought, in his recent lecture in this country goes one step further, recommending that "one or two combined courses should be given as a protection to the offspring" of an apparently well mother, notwithstanding "the absence of diagnostic signs and the presence of a negative serum reaction," provided her husband is known to be syphilitic.

In prescribing antisyphilitic therapy for a pregnant syphilitic woman, consideration of the well-being of the prospective mother should take precedence over the health of the unborn child, as in all other obstetric procedures. The infected woman, under medical observation and treatment during nine months at the most, and on an average during only three or four months of her pregnancy, cannot hope to have her disease cured or in most cases even materially benefited. In all except an occasional case therefore the physician is concerned with a purely prophylactic procedure, employed to prevent the offspring from becoming diseased. Without in any way denying that the treatment of the pregnant syphilitic woman to prevent her infant from becoming infected in utero is one of the most effective forms of preventive medicine known today, it should be used with caution if the hazard to the mother is appreciable.

Many of the current opinions concerning the fact that "the pregnant syphilitic woman is a good risk for arsenical therapy" are gleaned from the statistics obtained by an analysis of the records of some 4,600 injections of arsphenamine administered to 603 expectant mothers at the five university clinics (Johns Hopkins, University of Pennsylvania, University of Michigan, the Mayo Clinic and Western Reserve University) cooperating with the United States Public Health Service.[6] They found no significant difference in minor arsenical reactions in the pregnant and nonpregnant groups, but the pregnant women experienced fewer severe arsenical reactions than the nonpregnant (3.08 per thousand injections for the latter, as compared with 0.87 for the former).

This point of view, however, is not without its opponents. To mention only a few of the more recent, Stokes [7] says: "There is no doubt in my mind that the pregnant woman is not eligible, in general, for strenuous treatment regimens. The pregnant woman should not be overloaded and any signs of reactivity must be taken more seriously than in the normal case." Certain circumstances "may make it preferable to take chances for the child with heavy metal or even no treatment rather than risk the mother's life with a standardized system" (see also Wile and Shaw [8]). As a result of their studies, Plass and Woods [9] were forced to conclude "that pregnant syphilitic women are more susceptible to the deleterious, as well as to the beneficial, effects of antisyphilitic therapy by modern arsenicals than other individuals." Kuhnel [10] has gone even further in suggesting that "it may be necessary for us to modify our therapeutic view of the prophylactic and syphilitic treatment in pregnancy" (see also Woods [11]).

While the fact has always impressed me that special care is necessary in handling the syphilitic pregnant

1. McCord, J. R.: Syphilis and Pregnancy, Am. J. Syph., Gonor. & Ven. Dis. **12**: 181 (April) 1928. Wile and Shaw [8]. Hoffmann [5].
2. Moore, J. E.: The Modern Treatment of Syphilis, Baltimore, Charles C. Thomas, Publisher, 1933, p. 251.
3. McCord, J. R.: Syphilis and Pregnancy: A Clinical Study of 2,150 Cases, J. A. M. A. **105**: 89 (July 13) 1935.
4. Cole, H. N., and others: Cooperative Clinical Studies in the Treatment of Syphilis: Syphilis in Pregnancy, Ven. Dis. Inform. **17**: 39 (Feb.) 1936. Cole, H. N.: Congenital and Prenatal Syphilis, J. A. M. A. **109**: 580 (Aug. 21) 1937.
5. Hoffmann, Erich: Congenital Syphilis, Am. J. Syph., Gonor. & Ven. Dis. **22**: 198 (March) 1938.
6. Cole, H. N., and others: Syphilis in Pregnancy, Ven. Dis. Inform. **15**: 83 (March) 1934.
7. Stokes, J. H.: Modern Clinical Syphilology, Philadelphia, W. B. Saunders Company, 1934, p. 1280.
8. Wile, U. J., and Shaw, J. W.: The Prenatal Treatment of Syphilis with Especial Reference to Early Syphilis in the Mother, J. A. M. A. **95**: 1791 (Dec. 13) 1930.
9. Plass, E. D., and Woods, E. B.: Hemorrhagic Encephalitis (Neoarsphenamine) in Obstetric Patients, Am. J. Obst. & Gynec. **29**: 509 (April) 1935.
10. Kühnel, Poul: Death from Salvarsan Treatment in Pregnancy, Acta obst. et gynec. Scandinav. **13**: 29, 1933.
11. Woods, E. B.: Complications of the Treatment of Syphilis in Pregnancy: Report of Three Cases of Arsenical Encephalitis Complicating Such Treatment, J. M. A. Georgia **25**: 23 (Jan.) 1936.

woman, the realization of the importance of this question has recently been reemphasized by Dr. Philip F. Williams, who called my attention to the seven maternal deaths directly attributable to arsenical therapy which have been reported in one locality since 1931 to the Committee on Maternal Welfare of the Philadelphia County Medical Society. In addition, a careful review of the statistics obtained from the administration of 6,345 injections of neoarsphenamine to 733 pregnant syphilitic women during the last five years at the Philadelphia General Hospital revealed a much higher incidence of treatment reactions than is generally attributed to this type of therapy among such patients.

Several additional circumstances made it seem worth while to discuss this problem. In the first place there are in the literature relatively few series of cases large enough to warrant the drawing of accurate conclusions concerning the incidence of treatment reactions among pregnant syphilitic women. Then at least one group of observers tended to collect data only from patients who had been under observation for at least six months.[12] Many pregnant syphilitic women remain under observation for a shorter period than this, particularly if they are intolerant of arsenical therapy. Furthermore, the incidence of reactions probably varies greatly, depending on the economic status of the patients, their state of nutrition and their environment. Thus a patient at Philadelphia General Hospital would be expected to react differently from one at a university clinic or a private patient, and conclusions drawn for one group could not always be transferred directly to the next. Moreover, I am forced to the conclusion, from various references in the literature, that severe treatment reactions among pregnant women are much more frequent than is generally supposed.[10] Thus, McKelvey and Turner [13] and Moore [14] both mentioned the four deaths from acute yellow atrophy of the liver which followed arsenical therapy of syphilitic pregnant women at the Johns Hopkins Hospital. Clason [15] referred to eclampsia in one of his cases as being precipitated by arsenical therapy. Klaften [16] and Reif [17] both described patients with symptoms of hemorrhagic encephalitis who recovered. Spillmann, Weille and Weissmann [18] referred to a young pregnant woman with early syphilis in whom hemiplegia developed during arsenical therapy. Audebert and Fabre [19] reopened the question of erythrodermia and dermatitis complicating antisyphilitic therapy of pregnant women. Finally it is entirely possible that delayed arsenical reactions resulting from treatment during pregnancy, for example damage to the liver or bone marrow, the symptoms of which often take several weeks to appear, have not uniformly been recorded as reactions resulting from treatment during pregnancy when the initial symptoms have appeared after delivery. If this is true, it would lead to a false impression as to the incidence of more severe types of reaction among treated syphilitic pregnant women.

TABLE 1.—*Treatment Reactions Complicating Arsenical Therapy of 733 Pregnant Syphilitic Women at Philadelphia General Hospital, as Compared with the Statistics of the Cooperative Clinical Group [6] on Syphilitic Mothers "Not During Pregnancy"*

Reactions	Philadelphia General Hospital: Number of Reactions (6,345 Injections)	Philadelphia General Hospital: Rate per Thousand Injections	Cooperative Clinical Group [6]: Rate per Thousand Injections (6,431 Injections)
Gastrointestinal disorders	144	22.75	6.22
Nitritoid crisis	24	3.79	3.73
	8	1.26	1.71
	27	4.27	4.04
kidneys	14	2.61	0.16
Purpuric phenomena (with	7	1.11	0.00
Se	1	0.16	0.00
	2	0.32	1.40
Icterus	8	1.26	0.62
Death (colloidoclastic shock)	1	0.16	0.00

In this series there was no evidence that pregnant syphilitic women tolerate arsenical therapy well. Only in the case of generalized exfoliative dermatitis was the incidence appreciably lower than in the nonpregnant group. Here again the duration of therapy was probably an important factor, since such a reaction usually occurs after a longer course of arsphenamine than these

TREATMENT REACTION: IN THE ANTEPARTUM SYPHILIS CLINIC OF PHILADELPHIA GENERAL HOSPITAL

Table 1 summarizes five years' experience with treatment reactions in the antepartum syphilis clinic at the Philadelphia General Hospital. The group studied was roughly one third white and two thirds Negro. Unfortunately it was not possible for me to obtain data as to the total incidence of treatment reactions in the type of nonpregnant patients attending the general syphilis clinic of his institution, and it may be that this figure also is higher than normal. In order to make my own statistics somewhat more understandable, however, I have incorporated in the table the reaction rate per thousand injections from the figures of the Cooperative Clinical Group for syphilitic women treated between their pregnancies; it happens that an almost identical number of injections were given to each of these groups. This comparison brings out strikingly the facts which have been noted previously by various investigators,[20] namely the pregnant woman's increased susceptibility to gastrointestinal reactions, to irritation of the kidneys and to hepatic insufficiency. In pregnant women nausea, vomiting and diarrhea as a result of arsenical therapy are roughly three and one half times more frequent, jaundice is twice as frequent and evidence of kidney strain is about sixteen times more frequent than in nonpregnant women. It is interesting to note that among the women treated at the Philadelphia General Hospital the incidence of gastrointestinal disturbances was twice as great, of pruritus and cutaneous eruptions three times and twice as great, respectively, and of icterus six times as great as in the series of pregnant women whose cases were reported by Cole and his co-authors.[6]

12. Cole, H. N., and others: Cooperative Clinical Studies in the Treatment of Syphilis: Arsenical Reactions, Ven. Dis. Inform. **14**: 175 (Aug.) 1933; Syphilis in Pregnancy.[6]
13. McKelvey, J. L., and Turner, T. B.: Syphilis and Pregnancy: An Analysis of the Outcome of Pregnancy in Relation to Treatment in 943 Cases, J. A. M. A. **102**: 503 (Feb. 17) *1934*.
14. Moore: The Modern Treatment of Syphilis, p. 98.
15. Clason, S.: Eklampsie oder Salvarsanvergiftung? Drei Todesfälle mit diskutabler Genese, Acta obst. et gynec. Scandinav. **12**: 40, *1932*.
16. Klaften, E.: Die Prinzipien der antisyphilitischen Behandlung der Schwangeren, Arch. f. Gynak. **135**: 620 (Feb.) *1929*.
17. Reif, F.: Ueber gehäuftes Auftreten von Enzephalitis nach Neosalvarsan, München. med. Wchnschr. **68**: 14 (Jan. 7) 1921.
18. Spillmann, L.; Weille, R., and Weissmann: Hémiplégie post-arsénobenzolique, Bull. Soc. franç. de dermat. et syph. **43**: 1380 (July) *1936*.
19. Audebert, J. L., and Fabre, Jacques: Accouchement prématuré et érythrodermie dus au néo salvarsan, Bull. Soc. d'obst. et de gynéc. **17**: 779 (Oct.) *1928*.
20. Lewin, E. M.: Neues zur Lehre über die Toxische Wirkung der Arsenobenzolpräparate auf die Leber, Arch. f. Dermat. u. Syph. **166**: 711 (Oct.) 1932.

patients received (average 8.4 injections). In the two cases in this series in which this manifestation did occur, it developed at about the time of delivery and extended some weeks into the puerperium.

The number of pregnant syphilitic women who become nauseated and vomit after neoarsphenamine treatment is noteworthy. This reaction is rarely an indication for suspension of arsenical therapy or even for reducing the dose. In my 733 cases the severity of this reaction made it necessary to stop intravenous injections in twelve cases. Nine additional patients were carried along with little discomfort by reducing the size of the dose and administering 1/100 grain (0.6 mg.) of atropine sulfate. Irritability of the kidneys likewise is not an indication for cessation of treatment unless the patient shows evidence of toxemia of pregnancy, such as increasing hypertension, headache, disturbance of vision, marked albuminuria or edema of the ankles. In the presence of definite or incipient toxemia it has been my experience that no type of antisyphilitic therapy is well tolerated, and, since the risk in administration of these drugs is great to a patient whose elimination is poor, it is best to discontinue antisyphilitic treatment entirely. The jaundice which I have seen has occurred close to term and, on the cessation of arsenical therapy, has cleared up post partum without evidence of permanent hepatic damage. The death recorded in table 1 is that in case 4, described subsequently.

MATERNAL MORTALITY FROM ARSENICAL THERAPY DURING PREGNANCY

In an effort to demonstrate that the pregnant syphilitic woman is by no means immune to the serious treatment reactions attending antisyphilitic therapy and to suggest, moreover, that she may be, as some authors feel, more susceptible than the nonpregnant woman, thirty-five reported cases have been collected and summarized, and the seven cases discussed before the Maternal Welfare Committee of the Philadelphia County Medical Society have been briefly analyzed. The cases gathered from the literature include the twenty-three described in detail by Kühnel,[10] the case of eclampsia reported by Clason,[15] the cases of exfoliative dermatitis of Lorenzen [21] and Kirstein [22] and the cases reported by Scheel,[23] Neustadt,[24] Cole and his associates,[25] Plass and Woods,[9] Cormia,[26] Gierlich and Künkele [27] and Lanzenberg and Laugier.[28]

These forty-two cases represent most of the known types of serious arsenical complications (table 2). In almost two thirds the condition falls into the category of acute encephalopathy, which has come to be termed in the literature acute hemorrhagic encephalitis because of the intense cerebral congestion revealed by autopsy (wet brain with multiple punctate hemorrhages [29]). The fact that pregnant syphilitic women are particularly susceptible to this type of treatment reaction was early recognized by Meirowsky,[30] Gammeltoft [31] and Klaften,[16] and the question has recently been reviewed by Cormia [26] and by Plass and Woods.[9] Kühnel [10] has given a graphic description of the condition, which, coming on in the latter part of the pregnancy, most often after from one to three arsenical injections to a woman with early syphilis, with the symptom sequence of headache, vertigo, malaise, nausea, vomiting, hyperpyrexia, clonic convulsions, unconsciousness, cyanosis and death within twenty-four to seventy-two hours, forms a distinctive clinical entity.[31a]

TABLE 2.—*Cause of Thirty-Five Fatal Arsenical Reactions Collected from the Literature, with Seven Additional Cases from the Philadelphia County Medical Society*

	From Literature	My Cases	Total	Percentage
Acute encephalopathy (hemorrhagic encephalitis)	24	3	27	64.3
Acute circulatory collapse (colloidoclastic shock)	2	2	4	9.5
Parenchymatous degeneration of the liver (and kidneys)	2	1	3	7.1
Arsphenamine dermatitis	2	..	2	4.8
Aplastic anemia	0	1	1	2.4
Eclampsia (precipitated by antisyphilitic therapy)	1	..	1	2.4
Cause unknown	4	..	4	9.5
	35	7	42	100.0

Acute circulatory collapse most often follows the second or third arsenical injection and presents the picture clinically of colloidoclastic shock described by Orr [32] and Weinberg [33] and pathologically of dilatation and intense congestion of all peripheral vessels (case 4). In both cases,[34] of arsphenamine dermatitis the condition was complicated by pyodermia and puerperal sepsis developing post partum. Eclampsia accompanying arsenical therapy or precipitated by it may be more frequent than the single case recorded by Clason [15] would indicate. In connection with the case of aplastic anemia (recorded subsequently) it should be noted that definite symptoms of the condition did not develop for from four to eight weeks after delivery and that in a statistical compilation it would be easy to overlook such a condition as resulting from arsenical therapy during pregnancy.

REPORT OF CASES

CASE 1.—*Death from aplastic anemia.*[34a] *History.*—An apparently healthy white woman aged 18, reported Oct. 2, 1936, for antepartum supervision during the fourth month of her

21. Lorenzen, H.: Ueber einen Fall von Salvarsanvergiftung in der Schwangerschaft mit tödlichen Ausgang im Wochenbett, Zentralbl. f. Gynäk. **45**: 1407 (Oct. 1) 1921.
22. Kirstein, F.: Salvarsanexanthem in der Graviditat und Exitus im Wochenbett, Zentralbl. f. Gynäk. **46**: 1634 (Oct. 14) 1922.
23. Scheel, V.: Tilfaelde af akut Leveratrofi; Syfilis Graviditet; Salvarsanintoxikation, Ugesk. f. læger. **81**: 1817 (Nov. 20) 1919.
24. Neustadt, A.: Ein Todesfall nach einzeitig kombinierter intravenöser [illegible] der Syphilis nach Bruck, Deutsche [illegible] 4) 1921.
25. Cole [illegible] Effects of the Arsphenamines, J. A. M. A. **97**: 897 (Sept. 26) 1931.
26. Cormia, F. E.: Hemorrhagic Encephalitis from Neoarsphenamine in Pregnancy, Canad. M. A. J. **35**: 610 (Dec.) 1936.
27. Gierlich, J., and Kunkele, F.: Pathologisch-anatomische und chemische Untersuchungen bei einem Fall von Salvarsantod in der Schwangerschaft, Deutsche Ztschr. f. d. ges. gerichtl. Med. **27**: 116 (Sept.) 1936.
28. Lanzenberg, P., and Laugier, P.: Mort rapide survenue chez une femme enceinte au cours d'un traitement arsénobismuthique avec vomissements, vertiges, légères contractures musculaires, état comateux, foyers hemorrhagiques au niveau du bulbe, Bull. Soc. franç. de dermat. et syph. **43**: 477 (March) 1936.
29. Cook, S. S.: Postmortem Findings in Fatalities Due to the Use of the Arsphenamine Group: A Review of 44 Autopsies, Pub. Health Rep. **51**: 927 (July 10) 1936.
30. Meirowsky, E.: Bericht der Salvarsankommission des Allgemeinen Aerztlichen Vereins in Köln, Munchen. med. Wchnschr. **67**: 477 (April 23) 1920.
31. Gammeltoft, S. A.: Ueber einen Fall von Encephalitis hämorrhagica nach [illegible] während der Schwangerschaft, Acta obst. et gynec. [illegible] 0.
31a. [illegible] from hemorrhagic encephalitis among pregnant syphilitic women in the recent literature of this country tend to stress the increasing importance of this complication. They are reported by:
Sawyer, K. C., and Dwyer, P. K.: Hemorrhagic Encephalitis Following Injection of Neoarsphenamine, Colorado M. J. **32**: 250 (April) 1936.
Kuehn, Conrad; Keating, R. A., and von Haam, E.: Arsenical Encephalitis During Pregnancy, Am. J. Obst. & Gynec. **36**: 122 (July) 1938.
Paley, S. S., and Pleshette, Norman: Hemorrhagic Encephalitis in Pregnancy Following Antisyphilitic Therapy with Neoarsphenamine, Am. J. Syph., Gonor. & Ven. Dis. **23**: 691 (Jan.) 1939.
32. Orr, Harold: Medical Shock Following Use of Neoarsphenamine, Brit. J. Dermat. **45**: 58 (Feb.) 1933.
33. Weinberg, Tobias: Medical Shock Following Intravenous Therapy with Neoarsphenamine, Am. J. Syph., Gonor. & Ven. Dis. **21**: 376 (July) 1937.
34. Lorenzen.[21] Kirstein.[22]
34a. Mortimer Goldberg (Am. J. Syph., Gonor. & Ven. Dis. **23**: 79 [Jan.] 1939 has recently reported a case of bone marrow injury from neoarsphenamine therapy in a syphilitic pregnant woman with recovery.

second pregnancy. The previous pregnancy, which terminated Nov. 5, 1935, had resulted in a living infant with congenital syphilis. The mother's infection was latent; serologic study of the blood at the time of the first visit showed the Kolmer reaction 44 and the Kahn 444. The stage of the disease was unknown, but it was probably early. Her antepartum course was uneventful, except that she showed a trace of albumin in the urine on five different occasions in late pregnancy. The blood pressure varied between 94 and 120 mm. of mercury systolic and 48 and 84 diastolic. She was delivered of a normal infant after seven hours of labor March 9, 1937. Her hemoglobin concentration was 81 per cent immediately post partum.

Antisyphilitic Therapy.—During pregnancy, from Oct. 2 to Nov. 6, 1936, she received six 2 cc. injections of bismuth subsalicylate (each cubic centimeter equals 60 mg. of metallic bismuth). From Nov. 13 to March 6, 1937, she received concurrent treatment with triarsen [35] and a bismuth preparation (total, twelve injections of triarsen [5.75 Gm.] and sixteen injections of bismuth salicylate [31 cc.] without reaction. She received no treatment for syphilis post partum.

Course.—She was readmitted to the hospital May 17, 1937, because of vaginal bleeding, which had continued since the birth of the child, gradually becoming worse, with recent abdominal pain and passage of clots, bleeding gums for one month, epistaxis, and purpuric spots on the arms and lower extremities of six weeks' duration. At the time of admission gingival ulcerations were noted. There was abundant albuminuria from May 19 to death. The results of studies of the blood are shown in table 3. Transfusions were given May 19, 22 and 26, but the patient died with marked hyperpyrexia (temperature 105 F.) May 27.

TABLE 3.—*Results of Studies of the Blood in Case 1*

Date	Erythrocytes	Hemoglobin, %	Leukocytes	Neutrophils	Lymphocytes	Monocytes	Transitional Forms	Eosinophils	Basophils	Platelets
5/19/37	780,000	10	7,000	27	70	2	0	1	0	.....
5/20/37	1,840,000	35	6,000	17	80	2	1	0	0	82,600
5/21/37	.....	45	.....	40	60	.	.	..	..	.....
5/25/37	2,960,000	58	4,000	5	95	.	.		..	92,600
5/26/37	2,000,000	40	2,600	..	..				.	. . .
5/27/37	2,360,000	50	1,800	4	96				..	. .

Autopsy.—Aplastic anemia following arsenical therapy, with generalized purpuric phenomena, was reported. The skin, mucosal surfaces and serosa showed evidence of ecchymoses throughout. There were confluent lobar hemorrhages in the lungs, acute passive congestion in the liver and follicular hyperplasia and passive congestion in the spleen. The kidneys showed extreme cloudy swelling and acute gangrenous pyelitis. Histologic examination of bone marrow gave results typical of aplastic anemia.

CASE 2.—*Acute yellow atrophy of the liver. History.*—A well developed and well nourished Negro woman aged 38 reported Jan. 7, 1936, for antepartum supervision in the twenty-sixth week of her second pregnancy. She had had a negative Wassermann reaction in another institution in January 1935, but strongly positive Kolmer and Kahn reactions were present on her first antepartum visit; the results were confirmed January 14. She gave no history of previous treatment and no history of onset of infection.

Antisyphilitic Therapy.—She received four injections of bismarsen (0.2 Gm. each) intramuscularly between January 21 and February 25 without reaction.

Course.—March 3 she was admitted to the hospital because of increasing jaundice, icteric skin and scleras, deep colored urine and clay colored stools. After admission severe gastric hemorrhage developed; the patient could retain no food taken by mouth and finally became comatose and died March 10.

Autopsy.—Syphilitic aortitis, marked jaundice and acute yellow atrophy of the liver were evident. In this case it is impossible to state whether the arsenical therapy was the sole cause or merely the precipitating cause of death, but it was felt that it played at least some part in the unfortunate outcome.

CASE 3.—*Acute circulatory collapse. History.*—A Negro woman aged 32 reported in January 1933 for antepartum supervision in the twenty-sixth week of her third pregnancy. Serologic study of the blood gave strongly positive results at the time of her first visit (Kolmer 44, Kahn 444). The duration of her disease was unknown, but she was found to have a positive serologic reaction of the blood for syphilis in another institution in 1927 and had received arsenical therapy for thirteen weeks at that time, with none since. Complete cardiovascular study March 15 showed possible syphilitic aortitis and signs of "potential" myocardial involvement.

Antisyphilitic Therapy.—April 1 she received 0.025 Gm. of bismarsen intramuscularly, April 8 0.3 Gm. of neoarsphenamine and April 15 0.45 Gm. of neoarsphenamine, without reaction. With the third injection (0.45 Gm.) of neoarsphenamine, given April 22, she became dyspneic and cyanotic while in the treatment room, with a fall of blood pressure and rapid almost imperceptible pulse. She became comatose within a few minutes and, although admitted to the hospital immediately and given emergency stimulative treatment, died within an hour.

Autopsy.—Syphilitic aortitis and coronary and myocardial involvement were present, with acute dilatation of the heart. There was generalized acute passive congestion. Death may have been due to coronary insufficiency, the result of the rapid healing fibrosis of therapeutic paradox, but the sudden onset of symptoms during injection also brings up the question of acquired arsenical intolerance. The brain was not examined. Nothing observed ante partum among the terminal symptoms or at autopsy suggested toxemia of pregnancy.

CASE 4.—*Acute circulatory collapse. History.*—An apparently healthy Negro woman aged 22 reported to the antepartum clinic during the fourth month of her fifth pregnancy. Kahn and Kolmer-Wassermann tests performed November 3 and on two subsequent visits gave negative results. She was known to have syphilis, however, having first been discovered to have a positive serologic reaction of the blood in 1931. She had had no arsenical treatment during her first pregnancy, two months of arsenical therapy during her second, nine months of arsenical and heavy metal therapy during her third, and two months of arsenical therapy during her fourth. She had had no treatment for syphilis for one year prior to her present conception and would have been considered clinically "cured." In view of the fact that she had tolerated previous treatment well, and since she appeared in good health and normal on physical examination, it was decided to treat her for the sake of her child. Antepartum supervision between Nov. 3, 1937, and Jan. 12, 1938, revealed normal blood pressure and urine and no evidence of toxemia of pregnancy.

Antisyphilitic Treatment.—Neoarsphenamine 0.3 Gm. was given intravenously Jan. 12, 1938, with no reaction; 0.45 Gm. was given January 19.

Course.—Ten minutes after her second injection she complained of acute abdominal pain and collapsed on the floor. Within five minutes she lost consciousness; the skin became cyanotic, cold and clammy and the pulse rapid and thready. The blood pressure, at first maintained, became rapidly lower. She exhibited muscular twitching and choreiform movements and in spite of stimulative treatment (epinephrine, atropine, caffeine) died within one hour.

Autopsy.—There was no evidence of syphilis in any of the organs. The picture was that of acute circulatory collapse, with generalized capillary dilatation. The lungs, spleen, liver and kidneys showed intense acute passive congestion. The heart, coronary vessels and aorta were normal. The bones of the skull were hemorrhagic, the dural sinuses were dilated and there was intense congestion with subarachnoid hemorrhage. The brain was intensely edematous, with hemorrhages into the ependymal lining of the ventricles. It was felt that the intracranial as well as the general systemic picture was merely attendant on the acute circulatory collapse.

35. Stokes, J. H., and Beerman, Herman: New Arsphenamine Synthetics in the Treatment of Syphilis: A Consideration of Test Procedure and of a New Drug (Triarsen), Arch. Dermat. & Syph. **35**: 78 (Jan.) 1937.

CASE 5.—*Acute encephalopathy. History.*—A Negro woman aged 30, married, in good general health, reported for antepartum supervision in the sixth month of her third pregnancy. On the first visit she was discovered to have weakly positive Kolmer and Kahn reactions. She gave no history of antecedent antisyphilitic therapy, and the duration of her infection was unknown. Her blood pressure and urine were always normal.

Antisyphilitic Treatment.—Neoarsphenamine 0.3 Gm. October 8 and 0.6 Gm. October 15 was given without evidence of intolerance.

Course.—Two days after the last injection she was admitted to the hospital because of dizziness and pain in the lower part of the abdomen. October 18 she had a bilateral convulsion lasting ten minutes and three hours later two generalized convulsions of short duration, following close one on the other. She was unconscious thereafter until death, some five hours later. There were no clinical or laboratory signs of eclampsia; a normal living child was delivered immediately after the death of the mother.

Autopsy.—Nothing significant was observed except evidence of acute encephalitis, with exudation and capillary hemorrhage, and parenchymatous cerebral syphilis. It is impossible to state in this case whether death resulted from therapeutic shock (Herxheimer reaction) in an area already diseased from syphilis or from the hemorrhagic encephalitic syndrome, so frequently described as complicating arsenical therapy among pregnant women. Death apparently did not result, however, from a massive intracranial hemorrhage or from any gross single lesion.

CASE 6.—*Acute encephalopathy. History.*—A healthy young white woman aged 24 reported for antepartum supervision Oct. 21, 1932, during the sixth month of her first pregnancy. Syphilis was diagnosed by means of a strongly positive Wassermann test, confirmed. The duration of the disease was unknown.

Antisyphilitic Therapy.—Neoarsphenamine 0.5 Gm. October 31 and 0.5 Gm. November 14 was given without reaction.

Course.—Shortly after the second injection the patient became nauseated and vomited, the reaction continuing until she was admitted to the hospital November 16. At this time she complained of severe headache and was restless, stuporous and markedly spastic. Before death twenty-four hours later she became unconscious and cyanotic and had focal and generalized convulsions; her temperature rose from 102 F. on admission to 106 at the time of death. Complete laboratory studies gave no evidence of eclampsia. There was no albumin in the urine. The blood showed sugar 120 mg., urea 13 mg., urea nitrogen 9.4 mg., creatinine 2.7 mg., calcium 8 mg. and phosphorus 3.5 mg. per hundred cubic centimeters. The blood pressure varied between 112/60 and 130/60. In the cerebrospinal fluid there were 1 mg. of globulin, no sugar, 1 cell and 2 mg. of albumin per hundred cubic centimeters.

Autopsy was refused. In this case the clinical picture was typical of that described by Kuhnel [10] and others as complicating arsenical therapy of syphilitic pregnant women.

CASE 7.—*Acute encephalopathy. History.*—A white woman aged 31 reported for antepartum supervision in the sixth month of her fourth pregnancy. She gave no history of syphilitic infection or of previous treatment, but four consecutive serologic tests of the blood were reported to show medium positive Kolmer, Wassermann and Kahn reactions between Aug. 26 and Sept. 16, 1933. On the basis of these tests a diagnosis of latent syphilis of unknown duration was made and treatment started. The Wassermann reaction had been negative in 1930.

Antisyphilitic Therapy.—Neoarsphenamine 0.3 Gm. September 23 and 0.45 Gm. September 30 was given.

Course.—The night following the second injection she had a severe headache and high fever but the next day she felt better. October 2 she again felt dizzy and she went to bed and slept. On awaking she found that she could not talk and was too weak to get up, and when she attempted to move she had a convulsive seizure involving the left side of the body. She was admitted to the hospital the same day and showed left hemiplegia. It was the opinion of the syphilologic staff that such a lesion could have been caused by cerebrovascular therapeutic shock (Herxheimer reaction). She died October 4. Before death her temperature rose from 98 to 104 F. and the blood pressure from 104/80 to 150/100. The urine showed a cloud of albumin during the febrile period; the blood, 124 mg. of sugar and 24.7 mg. of urea nitrogen per hundred cubic centimeters. In the cerebrospinal fluid the colloidal goid curve was 0000000000, the Wassermann reaction negative and the pressure 8 mm. of mercury; there were 37 cells and 3 mg. of globulin per hundred cubic centimeters. It was felt that neither the symptoms nor the laboratory data were indicative of toxemia of pregnancy.

Autopsy was refused. This case likewise would seem to be one of a cerebrovascular lesion resulting from arsenical therapy during pregnancy.

COMMENT

A critical analysis of the medical handling of the foregoing forty-two cases of maternal death following antisyphilitic therapy during pregnancy reveals many interesting facts. The age of the patient and her parity apparently have little influence on the fatal termination. The fact that 31 per cent of the patients were under 21 and 69 per cent under 28 years of age is probably no more than a reflection of the truth that the young women bear the children and that the maximum incidence of syphilis in this country is between the ages of 21 and 28. It does suggest, however, that mere youth and the general appearance of physical well-being by no means exclude the possibility of a serious reaction to arsenical therapy. Only two of the patients were over 36 years of age. Multiparas and primiparas suffered almost equally, 58 per cent of the former and 42 per cent of the latter comprising this series.

TABLE 4.—*Type of Infection at the Onset of Antisyphilitic Therapy in Forty-Two Fatal Cases*

	Number	Percentage
Syphilitic		
Symptomatic early (primary or secondary)	16	38.1
Latent of less than four years' duration	4	9.5
Latent of more than four years' duration	7	16.7
Latent (duration unknown)	13	30.9
Symptomatic late	1	2.4
Nonsyphilitic	1	2.4
	42	100.0

An analysis of the statistics, moreover, with regard to the duration of syphilis at the time of the onset of therapy reveals the surprising fact that in almost one half of the cases the physician was concerned with early syphilis, primary, secondary or latent of less than four years' duration (table 4). In more than half of the remaining cases the disease was a symptomless infection of unknown duration, so that in actuality in only eight instances (19 per cent) was the disease known to be more than four years old. Death resulted in one case in which syphilis had not been proved, therapy being administered merely because the husband was found to be infected. Instances of this sort and like case 4 bring into serious question the advisability of intensive arsenical therapy when the chances of infection of the child are so meager, even though the prospective patient gives outwardly the appearance of a good treatment risk. Although the series of cases was too small to permit of any sweeping conclusions, it is worth while to note in this connection that the fifty-two mothers in the Cooperative Clinical Group [6] study who became pregnant after having had sufficient treatment to be considered "cured" had no syphilitic children among those born up to fifteen years after infection,

even though not treated during each subsequent pregnancy. Hoffmann's [36] considerable experience in this regard should also be considered. He said "A new course of treatment is not necessary in later pregnancy in women who have been treated intensively and systematically and whose cure may be assumed with sufficient probability."

Of this series of fatal cases treatment was started during the first four calendar months in 12 per cent, during the fifth or sixth month in 41 per cent and after the sixth month in 47 per cent. This again is nothing more than a confirmation of the circumstance frequently noted before in the literature, that pregnant syphilitic women report for antisyphilitic therapy late in pregnancy. It is usually necessary as a result of this to commence treatment when the physical burden of the woman in bearing her child is already well advanced. Only eight (19 per cent) of these patients had had antisyphilitic treatment prior to the pregnancy, two (4.7 per cent) had received more than twenty arsenical injections and six (14.3 per cent) had received less than this amount.

TABLE 5.—*Number of Arsenical Injections After Which First Clinical Symptoms Appeared in Forty-Two Instances of Maternal Death*

Number of Injections	Cases	Percentage
One	5	11.9
Two	19	45.2
Three	10	23.8
More than three	8	19.1
	42	100.0

This fact brings up at least three important points for consideration: (1) preparatory treatment, (2) the question of individual intolerance or idiosyncrasy and (3) the ability of the already burdened pregnant woman to cope with the additional strain of antisyphilitic therapy.

When it is considered that one third of these women presented symptomatic early syphilis (primary or secondary) during their pregnancy and that only two showed evidence, either clinically or pathologically, of any serious late complication of the disease, it is probable that in most instances preparatory treatment with a heavy metal (a mercury or a bismuth preparation) prior to the institution of arsenical therapy was seldom seriously considered. Thirty-nine per cent of the patients received some preparatory treatment and 61 per cent none. It should, however, be pointed out that attempts to prepare patients for arsenical therapy have been inadequate, consisting for the most part of one or two injections of a heavy metal or their equivalent at from five to seven day intervals. According to present notions no less than from two to three weeks' treatment with a water-soluble heavy metal mercury or bismuth preparation in an adequate dose two or three times weekly or three or four weekly injections of an oil-suspended preparation (e. g. bismuth subsalicylate) could be expected to offset the shock of onset of arsenical therapy.

One of the most striking features of the entire analysis is the revelation that 81 per cent of these fatal treatment reactions were precipitated by three or less arsenical injections (table 5). In the majority of the remaining cases death resulted from damage to the liver, changes in the bone marrow or complications of exfoliative dermatitis which not infrequently require a number of days for development of clinical symptoms. Death likewise has been a matter usually of only hours or days (table 6). In only two instances in the series could the dose of the drug employed have been considered excessive, and this not markedly so (e. g. 0.5 Gm. of neoarsphenamine at five day intervals). Death following shortly after a single arsenical injection brings up for consideration the possibility of atopic drug allergy, and instances in which the symptoms with fatal termination followed closely the second or third injection suggest sensitization (acquired allergy). Such speculation finds further confirmation in the pathologic observations in many of these cases, consisting only of extreme peripheral congestion of acute circulatory collapse, with the hemorrhagic phenomena in the brain and other organs of capillary anoxemia or intoxication and increased permeability of the vessel walls. Whether the pregnant woman is more susceptible to the major and minor complications of arsenical therapy than the nonpregnant one is a matter on which there is still considerable difference of opinion among physicians. I feel that I have advanced evidence from my personal experience and from the literature which would indicate that at best the pregnant syphilitic woman is only a moderately good risk for arsenical therapy. Certainly principles of treatment which would be considered invalid for nonpregnant women (e. g. the onset of arsenical therapy in full dosage without adequate preparation in a case of late syphilis or of latent syphilis of unknown duration) should not be employed in the management of a syphilitic pregnant woman in the general haste and eagerness for protecting the unborn child.

Finally, both in the cases collected from the literature and in those reported locally there is much to indicate that the severity and the unusualness of the type of treatment reactions described in this paper, occurring usually in an obstetric service, resulted too often in an unwarranted delay and at times in almost complete omission of recognized emergency therapy. While this is neither the time nor the place for a detailed discussion of the management of severe arsphenamine reactions, it cannot be overemphasized that if colloidoclastic shock, for example, is to be successfully combated, a matter of a few minutes hesitation in the onset of treatment with warmth and slow intravenous administration of dextrose (from 10 to 15 per cent solution) may be crucial. With hemorrhagic encephalitis epinephrine therapy with venesection and spinal drainage is successful ordinarily only when commenced before repeated convulsive seizures develop and before the

TABLE 6.—*Time After Commencement of Arsenical Therapy at which Clinical Symptoms and Death Occurred*

Days After Onset of Arsenical Therapy	First Clinical Symptoms		Death	
	Number of Cases	Percentage	Number of Cases	Percentage
—1	1	2.4	1	2.4
2 to 7	14	34.1	9	21.4
8 to 14	10	24.3	12	28.6
15 to 28	9	22.1	13	30.9
28+	7	17.1	7	16.7
	41	100.0	42	100.0

36. Hoffmann, Erich: Congenital Syphilis: In the Light of Thirty Years' Investigation of the Spirochete and Twenty-Five Years' Experience with Salvarsan, J. Pediat. 9: 569 (Nov.) 1936.

patient becomes comatosed. These severe treatment reactions are to be considered extremely serious but never hopeless if handled with dispatch.

SUMMARY

Statistics taken over a five year period in a large general hospital where the general principles involved in the teachings of the Cooperative Clinical Group on the management of syphilis in pregnancy are rigidly adhered to would indicate that under certain circumstances or with certain classes of patients during pregnancy there is a markedly greater incidence of treatment reactions than with other reported groups.

That this higher incidence of treatment reactions is not a peculiarity of the institution from which this series emanates is suggested by the seven maternal deaths from antisyphilitic therapy reported from six different sources to the Committee on Maternal Welfare of the Philadelphia County Medical Society since 1931.

An analysis of the statistics pertaining to the thirty-five additional deaths collected from the literature indicates that the pregnant woman is not exempt from any of the severer types of treatment reaction, hemorrhagic encephalitis, acute circulatory collapse, damage to the liver, arsphenamine dermatitis and aplastic anemia all having occurred with fatal termination. There is, moreover, evidence to indicate that antisyphilitic therapy may aggravate an already existing toxemia or precipitate an incipient one.

This presentation is not intended in any way to depreciate the value of antepartum antisyphilitic therapy in protecting the unborn child in utero. All the authoritative literature indicates that at present the treatment of infected pregnant women forms one of the best imaginable fields of preventive medicine.

The added impetus of the public health movement for control of venereal disease, and especially the attention directed toward syphilis in pregnancy by the numerous state antepartum and premarital Wassermann laws under discussion, will tend of necessity, for a time at least, to direct the treatment of many syphilitic pregnant women away from the medical specialists in this field. While it is undoubtedly true that, with a rare degree of intuitiveness, individualization and attention to detail such as may be expected from the expert it is possible safely to treat syphilitic pregnant women with arsenicals, the facts contained in this study would seem to suggest that it is hardly proper to state that these women tolerate such therapy as well as or better than average.

The fact that these unfortunate symptoms have tended to occur among young patients with early or symptomless syphilis indicates that even with such patients, who if not pregnant would be expected to tolerate active therapy well, it is advisable to administer arsenical treatment cautiously, starting with small doses and gradually increasing them. Moreover, since for the pregnant woman the drug is ordinarily not curative but prophylactic for her child, it would possibly be advisable to give more consideration to adequate preparatory heavy metal therapy before commencing active arsenical treatment, even though one is confronted with an early infection in late pregnancy.

In addition, the question is raised as to whether active arsenical therapy is indicated at all during pregnancy unless there is reasonable assurance that the prospective infant has a strong chance of being diseased.

REDUCTION OF MATERNAL MORTALITY IN CLEVELAND

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CLEVELAND

Has there been an actual reduction in the maternal mortality rate in Cleveland or only a fictitious one? The answer requires a critical analysis of all the factors involved: socio-economic conditions, completeness of vital statistics, changes in classification, medical and nursing technics and adequacy of hospital facilities. Changes in the birth rate and movements of population also enter into the problem.

Prior to 1931 Cleveland, in company with other cities of comparable size, exhibited considerable variation from year to year in official maternal mortality rates (table 1). The rate varied irregularly from 4.3 to 7.2 deaths per thousand registered live births. Careful analysis of the vital statistics for the period from 1910 to 1930 indicates, as the main factors which account for this irregularity, (1) incompleteness and irregularity in the reporting of births and the misinterpretation of stillbirths, (2) a declining birth rate due to later marriages, contraception and induction of abortions, (3) inaccuracy in reporting the causes of maternal mortality and obscuring of puerperal deaths under classifications which do not readily reveal the puerperal nature of the disease, (4) changes in obstetric technics and nursing procedures, (5) availability and acceptance of antepartum care and instruction, (6) availability and use of well equipped hospitals, (7) intercurrent epidemics of diseases such as influenza, which bear most heavily on puerperal women, and (8) fundamental changes in the socio-economic order.

TABLE 1.—*Maternal Mortality (Number of Deaths from All Puerperal Causes per Thousand Live Births) in the Thirteen Largest Cities of the United States, 1928-1937*

According to data furnished by the United States Bureau of the Census.*

City	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937*
Baltimore	6.8	5.8	6.1	7.7	5.9	5.5	6.2	6.3	4.9	3.4
Boston	7.2	7.1	7.6	8.2	7.3	7.1	5.7	5.7	5.6	4.1
Buffalo	7.5	7.9	6.8	9.3	7.8	8.1	8.2	6.0	6.7	4.2
Chicago	5.6	6.5	5.1	4.9	5.2	5.0	4.8	4.0	4.3	3.3
Cleveland	6.1	6.7	6.5	7.2	5.7	6.2	5.4	6.1	4.0	3.7
Detroit	7.0	7.1	6.6	6.2	6.9	7.0	5.5	6.4	5.2	3.5
Los Angeles	6.5	6.4	6.5	9.2	6.8	6.4	5.1	6.2	5.8	4.3
Milwaukee	6.4	5.2	5.2	4.9	3.8	4.7	4.2	3.5	3.1	4.0
New York	5.4	5.2	5.3	5.8	5.6	6.2	4.9	5.3	4.7	4.0
Philadelphia	6.6	7.4	6.4	6.8	6.6	5.2	5.8	5.2	5.8	3.8
Pittsburgh	9.2	8.5	8.8	8.6	8.7	6.3	8.3	7.4	5.7	4.2
St. Louis	6.1	6.2	5.6	7.0	5.7	5.5	6.9	4.3	5.2	3.9
San Francisco	5.5	6.5	5.1	5.1	4.5	3.2	4.3	4.2	2.6	3.7

* 1937 rates based on data furnished by each city.

Before 1931 little attention was paid to underlying conditions influencing maternal mortality rates. In 1931 the Cleveland Child Health Association undertook a complete and detailed study of every puerperal death occurring in Cleveland. This study[1] revealed the following facts:

1. Deaths due to abortion made up one third of the puerperal deaths in 1931; in over 70 per cent of the

Read before the Child Hygiene Section of the American Public Health Association, Kansas City, Mo., Oct. 26, 1938.

1. Bolt, Richard A.: Maternal Mortality Study for Cleveland, Ohio, Am. J. Pub. Health **23**: 109 (Feb.) 1933; Maternal Mortality Study for Cleveland, Ohio, Am. J. Obst. & Gynec. **27**: 309 (Feb.) 1934.

cases sepsis was the primary cause of death. In classifying puerperal deaths a distinction should be made between those involving a viable and those involving a nonviable fetus, a convenient dividing line being placed at from twenty-six to twenty-eight weeks of uterogestation.

2. Puerperal sepsis, the toxemias and hemorrhages were the major causes of death and were associated largely with hurried, operative and bizarre obstetrics.

TABLE 2.—*Principal Causes of Puerperal Deaths, Arranged in Order of Their Importance, Cleveland, 1930-1937*

According to an analysis of the Cleveland Hospital Obstetric Society

		Number of Deaths	Percentage of Total
1	Abortion	151	22.53
2	Postpartum infection	103	15.37
3	Late toxemia	80	11.94
4	Hemorrhage	60	8.95
5	Ectopia	49	7.31
6	Other causes	41	6.12
7	Septic embolus	34	5.75
8	Heart disease	30	4.48
9	Early toxemia	29	4.33
10	Antepartum pneumonia	26	3.88
11	Shock	20	2.98
12	Postpartum pneumonia	19	2.83
13	Anesthetic	14	2.09
14	Nonseptic embolus	14	2.09
	Total number of puerperal deaths	670	100%

3. The maternal mortality rates varied markedly from hospital to hospital, depending on the nature of the hospital, composition of the staff, routines employed and selection of cases. The hospitals giving only maternity care showed the lowest rates. General hospitals with properly equipped and isolated maternity wards or private pavilions had the next lowest rates. The City Hospital, to which all types of patients are referred, including a considerable number of Negroes and persons from the lower economic areas, had the highest maternal mortality.

4. The midwife played a very small part in contributing to the puerperal death rate.

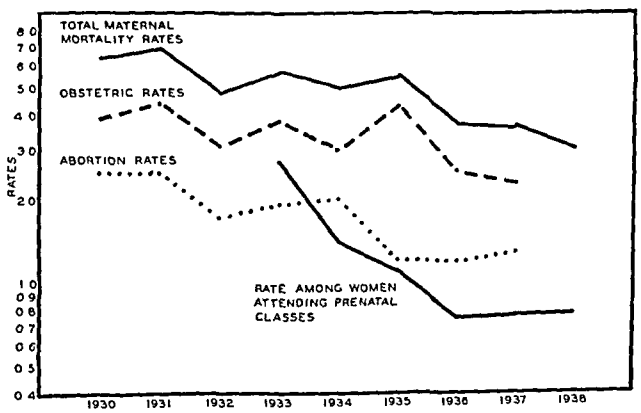


Chart 1.—Maternal mortality, Cleveland, 1930-1938 (rate per thousand live plus still births), total city rates compared with rates for women attending antepartum classes

5. The lack of antepartum care in the great majority of cases and the failure to give simple instructions in maternal hygiene was impressive. In the case of only about a third of the viable births could it be said that adequate antepartum care had been given.

There had been considerable improvement in the registration of births in Cleveland during the twenty-five years prior to 1931, so that in 1931 it was estimated that at least 98 per cent of all births were registered. At present approximately 99 per cent of all births are registered. However, there still remained considerable room for improvement in the medical certification of the causes of puerperal deaths, especially as to the relative importance of primary and secondary causes. Our study revealed that in more than 30 per cent of the cases the cause of death was not stated properly on the death certificate so as to facilitate exact classifications. A check of the death certificates of every woman dying between the ages of 15 and 45 revealed that 28 per cent more deaths occurred from causes connected with childbirth than could be discovered through the official reports.

In many cases it was not possible to discover the exact cause of death without an intimate study of the personal, clinical, hospital and nursing history. This of course required the closest cooperation from hospital doctor and nurse. The information could be obtained more readily when the death occurred in a hospital, but it was possible to secure fairly accurate information when the patient was delivered by a private physician in the home and even in the midwives' cases and those in which the coroner was involved.

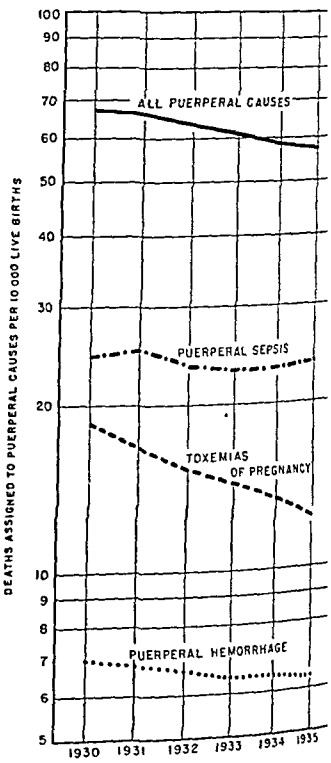


Chart 2.—Maternal mortality, 1930-1935, for the United States birth registration area of 1930 (the entire United States except South Dakota and Texas), deaths assigned to puerperal causes per 10,000 live births. Charts 2 and 3 are from the Children's Bureau, United States Department of Labor, source, United States Bureau of the Census.

March 29, 1933, the results of this study were presented to the Obstetrical and Gynecological Section of the Cleveland Academy of Medicine. The Academy of Medicine and the Division of Health took an active interest in them. A number of the chiefs of obstetric divisions of the Cleveland hospitals came together for mutual counsel as to what should be the next steps in the program. The feeling was expressed that if representatives from the obstetric staffs of each of the major hospitals would meet regularly and bring before the group case histories of women dying in hospitals from any puerperal cause, these could be discussed freely item by item and a careful analysis made of all contributing factors. This would lead naturally to an appraisal as to the preventability or nonpreventability of the puerperal deaths.

Out of the deliberations of this group arose the Cleveland Hospital Obstetric Society. The society adopted a classification of puerperal deaths based mainly on the clinical history. The causes of death are listed under sixteen different items, with qualifying classifications to clarify the factors associated with the death. Deaths

following abortions prior to six and one-half months of pregnancy are differentiated from those which occur when the fetus is viable, the so-called obstetric deaths. The toxemias are divided into early and late toxemias, and emboli are designated as nonseptic or septic. Antepartum and postpartum infections are separated whenever possible (table 2). A study has been made of the

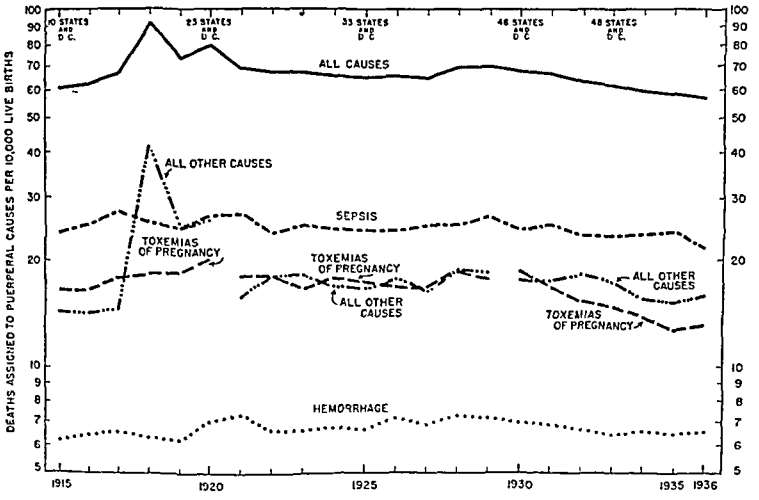


Chart 3.—Maternal mortality by cause, 1915-1936 (United States expanding birth registration area); deaths assigned to puerperal causes per 10,000 live births. The breaks in the lines are due to changes in the conditions included in the international list titles.

deaths in cases in which disease was proved to exist on entrance to the hospital.[2]

In 1934 a statewide organization was formed. The Hospital Obstetric Society of Ohio held its first regular meeting in Columbus, May 5, 1934. The program and recommendations presented by its president were adopted as guiding principles for each of the hospitals subscribing to its standards. July 21, 1937, the society adopted obstetric standards for group 1 and group 2 hospitals to strengthen the setup in the various hospitals, making for better administration, housing, staff arrangements and follow-up of all obstetric patients.[3]

The forty-five hospitals now members of the Ohio society prepare detailed monthly reports. The Bureau of Child Hygiene of the Ohio Department of Health has attached a statistician from its staff to the society to devote his full time to the study and classification of the reports dealing with the exact causes of deaths associated with pregnancy. It is hoped that the correlation of the known facts will lead to preventive measures which will save many lives.

There is no question that the efforts of the society have been instrumental in improving the practice of obstetrics in hospitals throughout the state. It must be clearly understood, however, that even before its organization Cleveland had an ample number of obstetric beds in well conditioned hospitals, the services being under competent supervision. The midwife had played only a minor part in maternal mortality, as the percentage of midwives' cases had decreased gradually from 6 in 1930 to 1 in 1937.

For many years the Maternity Hospital, now one of the university hospitals of Cleveland and the teaching obstetric hospital for Western Reserve University School of Medicine, has maintained antepartum centers in various sections of Cleveland for service to mothers in the lower economic levels. These clinics have made possible excellent antepartum medical and nursing services and care at delivery in Maternity Hospital, City Hospital or the patient's home. They reach approximately one third of all child-bearing women in Cleveland each year.[4]

The Visiting Nurse Association of Cleveland also has played a prominent part in the maternity program for many years. It sends out trained nurses to render service in the home, free to those who can pay nothing and part pay and full fee to those who can afford fees. Pregnant women are referred to the Visiting Nurse Association through private physicians, relief agencies, insurance companies, the Maternity Hospital Dispensary and sometimes by the family itself. The association follows up all postpartum calls for Maternity Hospital.

Antepartum calls of visiting nurses to patients of private physicians usually come late, as the family frequently does not call the doctor until the later months of pregnancy. The value of this service is enhanced when the physician refers his patient early. The services were organized primarily to care for the individual needs of the patient and to give individual instruction.[4]

There has been another community-wide development—group instruction of expectant mothers—which undoubtedly has played a material part in the reduction of maternal mortality in Cleveland.[5] In large antepartum clinics physicians and nurses find little time to give individual instruction. It was felt that instruction

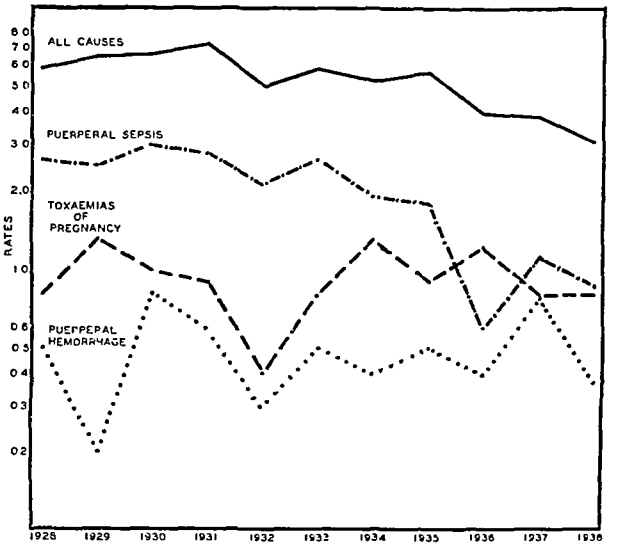


Chart 4.—Maternal mortality, Cleveland, 1928-1938; rates per thousand live births.

which might be given to women in groups would have a distinct bearing on the cooperation with the physicians and greater regularity of attendance at the antepartum clinics and secure closer check-ups at delivery than otherwise might be the case. Accordingly, in 1922

2. The Classification of the Hospital Obstetric Society of Ohio (mimeographed), obtainable from Dr. Scott C. Runnels, Secretary, Ohio Hospital Obstetric Society, 9400 Euclid Avenue, Cleveland.
3. Obstetrical Standards for Group I and II Hospitals (printed sheet), obtainable from Dr. Runnels.
4. Maternity Care for Cleveland Women, Child Health Bull. 5:1 (Jan.) 1938; Cleveland, Cleveland Child Health Association.
5. Galdston, Iago: Maternal Deaths—The Ways to Prevention, New York, Commonwealth Fund, 1937, appendix, pp. 94-110.

antepartum group instruction was instituted by Mrs. Ellen D. Nicely, nurse director of clinics, in the antepartum clinics of the University Public Health Nursing District.

The time of groups of mothers who were waiting their turn to interview the doctor in the clinic was occupied in listening to the nurse explain in simple language matters of hygiene, nutrition, clothing and infant care. This program was developed further under the Cleveland Health Council and the Maternity Hospital, and in 1932 it came under the direction of the Cleveland Child Health Association, where it has developed rapidly.

TABLE 3.—*Living Births According to Place of Birth (at Home or in a Hospital) Cleveland, 1930-1937*

Year	1930	1931	1932	1933	1934	1935	1936	1937
Total for city	17,895	16,270	15,122	13,716	14,225	14,566	14,354	14,745
Total at home*	7,416	6,516	5,764	5,237	4,822	4,430	3,882	3,358
Total at a hospital	10,479	9,763	9,358	8,479	9,403	10,136	10,472	11,387
At maternity hospitals (exclusively)	3,732	3,519	3,151	2,934	3,147	3,310	3,325	3,732
1	64	71	90	160	227	328	354	311
2	15	11	14	15	9	13	16	14
3	55	32	50	48	31	48	45	62
4	2,293	2,057	1,876	1,732	1,793	1,855	1,815	1,993
5	20	16	15	29	16	5	4	0‡
6	1,285	1,332	1,106	1,009	1,066	1,061	1,091	1,322
At general hospitals with maternity licenses	6,738	6,235	6,199	5,472	6,236	6,813	7,142	7,649
7	..	..	..	..	..	..	..	38
8	56	19	..	..	..	..	..	..
9	836	832	1,405	1,391	1,586	1,491	1,226	1,332
10	65	56	65	40	67	58	61	78
11	11	12	8	6	6	3	2	4
12	91	73	66	49	51	48	63	32
13	36	19	22	22	25	18	20	23
14	176	362	419	313	446	493	607	693
15	26	25	7	5	..	..	..	..
16	377	371	353	274	337	377	451	415
17	28	31	1	..	..	..	..	..
18	311	272	212	169	257	408	487	600
19	279	237	280	222	276	330	(706)‡	(1,002)†
20	514	485	389	431	575	669	716	803
21	635	562	561	447	583	630	669	637
22	..	..	..	..	..	..	..	1
23	..	..	..	..	..	..	..	50
24	..	..	..	..	..	6	49	69
25	188	217	205	160	187	226	272	310
26	152	131	93	87	106	74	33	..
27	828	737	660	667	614	647	717	780
28	1,183	1,192	978	818	921	1,097	1,305	1,379
29	663	429	418	338	366	338	363	375
At nonmaternity hospitals	9	9	8	13	20	13	5	6
30	1	1	2	1	1	2	0	2
31	3	1	2	..	1	3	2	2
32	1	..	..	..	..	..	..	..
33	..	..	..	..	..	1	..	..
34	1	2	1	1	1	1	..	..
35	1	2	1	5	15	2	1	2
36	2	1	1	3	1	4	2	..
37	..	..	..	1	..	..	..	..
38	..	2	1	2	1	..	..	..

* "Other" cases included under "total at home."
‡ Moved to East Cleveland Aug. 13, 1935, and therefore not included in totals for city of Cleveland.
† Closed in 1937.

It began to be recognized that group instruction in antepartum care was just as important for the patients of private physicians as for those attending the clinics. In 1933 an experimental class for private patients was organized by the Cleveland Child Health Association in the headquarters of the Academy of Medicine of Cleveland. This proved immediately successful, and several more such classes were opened in other sections of the city. Since 1933 the antepartum lectures and craft classes have been open to any woman in greater Cleveland who wishes to avail herself of their advantages. At present 100 classes a month are being conducted, forty for the patients of private physicians and sixty for patients at clinics.

The Academy of Medicine of Cleveland has assumed joint sponsorship of the classes[6] for the patients of private physicians. No patient is accepted without an admission card signed by her physician signifying his approval. Patients of more than 300 private physicians have registered in the classes in the past five years.

An important feature of this development has been the mothercraft classes, in which the women are taught to make practical layettes at small cost. If a mother has some special problem, the instructor arranges time for a personal conference. Sometimes fears or superstitions trouble the mother and she is too timid to consult her doctor. In such cases the instructor tries to put her in a proper frame of mind to consult her physician. Our experience has been that these classes and personal conferences are of great value, as they ease the mind of the expectant mother, giving her a clear picture of what is before her and of many things that have appeared vague. Furthermore they make possible a check of her simple disorders and unfavorable signs and place the instructor in a position to refer her immediately to her family physician or obstetrician for observation and treatment.

Year by year the women are coming to the classes earlier in pregnancy and are attending more and more of the lectures. In the past five years there has been a gain from 11 to 17 per cent in the number of women registering in the classes during the first three months of pregnancy and a gain from 58 to 65 per cent in the number registering before the seventh month.

About 94 per cent of the patients of private physicians in the classes are primiparas, and they of course are exposed to the greatest obstetric risks. About 40 per cent of the patients of clinics are primiparas.[7]

Experience has led to the belief that the first consideration in any program for the reduction of maternal

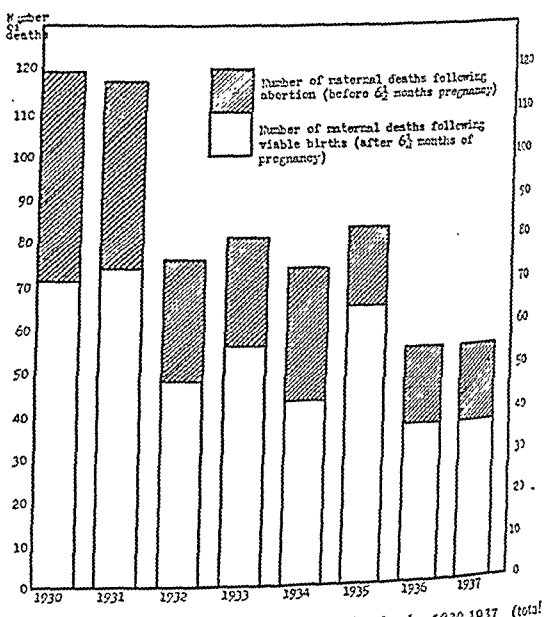


Chart 5.—Number of maternal deaths, Cleveland, *1930-1937* (total deaths, obstetric deaths and deaths due to abortion).

mortality is the puerperal woman herself. Her ability to choose a skilful physician, a competent nurse and a well conditioned hospital are of vital importance. Her capacity to grasp and to carry out simple hygienic rules and her teachability as to the importance of symptoms and signs which indicate approaching danger are large factors. Group instruction in antepartum care, given

6. Prenatal Classes Approved, Bull. Acad. Med. Cleveland **19**: 7 (April) 1935.

7. Evaluation of the Prenatal Group Instruction Program in Cleveland, Ohio (mimeographed), Cleveland, Cleveland Child Health Association, 1938.

by competent public health nurses under the direction of a physician, is proving a successful method of reaching and teaching these essentials to the expectant mother.

When one segregates the women who attended the antepartum classes in Cleveland from the total number of women confined in the city, one finds that the maternal mortality rate in 1933 for the former group was 2 8 deaths per thousand live plus still births and for the women not attending the classes was 5.9. In 1937 the rate for the 2,524 women from the antepartum classes who were confined was only 0.78, as compared with a rate for those not attending the classes of 4.2 deaths per thousand live plus still births (chart 1).

A factor of equal if not greater importance is the type of physician selected to conduct the woman safely through her pregnancy. So long as there are physicians who have been poorly trained and who are making midwifery only a small part of their general medical care. *Failure of proper lay cooperation is responsible for about 50 per cent of the preventable deaths among mothers"* (italics by author).

Comparison of statistics in the 1931 Cleveland study with recent figures furnished by the Academy of Medicine reveal that there has been a trend in Cleveland away from the general practitioner who handles few cases to the physician with a large obstetric practice and to the obstetrician.

The next important factor in the prevention of maternal mortality is the well equipped and properly staffed maternity hospital or maternity division of the general hospital, competently administered under safeguards such as those laid down by the Ohio Hospital Obstetric Society.[3] Studies in Cleveland clearly indicate that the improvements in hospital facilities, in better coordination of visiting and courtesy staffs and in the setting up of high obstetric standards have accompanied the reduction in maternal mortality. One general hospital, which was formerly in Cleveland, has moved to

TABLE 4.—*Maternal Mortality by Cause, Cleveland, 1928-1937*

	International Classification of 1920				International Classification of 1929					
	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937
All causes	101*	113*	119*	117*	76	81	74	83	55	55
Puerperal sepsis	47	43	53	47	32	36	28	26	9	15
140 Abortion with septic conditions	*	*	*	*	18	12	16	11	4	12
142a Ectopic gestation with septic conditions specified	*	*	*	*	0	2	2	0	1	0
145 Puerperal septicemia and pyemia (not specified as due to abortion)	47*	43*	53*	47*	14	22	10	15	4	3
All other puerperal causes	57	70	66	70	44	45	46	57	46	40
141 Abortion without mention of septic conditions (to include hemorrhages)	8	6	4	10	5	3	5	7	3	2
142b *Ectopic gestation without mention of septic conditions*	6	4	9	6	5	2	6	3	4	1
143 Other accidents of pregnancy (not to include hemorrhages)	1	1	1	2	0	0	0	0	0	0
144 Puerperal hemorrhage										
(a) Placenta praevia	10	3	14	10	0	3	1	3	1	5
(b) Other puerperal hemorrhages					5	4	4	4	5	6
146 Puerperal albuminuria and eclampsia	14	23	18	15	3	6	7	6	10	10
147 Other toxemias of pregnancy	*	*	*	*	3	5	8	7	5	2
148 Puerperal phlegmasia alba dolens, embolus, sudden death (not specified as septic)	5	11	8	11	7	12	6	10	3	4
149 Other accidents of childbirth	3*	8*	6*	9*						
(a) Cesarean operation	7*	12*	6*	5*	10	4	3	8	5	5
(b) Others under this title	3*	1*	0*	1*	5	5	6	7	10	5
150 Other and unspecified conditions of the puerperal state	0	1	0	1	1	1	0	2	0	0

* Cannot be compared on account of change of classification

practice, thus having too few deliveries each year to give them experience in handling the more difficult and complicated ones, there will continue to be high rates. So long as the impression is given that a woman will receive adequate and skilful attention from any physician, just so long will there be complications. It is obvious that physicians having only ten or fifteen obstetric patients a year and hospitals in which less than 150 obstetric patients are confined each year cannot give all the detailed and skilful attention necessary in obstetric practice, especially to patients in whom complications develop.

Dr. Fred Adair[8] and his colleagues have pointed out recently the principles of management of some of the more serious complications of pregnancy. A study of these complications impresses one with the fact that had the women been in the hands of competent obstetricians from the earliest possible date in their pregnancies a considerable number of the complications would not have occurred and the maternal death rate would have been materially lowered. Dr. Adair stated that "women must be properly instructed in personal care and must be taught to cooperate with and appreciate the doctor who is trying to give good antepartum and delivery

East Cleveland and developed a large obstetric division. There has been a trend toward more confinements in the larger, better equipped hospitals.

As a result several smaller hospitals have gone out of business or ceased to take obstetric patients. In 1931, 60 per cent of all registered births in Cleveland occurred in hospitals, while in 1937 the percentage had increased to almost 80 (table 3).

However, one must not lose sight of the fact that the mortality for normal obstetric patients delivered in their own homes by well qualified and experienced physicians remains remarkably low. The experience of the outpatient delivery service of Maternity Hospital in Cleveland reveals a similar low mortality for the patients delivered at home. A hospital may be the safest or the most dangerous place to have a baby, depending on the conditions mentioned. This does not militate against the organization of obstetric services in hospitals, as it is well known that the patients with difficult and complicated labor and a large proportion of primiparas are referred from home service into hospitals.

The physical and mental condition of the prospective mother has roots which reach back into early life and which are conditioned by heredity, disease affecting the bony system, especially of the pelvis, and disease affecting the circulatory, respiratory or endocrine sys-

[8] Adair, F. L.: Maternal Care Complications, Chicago, University of Chicago Press, 1938, p 74

tems. It is evident that a woman coming into pregnancy with a damaged heart or kidneys, with chronic tuberculosis or with a toxic thyroid will be a poor risk regardless of the medical, nursing and hospital attention given to her. Furthermore, a woman with a contracted pelvis due to rickets or achondroplasia already presents complications which may have to be dealt with operatively, and it is known that operative procedures increase risks. Therefore public health measures which reduce any of these hazards will add to the safety of the puerperal woman.

Another practical consideration in the obstetric situation is the financial ability of the family to meet the expenses for the physician and nurse for the confinement and for hospital care when that is desirable or essential. In Cleveland prospective mothers of the upper economic levels have been able to secure proper instruction in maternal hygiene and skilful medical, nursing and hospital attention. This group on the whole has the lowest birth rate and the lowest maternal mortality. Those in the lower economic levels and those on relief have been able to secure good obstetric service

TABLE 5.—*Puerperal Death Rates per Thousand Live Plus Still Births Cleveland, 1930-1937*

Year	Live Births	Still Births	Total Births	Total Puerperal Deaths	Rate
1930	17,895	705	18,600	119	6.4
1931	16,279	597	16,876	117	6.9
1932	15,122	591	15,713	76	4.8
1933	13,716	491	14,207	81	5.7
1934	14,225	520	14,745	74	5.0
1935	14,506	449	15,015	83	5.5
1936	14,451	476	14,880	55	3.7
1937	14,745	443	15,188	55	3.6

Year	Obstetric Deaths (After 6½ Months)		Deaths Due to Abortion (Before 6½ Months)		Rate
1930	71	3.9	48	2.5	11.9
1931	71	4.4	43	2.5	11.7
1932	48	3.1	28	1.7	7.6
1933	56	3.8	25	1.9	8.1
1934	43	3.0	31	2.0	7.4
1935	65	4.3	18	1.2	8.3
1936	37	2.5	18	1.2	5.5
1937	37	2.3	18	1.1	5.5

through the Maternity Hospital outpatient department and through the maternity service at City Hospital.

On the other hand, a considerable number of prospective mothers in the middle class have found it extremely difficult to meet the expenses of a pregnancy. It is for this group, in which the husbands or the women themselves are employed as workers in shops, factories or stores, that the Hospital Service Association's provision for hospitalization of parturient women is a great boon. More than 155,000 persons are insured in the association plan, which allows twenty-one days of hospital care a year in one of sixteen approved Cleveland hospitals for a monthly premium of from 60 to 75 cents. April 1, 1938, the service was extended to include confinements for those participating in the plan for more than a year. In October the service was extended further to include the entire family. I am confident that in a few years, when full advantage is taken of these provisions, there will be a still further reduction in the maternal mortality rate in Cleveland. There will be greater improvement in technic in hospitals taking obstetric patients under the plan and a more judicious selection of obstetricians by the patients, who will plan early in pregnancy for confinement in one of these hospitals.

Unless the prospective mother can be impressed with the importance of an early choice of a skilful and conscientious physician and it is made possible for her to choose a physician from among the most competent obstetricians in the community, and unless it is made possible for those in the lower economic levels to obtain adequate medical, nursing and hospital care, a material reduction in maternal mortality rates cannot be expected. There may be adequate hospital facilities, a large enough number of physicians and obstetricians in the community and all the necessary nursing facilities, yet, if these cannot be brought to bear directly on the prospective mother at every economic level, other efforts will prove fruitless. The maternal mortality rate will be reduced only in proportion to the community organization which assures the coordination of all these forces.

Accurate reporting of births and deaths is essential to any appraisal and comparison of mortality rates. It must be recognized that a comparison of the rates of one city with those of another and with state and national statistics requires careful interpretation. In the state department of health a reclassification of data submitted by cities may take place because of differences in interpretations and the system of tabulation. By actual comparison it was found that the official rates submitted by cities differed slightly from those furnished by the United States Bureau of the Census in practically all instances. In a comparison of the maternal mortality rates in cities over a period of years, the official rates as issued by the Bureau of the Census are the only ones that are comparable.

Since the adoption of the "1929 International Classification of Causes of Death" by the Cleveland Bureau of Vital Statistics (in 1931) it has been possible to secure the segregation of abortions accompanied with septic conditions from abortions without mention of septic conditions. Other improvements have been made in that classification, but it still does not cover all the points necessary to a complete evaluation of the preventability of maternal deaths. However, the Cleveland Bureau of Vital Statistics has made marked strides in the direction of securing completeness of registration of puerperal deaths, especially in the hospitals, through the cooperation of the Hospital Obstetric Society, and also has checked all cases of obscure causation, so that today the picture from official sources is much more reliable than it was prior to 1931 (table 4).

With the demographic studies of Howard Whipple Green[9] in connection with economic areas in census tracts, one is able to evaluate socio-economic factors entering into the problems of maternal and infant mortality. The data all lend greater reliability to the Cleveland figures for the past eight years and make a comparison of trends more reliable.

The birth rate has varied but little in Cleveland since 1933. The character of the population has remained about the same, although there have been fluctuations in the number on direct and on work relief. There have been no serious epidemics that might have affected the maternal mortality.

As a result of the studies made of maternal mortality, it may be stated that there was no demonstrable downward trend in the official puerperal mortality rate in Cleveland from 1910 to 1931, the yearly rate fluctuating irregularly between 4.3 and 7.2 deaths per thousand live births. From 1931 to 1938 there was a decided downward trend in the maternal mortality rate, with minor yearly fluctuations, from 7.2 in 1931 to

9 Green, Howard W.: Demographical Data, Cleveland, Ohio, 1911 to 1937, Cleveland, Cleveland Health Council, 1938

3.7 in 1937 and 2.9 for the first seven months of 1938. One may reasonably compare the rates since 1930, and especially since 1933 (table 1), because it is known that the registration of births and deaths has become more complete, that the classification of causes of death has become more exact and that more detailed studies of hospital deaths have taken place (table 4).

If the classification of the Cleveland Hospital Obstetric Society is adopted, the favorable change in rates is brought out even more clearly. In 1931 the rate per thousand live plus still births for patients more than six and one-half months pregnant was 4.4, while the rate for those dying before they were six and one-half months pregnant, this figure, including all deaths registered as due to abortion, was 2.5. In 1937 these rates had dropped to 2.3 and 1.3 (table 5 and chart 5).

The answer then to the question as to whether there has been an actual reduction of maternal mortality in Cleveland is Yes. It remains to state that maternal mortality rates in other large cities have been falling to new lows. There has been a general decline in the maternal mortality rates throughout the country. It would be valuable to have the experiences of other cities analyzed and presented to the American Public Health Association.

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FACTORS ASSOCIATED WITH FETAL AND NEONATAL DEATHS

ANALYSIS OF 773 SUCH DEATHS OCCURRING IN 17,728 DELIVERIES AT THE CHICAGO LYING-IN HOSPITAL

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In the past few years there has been an increasing recognition of the need for further investigation of the factors associated with death of the fetus in utero and during delivery and of the infant in the first few days of life. Attention for some time has been focused on the older infant, with the result that deaths occurring in the period from the end of the first month to the end of the first year of life have been greatly reduced (100 per thousand live births in 1915 to 56 per thousand live births in 1935). The death rate in the first month has shown little reduction, while the rate for the first day of life and for stillbirths has remained practically stationary during the entire period since vital statistics on the subject have been collected.

Except for disorders arising from defects of the germ plasm, the welfare of the fetus and of the infant in the period immediately following delivery is largely dependent on the condition of the mother during pregnancy and on the character of labor. It is not until an independent existence has been completely established that pathologic conditions intrinsic in the infant become important lethal factors. The physician therefore must attempt to eliminate any maternal condition which might adversely affect the fetus during the prenatal period and ameliorate any harmful processes occurring during labor if the morbidity and mortality rates are to be decreased.

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It is believed that an analysis of conditions associated with fetal and neonatal death in a large series of deliveries in which the maternal complications and obstetric procedures employed are known, not only in those which die but also in those which survive, might enable one properly to evaluate the factors responsible for fetal and infant deaths.

Considerable difficulty is encountered in attempting to group causes of fetal death, and many classifications heretofore published consist of a mixture of fetal and maternal states. Craniotomy (unless performed on a live fetus), maceration, atelectasis and prematurity in stillborn fetuses are not causes of death and should not be listed as such. No single classification of pathologic conditions gives sufficient information with regard to the fundamental factors responsible for death, and it is only by multiple tables that adequate information can be obtained. In attempting to evaluate the various factors associated with fetal and infant mortality, it is important to know the pathologic conditions present in the fetus or infant, the effect that abnormal maternal conditions present before labor have on the fetus or infant, the effect of different types of labor and delivery on the fetus or infant, and the relation of maternal complications, type of delivery and cause of death to the period of gestation at which the fetus or infant is delivered. The causes of death will be presented from each of these points of view.

GENERAL PROCEDURE

The criteria used to determine the age of a fetus or infant are based on Scammon's figures for weight and length in relation to the menstrual age of the fetus. The fetus is placed in the group in which at least two of the three criteria apply.

I. Abortion:
   1. Less than 400 Gm. in weight.
   2. Less than 28 cm. in length.
   3. Less than 22 weeks (missed abortions are excluded).

II. Premature:
   A. Previable:
      1. From 400 to 999 Gm. in weight.
      2. From 28 cm. to 35 cm. in length.
      3. From the 22d to the end of the 28th week.
   B. Viable:
      1. From 1,000 to 2,499 Gm. in weight.
      2. From 35.1 cm. to 47 cm. in length.
      3. From the 29th to the end of the 37th week.

III. Term:
   1. From 2,500 to 4,499 Gm. in weight.
   2. From 47.1 cm. to 54 cm. in length.
   3. From the 38th to the end of the 42d week.

IV. Postmature:
   1. More than 4,500 Gm. in weight.
   2. More than 54 cm. in length.
   3. More than 42 weeks.

The law in the state of Illinois requires that the birth of all live infants and of stillborn fetuses which have advanced to the fifth calendar month of gestation be recorded. Therefore the birth of infants delivered between the fifth month and the period of viability (end of the seventh month) must be recorded, and these deaths must be included in the computation of mortality statistics even though there is no chance of a continued existence. Infants at the end of the seventh month weigh about 1,000 Gm. Many hospitals accept 1,500 Gm. as the lower limit of viability and disregard in statistical reports all infants below this weight. Dunham and her associates, however, found

in a study of more than 5,000 premature infants that, although 98.8 per cent of all infants weighing less than 1,000 Gm. at birth failed to survive, 35 per cent of those between 1,000 and 1,500 Gm. did survive. The deletion of this group of infants from statistical records cannot be justified on the ground that they are previable.

The product of conception is considered stillborn if it shows no sign of life at birth (heart beat, respiration, muscular movement)[1] and live born if the heart is beating when born, even though respiration is never established.

Autopsies have been performed on 68 per cent of the fetuses and infants delivered and dying in the Chicago Lying-in Hospital. Only too frequently autopsy fails to reveal the cause of death, but despite this, postmortem examination of the infant is as important in determining the absence of pathologic conditions as it is in establishing their presence. The maternal history is an extremely important adjunct to the autopsy protocol, and any statement as to the cause of death based on the summation of knowledge contained in a complete maternal history plus an accurate autopsy protocol is of inestimably more value than an opinion based on one alone.

An attempt has been made to group together closely related pathologic conditions in order to simplify the discussion. Most lesions sufficient to cause death fall into five major groups. They are (1) hemorrhage, either visceral or intracranial, usually caused by trauma, (2) anoxemia, (3) malformations, (4) infections and (5) idiopathic conditions. There are ordinarily no pathologic changes demonstrable in premature infants who die because of insufficient development. In the case of an infant delivered in the previable or viable premature period, prematurity is not given as a cause of death in the absence of pathologic changes, but the fact that it was born in the previable or viable premature period and that no pathologic lesions were found is stated.

Intracranial hemorrhage includes only those cases in which there was definite bleeding into the brain substance or cranial cavity. This bleeding is often associated with laceration of the supporting stuctures and in most cases is due to actual trauma. When there was slight extravasation of cells into the leptomeninges of the type so commonly seen in association with the extreme congestion produced by anoxemia, the infant was placed in the group dying from anoxemia and not with those having intracranial hemorrhage.

Anoxemia is considered the cause of death only when definite petechial hemorrhages are visible in the lungs, heart, thymus or meninges. Petechial hemorrhages when present in one organ are often present in all organs. They are most characteristic in association with death from premature separation of the placenta but usually occur in any obstruction of circulation through the cord or placenta. When death is due to anoxemia, epithelial cells and vernix caseosa derived from the amniotic fluid are demonstrable microscopically in the alveoli of the lungs in much larger quantities than when death occurs from other causes.

Malformations include only those defects which are in themselves capable of causing death. Even though there may have been coincidental maternal complications the malformation is given precedence as a cause of death over any maternal condition. Erythroblastosis has been included under this heading, since we believe that it is most probably a congenital maldevelopment of the hemopoietic system.

Infections are an extremely infrequent cause of death and in general are listed individually. Syphilis and pneumonia are the two most commonly encountered, and even these are rare.

Idiopathic conditions may include hemorrhagic disease of the newborn, glycogen storage disease (von Gierke's disease), hypoglycemia unrelated to maternal diabetes, edema of the brain and the like. Except for one case of hemorrhagic disease, edema of the brain was the only one of these conditions found in the present series. It occurred nine times and most frequently followed birth by cesarean section. Most of the infants died with clinical symptoms indicating increased intracranial pressure. It is not known whether death is due to increased fluid, but it seems wise to place these cases in a separate group since they showed no other pathologic changes.

Atelectasis (lack of expansion of the alveoli) has in no case been considered a cause of death. We believe that atelectasis is not the cause but the result of the processes which produce the death of the infant. It would be advantageous if a term could be introduced which would differentiate the atelectasis due to primary nonexpansion of alveoli and secondary collapse of alveoli due to resorption of air. The first is the type most commonly seen in newborn infants; the second is most often found after the first few days of life. Expansion of alveoli is a gradual process, and lungs of infants a few hours old normally contain less air than those several days old. Abnormal lack of expansion may be due to depression of the respiratory center (anoxemia, trauma, narcotics from the maternal circulation, cerebral malformations), local compression of the lungs (diaphragmatic hernia, polycystic kidneys, pleural effusion) or immaturity of the respiratory center, lungs and thoracic muscles. In none of these conditions is the unexpanded condition of the lungs the actual cause of death.

The role that analgesia and anesthesia play in producing fetal or infant death is extremely difficult to determine. The respiratory center of the infant may become so depressed by excessive or ill timed administration during labor that its function is inhibited and respiration sufficiently delayed to cause death. However, no pathologic lesions are ordinarily produced in the infant's body and it is usually impossible to prove that this was the actual cause of death.

GENERAL ANALYSIS

Since the opening of the new physical plant in May 1931 until Jan. 1, 1938, 17,728 infants have been delivered at the Chicago Lying-in Hospital. Of these 402 were stillborn and 371 died either before discharge from the hospital, or within ten days after birth. This is a total death rate of 21 per thousand live births and a stillbirth rate of 23 per thousand live births.

General Mortality in Relation to Age at Birth.—Among the total infants and fetuses delivered, the great majority (93.3 per cent) remained in utero a normal length of time, and only a small portion (5.8 per cent) were delivered during the viable premature period. Less than 1 per cent (0.5 per cent) additional were previable. The mortality for infants and fetuses at term is only 1.9 per cent, but for those born prematurely it is increased eighteen fold (34.6 per cent) and practically none born in the previable period survive (98.8 per cent).

1. Throughout this paper the term fetus is used to indicate a product of conception born dead at any period of gestation.

Among the infants born alive 94.4 per cent were at term, 5.3 per cent were viable premature infants and 0.3 per cent were previable. The mortality rate for infants at term is 0.8 per cent, for viable premature infants 18.1 per cent, for previable infants 96 per cent. Thus the term infant has twenty-one times more chance of surviving than does the premature infant.

A relatively greater proportion of the stillborn fetuses reached term before delivery (47.1 per cent) than did those infants who died in the neonatal period (35.8 per cent). The opposite is true in the viable premature period, for 42.2 per cent of the stillborn fetuses and 50.9 per cent of the infants dying neonatally fall in this group.

Although of all infants and fetuses delivered only 5.8 per cent were viable premature infants and 0.52 per cent were previable, there were more deaths in these two groups combined than there were among all those who were delivered at term. Only 41.6 per cent of the total deaths were in infants and fetuses at term, while 46.5 per cent occurred among those delivered during the viable premature period and 11.9 per cent were in those delivered during the previable period.

Time of Death in Relation to Labor in Stillborn Fetuses.—Death occurred before the onset of labor in half (50 per cent) of all stillborn fetuses and during labor in more than one third (35 per cent); the time of death was unknown or not recorded in 15 per cent. Sixty-two per cent of the fetuses that died during labor were at term in comparison to 39 per cent of those that died before the onset of labor. The actual number of term fetuses dying during labor is almost twice that of premature fetuses dying during labor. However, death occurred during labor in 5.1 per cent of the infants and fetuses delivered prematurely who were known to be alive at the onset of labor and in only 0.47 per cent of the infants and fetuses delivered at term. Thus the premature fetus has 10.8 times more likelihood of dying during labor than does the fetus at term.

Extra-Uterine Age at Death.—Of the 371 infants who died after birth, eighty-seven lived less than one hour (in the majority of these normal respiration was never established), 192 lived more than one but less than twenty-four hours and eighty-one lived from one to ten days, while eleven died after ten days. A total of 279, or 75.2 per cent, died within the first twenty-four hours of life. This indicates that some process intimately associated with intra-uterine life, the process of birth or the establishment of an extra-uterine existence was directly responsible for at least three fourths of all deaths.

Type of Delivery in Relation to Total Births.—Among the total infants and fetuses almost two thirds (61.7 per cent) were delivered in a cephalic position without operative procedures other than episiotomy. More than one fourth (27 per cent) were delivered in a cephalic position with the aid of forceps (low forceps in 22.4 per cent, mid forceps in 4.6 per cent). The breech was the presenting part in 4 per cent of all deliveries; cesarean section was the method of delivery in 5.8 per cent, and podalic version with subsequent extraction was performed in 0.9 per cent of all cases.

TYPE OF DELIVERY IN RELATION TO FETAL AND NEONATAL MORTALITY

The gross neonatal mortality (0.89 per cent) is less for cephalic deliveries aided by low forceps than for any other type of delivery. The next lowest figure is for infants delivered naturally in a cephalic position (1.5 per cent). Other operative procedures are associated with progressively greater mortality; mid and high forceps 2.4 per cent, cesarean section 6 per cent, breech delivery 7.9 per cent, version and extraction 12.9 per cent.

The stillbirth rates follow the same general order of increase in relation to the type of delivery as do the neonatal death rates. In general, except in delivery by version and extraction and by cesarean section there are about an equal number of neonatal deaths and stillbirths in each group. Associated with cesarean sections there are only half as many stillbirths (thirty-one) as there are neonatal deaths (sixty-two), owing largely to the fact that unless the mother's life is at stake sections are not performed when the fetus is dead. The stillbirths (thirty-five) are 50 per cent higher than the neonatal deaths (twenty-three) when delivery is by version and extraction.

Correction of Figures for Conditions Which Are Not Affected by Type of Delivery.—The gross figures appear to indicate that delivery by low forceps has a considerably lower rate than any other type. However, since the delivery itself can have no effect on deaths occurring before the onset of labor, on those due to major malformations or on those resulting from delivery of the fetus before the period of viability, the deletion of these from the total deaths with recalculation of the rates gives much more accurate information regarding the effect of delivery (table 1). The mortality rate (neonatal deaths and stillbirths combined) thus calculated for natural cephalic delivery (1 per cent) is only one third of its gross rate and is slightly lower than delivery by low forceps (1.1 per cent). Although the total rate in each type of delivery is lowered, in each it is lowered proportionately less than in spontaneous cephalic deliveries, so that in relation to this type of delivery other methods have a greater hazard than is indicated by the gross figures.

TABLE 1.—*Corrected Mortality Rates*

	Gross Mortality, per Cent	Corrected Mortality, per Cent*	Corrected Mortality, per Cent, Adjusted to 5 per Cent Prematurity†
Total deliveries	4.4	2.5	2.5
Natural cephalic deliveries	3.0	1.0	1.1
Low forceps	1.4	1.1	1.3
Mid and high forceps	5.0	4.2	5.0
Breech deliveries	16.5	9.7	7.1
Cesarean section	8.9	6.5	4.1
Version and extraction	34.5	22.3	13.4

* Deletion of all infants and fetuses dying before the onset of labor, before the period of viability or from malformations.

† 0.05 times the death rate for prematures in each type of delivery plus 0.95 times the death rate for term infants in each type of delivery.

Even after these calculations are made there still remain the variations in the number of premature births in each group as factors affecting the death rates. The mortality rate for premature fetuses and infants is approximately eighteen times that of those at term, so that a large number of premature infants in any one group makes the figures for that type of delivery disproportionately high. Since among the live born infants delivered in the hospital 5 per cent are premature, adjustment of the number in each type of delivery to 5 per cent eliminates prematurity as a factor causing variation in the death rates. After the previable, malformed and those dead before the onset of labor have

been eliminated and the adjustment made for prematurity, the corrected rate is slightly raised for natural cephalic (1.1 per cent), low forceps (1.3 per cent) and mid forceps (5 per cent) deliveries and lowered for breech (7.1 per cent), cesarean section (4.1 per cent) and version and extraction (13.4 per cent). Thus delivery by low forceps has a slightly higher rate than natural cephalic delivery, while mid forceps is four and one-half times as high, breech six and one-half times, cesarean section a little more than three and one-half times and version and extraction twelve times as high.

Natural Cephalic Delivery.—Of the 10,877 infants and fetuses born by natural cephalic delivery, 1.5 per cent were stillborn and 1.5 per cent died in the neonatal period. Only one third were at term (term 33 per cent, viable premature 52.4 per cent, previable 14.2 per cent). In each of the age groups there were approximately an equal number of stillbirths and neonatal deaths. Maternal complications were associated with fetal or neonatal death in 57 per cent of the stillborn and in 32 per cent of the live born infants. The most common complication was toxemia, which occurred in 27.6 per cent of the mothers of stillborn fetuses and 10 per cent of those infants who died in the neonatal period. Hemorrhage from placenta praevia or premature separation of the placenta occurred with the next greatest frequency and was associated with 15.2 per cent of the stillborn fetuses and 5.7 per cent of the live born infants who died in the neonatal period.

Investigation of the pathologic lesions at autopsy reveals the startling fact that 38.6 per cent of the live born infants and only 10.3 per cent of the stillborn fetuses died as a result of major malformations. If only infants at term are considered, 67 per cent of those live born died of malformations while 14.6 per cent of the stillborn fetuses died of the same cause. Thus in live born infants who are delivered without instrumentation the most important lethal factor is a major malformation.

In addition to malformations, the most common pathologic lesions in infants dying during the neonatal period are intracranial hemorrhage 12 per cent and anoxemia 12 per cent. Ninety-two per cent of the previable infants, 39 per cent of the premature infants and only 4 per cent of the infants at term showed no pathologic changes.

The other conditions found at autopsy in stillborn fetuses were anemia 11.2 per cent, intracranial hemorrhage 1.7 per cent, intra-uterine pneumonia 1.7 per cent and no demonstrable pathologic changes 73.4 per cent. Slightly over half (51.7 per cent) of the fetuses examined at autopsy were macerated.

The majority (85 per cent) of the fetuses born of mothers with no known complications were macerated; they were macerated in slightly less than half of those in which there was an associated toxemia (42.4 per cent) and in only 29 per cent of those associated with placenta praevia or abruptio placentae. This indicates that intra-uterine deaths associated with no known maternal complications usually take place hours or days before delivery; those associated with toxemia occur before the onset of labor and during labor with about equal frequency, while the greatest number of deaths associated with maternal hemorrhage occur only a short time before delivery.

Cephalic Delivery Aided by Forceps.—Among the 3,995 deliveries in which low forceps were used there were 0.55 per cent stillbirths and 0.87 per cent live born infants who died during the neonatal period. Maternal complications were present in association with 52 per cent of the deaths in this group in contrast to 44 per cent in natural cephalic deliveries. Seventy per cent were at term. Causes of death in the thirty-two infants and fetuses examined at autopsy were intracranial hemorrhage 31 per cent, anoxemia 28 per cent, malformations 25 per cent and no abnormalities 16 per cent.

A total of 835 infants and fetuses were delivered by mid or high forceps. Of these 2.6 per cent were stillborn and 2.4 per cent died in the neonatal period. In 45 per cent Duehrssen's incisions were made prior to delivery. There were, in the total group, nine mothers showing toxemia and two with abruptio placentae, and in most of the remainder there was difficulty in delivery, the latter due especially to cervical dystocia. Seventeen per cent of the infants and fetuses were premature, 83 per cent were at term. Thirty-two were examined at autopsy. Sixty-five per cent of these showed evidence of birth trauma, 9 per cent died of major malformations, 13 per cent died of anoxemia and 13 per cent showed no pathologic lesions.

In both groups of infants and fetuses examined at autopsy the main cause of death was birth trauma; it accounted for death in 65 per cent of those delivered by mid forceps, 31 per cent of those delivered by low forceps.

Breech Delivery.—A total of 708 infants and fetuses were delivered in a breech position with a resulting mortality of 7.9 per cent during the neonatal period and an incidence of 8.6 per cent stillbirths.

The causes of death demonstrable at autopsy in infants and fetuses delivered in a breech position were anoxemia 20 per cent, intracranial or intraperitoneal hemorrhage 17.4 per cent, malformations 10.6 per cent and infections 4 per cent. In 48 per cent no anatomic cause of death could be demonstrated; this includes the 20 per cent that were macerated, the 17 per cent that were previable and the 11 per cent that were premature or at term that showed neither maceration nor pathologic lesions. Maternal complications were present before delivery in 32.6 per cent of the women whose infants died or were stillborn; toxemia occurred in 12 per cent, hemorrhage due either to placenta praevia or to premature separation of the placenta in 12 per cent and prolapse of the cord in 10.6 per cent.

Delivery by Cesarean Section.—Among 1,041 cesarean sections there were delivered thirty-one (3 per cent) stillborn fetuses and sixty-two (6 per cent) live born infants who died during the neonatal period. Of the total number of infants and fetuses 36.5 per cent were at term, 50.5 per cent were premature but viable and 13 per cent were previable.

The main indication for cesarean section in the cases in which the fetuses were stillborn was hemorrhage due to premature placental detachment; this was present twenty-two (70 per cent) times; seven of these were associated with toxemia. In six (20 per cent) the indication for section was severe toxemia without premature placental separation, in two (7 per cent) central placenta praevia, in one (3 per cent) brain tumor. Twenty-two of the fetuses were examined at autopsy. Fifty-five per cent showed the petechial hemorrhages characteristic of interference with circulation, and in 9 per cent there was intracranial hemorrhage. In 36 per cent there were no pathologic lesions; of these, 23 per cent were so macerated that petechial hemorrhages could not have been identified even if originally present.

The indications for cesarean section in the sixty-two live born infants who subsequently died were toxemia 35.4 per cent, hemorrhage 30.6 per cent (placenta praevia nine, abruptio placentae ten), medical complications 19.5 per cent (heart disease nine, tuberculosis one, diabetes one, epilepsy one), small pelvis 11 per cent (first section two, with previous section five), necrotic fibroid one (1.6 per cent), previous antepartum fetal death one (1.6 per cent).

Forty-four of these infants were examined at autopsy. twenty-seven per cent of these showed no pathologic lesions (six were viable premature infants, three previable infants). Twenty-one per cent (three term, six premature) had marked edema of the brain without other demonstrable abnormality, 19 per cent had petechial hemorrhages, 16 per cent showed intracranial hemorrhage (three term, four premature), 10 per cent had major malformations, 7 per cent had pneumonia. It is interesting to note that six of the seven cases showing intracranial hemorrhage were cases in which the indication for section was toxemia.

The total 1,041 cesarean sections have been analyzed according to the indications for which they were performed. In considerably over half (60.1 per cent) the indication was disproportion, dystocia or previous cesarean section. The infants were stillborn or died in the neonatal period in only 1.1 per cent of these cases. Hemorrhage from premature separation of the normally implanted placenta or placenta praevia was the indication in 12.5 per cent, with fetal or neonatal deaths occurring in 33.6 per cent. Toxemia (in most instances due to chronic renal impairment) was the indication in 12.3 per cent; the infants were stillborn or died in the neonatal period in 22.7 per cent of this group. The remaining 15.1 per cent of the sections were performed because of cardiac insufficiency or other local or systemic conditions; 10 per cent of these infants were stillborn or died in the neonatal period.

Thus, although the indication was hemorrhage or toxemia in only 25 per cent of the total cesarean sections, in 76 per cent of the sections in which the fetus or infant succumbed this was the indication present. When cesarean section is performed in the absence of maternal complications which may involve the fetus, the mortality rate is low.

Delivery by Version and Extraction.—A total of 162 infants and fetuses were delivered by version and extraction; 20.3 per cent were stillborn and 14.1 per cent died in the neonatal period. Forty-three per cent were at term, 53.5 per cent were premature but viable and 3.5 per cent were previable.

The principal indication for version and extraction which was followed by death of the fetus or infant was hemorrhage associated with placenta praevia or premature placental separation. This was present twenty-eight times, or in approximately half of the cases. Malposition (ten) or long labor (two) occurred in about one fifth of the cases, while prolapsed cord (four), failed forceps (four), hydramnios (three), toxemia (two), second twin (one) and unstated (two) made up the remainder. Toxemia was present in eight cases in addition to the two in which it is given as the indication for version (malposition two, placenta praevia one, placental separation two, failed forceps one, prolapsed cord two).

In seven cases the Braxton Hicks was the type of version performed. In fifteen (26 per cent) a bag induction preceded the version.

Thirty-seven of the total fifty-six dead infants and fetuses were examined at autopsy. The cause of death was anoxemia in 50 per cent, malformations in 19 per cent, intracranial hemorrhage in 13.5 per cent, pneumonia in 2.7 per cent and undetermined in 16 per cent.

Version and extraction carries the highest fetal and infant mortality of any operative procedure. From an analysis of the cases, however, it becomes evident that the high rate is due to the type of case in which this procedure is instituted rather than to the delivery itself. Death in the five infants showing evidence of intracranial injury may probably be attributed to the type of delivery, but the majority of the 50 per cent of deaths from anoxemia were due to maternal hemorrhage or interference with circulation through the cord. The 19 per cent due to major malformations cannot be attributed to the type of delivery.

Delivery by Craniotomy.—Among the fifty-eight infants delivered by craniotomy, thirty-four died before the onset of labor and twenty-four during labor. Twenty of the thirty-four dying before the onset of labor were macerated. There are no outstanding causes of death as shown by autopsy or maternal complications. In about one fourth there were no known maternal complications or demonstrable abnormalities in the infants or fetuses. Nine were associated with maternal toxemia, eight with placenta praevia or premature placental separation, eight were malformed infants (none of whom were born of mothers with complications), eight were associated with cord knots, prolapse, entanglements and the like. In eleven there was a history of long labor or difficult delivery, and two of these infants showed evidence of intra-uterine pneumonia. There were also no great differences in causes of antepartum and intrapartum deaths except in the number of deaths occurring without maternal complications (excluding the malformations). Of these there were eleven cases in the antepartum period and only two in the intrapartum period.

MATERNAL COMPLICATIONS

Maternal Complications in Relation to Pathologic Conditions in the Infant and Fetus.—In 44.6 per cent (354) of the 773 fatalities in this series maternal complications including premature placental separation, placenta praevia, toxemia, cord entanglements or prolapse, medical complications (heart disease, diabetes, pyelitis and the like) or syphilis were present. In only 31.6 per cent, however, could the complication be considered as the probable cause of death, for in the other 13 per cent definite pathologic lesions such as intracranial hemorrhage, malformations and infections were present. In those cases in which the only pathologic lesions demonstrable were petechial hemorrhages, death was believed probably due to the maternal complications and they are included in the 32 per cent so designated.

Hemorrhage from premature placental separation or placenta praevia was the most common complication and was found in 117 cases (33 per cent). In almost half (43 per cent) of these infants and fetuses there were no pathologic lesions. In over one third (38 per cent) petechial hemorrhages were present, and in the remaining 17 per cent a variety of causes of death were found.

Among the infants born of toxemic mothers (114) only 18 per cent showed definite evidence of anoxemia (petechial hemorrhages) and 21 per cent showed other pathologic lesions, while in 61 per cent no evidence of

a cause of death could be found. It is very probable that toxemia was the main inciting factor in the majority of the first and last groups.

In an additional twenty-eight cases both toxemia and premature placental separation were present. Seventeen of these infants and fetuses had petechial hemorrhages in the thoracic viscera; in eleven there were no abnormalities.

Cord abnormalities producing interference with circulation (fifty-four) were less than half as common as either toxemia or hemorrhage. As would be expected, the most common abnormalities in these infants were those indicative of anoxemia (42 per cent). In 13 per cent there was intracranial hemorrhage or a major malformation, and in 44 per cent no pathologic changes were present. In one third of the last group maternal hemorrhage or toxemia also was present.

Absence of Maternal Complications.—There were no maternal complications associated with the death of 419 (55 per cent) fetuses and infants. Of these, 175 (22.6 per cent of all deaths) showed pathologic changes at autopsy or a fairly definite cause of death was assigned clinically. In 244 (30.2 per cent) there was neither a maternal complication nor a demonstrable cause of death. In the different age groups, absence of maternal complications and pathologic lesions occurred with the following frequency: (*a*) deaths in the neonatal period; term, 8.2 per cent, premature, 29.1 per cent, previable, 63 per cent; (*b*) stillborn; term, 20.6 per cent, premature, 20.6 per cent, previable 47.8 per cent.

TABLE 2.—*Causes of Death Associated with Types of Delivery*

	Natural Cephalic Delivery			Low Forceps Delivery			Mid and High Forceps Delivery			Breech Delivery			Cesarean Section			Version and Extraction		
	Neonatal Deaths	Stillbirths	Total, per Cent	Neonatal Deaths	Stillbirths	Total, per Cent	Neonatal Deaths	Stillbirths	Total, per Cent	Neonatal Deaths	Stillbirths	Total, per Cent	Neonatal Deaths	Stillbirths	Total, per Cent	Neonatal Deaths	Stillbirths	Total, per Cent
Hemorrhage	18	4	6.4	11	[illegible]	24.5	16	13	69.1	10	8	15.0	8	2	10.8	7	..	12.5
Intracranial	17	3	....	10	[illegible]	....	14	11	....	8	7	....	8	2	....	7	..	....
Intracranial and pneumonia	..	1	....	1	..	....	..	2	....	2	..	....	..	..	....	..	..	....
Visceral	1	..	....	..	..	....	2	..	....	..	1	....	..	..	....	..	..	....
Anoxemia	18	16	9.8	4	11	31.6	..	5	11.9	7	18	20.8	12	17	31.2	2	23	41.6
Maternal complications	7	14	....	2	9	....	..	3	....	6	14	....	12	17	....	2	23	....
Abruptio or placenta praevia	2	4	....	1	2	....	..	2	....	3	5	....	7	17	....	1	11	....
Abruptio and toxemia	..	1	....	..	..	....	..	..	....	..	2	....	..	..	....	..	..	....
	1	1	....	..	[illegible]	....	..	1	....	2	3	....	2	..	....	..	..	....
	4	6	....	..	2	....	..	..	....	1	4	....	..	..	....	1	2	....
	..	2	....	1	..	....	..	..	....	..	..	....	3	..	....	..	10	....
N	11	2	....	2	5	....	..	2	....	1	4	....	..	..	....	..	..	....
Malformations	50	11	17.7	8	4	21.1	2	1	7.1	..	11	9.2	4	..	4.3	1	6	12.5
Infections	6	3	2.6	..	..	0.0	..	..	0.0	3	..	1.5	3	..	3.2	3	..	5.4
Pneumonia	3	1	....	..	..	....	..	..	....	1	..	....	3	..	....	3	..	....
Syphilis	1	2	....	..	..	....	..	..	....	1	..	....	..	..	....	..	..	....
Septicemia	1	..	....	..	..	....	..	..	....	1	..	....	..	..	....	..	..	....
Diphtheria	1	..	....	..	..	....	..	..	....	..	..	....	..	..	....	..	..	....
Idiopathic conditions	..	7	2.3	..	..	0.0	..	..	0.0	..	..	0.0	10	..	10.8	..	..	0.0
Edema of the brain	..	7	....	..	..	....	..	..	....	..	..	....	10	..	....	..	..	....
No pathologic changes	82	129	61.2	12	1	22.8	2	3	11.9	40	23	52.5	25	12	39.7	10	4	15.0
Maternal complications	10	69	....	2	..	....	2	..	....	7	15	....	25	12	....	9	4	....
Abruptio or placenta praevia	4	19	....	1	..	....	..	..	....	2	5	....	7	5	....	6	2	....
Abruptio and toxemia	1	7	....	..	..	....	..	..	....	..	1	....	..	..	....	..	..	....
	6	32	....	1	..	....	2	..	....	2	3	....	12	6	....	1	1	....
	..	5	....	..	..	....	..	..	....	..	5	....	..	..	....	..	..	....
	6	3	....	..	..	....	..	..	....	1	1	....	6	1	....	2	1	....
Syphilis	2	3	....	..	..	....	..	..	....	2	..	....	..	..	....	..	..	....
No maternal complications	63	60	....	10	1	....	..	3	....	33	8	....	..	..	....	1	..	....
Total	174	170	100.0	35	32	100.0	20	22	100.0	60	60	100.0	62	31	100.0	23	33	100.0

There were only thirteen women in whom a history of a syphilitic infection was obtained. Only four of nine infants or fetuses examined at autopsy showed evidence of syphilis; in the three not examined there was no clinical evidence of syphilis. The total incidence of maternal syphilis in this series is only 1.3 per cent. It is probable that not more than half this number actually died of syphilis.

Maternal Complications in Relation to Time of Death.—The lowest incidence of maternal complications is found in term infants who die in the neonatal period (9 per cent). In stillborn term fetuses the incidence of complications in the mother is three times as great (28 per cent). They are most common in association with the birth of dead premature or previable fetuses (37 per cent), while they occur in 26 per cent of premature or previable infants who died in the neonatal period.

CAUSE OF DEATH AS DEMONSTRATED BY AUTOPSY

Incidence of Pathologic Lesions in Relation to Time of Death (table 3).—Sixty-eight per cent (526) of all dead infants and fetuses born in the Chicago Lying-in Hospital during the period under investigation were examined at autopsy; this comprised 66 per cent of the live born infants and 70 per cent of the stillborn fetuses. The number of live born (48 per cent) and the number of stillborn (52 per cent) were almost equal, and the number falling into the previable, premature and term groups were remarkably evenly divided between those stillborn and those which were live born. Of the entire group 12.2 per cent were previable, 14.1 per cent were premature and 43.7 per cent were at term.

It was impossible to demonstrate pathologic changes in 52 per cent of the stillborn fetuses and in 32 per cent of the live born infants. However, in only eleven term infants and fetuses was there absence of pathologic lesions. Only 5 per cent of live born infants in whom

no pathologic lesions were present were at term, so that in the remaining 27 per cent prematurity was the probable cause of death.

In ninety-seven of the 148 stillborn fetuses in whom no pathologic lesions were demonstrable, maceration had advanced to a degree sufficient to have masked any hemorrhage which might have been present; there were only 18 per cent of the fetuses which showed neither maceration nor pathologic changes.

In the combined series of stillbirths and neonatal deaths anoxemia (18.5 per cent) and malformations (18.1 per cent) are the most important lethal factors, and an almost equal number of deaths fall in each group. However, the distribution is decidedly different in the two groups, for there are twice as many malformations as anoxemias in the live born group and twice as many anoxemias as malformations among those who were stillborn. Thus malformations are the most common cause of death in live born infants (24.5 per cent), while anoxemia is the most common cause in stillborn fetuses (23.8 per cent). Anoxemia accounts for 12.2 per cent of the deaths in live born infants, malformations for 12.4 per cent of the deaths in stillborn fetuses.

definitely known, and whether or not it is a lethal factor cannot be stated positively. It was found most frequently following birth by cesarean section; the majority of the infants lived from eight to twenty-four hours and showed clinical evidence of increased intracranial pressure.

Erythroblastosis was present in four live born infants and in six stillborn fetuses, an incidence of 1.3 per cent of the total deaths. These cases were included with those presenting malformations because the conditions seem most probably due to a congenital malformation of blood-forming tissue.

Only one case of hemorrhagic disease of the newborn was present in the entire series. This case was included under visceral hemorrhage.

Pathologic Changes in Relation to Type of Delivery.—In autopsies performed on viable infants and fetuses malformations account for 5 per cent of the deaths of those delivered by cesarean section, 7 per cent of those by high or mid forceps, 9.2 per cent of those by version and extraction, 9.3 per cent of those by breech delivery, 14 per cent of those by low forceps and 20 per cent by natural cephalic delivery. It is interesting to note

TABLE 3.—*Causes of Death as Demonstrated at Autopsy of 526 Fetuses and Infants*

	Hemorrhage		Anoxemia		Malformations		Infections		Miscellaneous		Undetermined		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Term	52	22.6	44	19.0	62	26.8	10	4.3	2	0.9	61	26.4	231	100.0
Live birth	32	31.1	9	8.7	43	41.7	6	5.8	2	2.0	11	10.7	103	100.0
Stillbirth	20	15.6	35	27.3	19	14.8	4	3.1	..	...	50	39.2	128	100.0
Premature	29	12.4	51	21.9	33	14.2	5	2.1	7	3.0	108	46.4	233	100.0
Live birth	23	20.7	20	18.0	17	15.3	4	3.6	7	6.3	40	36.1	111	100.0
Stillbirth	6	4.9	31	25.4	16	13.1	1	0.9	..	...	68	55.7	122	100.0
Previable	2	3.2	2	3.2	..	....	1	1.7	..	...	57	91.9	62	100.0
Live birth	2	6.5	1	3.2	..	....	1	3.2	..	...	27	87.1	31	100.0
Stillbirth	..	...	1	3.2	..	....	..	...	..	...	30	96.8	31	100.0
Total	83	15.8	97	18.5	95	18.1	16	2.9	9	1.7	226	43.0	526	100.0

The third most frequent cause in the combined series is gross hemorrhage, usually intracranial and usually traumatic. It is present in 15.8 per cent of the entire group but is more than twice as frequent in live born infants as in stillborn fetuses. It accounts for 23.4 per cent of the deaths in live born infants (second in importance) and for 9.3 per cent of the stillbirths (third in importance).

Infections are much less frequent than the three preceding factors and caused death in only 3 per cent of the cases. They are twice as common in live born infants as in stillborn fetuses. The types of infections were pneumonia nine (those having both intracranial hemorrhage and pneumonia were placed with the former group), syphilis four, septicemia two and diphtheria one.

The incidence of syphilis seems remarkably low, but in addition to the four cases of proved syphilis there were only five other infants examined at autopsy who had been born of mothers with a positive Wassermann reaction, and syphilis could not be demonstrated in those infants. The total of nine cases, four proved and five in which it may possibly have been a contributing factor, represents only 1.3 per cent of all the infants and fetuses examined at autopsy.

Edema of the brain without other pathologic changes was present in 1.7 per cent of all autopsies but was found only in live born infants. Its significance is not

that this is almost the reverse order of importance of intracranial hemorrhage as a cause of death.

Anoxemia accounts for 8.1 per cent of the cases in which autopsies were performed on viable infants and fetuses delivered naturally in a cephalic position, 9.3 per cent by high or mid forceps, 15.7 per cent by low forceps, 17.6 per cent by breech, 23.4 per cent by cesarean section and 33.4 per cent by version and extraction.

Intracranial hemorrhage accounts for 6.1 per cent of the deaths among autopsies performed on viable infants and fetuses delivered naturally in a cephalic position, 9.2 per cent by version and extraction, 9.6 per cent by cesarean section, 17.5 per cent by low forceps, 21.1 per cent by breech deliveries and 46.8 per cent by high or mid forceps.

Of the three most important causes of death, anoxemia shows the highest incidence in version and extraction and in cesarean section; malformations in natural cephalic deliveries and in those aided by low forceps; intracranial hemorrhage in high forceps and in breech deliveries.

Pathologic Lesions in Relation to Degree of Maturity.—Anoxemia occurs as a cause of death with fairly equal frequency in the total number of autopsies on infants and fetuses at term (19 per cent) and those in the premature period (21.9 per cent). Malformations are almost twice as frequent a cause of death in those at term (26.8 per cent) as in those who succumb in the

premature period (14.2 per cent). Contrary to the commonly stated fact that death in the premature infant is much more likely to be due to intracranial hemorrhage than it is in an infant at term, the opposite is shown to be true by this series of autopsies. Only 12.4 per cent of all the premature infants who were examined at autopsy showed intracranial hemorrhage, while it was present in 22.6 per cent of the term infants who were examined at autopsy. Of 100 premature infants and fetuses and 100 at term, intracranial hemorrhage is found at autopsy only half as frequently in the premature as in the ones at term. However, since neonatal deaths and stillbirths are approximately eighteen times as common in premature infants as in those at term, it may be said that any premature infant alive at the onset of labor and about to be delivered has twenty-one times as many chances of dying from anoxemia, ten times as many chances of dying of a malformation and eleven times as many chances of dying from intracranial hemorrhage as does an infant at term.

No pathologic lesions were demonstrable in 46.4 per cent of the premature fetuses and infants and in 26.4 per cent of the fetuses and infants at term.

Death in an infant or fetus at term is more commonly due to malformation than any other demonstrable cause; death in the premature period is more commonly due to anoxemia than to any other demonstrable cause.

SUMMARY

Although only 6.3 per cent of all infants and fetuses delivered at the Chicago Lying-in Hospital from May 1931 to Jan. 1, 1938, had not reached term before delivery, this group accounted for 59 per cent of the total mortality. In only 57 per cent of all dead infants and fetuses examined at autopsy could a definite pathologic state be demonstrated. This varied from 90 per cent for live born term infants to 44 per cent for premature stillborn infants. In live born infants who died in the neonatal period the most important causes of death were malformations (24.5 per cent), intracranial hemorrhage (23.4 per cent) and anoxemia (12.2 per cent), while in stillborn fetuses the most important causes were anoxemia (23.8 per cent), malformations (12.4 per cent) and intracranial hemorrhage (9.3 per cent). Malformations accounted for a remarkably high proportion of deaths in full term infants who died in the neonatal period (41.7 per cent of those examined at autopsy).

Complications, exclusive of those due to the mechanism of labor, occurred during pregnancy or labor in association with 45.7 per cent of all fetal or neonatal deaths. The most important were toxemia and hemorrhage from premature separation of the placenta or placenta praevia. These were found in association with 33 per cent of the total deaths. Abnormalities of the cord (7.0 per cent), syphilis (1.6 per cent) and other pathologic conditions (3.4 per cent) made up the remaining 12 per cent.

The gross mortality rate does not give an accurate estimate of the role which various types of delivery may play in contributing to fetal and neonatal deaths. A disproportionately large number of premature infants and fetuses delivered by a certain method means a disproportionately high death rate in that group. Eliminating those infants and fetuses that died before the onset of labor, that had not reached the period of viability or in which death was the result of a major malformation gives mortality rates corrected in such a way that some estimate may be made of the effect of various types of delivery. The total mortality (both stillbirths and neonatal deaths) corrected on this basis is 2.5 per cent. If these figures are adjusted so that they represent the total mortality had there been 5 per cent premature infants delivered by each method (the incidence of viable premature infants among all live born infants was 5 per cent) the figures are natural cephalic delivery 1.1 per cent, low forceps 1.3 per cent, mid and high forceps 5 per cent, breech presentation 7.1 per cent, cesarean section 4.1 per cent, version and extraction 13.4 per cent. The total uncorrected mortality is 4.4 per cent.

STUDIES ON THE CIRCULATION IN PREGNANCY

X. SUMMARY OF STUDIES OF THE PHYSIOLOGY OF THE CIRCULATION OF NORMAL PREGNANT WOMEN: A NEW CONCEPT OF THE NATURE OF THE CIRCULATORY BURDEN OF PREGNANCY AND ITS APPLICATION TO THE MANAGEMENT OF CLINICAL PROBLEMS OF PREGNANCY

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Studies were conducted for several years (1932-1937) at the cardiac research laboratory of the Boston Lying-in Hospital on the physiology of the circulation of pregnant women.[1] The purposes of these studies were, first, to learn the dynamics of the circulation of the normal pregnant woman, second, to learn what the nature of the "increased burden" on the pregnant woman with heart disease is, and, finally, to develop, if possible, concepts which might be of clinical use in the management of normal pregnant women and pregnant women with heart disease. A summary of the results of these studies, plus pertinent studies from the literature, will be presented here.

CLINICAL AND LABORATORY EXAMINATIONS

Before proceeding to the physiologic results of this study, it seems useful to present facts bearing on the simpler clinical aspects of the subject gained from the clinical examination of the cardiorespiratory system. This study included single examinations of 3,000 normal pregnant women by us and serial examinations, i. e. monthly examinations of the same patient, of sixty-six more normal pregnant women and of 300 pregnant women with "organic" heart disease. These facts gain importance because knowledge of the normal symptoms of pregnancy may prevent erroneous diagnoses of heart

From the Department of Obstetrics, Harvard University Medical School, and the Cardiac Clinic and Research Laboratory, Boston Lying-in Hospital.

1. Thomson, K. J.; Hersheimer, A.; Gibson, J. G., 2d, and Evans, W. A., Jr.: Studies on the Circulation in Pregnancy: III. Blood Volume Changes in Normal Pregnancy, Am. J. Obst. & Gynec. 36:43 (July) 1938. Thomson, K. J., and Cohen, M. E.: Studies on the Circulation in Pregnancy: VII. Circulatory Studies of Pregnant Women with Cardiac Disease, to be published. Thomson, K. J.; Gorman, W. A.; Reid, D., and Gibson, J. G., 2d: Studies on the Circulation in Pregnancy: VIII. Blood Volume Observations in Pregnant Women with Cardiac Disease, to be published. Reid, D.; Thomson, K. J.; Gorman, W. A., and Gibson, J. G., 2d: Studies on the Circulation in Pregnancy: IX. Blood Volume Observations in Pregnancy Complicated by "Toxemia," to be published. Cohen and Thomson.[2] Thomson, Cohen and Hamilton.[7] Cohen and Thomson.[11] Thomson, Reid and Cohen.[12] Thomson and Cohen.[10]

disease in the pregnant woman. They are summarized in the accompanying table. It should be emphasized that normal pregnant women commonly complain of dyspnea. Many of them are orthopneic, that is they breathe more comfortably when they are propped up in bed. Many of them are awakened at night by attacks of palpitations and choking. Complaint of palpitations is common, as is complaint of swelling of the legs and hands. It can be seen thus that symptoms ordinarily attributed to heart disease and heart failure occur normally in the pregnant woman. Obviously such symptoms are also present in pregnant women with heart disease, but by themselves they do not indicate heart disease or congestive failure.

Physical examination during the latter part of pregnancy shows the skin flushed, moderate collapsing pulse and in many instances capillary pulsation over the fingers and the veins dilated over the abdomen and chest. Location of the apex of the heart is difficult because of the large breasts; the pulse is usually rapid and auscultation reveals usually a loud first sound at the mitral area, pulmonic and apical systolic murmurs and the pulmonic second sound commonly louder than the aortic second sound. Pulmonic systolic murmur is demonstrable in late pregnancy by careful physical examination of the heart in 100 per cent of cases and apical systolic murmur in approximately 50 per cent. The signs are those of hyperactive or hyperkinetic heart.[2] Though superficial examination might lead to an erroneous diagnosis of mitral stenosis, more careful examination, with particular note of the absence of diastolic murmur, will lead to the correct conclusion. "Functional" diastolic murmurs are not heard and do not occur because of pregnancy. Swelling of the legs is common. Transient rales almost never occur at the bases of the lungs of the normal pregnant woman. Constant rales at the bases, which never occur in normal pregnant women, are pathologic, and in a pregnant woman with heart disease constitute the most valuable sign of failure. Further discussion of the diagnosis of heart failure in pregnancy is presented elsewhere.[3]

Laboratory studies also show changes during normal pregnancy. Seven foot roentgenograms of the heart sometimes suggest slight enlargement, i. e. the transverse diameter of the heart shadow may exceed by 1 or 2 cm. half the transverse diameter of the chest. There is no crucial evidence to determine whether this is due to displacement or enlargement (hypertrophy or dilatation) of the heart or both. The lungs in roentgenograms show increased markings that could be mistaken for mild congestive failure by one not familiar with x-ray studies of pregnant women. These pulmonary x-ray changes are probably related to an increase in the vascular bed of the lungs and to perivascular infiltration.[4] The electrocardiogram is not remarkable except that a tendency toward left axis deviation as pregnancy progresses has been shown, with a shift back toward normal in the final weeks.[5] The Q wave in lead 3 is deep in 5 per cent of cases,[6] and in the chest lead,[7] with the exploring electrode placed in the fourth interspace 5 cm. to the left of the midsternal line, the T wave may become upright [8] (old technic) for 8 per cent of normal pregnant women and become inverted (old technic) again after delivery. Changes therefore which are sometimes interpreted as being related to coronary artery disease can be seen to occur during normal pregnancy. The white blood cell count [9] in pregnancy may be elevated, that is to from 12,000 to 15,000, and the sedimentation rate of the red blood cells is much increased.[10] It can be seen that use of the white cell count and sedimentation rate as indicators of rheumatic activity in pregnancy without proper corrections might lead to error. Clearcut active rheumatic fever in pregnancy, as a matter of fact, was not seen in this study (300 cases of rheumatic heart disease) and is extremely rare. It should be pointed out that "heart disease" in pregnancy means rheumatic heart disease, for practical purposes, as 91.9 per cent of 850 cardiac patients in this clinic had rheumatic heart disease.

Common Clinical and Laboratory Observations in Normal Pregnancy

I. *Symptoms*
1. Dyspnea
2. Orthopnea
3. "Pseudoparoxysmal nocturnal dyspnea"
4. Palpitations
5. Swelling of legs

II. *Signs*
1. Percussion for cardiac size unreliable
2. Apex beat obscure
3. Loud mitral first sound
4. Apical systolic murmur
5. Loud third heart sound
6. Pulmonic second sound greater than aortic second sound
7. Pulmonic systolic murmur (100 per cent)
8. Tachycardia
9. Extrasystoles
10. Prominent veins
11. Quick pulse (like Corrigan's pulse) and capillary pulse
12. Edema of lower extremities

III. *Laboratory Data*
1. Roentgenogram
   A. Slight enlargement of cardiac shadow
   B. Picture suggests pulmonary congestion
2. Electrocardiogram
   A. Deep Q-3 (5 per cent)
   B. Upright T-4 (old terminology; 8 per cent)
   C. Extrasystoles
3. Sedimentation rate increased
4. White blood cell count increased
5. Red blood cell count, Hemoglobin concentration, Hematocrit reading } decreased

In summary, then, it may be said that in the clinical examination of the pregnant woman, including the clinical laboratory tests, there are signs and symptoms which, unless properly interpreted, might lead to erroneous diagnoses of heart disease, heart failure or rheumatic activity (as shown in the table).

PHYSIOLOGIC STUDIES

The basal pulse rate is accelerated early in pregnancy and averaged, in a group of fifty-one normal pregnant women, 81 beats a minute throughout pregnancy, with

2. Harrison, T. R.: Failure of the Circulation, Baltimore, Williams & Wilkins Company, 1935.
3. Cohen, M. E., and Thomson, K. J.: Studies on the Circulation in Pregnancy: VI. Vital Capacity in Pregnant Women with Cardiac Disease and Its Value in Predicting and Diagnosing Early Heart Failure, to be published.
4. Hofbauer, J.: Die Bedeutung der Generationsvorgaenge fuer die Klinik der Tuberkulose, Ztschr. f. Geburtsh. u. Gynäk. **67**: 572, 1910.
5. Carr, F. B., and Palmer, R. S.: Observations on Electrocardiography in Heart Disease Associated with Pregnancy and Especial Reference to Axis Deviation, Am. Heart J. **8**: 238 (Dec.) 1932.
6. Carr, F. B.; Hamilton, B. E., and Palmer, R. S.: The Significance of Large Q in Lead III of the Electrocardiogram During Pregnancy, Am. Heart J. **8**: 519 (April) 1933.
7. Thomson, K. J.; Cohen, M. E., and Hamilton, B. E.: Studies on the Circulation in Pregnancy: V. Lead 5 of the Electrocardiogram in Pregnancy, Am. J. M. Sc. **196**: 819 (Dec.) 1938.
8. At the time this work [7] was done, the accepted technic (old) of connecting the electrodes for chest leads of electrocardiograms resulted in a tracing in which the T wave was usually inverted. Subsequent to this study the technic was modified so that the T wave appears upright commonly. Chest leads taken with the modified (new) technic would show the reverse of our results, i. e. an upright T wave would be usual and an inverted one unusual.
9. Baer, J. L.: The Leukocytes in Pregnancy, Labor and the Puerperium, Surg., Gynec. & Obst. **23**: 567 (Nov.) 1916.
10. Griffin, R. J.: The Sedimentation Rate and Schilling Index in Pregnancy, Am. J. Obst. & Gynec. **28**: 532 (Oct.) 1934.

some persons showing a tendency toward gradual increase until term. Post partum the average basal pulse rate dropped to 70 beats a minute.[11] The exact time of return of the pulse rate to normal is unknown as yet.

The basal arterial blood pressure remains within normal limits (the systolic pressure less than 140 mm. of mercury and the diastolic less than 90 mm.) during the course of uncomplicated pregnancy. There seems to be a definite tendency for both average systolic and average diastolic pressure to decrease from the fourth to the ninth lunar[12] month and to increase during the tenth. The diastolic pressure shows a greater decrease, so that there is an increase in pulse pressure. This has been found by other observers[13] and may be associated with the collapsing pulse and the capillary pulse previously described.

The venous pressure in the arms was measured for twenty normal pregnant women (ninety-four observations) and for twenty-seven pregnant women with compensated cardiac disease (144 observations) by the direct method of Moritz and von Tabora[14] and was found to be within normal limits. There was a tendency to diminution during pregnancy and to slight increase post partum, but this was not marked.[15] Elevation of venous pressure measured in the femoral vein in pregnancy has been reported.[16]

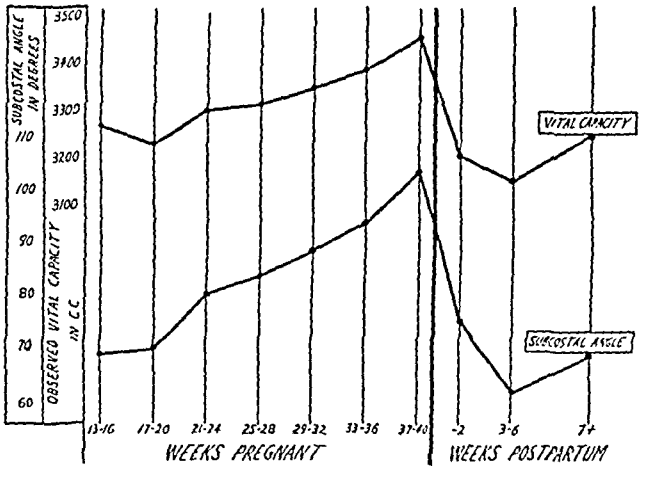


Chart 1.—The relation between the average observed vital capacity and the average curve of values for the subcostal angle in pregnancy. The heavy perpendicular line represents delivery and separates the antepartum and the postpartum period. Note the close correspondence between the two curves, indicating that changes in vital capacity correlate with changes in size and shape of the chest.

Studies of the respiratory system show a marked increase in total ventilation,[17] accompanied with slight but not proportionate increase in oxygen consumption.[18] The average vital capacity, studied in thirty-one normal pregnant women, showed a gradual rise[19] during pregnancy, with a drop post partum. It is of interest that this correlates precisely with the increase in the subcostal angle (chart 1), indicating that the explanation of this slight increase in vital capacity is increase in the size of the chest. Change in size of the chest has been shown further by x-ray studies on measurements of the thoracic cage in this clinic[19] and by studies in the literature.[20] It is commonly believed that the dyspnea of pregnancy is due to the decrease in vital capacity; however, since the vital capacity does not decrease but actually increases, the cause of the dyspnea must be sought elsewhere. The increase in total ventilation without a proportionate increase in the vital capacity is thought to be an adequate explanation for this phenomenon, as it is known that an increase in total ventilation, a decrease in vital capacity or an increase of their normal ratio may cause dyspnea.[2]

It is of note that patients with heart disease showed the same general trend in vital capacity as normal patients, that is, a slight rise during pregnancy and a fall post partum, although the average values were slightly below those of the normal pregnant woman. No patients without heart failure showed a decrease in vital capacity of 8 per cent or more. Hence, a significant drop (15 per cent) in vital capacity in a pregnant woman with cardiac disease indicated impending heart failure and was a practical early sign of failure, preceding the appearance of rales at the bases of the lungs. This point may be illustrated here by one typical case (chart 2). In these patients, as well as in those with cardiac disease whose vital capacity was studied for the first time during heart failure, a return of compensation was accompanied with a significant rise in vital capacity.[3]

Studies were made on the velocity of blood flow by the cyanide method of Robb and Weiss,[21] which utilizes the pathway between a vein and the carotid sinus. One hundred and forty-three observations of the arm-to-carotid circulation time[11] were made on thirty-six normal pregnant women, and the results fell almost without exception in the range for normal nonpregnant women. However, the average velocity of blood flow was normal early in pregnancy, increased at about the seventeenth week of gestation and decreased at the thirty-sixth week, just prior to term. The velocity of blood flow increased immediately post partum and returned to the normal level by the seventh week post partum. This general trend was present in both the peripheral and the pulmonary circulation (112 observations), being more marked in the peripheral circulation and slight in the pulmonary.

Further evidence for speeding of the circulation during pregnancy has been given by simultaneous studies of cardiac output and oxygen consumption.[22] The cardiac output rose out of all proportion to the oxygen

11. Cohen, M. E., and Thomson, K. J.: Studies on the Circulation in Pregnancy: I. The Velocity of Blood Flow and Related Aspects of the Circulation in Normal Pregnant Women, J. Clin. Investigation **15**: 607 (Nov.) 1936.

12. In this discussion the term month always refers to lunar month.

13. Henry, J. S.: Effect of Pregnancy upon Blood Pressure, J. Obst. & Gynec. Brit. Emp. **43**: 908 (Oct.) 1936.

14. Moritz, F., and von Tabora, D.: Ueber eine Methode, beim Menschen den Druck in oberflachlichen Venen exakt zu bestimmen, *Deutsches Arch. f. klin. Med.* **98**: 475, 1910.

15. Thomson, K. J.; Reid, D., and Cohen, M. E.: Studies on the Circulation in Pregnancy: IV. Venous Pressure Observations in Normal Pregnant Women, Pregnant Women with Compensated Cardiac Disease, Decompensated Cardiac Disease and the "Toxemias" of Pregnancy, to be published.

16. Burwell, C. S.: A Comparison of the Pressures in Arm Veins and Femoral Veins with Special Reference to Changes During Pregnancy, Tr. A. Am. Physicians **52**: 289, 1937.

17. Anthony, A. J., and Hansen, Rolf: Lungenventilation und Atmung in der Schwangerschaft, Ztschr. f. Geburtsh. u. Gynäk. **105**: 183 (May) 1933.

18. Root, H. F., and Root, H. K.: The Basal Metabolism During Pregnancy and the Puerperium, Arch. Int. Med. **32**: 411 (Sept.) 1923.

19. Thomson, K. J., and Cohen, M. E.: Studies on the Circulation in Pregnancy: II. Vital Capacity Observations in Normal Pregnant Women, Surg., Gynec., & Obst. **66**: 591 (March) 1938.

20. Zhurakovski, M. K.: The Changes in Form of the Pulmonic Cell (Thoracic Cage), the Power of Inspiration and Expiration, and the Vital Capacity of the Lungs in Pregnant and Lying-in Women, St. Petersburg, B. M. Wolf, 1893. Mackenzie, James: Heart Disease and Pregnancy, New York, Oxford University Press, 1921. Klaften, E., and Palugyay, J.: Vergleichende Untersuchungen über Lage und Ausdehnung von Herz und Lunge in der Schwangerschaft und im Wochenbett, Arch. f. Gynäk. **131**: 347, 1927.

21. Robb, G. P., and Weiss, Soma: A Method for the Measurement of the Velocity of the Pulmonary and Peripheral Venous Blood Flow in Man, Am. Heart J. **8**: 650 (June) 1933.

22. Burwell, C. S., and Strayhorn, W. D.: Observations on the Circulation During and After Pregnancy, J. Clin. Investigation **12**: 977 (Sept.) 1933.

consumption, which of course implies speeding of the circulation, as does demonstration of a decreased arteriovenous oxygen difference during pregnancy. The slowing of the circulation in the latter part of pregnancy, as demonstrated in our studies, is further corroborated by the waning of the disproportion between cardiac output and oxygen consumption during the last months of pregnancy and as the cardiac output decreases.

The cardiac output during pregnancy, according to other studies,[23] shows a gradual increase during early pregnancy, with the maximum cardiac output appearing from the sixth through the ninth lunar month. A definite decrease in cardiac output, which may even bring the value back to its normal level, occurs during the tenth lunar month. In most cases, however, the normal level is attained within several weeks after delivery.

Not only does the cardiac output during rest show an increase during pregnancy, but in addition the increase in cardiac output with exercise is disproportionately greater in pregnant women than in normal nonpregnant ones.[24]

It will be seen then that the circulation of the blood speeds up from week to week of pregnancy and slows up as the puerperium approaches. It can be seen further that corresponding with this the heart pumps more blood a minute during the same period when the blood is flowing faster. Also at the time that the circulation slows, that is, during the last four to six weeks of pregnancy, the heart pumps less blood a minute.

Studies were made of the total amount of blood in the body and its composition. Studies of total blood volume during pregnancy have been at variance but usually reported an increase.[25] One hundred observations on blood volume in pregnancy, made at this clinic [26] by the colorimetric method of Keith, Rowntree and Geraghty,[27] showed a higher value than that of the nonpregnant state, which merely corroborated the data of most previous observers. However, it was felt that the technical errors incident to this method made it valueless for the study of the exact changes from month to month for pregnant women and that such a study must await the development of a more precise method for blood volume determination. The spectrophotometric method of Gibson and Evans [28] provided the needed precision, and by this method it was possible to discover for the first time, with fourteen women on whom fifty-six determinations (forty ante and sixteen post partum) were made at intervals during pregnancy, the exact trend of the change in blood volume. It was found that there was a progressive increase in plasma volume from early pregnancy through the ninth lunar month, when a maximum was reached, and then a decrease in the tenth lunar month. This decrease continued post partum, so that by the end of the second week the volume had reached the normal level for nonpregnant women. At the period of maximum increase the average increase is 65 per cent above the average value for normal nonpregnant women. The total cell volume, measured by the the hematocrit, also changed during pregnancy, following the trend of the plasma volume. The total blood volume increased to a maximum of 45 per cent over the value for normal nonpregnant women at the height of increase. The cause of increase in plasma volume is not known, but since the outstanding conditions in which blood volume is profoundly disturbed, such as exophthalmic goiter, myxedema and Addison's disease,[29] are due to endocrine disturbances, it is thought that the endocrine disturbance in pregnancy offers the most reasonable point for study. Moreover, there is a striking but not exact resemblance of the trend of plasma volume to that of excretion of gonadotropic substance in normal pregnancy.[30] The demonstration of the sodium and water

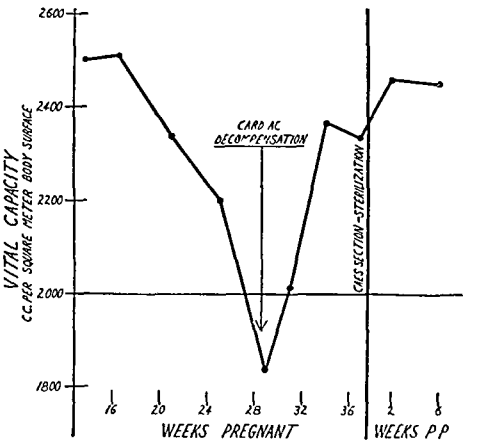


Chart 2.—The vital capacity before, during and after heart failure in a pregnant woman suffering from severe rheumatic heart disease. Note the steady decrease in vital capacity which preceded the appearance of clinical cardiac decompensation, i. e., weakness, cough and rales at the bases of the lungs. Compensation was restored with bed rest, restriction of fluids and administration of digitalis; this was accompanied with a rise in the vital capacity. The decrease in vital capacity is a warning of impending clinical heart failure.

retaining effect of the estrogenic and androgenic substances [31] lends further support to the speculation that the increase in blood volume in pregnancy may be endocrine determined. The increased blood volume may well cause the increased cardiac output. It has been shown experimentally that increased blood volume leads to increased cardiac output; [32] how far the results of studies in which blood volume is raised acutely apply to pregnancy, in which blood volume is increased over a long period, is not known.

Studies of the red blood cell count and hemoglobin and hematocrit readings showed changes which correlated inversely with the change in plasma volume, that is, as the plasma volume increased, the red blood cell count, hematocrit reading and hemoglobin per unit volume of blood decreased. These studies showed return toward normal before delivery and not post

23 Gammeltoft, S. A.: The Heart in Pregnancy, Surg., Gynec. & Obst. **46**: 382 (March) 1928. Burwell and Strayhorn.[22]

24 Schmidt, R. H.: Ueber die Herzarbeit in der Fruhschwangerschaft in der Ruhe und nach Arbeitsversuchen, Monatschr. f. Geburtsh. u. Gynäk. **90**: 83 (Jan.) 1932.

25 (*a*) Rowntree, L. G.; Brown, G. E., and Roth, G. M.: The Volume of the Blood in Health and Disease, Philadelphia, W. B. Saunders Company, 1929. (*b*) Dieckmann, W. J., and Wegner, C. R.: The Blood in Normal Pregnancy: I. Blood and Plasma Volumes, Arch. Int. Med. **53**: 71 (Jan.) 1934.

26 Cohen, M. L.: Unpublished data.

27 Keith, N. M.; Rowntree, L. G., and Geraghty, J. T.: A Method for the Determination of Plasma and Blood Volume, Arch. Int. Med. **16**: 547 (Oct.) 1915.

28 Gibson, J. G., 2d, and Evans, W. A., Jr.: Clinical Studies of the Blood Volume: I. Clinical Application of a Method Employing the Azo Dye "Evans Blue" and the Spectrophotometer, J. Clin. Investigation **16**: 301 (May) 1937.

29 Thompson, W. O.: Studies in Blood Volume: I. The Blood Volume in Myxedema, with a Comparison of Plasma Volume Changes in Myxedema and Cardiac Edema, J. Clin. Investigation **2**: 477 (Aug.) 1926. Rowntree, Brown and Roth.[25]

30 Browne, J. S. L.; Henry, J. S., and Venning, E. H.: The Urinary Excretion of Prolan, Oestrin and Pregnandiol in Normal Pregnancy and in Early and Late Pregnancy Toxemias, to be published.

31. Thorn, G. W., and Harrop, G. A.: The "Sodium Retaining Effect" of the Sex Hormones, Science **86**: 40 (July 9) 1937.

32 Altschule, M. D., and Gilligan, D. R.: The Effects on the Cardiovascular System of Fluids Administered Intravenously in Man: II. The Dynamics of the Circulation, to be published.

partum and supplemented the original observations of Kühnel.[33] The mean corpuscular volume of the red cells was relatively high during pregnancy, reaching an average maximum of 90.9 cubic microns (twelve cases). It can be seen therefore that the increase in plasma volume accounts in part at least, as has been stated before,[34] for the so-called physiologic anemia of pregnancy.

No severe anemia developed in the patients studied throughout pregnancy, and one might add the general clinical statement that in the absence of infection, such as pyelitis, or of inadequate diet, no severe anemia was noted at this hospital in patients known to have normal blood before the onset of pregnancy. In other words,

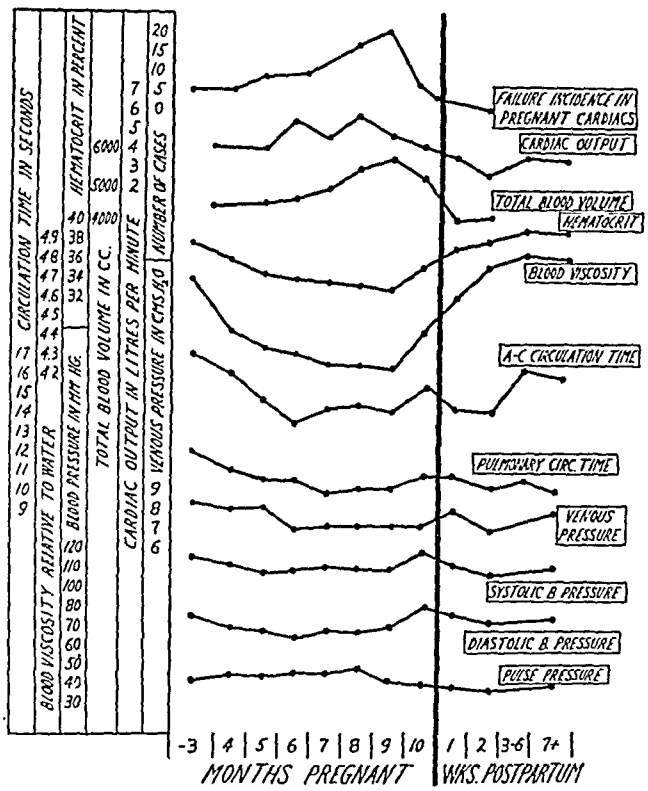


Chart 3.—A summary of the studies of the circulation in pregnancy. The heavy perpendicular line represents delivery and separates the antepartum and the postpartum period. The data on cardiac output are taken from Burwell[37a] and the others from our work. The total blood volume and cardiac output have similar trends, i. e., increase during the early part of pregnancy and decrease in the last months. The viscosity of the blood and the hematocrit reading, which correlate fairly well with the hemoglobin concentration of the blood, show decrease during early pregnancy and increase during the last months. The curve for circulation time parallels somewhat that of the blood viscosity, that is the blood flows faster when thinner. It also suggests that the blood flow is most rapid at the time of the greatest blood volume and cardiac output, with coincident return toward normal with these two functions. The venous pressure remains within normal limits and is constant for the last five months of pregnancy, with a slight postpartum rise. Both the systolic and the diastolic arterial blood pressure showed a slight rise in the last month of pregnancy, although the patients were normal and not "toxemic." It should be emphasized that after the eighth month, when there is maximum incidence of heart failure, there is return toward normal of values for blood volume, blood flow (circulation time, cardiac output) and blood content (hematocrit reading, viscosity). The incidence of heart failure decreases, corresponding with this return to normal of the circulatory functions.

our experience has been that normal pregnancy may accentuate anemia but not alone cause severe anemia.

Calculations of the viscosity of the blood during pregnancy, from studies of thirty-six women, show that it decreases, reaching a minimum during the ninth lunar month, commences to return toward normal, that is, becomes more viscid, in the tenth lunar month and reaches normal in the puerperium.[11]

It will be noted (chart 3) that the viscosity varies with the circulation time, that is, the thinner the blood, the faster it flows during pregnancy. This follows a well known physical law (Poiseuille's) which states that the less viscous the liquid, the more rapid its flow, all other factors being equal. Actually this may operate through increased cardiac output.

No adequate studies have been made of the veins, arteries and capillaries during pregnancy. Infra-red photographic studies[35] of the superficial veins of the normal pregnant woman have been made at this clinic. These showed clearly marked venous dilatation over the breasts and abdomen, with disappearance of the dilatation over the abdomen after delivery but persistence of the changes over the breasts until lactation ceased.

The placental circulation is of interest, as it is composed[36] of arteries connecting with veins through large vascular spaces without the interposition of other capillaries. This arrangement in the maternal portion of the placenta presents certain similarities to an arteriovenous fistula. This arrangement of the placental circulation has been suggested by Burwell[37] in an interesting presentation as an important factor in causing changes in the circulation during pregnancy. However, it does not appear to explain completely all the observed changes and as yet has not been demonstrated to be consistent with the fact of return toward normal before delivery of some of the circulatory functions.

A summary of the actual physiologic changes, as pictured in chart 3, gives a fairly clear idea as to some aspects of the increased burden on the heart in pregnancy. As pregnancy progresses the blood volume, the cardiac output and the velocity of blood flow increase. These increases commence early in pregnancy and progress steadily during pregnancy, reaching a maximum during the ninth lunar month. In the last month a return toward normal begins, with a consequent lightening of the burden on the heart.[37a] In other words, contrary to popular belief, the return toward normal does not begin at delivery but at a period preceding it. Further evidence supporting this concept comes from electrocardiographic studies[5] from this clinic, in which, as mentioned before, it was demonstrated that the left axis deviation of pregnancy begins to diminish not post partum but in the final weeks of pregnancy; x-ray studies of heart volume[38] also revealed a tendency to decrease toward normal not post partum but in the final weeks. If this concept of the circulatory burden is correct, how does it correlate with clinical experience?

If one examines the curve of onset of heart failure in pregnant women[39] with heart disease at this clinic,[40]

33. Kühnel, P.: Untersuchungen über die physiologische Schwangerschaftsanämie, Ztschr. f. Geburtsh. u. Gynäk. **90**: 511, 1927.

34. Yang, C. S., and Keefer, C. S.: The Anemias of Pregnancy, Nat. M. J., China **16**: 159 (April-June) 1930.

35. Hersheimer, A.: Unpublished data.

36. Spanner, Rudolf: Mütterlicher und kindlicher Kreislauf der menschlichen Placenta und seine Strombahnen, Ztschr. f. Anat. u. Entwcklngsgesch. **105**: 163 (Nov.) 1935.

37. Burwell, C. S.: The Placenta as a Modified Arteriovenous Fistula, Considered in Relation to the Circulatory Adjustments to Pregnancy, Am. J. M. Sc. **195**: 1 (Jan.) 1938.

37a. The concepts here expressed were first presented by the authors at meetings of the New England Heart Association and appeared in abstract form in the New England Journal of Medicine **214**: 905, 1936, and **216**: 811, 1937.

38. Binhold, Horst: Das Herzvolumen in der Schwangerschaft, Arch. f. Gynäk. **154**: 251 (Sept.) 1933.

39. All are treated with a uniform regimen which features rest and restriction of activity.

40. Carr, F. B., and Hamilton, B. E.: Five Hundred Women with Serious Heart Diseases Followed Through Pregnancy and Delivery, Am. J. Obst. & Gynec. **26**: 824 (Dec.) 1933.

one observes that the highest incidence of heart failure is at the time when physiologically the burden on the heart is greatest. As the physiologic burden decreases, the incidence of failure decreases.[37a] Further evidence supporting this concept is drawn from the clinical improvement during the final month of pregnancy in the circulatory status of patients with chronic congestive heart failure. Obvious and clearcut clinical improvement has occurred in such patients, who, although at strict bed rest and under optimum treatment for several weeks or longer, had previously failed to show significant change. In other words, as the circulatory burden diminished during the tenth lunar month of pregnancy, there was associated clinical improvement of congestive failure in patients of the type described (chart 4). The practical lesson to be drawn from this is that in early pregnancy, with the burden increasing, the onset of heart failure usually demands termination of the pregnancy after compensation is restored. In the latter part of pregnancy one may safely await, in most instances, delivery through the pelvis at term, as the circulatory burden can be expected to decrease before delivery. One might almost be tempted to add a statement to the effect that one should be especially careful with pregnant cardiac patients during the sixth to ninth lunar months and supervise them most closely during that period, as it is the period of increasing burden; however, these patients must be supervised carefully during the entire course of pregnancy. Of course these rules are not absolute; they are, however, of great practical value and are based on both physiologic and clinical observations. The results in this clinic of treatment based on these rules [41] bear further testimony to their validity.

There are no quantitative studies which throw any light on the question as to which constitutes the greater "strain" on the heart, pelvic delivery or cesarean section. In the absence of quantitative studies we may venture the clinical impression that labor as conducted in cases of cardiac disease [42] at the Boston Lying-in Hospital is not a particularly great burden on the heart, probably not a greater one than the activities of the patient at home preceding labor or those attendant on the care of the child after delivery. As compared with cesarean section, with its common postoperative accompaniments of pain, distention and slight fever, delivery through the pelvis, as described, would seem to be associated with much less "cardiac strain." However, the proper evaluation of these two methods of delivery is an obstetric problem and probably will always remain one.

As a result of our studies covering five years, a few general points suggest themselves which may be helpful to others who plan to study the problems of pregnancy. Before studying pathologic problems in pregnancy it is wise to become acquainted with normal pregnancy, both the physiologic and the clinical picture. The normal pregnant woman varies in many ways from the nonpregnant woman, and many errors have been made because of the lack of appreciation of this fact. Though one cannot attribute to the pregnancy all changes that occur in a pregnant woman, certain specific and characteristic changes do occur in normal pregnancy and should be recognized. The most fruitful studies of pregnancy seem to be those begun in the early part and continued through delivery and into the postpartum period. In a series of pregnant women, a significant number have some complication, such as toxemia, pyelitis or hemorrhage, which vitiates the study; therefore it is advisable to allow for this by starting with a larger number of patients than would otherwise be necessary. The obstetric literature is sadly lacking in studies on patients observed before the first pregnancy and through several pregnancies and the intervening periods. Complete studies of this type would no doubt settle many disputed points and seem indicated.

41. Irving, F. C.: Personal communication to the authors.
42. Analgesia during the first stage of labor and elimination of the second stage of labor by forceps extraction with ether anesthesia at full dilatation.

SUMMARY AND CONCLUSIONS

A careful evaluation of the variations in the cardiovascular status of the normal pregnant woman, with special regard to signs and symptoms, is necessary for avoidance of erroneous diagnoses of heart disease in normal pregnant women or heart failure in pregnant women with heart disease.

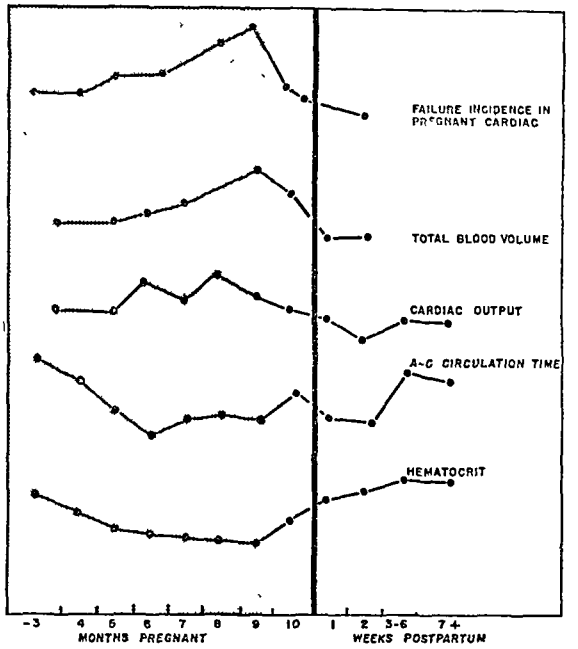


Chart 4.—Circulatory burden on the heart in pregnancy. The dark area shows the time of increasing physiologic burden on the heart coincident with the increase in incidence of heart failure; the unshaded area shows the decrease of the burden ante partum, with coincident decrease in the incidence of heart failure. The heavy perpendicular line represents delivery and separates the antepartum and the postpartum period. Quantitative data for these curves appear in chart 3. The curve for cardiac output is from the data of Burwell.[22]

The vital capacity usually increases slightly during pregnancy; a significant decrease in vital capacity in a pregnant woman with heart disease forecasts impending heart failure and provides the earliest objective sign of it (charts 1 and 2).

The results of the physiologic studies of the circulation of pregnant women which contribute most information as to the circulatory burden may be summarized as follows:

1. The blood volume, velocity of blood flow and cardiac output increase during pregnancy to the ninth lunar month and then decrease prior to delivery.

2. The hemoglobin content and red corpuscle count per unit volume of blood and the hematocrit reading and viscosity of the blood decrease during pregnancy to the ninth lunar month and increase prior to delivery (chart 3).

Active rheumatic fever is not a significant factor contributing to heart failure during pregnancy and is notably rare at that time.

The significant factors predisposing to heart failure in pregnancy are, however, the physiologic changes just described, particularly the increase in blood volume, cardiac output and velocity of blood flow.

The onset of heart failure in pregnant women with cardiac disease occurs most frequently at the phase of pregnancy associated with the maximum increase in blood volume, velocity of blood flow and cardiac output. The frequency of heart failure diminishes during the last weeks of pregnancy and corresponds to the decrease in the values of these circulatory functions (chart 4).

It follows from both physiologic and clinical observation that heart failure in early pregnancy may be expected to grow worse as the circulatory burden increases and to improve during the predelivery period, as the circulatory burden diminishes.

THE MECHANISM OF ACTION OF QUININE IN MYOTONIA AND MYASTHENIA

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Wolf [1] was the first to point out the ability of quinine to relieve the difficulty in the muscular relaxation of patients with myotonia congenita and myotonic dystrophy. Later Kennedy and Wolf [2] commented on the increase in muscular weakness produced in patients with myasthenia gravis by the administration of quinine and, conversely, the increase in the degree of myotonia after the administration of prostigmine. These observations were fully corroborated by Kolb and his associates,[3] who suggested that prostigmine would be of value when diagnosis was difficult, as in the condition described by Curschmann [4] of myotonia sine myotonia. These authors also observed that small amounts of prostigmine could completely counteract the beneficial effect of quinine in myotonia, even when large doses of the latter drug were used. Harvey and Whitehill [5] had previously discussed the value of quinine in the diagnosis of early cases of myasthenia gravis, when the objective improvement following prostigmine was not sufficiently clear cut. They also pointed out that alarming symptoms of respiratory distress and dysphagia might result when a small dose of quinine was given to a patient with moderately severe symptoms of myasthenia.

In its actions on these two diseases potassium chloride has been found to exhibit a similar contrast, but in the opposite direction. Laurent and Walther [6] recorded improvements in myasthenia after oral administration of large amounts of potassium chloride, which they tried because of the observation of Feldberg and Vartiainen [7] that it increased the sensitivity of the response of the superior cervical ganglion of the cat to acetylcholine and to stimulation of the preganglionic nerve. Russell and Stedman [8] pointed out that it had an action similar to that of prostigmine in increasing the severity of the symptoms in myotonia.

Kennedy and Wolf [2] suggested that quinine was able to relieve myotonia by inhibiting the action of acetylcholine liberated at the motor nerve endings. As evidence in favor of this view they quoted the work of Stavraky,[9] who found that quinine acts directly as a paralyzing drug on the secretory fibers of the fibers of the auriculotemporal nerve. It was found, however, to inhibit the secretory effect of acetylcholine itself on the submaxillary gland, though physostigmine tended to restore to normal the action of the chorda tympani paralyzed by quinine. However, no really satisfactory explanation of these actions of quinine on diseases of human muscle has yet been formulated.

A pharmacologic investigation of the effects of quinine on neuromuscular conduction and on the contractile properties of skeletal muscle [10] has revealed certain features of its effects, which suggest an explanation of its mode of action in these diseases, though the complete explanation must await more adequate knowledge of the pathogenesis of myotonia and myasthenia. Only those of its effects which are concerned with the action of quinine in these two diseases will be discussed here. These are as follows:

1. Quinine decreases the ability of the muscle to respond to and to hold a tetanus. This is due to an effect directly on the muscle, which increases its refractory period.

2. The excitability of the motor end plate is lowered, so that the response to nerve stimulation is reduced. This is best seen in a partially curarized muscle. When quinine is injected under these conditions, the curarization becomes complete. This action is also in large part responsible for the abolition by quinine of the quick response of a muscle to injected acetylcholine. For other features of the action complicating this picture, reference may be made to my full paper on the pharmacologic effects. Brown and his associates [11] had previously shown that curarine could remove the response to injected acetylcholine more readily than response to a motor nerve volley.

3. The normal potentiation of the twitches caused by physostigmine, and due to repetitive response to a single nerve volley, is prevented by the previous administration of quinine or is counteracted promptly when the drug is injected during a period of potentiation. Weiss [12] had found that the fibrillary twitchings produced in the cat by physostigmine were abolished by the intravenous injection of quinine.

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7. Feldberg, W., and Vartiainen, A.: Further Observations on the Physiology and Pharmacology of a Sympathetic Ganglion, J. Physiol. **83**: 103 (Dec. 14) 1934.

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4. The repetitive response to a single stimulus which occurs after veratrine is also removed by quinine. This occurs in both the normal muscle and the muscle of which the motor nerve has previously been cut and allowed to degenerate.

These observations offer a fairly satisfactory explanation of the effects of quinine in myotonia and myasthenia gravis, and also of the opposing action of prostigmine in these two conditions.

Although the exact nature of the disturbance in myasthenia gravis is not known, it has long been likened to partial curare poisoning [13] and, as such, attributed to a diminution in the excitability of the motor end plates in the involved muscles. Blake Pritchard [14] has shown that these muscles are not capable of maintaining a tetanus with a high frequency of nerve stimulation, although the tension developed in response to less rapid stimulation is normal and well maintained. His experiments again afford evidence for a depression of motor end plate response, a similar type of response occurring in a partially curarized mammalian muscle.[15] Lindsley [16] recorded the action potentials of voluntary contractions of single motor units in patients with this disease and found that they show an abnormal fluctuation in amplitude. This suggests that all the fibers in the single motor unit do not respond to every nerve impulse. These observations could be interpreted by supposing that the end plate threshold is raised in these patients or, as an alternative, that the concentration of acetylcholine released by an impulse is subliminal for the stimulation of some of the fibers. Any drug which has a curariform action, as quinine has, would in either case cause an increase in the severity of the symptoms. Physostigmine or prostigmine might act by retarding the destruction of normally subliminal charges of acetylcholine liberated at some motor nerve endings. On the other hand, the possibility is not excluded that these alkaloids may have an effect in lowering the threshold of end plate excitability, independent of their antiesterase actions. The fact that guanidine will relieve the myasthenic condition, as recently demonstrated by Minot and her associates,[17] shows that antiesterase action is not necessarily involved in such a remedial effect. Guanidine has no appreciable antiesterase action.[18] It may be noted in that connection that quinine, which has an opposite action to that of prostigmine in myasthenia, also has a definite, though relatively weak, inhibiting effect on the action of cholinesterase.[19]

The localization of the disturbance in myotonia is much less certain. Lindsley and Curnen [20] have demonstrated oscillatory action potentials during the period of the slow relaxation. They express the opinion that this indicates a neurogenic rather than a myogenic phenomenon, and they advance the hypothesis that the after-contraction is of reflex origin and due to persistent discharge of hyperexcitable end organs in the muscle. This theory, however, does not seem tenable, since anesthesia of the motor nerve does not abolish myotonia mechanically produced, as shown by Schaefer,[21] nor does spinal anesthesia, as demonstrated by Kennedy and Wolf.[2] In view of the fact that myotonia presents a contrast to myasthenia, both in its clinical features and in the responses given to various drugs, it seems most likely that the abnormality is one of neuromuscular transmission, the threshold of the end plates being lower, or the transmitter of excitation from the nerve endings being more slowly destroyed, than in the normal muscle. The response of the myotonic muscle to a single nerve volley would then, in either case, be similar to that of a muscle under the influence of physostigmine in that it would respond repetitively. Any drug with a curare-like action on the excitability of the end plates would then diminish this effect and alleviate the myotonus. On the other hand, it has been shown by Wilson and Wright [22] that potassium ions have an antagonistic effect to that of curare and lower the threshold at the motor end plates. It is therefore in accordance with expectation that potassium salts are beneficial in myasthenia gravis and increase the severity of myotonus.

There still remains, however, the possibility that myotonia is due to an abnormality of the whole muscle fiber rather than of the end plate alone, resembling that of a muscle treated with veratrine. It has been shown that the refractory period of skeletal muscle is increased by quinine and that this causes a diminution in the ability of even a denervated muscle to hold a tetanus and likewise abolishes the repetitive nature of the response under veratrine. This action of quinine would explain its effect in relieving myotonus, if this abnormality was due to a change in the muscle fibers, causing them to respond repetitively to a stimulus of any kind and not merely to the normal excitation through the nerve.

On the whole, however, my results with quinine strengthen my belief that the disturbances in these two diseases are at the motor end plates. Such a conception gives a reasonably satisfactory explanation of the effects of various drugs on the two conditions; but there is, as yet, no clue to the fundamental processes responsible for the suggested alterations in end plate excitability.

SUMMARY

1. The existing evidence suggests that myasthenia gravis and myotonia are due to abnormalities of neuromuscular transmission. If these are regarded as due to changes in the excitability of the motor end plates of the muscles involved, the excitability would be lower in myasthenia and higher in myotonia than in the normal muscle.

2. Quinine has a curare-like action by which it decreases the excitability of the end plates. This effect would account for its ability to improve myotonia and to increase the severity of the myasthenic state. Physostigmine and potassium chloride, as would be expected, both produce effects on these two conditions, which are in each case the opposite of those produced by quinine.

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SPONTANEOUS PNEUMOTHORAX IN ANTHRACOSILICOSIS

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Interest in the pulmonary dust diseases has been stimulated by their inclusion in many states among the compensable occupational diseases. The pathologic clinical and roentgenologic aspects of the pneumoconioses have been extensively described.

Spontaneous pneumothorax complicating pneumoconiosis has been reported from time to time, but there appear to be no definite data as to its frequency. Furthermore, there are no studies comparing the incidence of the condition in simple pneumoconiosis with the incidence in pneumoconiosis associated with tuberculosis.

Most reports concern pneumocotic tuberculosis, and Ickert [1] has stated that according to his experience and that of Redeker pneumothorax is found in pneumoconiosis only when the pneumoconiosis is associated with tuberculosis. During the past few years, however, spontaneous pneumothorax occurring in cases of pneumoconiosis without complicating tuberculosis has been reported with increasing frequency. Hofbauer [2] in describing such a case discussed two similar ones which had come to his attention. Ketterer,[3] Snyder,[4] Breton and Eloire [5] and Brulé and his co-workers [6] have considered this condition of sufficient rarity to report individual cases in detail. De Léobardy and Pasquet [7] have called attention to a case of bilateral pneumothorax occurring under similar conditions.

TABLE 1.—*Summary of Cases*

	Number of Cases	Cases of Pneumothorax	Percentage
[illegible]	199	7	3.5
[illegible]	308	14	4.5
By carcinoma	1	1	
Total	507	22	

To determine the frequency of spontaneous pneumothorax as a complication of pneumoconiosis, we have reviewed the records of 507 anthracite coal miners incapacitated by chronic pulmonary disease. All these men had anthracosilicosis; 308 (60.7 per cent) had coexisting pulmonary tuberculosis and one had metastatic pulmonary carcinomatosis.

Pneumothorax occurred spontaneously in twenty-two (4.3 per cent) patients. Among the 199 patients with simple anthracosilicosis it was found in seven (3.5 per cent). Among the 307 patients with coexisting tuberculosis it was seen in fourteen (4.5 per cent); it also occurred in one instance in association with pulmonary metastasis (0.3 per cent) (table 1).

The ages of the patients ranged from 25 to 52 years and they had been exposed to mine dust for periods ranging from three to thirty-six years (table 2).

Eight patients had second stage and fourteen third stage anthracosilicosis. In three instances the pneumothorax was bilateral, in nineteen unilateral. Of the cases of unilateral involvement, the left side was affected in eleven and the right side in eight.

In five patients pleural effusion developed. In three the anthracosilicosis was uncomplicated; in two there was coexisting tuberculosis. In only one, however, was there sufficient fluid to require removal.

Of the seven patients with uncomplicated anthracosilicosis, one died. Of the fifteen with a complication, the patient with carcinomatosis and ten of the fourteen with tuberculosis died.

The diagnosis of uncomplicated anthracosilicosis was made by applying the criteria for the differentiation of simple anthracosilicosis from anthracosilicotic tuberculosis described by one of us (M. J. S.).[8] Repeated analyses of the sputum showed no tubercle bacilli, and no evidence of tuberculosis was found on serial x-ray examination. In addition, there was no severe hemoptysis, marked toxemia or extensive cavity formation and no extrapulmonary tuberculous complication. In one case no evidence of tuberculosis was seen at necropsy.

CLINICAL AND ROENTGENOLOGIC FEATURES

Advanced pneumoconiosis is always associated with inflammatory reaction in the pleura, and in this group of anthracosilicotic patients evidence of extensive adhesions was found in every case. The symptoms produced by rupture of the pleura appeared to depend primarily on the extent to which the pleural space was obliterated by these adhesions and were in the main the result of further reduction of the breathing capacity in persons already having considerable dyspnea because of preexisting pulmonary disease.

In a few patients small encapsulated collections of air were seen. These produced no symptoms and were discovered only by routine x-ray examination; the air was eventually absorbed and the clinical course unaffected. In all but one case the localized pneumothorax was located in the upper part of the chest.

In patients in whom the pleural surfaces were sufficiently free to permit the collection of a large amount of air, perforation of the pleura was of serious consequence. Perhaps the most striking feature in this group was the extreme distress caused by a combination of intense dyspnea and a sense of impending suffocation. Severe pain in the chest and a feeling of constriction or pressure on the affected side were common complaints, and the symptoms of shock were present in many cases.

The severe reactions precipitated by spontaneous perforations of the pleura were poorly borne. This was especially true of the patients who prior to the accident were greatly debilitated or markedly dyspneic. The severity of this accident is reflected in the high mortality with which it is associated, particularly in the group with superimposed tuberculosis. One patient died within a few minutes after the accident, one three hours after and two within twenty-four hours.

From the White Haven [illegible], White Haven, Pa.
Read before the Laënnec Soc., Feb. 28, 1938.

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The x-ray picture of pneumothorax in association with anthracosilicosis has certain distinctive characteristics. The dust-laden lung, containing as it does an excessive amount of fibrous tissue, is still of considerable volume, even when collapsed under high pressure. There are in addition, nearly always, extensive adhesions which partially anchor the lung to the wall of the chest at one or more points. Because of these two factors, the increased density of the lung parenchyma and the adhesions, the compressed lung is not as greatly reduced in volume as when pneumothorax occurs in other conditions, nor is it pushed as far downward and backward; instead, it is suspended as a compact mass in the pneumothorax cavity. The fixed semirigid lung acts as a shield and prevents the full force of the increased pressure from being directed against the heart and the mediastinal structures. Thus shifting of the heart and mediastinum is not as extreme as with high-tensioned pneumothorax associated with other conditions. The main force is exerted on the diaphragm and the thoracic wall, so that downward displacement of the diaphragm and increase in size of the thorax on the affected side are nearly always present, particularly if the pneumothorax space is large.

Roentgenologically, pneumothorax has to be differentiated from emphysematous blebs and pulmonary cysts. The three conditions are characterized by increased aeration of a part of the pulmonary fields. However, attenuated bands of pulmonary tissue can usually be made out in the blebs and cysts, while they are absent in pneumothorax. When the pneumothorax is large or occupies the lower lateral aspect of the thoracic cavity, the edge of the lung can be seen. The pneumothorax frequently changes in size, while blebs and cysts present a more or less constant appearance.

BILATERAL SPONTANEOUS PNEUMOTHORAX

Simultaneous bilateral spontaneous pneumothorax complicating pneumoconiosis is rare. In a comprehensive review of the literature Glickman and Schlomovitz [9] found only six cases, and to these they added one of their own.

Our series of twenty-two cases includes three in which the perforations were bilateral. One of these has been previously reported by Norris and Landis [10] and is included in the group collected by Glickman and Schlomovitz.

CASE 1.—A man aged 41, who had been employed in the mines for twenty-nine years, had third stage anthracosilicosis complicated by tuberculosis, with tubercle bacilli in the sputum. There was a great amount of air in both pleural cavities, but this was entirely absorbed before his death, which occurred three months after the perforation.

CASE 2.—A man aged 43, who had been exposed to mine dust for ten years, had third stage anthracosilicotic tuberculosis, with tubercle bacilli in the sputum. The pneumothorax was asymptomatic, with a collection of air along the lateral margin of the upper lobe of the right lung and a small pocket of air over the upper lobe of the left lung. This patient also died.

CASE 3.—A man aged 51, who had been engaged in coal mining for thirty-six years, had perforations which occurred suddenly and were characterized by severe pain in the chest and collapse. X-ray examination revealed advanced third stage pneumoconiosis, with both lungs partially compressed by pneumothorax. On the right side the air collected at the base and on the left over the upper lobe. No tubercle bacilli were found in the sputum on repeated analyses, but the patient was considered to be tuberculous because of the x-ray picture and the severe toxemia. He is still under treatment, and with him also there has been absorption of the air, with complete reexpansion of both lungs.

CONCLUSIONS

Conditions which favor the development of spontaneous pneumothorax are always present in anthracosilicosis, either as a direct result of the action of the dust or as a complication. Emphysema, which plays an important part in the production of spontaneous pneumothorax, is a constant accompaniment of anthracosilicosis. Bleb formation is frequent in association with this emphysema, and the tendency of the blebs to rupture constitutes a hazard in every anthracosilicotic patient. The possibility of the development of pneumothorax is further increased by the presence of adhesions, which may be responsible for the entrance of air into the pleural space by tearing the visceral pleura at their insertions. The coexistence of tuberculosis was another factor contributing to pleural accidents. Since tuberculosis is considered the most common cause of spontaneous pneumothorax, it is reasonable to assume that this condition should occur frequently in patients with anthracosilicotic tuberculosis. The severe cough, which is a predominant symptom; supplements the influence of these three factors, and the resulting strain may cause rupture of the pleura at its weakened points.

TABLE 2.—*Distribution of Cases*

Case Number	Age	Years of Mining	Stage	Type	Result
			Uncomplicated Anthracosilicosis		
1	47	20	2	Left hydropneumothorax	Unimproved
2	36	15	3	Right pneumothorax	Died
3	33	12	2	Left pneumothorax	Improved
4	50	27	3	Left hydropneumothorax	Improved
5	45	26	3	Left hydropneumothorax	Improved
6	37	13	2	Right pneumothorax	Improved
7	37	25	3	Right pneumothorax	Improved
			Anthracosilicosis Complicated by Tuberculosis		
1	51	30	3	Right hydropneumothorax	Unimproved
2	48	28	2	Left pneumothorax	Improved
3	51	25	3	Right pneumothorax	Died
4	39	17	2	Left pneumothorax	Died
5	50	27	3	Right hydropneumothorax	Died
6	36	18	3	Left pneumothorax	Died
7	41	29	3	Bilateral pneumothorax	Died
8	48	24	2	Left pneumothorax	Died
9	43	10	3	Bilateral pneumothorax	Died
10	25	3	2	Right pneumothorax	Died
11	36	13	2	Left pneumothorax	Died
12	51	36	3	Bilateral pneumothorax	Improved
13	52	30	3	Left pneumothorax	Died
14	48	28	3	Left pneumothorax	Improved
			Anthracosilicosis Complicated by Carcinomatosis		
1	48	25	3	Right pneumothorax	Died

It would appear therefore that in anthracosilicotic patients there exists a combination of conditions which are ideal for the development of spontaneous pneumothorax. However, in spite of the presence of so many factors which tend to produce perforations of the pleura, the accident occurred in only twenty-two (4.3 per cent) of a group of 507 anthracite coal miners.

The reason for this low incidence is revealed by study of the pathologic changes resulting from irritation by the dust. In most patients there is an inflammatory reaction in the visceral pleura accompanying that in the lung. This progresses as the amount of dust in the lung increases, so that in the extreme grades of anthracosilicosis tremendous pleural thickening results. In other patients both the visceral and the parietal layers of the pleura are involved in the reaction, leading to

9. Glickman, L. G., and Schlomovitz, B. H.: Simultaneous Bilateral Spontaneous Pneumothorax Complicating Pneumonoconiosis, Am. Rev. Tuberc. 34: 390-401 (Sept.) 1936.

10. Norris, G. W., and Landis, H. R. M.: Diseases of the Chest and Principles of Physical Diagnosis, ed. 5, Philadelphia, W. B. Saunders Company, 1933, p. 720.

obliteration of the pleural space. Since the thickened or adherent pleura can be neither perforated nor torn easily, it affords definite protection against the development of spontaneous pneumothorax and tends to overcome the effect of the factors producing the condition.

SUMMARY

Twenty-two cases of spontaneous pneumothorax were found among 507 coal miners disabled by anthracosilicosis (4.3 per cent). Seven cases were among 198 patients with simple anthracosilicosis (3.5 per cent) and fourteen among 308 patients with coexisting tuberculosis (4.5 per cent). In one case the lesion occurred in association with pulmonary metastasis.

In three instances the pneumothorax was bilateral. Two of these, reported here for the first time, make a total of nine cases of bilateral spontaneous pneumothorax in pneumoconiosis reported in the literature to date.

The conditions may be either asymptomatic or associated with severe symptoms; for the latter type the prognosis is grave.

Emphysema, pleural adhesions, tuberculosis and the accompanying severe cough favor the development of pneumothorax in anthracosilicosis.

The effects of these forces are largely overcome by thickening of the visceral pleura or obliteration of the pleural cavity, practically constant features of anthracosilicosis.

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POSTURAL TREATMENT OF ACUTE LARYNGOTRACHEOBRONCHITIS

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With tragic abruptness a child with an apparently ordinary infection of the upper respiratory tract with moderate difficulty in breathing may choke up suddenly, fight desperately for air for a short time and die, and at autopsy the appearances of acute laryngotracheobronchitis are found. Though there may have been few physical signs, the tracheal and bronchial mucosa may be red, thick and even ulcerated, the bronchi and bronchioles may be filled with thick secretions, plugs or crusts, and areas of the lungs may be atelectatic or emphysematous.

Some men have never recognized such a condition and consider it a rarity. Others who have not seen what early and proper treatment can do for it think it hardly more than an academic problem to be studied post mortem. In the light of published experiences there can be no doubt that it occurs often and that, while it is serious, with decision, energetic treatment and unremitting care the prognosis may not be bad. Ten cases of this condition in which cannulation was required are here reported, with two deaths.

A rather clear picture of the condition has been given in the past twenty years by Baum,[1] Gittins,[2] Jackson,[3] Richards,[4] Smith[5] and others. Certain facts seem to have been rather definitely established, and these will be briefly reviewed. If not indeed a true clinical entity, it has definite recurring characteristics determined by anatomic, physiologic and bacterial factors. Its occurrence is not very rare, and it may be reported more often when it is generally appreciated and recognized. The mortality, according to Jackson,[3] averages 70 per cent, although large group reports vary from 33 to 75 per cent.

Symptoms are likely to include those of a mild infection of the upper part of the respiratory tract followed by cough, hoarseness, increasing stridor, restlessness, dehydration, sepsis of varying degree and signs of cardiac and general exhaustion. Obstructive symptoms usually dominate the picture, though these may be slight if the obstruction is low in the bronchial tree or if sedatives have been given. Cyanosis is an alarming symptom, especially the pale cyanosis of exhaustion seen perhaps more often in low obstruction. The severity of symptoms is out of proportion to physical and roentgenologic observations.

Primary involvement may be chiefly of the larynx or subglottic areas, of the trachea or of the bronchi. Usually the process appears to descend from the larynx and the whole respiratory tree is likely to suffer. Richards[4] and others have well described the end state seen post mortem, and the Jacksons[3] have given in detail the living pathologic picture as related to the symptoms.

Diagnosis should not be difficult. Diphtheria, foreign body, croup, laryngismus stridulus and other causes of respiratory difficulty are to be ruled out, if necessary by direct laryngoscopy or by bronchoscopy. The sudden onset of cyanosis with restlessness, especially if not explained by physical signs and particularly in the type of case considered an atypical bronchopneumonia, should call into consideration this disease.

The following two points may be worth further discussion: 1. Progressive and irreversible changes are caused early by laryngotracheal obstruction in the presence of infection so that relief must not be long delayed. 2. Postural drainage and irrigation are valuable measures which have not been fully appreciated in treatment.

In order to visualize the processes of this condition, to understand the varying picture and to judge how soon it may be necessary to intervene to prevent irreparable damage, it may be useful to review some of the experimental work on obstruction of the airway as well as that on the pathogenesis of acute pulmonary infections.

Since 1844 many observers have shown that atelectasis and emphysema can be produced by bronchial obstruction. Coryllos and Birnbaum[6] attempted to show that the important condition was prevention of the entrance of air and absorption of that remaining. Jackson and Manges[7] demonstrated that foreign bodies especially of the vegetal type might have the same effect. Galbraith and Steinberg's[8] experiments seem to show

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Read before the American Laryngological Association, Atlantic City, N. J., May 2, 1938.

1. Baum, H. L.: Acute Laryngotracheobronchitis, J. A. M. A. **91**: 1097 (Oct. 13) 1938.

2. Gittins, T. R.: Laryngitis and Tracheobronchitis in Children, Reference to Nondiphtheritic Infections, Ann. Otol., Rhin. & Laryng. **45**: 1165 (Dec.) 1936.

3. Jackson, Chevalier, and Jackson, C. L.: Acute Laryngotracheobronchitis, J. A. M. A. **107**: 929 (Sept. 19) 1936.

4. Richards, L.: Fulminating Laryngotracheobronchitis, Ann. Otol. Rhin. & Laryng. **42**: 1014 (Dec.) 1933.

5. Smith, W. Jewell: Acute Laryngotracheitis in Children, Arch. Otol. **23**: 420 (April) 1936. This has a good recent bibliography.

6. Coryllos, P. N., and Birnbaum, G. L.: Obstructive Massive Atelectasis of the Lung, Arch. Surg. **16**: 501 (Feb.) 1928.

7. Jackson, C. L.; Spencer, W. H., and Manges, W. F.: The Diagnosis and Localization of Nonopaque Foreign Bodies in the Bronchi, Am. J. Roentgenol. **7**: 277 (Jan.) 1920.

8. Galbraith, E. G., and Steinberg, B.: The Developmental Mechanism of Pulmonary Atelectasis, Ann. Otol., Rhin. & Laryng. **46**: 80 (Sept.) 1937.

that the essential factor is interference with respiratory movements due often to obstruction but often also to other causes which prevent inflation and deflation of the alveoli, leading to secondary vascular changes. The changes that they considered most important are congestion, stasis, edema and transudation.

Kernan and Barach [9] emphasized the importance of these circulatory effects and concluded that "as a result of the continued obstruction and the elevated negative pressure in the chest, blood enters the right chamber of the heart and lungs more freely but is retarded in its departure from the lungs into the left heart as a result of the backward suction pressure on the left ventricle as it delivers blood into the extrathoracic aorta. The elevated negative pressure within the chest exercises suction on the capillary walls, which is the important factor in the production of intra-alveolar exudate." They believe that air is absorbed with production of atelectasis and that emphysema comes from increasing distention of the alveoli during inspiration, with rupture of blood vessels and giving way of damaged alveolar wall. Increasingly greater respiratory effort keeps up a vicious circle.

For a clearer picture of what happens when infection is superimposed on these mechanical factors one may turn to recent work on the pathogenesis of pneumonia. Nungester and Jourdonais [10] were able to initiate pneumonia in dogs by introducing bacteria protected by mucin. Edema fluid carries from this focus multiplying bacteria. The spread from the primary infection, according to Loeschke [11] after many postmortem examinations of human material, is by gravity and by positive pressure of exudate in a lung that has negative pressure. According to Gunn,[12] spreading areas coalesce and, if bronchi are not blocked, the exudate flows into open alveoli of lobe or lobule and there are deposits of fibrin, leukocytic infiltration and the progressive changes of pneumonia.

If fibrinous plugs or infected exudate block a whole lobe there may be lobar pneumonia, which Coryllos and Birnbaum [13] considered really massive atelectasis with infection by pneumococci.

In view of the experiments of Galbraith and Steinberg [8] it seems also that, if there is much secretion and yet not enough to block all the bronchioles and so cut off the interlobular peripheral airways of Van Allen,[14] lobular pneumonia may result. If a plug blocks a bronchus or if so many of the bronchioles are blocked by thick secretion that the peripheral interlobular respiratory mechanism does not operate, one can think that absorption of air and atelectasis might occur early before the open alveoli can fill with exudate, with the picture as it is in acute laryngotracheobronchitis.

The bacteria present, the reaction of the tissue to them and especially the character of exudate or transudate produced may have much to do with the end result, as already stated with regard to lobar pneumonia. Reports vary widely as to the organism most common in tracheobronchitis, the hemolytic streptococcus usually being given first place. Bradford and Leahy [15] believe that the usual cultural methods allow this organism to overgrow. By a careful plating technic they showed in a series of thirty-six cases that green-forming streptococci were predominating and that most cultures ran less than 5 per cent of the hemolytic streptococcus. The tissue reaction to this organism seems perhaps more compatible with the usual observations.

A rather narrow margin of chance may determine the end result in certain cases of respiratory infection. It may be that when primary obstruction is late or incomplete, and exudate early invades open alveoli, the picture is one of lobar or lobular pneumonia. If there is primary obstruction with absorption of air or if the primary process causes the outpouring of thick secretion or fibrinous plugs to block regional bronchioles before the alveoli are infected, atelectasis occurs, usually with emphysema. If the patient survives, the train of results may be as noted by Galbraith and Steinberg [8] in experimental animals: atelectasis, pneumonitis, local necrosis, abscess formation, with later lung abscess or bronchiectasis.

That the picture may be a composite of these two types of process is evidenced by many clinical observations. Holt [16] observed that emphysema occurred in the majority of children dying of lobular pneumonia. Snow and Cassasas [17] observed roentgenologically in many cases resembling bronchopneumonia patchy atelectasis and emphysema with shifting roentgen and physical changes. They noted that the greatest involvement was in the dependent portions. It is observed that cyanosis in lobular pneumonia, especially of the influenzal type, may be of rather rapid onset and out of proportion to the physical changes.

This also would indicate that many of these cases might be amenable to the treatment to be outlined, although, as Jackson,[3] Gittins [2] and others emphasize, many cases considered bronchopneumonia must be laryngotracheobronchitis. It is interesting to note that Kernan [9] did bronchoscopic aspiration in lobar pneumonia with reported benefit.

It may perhaps be assumed, then, that the sequence of events in acute laryngotracheobronchitis is somewhat like this: An infection involves the larynx and subglottic tissues, and congestion and edema lead to nearly enough complete obstruction to raise the negative intrathoracic pressure, with added congestion, edema, exudate and capillary damage. Then thick secretion blocks bronchi or bronchioles whose walls are already swollen. As spreading secretion blocks the regional bronchioles, the interlobular tracts are cut off, air in the alveoli becomes absorbed, the dependent portions become atelectatic and the overlying ones become emphysematous. Infection and local circulatory changes add to the exudate, to absorption of air, to atelectasis and to emphysema and put out of commission more lung bed and further embarrass the heart. Cardiac and general exhaustion may here draw the final curtain.

The foregoing has been detailed to show that the problem is not one simply of blocked airway with anoxemia and perhaps sepsis and increased cardiac and respiratory effort and finally exhaustion but that the

9 Kernan, J. D., and Barach, A. L.: Role of Helium in Cases of Obstructive Lesions in the Trachea and Larynx, Arch. Otolaryng. **26**: 419 (Oct.) 1937.

10 Nungester, W. J., and Jourdonais, L. F.: Mucin as an Aid in the Production of Experimental Pneumonia, J. Infect. Dis. **59**: 258 (Nov.-Dec.) 1936.

11. Loeschke, H.: Untersuchungen über die Kruppose Pneumonie, Beitr. z. path. Anat. u. z. allg. Path. **86**: 201-223 (Jan.) 1931.

12. Gunn, F. D.: Pathogenesis of Pneumonia, M. Clin. North America **22**: 3 (Jan.) 1938.

13. Coryllos, P. N., and Birnbaum, G. L.: Lobar Pneumonia Considered as Pneumococcic Lobar Atelectasis of the Lung, Arch. Surg. **18**: 190 (Jan.) 1929.

14. Van Allen, C. M., and Lindskog, G. E.: Collateral Respiration in the Lung, Surg., Gynec. & Obst. **53**: 16 (July) 1931.

15. Bradford, W. L., and Leahy, Alice D.: Acute Obstructive Laryngitis. Clinical and Bacteriological Study, Am. J. Dis. Child. **40**: 298 (Aug.) 1930.

16. Holt, L. E.: The Diseases of Infancy and Childhood, New York, D. Appleton & Co., 1920.

17. Snow, William, and Cassasas, C. S. B.: Obstructive Emphysema, and Atelectasis in Influenza, J. A. M. A. **109**: 1886 (Dec. 4) 1937.

process is much more complex. Grave secondary changes may at any time supervene and then any treatment may be unsuccessful.

In other words, the patient is likely to be saved early or not at all. This means that, if a trial of oxygen therapy and other measures does not give relief, tracheotomy is to be done without further delay. Cyanosis and rapid pulse are really late signs of imminent heart failure and must not be waited for.

In the condition herein discussed, bronchoscopic aspiration is often a necessary and life-saving procedure. As an adjunct, postural drainage seems to have been neglected, as there was no emphasis on its use in tracheobronchitis, even though mention is frequently made of the adverse effects of gravity on secretion. Postural treatment is widely used by chest surgeons and internists, but there is little about it in the medical literature.

Nelson [18] showed that even in bronchiectasis, in which sputum is viscid and tenacious, proper postural drainage was very effective and resulted in at least temporary cures. He insisted on the patient lying inverted with the hips over a double inclined plane, with the position maintained for days or even weeks with only very brief interruptions. Cures by it have been seen in early cases of bronchiectasis in children, and it is usually part of the medical routine in abscess of the lung.

One pediatrician [19] who sees many patients states that for a year he has treated influenza by postural drainage and has not had one case of pneumonia develop in such patients.

Postural drainage must be such that a real gradient is maintained from the main lower bronchial area to the trachea and larynx. According to Morlock [20] this should mean at least 15 degrees elevation of the foot of the bed, but better as much as the patient will tolerate, which will increase with use. In children the prone position with the foot of the bed raised provides a much better gradient and it is usually accepted easily.

Having in mind the physiopathology of acute laryngotracheobronchitis it would seem that here postural drainage would be especially valuable. The usual protective mechanism fails, secretion not being moved by cough, tussive squeeze or ciliary action. Secretion as it is first formed, whether as mucus, transudate, exudate or hemorrhage poured out in trachea, bronchi or bronchioles, must first be fluid and will flow some distance along the dependent wall before it forms plugs or crusts. At first at least ciliary action probably helps, and Leonard Hill [21] showed that cilia from the horse's trachea moved material twice as fast in the horizontal as in the vertical position. Murphy [22] injected into the bronchi of cats material of the viscosity of secretions found in asphyxia neonatorum and demonstrated that gravity drainage would clear the tracheobronchial tree.

If secretion can flow to the areas of greater cough reflex, tussive squeeze and cough will be much more effective. If any cough, squeeze or ciliary action is left, the help of gravity will be important. If secretion stagnates, it should be as a spread dependent layer and not as an occluding mass lying in a bronchial well. If plugs or crusts form, they will be nearer the outlet as we have observed bronchoscopically after instituting postural drainage and will be more likely to be expelled by cough, or will be more accessible to removal by aspiration or bronchoscopy.

Lavage of the respiratory tract has been proved feasible by Stitt [23] and by Minter,[24] the latter using as much as 400 cc. of fluid at a time in adults. Gittins [2] in tracheobronchitis used epinephrine and physiologic solution of sodium chloride in small amounts, aspirating it afterward. Richards [4] showed that solution of sodium bicarbonate tends to soften and dissolve plugs.

If one is to use fluid it would seem that after it is instilled the inverted posture should be used to guarantee its return and also to aid in the movement of secretion and plugs toward the tracheotomy opening. In recent cases from 4 to 15 cc. of from 3 to 5 per cent of warm solution of sodium bicarbonate at a time has been dropped into the tracheotomy tube with inspiration, usually with the gratifying result that it stirred up vigorous coughing, so that it was presumably drawn back and forth over crusts and plugs. This was carried out with the head elevated and the child turned toward the side on which the stethoscope indicated the greatest blocking. The head was then lowered and suction was used by a catheter through the tracheotomy tube. Physiologic solution of sodium chloride or Ringer's solution followed to wash out the sodium bicarbonate. Intermittently when there was much blocking epinephrine solution 1:10,000 was used; the stronger solution is known to produce undesirable secondary congestion in the nose. This treatment has proved of much value in recent cases, although it cannot supplant entirely bronchoscopic aspiration and forceps removal of crusts. It proved especially valuable in cases in which even a 3.5 mm. bronchoscope could not be passed. A capable intern can be trusted to use postural irrigation and save the laryngologist constant attendance and the patient tiring bronchoscopies.

SUMMARY

The treatment, briefly outlined, is as follows:

1. Rest—physical and mental—so that minimum oxygen is required.
2. No opiates or atropine.
3. Oxygen by tent, hood or catheter or into the tracheotomy tube. It is better given with helium with moderate positive pressure according to the principles of Kernan and Barach.[9]
4. Fluids by mouth and parenterally to relieve dehydration and increase fluidity of secretion.
5. Moisture-saturated air by croup tent.
6. Tracheotomy or, rarely, intubation; not delayed if the foregoing procedures do not soon give relief.
7. Postural drainage and aspiration.
8. Postural irrigation if secretion, plugs or crusts cause blocking.
9. Bronchoscopic removal of crusts if necessary.
10. Expectorants (?).

Of the ten patients who required cannulation in my service at the Evanston Hospital, two died. The cases were favorable because they were usually referred early by alert pediatricians, whose collaboration in the general care was invaluable. Some of these patients were seen every few hours day and night for four or five days, and no cases are included from a service of a larger charity hospital where I could not be in frequent attendance. In all it appeared certain that tracheotomy

18. Nelson, H. P.: Postural Drainage of Lungs, Brit. M. J. 2: 251 (Aug. 11) 1934.
19. Aldrich, C. A.: Personal communication to the author.
20. Morlock, H. V.: Lancet 1: 381 (Feb. 13) 1937.
21. Hill, Leonard: Ciliary Movements in the Trachea, Lancet 2: 802 (Oct. 20) 1928.
22. Murphy, D. P.: Influence of Posture on Movement of Fluid in Trachea of Newborn, Am. J. Obst. & Gynec. 27: 118 (Jan.) 1934.
23. Stitt, H. L.: Bronchial Lavage for Disinfection and Immunization of the Bronchial Tree, J. Med. 14: 576 (Jan.) 1934.
24. Minter, M. M.: Technic of Bronchial Lavage, South. M. J. 28: 328 (April) 1935.

was inevitable. The two who died were seen only a few hours before death, and one had been given depressing doses of morphine. The series is too small, of course, for conclusions to be drawn, but it may indicate that with the measures here outlined the outlook in this disease is not too unfavorable.

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FAILURES IN THE TREATMENT OF URINARY TRACT INFECTIONS WITH SULFANILAMIDE

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Although introduced into clinical medicine less than five years ago, sulfanilamide has received abundant clinical trial. In adequate dosage the drug has already been proved to be most valuable in the treatment of infections caused by many organisms, especially the gonococcus and the beta hemolytic streptococcus. Why is it then that in some cases of such infections its use results in failure? Are the failures due primarily to resistance of individual strains of bacteria or are they due to some abnormality in the individual patient? Why are there such wide variations in the curative effects of sulfanilamide in cases of similar infections, perhaps even of the same strain?

In an attempt to answer these questions, we have undertaken the task of reviewing our failures in a fairly extensive use of sulfanilamide in urologic practice. In this study we include of course only infections ordinarily responsive to sulfanilamide and patients able to tolerate the drug in doses ordinarily effective and cooperative in other respects.

HOW DOES SULFANILAMIDE WORK?

The prompt control of many infections with sulfanilamide has aroused a decided revival of interests in chemotherapy and its mechanism. New concepts of man's fight against infection have arisen, and old ones are requiring many revisions. While there is still much to be learned about how this drug works, clinically sulfanilamide seems to produce three effects:

1. For certain organisms, notably the gonococcus, sulfanilamide has a definitely bactericidal effect in many cases.

2. Sometimes sulfanilamide merely limits the growth of the organism and does not eradicate it, the principal effect apparently being to prevent the extension of the infection to new regions.

3. Sometimes, however, sulfanilamide acts rather as an adjunct to the defensive mechanisms of the host.

It is not possible at this time to say definitely whether the effect of sulfanilamide is primarily on the susceptible organism or on the host's defensive mechanism. When sulfanilamide is diluted as much as it is in the blood stream, in vitro it appears to act as a bacteriostatic rather than as a bactericidal agent. The investigations of Long and Bliss [1] and others indicate that sulfanilamide acts in vivo by bringing about a change in the susceptible micro-organisms which permits phagocytosis. However, we are convinced that sulfanilamide also at times has a direct action in the fight against the gonococcus. For a number of years we have treated early gonorrhea in the male by sealing a 5 per cent solution of mild silver protein in the anterior urethra once daily for three or four days. Before the days of sulfanilamide this treatment was successful in obtaining a quick cure in from 15 to 20 per cent of suitable cases. With this treatment supplemented with sulfanilamide, this figure has now increased to 95 per cent, as already reported.[2]

Before the advent of sulfanilamide patients with gonorrhea were instructed to take fluids freely. This advice has been changed and now they are instructed to drink sparingly so as to obtain a higher concentration of the drug in the urine. As first determined by Helmholz [3] and confirmed by Farrell, Lyman and Youman,[4] when patients are taking sulfanilamide by mouth, sulfanilamide appears in the urine in sufficient concentration to be directly bactericidal. If the urethra is inflamed, patients are also instructed to void frequently in order to obtain the benefit of repeated flushing with urine containing sulfanilamide. This advice of course is reversed if toxic symptoms occur; then patients are urged to drink freely of water to hasten the elimination of the disturbing drug.

It should be noted that patients who discontinue the use of sulfanilamide too soon are apt to suffer a flare-up of the infection which often does not respond as well to a second course of sulfanilamide.

Numerous observers, however, have noted that better results were obtained in the treatment of gonorrhea when the use of sulfanilamide was started after the infection had been present for two weeks or longer.

Gaudin, Zide and Thompson [5] have observed that new organisms added at the time of transurethral prostatectomy were not killed as well by sulfanilamide as were bacteria present in the urine before the operation. They, like many others in England and in Europe, think that sulfanilamide stimulates some mechanism closely related to natural immunologic defenses.

In the clinical use of sulfanilamide it was soon observed that patients taking it did not have the usual percentage of troublesome prostatic infections. The reason for this was later explained by the experimental work on dogs by Farrell, Lyman and Youman,[4] who noted that sulfanilamide was eliminated in prostatic secretion in concentration high enough to be bactericidal.

Welsh, Wentworth and Mickle,[6] in a recent study of the infection which causes undulant fever, observed that the serum of patients or animals infected with Brucella organisms, when treated with sulfanilamide, was active in stimulating phagocytosis even after all the sulfanilamide had been excreted. The opsonic power toward Brucella of the blood of uninfected human beings or guinea pigs was not stimulated by sulfanilamide, a fact

Read before the Southwestern Branch of the American Urological Association at Dallas, Texas, Oct. 21, the New York Branch at New York, Nov. 10, and the Philadelphia Branch at Philadelphia, Nov. 28, 1938.

1. Bliss, Eleanor A., and Long, P. H.: Observations in the Mode of Action of Sulfanilamide, J. A. M. A. **109**: 1524 (Nov. 6) 1937.

2. Ballenger, E. G.; Elder, O. F.; McDonald, H. P., and Coleman, R. C.: Sulfanilamide: I. General Discussion of the Drug; II. Sulfanilamide with the Sealing Treatment of Beginning Gonorrhea; III. Sulfanilamide in Combination with Artificial Fever, South. Surgeon **7**: 201 (June) 1938.

3. Helmholz, H. F.: Bactericidal Power of Urine after Administration of Prontylin by Mouth, Proc. Staff Meet., Mayo Clin. **12**: 244-245 (April 21) 1937.

4. Farrell, J. I.; Lyman, Yale, and Youman, G. P.: Rationale of Sulfanilamide in Gonococcic Urethritis, J. A. M. A. **110**: 1176-1177 (April 9) 1938.

5. Gaudin, H. J.; Zide, H. A., and Thompson, G. J.: Use of Sulfanilamide after Transurethral Prostatectomy, J. A. M. A. **110**: 1887-1890 (June 4) 1938.

6. Welsh, Henry; Wentworth, J. A., and Mickle, F. L.: The Use of Sulfanilamide in the Diagnosis and Treatment of Brucellosis, J. A. M. A. **111**: 226-231 (July 16) 1938.

which indicates that an infective or immunizing process must be in progress for the drug to stimulate phagocytosis in this disease.

On the basis of experimental work, Mellon, Locke and their associates [7] have concluded that the mechanism of the bacteriostatic action of sulfanilamide may be correlated tentatively with the host's resistance to infection. In numerous experiments they observed that "fitness" of the host is a prime factor in the eradication of the infection. When the temperature of rabbits is artificially lowered several degrees the animals exhibit great variations in the length of time required for their temperature to return to normal. This served as an index to "fitness," for those rabbits whose temperature returned to normal most quickly were most successful in combating pneumococci injected into the blood stream. They determined further that "fitness" may be increased by artificial fever, vitamin B_1, vitamin C, liver extract and adrenal cortex extract.

There appears then to be a relationship between the duration of the infection and the response to the sulfanilamide. While sulfanilamide is in some way effective in controlling the growth of many kinds of bacteria in vivo, it certainly involves other factors than the direct action of the drug on the bacteria.

SULFANILAMIDE WITH HYPERPYREXIA

Gonorrheal infections which were expected to yield to sulfanilamide but for some reason proved resistant without exception have been promptly benefited when the use of sulfanilamide was supplemented with artificial fever. We have also employed these two agencies simultaneously when for urgent business or domestic reasons an early cure of gonorrhea was essential. Patients whose physical condition was such that they could not be submitted to a major surgical operation with reasonable safety were regarded as unsuitable for artificial fever treatment. In suitable cases as a rule an oral temperature of 103 or 104 F. was maintained for three or four hours. When the pulse rate exceeded 140 the short wave current inducing the fever was discontinued regardless of the temperature obtained. These bouts of fever were given every other day until three or four had been administered. So used, artificial fever has proved safe and efficacious in reenforcing sulfanilamide therapy. It should be noted that in our work the patient's temperature is not carried to the thermal death point of the infecting micro-organisms and that the duration of the treatment is less than that usually recommended.

In our efforts to find other facts bearing on this subject, cultures of several types of organisms were subjected to (1) sulfanilamide alone, (2) heat alone and (3) the combination of these two remedies. The organisms employed in these tests were gonococci, streptococci, colon bacilli and staphylococci. There is, as is well known, a wide variation in the response of these organisms to germicidal agents and to heat. In our tests, however, the combination of the two agents was always more effective than either alone. This was found true whether the tests were carried merely to the point of bacteriostasis or to complete sterilization of cultures. While these tests in vitro showed that the combination was more efficacious than either alone, the results were never sufficiently good to explain the satisfactory clinical results with the combined treatment.

Why is this combination more effective than either agent employed alone? The answer seems to involve a number of factors: (1) those which concern the physiologic phenomena associated with the defense mechanism of the host, (2) those which concern the thermal sickening point or thermal death point of the infecting micro-organisms and (3) those which have to do with the concentration of sulfanilamide in the urine, blood stream, serum and tissues brought about by the profuse sweating incident to the artificial fever. In our investigations of this concentration we have noted in some instances that the level of sulfanilamide is increased in the blood as much as 25 per cent and in the urine from 35 to 50 per cent.

Our concept of the value of artificial fever has been supported in recent experimental work by Mellon.[7] Commenting on the reenforcement value of artificial fever in the treatment of rabbits having blood stream infections with type I pneumococci, he said that the removal of these organisms from the blood stream "was effected more rapidly in the sulfanilamide rabbits than in the controls; more rapidly still in those given artificial fever and with maximum rapidity in the rabbits given both fever and sulfanilamide."

In the combined attack on the infection, artificial fever appears to act like a call to arms. Body tissues, serum and cells seem to be placed on a war time basis, with defensive agencies mobilized and activated. Or the chemical attack with sulfanilamide followed with hyperpyrexia may be likened to the gas barrage which handicaps soldiers so that they are more readily overcome by the bayonet charge.

PROTECTED FOCI, OR DEAD SPACES

While sulfanilamide in combination with hyperpyrexia has given us prompter and more satisfactory results than we have ever seen before, these combined measures failed to cause a cure in about one case in ten. In searching for the explanation of our failures, we noted that in such cases we were usually able to discover a protected focus or what, for lack of a better term, we call a dead space. Among important potential dead spaces may be mentioned para-urethral crypts, periurethral follicles, prostatic and other abscesses, seminal vesicles distended with stagnant secretions, areas of urethral strictures, residual urine in the renal pelves and bladder, diverticula of the bladder, cavities surrounding calculi and foreign bodies, Skene's glands, Bartholin's glands, plugs of mucus in the uterine cervix, cervical crypts, areas of salpingitis, rectal or anal crypts, infected synovial fluid and regions from which lymphatic drainage is blocked. These dead spaces we are convinced usually are not reached by an adequate amount of blood laden with sulfanilamide and associated defensive agents manufactured by the host. They therefore continue to harbor the bacteria, though at times any of them may become free from infection without the application of special local measures.

In our use of sulfanilamide in combination with hyperpyrexia it gradually became evident that consistently good results could not be obtained unless pocketed infections, or dead spaces, were eliminated before curative bouts of fever were given or unless they received especial attention while the patient was in the fever cabinet. The eradication of such foci preparatory to the combination treatment often resulted in the clearing up of the infection without the use of fever therapy.

7. Mellon, R. R.; Gross, Paul, and Cooper, F. B.: Sulfanilamide Therapy of Bacterial Infections with Special Reference to Diseases Caused by Hemolytic Streptococci, Pneumococci, Meningococci and Gonococci, Springfield, Ill., Charles C. Thomas, Publishers, 1938.

For example, we may cite again "sealing treatment." Apparently the mild silver protein takes care of the dead spaces afforded by the mucus and secretion in the anterior part of the urethra and sulfanilamide kills or assists in killing the deeper infection if taken before the infection becomes protected in a pocketed area.

The eradication of dead spaces however, it should be emphasized, did not result in a cure by sulfanilamide when sulfanilamide was not adequate for the control of the major part of the infection. Such failures probably were due to the lack of an immunizing response on the part of the host.

The instances of protected foci of different types have convinced us that such dead spaces are prime factors in the resistance of gonococcic infections to sulfanilamide.

MEASURES FOR SPECIFIC FOCI

Of the methods of dealing with localized infections in dead spaces, perhaps the most valuable is the employment of local heat during the fever treatment as a supplementary measure. In the case of epididymitis this heat is applied to the epididymis; in the case of perifolliculitis, to the penis.

The acutely inflamed prostate, with perhaps multiple pocketed abscesses or cavities laden with stagnant secretion, unfortunately does not excrete sulfanilamide as does the normal gland. Therefore it not infrequently becomes desirable to treat such a prostate with local heat in addition to routine massage. In chronically infected seminal vesicles also stagnant secretion acts as a protected focus and should be emptied from time to time.

Protected foci not infrequently are associated with or caused by urethral strictures, which should be dilated.

Abscesses in any part of the genito-urinary tract require drainage and suitable treatment to prevent, if possible, the development of fistulous tracts. If a fistula already is present, it should be laid open or treated with a concentrated germicide.

Plugs of mucus in the uterine cervix may act as dead spaces. Adair and his co-workers have shown that this mucus contains very little sulfanilamide. For such areas there is need, therefore, for assisting measures. In the routine treatment of pelvic inflammatory disease we employ a prolonged hot douche of the Gellhorn type; this cannot, of course, be administered while the patient is in the fever cabinet. Vaginal bags of the Elliot or Mills type afford means of carrying heat to the cervix and pelvic organs during the period of hyperpyrexia. The heat from the vaginal bag causes an increase in the uterine and vaginal discharge. This secretion, fresh from blood and tissues bearing sulfanilamide, appears to be of distinct curative value. If such treatment is not effective, employment of the high frequency current or cautery may be required to eradicate endocervical foci.

Synovial fluid in inflamed joints should be aspirated. If it recurs, the effusion is then from serum and tissues containing sulfanilamide and the immunizing agencies stimulated by it. Inflamed joints require local heat in addition to sulfanilamide and fever therapy.

INFECTIONS OTHER THAN GONOCOCCIC AND TUBERCULOUS

Only a few remarks will be presented on the nonspecific infections of the bladder and kidney. Here protected foci play an important part in preventing the cure of ordinary genito-urinary infections. These dead spaces are different from those previously discussed; chronic and recurrent infections are practically always associated with obstructive lesions of the urethra, vesical neck or ureter. Control of the residual urine is the prime object whether the stagnating urine is in the bladder or the renal pelves. The constant contact of urine containing sulfanilamide with the lining of these cavities, however, often can overcome the infection in spite of the residual urine. This statement does not hold when calculi, retention catheters or other foreign bodies are present. Persisting infection or recurring infection always should arouse suspicion of the existence of obstruction, stones, diverticula or pocketed areas.

Sulfanilamide appears to control or to limit the infection associated with transurethral resection of obstructing prostates, but it usually does not clear the urine of infection until the healing is complete. Its use is not necessary or desirable during the entire convalescence or in large doses, but it may be employed intermittently and always cautiously, because elderly men with poor kidney function are likely to have toxic reactions. The fuzzy mucus-like coating over the resected area appears to act as a dead space. The same thing is true for the coating of ulcerating carcinomas of the bladder.

SUMMARY

We desire to emphasize again the importance of recognizing protected foci or dead spaces as chief causes of failure in the treatment of genito-urinary infections and to direct especial attention to the fact that a longer time, a higher degree of immunity or a greater concentration of therapeutic agents is required for the eradication of infection from such foci than for the eradication of infection not so protected.

Although sulfanilamide is a most efficacious drug, it is not one to be used indiscriminately or over prolonged periods without an effort to reinforce its use with supplementary measures or without a search for protected foci in need of special local treatment.

Our clinical experience has shown that hyperpyrexia is the most dependable agent with which to reinforce sulfanilamide in the treatment of resistant infections.

NOTE.—Since this paper was read, confirmation of our conclusions has been offered by J. S. Lockwood (Observations on the Mode of Action of Sulfanilamide and Its Application to Surgical Infections, *Ann. Surg.* **108**:801-812 [Nov.] 1938). Lockwood showed that even a small amount of peptone or of peptone-like products greatly retards the germicidal activity of sulfanilamide. As far back as 1911 Bainbridge had shown that some species of bacteria are unable to break down the protein molecule to obtain essential nitrogen. In consequence they starve to death in serum protein or egg albumin unless predigested protein in the form of peptone is supplied. Lockwood asserted that pus and tissue undergoing necrosis contain peptone-like products which prevent sulfanilamide from acting on the micro-organisms with the maximal effect that characterizes its effect on diffuse nonsuppurative infections. In a later paper (Studies on the Mechanism of the Action of Sulfanilamide, THE JOURNAL, Dec. 17, 1938, p. 2259) Lockwood and his associates stated that relapses "were frequent in patients with localized infections containing necrotic tissue, such as mastoiditis and abscesses, whereas in bacteremia and erysipelas they were not encountered." They asserted that "the presence of débris, human or bacterial, diminished the effectiveness of sulfanilamide on the hemolytic streptococcus."

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METABOLISM OF THE BRAIN DURING INSULIN AND METRAZOL TREATMENTS OF SCHIZOPHRENIA

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A previous communication[1] appearing in THE JOURNAL was concerned with the possible effects of insulin and metrazol in patients with schizophrenia. The conclusions were based on observations of animals, but methods were used which did not duplicate those employed in the treatment of schizophrenia. The present communication presents a brief summary of the chief results obtained in patients with schizophrenia undergoing the insulin and metrazol treatments. Since these treatments change cerebral function, studies of cerebral metabolism were made.

TABLE 1.—*Average Oxygen and Dextrose Differences Between Arterial and Venous Cerebral Blood*

Condition	Number of Observations	Oxygen, Vol per Cent	Dextrose, Mg per 100 Cc
Before injection of insulin	16	7.09	12.5
During hypoglycemic coma	26	3.07	4.16

The methods used for the study of the cerebral metabolism of the patients include the simultaneous collection of samples of arterial blood entering the brain and of the blood of the internal jugular vein, which represents the return flow from that organ. These samples are analyzed for oxygen and dextrose. The differences between the venous and arterial contents indicate the cerebral utilization of oxygen and dextrose.

Table 1 discloses the average differences of the oxygen and dextrose contents between arterial and venous samples before the injection of insulin and during the hypoglycemic coma. The utilization of oxygen is diminished during coma from 7.09 volumes per cent to 3.07 volumes per cent. Assuming a constant blood flow, this indicates a diminished metabolism of the brain of about 55 per cent. However in hypoglycemia, according to Loman and Myerson,[3] the blood flow may be diminished, and the decrease of metabolism is therefore probably even greater than that indicated by the arteriovenous differences.

Thus the depressed cerebral metabolism and the coma are the direct results of the absence of carbohydrate, as the blood sugar diminishes in response to the injection of insulin. The brain, unlike other organs, oxidizes practically only one foodstuff, carbohydrate,[4] and as the available carbohydrate decreases the metabolism of the brain must necessarily diminish.[5] It should be pointed out, however, that during hypoglycemia the brain does not suffer from lack of oxygen. On the contrary, the oxygen content of the brain may rise, owing to the diminished utilization of that gas.

On the other hand, anoxia is developed during convulsions induced with metrazol,[6] for convulsions interfere with respiratory movements. Since it is physically impossible to draw blood from the internal jugular vein during the convulsions, only arterial samples were collected at this time. Table 2 discloses that during various stages of the convulsions the oxygen saturation of the hemoglobin of the arterial blood may decrease to 42 per cent, less than half the normal saturation of approximately 95 per cent. It is noteworthy that in these cases a moderate rise of blood sugar was noted after the initiation of the seizure. Even in the first moments after the convulsions are ended the oxygen saturation of the arterial blood does not attain normal values. Convulsions interfere temporarily with the oxygenation of the blood and therefore of the brain, thus diminishing cerebral metabolism. To contrast the fundamental differences of the actions of metrazol and insulin, the latter decreases the amount of coal (dextrose) necessary for the fire to support cerebral functions, while metrazol interferes with the draft (oxygen) required to maintain the flame. The end results, in regard to the supply of energy to the brain, are the same with the two methods.

Sakel[7] has reported that if convulsions occur during insulin hypoglycemia a dramatic improvement of the patient may be observed. Because of this fact he considers it advantageous sometimes to provoke convulsions by the injection of metrazol during hypoglycemia. It is significant that anoxia is produced by convulsions

TABLE 2.—*Percentage Hemoglobin Saturation of Arterial Blood During and Immediately After Metrazol Convulsions*

Patient	Oxygen Content, Vol per Cent	Oxygen Capacity, Vol per Cent	Hemoglobin, per Cent	Blood Drawn in Regard to Duration of Seizure
Wi	18.97	22.62	84	First half
M	8.70	20.64	42	Late
Wi	16.45	23.11	71	Late
R	14.05	22.74	62	Late
M	11.17	22.99	49	Late
Wa	15.35	22.71	68	Late
R	11.43	22.74	50	Late
N	21.37			After
Wi	17.60	22.16	78	After
M	15.92	20.58	77	After
F	16.28	21.99	74	After
Wa	20.43	22.71	90	

irrespective of the level of the blood sugar. For example, with convulsions occurring in response to low blood sugar (11 mg. per hundred cubic centimeters) an arterial hemoglobin saturation of 63 per cent was observed, while convulsions induced by metrazol during hypoglycemia resulted in a saturation of 61 per cent as blood sugar rose from 26 to 37 mg. per hundred cubic centimeters.

This work was aided by a grant from the Child Neurology Research (Friedsam Foundation).

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7. Sakel, Manfred: The Pharmacological Shock Treatment of Schizophrenia, Nervous & Mental Disease Monograph Series, No. 62, 1938.

Thus convulsions occurring during hypoglycemia add to the effects of hypoglycemia those of anoxia and therefore involve both methods of diminishing the metabolism of the brain. This synergism permits the simultaneous utilization of the more prolonged action of insulin and the more severe one of metrazol. Though it is improbable that this diminished metabolism of the brain is the only factor involved, this review of the results obtained on patients with schizophrenia suggests that a depression of cerebral metabolism is associated with the initiation of the changes which lead to the amelioration of the disease. On this basis, patients with schizophrenia are now being treated with acute anoxia produced by the inhalation of nitrogen.[8]

Clinical Notes, Suggestions and New Instruments

VIRILISM IN WOMEN CAUSED BY ANDROGENIC THERAPY FOR MENSTRUAL DISTURBANCES

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An interesting phase of the endocrine therapy of gynecologic conditions has recently arisen with the introduction of testosterone propionate, an androgenic substance, in the treatment of certain menstrual disorders. Desmarest and Capitain,[1] Loeser,[2] Foss[3] and others have shown that this substance in doses varying from 400 to 2,000 mg. a month is capable of suppressing abnormal uterine bleeding. Loeser[2] has shown that at least 500 mg. of testosterone propionate must be given to suppress normal menstruation. It has also been reported that beneficial results may be obtained with smaller doses in cases of painful breasts and dysmenorrhea. The use of testosterone propionate in these conditions was suggested by its similarity in action to progesterone. In the rat and rabbit a progestational-like state of the endometrium was induced by administration of this substance. Furthermore, this androgen is capable of suppressing sex cycles of several species, inhibiting uterine contractions, neutralizing the action of estrogen on the vaginal mucosa and suppressing menstruation in monkeys and human beings, reactions which are typical of progesterone.

With the publication of the preliminary clinical reports on the use of testosterone propionate, a considerable wave of enthusiasm arose for the use of this substance in menstrual dysfunctions. The following report of two cases in which this substance was used is presented to deter physicians from the promiscuous use of androgenic therapy in females. The disagreeable side effects we have obtained with such therapy have definitely cooled our initial ardor, and, it is hoped, may serve as a warning to others.

REPORT OF CASES

CASE 1.—Mrs. A. F., aged 26, had been married six years and had never been pregnant. She consulted one of us (J. P. G.) Nov. 30, 1936, because of severe dysmenorrhea, which had been present since the onset of menstruation at the age of 13. This pain was so severe that the patient had to go to bed for two days every month. The monthly flow was profuse and at times alarming. After having tried numerous remedies the patient for a long time had used a combination of large doses of narcotics and a liberal quantity of whisky. The patient had had an appendectomy in 1935, and this failed to influence the menstrual pains.

Physical examination revealed that the head, neck, chest and abdomen were normal. Bimanual examination showed a nulliparous outlet, a slightly eroded cervix, a small, hard, anteflexed and movable uterus and normal adnexa. The Rubin test revealed patent tubes. The basal metabolic rate was —14 per cent, and biopsy just before menstruation revealed the endometrium in the late secretory stage. Hence ovulation was present.

Dilation and curettement were performed in the hope of giving some relief from the dysmenorrhea. The endometrium showed normal secretory epithelium. During the next five months the patient was almost free from pain at the time of the menses. Then the pain returned and at the same time the flow of blood became more and more profuse. Furthermore the menstrual periods lasted from ten to thirteen days instead of four or five days. April 30, 1938, menstruation was so profuse that the patient had to be taken to a hospital. At this time the basal rate was again —14 per cent. Before and after this episode various forms of medication had been given in an attempt to control the menorrhagia. These included thyroid, anterior pituitary-like substance, snake venom, solution of posterior pituitary, ergonovine and solution of parathyroid and calcium. Repeated bimanual examinations during all this time failed to reveal any abnormalities.

In June it was decided to try large doses of estradiol benzoate. The patient was given 10,000 rat units twice during the first week following her menstrual period and 2,000 rat units twice during the second week. This medication had no effect on the following menstrual flow, which was as profuse and as painful as the previous ones. It was then decided to give the patient testosterone propionate. The menstrual period had begun July 13. The patient was given 50 mg. of testosterone propionate July 18 and July 19, 100 mg. July 20, 22, 25, 27 and 29 and August 1 and 2 and 50 mg. August 5, a total of 850 mg. in nineteen days. A vaginal smear and a biopsy specimen were taken August 8, two days before the menstrual period was expected. The vaginal smear showed a decrease in the number of cornified cells. The biopsy revealed that the endometrium was in the follicular phase, in spite of the fact that the menses were to occur two days later.

August 23 the patient complained of an acneform rash on the chest, a large amount of hair on the upper lip and increase in weight. The menses, which had been due August 10, did not begin until August 29, nineteen days later. This period was just as painful as before.

It was decided to give a second course of treatment with testosterone propionate. The patient was given 50 mg. September 9, 12, 14, 16, 19, 21, 23 and 26 and 25 mg. September 28 and 30, a total of 450 mg. in twenty-two days. September 30 the patient complained bitterly that the hairs on the upper lip were rapidly increasing in number, length and darkness and that considerable hair was growing on her arms and legs. Likewise her voice was husky and her friends had been asking her about this. The weight had increased 10 pounds (4.5 Kg.) in spite of attempts to diet rigidly. The acne reappeared and was present not only on the chest but on the back. There had been a definite decrease in the size of the breasts. October 10 examination showed a distinct enlargement of the clitoris. This organ was reddened, as was the skin immediately surrounding it.

Menstruation did not return until November 1, an interval of sixty-four days having elapsed since the previous menses (August 29). The menses were painless and the flow was slight. The patient stated that she felt better than she had for more than a year. However, she still has her excess weight, hirsutism, acne and deep voice. The basal metabolic rate November 15 was +3 per cent. Bimanual examination revealed nothing abnormal. However, the clitoris was definitely smaller and there was no redness on or around it.

CASE 2.—Mrs. S. H., aged 22, came to see one of us (J. P. G.) Nov. 11, 1936, for premarital examination and advice. The past history was irrelevant, and the only abnormality in the menstrual history was severe dysmenorrhea. Rectal examination revealed large hemorrhoids and a fibroid on the right side of the uterus, which measured approximately 5 cm. in diameter. April 2, 1937, a few months after marriage, the fibroid appeared to be about 6 or 7 cm. in diameter. A discussion was had concerning the advisability of removing the fibroid, both because of the possibility that it was causing the

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severe dysmenorrhea and because it might be better to remove the mass before the patient became pregnant.

Because of the patient's youth and the desire to wait for children, nothing was done. In July 1938 it was decided to give testosterone propionate and note its effect on the fibroid and the dysmenorrhea. A biopsy revealed an early proliferative stage of the endometrium. The menses began August 7. The patient was given 50 mg. of testosterone propionate August 15, 17, 19, 22, 24, 26, 29 and 31, September 2, 7, 9, 12 and 14, 25 mg. on September 16, 19, 21, 23, 26 and 28 and October 3 and 7, a total of 850 mg. in fifty-three days. On August 26 a biopsy specimen was taken. This showed an early proliferative phase.

August 28, thirteen days after the administration of testosterone propionate was started, a menstrual period began, and the patient had no pain at all (after 300 mg. of testosterone propionate). This period started seven days early. However, this bleeding began two days after the biopsy specimen was taken and may not have been a menstrual period. August 29 the patient complained that she had gained 6 pounds (2.7 Kg.) (after 300 mg. of the substance). September 16, bimanual examination showed that the fibroid was distinctly smaller, only about 4 cm. in diameter (after 650 mg.). Another biopsy specimen obtained on this day showed an early proliferative phase of the the endometrium. On September 19 the patient complained of an annoying acneform eruption on her face and arms. The weight was still increasing in spite of strenuous dieting. Furthermore, the patient's husband had been noticing a steadily increasing hoarseness in the patient's voice for more than a week. This continued to increase in severity until the voice sounded almost like a man's, especially over the telephone. Another biopsy specimen taken October 12 showed the follicular phase of the endometrium. November 2 the patient complained not only of persistent huskiness of the voice, acne and increase in weight but also of an abundant growth of hair on the upper lip and on the chin.

Bimanual examination November 7 revealed that the fibroid had increased in size again, almost to the size it was before the testosterone propionate was administered. The menses did not return until November 18, eighty-two days after the last menses (August 28). The deep voice, excessive hair and overweight were still present, but the acne had cleared considerably. The menstrual pains were about 50 per cent less than usual, but the amount of blood lost was much greater than usual. Bimanual examination November 23 showed the same condition as on November 7.

COMMENT AND CONCLUSION

An analysis of these cases reveals that testosterone propionate in doses which are effective therapeutically is potent in the induction of a significant degree of virilism. Growth of hair on the face and body was stimulated and a lowering of the voice to a masculine pitch was obtained in both cases. Enlargement of the clitoris, however, was observed in only one. It was first expected that these masculine developments would regress soon after the cessation of injections. The clitoris in the one case has returned to normal, but the hirsutism and male voice have persisted to the present time, eight weeks after the last injection of testosterone propionate. It should be noted that menstruation has returned in both cases and the fibroid uterus regained its normal size in the one case, indicating that ovarian function has returned without the disappearance of the virilism. The possibility that these changes may eventually vanish is still present,[3a] but it is significant that with the removal of the masculinizing ovarian tumor, the arrhenoblastoma, the masculine voice persists, indicating that a similar result might be expected, by analogy, with the masculine voice induced by administration of androgenic substances.

Other disagreeable reactions were acne and increase in weight. This tendency to gain weight has been noted frequently in male castrates treated with androgen by Kenyon.[4] This effect was noted in one of our patients in spite of an increase in the basal metabolic rate.

It is true that a certain therapeutic response was obtained. Intractable menorrhagia and dysmenorrhea were controlled in the first case, temporarily at least, by androgenic therapy. Dysmenorrhea associated with a fibroid of the uterus was checked in the second case in that the menses were inhibited. A definite decrease in the size of the fibroid was probably the result of the inhibition of ovarian function by androgen, similar to that noted in monkeys by Zuckerman[5] and in rats by the work of the Mazers[6] and by Freed, Greenhill and Soskin.[7] This explanation is confirmed by the observation in endometrial biopsies that ovulation was prevented in both cases.

It is questionable, however, whether the beneficial results noted in our cases were worth the concomitant undesirable side reactions. Further observations are of course necessary to justify more definite conclusions. At present we are of the opinion that androgenic therapy in women should be approached with caution and is not to be recommended until the danger of virilism can be eliminated or controlled. It is not unlikely that an androgen or similar substance may be developed which will possess the desirable therapeutic effects of testosterone propionate without the harmful virilizing effects.

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3a. In case 2 practically all the symptoms of virilism disappeared about January 10, three months after the last injection of testosterone dipropionate. In case 1 the huskiness and hirsutism are still present, almost four months after the last injection.

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CHRONIC ULCER OF THE LEG ASSOCIATED WITH CONGENITAL HEMOLYTIC JAUNDICE

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Since the beginning of the century a considerable literature has accumulated concerning hemolytic jaundice. In 1900 Minkowski and later Chauffard described the congenital type, and between 1907 and 1911 Hayem Widal and his associates presented a group which they considered to be "acquired." Attention was first called to the disease in this country by Tileston and Griffin[1] in 1910. Subsequently the excellent studies of Gänsslen,[2] Eppinger[3] and Meulengracht[4] completed the clinical picture of the disease as it is known today. Dawson[5] and others have presented considerable evidence to show that the acquired and the congenital types are closely related and have cast considerable doubt as to whether any cases that rightfully belong to this group are actually "acquired." Haden's[6] work demonstrated that the spherical microcyte is the fundamental variation from the normal in this disease and that "the anemia, jaundice, splenomegaly, reticulocytosis and increased fragility are all secondary to the globular form of the erythrocyte." An excellent summary of the clinical and laboratory appearances of the disease was given by the Cheneys[7] in 1934.

Aside from the anemia, the commonest complication of the disease is probably gallstones, occurring in 68.6 per cent of the cases reported from the Mayo Clinic.[8] Skeletal defects ("tower skull" of Gänsslen, and the like), joint pains and nosebleeds are also well known associated happenings. In the standard medical textbooks and in a number of the monographs no mention is made of chronic ulceration of the leg as a complication. Gänsslen[2] was one of the first to note this condition and its permanent regression obtained by splenectomy, although he disavows priority in calling attention to it.[9]

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REPORT OF CASE

The following case is of interest in this respect, and it will be noted that the presence of chronic ulceration of the leg was the patient's presenting symptom.

F. M. H., a woman aged 20, of German-American parentage, an unemployed stenographer, admitted to Vanderbilt Clinic June 29, 1937, complained of a chronic sore on the inner side of the left ankle of twelve months' duration About one year before she had struck her ankle on a store counter. A bluish spot appeared, and three weeks later a "hole" developed. The lesion was quite painful and interfered with weight bearing but not with motion. She had been treated intermittently at several clinics with ultraviolet rays, boric acid ointment dressings and the like, with little or no progress. Examination of the lesion showed a shallow ulceration 1 by 2 5 cm just above and posterior to the internal malleolus. There was a moderate amount of yellow slough. A dusky cyanosis surrounded the ulcer for an area of 5 by 6 cm An area 2 by 3 cm of this same dusky hue without ulceration was present in a similar location on the right ankle. X-ray examination of the ankle joint was negative. Aerobic and anaerobic cultures yielded only Staphylococcus aureus. The Wassermann reaction was negative. There was no history or clinical condition to suggest tuberculosis. An "elastoplast" bandage was applied, but irritation of the skin was so marked that it could not be tolerated On her visit July 14 an icteric tint of the sclerae and skin was noted. Abdominal examination revealed the spleen palpable four fingerbreadths beneath the left costal margin Further history revealed that the patient's mother had been "yellow skinned and bruised easily." She was said to have died at 51 from "heart disease." The patient had been at another hospital three years previously because of pain in the left upper quadrant. The enlarged spleen was noted and removal was advised, but the patient refused operation. The patient was admitted to the Presbyterian Hospital July 18. Examination of the blood revealed hemoglobin 60 per cent, red blood cells 3,200,000, white blood cells 7,400, with platelets 317,000, reticulocytes 23.9 per cent, polymorphonuclear leukocytes 58 per cent (0-4-54), eosinophils 5 per cent, basophils 1 per cent, lymphocytes 32 per cent, monocytes 4 per cent, nucleated red cells 1/100, bleeding time two and one-half minutes, clotting time two minutes and forty-five seconds. The red blood cells showed marked anisocytosis

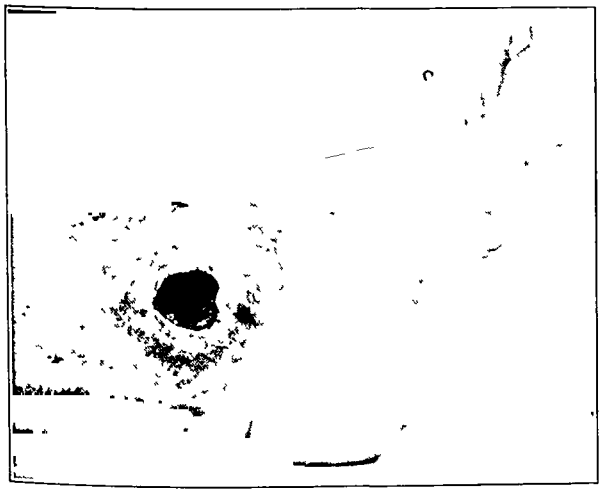


Fig 1.—The shallow indolent ulcer before operation Note the surrounding area of dusky cyanosis and pigmentation of the skin.

with a tendency to microcytosis, 19 per cent being the typical spherical microcytes of hemolytic jaundice. Fragility began at 0 625 per cent and was complete at 0.35 per cent The range of the control was between 0 425 and 0 3 per cent, serum bilirubin 4.4, urine bile 0, urobilin positive. Figure 1 shows the ulcer of the leg July 21 before operation

Splenectomy was performed by Dr. Louis M. Rousselot July 23. A thin walled gallbladder without stones was noted The postoperative course was uneventful except for an unexplained elevation of temperature on the third postoperative day. The pathologic examination of the spleen by Dr. V. K. Frantz revealed hemolytic jaundice. The spleen measured 19 by 14 by 8 cm. and weighed 760 Gm. A thin shiny capsule stripped easily. The cut surface was dark red and did not bulge beyond the capsule The outstanding feature on section was the mass of closely packed red corpuscles throughout the pulp, even infiltrating into the malphigian bodies. The venous sinuses were



Fig 2.—The site of the ulcer has remained healed nine months after operation but the pigmentation of the skin is still present

large. There was no fibrosis A few hemosiderin-laden phagocytes were noted. These observations correspond to those which Thompson[10] has described as the typical and constant pathologic picture found in the spleen in true hemolytic jaundice.

The patient was discharged sixteen days after operation with the ulcer of the leg healed and with a firm abdominal wound The blood examination revealed hemoglobin 83 per cent, red blood cells 4,000,000, white blood cells 5,400, platelets 189,000, reticulocytes 0 2 per cent, polymorphonuclear leukocytes 41 (0-1-40) per cent, eosinophils 4 per cent, basophils 2 per cent, lymphocytes 39 per cent, monocytes 4 per cent. The patient was last seen April 30, 1938, nine months after the operation, and stated that she had "never felt better" in her life. The ulcer has remained healed (fig. 2).

COMMENT

This is the first patient with this complication who has been seen in the Spleen Clinic at Presbyterian Hospital, where forty-three patients both with and without splenectomy have been carefully followed for a number of years. Undoubtedly, chronic ulceration of the leg is an infrequent finding in this disease, for Meulengracht in his careful study of thirty-four cases makes no mention of it

In reviewing the literature at least seventeen similar cases[11] are found and recognition of this complication is made by a number of authors, particularly in Germany and the Scandinavian countries.[12] The large majority of the patients are young women in the second and third decades of life and give a history of having had persistent or recurrent ulceration of the lower leg for from two months to twenty years.

Treatment with ointments, wet dressings and bed rest for as long as two months is only rarely successful, and recurrence is the rule. Three of Eppinger's patients had persistent or

10. Thompson, W P.· Bull Johns Hopkins Hosp **51**: 365 369 (Dec.) 1932

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12. Cowen, S O · M. J. Australia **1**: 265 (Feb 22) 1936; **2**: 545 (Nov. 11) 1922. Eppinger.[3] Dedichen.[14] Poppe[15] Laux[11] Cheney and Cheney.[7]

recurring lesions of from seven to twenty years' duration. In a case [13] in which splenectomy was refused, healing was reported after the patient was in bed three months with boric acid ointment dressings, but no follow-up is given.

In the twelve cases in which splenectomy was performed, all the resistant lesions healed in from eight to thirty days. One lesion [14] recurred following direct trauma but healed promptly and showed no evidence of recurrence three and one-half years later.[15] Another [3] had some oozing with each menstrual period for a year and a half after the operation but it finally healed.

Splenectomy in this disease is now a relatively safe procedure. Large series of collected cases show a hospital mortality of but from 3 to 4 per cent.[16]

Even if operation appears to be mandatory during an acute crisis, the mortality is probably not appreciably higher in competent hands.[17]

The ulcers are almost always located in the region of the medial malleolus. There is usually only a single ulcer on the leg, but in about half of the cases there is bilateral involvement. Occasionally multiple ulcers are found in cases of long standing.[14]

Trauma may or may not precede the appearance of the ulcer. Frequently a dusky blue area in the region of the medial malleolus is the first manifestation of the impending ulceration. This breaks down in the center and a shallow indolent erosion appears, which advances to about 3 to 5 cm. in diameter. Larger punched out lesions appear only in the cases of very long standing. There is a moderate amount of yellowish slough. The edges are only slightly elevated and there is little undermining. A ring of the bluish cyanosis or dark pigmentation circumscribes the lesion. There is often considerable pain and, although limitation of motion is unusual, weight bearing may be considerably compromised.

Since Gänsslen's early report there has been considerable speculation as to the nature of the mechanism that causes these lesions to appear and as to why there is prompt permanent remission following splenectomy.

It has been suggested that the ulcers are just another of the congenital defects [2] associated with the disease. This is obviously inadequate, for all the other structural defects remain after clinical cure of the disease is accomplished by splenectomy. The possibility of an effect on the walls of the capillaries secondary to some of the abnormalities found in the chemical analysis of the blood has also been mentioned as predisposing to these ulcers. This seems unlikely, for at no time during the course of the disease can any increased capillary fragility be demonstrated.[18] Similarly, the spherical microcyte itself cannot be considered a causative agent, for it persists following operation long after the lesions have healed.

At present there is no satisfactory explanation of this phenomenon. It is interesting to note that in sickle cell anemia, which has many points of similarity to congenital hemolytic jaundice, three out of four patients reaching adult life have ulceration of the leg.[19] It would seem suggestive then that the causative agent will be found to be a factor common to the two diseases.

SUMMARY

Chronic ulceration of one or both medial malleolar regions occurs as a complication of congenital hemolytic jaundice. The lesions are highly resistant to all local therapy, but splenectomy affords a rapid, permanent cure.

Little recognition is accorded this complication, particularly in this country. It is undoubtedly an infrequent finding but may be the only manifestation of the disease that brings the patient to seek medical aid.

The presence of these ulcers is an added indication for splenectomy if they interfere with the patient's ability to work.

In the presence of apparently unexplained chronic ulceration of the leg, particularly in a young white woman, investigation of the morphology and fragility of the red cells should be made.

630 West 168th Street.

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PRIMARY ADENOCARCINOMA OF THE JEJUNUM WITH PERFORATION

REPORT OF A CASE WITH SOME CLINICOPATHOLOGIC NOTATIONS

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Carcinoma of the jejunum, like carcinoma of the rest of the small intestine, is rare. Acute perforation of such a lesion is still more unusual. Carter [1] in 1935 mentioned that perforation of such a growth with peritonitis was recorded in only one case of laparotomy in the preceding eight years. No doubt he had reference to the case reported by Dencks,[2] which will be described later and which is the only instance of involvement similar to that to be reported that we have been able to find in the literature. The case here reported presented clinically the picture of perforated peptic ulcer.

REPORT OF CASE

History.—J. K., a white man aged 48, a laborer, admitted May 1, 1935, to the Cook County Hospital (surgical service of Dr. John Harger), was seized suddenly with severe pain in the abdomen twenty-two hours before admittance, while doing some repairs on a house. The pain was described as cramplike and more severe in the lower part of the abdomen. It was



Fig. 1.—Surgical specimen, showing broad perforation in the tumor of the jejunum.

of such intensity that he was forced to lie down immediately. After an hour it ceased and he resumed work. An hour later, however, the pains recurred, increasingly severe and constant. At 5 a. m. (seventeen hours after the onset) a physician advised hospitalization; at this time there was also pain referred to the right shoulder.

The past medical history was entirely irrelevant except for constipation. He took alcohol occasionally. There had been no selective dyspepsia, epigastric distress, loss of weight or vomiting.

On admission the temperature was 100.6 F. rectally, the pulse rate 102, the respiratory rate 36 and the blood pressure 132 systolic and 80 diastolic.

The essential physical pathologic changes were limited to the abdomen and consisted of diffuse boardlike rigidity, slight dis-

Read before the Chicago Pathological Society, Dec. 12, 1938.
From the departments of Surgery and Pathology of the Cook County Hospital, Dr. Walter Schiller, director of laboratories

1. Carter, R. Franklin: Carcinoma of the Jejunum, Ann. Surg. **102**: 1019-1028 (Dec.) 1935.
2. Dencks: Carcinoma jejuni mit Perforation, Med. Klin. **23**: 109 (Jan. 21) 1927.

tention and diffuse tenderness. Rebound tenderness was elicited in the left lower quadrant and on auscultation the peristaltic sounds were absent, but there was an occasional metallic click

Fluoroscopic examination by Dr. R. T. Vaughan revealed free air under the right dome of the diaphragm. Examination of the urine gave negative results; the white blood cell count



Fig. 2.—Section taken near the perforation, under low power, showing invasion of the muscularis by the tumor glands Hematoxylin and eosin stain.

was 7,800 per cubic millimeter. A preoperative diagnosis of perforated peptic ulcer was made.

Operation and Result.—Operation was performed (by E. A. C.) four hours after admission to the hospital and twenty-six hours after the onset of the initial pain. The abdomen was opened through a right paramedian epigastric incision. The intestinal loops were distended and a considerable amount of bile-stained seropurulent exudate was present. Examination of the stomach, duodenum, gallbladder and appendix, however, revealed no perforation. It was only after following the stream of exudate to its source below the transverse colon and omentum that the perforation was found in the jejunum. The perforation was fully 2 cm. in diameter and occupied the center of a firm constricting mass in this portion of bowel, 18 inches distal to the ligament of Treitz. Intestinal contents were escaping freely The regional mesenteric lymph glands were enlarged and firm

A diagnosis of probable carcinoma was made, and a wide resection of this area together with its mesentery was done The continuity of the bowel was restored by an end to end anastomosis.

Course.—The patient did fairly well until the third postoperative day, when the wound began draining seropurulent material The abdomen became distended and the peristaltic silence persisted. On the following day, four days after admission to the hospital and five days after onset, the patient died.

Surgical Pathologic Examination (Dr J D. Kirshbaum).—Gross: The specimen submitted consisted of a portion of jejunum 14 cm. in length, in the center of which was an ovoid defect measuring 3 by 1.5 cm. involving the entire thickness of the wall. The edges of the defect were firm, irregular and slightly rolled. The serosa was discolored purple-red, the mucosa was purple-tan and edematous (fig. 1).

Microscopic: Sections taken from the region of the tumor revealed a much thickened mucosa, heavily infiltrated with round cells and polymorphonuclear leukocytes. The crypts were lined by tall epithelium and in places were two and three layers thick. Their nuclei were irregular and hyperchromatic, atypical mitotic figures being frequently seen. In places the mucosa was thrown into folds assuming a polypoid appearance. In one area the mucosa was missing and the floor of the defect was formed by the muscularis propria. Beginning at the surface there were dilated and elongated glandlike crypts lined by anaplastic tumor cells. They invaded the entire muscularis propria and extended to the serosa. There was no tendency to production of mucus. In the region of the intact mucosa the tumor glands were seen to extend radially. There were marked thickening in the subserosa distal to the tumor and dense infiltrations of round cells, plasma cells, large mononuclear cells and polymorphonuclear leukocytes (figs. 2 and 3). The diagnosis was adenocarcinoma of the jejunum with ulceration and perforation.

Necropsy—This was performed six hours after death by Dr. B. Nieman. The essential pathologic observations were restricted to the abdomen. The intestinal loops were markedly distended by gas and were plastered together by loose fibrinous membranes. The serosa was dull and injected; the omentum was adherent to the anterior part of the abdominal wall. Examination of the entero-anastomosis with water revealed no defect in the line of suture. The mesenteric and periaortic lymph glands measured up to 25 mm. in diameter and on sectioning were yellow-gray. The lungs presented areas of focal pneumonia in both lower lobes.

Microscopic Examination of the Periaortic Lymph Node (Dr. Richard Jaffé) (fig. 4) · The normal architecture of the lymph node was discernible only at the periphery. The greater portion of it was replaced by nests of glandular epithelium which resembled intestinal mucosa. The glands were round to oval and were lined by cuboidal to columnar cells. Their nuclei were anaplastic, occasional mitotic figures being seen. In between the tumor glands there was a moderate amount of cellular stroma.

The anatomic diagnosis was recent laparotomy wound for resection of a portion of the jejunum, diffuse fibrinoplastic peritonitis, pseudomembranous enteritis, end to end entero-



Fig. 3.—Section under high power showing tumor glands and mitotic figures. Hematoxylin and eosin stain

anastomosis of the jejunum, metastases of adenocarcinoma to the mesenteric and periaortic lymph nodes and aspiration bronchopneumonia of both lower pulmonary lobes

COMMENT

We have been able to find only one case of similar involvement in the literature, namely, that reported by Dencks,[2] of a 42 year old man who complained of sudden, severe abdominal pain two hours after the noon meal. A physician administered

morphine. On the following day the patient was admitted to the hospital with symptoms of perforative peritonitis of about ten hours' duration. A laparotomy was performed immediately and a small annular stenosing tumor was found with a perforation at the mesenteric border. A wide resection of this area with an end to end anastomosis was performed and the patient made an uneventful recovery. Histologically the tumor proved to be a cylindric cell carcinoma of glandular type.

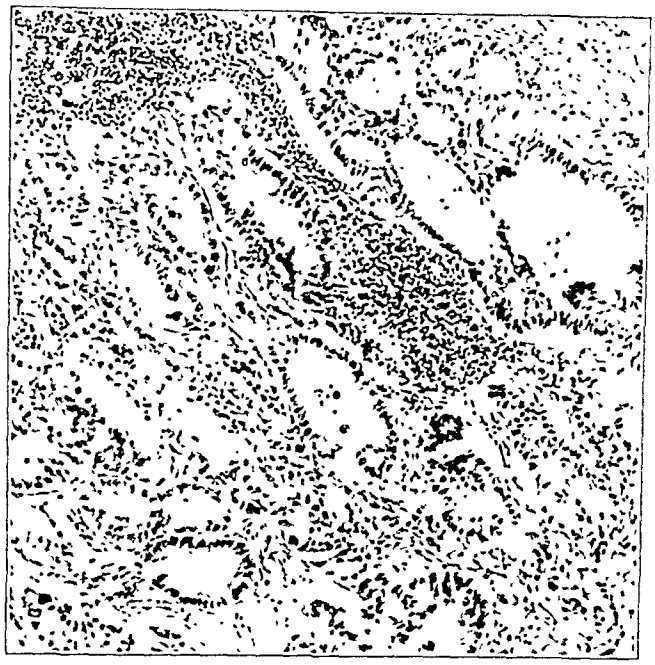


Fig. 4.—Section under low power from one of the periaortic lymph nodes, showing metastasis. Hematoxylin and eosin stain

Keyser [3] in 1908 reported jejunal carcinoma with fatal perforative peritonitis in a patient in whom a previous exploratory laparotomy had shown an inoperable tumor.

From the statistical study given in the table it will be seen that carcinoma of the small bowel is relatively rare and occurs with least frequency in the jejunum. Because of this rarity there is some discrepancy in the reported incidence of carcinoma of the small intestine from the various clinics. Ewing [4] stated that carcinoma of the small bowel forms 3 per cent of all intestinal carcinomas. Mayo and Nattrour,[5] in reviewing seventy-six cases of carcinoma of the small intestine observed at the Mayo Clinic in the ten years prior to 1936, found that carcinoma of the small bowel comprised 0.62 per cent of all the carcinomas from the cardiac end of the stomach down to and including the rectum, and that carcinoma of the jejunum formed only 0.15 per cent of all the carcinomas of the gastrointestinal tract.

A review of 10,309 necropsies performed at the Cook County Hospital during the nine years from 1929 to 1938 showed seven cases of carcinoma of the small intestine, three of the duodenum and four of the jejunum, compared to 273 cases of carcinoma of the stomach and 163 cases of carcinoma of the colon and rectum—a frequency of 1.6 per cent for carcinoma of the small bowel and 0.9 per cent for jejunal carcinoma among carcinomas of the gastrointestinal tract.

Many theories have been proposed for the relative infrequency of carcinoma of the small intestine, among which may be mentioned the embryonic rest theory of Cohnheim. Other authors have attributed the low incidence to the absence of abrupt bends and irritation such as is seen in the sigmoid colon, the rectum, the hepatic and splenic flexures and the cecum. Carcinoma of the intestinal tract is found at points where there is an abrupt change in the lining epithelium of the canal, e. g. at the junction of the esophagus and the stomach or at the anus and rectum. These abrupt changes are absent in the small intestine. Rankin and Mayo [6] subscribe to the theory that the fluid nature and the alkaline reaction of the contents of the small intestine may explain the lowered incidence of carcinoma of the small bowel.

Whereas the average age in cases of carcinoma of the jejunum was found by Rankin and Mayo [6] to be 47.5 years, this was later revised by Mayo and Nattrour to 51 years. Keyser reported the average age to be 43.9 years. Raiford [7] found 52 as the average age. In four necropsy records of carcinoma of the jejunum from the Cook County Hospital the average age was 47.5 years. The sexes were equally represented.

From a review of the clinical histories in the cases reported, it is apparent that in the majority there were symptoms of acute and chronic intestinal obstruction. Our case differed from these in that the first clinical manifestation was acute perforative peritonitis, which clinically closely resembled that seen in perforation of a peptic ulcer. In an extensive review of the causes of spontaneous pneumoperitoneum by Vaughan and Singer [8] in 1929, two pathologic entities were strongly emphasized, namely perforation of a peptic ulcer and perforation of a gastric carcinoma. Although the lesion in our case was in the jejunum, at the onset it was impossible to differentiate it fluoroscopically from the more frequent perforation of stomach or duodenum. The great rarity of perforation of carcinoma of the jejunum precludes its preoperative diagnosis even in the presence of acute abdominal symptoms if there is no previous history or roentgenologic evidence of a lesion of the small intestine.

The cardinal features in the clinical picture of carcinoma of the small intestine are as a rule those of chronic intestinal obstruction associated with moderate anemia, melena and loss of weight. The absence of these symptoms in our case and the picture of acute perforation of a hollow viscus precluded its preoperative diagnosis.

Whereas in primary carcinoma of the jejunum extensive metastases to the lungs have been recorded by Malerich [9] and to the liver by Milles,[10] in our case they were limited to the radix of the mesentery and the regional lymph nodes.

SUMMARY

A case of primary adenocarcinoma of the jejunum with acute perforative peritonitis was observed in a white man aged 48.

Autopsy Statistics

Years	Source	No. of Autopsies	Carcinoma of: Small Intestine	Jejunum	Ileum	Duodenum	Undetermined Site
1870-1893	Vienna General Hospital*	41,838	17	0	10	7	0
1886-1891	Pathologic Institute of Berne*	5,621	9	0	3	6	0
	Zeman*.....	21,624	9	0	6	3	0
To 1932	Johns Hopkins Hospital [7]	11,500	16	4	3	7	2
1929-1938	Cook County Hospital	10,309	7	4	0	3	0
	Totals.....	90,892	58	8	22	26	2

* Cited by Hermann Nothnagel (Diseases of the Intestines and Peritoneum, in Nothnagel's Encyclopaedia of Practical Medicine, Philadelphia, W. B. Saunders Company, 1904, vol. 8, pp. 402-404).

In a review of 10,309 necropsies performed at the Cook County Hospital four cases of primary carcinoma of the jejunum were found, one of perforation.

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4. Ewing, James: Neoplastic Diseases: A Treatise on Tumors, ed. 2, Philadelphia, W. B. Saunders Company, 1922, p. 661.
5. Mayo, Charles W., and Nattrour, Walter S.: Carcinoma of the Jejunum, Surg., Gynec. & Obst. **65**: 303-309 (Sept.) 1937.
6. Rankin, Fred W., and Mayo, Charles, Jr.: Carcinoma of the Small Bowel, Surg., Gynec. & Obst. **50**: 939-947 (June) 1930.
7. Raiford, Theodore S.: Tumors of the Small Intestine, Arch. Surg. **25**: 122-177 (July) 1932.
8. Vaughan, Roger T., and Singer, Harry A.: The Value of Radiology in the Diagnosis of Perforated Peptic Ulcer, Surg., Gynec. & Obst. **43**: 593-597 (Nov.) 1929.
9. Malerich, J. A.: Primary Carcinoma of the Jejunum with Metastasis to the Lung: Report of a Case, Proc. Staff Meet., Mayo Clin. **9**: 40-42 (Jan. 17) 1934.
10. Milles, George: Carcinoma of the Jejunum, Tr. Chicago Path. Soc. **13**: 451-452 (June) 1931.

Clinically the picture was that of an acute perforation of a hollow abdominal viscus, as evidenced by sudden abdominal pain, rigidity of the abdomen and the presence of free air beneath the diaphragm.

The condition was clinically indistinguishable from the more common type of perforation, namely perforated peptic ulcer and perforated gastric carcinoma.

In the majority of cases of carcinoma of the jejunum symptoms of intestinal obstruction are associated with melena, moderate anemia and loss of weight. These symptoms were absent in our case.

From a review of the literature it is evident that carcinoma of the jejunum is rare, having an incidence of 0.9 to 0.15 per cent among all the carcinomas of the gastrointestinal tract.

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TUMOR OF THE SPINAL CORD COMPLICATING TABES DORSALIS

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When a patient has a chronic syphilitic condition of the spinal cord and a second and unrelated lesion of the spinal cord develops, the latter may escape detection. The case reported here appears to be the first recorded instance of the diagnosis and successful removal of a glioma of the cauda equina from a patient who had been known to have tabes for some years.

REPORT OF CASE

A married man, aged 48, was referred to the Mayo Clinic in January 1938 with a diagnosis of tabes dorsalis. In 1905 he had had a chancre and had received inunctions of mercury. In 1920, when he had complained of headaches and diplopia, a physician had discovered that deep reflexes of the lower extremities were absent and that Argyll Robertson pupils were present. The Wassermann reaction of the blood was positive. Eighteen injections of neoarsphenamine reversed this reaction. Several years later, typical tabetic lancinating and spot pains had appeared in the lower extremities and had continued to occur in spells several times each month until 1937; in that year none had been experienced

Gradual decrease in both libido and potentia had begun in 1930 and both had been absent by 1933. In 1936 the patient had noted absence of the normal sensation of fulness of the bladder and difficulty in emptying it. With time, rectal function had become similarly impaired. In May 1936 spinal puncture had been performed. The cerebrospinal fluid obtained was xanthochromic and contained an excess of protein and 10 cells per cubic millimeter. Intensive therapy with neoarsphenamine, bismuth compounds and tryparsamide was begun. However, the patient's symptoms had progressed, weakness and incoordination of the lower extremities becoming the most distressing symptoms. The patient finally had been reduced to getting about with a cane and had been forced to resign his employment. Spinal puncture again revealed a yellow fluid and led to the patient's being sent to the clinic.

The pupils were small, unequal and irregular. They reacted in accommodation but not to light (Argyll Robertson pupil). Power of the hamstring muscles of both thighs was reduced and that of the muscles of both legs and feet was markedly impaired. Deep reflexes of the upper extremities were normal but those of the lower extremities were absent. Abdominal reflexes could not be obtained. Signs indicative of injury to the pyramidal tract were not elicited. Romberg's test gave a positive result. The anal sphincter was atonic.

Sensibility to painful stimuli was markedly diminished over the whole of both lower extremities and, to a less extent, in a patchy fashion over the trunk. Testicular pressure was not painful. An exact "sensory level" could not be demonstrated. Sensibility to touch and temperature were only slightly impaired. Vibratory sense was well preserved but joint sense was seriously impaired in both feet. Tests of coordination were poorly performed with the lower extremities and the patient exhibited a steppage type of gait.

Routine laboratory tests of blood and urine all gave results within normal limits. Roentgenograms of the thorax and of the entire spinal column disclosed no abnormality aside from a narrow lumbosacral joint space. On spinal puncture, however, fluid could not be obtained at the third lumbar interspace; that is, at the interspace below the third lumbar vertebra. At the fourth lumbar interspace a deeply xanthochromic fluid was obtained, in which a pellicle formed spontaneously. The fluid contained 4,000 mg. of total protein per hundred cubic centimeters and 3 small lymphocytes per cubic millimeter; the result of the Nonne test was strongly positive and the Kolmer-Wassermann and Kline tests gave negative results. The Queckenstedt test (bilateral jugular compression) demonstrated almost complete block in the spinal subarachnoid space above the fourth lumbar interspace. In order to localize the obstructing lesion further, additional spinal punctures were performed at successively higher levels. At the twelfth thoracic interspace, fluid could not be obtained. However, at the tenth thoracic level the spinal fluid was only faintly yellow and the Queckenstedt test gave no evidence of block.

Because it was believed that the obstruction probably was caused by a benign neoplasm involving the spinal cord and that it was not of syphilitic etiology, laminectomy was performed by one of us (J. G. L.) Feb. 7, 1938. When the laminae of the third lumbar vertebra were removed, the underlying dura mater was found not to pulsate. The dura mater was opened, exposing a tumor which appeared to fill the caudal dural sac. The laminectomy was extended in both directions until the entire mass could be seen. It extended from the lower border of the twelfth thoracic vertebra to the fourth lumbar vertebra. It was possible to remove the tumor in one piece after severing its connection with the filum terminale below and the conus medullaris above. It appeared to have taken origin from the tip of the conus and it was necessary to sacrifice the distal segment of the conus in removing the tumor. Once the tumor had been removed the fibers of the cauda equina came into view, as they had been displaced anteriorly. On microscopic study Dr. J. W. Kernohan identified the tumor as an ependymoma.

The patient left the hospital on the seventeenth postoperative day, at which time sensation and power in his lower extremities had improved; catheterization was still necessary. Three months after operation the patient reported that his gait was normal and that his legs were of normal strength. He no longer noted sensory impairment of his feet. It was still necessary at times for him to catheterize himself.

COMMENT

To determine when the tumor first produced symptoms is difficult. Probably the alterations in sexual and sphincteric function which began in 1930 were results of growth of the tumor, although the syphilitic lesion may have played some role in their production. Although pain in the lower part of the back and in the distribution of the sciatic nerves almost always is present in cases of tumor of the cauda equina, and is the initial symptom in 80 per cent of cases,[1] such pain was absent in this case, probably because of the preexisting tabetic lesions of the sensory conducting pathways of the spinal cord. The lancinating and spot pains which the patient had experienced for a number of years were typical of tabes and did not suggest the root pains of a spinal cord tumor. Furthermore, these pains had been absent during the year before the patient came to the clinic.

The physical and neurologic examinations gave rather typical signs of advanced tabes dorsalis except that the muscular weakness of the lower extremities was greater than might be attributed to the hypotonia and ataxia of tabes dorsalis. Muscular weakness per se is rarely a prominent symptom of tabes dorsalis.

From the Section on Neurosurgery, the Mayo Clinic.

1. Kernohan, J. W.; Woltman, H. W., and Adson, A. W.: Gliomas Arising from the Region of the Cauda Equina: Clinical, Surgical and Histologic Considerations, Arch. Neurol. & Psychiat. 29: 287-305 (Feb.) 1933.

The first real suspicion of the presence of a complicating lesion arose when lumbar puncture disclosed complete block of the spinal subarachnoid space and a deeply xanthochromic cerebrospinal fluid. The protein content was unusually high (4,000 mg.). The cell count of the fluid was normal and serologic tests gave negative results.

Such conditions do not occur in uncomplicated tabes dorsalis. Xanthochromic cerebrospinal fluid had been recorded in a variety of syphilitic lesions of the spinal cord, such as acute syphilitic meningitis, thrombosis of the spinal arteries and syphilitic meningomyelitis.[2] However, in none of these is the protein content excessive nor is subarachnoid block present. There is another group of syphilitic lesions of the spinal cord, however, in which the classic Froin syndrome may occur, namely a xanthochromic fluid which contains an excess of globulin and lymphocytes and which clots spontaneously on standing. Such lesions are pachymeningitis hypertrophica, chronic syphilitic leptomeningitis and gumma of the spinal meninges or cord. Recently these have been grouped together as "syphilitic pseudo tumors" by Haguenau and Lichtwitz,[3] who emphasized that pleocytosis of some degree is a constant finding in these cases and that the spinal fluid nearly always gives a positive Wassermann reaction. Thus the cerebrospinal fluid in our case was not typical of any definite syphilitic syndrome but, rather, was typical of a neoplasm of the spinal cord, producing complete obstruction of the spinal subarachnoid space.

Furthermore, our inability to obtain cerebrospinal fluid at the third lumbar interspace suggested that a local rather than a diffuse obstructing lesion was present and prompted the use of multiple punctures [4] by means of which the extent of the lesion was determined. This method not only gave more information than would injection of a radiopaque oil below or above the lesion but it also avoided any possible aggravation of an inflammatory process.

TORSION OF THE GALLBLADDER

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Torsion of the gallbladder is such a rare condition that of the few cases reported only four occurred in this country. Shipley,[1] in a thorough search of the literature, was able to find twenty-one cases, most of which were reported in the English and German literature.

Before reporting these cases I shall state briefly the five possible anatomic arrangements and positions of the gallbladder:

1. The gallbladder may be embedded in the liver tissue.

2. It may be closely attached to the under surface of the liver with no intervening layer of connective tissue.

3. The outer end of the fundus may be surrounded by peritoneum and the rest attached to the liver, but not actually touching it, because of an interposed layer of fibrous tissue. This is the normal anatomic arrangement.

4. The gallbladder may be completely surrounded by peritoneum and lie free in the abdomen except for its attachment to the cystic duct. This is not a common occurrence. If it were not for the unfortunate case with which these gallbladders become twisted, this anatomic arrangement would be generally accepted as an ideal one from the point of view of the surgeon. All that is necessary in doing a cholecystectomy on such a gallbladder is to ligate the cystic artery and the cystic duct and remove the organ.

5. The gallbladder may be completely surrounded with peritoneum and attached to the liver by a mesentery.

The cases I am reporting here illustrate the last two groups:

CASE 1.—An unmarried woman aged 54, while riding over an unusually rough road August 31, was suddenly seized with excruciating pain in the upper right quadrant. The pain at first localized in the region of the ninth costal cartilage and later became more or less generalized over the entire right side. The pain was soon followed by nausea and vomiting. These three symptoms, being the only ones she presented, became worse until the time of operation September 1, thirty-six hours after their first appearance. She was seen three hours after the onset by her family physician, who made a diagnosis of indigestion and gave her one-fourth grain (0.016 Gm.) of morphine sulfate with no relief of pain. When I saw her thirty hours later she appeared to be very sick and in acute pain. The temperature was 100 F. by mouth and the pulse rate was 95.

Her past history was entirely negative except for constipation and belching of gas. Physical examination revealed that the patient was poorly nourished with scoliosis, the concavity of which pointed to the right side. This deformity brought the right costal cartilage unusually near the crest of the ilium. There was no jaundice. Examination of the head, neck, eyes, mouth, throat, heart and lungs gave essentially negative results, except for the fact that her respirations were almost entirely thoracic and that the abdomen did not move, even on deep inspiration. The abdomen was not distended and there was no visible peristalsis. Palpation of the abdomen failed to reveal any palpable masses but did reveal a very definite rigidity of the entire right side with a maximum point of tenderness just to the right of the umbilicus. This point later proved to be the location of the gallbladder. A diagnosis of either acute cholecystitis or acute appendicitis was made, and the patient was taken to the hospital for operation. The blood count revealed 20,500 leukocytes with 80 per cent polymorphonuclears. The urine was normal except for a trace of albumin with a few pus cells.

On opening the peritoneal cavity I found no trace of free fluid, which is often present in these cases. The gallbladder was first examined and found to be lying a short distance from the under surface of the liver with the fundus pointing downward and backward. The entire organ was completely surrounded with peritoneum. It was tense and its walls were a reddish brown. It was twisted one and one-half times from left to right and, when untwisted, emptied freely. The cystic duct had a short mesenteric attachment to the liver in which lay the blood vessels. Thus the cystic duct acted as a central point about which the gallbladder could rotate at will. A cholecystectomy was performed by ligating the cystic artery and cystic duct and removing the gallbladder. The appendix was next visualized and its vessels were injected. The lumen contained two fecaliths. An appendectomy was performed and the abdomen closed in layers. Recovery was uneventful except for the fact that a stitch abscess developed on the tenth day.

The pathologic examination revealed the gallbladder 8 by 4.5 cm. in diameter, reddish brown and filled with thick, dark brown fluid. The mucous membrane was swollen and congested. There were no calculi. The wall of the gallbladder contained several small hemorrhagic areas.

CASE 2.—An Italian woman, aged 23, married, came to St. Luke's dispensary with a history of attacks of pain in the epigastrium. The pain was colicky and radiated through to the right shoulder. This was followed by nausea and vomiting. She had had several such attacks in the last four years. Her past history was otherwise irrelevant. A roentgenogram showed a nonfunctioning gallbladder. She was admitted to the surgical service and a cholecystectomy was done. The gallbladder was completely surrounded with peritoneum and attached to the under surface of the liver by a mesentery. It contained several small stones. A cholecystectomy was done by simply clamping and ligating the mesentery and likewise the cystic duct.

This case represents the fifth anatomic group.

From a clinical point of view there are two types of torsion of the gallbladder, namely complete and incomplete. In complete torsion there is strangulation of the blood supply and gangrene of the gallbladder. The symptoms are acute, beginning with dramatic suddenness. In incomplete torsion there is interference with drainage of the gallbladder. The symptoms are insidious in onset and resemble those of chronic cholecystitis.

It was interesting to note that nineteen of the twenty-one cases reported occurred in women, all but two over 50 years of age and the majority over 70. Gallstones were present in only six instances. The direction of the volvulus is not a matter of significance, since seven were clockwise, five were

2. Merritt, H. H., and Fremont-Smith, Frank: The Cerebrospinal Fluid, Philadelphia, W. B. Saunders Company, 1937.
3. Haguenau, J., and Lichtwitz, A.: La syphilis pseudo-tumorale de la moelle, Ann. de méd. **27**: 268-288 (March) 1930.
4. Elsberg, C. A., and Cramer, Fritz: Multiple Spinal Punctures: Their Value for Localization and Diagnosis of Tumor of Cauda Equina, Arch. Neurol. & Psychiat. **23**: 775-783 (April) 1930.

From the Surgical Service of St. Luke's Hospital.

1. Shipley, A. M.: Torsion of the Gallbladder, Arch. Surg. **14**: 968 (May) 1927.

counterclockwise and the direction of the rest was not mentioned. Three patients died; a fourth case was discovered at autopsy. It was discovered in one case that the common duct was evidently drawn up by the twisting of the cystic duct and ligated. This patient became deeply jaundiced and died twelve days later. Only one case was diagnosed properly; the other cases were diagnosed practically everything concerned with the abdomen from indigestion, as in this case, to twisted ovarian cyst, cholecystitis being the most frequent diagnosis.

In the majority of cases the onset was very sudden and in only one case was there a previous history of discomfort in the upper quadrant of the abdomen. The clinical picture is so definite that, according to Lett,[2] pain in the upper right quadrant of the abdomen beginning with dramatic suddenness, followed by nausea and vomiting, with very slight elevation of temperature, a moderate increase in the pulse rate, occurring with or without a palpable mass in a woman over 65 with no previous history of gallstones, should always make one suspicious of torsion of the gallbladder. However, the condition is so very uncommon that its likelihood of being present is usually not considered.

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Special Articles

THE PHARMACOPEIA AND THE PHYSICIAN

IMMUNOLOGIC METHODS IN PEDIATRICS

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This is one of the second series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

Susceptibility of the individual is a necessary factor when considering the application of an immunizing agent. In many instances age exerts a controlling influence on susceptibility. It is well known that smallpox, erysipelas, whooping cough and chickenpox may occur in very early infancy. Any of these diseases may be encountered during the first few weeks of life; smallpox and erysipelas may develop soon after birth. Various forms of meningitis also occur very early. Diphtheria and scarlet fever are not common before 1 year of age and are rare under 6 months; the same holds true for poliomyelitis. Measles is very infrequent prior to the first half year of life.

PROCEDURES FOR ACTIVE IMMUNITY AGAINST SOME OF THE MORE COMMON INFECTIOUS DISEASES

In view of the foregoing facts, vaccination against smallpox should be the first protective measure to be adopted in the life of the child to afford artificial immunity. If the infant is in good health and without any cutaneous disorder such as eczema, from the third to the fourth month offers a good time for this procedure. In the presence of known exposure to smallpox there is no contraindication to vaccination. If possible it is preferable to choose cool weather for the inoculation, when there is less likelihood of secondary infection. The multiple pressure method is superior to all others. Failure to secure a successful vaccination in an unvaccinated individual should never be construed as an indication of immunity. This statement is based on the assumption that the patient has not had smallpox.

Next in order, immunization against whooping cough may be undertaken. For this purpose Sauer's vaccine is injected subcutaneously. It is given at weekly intervals, two injections each time in doses of 1 cc., 1.5 cc. and 1.5 cc., making a total of 8 cc. or about 80 billion bacteria. It requires about four months for immunity to develop. Therefore if inoculations are made at 3 months of age the baby cannot be assumed to have protection from whooping cough before it is 7 months old.

Diphtheria immunization can be instituted at 9 months. This is best accomplished by the subcutaneous injection of three doses of toxoid or two doses of alum precipitated toxoid. In either instance the dose is 1 cc. with an interval of from three to four weeks between injections. In many cities of the United States only one dose of alum precipitated toxoid is employed. It is presumed that the antigenic response is sustained over a more prolonged period with the latter preparation than when plain toxoid is used. However, although immunity with alum precipitated toxoid may be established within two months, it does not last for more than two years in about 50 per cent of cases. It is well to perform a Schick test six months after administration of toxoid to determine its success.

Ramon, who introduced toxoid for diphtheria immunization, now strongly recommends that tetanus toxoid be administered in combination with the diphtheria toxoid. His method consists of injecting subcutaneously 2 cc. of the combined toxoids on three occasions at intervals of three weeks. This plan seems very desirable and will undoubtedly be given wider acceptance in the future.

The Dick method for active immunization against scarlet fever has not received the general approval of pediatricians. Fear of severe reactions, the multiplicity (five) of injections and the belief that immunity to hemolytic streptococcus infections is not assured deter many from adopting the method. Nevertheless in hospitals and institutions where large numbers of children are housed the procedure is of undoubted value. Robinson [1] has reported favorable results with intracutaneous injections of scarlet fever toxin. In this manner less toxin is used, fewer (three) injections are made and reactions are avoided. Lately Earle [2] of Desplaines, Ill., has used this plan successfully. Previously others had reported the intradermal method for active immunization against anthrax, typhoid and diphtheria.

Immune globulin (placental extract) may be injected intramuscularly with the object either of preventing or of modifying measles. If the intention is to prevent measles, 2 cc. should be injected within forty-eight hours of exposure and the same size dose repeated about five days later. For modification 2 cc. of the immune globulin is injected usually from five to seven days after exposure. It must be remembered that the method for prevention constitutes only a temporary immunity. On the other hand, modification of the disease results in the same degree of immunity as occurs after an unmodified attack of measles. Modified measles, however, can be transmitted to those who are susceptible, and these may suffer from severe attacks. For this reason the method for modification is not suitable, as a rule, in hospitals or institutions where the necessary aim is generally prevention.

Active immunization against typhoid is a thoroughly reliable procedure. Typhoid vaccine usually contains

2. Lett, Hugh: Two Unusual Conditions of Gallbladder: One a Case of Torsion, Lancet 1: 99 (April) 1909.

1. Robinson, J. H.: J. Immunol. 31: 373 (Nov.) 1936.
2. Deceased.

about one billion bacillus typhosus organisms per cubic centimeter. Combined with this about 750 thousand each of paratyphosus A and B are frequently used. The vaccine is administered subcutaneously in three doses of 1 cc. each at seven to ten day intervals. The point of injection is usually over the deltoid muscle. Protection generally lasts for about three years.

METHODS FOR PASSIVE IMMUNITY AND TREATMENT

Animal and human antiserums are valuable therapeutic aids in certain acute infectious diseases. Their efficiency has been firmly established for both prophylactic purposes and treatment of acute conditions.

Diphtheria antitoxin is the best example of a thoroughly efficient animal serum for the treatment of disease. Antitoxins for tetanus, scarlet fever, meningococcic infections, staphylococcic infections, gas bacillus and erysipelas are among the better known. All of these are produced in the horse. Tetanus antitoxin is sometimes developed in the cow as well. Bovine tetanus antitoxin may be used for man when known sensitivity to horse serum exists. Antipneumococcus horse serum, which was first available for pneumonia of types I and II, is now produced also in the rabbit. The field of usefulness for antipneumococcic serum is being rapidly expanded by the production of antiserums for a number of the other types, including III, IV, V, VI, VII, VIII and XIV.

PROPHYLACTIC DOSAGE

Estimation of the proper dose for any one of the antiserums is sometimes a difficult problem. There is no standard rule or method which is always satisfactory. For diphtheria prophylaxis, when immediate protection is desired for a susceptible contact, it is a common practice to administer 1,000 units of diphtheria antitoxin. This quantity is injected intramuscularly. Since the protection afforded is a passive immunity it is not enduring and usually does not last for more than from ten days to three weeks, the antitoxin being rapidly eliminated. For passive immunity to tetanus the dose is generally 1,500 units, though sometimes because of the nature of an injury or on account of delayed administration double that quantity is injected and occasionally for special reasons the dose should be repeated in five days. Needless to state, the antiserum should be given at the earliest possible moment.

DOSAGE OF ANTISERUMS FOR ACUTE STAGE

I have referred to the fact that there is no satisfactory method for determining accurately the dose of an antiserum which is applicable to all patients. Nevertheless a mathematical means for gaging the dose of diphtheria antitoxin was offered many years ago. It was stated that 100 units per kilogram of body weight was sufficient for a mild or average attack of diphtheria and that 500 units per kilogram sufficed for severe diphtheria. In practice this mathematical method is not satisfactory. It seems much more important to base the dose on the site of infection and the duration of the disease. In postnasal or nasopharyngeal diphtheria the rate of absorption of toxin is much more rapid than when the diphtheria membrane is confined to the tonsils. Consequently the dose of antitoxin should be greater in the former condition. Likewise the longer the patient has been ill without antitoxin administration, the greater is the quantity of toxin produced and therefore the larger is the amount of antitoxin required. However, since toxin combines with the body tissues and is not then readily vulnerable by the antitoxin, it is principally the free toxin which can be neutralized or rendered inert by antitoxin. This makes the necessity for early administration of antitoxin apparent and explains why diphtheria antitoxin is not of value in the treatment of postdiphtheritic paralysis.

One's own experience must serve in a large measure as a guide in deciding how much antiserum shall be used for any given patient. In an experience of more than twenty-five years in contagious disease hospitals I have found that diphtheria antitoxin in excess of 60,000 units is seldom if ever beneficial. In most instances our total dose is not more than 40,000 units. Having decided on the maximum amount of antitoxin that seems necessary it is best for one to give the total quantity at once and not in divided doses. If it is later believed that an error in judgment occurred regarding the size of the dose, an additional amount should be injected. The administration of diphtheria antitoxin does not constitute the sum total of all treatment. It is the primary and most important part of treatment except in certain types of laryngeal or laryngotracheal diphtheria in which surgical intervention is even of greater necessity than antitoxin. A discussion of intravenous dextrose as an adjuvant in the treatment of diphtheria is not within the province of this article.

Tetanus antitoxin presents even more difficult problems for solution in respect to dosage than does diphtheria antitoxin. Again experience must be the judge. Lately the tendency to give extremely massive doses of tetanus antitoxins has not been so apparent in some sections of the United States. Increasing dependence seems to be placed on sedation, some believing from 60,000 to 100,000 units of tetanus antitoxin sufficient for any tetanus patient whose recovery is possible.

What has been said with regard to diphtheria and tetanus antitoxin dosage also applies to the use of scarlet fever antitoxin and any of the other immune serums whether they are antitoxic or antibacterial products. Early administration is of great importance. The age of the patient is not as essential a factor in deciding on dosage as virulence of the organisms, susceptibility of the patient, duration of the disease and in some instances the site of the infection. Nothing, however, is so helpful as one's own experience.

ROUTES FOR INJECTION

Most antiserums have been given by one of three routes: (1) subcutaneous, (2) intramuscular or (3) intravenous. Originally the subcutaneous method of injecting antiserums was the most common. Today it is the least used. The intramuscular route is the one most often employed. Absorption is much more rapid and there is less pain when the antiserums are properly administered; it is also a reasonably safe procedure which can be adopted in the home as well as in the hospital.

During recent years particularly, intravenous therapy has been broadly extended. This route was strongly advocated by some for the administration of diphtheria antitoxin more than twenty years ago. The method is not recommended for patients confined in the home. From time to time it is selected for hospitalized diphtheria patients. It is doubtful whether the administration of diphtheria antitoxin intravenously will save a patient who would not recover by means of intramuscular treatment. On the other hand there is an increased tendency, as previously mentioned, to use the intravenous route for immune serums.

In the contagious disease hospitals of Chicago all antimeningococcus serum and meningococcus antitoxin are given by the intravenous route. Nothing is introduced intraspinally when treating patients with meningococcic infections whether there is evidence of meningitis or not. This change in method of treatment was made by us in 1934, before the introduction of sulfanilamide, and has produced excellent results. The belief that tetanus antitoxin should be given intraspinally is no longer universally accepted. It is my opinion that the treatment of tetanus without intraspinal therapy is advisable. In any form of blood stream infection, intravenous administration of an antiserum seems logical. In this connection outstanding examples are septicemias due to the meningococcus, streptococcus and staphylococcus.

In the past, antiserums have been administered in practically every conceivable manner. In addition to those routes mentioned are the intracisternal, intraperitoneal, intrapleural and also oral and rectal. Today the intramuscular and intravenous routes are the methods of choice.

Regardless of the route chosen, serum should not be injected when cold. Under such a condition it is likely to cause severe pain if injected in the muscle and will be absorbed slowly. If cold antiserum is given intrathecally or intravenously, it may cause serious shock. The serum should be at body temperature before administration regardless of the route chosen. But a temperature much above 98 F. may lessen or destroy the potency of serum and even cause coagulation.

INTRAVENOUS ADMINISTRATION OF SERUMS

Any animal antiserum when given intravenously is best diluted in physiologic solution of sodium chloride or in from 5 to 10 per cent dextrose in saline solution. The diluent should be of at least equal volume to the serum; it may be more than double the volume. To the mixture we add from 5 to 15 minims (0.3 to 1 cc.) of solution of epinephrine hydrochloride (1:1,000) depending on the age of the patient. The drip method should be selected and the flow at body temperature ought not exceed from 10 to 15 drops a minute at first. Later if the patient shows no unfavorable symptoms the rate of flow can be increased often to 60 drops a minute. With this method I have given as much as 1,200 cc. of horse serum (meningococcus antitoxin) to a patient within four days' time without any disturbing symptoms being noted.

SERUM SICKNESS

Fear of serum reactions has existed in the minds of physicians since the early adoption of biologic products for therapeutic purposes. While it is well known that serum reactions have been of common occurrence in connection with the administration of animal serums, the possibility of fatal consequences often has been magnified greatly during past years. Among 20,000 diphtheria patients treated in the Municipal Contagious Disease Hospital, Chicago, from 1917 to 1938, no anaphylactic death has occurred. Nor has it ever been customary to make routine sensitivity tests in that institution.

With the improved methods for concentration and refinement of animal antiserums which are in use today there is less reason than ever before to anticipate a high frequency of protein shock as a result of serum administration. Nevertheless it must be realized that serum reactions do occur and proper means should be adopted in an endeavor to prevent or minimize them.

If a patient is known to be sensitive to horse serum it may be possible to avoid the use of serum of that animal. This can be done in the case of tetanus by giving bovine tetanus antitoxin. If horse serum must be used for an asthmatic patient or some one who is known to have been treated with a horse serum on some previous occasion, it is well to make a sensitivity test and, if positive, to attempt desensitization by the usual graduated injections of small amounts of the serum. Although this is a worthy procedure, its actual value sometimes seems doubtful.

The usual form of serum sickness manifests itself in from eight days to two weeks following injection. If the serum was given intravenously the reaction generally occurs earlier, often in from six to ten days. The symptoms presented include some or all of the following: elevation of temperature, urticarial eruption, painful joints and lymphadenitis. It is worthy of note that serum sickness of this type when developing in patients with meningococcic meningitis may be accompanied by an increase in cell count and spinal fluid pressure.

Treatment consists of solution of epinephrine hydrochloride (1:1,000) from 0.3 to 0.5 cc. subcutaneously, intramuscularly or intravenously, depending on the degree of reaction. Free catharsis and local application of calamine lotion to relieve itching is helpful. In my experience the administration of calcium gluconate intravenously has not been of marked value. Nevertheless it is sometimes deserving of trial.

Accelerated or immediate reactions may develop in persons who have been treated previously with horse serum. Such reactions may occur within a few hours following serum administration or during the progress of intravenous serum injection. Reactions of this kind are not necessarily more severe than those previously described as the usual form.

ANAPHYLACTIC SHOCK

The most severe of all serum reactions may develop almost at the instant the serum is injected or follow within a period of about one hour. The severity of the reaction does not always seem to depend either on the amount of serum given or on the route selected. Sometimes there is a convulsion, the pulse rate becomes very rapid and is thready in character, cyanosis may develop, respirations are accelerated and shallow, profuse sweating occurs and death takes place. Pulmonary edema is usually present under such circumstances. Should acute anaphylactic shock occur, solutions of epinephrine hydrochloride (1:1,000) from 0.5 to 1 cc. should be administered at once. If the serum was administered in an extremity, a tourniquet should be applied proximally to the site of injection.

ARTHUS PHENOMENON

The Arthus phenomenon is a local tissue reaction and is occasionally seen when a second injection of animal serum is made near the site of a former injection. It is never likely to occur if the second injection is made within five days' time. It is characterized by swelling and marked induration, which may involve both the subcutaneous and the muscular tissues. As a rule the reaction does not develop rapidly but may result in a marked sloughing of tissue. There may be considerable pain in the part involved, which generally is better relieved by cold compresses than by hot applications. To avoid the possibilities of an Arthus phenomenon it is well never to make a second subcutaneous or intramuscular injection of serum near a prior one.

HUMAN IMMUNE SERUM

Sometimes it is asserted that human convalescent serum should be of particular value in the prevention or treatment of virus diseases. Practical experience does not indicate that such a contention is always true. Whereas it is a fact that the serum of convalescent patients is of great value in the prevention of measles and to some extent as a prophylactic for chickenpox when given early enough, it is generally believed that convalescent poliomyelitis serum is worthless for preventive purposes; nor is there sufficient evidence to uphold an opinion that human convalescent serum is of value for the treatment of any of these diseases. Convalescent serum has also been used for the prevention of mumps and whooping cough and for the treatment of a number of nonviral diseases including scarlet fever, meningococcic meningitis and erysipelas. The folly of administering convalescent serum for the last named disease should be apparent when one considers that the average erysipelas patient acquires practically no immunity from an attack of the disease. Consequently there is no basis for anticipating that the blood or serum of a convalescent erysipelas patient will contain sufficient antibodies to be of therapeutic value.

MEASLES CONVALESCENT SERUM

Human convalescent measles serum is of undoubted value for prevention when administered within three days of exposure. The dose, injected in the outer muscles of the thigh, varies from 5 to 10 cc. according to the patient's age. Protection is only temporary, usually from ten days to three weeks. When convalescent measles serum is administered more than three days after the exposure of the susceptible person, it is likely to modify the disease even if it does not prevent it.

Normal adult serum or whole blood is also used for passive immunization against measles. In either case the quantity injected should be greater than if convalescent serum were being used. For normal serum the dose is generally from 10 to 20 cc., while for whole blood as much as 30 cc. is required.

Human convalescent serum for chickenpox, mumps and whooping cough has been employed in a manner similar to the measles serum but not with the same degree of success. Convalescent scarlet fever serum is of value as a prophylactic.

Of all human immune serums to be used, convalescent scarlet fever serum seems to be by far the most efficient. Nevertheless it has been claimed that human convalescent scarlet fever serum is only one thirtieth as potent as scarlet fever antitoxin. The latter conclusion seems doubtful from observations made on the treatment of several thousand cases of scarlet fever with human convalescent serum. Possibly human immune scarlet fever serum possesses some therapeutic properties which cannot be measured by ordinary laboratory methods.

The advantage of immune human antiserums of known efficiency over animal serums is the absence of serum reactions. For this reason repeated doses regardless of time intervals may be injected without fear of serum sickness. Moreover, serum may be given in large quantities, if need be, by the intravenous route without unpleasant effects and without the necessity of dilution. When administering human antiserums intravenously it is needless to say that no typing or matching of blood is required. For a number of years practically all human convalescent scarlet fever serum used in the contagious disease hospitals in Chicago has been injected by the intravenous route. The dosage generally varies from 20 to 100 cc., depending on the severity of the case.

Immunotransfusion in the treatment of acute infectious diseases is sometimes adopted as a last resort when the prognosis seems to be particularly desperate. Selection of the donor involves the necessary typing of blood, and the success of the undertaking is influenced by the antibody content of the source of the blood. The transfusion in itself, however, may be of great benefit regardless of any immunizing substances transferred by the operation.

LYOPHILE

Lyophile, dried human blood serum, offers great possibilities. It is prepared by freezing at low temperatures and rapid dehydration under high vacuum. Lyophile can be preserved for long periods in sealed ampules and antibody properties retained. For use it is merely dissolved in sterile distilled water. Convalescent serums have been subjected to this process and the lyophile injected for therapeutic purposes. Bond and Wright at the University of Pennsylvania have reported on the intravenous injection of lyophile following shock or hemorrhage.

Eventually sulfanilamide may displace, to a considerable extent, some of the biologic preparations now in common use. This new drug is particularly effective in erysipelas and streptococcic meningitis. It is also of undoubted value in meningococcic meningitis. But its value in scarlet fever seems very questionable on the basis of personal observations.

CONFERENCES ON THERAPY

TREATMENT OF INFECTIONS OF THE GENITO-URINARY TRACT

NOTE.—These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors.

DR. MCKEEN CATTELL: Our subject this morning, "The Treatment of Infections of the Genito-Urinary Tract," is one in which there has been a considerable advance in the past few years, an advance which has included the introduction of a number of new drugs. Dr. Modell will open the discussion with a presentation of some of the broader principles of treatment and a consideration of the pharmacology of some of the drugs employed.

DR. WALTER MODELL: There are four general problems in the treatment of urinary infections: (1) the regulation of urinary volume, (2) the regulation of the urinary p_H, (3) the effect of antiseptics on the human host and (4) the effect of the antiseptics on bacteria.

Urinary volume may be shifted in either direction, toward an increase or a decrease. The volume of urine may be increased in an attempt either to flush out the urinary tract or to dilute the irritants which are found in infected urine, or it may be decreased to obtain a more concentrated solution of an antiseptic which is being used. Either can be achieved by regulating the water intake. To increase the volume, as much as 5 or 6 liters of water a day may be given; to decrease it, fluid may be limited to 1 or 1.5 liters a day.

The regulation of the p_H of urine is important. A change of the urinary p_H may itself exert antiseptic actions. Furthermore, some of the antiseptic agents are either most effective or effective only within certain p_H ranges. In an extensive series of observations the p_H of normal urine was found to vary from about 4.8 to 7.5, with the mean at about 6. The excretion of acid urine is an expression of mechanisms in the body which maintain the constancy of p_H in the blood. Because of the efficiency of these mechanisms it is possible to achieve marked changes in urinary p_H without affecting the p_H of the blood. The important buffers in the urine are the *mono*-sodium *di*-hydrogen phosphate and the *di*-sodium *mono*-hydrogen phosphate. In the plasma the ratio of acid to basic phosphate is about four to one in favor of the basic phosphate. In the excretion of these substances by the kidneys most of the basic phosphate is reabsorbed in the tubules and the acid phosphate is excreted so that in the urine the ratio is reversed to about nine to one in favor of the acid phosphate. However, if the diet is alkali forming, more of the basic phosphate is excreted and the urine becomes alkaline.

The urinary p_H can be changed by dietary measures by interference with the carbohydrate and fat metabolism and by the use of drugs. In a general way a vegetable diet or alkaline-ash diet results in the development of alkaline urine, whereas a high protein diet or acid-ash diet produces an acid urine. There are some vegetables which contain benzoates which give rise to the elimination of hippuric acid, which in turn tends to acidify the urine. It is rarely possible by dietary measures alone to produce the extremes of acidity and alkalinity which are therapeutically useful. The ketogenic diet will be discussed later.

Alkalizers are sodium and potassium bicarbonates, sodium and potassium citrates and sodium and potassium acetates.

Acidifiers are solution of hydrochloric acid, solution of phosphoric acid, solution of nitrohydrochloric acid, sodium acid phosphate, ammonium chloride and ammonium acid phosphate.

Drugs afford the simplest way of changing the urinary p_H. In order to make the urine alkaline there are a number of alkalis other than those listed which are effective. Sodium or potassium bicarbonate may be given, but the citrates and the acetates are used more frequently because they have little effect on gastric acidity. In the body the latter are oxidized and excreted mainly as carbonate, so that the urine becomes alkaline.

There are various substances which make the urine acid. One can use acids: hydrochloric acid, phosphoric acid or nitrohydrochloric acid. One of the most commonly used drugs for acidifying is sodium acid phosphate. I think it deserves special mention. Sodium acid phosphate is a buffer. It acts as such when eliminated in the urine and therefore is not a very reliable acidifying agent. It has been reported to make some urines more alkaline. Sodium acid phosphate was used most enthusiastically when urinary acidity was determined by titration against alkali. However, when changes in urinary acidity were studied in terms of hydrogen ion concentration it was found that the sodium acid phosphate was not as effective as formerly thought. It is also important that sodium acid phosphate is poorly absorbed, and if large doses are taken it acts as a cathartic.

The ammonium salts are much more reliable, and it is easy to understand why. In ammonium chloride, for example, the ammonium fraction is split off and converted into urea, leaving free hydrochloric acid; similarly with other ammonium salts, free acid radicals are left after the conversion of the ammonium to urea. It is therefore possible to effect marked changes in urinary p_H, and if large doses are used it is also possible to produce a true acidosis. This is an especially important consideration in the face of renal insufficiency. If the usual doses of ammonium chloride do not produce acid urine it is wise to examine the carbon dioxide combining power of the blood to determine whether acid is accumulating in the blood. The impaired kidney may not be able to excrete acid rapidly enough and acidosis may develop without appreciable change in the p_H of the urine.

I think it is well to mention in discussing urinary acidity that it has been stated that therapeutic doses of the acidifying agents cannot shift the urinary p_H beyond the extreme acid limits of normal urine; that is, beyond 4.7 or 4.8.

The use of alternate acidification and alkalization in an attempt to eliminate infections is, I think, outmoded. It has been shown that certain organisms, such as B. coli and some of the streptococci and staphylococci, remain viable in mediums the p_H of which is beyond the limit to which one can shift the urine either in the alkaline or in the acid direction by the use of drugs.

URINARY ANTISEPTICS

A partial list of some of the urinary antiseptics which have been used includes oil of santal, hexylresorcinol,[1] pyridium,[1] serenium,[1] picochrome (benzochrome),[1] methylene blue, mercurochrome, acriflavine, potassium permanganate, strong protein silver, methenamine, sulfanilamide, the ketogenic diet (beta-hydroxybutyric acid) and mandelic acid (sodium and ammonium mandelate). Antiseptics come and go, and the only ones who remain faithful to their memories are their manufacturers.

Up until very recently one of the most common drugs taken by mouth was methenamine. In an acid medium methenamine breaks up and liberates free formaldehyde. A urinary p_H of 5.5 or less is required for this effect. It has been said by some that 0.5 per cent of methenamine is not effective against most organisms and that this concentration is much too irritant to the mucosa of the urinary tract to be used. However, there are many clinicians who have found methenamine an effective agent in the treatment of infections, perhaps the most reliable until recent years.

I think the most important thing about the dyes used in the treatment of urinary infections is that experimentation with some of them aided in the discovery of neoprontosil and sulfanilamide.

We have discussed sulfanilamide here before, but there are several things I want to emphasize:

1. Sulfanilamide not only is excreted in the urine but it also permeates all the tissues of the body, so that it has the advantage of affecting organs associated with the urinary tract, such as the prostate and seminal vesicles, which are not drained or flushed by urine.

2. As sulfanilamide is quantitatively excreted in the urine, it is possible by controlling the urinary volume and regulating the dosage to achieve desired concentra-

1. These do not stand accepted by the Council on Pharmacy and Chemistry.

tions of sulfanilamide. The minimal effective concentration in the urine is said to be between 100 and 200 mg. per hundred cubic centimeters, or between 0.1 and 0.2 per cent of sulfanilamide.

Sulfanilamide is said to be most effective in an alkaline medium, but alkaline urine is not essential since it is quite effective in an acid urine as well.

The ketogenic diet, which consists primarily of eggs and heavy cream, has been shown to be an effective means of treating urinary infections. In the ketogenic diet because of the limited amount of carbohydrate the high fat content is not completely metabolized and large amounts of the ketone bodies are eliminated in the urine, the urine becoming highly acid. The chief disadvantage is that it is very unpleasant and that the amounts of eggs and cream used run up the cost of therapy considerably. It has been demonstrated that the effective agent in the ketogenic diet is beta-hydroxybutyric acid, which is eliminated in the urine. Unfortunately beta-hydroxybutyric acid cannot be used in the normal as a therapeutic agent because it is completely metabolized except in the presence of ketosis. It may, however, be used to fortify the ketogenic diet itself or it can be introduced directly into the urinary tract. It was the bactericidal action of beta-hydroxybutyric acid which led to the discovery of mandelic acid.

Rosenheim, investigating a number of hydroxy acids, found that mandelic acid, which is eliminated quantitatively in the urine, is effective against a number of bacteria in vivo as well as in vitro. Mandelic acid is effective only when the p_H is 5.5 or less. The minimal concentration of mandelic acid necessary in the urine is about 0.5 per cent, although if the p_H of the urine is considerably below 5.5 a less concentrated urine may be effective. Mandelic acid is fairly rapidly absorbed, and twenty-four hours after a single dose almost all of it is eliminated in the urine. Mandelic acid often causes gastric disturbances, and it has also been reported that it causes transient renal function changes. In order to avoid the gastric disturbances, the sodium salts and the ammonium salts of mandelic acid have been used. It is well to mention that ammonium mandelate has the additional advantage of being an acidifying agent. However, even with ammonium mandelate it is generally necessary in order to get urine sufficiently acid to use some acidifying salt, such as ammonium chloride and dietary measures. The water intake is usually limited.

The drugs I have considered are those which, when taken by mouth, are eliminated as effective agents in the urinary tract. These act presumably from the renal pelvis down. There are various substances, such as acriflavine and other acridine dyes, the silver proteinates and potassium permanganate, which are injected directly into the urethra and sometimes into the bladder. There are advantages in each method of treatment. However, a urinary antiseptic which can be taken orally generally acts for a considerably longer period of time than those introduced directly into the urethra and also acts over a greater part of the urinary tract.

The broad pharmacologic aspects which have been considered are not the only factors which determine the therapeutic regimen in urinary infections. There are other clinical features in patients which influence the choice of drug and details of therapy. These will now be discussed.

SOME PRACTICAL CONSIDERATIONS OF TREATMENT

DR. ALEXANDER R. STEVENS: The practical application of these drugs I think should be preceded by a few observations on the different kinds of infections that occur in the urinary tract. Otherwise one proceeds rather blindly. As you know, urinary infections may be put into two groups with respect to the initial site. They may begin in the excretory part of the urinary tract and therefore show pus and bacteria in the urine very early, or they may begin in the deeper structures, notably the parenchyma of the kidney and prostate, and may not show any pus or bacteria in the urine. One has two very different problems in these two types of cases. In individuals with pus and bacteria in the urine one might expect benefit from the use of a drug which is excreted in the urine as an antiseptic, a bactericide or even only a bacteriostatic agent, whereas one would expect, a priori, little or no help at all in treating, for instance, a cortical infection of the kidney or prostatitis. It is only in comparatively recent times that we have had an antiseptic drug which is present actively in the blood and the tissues as well as the urine. That widespread activity opens up the field of the treatment of deep-seated infections.

As for urinary tract infections that occur with pus and bacteria in the urine, there again one must consider two groups: one without any foreign body or obstruction in the urinary tract, and the other with foreign body or an obstruction. Those patients without any calculus, which is the foreign body I refer to especially, or without any obstruction in the urinary tract (whether it is in the ureter, bladder or urethra, the problem is one) may acquire acute infection and recover spontaneously without any specific treatment. Indeed, one meets with many such acute infections, which clear up entirely without any recurrences, with merely hygienic care and rest in bed, whereas the patients who have foreign bodies (such as drainage tubes and calculi) or obstructions are rarely permanently relieved of urinary infections without the proper care of those foreign bodies and obstructions. Occasionally one can sterilize the urine behind the obstruction, but usually not until that obstruction is taken care of. The tendency these days I think is to give one of these more potent, more recent, remedies and forget the underlying trouble which not only makes possible and probable a quick recurrence of infection but also may itself do considerable harm to the upper urinary tract.

Most of the antiseptics that have been listed here I think are enumerated largely for historical perspective. I myself have tried practically everything on that list and would be perfectly willing in practice to eliminate everything down to methenamine (urotropin). Many of the other drugs are notable largely for their colors, both before administration and as excreted in the urine. If a patient wants his linen stained any particular shade, one can pick a drug to accommodate him but that is about all the satisfaction he gets. Many articles have been written on all of these so-called antiseptics, listing records of hundreds of patients who have profited by them, but I think you will find that most urologists today are very skeptical of the whole batch.

Methenamine, as you have just heard, is active chiefly because in an acid urine it breaks down, producing formaldehyde, but it is active only in urine and not in the tissues. It is excreted from the kidney as such

and breaks down after excretion, so that one may expect help only in the type of infection that is associated with the excretory urinary passages. This therapy is comparable to continuous irrigation over the mucous membrane with a very mild antiseptic solution. It does not get down in the depths of the tissues. If you are dealing with a deep-seated infection of the kidney, the pelvis, the bladder or the prostate, little or no therapeutic aid should be expected from methenamine. Its great value I think is as a prophylactic. I have often asked patients whom I was going to treat instrumentally to start taking methenamine twenty-four hours before the treatment and keep it up for twenty-four hours afterward and then quit, merely with the idea that we might prevent multiplication of any bacteria introduced by the passage of urethral instruments.

The ketogenic diet I will speak of very briefly. I think Dr. Modell was very mild in his description of the patient's attitude toward that diet. I have had individuals who could stick it out for a week, and that is about as far as most people want to go. One patient after a week of it would start vomiting when she heard the maid coming down the corridor with her meal tray. The food did not even get into the patient's room. The very thought of all that fat, the olive oil, the butter and the cream started things going. When the ketogenic diet could be replaced by mandelic acid therapy with apparently equal benefit to the patient, there was certainly a tremendous advance.

Mandelic acid is employed very widely. It operates, as you have heard, only in an acid urine. If given in the form of the ammonium salt, it tends to make the urine acid. If necessary to secure greater acidity, one of various drugs may be added, usually ammonium chloride or nitrate. It is necessary to have at least a half of 1 per cent mandelic acid in the urine to be most effective. Some authors suggest twice that much. As you have just heard, the more acid the urine, the more effective the mandelic acid, so that with a very acid urine a lower strength of mandelic acid may suffice. It is usually not given in large enough quantities. It is wise to administer about 12 Gm. in a twenty-four hour period in order to secure sufficient concentration in the urine. Mandelic acid is effective with most organisms which occur in the urine but remember that this therapy is satisfactory only when the p_H of the urine is 5.5 or lower. With certain bacteria, notably the proteus, one rarely can secure such a reaction. Hence in these instances mandelic acid is useless.

Finally the great concentration these days is on sulfanilamide, which has quite revolutionized the treatment of infections in urology. Here is a drug that is potent in dealing with nearly all bacteria, whether found in an acid or an alkaline urine. Those who have done the most work find one or two organisms that are not much influenced by sulfanilamide, but it does dispose of most of the organisms commonly found in urine (cocci and bacilli) excepting the tubercle bacillus. I do not think anybody has claimed anything for that. As sulfanilamide is somewhat more effective in alkaline urine than in acid urine I make a practice, in common with many others, of giving an alkali with the sulfanilamide. There is the great advantage too that it may be administered under the skin or intramuscularly and also intravenously, but the latter route is not very often necessary.

The dosage is usually up to from 5 to 6 Gm. in a twenty-four hour period. The rule that some have advised, which I think is a very good one, is 1 gram for each 20 pounds of body weight, with a maximum, however, of perhaps 6 Gm.; but in some instances patients have tolerated well as much as from 10 to 15 Gm. a day.

There are certain toxic possibilities associated with sulfanilamide that we do not have with most of the other urinary antiseptics. Hence I think one should be cautious in giving sulfanilamide to patients who are not confined to bed and not under constant observation.

There is one drug which is not on the list presented for consideration, which I think you ought to know about, and that is arsphenamine or neoarsphenamine, which is very potent in some instances of coccic infection. Until all this furor over the two new drugs, it was one of the outstanding marvels in urology that in some cases of a pure staphylococcic infection of the urinary tract, which is not very common and which often resists all other forms of treatment, the infections react favorably and quickly to that drug given intravenously.

SPECIAL CONSIDERATIONS RELATING TO TREATMENT DURING PREGNANCY

DR. HERBERT F. TRAUT: I am very glad that Dr. Stevens pointed out the importance of obstructions in connection with urinary tract infections. In pregnancy we have to deal with a physiologic obstruction. The hormones of pregnancy which relax the smooth muscles of the uterus and thus make the continuation of pregnancy possible have a similar effect on the urinary tract. They produce an atony of the ureter, so that its normal peristaltic activities are suppressed and sometimes obliterated. In addition, as pregnancy progresses there is enlargement of the uterus, when the woman is in the upright position the inlet of the pelvis is blocked, and the ureters are occluded more or less completely. The result is urinary stasis, dilatation of the tract and the formation of what has come to be known as the physiologic hydro-ureter of pregnancy.

Unfortunately some women who become pregnant have had pyelitis previously without complete eradication of the infection. In these women who may have chronic pyelitis the physiologic obstruction provides an opportunity for exacerbation. They may, however, have the primary attack during pregnancy. The factors important in the development of the primary attack are not all understood. There is investigative work needed before we shall know as much as we should about the etiology of the disease. However, we feel we have made a step ahead in that we understand some of the causes and can now obviate many of the features of the physiologic stasis associated with pregnancy.

There is also another factor which makes infection of the tract a little more frequent in the pregnant woman or in the parturient woman, and that is that the trauma of delivery necessarily affects the base of the bladder and probably makes the bladder more susceptible to infection. This background in a bladder which is atonic, which tends to overfill, requiring repeated catheterization in the puerperal period with the inevitable introduction of organisms with each passage of the catheter, certainly makes for a situation which is productive of a fairly high incidence of postpartum urinary tract infections. The incidence of pyelitis in pregnancy in New York is about 2 per cent in our experience.

We are particularly interested in treatment today so perhaps we had better give most of our attention to that phase of urinary tract infections in pregnancy.

The first thing which we ought to consider is prophylaxis. How can these urinary tract infections in the pregnant woman be obviated? There are certain prodromal symptoms which, if sought for when the patient comes for antepartum care, give a pretty good indication of impending upper urinary tract infection. Dysuria is frequent but a more common complaint is pain in the flank or even in the costovertebral angle of the right side. Often an intravenous pyelogram of a patient complaining of these symptoms demonstrates a high grade hydro-ureter and hydronephrosis of the type common in pregnancy. These symptoms can be controlled quite satisfactorily by having the patient lie down frequently, to take the weight of the uterus off the ureters. In addition the patient may be given a grain or 1½ grains of quinine one, two or three times a day.

More important, if there is dysuria and clumped pus cells in the urine, it is time to force fluids, alkalize the urine or use methenamine in an acid urine. I think it is fair to say that if it was possible to get every pregnant woman early in the pyelitis and give her this conservative care, one probably could abort a high proportion of primary cases of early pyelitis. That is not necessarily true of the chronic cases which are exacerbations of a previously existing urinary tract infection. We watch for both types in the antepartum clinic with a good deal of care and feel that we do abort a fairly good number of pyelitis cases in their incipience.

In a full blown upper urinary tract infection, with a hectic type of fever, what is to be done? The patient must go to bed; the horizontal position with drainage is just as important as ever. We find what the causative organism is because in our experience mandelic acid, as Dr. Stevens pointed out, is of very little use with the proteus type of organisms, but certainly with the aerogenes it should be used. With a proteus type of organism we use sulfanilamide. We prefer to use sulfanilamide for all other types of infection when the patient is in the hospital. On the other hand, if the patient is ambulatory, we still adhere to the use of mandelic acid except with the proteus organism.

There are several things to be observed in the patient who is actively febrile. In the first place, one must determine whether the infection is unilateral or bilateral. If it is bilateral one cannot afford to use palliative measures for months. What Dr. Stevens said about clearing up infections in the presence of obstructions is absolutely true. In pregnancy we can seldom clear the tract of infection during pregnancy. All we can do is to palliate, hold it in abeyance, and the real curative process must wait until after the pregnancy has been terminated and the obstruction removed. We are interested in bilateral infections because the inflammatory reaction going on over periods of months may produce damage in the mother which is out of proportion in its complications to the loss of the child. We always carefully evaluate these patients with bilateral involvement, particularly if there is a great loss in weight. If the infection does not yield after eight or ten days of conservative treatment, and particularly if the patient has a couple of months to go to reach term, we consider the advisability of interruption of pregnancy. We do not resort to it very often; however, the possible necessity is always in the back of our minds. The other thing we watch for particularly is involvement of the renal cortex. The earliest indicator we have of this complication is elevation of the nonprotein nitrogen in the blood. If this rises to above 50 mg. per hundred cubic centimeters we empty the uterus regardless of whether the lesions are bilateral or unilateral, because in our experience we have had great regrets when we have neglected the warning. The death rate in individuals who have a nonprotein nitrogen of over 50 mg. per hundred cubic centimeters—the normal in pregnancy is about 30 or 35—is about 25 per cent, a very high mortality.

We use mandelic acid in an acid urine exactly as has been outlined. With sulfanilamide therapy we like to administer 4 or 5 Gm. a day, always with sodium bicarbonate. We prefer not to give it to ambulatory patients but rather to get the patient into the hospital so as to force the treatment rather than to carry it out over a prolonged period. We have had very satisfactory results with both of these drugs.

In closing, I want to emphasize again that we do not cure patients of upper urinary tract infection during pregnancy. They must be followed afterward. The follow-up must be done in a cystoscope clinic, and sometimes it takes from three months to a year to eradicate the infection completely. The addition of mandelic acid and sulfanilamide to our armamentarium has helped very much.

If a patient has had pyelonephritis or bilateral upper urinary tract infection, we like to allow a year or two years to pass before pregnancy is again contemplated. We give contraceptive advice to these individuals, and if pregnancy does occur we hospitalize them and evaluate renal function before we allow pregnancy to progress. We are a little radical in our attitude because in bilateral pyelitis and in well authenticated pyelonephritis we have had very serious sequelae.

DR. CATTELL: Urinary infections present a common condition in children, and I will ask Dr. Levine if he will say something regarding the special problems which arise in connection with the treatment of urinary infections in infancy and childhood.

DR. SAMUEL Z. LEVINE: The general subject has been adequately covered. Perhaps we should define what we mean by urinary tract infection in childhood before we go on to a discussion of it.

Does urinary tract infection in childhood mean the presence of both pus and bacteria in the urine or may it be represented by a bacilluria in the absence of a pyuria? This still remains a moot question, but in routine catheterizations of thirty-four female infants under 2 years of age bacilli were found in 28 or 82 per cent of the urines in the absence of any white blood cells, indicating that bacilluria in infancy is a more common condition than we are prone to believe. In twenty-one cases B. coli was present in the urine in the absence of demonstrable infection of the urinary tract. The term pyuria should be limited to the persistent presence of clumps of pus in uncentrifuged, clean specimens of urine. Only these urinary observations represent a true urinary tract infection in childhood.

Of some interest is the question of terminology. At one time the name pyelitis was given to all types of urinary tract infection in children. There is no evidence at the present time to indicate that the entity pyelitis per se, inflammation of the pelvis of the kidney, in the absence of interstitial suppurative involvement of the kidney, is a common phenomenon. In most autopsies one finds in addition to the inflammation of the pelvis interstitial abscesses in the kidney parenchyma itself, so no longer do we use the term pyelitis but

prefer the terms acute and chronic pyuria, leaving the localization of the site of infection unnamed.

Urinary stasis probably plays as important a role in producing urinary tract infections in childhood as in pregnancy. Only rarely does one see a chronic or a recurrent pyuria in childhood in the absence of a congenital anomaly producing urinary stasis and secondary infection. If medical therapy is ineffective in overcoming the pyuria after a period of from four to six weeks, all children should be subjected to complete urologic examination. In over 90 per cent of chronic pyurias in childhood we find associated congenital anomalies.

In discussing the therapy, I shall also confine my remarks to the ketogenic diet, mandelic acid therapy and sulfanilamide.

Ketogenic diets are as unpalatable in childhood as they are in adult life.

Mandelic acid therapy is as effective in childhood as in adults. The dosage that we use aims to produce a urinary concentration of between 0.5 and 1 per cent and a reaction of less than 5.5 (p_H). If one gives approximately 1 Gm. of mandelic acid per excreted hundred cubic centimeters of urine, it should be within the required dosage. Since infants excrete about 400 to 600 cc. of urine a day, 4 Gm. of mandelic acid in divided dosage is usually adequate. Similarly, in children about 12 years of age who excrete around 1,200 to 1,500 cc. of urine, 12 Gm. of mandelic acid daily usually produces a urinary concentration of between 0.5 and 1 per cent. It is often necessary to use an accessory acidifier such as ammonium chloride in doses sometimes as high as from 2 to 8 Gm. daily to obtain the desired urinary p_H of 5.5 or less. It has been pointed out that mandelic acid therapy is ineffective in B. proteus infections. Similarly, one should not resort to the use of ammonium mandelate when one is dealing with organisms that liberate ammonia, like aerobacter or pyocyaneus. Sodium mandelate or calcium mandelate plus sodium acid phosphate are preferred in these types of infections.

Sulfanilamide, because it requires neither an acid ash diet nor restriction of fluid, and because it can be administered much more easily, is the choice of therapy in childhood except in the presence of infections due to Streptococcus faecalis, which are apparently resistant to sulfanilamide. The dose which we use in children is 0.2 Gm. per kilogram of body weight daily. We do not regularly use an alkalizer because we have found that if the urine is not too acid the sulfanilamide is almost as effective at a p_H of 6 as at a p_H of 7. The simplest way to test the p_H of the urine, whether we are using mandelic acid or sulfanilamide, is by means of chlorophenol red or nitrozine paper.

Finally, in using both mandelic acid and sulfanilamide, the drugs should be given for a minimal period of ten days to two weeks, even when the urine clears more rapidly than this, because the pyurias are prone to recur with shorter periods of therapy.

DR. MODELL: I should like to add one thing: I have listed on the board but failed to discuss the properties of the ideal urinary antiseptic. I merely wanted to mention that there is no such substance.

Properties of the ideal urinary antiseptic are rapid absorption from the intestine, rapid and continuous elimination in the urine, that it shall be nontoxic and nonirritant for human beings, effective against all bacteria, effective in alkaline and acid urine, active in the presence of obstruction, that it shall act from the renal pelvis down and that it shall be satisfactory in febrile states and in renal insufficiency.

DR. LEVINE: Dr. Traut, when you refer to the pyelitis of pregnancy, do you intend to imply disease of the renal pelvis alone?

DR. TRAUT: We just use it for old times' sake. We make the same objection to it that you do. However, we do not feel that we have as frequent involvement of the parenchyma of the kidney in the upper urinary tract infections in an adult woman as you would indicate was your experience with the chronic pyurias of children.

STUDENT: Are pyurias in children necessarily accompanied by parenchymal involvement?

DR. LEVINE: I did not mean to leave the impression without some reservation. In animal experimentation infections of the pelvis of the kidney have been produced in the absence of parenchymal involvement, but in the chronic pyurias and in many of the acute pyurias of childhood I think there is an associated pyelonephritis or a suppurative interstitial nephritis.

DR. JOHN E. DEITRICK: I should like to ask about the dosage of sulfanilamide when there has been involvement of the kidney. In a few cases I have seen, in which there was decreased renal function, if one gave sulfanilamide the amount in the blood rose rapidly, even when a small dose was used. No mention has been made about determining the blood level, which I feel is important if a patient has an elevated urea nitrogen or other evidence of inability of the kidney to function normally. We have seen toxic symptoms and found the blood level very high, although we had not reached a dosage ordinarily used in an adult person.

DR. STEVENS: I do not recall that I have had reason to employ the drug in a case with as marked renal involvement as described, but I remember that one of the articles by Helmholz records four or five patients with nonprotein nitrogen up around 50, 60, or even more, who excreted the sulfanilamide in large quantities, and that he obtained good clinical results in combating infections. The point has been made by various observers that one may expect more from that drug than from mandelic acid in individuals with poor renal function, as indicated by high nonprotein nitrogen or the high urea nitrogen in the blood.

DR. CATTELL: The universal distribution of sulfanilamide throughout all the cells and fluid of the body would suggest that it might be present in effective concentration as long as any urine was excreted.

DR. STEVENS: I think it has not been demonstrated how much of the efficiency of the drug in urinary infections comes from the excretion in the urine and how much comes through the body fluids. I did not mention the use of sulfanilamide in the treatment of gonorrhea; we did not have time for it. It has been found that as high a percentage of sulfanilamide may be found in the urethral pus as is found in the urine of the same individual, which I think is a very suggestive observation.

DR. HARRY GOLD: I notice that as urinary acidifying agents sodium acid phosphate and ammonium acid phosphate are being considered as interchangeable. I might call attention to the fact that a paper was presented at the federation last year in which a comparison was made between the urinary acidifying power of sodium acid phosphate and ammonium acid phosphate, and it was found that sodium acid phosphate in the usual

doses that are employed is much less effective as an acidifying agent than ammonium acid phosphate. Furthermore, ammonium acid phosphate is not very irritant to the gastrointestinal tract and can be used in very large doses, larger doses than sodium acid phosphate, without gastrointestinal symptoms.

DR. MODELL: There is a similar report by Alstead on the effect of ammonium acid phosphate, in which he stated that it was superior both to ammonium chloride and to acid sodium phosphate.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ABSTRACT AND APPRECIATION.

HOWARD A. CARTER, Secretary.

ABSTRACT OF MINUTES, MEETING OF COUNCIL ON PHYSICAL THERAPY, JANUARY 13-14, 1939

The Council on Physical Therapy held its annual meeting on Jan. 13-14, 1939, at the headquarters of the American Medical Association. The members present were Dr. Harry E. Mock, chairman, Drs. Anthony C. Cipollaro, William W. Coblentz, John S. Coulter, Arthur U. Desjardins, Walter E. Garrey, Howard T. Karsner, Frank H. Krusen, Frank R. Ober, Horatio B. Williams and Mr. Howard A. Carter, Secretary. Drs. Frank Dickson and Ralph Pemberton were unable to attend.

Dr. Mock was reelected chairman and Dr. Garrey vice chairman.

INTERFERENCE WITH RADIO COMMUNICATIONS BY ELECTROMEDICAL EQUIPMENT

A report was presented of an informal meeting held in New York, Jan. 9, 1939, at which representatives of the Federal Communications Commission and medical profession, specialists in the communication field and manufacturers of electromedical apparatus were present. It was the opinion of the committee reporting that a mutual understanding among the groups present had been reached. The committee reported that the engineers of the Federal Communications Commission and of the radio manufacturers demonstrated by the use of aural reception and television the effects of the interference of electromedical equipment. Although television has not been commercially practicable up to the present time, it was expected that television sets will be on sale during the summer and, in the opinion of the manufacturers of this equipment, interference by electromedical equipment might seriously retard the advancement of television. The members of the medical profession present at the meeting strongly emphasized the importance of electromedical equipment, especially electrosurgery in the treatment of cancer, diseases of the skin, and so on, and the use of medical diathermy in the treatment of those diseases in which internal heat is indicated.

Two solutions were proposed: (1) screening of the treatment room and (2) the allocation of radio bands or channels. The representatives of the radio industries felt that screening the treatment room was to be desired and that the cost might not be excessive. It was pointed out, however, by the physicians and manufacturers that the moving of surgical and medical diathermy equipment from place to place would be prohibitive and that the screening of an entire hospital or clinic would be almost impossible.

The alternative suggestion of allocating certain radio channels to the medical profession seemed to be the most suitable in view of the seeming impracticability of screening. The difficulty involved in the allocation of channels, however, seems to be that operating the equipment on a given frequency within certain toleration limits and keeping it on that frequency would increase the cost of the equipment. The Council was reminded that apparatus purchased and being used now would become obsolete unless time is allowed before regulations go into effect. The request, therefore, was made by the representatives of the medical profession that the same courtesy be shown to them as was granted the owners of ships equipped with radio apparatus of the spark gap type. Ship owners were allowed eight years from a certain date to liquidate the apparatus and to substitute more modern equipment. The suggestion was made, therefore, that the users of electromedical equipment already sold be allowed eight years to realize on their investment and that the manufacturer be given at least two years in which to change over and make new types available.

The accomplishments of this meeting were (1) a frank discussion of the problems of interference, (2) a visual demonstration of radio interference in television, (3) a presentation of the importance of electromedical equipment as used by the profession and (4) a mutual understanding of the problem involved. A committee of the Council was appointed to continue the study of this problem in an endeavor to cooperate with the interested bodies.

SHORT WAVE DIATHERMY

The Council voted to retain as one of its requirements for the consideration and acceptance of short wave diathermy apparatus the submission of six observations of the heating effects in the human thigh as observed by a thermocouple inserted before and after a twenty minute application of each technic promoted by the manufacturer. Acceptance is to be granted only to apparatus for technics the evidence for which has been submitted.

Minor changes in the manufacture of short wave apparatus, for example change in style of cabinet, nonessential revision in circuit or the substitution of more powerful thermionic tubes, as indicated by the lamp load test provided the temperature of the transformer does not rise beyond the safety point, is not to be considered sufficient alteration in design to warrant thermocouple-thigh test data being submitted for reacceptance.

Fundamental changes in circuit, reduction of power output as determined by lamp load test, promotion of different technic of application, change of frequency and fundamental changes in conversion of electrical energy to high frequency are to be considered important changes in the apparatus to warrant the submission of six observations of the temperatures in the human thigh as observed by the thermocouple for each technic of application recommended or promoted. For a recommended technic to be accepted, the final average temperature after twenty minute application of high frequency electrical energy shall be at least 103 degrees Fahrenheit in the deep tissues of the superior aspect of the human living thigh.

ORTHOPEDIC APPLIANCES

A discussion of problems with relation to the Council's consideration of orthopedic appliances, i. e. corsets, belts, supports and shoes, resulted in adoption of a motion to the effect that these appliances would not be considered by the Council after Jan. 1, 1940. It was decided, however, to sponsor the publication of several informative articles on the subject of shoes, corsets, trusses and abdominal supports.

AUDIOMETERS AND HEARING AIDS

A review of the Council's work in the consideration of audiometers and hearing aids was presented, and after some discussion it was generally agreed that the Council will continue its consideration of audiometers without restriction of advertising until further study is made in the field. The Council will continue to consider hearing aids and prepare reports for publication in THE JOURNAL.

ROENTGEN RAYS

The Council discussed ways and means of continuing its consideration of roentgen ray apparatus. It was agreed that cooperation with other interested bodies would have to be secured before the Council could proceed with its investigations.

RADIUM AND RADON

It was pointed out that the House of Delegates had adopted a resolution presented by the Judicial Council at the annual session of the American Medical Association in 1938, condemning the practice of renting radium to unqualified physicians. The Council therefore adopted the following resolution:

WHEREAS, The Council on Physical Therapy has long been opposed to the practice of indiscriminate rental of radium or sale of radon by certain commercial firms and private physicians, who, possessing radium, undertake to supply radium or radon to any physician who may apply,

regardless of his special training and experience in its use, and who even furnish instruments and instructions without having seen or examined the patient, and

WHEREAS This constitutes the practice of medicine by mail or by telephone, and

WHEREAS Four years ago the Council on Physical Therapy passed a resolution condemning this practice but, when this resolution was submitted to the Board of Trustees of the American Medical Association for approval the Board of Trustees voted against it, and

WHEREAS During the past year, at the instigation of Dr Edward H Skinner (Kansas City) the House of Delegates of the American Medical Association passed an essentially similar resolution which had been presented by the Judicial Council and confirmed by the Board of Trustees, and

WHEREAS This action implies that, since the American Medical Association has officially condemned the practice the columns of THE JOURNAL (and indirectly the columns of most of the journals of the state medical societies) should be closed to any advertising that would tend to foster the practice, be it

Resolved That the Council on Physical Therapy is deeply gratified by and heartily approves the action of the House of Delegates of the Judicial Council and of the Board of Trustees The Council stands ready to investigate the products review the advertising and as part of its duty, make this information available to THE JOURNAL

It was also agreed to arrange for the preparation of a series of Council articles on the dangers of the indiscriminate use of radium

RESEARCH

The Council considers problems of merit in research and believes that there are a number of subjects of vital importance in the application of physical agents to the treatment of disease worthy of investigation, and that investigations of such subjects would lead to important contributions to the practice of physical therapy During the year 1938, one grant was awarded for research

EDUCATION

A lengthy report of the activities of the various Council members and consultants in this field was presented It was suggested that articles be published during the coming year on the following subjects spastic paralysis, peripheral nerve injuries, the abuse of medical diathermy, the injudicious use of radium, the use of corsets, abdominal belts and trusses, and the effect of ultraviolet radiation on the production of cutaneous cancer

APPARATUS ACCEPTED, THE COUNCIL'S PUBLICATION

The members of the Council expressed the opinion that the use of diathermy and other methods of producing heat within the tissues is being greatly overrated and abused, and that too much emphasis is being given to machine therapy The Council believes that the profession should be informed of these abuses by means of a Council article pointing out that other methods of physical therapy are of greater importance, for example the intelligent management of the patient, the proper use of therapeutic exercise, massage and hydrotherapy

After some discussion concerning the booklet "Apparatus Accepted," action was taken to initiate a review of the booklet with the idea of revising it to increase the amount of information to the general practitioner concerning the value of the various accepted devices

EXHIBITS

Plans for the exhibit at the annual session of the American Medical Association in St Louis were considered

Suggestions were also advanced concerning the Council's proposed exhibit on the management and treatment of lame backs It was agreed that if such an exhibit is approved a film on this subject should also be prepared to be shown at the same time

NOMENCLATURE AND DEFINITION

A report was made to the effect that work on the definitions is now being carried on and that considerable progress is being made in this line

PRESENT STATUS OF PHYSICAL THERAPY

The committee assigned to revise the Council's report on the present status of physical therapy announced that work is progressing in this direction and that a report would be made available during the coming year

AN APPRECIATION

The Council wishes to acknowledge with deepest appreciation the valuable assistance rendered by the following in connection with the work of the Council

Drs Fred Adair, M Herbert Barker, H C Bazett, Robert Bennett, William Bierman, Earl Bond, Walter Boothby, R C Burt, A J Carlson, J Marion Clamplt, Eliot R Clark, Milton B Cohen, Geza de Takats, Earl C Elkins, F H Ewerhardt, G K Fenn, A Bruce Gill, F B Gordon, Allan Hemingway, John S Hibben, K K Jones, Louis Katz, Disraeli Kobak, Henry Laurens, Arno Luckhardt, George Miller MacKee, Gilbert Marquardt, Albert Martucci, C O Molander, Tell Nelson, John R Pribble, E M Smith Jr, K W Stenstrom, Grant E Ward, Francis Carter Wood and Mr S L Osborne

Artificial Limbs—Drs Paul Steele and Philip Wilson and Messrs William Herman, W E Isle, George M Morris, J V Sprevak and James Waltz

Audiometers and Hearing Aids—Drs C C Bunch, George M Coates, L W Dean, E P Fowler, Henry Hartig, Austin Hayden, Isaac Jones, Douglas Macfarlan, Horace Newhart, B R Shurly and W P Wherry

Educational Work—Drs Richard Dillehunt, Bernard Fantus, A J Kotkis, Richard Kovacs, Franklin P Lowry and William Schmidt

Ophthalmologic Devices—Drs Francis Heed Adler, Charles A Bahn, S Judd Beach, William L Benedict, Conrad Berens Alfred Cowan, John Evans, Jonas Friedenwald, Sanford Gifford Walter B Lancaster, William H Luedde, John MacNie and Clifford B Walker

Roentgen Ray and Radium—Drs L F Curtiss, William E Chamberlain, Arthur C Christie, Edwin C Ernst, Gioaochino Failla, Thomas A Groover, Fred M Hodges, George Winslow Holmes, John T Murphy, Robert Reid Newell, E P Pendergrass, George Pfahler, U V Portman, Lauriston Taylor and J F Weatherwax

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION

PAUL NICHOLAS LEECH, Secretary

SOLUTION LIVER EXTRACT PURIFIED-LILLY.—A sterile aqueous solution of liver extract purified preserved with 0 5 per cent phenol, containing 15 U S P units per cubic centimeter

Actions and Uses—Solution liver extract purified-Lilly is proposed for intramuscular injection in the treatment of pernicious anemia See general article Liver and Stomach Preparations, New and Nonofficial Remedies, 1938, page 321

Dosage—For the average patient in relapse, treatment may be instituted with an initial dose of 2 cc (30 U S P units), or 1 cc (15 U S P units) may be given on two successive days, then a weekly dose of 1 cc (15 U S P units) may be given until the red blood cell count and blood hemoglobin have reached satisfactory levels

For maintenance of the average patient 1 cc (15 U S P units) is adequate at fifteen day intervals Especially close laboratory follow-up is indicated whenever the physician takes the responsibility of administering an average daily dose of less than 1 U S P unit

Manufactured by Eli Lilly & Co, Indianapolis Ind No U S patent or trademark

Ampoule Solution Liver Extract Purified Lilly 1 cc Each cubic centimeter contains 15 U S P units Marketed in packages of three 1 cc rubber stoppered ampules

To prepare purified solution liver extract Lilly, livers from edible animals are ground directly into water, and the mixture adjusted to the isoelectric point (approximately pH 5 to pH 6) The mixture is then heated to coagulate proteins (approximately 80 C) stirred for several minutes and filtered The filtrate is reduced in vacuum to a small volume and enough 95 per cent alcohol added to produce a concentration of approximately 70 per cent The precipitate which is formed is discarded and the filtrate reduced to a small volume much of the total solids remaining at this point is removed by treatment with ammonium sulfate zinc sulfate and alcohol yielding a product which is highly potent and which contains only a small amount of solids The final product is in the form of a water solution containing 0 5 per cent of phenol

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

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SATURDAY, APRIL 22, 1939

TRAUMA AND DIABETES

The concept of traumatic diabetes virtually began with Claude Bernard's diabetic puncture. In the earlier literature, which is fairly extensive, appears a report by Asher, who assembled 124 cases and concluded that one was not justified in establishing a causal connection between trauma and diabetes by pathologic changes and physiologic results. Traumatic neurosis was introduced by Ebstein in 1892. A traumatic origin of diabetes was recognized by von Noorden in 1898. In general, authors considered that traumatic diabetes actually existed and that it was a neurogenic diabetes due to trauma in the central nervous system.

Somewhat later Stern felt that clinical observations gave rise to doubts because of the possibility that diabetes was present before the trauma and because the diabetes following trauma is indistinguishable from the diabetes occurring otherwise. Lépine thought that trauma must be considered in 5 per cent of cases of diabetes although noting too the question of hereditary predisposition. Naunyn favored the idea of a traumatic factor and presented eight cases of his own in which diabetes occurred after trauma of the head as well as after noncerebral trauma and traumatic neurosis. Welz in 1915 emphasized that the probability of a relationship between trauma and the disease decreased in the symptom-free interval, placing the limit at from two to three years. As late as 1912 von Noorden still believed in the presence of acute glycosuria of nervous origin but felt that it was doubtful or even impossible that genuine chronic diabetes could persist as a result of a nervous disturbance without the pancreas being affected. Kausch denied the etiologic importance of trauma and raised the objection that in all the reported cases the disease existed before the trauma.

After the World War von Noorden pointed out that it had been an enormous tax on the nervous system, a mighty and terrible physical experiment which must clear up the question whether the notion of chronic neurogenic diabetes and so-called traumatic diabetes shall henceforth be reckoned with. Finally, he concluded that the soldiers who incurred diabetes during the war took the field as men with masked diabetes, whose disease as a rule was merely accelerated. His opinion was shared by Albu, Gottstein, Umber and Hermann Strauss. Lenné differed, relating the disease to physical and psychic strain, but admitted that injuries and diseases have no essential influence on the appearance and character of the disease. Umber agreed with von Noorden and in 1927 declared that no experimental or clinical evidence existed that an injury to the brain, head, trunk or extremities could cause diabetes and that to explain the diabetes one must find diminution in the function of the pancreas. True traumatic diabetes could not be thought to appear unless the pancreas itself was severely injured, because experiments have shown that at least four fifths of the pancreas must be removed before diabetes appears. However, such severe trauma as a rule will lead to death. He considered that the aggravation of diabetes by trauma as a rule is negligible and that, in the majority of cases, it can be suppressed by adequate treatment; nor does it give rise to any persistent change in the future course. Later he emphasized the general hereditary disposition in 26.4 per cent of cases and cited Danforth to the effect that in cases of recessive heredity 72 per cent of the diabetic need not have any diabetic relatives, comprising siblings, parents and their siblings and grandparents, during three generations. Hence it will almost never be possible to exclude definitely the existence of diabetic genes. Umber agreed with von Noorden, who in 1923 stated unequivocably that neurogenic diabetes does not exist, the experiences of the war having put it completely in the grave.

Isaac acknowledges a causal relationship if the diabetes comes on within four weeks after the trauma and Grote agrees that a longer interim renders a causal relationship unlikely. Stern says that a causal relationship is probable only (1) if there are no indications of an earlier existence of diabetes, (2) if the accident has caused a lesion of the pancreas or the central nervous system and (3) if diabetes develops during the first weeks after the accident.

Examinations of the blood sugar were first mentioned in 1915. Dextrose tolerance tests were few and the results difficult to compare because of lack of uniformity. A cerebral concussion is more important in producing hyperglycemia than a cranial fracture.

Thomsen [1] has just made available the only monograph in English on this subject. He examined 100 patients with regard to spontaneous as well as alimentary hyperglycemia and glycosuria at the time of accidents. Blood tests were done on ninety-four of 100 patients, both during fasting and after administration of dextrose, within three days after the accident. His material consisted of 144 patients, forty-four of whom were not given dextrose tolerance tests. Age was important.

1. Thomsen, Viggo: Studies of Trauma and Carbohydrate Metabolism with Special Reference to the Existence of Traumatic Diabetes, Acta med. Scandinav., supplement 91, 1938.

Disturbances in carbohydrate metabolism immediately after the trauma are much more frequent under than over the age of 30, although they are more transitory in the young than in the old. While there are disturbances of carbohydrate metabolism in a considerable number of patients, the distribution of the types of physical trauma into groups shows that no decisive importance can be attributed to the kind and location of the trauma, whether cerebral, peripheral or otherwise, with regard to the frequency and intensity of the detected disturbances.

An increase of the fasting blood sugar was found in twenty-four cases, that is in 17.5 per cent of all the cases. Abnormal dextrose tolerance curves were obtained in thirty-four of 100 cases. In the majority the glycosuria was detected in the portions of urine voided shortly after admission. Sugar was thus found in twenty of thirty-four specimens. In isolated cases it persisted more than seven days; in one, after a sugar-free interim, it contained sugar on the fifteenth day. One patient had renal glycosuria. The glycosuria was usually slight; in only twelve cases was the value above 0.5 per cent. There was no polyuria. In ten cases in which dextrose tolerance tests were performed there was diabetes in the immediate family. Thomsen concluded that no importance could be ascribed to the disturbances of carbohydrate metabolism detected after trauma. The duration of such disturbances, even with the most persistent spontaneous hyperglycemia, based on the fasting blood sugar level, was five days. Dextrose tolerance curves were abnormal once or several times, but in twenty-four cases the abnormal curves were detected only at the first examination, performed within three days after the accident. Fifteen patients, reexamined from three to twenty-nine days after the trauma, presented normal conditions. In one case a disturbance of the carbohydrate metabolism was disclosed by an abnormal dextrose tolerance curve as late as forty-nine days after the accident, while two patients who presented abnormal curves after a lapse of thirty and forty-nine days respectively had a normal curve ninety-seventy and 144 days after the trauma. In none of the patients who survived the accident did diabetes occur in close sequel to it, and this must be supposed to apply also to those patients who died shortly after the accident. The duration of the disturbance in carbohydrate metabolism as well as its frequency was greatest in the higher age groups. In forty-seven of fifty cases a second examination was performed from six to thirty-eight months after the accident. In none of these had diabetes occurred, and in two of the remaining three nothing is known concerning the occurrence of diabetes up to three and one-half years after the accident. One patient was untraced.

To answer von Noorden's question as to whether diabetes is more frequent in persons who have met with accidents than in noninjured persons of the same age and standard of living, Thomsen investigated the material of the district hospital in Aarhus, Denmark, where he was assistant physician. From 1921 to 1935 there was scarcely any difference in the frequency of diabetes in injured and noninjured patients of the same age and standard of life. Thomsen says that he has not seen the description of any case of existing diabetes in which trauma has been proved to have given rise to a permanent change in the degree and course of the disease. In his opinion the trauma, strictly speaking, cannot be incriminated for an indirect exacerbation of diabetes, such as is due to lack of exercise, change in diet, or to the accompanying infection, and such an exacerbation must be disregarded in order to afford an idea of a traumatic exacerbation proper of the diabetes.

From an analysis of 100 cases he finally concludes that in the case of existing diabetes trauma can give rise to an exacerbation, though of a temporary nature. Temporary exacerbation ensues in about half the cases. The exacerbation is independent of the kind and location of the trauma. It appears immediately after the accident and has an average duration of twenty-six days. His studies afforded no evidence that trauma gives rise to a later exacerbation of the disease. It very probably is able to provoke coma only in a predisposed person who has severe diabetes. The effects might be compared with those produced by a stone thrown into a brimful vessel, which it causes to flow over, and a stone thrown into another, not brimful, vessel, in which it merely produces a ripple on the surface of the water.

Does the course of diabetes which occurs or is exacerbated after trauma differ markedly from the course of similar conditions of metabolism? Thomsen points out that, it being so difficult to compare one diabetic person with another, it must be much more difficult to draw reliable conclusions as to whether the patient under consideration would present a different picture if the trauma had not occurred. He then assembles eighty-one cases in which trauma has been reported as a factor in the appearance of the diabetes. One would expect, he says, quoting Joslin, that the age at the onset of the disease would have been under 40 in 38 per cent and above 40 in 62 per cent, and, he asks, should the trauma give rise to diabetes sooner in the younger than in the older patients? Apparently of injured normal persons 72 per cent were below and 28 per cent above 40. Males in this group predominated, 85 per cent, females 15 per cent, instead of Joslin's 64 per cent of females among the diabetic generally. The onset was indefinite in 43.2, gradual in 37, rapid in 14.8 and sudden in 5 per cent. His conclusion is that reported "traumatic" diabetes usually occurs in younger persons, is to a considerable extent a disease of males and behaves in onset and course like ordinary diabetes. Thus with regard only to age and sex was a deviation from ordinary diabetes detected. This deviation depends not on any special mode of

reaction to trauma in young males but merely on the fact that such persons incur injuries with correspondingly greater frequency. Hence the detected deviation cannot be utilized for the assumption of an essential difference between so-called traumatic and ordinary diabetes.

The post-traumatic disturbances of the carbohydrate metabolism detected in human beings by Thomsen's investigations are brought about by reflexes via the sympathetic nervous system. He based this conclusion on tests with ergotamine and considered that these were substantiated by experiments reported on animals.

In the chapter "Does Traumatic Diabetes Exist?" he states that in human beings neither "experimental" nor clinical clues were found to warrant the assumption that post-traumatic sympathicogenic disturbances in the carbohydrate metabolism can lead to diabetes. His own investigations showed that the disturbances of carbohydrate metabolism were always transitory and that subsequent examinations did not reveal diabetes in any of the cases, and he asserts that "traumatic" diabetes does not differ from ordinary diabetes with regard either to existing disposition or to its mode of onset or further course. An examination of the histories of diabetic and nondiabetic persons of the same age and mode of living reveals no difference in the incidence of head trauma and that there is no reason to assume that diabetes is more frequent in injured than in noninjured persons. As to whether trauma can activate latent diabetes, he states that it is apt to cause an exacerbation of existing diabetes, but only a temporary exacerbation, and that there is no evidence of any subsequent exacerbation. Therefore physical trauma cannot be assumed to evoke latent diabetes, at any rate in any other way than that, after the cessation of the effects of the trauma, again one is dealing with latent diabetes. He admits that, theoretically, trauma is able to make a latent diabetic condition manifest. Since diabetes is of no greater incidence after trauma than after other surgical conditions necessitating hospitalization, there is no reason to consider traumas of greater importance as causal factors of the detected diabetes than the other surgical complaints. Pancreatic diabetes is the only form of diabetes the existence of which has been proved by animal experiments, wherefore it must be considered established that trauma giving rise to as extensive a destruction of the pancreas as that required by experiment will be followed by diabetes, and he considers that no such cases have been reported. He excludes Wells's case. He was not conversant with the case from Gräfe's clinic cited by Joslin. Thomsen's monograph was completed before the work of Young in London, who produced permanent diabetes experimentally by injection of pituitary extract.

This work, supported in part by the Norwegian Insulin Fund, is a real contribution to the problem of trauma in relation to diabetes.

FUMIGATION WITH HYDROGEN CYANIDE

Evidence of the superior efficacy of hydrogen cyanide as a fumigant for ships and houses has been rapidly accumulating. As this method becomes applied more extensively, the problems of toxicity and ventilation following use have received special study. After the employment of hydrocyanic acid gas as a fumigant for ships in the tropics, with the technic which has been developed, Gilles [1] states that the average time for clearance of the gas after fumigation has never exceeded six hours. At the expiration of four hours' continued ventilation, the holds and spaces are carefully tested with methyl orange or copper benzidine acetate test paper. When the fumigated space is found clear of dangerous quantities of gas, the crew is allowed on board and, under supervision, all pillows, blankets, mattresses and the like are brought out, hung and aired in the sun. Gilles does not report any toxic effects to the crew from this procedure.

Etteldorf [2] conducted accurate determination of the critical concentration of hydrocyanic acid on twenty-two dogs, seven rabbits, four guinea pigs, five white rats and four chickens and investigated whether the effective and recognized method of detoxification could be exhausted by subjecting dogs to single and repeated dosages of hydrocyanic acid for periods ranging up to eight and twelve hours. He also studied the antidotal and prophylactic value of methylene blue against gaseous hydrocyanic poisoning. The critical level for each species of animal was measured and demonstrated by the onset of convulsions. Below the critical level, hydrocyanic acid is sufficiently controlled for an unlimited time by the detoxifying mechanism of the animal. Evidence of tolerance or increased susceptibility was not obtained. Methylene blue had little value as treatment above the critical level of cyanide poisoning but was valuable as a prophylactic against these concentrations.

Perhaps the most important problem from the practical point of view is the method of ventilation following hydrogen cyanide fumigation. Page and his colleagues [3] investigated this aspect in a series of careful observations in English houses of various types and age and under different weather conditions. Their conclusions in part were that all windows should be kept open for twenty-four hours after fumigation, unless this leads to the entry of rain or snow. A ventilation period of this length is generally sufficient for an empty house of normal construction, but a longer period may be required for a furnished house or for a house which is damp, which contains an unusual proportion of dead space or which contains rooms without windows providing adequate communi-

1. Gilles, Eric C.: Fumigation of Plague Suspect Imports in Colombo as a Means of Controlling Plague in the Island, J. Roy. San. Inst. 58: 76 (Aug.) 1937.
2. Etteldorf, J. N.: On the Detoxification of Gaseous Hydrocyanic Acid, J. Pharmacol. & Exper. Therap. 58: 431 (Dec.) 1936.
3. Page, A. B. P., and others: The Ventilation of Houses After Fumigation with Hydrogen Cyanide, J. Hyg. 39: 12 (Jan.) 1939.

cation with the open air. They conclude that fumigation of clothing, and particularly bedding, as a regular practice is undesirable. Further, upholstered furniture should be placed in a position to facilitate airing; the customary tests with benzidine acetate-copper acetate should be made (a blue color in all air spaces indicating a concentration of one one-hundredth or less per thousand cubic feet gives a margin of safety). If the house contains much absorbent material or if any other circumstances suggest that a period of twenty-four hours of airing may not be sufficient, all doors and windows should be closed after performing the tests with benzidine acetate-copper acetate and these tests should be repeated after the house has remained closed for two hours.

Supervision of fumigation is a public health problem. For example, in New York, fifty-three concerns hold permits to conduct the business of fumigation and extermination. From June 1, 1936, to June 1, 1937, there were, according to Oberwager,[4] 353 fumigations performed in that city under the supervision of the sanitary bureau of the health department. In fact the New York regulations governing fumigations have been changed recently to provide for additional safeguards for the occupants of premises during and following fumigation.

Current Comment

THE ABORTIFACIENT AND OTHER EFFECTS OF THE URINE AND SERUM OF CANCEROUS PATIENTS

Elsasser and Wallace[1] recently reported that the urine and serum of patients with malignant tumors have a selective action on embryonal or newly growing tissue. The work began with the urine of a man with an embryonic cancer of the right testicle. Daily intravenous injections in pregnant rabbits of 20 cc. of urine produced abortion on the fifth day. The urine of patients with other tumors of embryonal nature—dysgerminoma of the ovary, teratoma of the testicle, Wilms tumor—produced abortion, as did "the urine of a large number of patients with other types of malignant tumors" (no further details are given). The blood serum of patients whose urine caused abortion also was effective. Control tests with the urine or serum of normal persons and of noncancerous ward patients gave negative results. Following the daily injections of urine from cancerous patients a progressive placental necrosis with infiltration of inflammatory cells occurred, with destruction of the embryo or expulsion in late pregnancy. In nonpregnant rabbits the injections of urine caused degeneration of the graafian follicles and sclerosis of the ovarian tissue; in male rabbits the injections caused degeneration of the spermatogenic processes. In rats with implanted carcinoma (Walker 256) injection of urine from cancer patients was followed by necrosis of the carcinomatous as well as of newly formed blood vessels. Here it should be noted that the urine of pregnant women did not cause abortion in rabbits and neither did massive doses of anterior pituitary-like preparation [2] together with estrogenic hormone. Many problems arise from these interesting results which call for further work along various lines. The results of such work will be awaited with keen interest. Whether the principle has been discovered of a test of value in the early diagnosis of any kind of cancer remains to be determined.

RENAL CALCULI IN VITAMIN A DEFICIENCY

The occurrence of urinary calculi in rats fed on a diet deficient in the fat-soluble vitamins was first reported by Osborne, Mendel and Ferry.[1] Through numerous repetitions of this type of experiment the role of vitamin A in experimental urolithiasis has been recognized but the mechanism of stone formation under these conditions is not entirely clear. Thus the alkalinity of the urine excreted by rats on a vitamin A deficient diet has been related to stone formation by some investigators and the infection of the urinary tract resulting from vitamin A deficiency is believed to be an important contributory factor by others. A recent report of Steiner, Zuger and Kramer [2] on the production of renal and ureteral calculi in guinea pigs by feeding these animals a diet deficient in vitamin A is of particular interest as the alkalinity of the urine alone and infection of the urinary tract apparently did not have an important part in the development of the concretions. Large plaques of desquamated epithelial cells were found in the pelvis and ureters and it appears that these large plaques acted as niduses for the formation of calculi. There was no gross or microscopic evidence of infection in the urinary tract. The transformation of epithelial cells which has been recently dealt with by Wolbach [3] was observed. The vitamin A deficiency caused hyperplasia, later metaplasia to squamous epithelium, and finally atrophy of the pelvic and ureteral mucosa. The observations of Steiner and his collaborators do not minimize the importance of improper mineral balance of the food, presence of infections in the urinary tract and excessive alkalinity of the urine, other factors which may be involved in the genesis of urinary calculi as a result of faulty diet. The detailed description of the part played by small pieces of epithelium in the production of calculi in the guinea pig in these particular experiments sheds more light on the etiology of urolithiasis, a subject which long has needed clarification.

4. Oberwager, John: Supervision of Fumigation and Extermination, Am. J. Pub. Health **28**: 633 (May) 1938.

1. Elsasser, T. H., and Wallace, G. B.: A Selective Action of Urine and Serum from Patients with Malignant Tumors on Embryonal and Newly Growing Tissues, Science **89**: 250 (March 17) 1939.

2. Antuitrin-S.

1. For references to the work in this field, see report of the Council on Pharmacy and Chemistry, Vitamin A and Urinary Lithiasis, THE JOURNAL, Dec. 14, 1935, p. 1983.

2. Steiner, Morris; Zuger, Bernard, and Kramer, Benjamin: Production of Renal Calculi in Guinea Pigs by Feeding Them a Diet Deficient in Vitamin A, Arch. Path. **27**: 104 (Jan.) 1939.

3. Wolbach, S. B.: The Pathologic Changes Resulting from Vitamin Deficiency, J. A. M. A. **108**: 7 (Jan. 2) 1937.

JOUR. A. M. A.
APRIL 22, 1939

ORGANIZATION SECTION

THE WAGNER BILL

AN ANALYSIS OF THE WAGNER NATIONAL HEALTH BILL OF 1939

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Just a few weeks ago—on February 28, to be exact—the senior Senator from New York, Hon. Robert F. Wagner, introduced in Congress a measure of far-reaching importance to the people of the United States and particularly to the people of the South. This measure, known as the National Health Act of 1939, has been referred to the Senate Committee on Education and Labor and is now awaiting action by that committee and later by the two houses of Congress.

The chief purpose of this measure, as described in its preamble, is "to provide for the general welfare by enabling the several states to make more adequate provision for public health, prevention and control of disease, maternal and child health service, construction and maintenance of needed hospitals and health centers, care of the sick, disability insurance," and so on.

More specifically, the measure makes use of the sound procedure of grants-in-aid to the various states, which provides a wide latitude to the individual states in the development of their own health plans, conditioned by the particular health problems of greatest importance to their own people. Such grants-in-aid are provided for the purpose of establishing, expanding and improving state programs in the fields of child and maternal health, general public health services and investigations, construction of hospitals and health centers in communities where they are most needed, general medical care, and insurance against loss of wages and salaries during periods of temporary disability. Administration of the act, if it is passed in its present form, will become the responsibility of three already established federal agencies: the Children's Bureau, the United States Public Health Service and the Social Security Board. In discussing the bill at the time of its introduction, its sponsor declared that "the fullest development of this program would bring the benefits of modern medical science, both preventive and curative, within the reach of all groups of the population, especially in rural areas suffering from economic distress." In view of the fact that such a large percentage of the people of the South are residents of rural sections and the even more significant fact that they rank extremely low in per capita wealth, the National Health Act of 1939 promises to make available to the people of this state a degree of medical, nursing and hospital care never known in the past.

It has been pointed out that under no circumstances will the federal government undertake to furnish medical care. Administration in all cases, except of course in the matter of the necessary federal allocation of funds and insistence on states complying with the proper standards of performance, will be through the states, which will formulate their plans on the basis of local needs, conditions and problems. No attempt will be made to displace existing activities with new ones, although naturally these activities will be able, with additional funds, to expand and to operate much more effectively.

No system of health insurance is contemplated in the bill as a function of the federal government, nor is any participating state required to institute such a system. In that section of the measure dealing with a general program of medical care (title XIII) the states will be at complete liberty to develop, under the inspiration of local needs, conditions and problems, the types of medical care programs they peculiarly need, subject of course to the proviso that the programs devised must square with certain basic standards to be set by the three federal agencies that have been mentioned. The general program of medical care which a particular state may formulate as best for its own people may be limited, at the discretion of its officials, to persons on relief or, again at their discretion, it may be broadened to include those of nonrelief status. It may be financed entirely by insurance contributions, from tax funds or from both. The method and scope of medical services to be provided likewise are to be determined by the proper officials of the state concerned and, of course, these services may be provided by private agencies and institutions already in operation, if that is desired. Provision is wisely made for the training of personnel employed to provide these services, and such personnel must be selected on a merit basis.

An important aspect of the bill which should not be lost sight of is the absence of specific detail for operation incorporated into the basic law. Such specificities would have destroyed the autonomy of states in the effort of each to work out its own salvation in a yet uncharted field.

The act carries appropriations totaling approximately $80,000,000 for the first year, exclusive of such sums as Congress at its discretion may appropriate for aiding the states in the construction of needed tuberculosis sanatoriums and mental hospitals, with increases from year to year over a ten year period. Under its terms federal appropriations would be available for the matching of sums appropriated by the individual states as their share of the cost of their own health programs. The measure carries no authorization of new federal payroll taxes.

In order to accomplish one of the main purposes of the measure, namely the aiding of economically impoverished communities in their efforts to provide needed hospital, medical and nursing care, the measure stipulates that the federal funds appropriated to put it into effect are to be allocated to the several states on a variable matching basis, the amount to be received by a particular state depending on that state's relative financial resources, as determined by the per capita income of its

population. Thus the bill is intended by its sponsor and supporters to "raise the general level of health protection throughout the country, while reducing the existing wide variations among the states, and especially as between rural and urban areas."

In addition to the health services in the preventive and curative fields already mentioned, the bill provides grants-in-aid to the states to be used in setting up insurance plans by means of which cash benefits may be made available during periods of temporary disability. Such systems would be so devised as to provide the greatest possible protection to the American wage earner against wage loss resulting from such disability, which loss is estimated at more than a billion dollars a year. Thus systematic insurance payments would insure the continuance of workers' incomes through those periods when they are most needed.

The National Health Act of 1939 is not intended to transform the United States into a utopia in health matters overnight. However, it was framed and introduced in the hope and belief that it would bring the blessings of health protection to multiplied millions of our people whose need for such protection is no less great because as a result of their financial status they have not been able or, at best, have been only partially able, to finance it in the past.

BUREAU OF MEDICAL ECONOMICS

The article by Dr. J. N. Baker was submitted to the Bureau of Medical Economics of the American Medical Association, which submits the following comment:

The basic questions raised in connection with the Wagner bill are probably the following two: first, whether the proposed appropriations for the various purposes are suitable to the needs; second, whether the bill, by extending federal help or subsidies, is intended to encourage the establishment of sickness insurance systems by states.

This discussion appears to assume that the federal allocation of funds will actually be made "through the states, which will formulate their plans on the basis of local needs, conditions and problems."

It also states that "no system of health insurance is contemplated in the bill as a function of the federal government," which is probably a correct statement. But, if federal subsidies are to be used to encourage states to adopt such plans, then it is to that extent a sickness insurance bill providing for partial support by the federal government.

Is "the absence of specific detail for operation" in the basic law wholly desirable if the effect of the law is to subsidize plans the "specific detail" of which would be determined largely by the federal authorities?

BUREAU OF LEGAL MEDICINE AND LEGISLATION

Dr. Baker's statement was submitted also to the Bureau of Legal Medicine and Medical Legislation, which submits the following comment:

Dr. Baker's analysis is entitled to careful consideration not only because of his professional and official standing but also because it presents a view of Senator Wagner's proposed amendments to the Social Security Act that seems to be based largely on local considerations and on economic conditions that every one hopes are only temporary.

The bill introduced by Senator Wagner, S. 1620, is described in its title as "A Bill to provide for the general welfare by enabling the several States to make more adequate provision for public health, prevention and control of disease, maternal and child health services, construction and maintenance of needed hospitals and health centers, care of the sick, disability insurance, and training of personnel; to amend the Social Security Act; and for other purposes." Of this bill, Dr. Baker says:

> In view of the fact that such a large percentage of the people of the South are residents of rural sections and the even more significant fact that they rank extremely low in per capita wealth, the National Health Act of 1939 promises to make available to the people of this state [Alabama] a degree of medical, nursing and hospital care never known in the past.

To accomplish this result—

> . . . the measure makes use of the sound procedure of grants-in-aid to the various states, which provides a wide latitude to the individual states in the development of their own health plans, conditioned by the particular health problems of greatest importance to their own people.

The arguments advanced by Dr. Baker in support of the amendments to the Social Security Act, proposed by Senator Wagner, have a certain degree of validity. They must be weighed, however, in the light of his status as the health officer of a great state, but a state whose people happen just now to be in financial distress and in need of help. Speaking for the country over, one might reply to Dr. Baker's arguments along the following lines:

The term "grants-in-aid" implies that the federal government will pay to the several states, or to some of them, money to aid in carrying on certain intrastate activities. Such a grant, however, is generally made only on condition that the state appropriate state funds to help defray the cost of such activities and always on condition that it submit to certain conditions imposed by the federal government, including the supervision and control of the work by federal officers. Waiving all question as to the essential soundness of such federal grants, in a country such as ours, organized under a constitution carefully designed to preserve the rights of the several states from infringement by the federal government, a brief examination of the operation of such grants seems to show not only that the underlying principle is essentially unsound but also that, instead of enabling the several states to make more adequate provision for public health and such other activities described in the caption of the Wagner bill, they tend to limit the ability of many states to do so.

In the first place, we must ask where the federal government is to obtain the money wherewith to pay such grants-in-aid as are proposed in this bill. The federal government cannot create money and it must get it somewhere. It can get it only by taxation, and the ultimate consumer pays the price in the cost of living. Conceivably it might abandon governmental activities already under way and apply to the new projects proposed by Senator Wagner the money thus saved. On the other hand, it might and presumably will levy additional taxes if the bill should be enacted.

No proponent of the Wagner bill has even as much as suggested that any federal activity now under way be curtailed or abandoned to provide the funds necessary to pay the federal share of the expenses of the activities proposed by Senator Wagner. The abandonment of any such activity, however, would still leave the cost to be paid out of the taxes thereby rendered unnecessary and which might be discontinued but for the enactment

of this bill. It is generally assumed, however, that the money for the federal share of the expenses of the proposed activities will be provided by additional taxes, if the bill is enacted. As the bill now stands, it does not propose to levy additional taxes in the form of federal payroll taxes or specific taxes of any kind, having direct reference to the expenses of this legislation; for any proposal to levy taxes for that specific purpose would bring to the attention of the taxpayers of the country the cost of the pending bill and probably insure its defeat. The needed money, therefore, must presumably be raised by increasing the rates at which some of our existing taxes are levied or by imposing new general taxes of some kind, and the taxpayer, even though he may complain of the increase in taxation, will not be able to associate the increase with the cost of this bill. And the primary taxpayer—that is, the taxpayer who pays the money directly into the federal treasury—will whenever he can pass the tax along and sooner or later it will rest on the back of the ultimate consumer, whose ability to maintain himself and his dependents will be decreased in proportion to the increase in taxation.

But that is not all. Grants-in-aid given by the federal government will generally have to be matched wholly or in part by money provided by the several states to which such grants are made. The state accepting a grant-in-aid will find itself, therefore, in the same position as that of the federal government; it will have to curtail or discontinue present activities and public benefits in order to obtain the money wherewith to meet the federal grant or else will have to increase state taxes. If the state activities curtailed or discontinued are essential to the public welfare, the public will suffer. If new taxes are imposed or the rates of taxation with respect to old taxes increased, the increase in the tax burden will reach the ultimate consumer, with corresponding further increase in his cost of living and with further diminution in his ability to provide support for himself and his dependents.

There is another aspect of the grant-in-aid system such as Senator Wagner's bill proposes that is seldom recognized. Even though it may enable some states to make more adequate provision for projects covered by the act, it lessens the ability of other states to do so. With respect to states in the latter class, so-called grants-in-aid are not "in-aid" but are only the return by the federal government to the state of money taken from its people through federal taxation, directly or indirectly, and even that return is made only on condition that the state submit to the determination by the federal government as to the purposes for which it shall be spent and federal supervision and control of the state agencies employed to accomplish those purposes. The amount returned to a state in this category is less than the amount taken from it by the federal taxation and is equal to only the remainder of the federal taxes collected from the people of the state, after the federal government has deducted such amounts as it deems necessary to provide federal subsidies for other states. To the extent that the grant-in-aid payable to any state is less than the money collected from the people of the state by the federal government for the purpose of providing such federal subsidies in general, the ability of that state to provide for its own people is diminished.

If the distribution of federal grants-in-aid was made according to the actual necessities of the several states, as determined by a fair and open study of the situation, there could be little or no objection to them. No one would object to the making of grants of public money to relieve distress in any state that the state itself was financially unable to relieve, but the idea of making such grants even to the richest and most prosperous states in the Union is hardly compatible with the hypothesis on which the making of such grants is popularly believed to be based. Appropriations have been made by the federal government without criticism or complaint for the direct relief of suffering even in foreign countries, and certainly no criticism has been or will be voiced in making appropriations for such relief in this country. But when the federal government levies taxes on persons in states not in need, in excess of the requirements of the states that are in need, and then returns the excess thus collected to the state from which it was collected but only on condition that the state subject certain intrastate affairs to the supervision and control by some federal appointive officer, the entire plan savors strongly of an effort to concentrate power in Washington at the expense of the states.

Dr. Baker points out that the pending Wagner bill to amend the Social Security Act, if enacted, will make available to the people of Alabama a degree of medical, nursing and hospital care never known in the past. If there is actual need for a degree of medical, nursing and hospital care in Alabama that has never been known in the past, and if the state of Alabama is unable to provide it, by all means let it be provided. But even if such a need is shown in Alabama and in some other states, but not in all, that fact does not justify imposing on all states the system of federally subsidized and controlled relief that may be necessary in Alabama and other states similarly situated. Certainly some states are able to look after their own people, without federal grants-in-aid and federal supervision and control. It may be claimed, of course, that the federal government must deal with every state on an equal footing, although there is no such requirement in the constitution; but, as has already been pointed out, grants-in-aid such as are proposed by the Wagner bill do not operate uniformly on all states. They place all states equally under federal supervision and control, it is true, but they result in the taking of money from the people of some states for distribution among the people of other states, thus lessening the financial resources of the states from which the money was taken in the first instance for the benefit of other states. The plan seems to be devised for the redistribution of wealth among the states. How far it may go toward promoting a spirit of complaisant dependence among the states, no one can foretell.

Dr. Baker emphasizes the fact that—

> No system of health insurance is contemplated in the bill as a function of the federal government, nor is any participating state required to institute such a system. . . . The general program of medical care which a particular state may formulate as best for its own people may be limited, at the discretion of its officials, to persons on relief or, again at their discretion, it may be broadened to include those of nonrelief status. It may be financed entirely by insurance contributions, from tax funds or from both. . . .
>
> In addition to the health services in the preventive and curative fields already mentioned, the bill provides grants-in-aid to the states to be used in setting up insurance plans by means of which cash benefits may be made available during periods of temporary disability.

While Dr. Baker's statement concerning health insurance is strictly correct, it hardly gives a true picture of the purpose and effect of the bill so far as health insurance is concerned.

The bill authorizes appropriations for grants to states for medical care amounting to $35,000,000 and of $10,000,000 for temporary disability compensation for the fiscal year ending June 30, 1940, and for unlimited appropriations thereafter. To obtain grants from the appropriation for medical care, a state must have submitted to the Social Security Board state plans satisfactory to that board, extending and improving medical care. Nothing in the bill limits this proposed medical care to indigent persons or even to persons of moderate means. Nothing in the bill defines the particular type of medical service that is to be provided. The Social Security Board seems to be at liberty to refuse to approve any state system that does not meet its ideas of social economics. It may refuse to approve any proposed system unless it provides for the distribution of medical service by a salaried state staff. It may refuse to approve any system that does not provide for medical service with free choice of physicians, paid on a fee basis. On the other hand, it may refuse to approve any system that is not based on strictly insurance principles, even with state payroll taxes and the usual accompaniments of health insurance. Any such system may possibly be styled a "state" system, but in order to obtain the federal subsidy it must have the approval of federal officers and in last analysis such a system is a "federal" system or at most a "federal-state" system.

Dr. Baker's statement that the insurance plans proposed in the Wagner bill to provide temporary disability compensation for persons temporarily disabled by illness or injury provide for cash benefits is incomplete, for the bill expressly provides that the Social Security Board "shall not approve the plan of any State which does not have a plan or plans approved under this Act under which the Board finds that reasonably adequate medical services, including preventive services, are available to minimize disability among those covered under the State plan for temporary disability compensation." This necessarily implies the setting up by the state of a medical service of some kind to care for persons who are temporarily disabled and who are entitled to the benefits under the state plan. Nothing in the bill limits the beneficiaries of a state system of disability compensation to employed or even to employable persons. In fact, the bill expressly provides that disability, to be compensable, shall not have arisen out of or in the course of employment. Here certainly we have the germ of a full-fledged system of health insurance. When considered in connection with the provisions of the bill that authorize federal subsidies for state systems of medical care (which is defined to include all services and supplies necessary for the prevention, diagnosis and treatment of illness and disability) the provisions relating to disability compensation seem to leave the entire matter of health insurance throughout the entire United States to the judgment of the Social Security Board rather than to Congress, where it belongs.

Nothing in what is here written is intended in any way to reflect on the officers who are now charged with administering federal laws authorizing federal grants-in-aid, but officers come and officers go, and what an officer feels today with respect to governmental operations in the field of social economics and the administration of state aid is not necessarily what another officer will feel tomorrow. As a matter of fact, the people of the country have the right to have such matters determined by law and not by the mere judgment of individual federal executive officers.

GRADUATE MEDICAL EDUCATION

A PROGRESS REPORT OF THE FIELD STUDY ON GRADUATE MEDICAL EDUCATION IN THE UNITED STATES BEING CONDUCTED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

LOUISIANA

In August 1936 a conference was held between representatives of the Louisiana State Medical Society and the Louisiana State Board of Health to outline a graduate program in obstetrics and pediatrics for physicians practicing throughout the state. It was proposed that the state society's committee on postgraduate education, which consists of five members with Dr. J. S. Kopfler as chairman, would act as the executive agency. On this committee is a member of the committee on maternal welfare and a member of the committee on medical education of the state medical society, together with the director of the Division of Maternal Child Health of the Louisiana State Board of Health. The professors of obstetrics in the two medical schools in the state outlined the educational program in obstetrics, and the professors in pediatrics actively participated in organizing the instruction in their special field. The expense of these courses was met with federal funds allocated to the state board of health.

Each course consists of five two hour sessions during one week. Teaching centers were selected in each of the eight councilor districts of the state. The district committee of from three to five physicians, including the district councilor, has charge of local arrangements and publicizes and assumes responsibility for the success of the graduate program in each district. Announcements are mailed to all physicians in the parishes of the district, and notices are published in the *New Orleans Medical and Surgical Journal*. The course as outlined includes lectures illustrated with movies, round table conferences, consultations on request and manikin demonstrations. Two in state lecturers are chosen for each locality by the state society's committee, one an obstetrician and one a pediatrician. Lecturers receive $25 a day, plus traveling expenses. Attendance records are kept by a member of the local committee. There is no registration fee.

From October to December 1936 instruction in obstetrics was given in nine towns. From twenty to forty physicians in each section attended. The auditorium of the city hall or the court house was used as a meeting place.

From December 1937 to December 1938 courses were given in obstetrics in ten towns and in pediatrics in fourteen towns in eighteen parishes of the state. Ten obstetricians and ten pediatricians have constituted the faculty. Two hundred and seventy-five physicians have attended the obstetric meetings and 407 have attended the sessions in pediatrics. Obstetric clinics have been held in six places where patients could be obtained for teaching. Six other parishes have selected pediatric courses, and it is planned that the state will be covered by the early part of 1939. All physicians of Louisiana have had an opportunity to avail themselves of this training. There are 1,324 members of the state medical society of the 2,200 physicians practicing in the state.

The Tulane University of Louisiana School of Medicine Department of Graduate Medical Studies was reorganized and its activities expanded in June 1937. All graduate medical education is now conducted under the supervision of the director of medical studies, Dr. H. W. Kostmayer. The faculty includes members of several departments of the school of medicine, and the facilities of the school are available to graduates who enroll

for study. The department has a budget, part of which provides instructors with compensation for the special intensive courses they give to graduates. Expenses of administration are charged against the graduate department's budget, but the use of the school's teaching facilities otherwise is not charged against this department.

The division of medical extension was created in 1937 and a full time assistant professor in the medical school was appointed as director. The medical extension division was organized for the purpose of conveying graduate instruction to those physicians who are unable to engage in formal study in medical centers. This division is supported largely by the Commonwealth Fund of New York, while Tulane University, the Mississippi State Medical Association and the Mississippi State Board of Health together provide approximately one fourth of the total budget. Fees from practicing physicians added an additional 5 per cent during the first year. Slightly more than half of the total expense during that year was allotted to administration and the remainder to instruction, including the travel expenses of instructors.

As now organized, the department of graduate medical studies offers several types of instruction to medical graduates: (1) a program for those who register in the graduate school of the university for advanced study in clinical divisions leading to advanced degrees after two or three years of residence; (2) fellowships in courses of study of one or more year's duration not leading to a degree—such courses are adaptable to the requirements of the specialty boards and may include instruction in the basic sciences; and (3) short, intensive courses in restricted fields such as cardiology, urology and dog and cadaver surgery. Applicants for these courses must have some preliminary training.

Intramural review courses designed for practicing physicians cover the general fields of medicine, surgery, gynecology and obstetrics. Instruction begins each January and continues for two periods of six weeks each, the second being a continuation of the lectures, clinics and demonstrations given in the first period. In these courses most of the morning instruction is given at the bedside of patients, although graduate students have no case responsibilities. The schedule provides for general review courses, one in medicine, one in surgery, including orthopedics and urology, one in gynecology and obstetrics and one in routine laboratory procedure. The latter includes clinical microscopy and requires about two hours each day. The fee for the first six weeks' course is $100 and for the succeeding six weeks $50. No diploma-like certificate is issued. Attendance averages from twenty-five to thirty physicians in medicine, from fifteen to twenty in surgery and from twelve to fourteen in gynecology and obstetrics.

An annual clinical conference of one week's duration is held each fall at the medical school, for which a fee of $5 is charged. One hundred and twenty-two registered last session. Other special review courses are available to medical graduates. The total registration for intramural courses in 1937-1938 was 212.

The activities of the division of medical extension in Mississippi have been reported previously.[1] The division acts as the organizing and disbursing agency in Mississippi's statewide program and cooperates with the medical, health and hospital organizations of the state. A course in syphilology and dermatology now in progress utilizes two instructors from the medical school. A six lecture course in minor surgery is to begin in January 1939 with four instructors from the medical school as speakers. Instruction is largely didactic, although clinical material is used whenever available.

A similar extension program in internal medicine starts in April 1939 in Alabama under the joint auspices of the Medical Association of the State of Alabama, the Alabama State Department of Health and the division of medical extension. Circuits of five towns are planned with the instructor visiting each teaching center one day a week for seven times. Approximately twenty or twenty-two centers will be established during the first year. A field organizer will precede the instructor and with the cooperation of the medical association's committee on postgraduate study will obtain the cooperation of local medical societies. A registration fee of $5 will be charged, but since the instructional expense will exceed the amount of this fee donations from the medical and health organizations in Alabama and the Commonwealth Fund of New York will be utilized.

The Graduate School of Medicine of Louisiana State University Medical Center was organized in 1936 when Dr. James T. Nix was appointed dean. The faculty and facilities of the medical center are at the disposal of the graduate school. Three types of intramural instruction have been offered: (1) general review courses designed for practicing physicians, (2) review courses in medicine and in the medical specialties and (3) review courses in surgery and the surgical specialties. In January and February 1938 eight such courses were offered for periods of from two to six weeks. A fee of $100 a month is charged nonresidents of the state for scheduled short review courses, while residents of Louisiana are charged one-half this amount. In addition, personal courses are arranged according to the needs of individual physicians.

Extramural instruction is being given throughout Louisiana in the form of seminars by groups of the faculty of the graduate school of medicine in cooperation with the general extension division of Louisiana State University. The first of these was held at the Lafayette Charity Hospital, Lafayette, La., Dec. 2 and 3, 1938. Twelve members of the faculty participated in the afternoon and evening meetings, which included a clinical pathologic conference. A registration fee of $1 was charged. More than 100 physicians attended. Similar programs designed for practicing physicians are projected in charity hospitals in three other towns of the state.

A special course in diagnosis, treatment and control of the venereal diseases was given at the medical center of Louisiana State University in cooperation with the United States Public Health Service, the Louisiana State Board of Health and the Department of Public Welfare of the City of New Orleans for a period of six weeks beginning Nov. 15, 1938. The attendance was limited to twelve physicians. Didactic instruction with clinical and laboratory experience, conferences and field studies was included.

The Louisiana State University Medical Library offers practicing physicians of the state a library service which includes the compilation of bibliographies. The only charge made is for postage on packages lent by the library.

The New Orleans Graduate Medical Assembly was organized in 1937 by a group of 150 physicians of the Orleans Parish Medical Society. These New Orleans physicians guaranteed the success of the four day assembly, which is held during February or March of each year. Lectures, dry clinics and round table discussions are conducted in a local hotel by eighteen out of state speakers. Louisiana physicians participate also, especially in the scientific exhibits. A registration fee of $10 is charged, while commercial exhibits aid in paying the travel expenses of speakers. Announcements are sent to physicians in thirteen Southern states and notices appear in state medical journals. In 1937, 632 physicians registered, 474 from Louisiana, with nineteen states and the District of Columbia being represented. In 1938, 610 physicians registered, 529 from Louisiana and the remainder from twenty other states.

A Feat of Giant Memory.—Diagnostic knowledge and ability is the first essential of good practice; it therefore becomes in teaching hospitals the most direct and universal measure of medical learning; it is the stepping-stone to personal success. Its highly competitive character is mainly responsible for the atmosphere of intenseness in these institutions. . . . But, from our present standpoint, it lends an exaggerated importance to knowledge of numerous rare diseases, of newly described phenomena of minor interest, and of newly described methods and tests. A desire for encyclopedic knowledge is fostered and grows; it moves in the direction of detail, for the phenomena studied are of great complexity and diversity, and present few of those connecting links in the form of principle or generalization that would serve to lighten what otherwise becomes a feat of giant memory. The result of this system is the loss of much that is of value in the earlier training.—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

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1. Graduate Medical Education: Mississippi, J. A. M. A. 110: 226B (May 28) 1938.

OFFICIAL NOTES

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 2 p. m. eastern standard time (1 p. m. central standard time, 12 o'clock mountain time, 11 a. m. Pacific time).

Starting April 30, daylight saving time takes effect in Chicago. The program will therefore be broadcast at the same hour Chicago daylight saving time, which means one hour earlier central standard time, two hours earlier mountain time and three hours earlier Pacific time. In communities where daylight saving time is in effect there will be no change in the hour of the broadcast.

Owing to network conflicts the Chicago broadcast does not occur at 1 o'clock Wednesday but there is a rebroadcast from a recording over station WENR at 8 o'clock each Monday evening, on and after May 1 (8 o'clock Chicago daylight saving time, 7 o'clock central standard time). The program broadcast each Monday is identical with the network program of the preceding Wednesday.

It has been necessary to curtail the length of the series by omitting the last two programs, which would have been broadcast June 14 and June 21. The series, therefore, will end with the broadcast scheduled for June 7.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

April 26. What Is a Doctor?
May 3. Healthier Mothers.
May 10. The Doctor's Workshop.

THE ST. LOUIS SESSION

Special Radio Programs

Radio programs have been arranged in connection with the annual session of the American Medical Association in St. Louis.

Dr. Irvin Abell, President of the Association, will broadcast over the Blue network of the National Broadcasting Company, Monday, May 15, from 4:15 to 4:30 p. m. central standard time. Dr. Rock Sleyster, President-Elect, will broadcast over the Columbia Broadcasting System, Monday, May 15, from 3:45 to 4 p. m.

Dr. W. W. Bauer, Director of the Bureau of Health Education of the American Medical Association, will broadcast over the Blue network of the National Broadcasting Company Friday, May 19, from 4:15 to 4:30.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 1899 has passed the Senate, providing for the detail of a commissioned medical officer to serve as assistant to the Surgeon General of the United States Public Health Service. S. 1582 has passed the Senate, proposing to authorize the President to bestow a Meritorious Service Medal on any civil officer or employee of the United States, including commissioned officers of the Public Health Service, for the performance of an outstanding act or service involving great physical bravery or heroism, or for the performance of a service to the government or to humanity characterized by exceptional merit and involving a high degree of labor or effort above and beyond the ordinary and usual requirements of his office.

Bills Introduced.—S. 1744, introduced by Senator Reynolds, North Carolina, proposes to direct the Secretary of the Treasury to pay to Bernarr Macfadden the sum of $2,000 together with interest at the rate of 6 per cent per annum from Nov. 11, 1907, in full satisfaction of his claim against the United States for a refund of the fine paid by him as the result of his conviction on Oct. 22, 1907, in a United States district court for mailing certain issues of the magazine entitled *Physical Culture,* which contained "certain allegedly obscene matter." S. 1964, introduced by Senator Wagner, New York, proposes to authorize national banking associations to contribute to community funds or to charitable, philanthropic or benevolent instrumentalities conducive to public welfare such sums as its board of directors may deem expedient and in the interests of the association. H. R. 4923, introduced by Representative Geyer, California, proposes to provide for the forfeiture and seizure of matter sent through the mails relating to contraception, abortion or matter designed, adapted or intended for any indecent or immoral use. H. R. 5272, introduced by Representative Dunn, Pennsylvania, proposes to amend the Social Security Act so as to enable each state to adopt its own interpretation of the phrase "needy individuals who are blind" as used in the act. H. R. 5284, introduced by Representative Merritt, New York, proposes to authorize an appropriation of $1,875,000 to construct a 600 bed capacity veterans' hospital to accommodate general medical and surgical patients. H. R. 5379, introduced by Representative Smith, Ohio, proposes to amend the Federal Food, Drug and Cosmetic Act so as to relieve from certain of the labeling requirements of the act any "drug dispensed by a physician for the treatment of asthma and hay fever where such drug shall have been exclusively dispensed by physicians for at least ten years prior to June 25, 1939." S. 2093 and S. 2140, both introduced by Senator Bone, Washington, propose to permit federal income taxpayers to deduct in connection with their income taxes amounts not in excess of $250 paid during the taxable year for medical, dental, surgical or nursing treatment or hospitalization. H. R. 5134, introduced by Representative Dunn, Pennsylvania, proposes to amend the Social Security Act so as to authorize assistance to blind individuals whether or not the state plan extends only to those blind individuals whom the Social Security Board considers to be needy. H. R. 5475, introduced by Representative Gehrmann, Wisconsin, proposes to prohibit the importation of dairy products produced from milk or cream other than from cows either accredited free of bovine tuberculosis and Bang's disease or under test for such diseases. H. R. 5519, introduced by Representative Anderson, Missouri, proposes to confer certain benefits on commissioned officers and enlisted men in the Army, Navy, Marine Corps, Coast Guard, Geodetic Survey or Public Health Service of the United States who are placed on the retired list for physical disability incident to flying duty. H. R. 5577, introduced by Representative Izac, California, proposes to authorize an appropriation of $950,000 to construct and equip a marine hospital at San Diego. H. R. 5630, introduced by Representative Lea, California, proposes to amend the Federal Food, Drug and Cosmetic Act so as to postpone from June 25, 1939, to Jan. 1, 1940, the effective date of certain of its provisions that have not already gone into effect and of the regulations promulgated thereunder. The provisions of the act to be affected by the pending bill if it should be enacted relate for the most part to labeling requirements for foods, drugs, devices and cosmetics and the use of coal-tar dyes in foods, drugs and cosmetics. The bill also proposes to amend chapter V, section 502 (d) of the act so as to require the labels of drugs containing any narcotic or hypnotic substances to state only the "name and quantity or proportion" rather than the "name, quantity, and percentage" of such substances. H. R. 5657, introduced by Representative Sheppard, California, proposes to provide that any person who served in the military or naval forces of the United States during any war or during any recognized campaign or expedition, and who was not dishonorably separated from such service, shall be granted hos-

pitalization and domiciliary care by the Veterans' Administration, subject to the same restrictions and limitations as are now applicable to World War veterans. H. R. 5689, introduced by Representative Welch, California, proposes, among other things, to provide for the registry of surgeons as staff officers on vessels of the United States. H. R. 5736, introduced by Representative Voorhis, California, proposes to amend the Social Security Act so as to authorize an appropriation of $250,000,000 for the fiscal year ending June 30, 1940, and thereafter each year such sum as may be necessary to enable the states to grant assistance to needy persons who are not eligible for assistance under old-age, dependent children and aid to the blind provisions of the Social Security Act.

DISTRICT OF COLUMBIA

Bills Introduced.—S. 2013, introduced by Senator Capper, Kansas, proposes to amend the Code of the District of Columbia to provide for the organization and regulation of cooperative associations. The bill provides, in part: "In the case of an association formed hereunder which arranges the rendering to its members, of licensed professional services on a nonprofit basis, said association shall not be subject to the insurance laws, shall not be construed as being in violation of any rule against corporate practice of professions, or in violation of statutes regulating licensure of professions." S. 2066, introduced by Senator Reynolds, North Carolina, proposes to provide for the use of scientific tests to determine the degree of intoxication of operators of motor vehicles in the District of Columbia whose vehicle causes personal injury or substantial damage to any other vehicle or property. H. R. 5673, introduced by Representative Bates, Kentucky, proposes to provide that the physicians assigned to Gallinger Municipal Hospital in the District of Columbia and known as chief resident physicians shall be designated and known as chief medical officers.

STATE MEDICAL LEGISLATION

Delaware

Bills Introduced.—Senate Substitute for S. 177, to amend the workmen's compensation act, proposes to increase to $300 from $150 the maximum liability of an employer for surgical, medical and hospital services which he must furnish an injured workman. Senate Substitute for S. 253 proposes to grant to physicians, nurses and hospitals treating persons injured through the negligence of others liens on all rights of action, claims, judgments, compromises or settlements accruing to the injured persons by reason of their injuries.

Florida

Bills Introduced.—S. 35 proposes to require all applicants for licenses to practice the healing art, as a condition precedent to their examination or licensure by their respective professional boards, to pass examinations in anatomy, physiology, chemistry, pathology and bacteriology, to be given by a board of examiners in the basic sciences, each of whose members must be learned in the basic sciences named and be a member of the faculty of a university or college in the state having a four year college course. S. 65 was reported favorably to the senate April 11, proposing to enact a new optometry practice act and to establish a state board of optometry to examine and license persons desiring to practice optometry. The bill proposes to define optometry as "the diagnosis of the human eye and its appendages, and the employment of any objective or subjective means or methods for the purpose of determining the refractive powers of the human eyes, or any visual, muscular, neurological or anatomic anomalies of the human eyes and their appendages, and the prescribing and employment of lenses, prisms, frames, mountings, orthoptic exercises, light frequencies and any other means for the correction, remedy or relief of any insufficiencies or abnormal conditions of the human eyes and their appendages." If the bill were enacted in its present form it might be unlawful for a licensed physician to perform any of the acts embraced in the above definition of optometry unless he were also licensed by the optometry board. S. 73 and H. 247 propose to prohibit the retail sale or distribution, except on the written prescription of a licensed physician, of amytal, luminal, veronal, barbital, acid diethylbarbituric or any trade marked or copyrighted preparation or compound registered in the United States Patent Office containing more than 4 grains to the avoirdupois or fluid ounce of these substances. H. 13 proposes to appropriate $10,000 annually to the State Board of Health for the purchase and distribution of insulin to residents suffering from diabetes or kindred diseases and who are financially unable to purchase the drug. H. 197 proposes to levy an annual state license tax of $10 on every person engaged in the practice of any profession. The bill further proposes to levy in addition a county license tax of $5. The bill also proposes to authorize incorporated cities and towns to impose such further license taxes as they deem proper provided the license tax so imposed does not exceed $5. H. 204 was favorably reported to the house April 12, proposing to authorize every licensed physician to compound and fill prescriptions written by him in his practice from a drug store or apothecary shop owned and operated by the physician.

Illinois

Bills Introduced.—H. 506 proposes that no person licensed under the medical practice act shall be permitted or compelled to testify without the consent of his patient, in any civil action, concerning any information acquired in attending the patient, which was necessary to enable him to prescribe or act for the patient. H. 612, to amend the medical practice act, proposes to limit licensure in the healing art to citizens of the United States. H. 616 proposes to authorize the issuance of a divorce if either spouse is incurably insane and has been so continuously for five years immediately preceding the filing of the complaint for divorce.

Maine

Bill Enacted.—H. 1433 was approved by the governor March 30, authorizing the formation of nonprofit hospital service corporations to enter into contracts with subscribers for the rendering of hospital service to them through hospitals contracting to do so with the corporations in question.

Bill Introduced.—H. 2230 proposes to require a physician attending a pregnant woman to take or cause to be taken a sample of her blood and to submit that sample for a standard serologic test for syphilis to a laboratory of the state department of health and welfare or to a laboratory approved by the department.

Michigan

Bills Introduced.—S. 269 proposes to enact a separate naturopathic practice act and to establish a board of examiners in naturopathy to examine and license persons to practice naturopathy. The bill provides that "for the purpose of this act naturopathy is defined to include mechanotherapy, of every articulation of the human body but not to adjust any articular subluxation of the spinal column, corrective and orthopedic gymnastics, psychotherapy, hydrotherapy and mineral baths, electrotherapy, thermotherapy, phototherapy, chromotherapy, vibrotherapy, thalmotherapy, dietetics which shall consist of and include the use of foods and such biochemical tissue-building products and cell-salts, organic and inorganic, as are found in the normal body, and the use of vegetable oils and dehydrated and pulverized fruits, flowers, seeds, barks, roots, herbs and vegetables, uncompounded and in their natural state." The bill also proposes to make it unlawful for a licentiate to use any title other than the title "doctor of naturopathy." S. 317 proposes to regulate the manufacturing, producing, sale and distribution of drugs, cosmetics and medical supplies and to enact a new pharmacy practice act. S. 318, to amend the narcotic drug act, proposes, among other things, to permit a physician to cause narcotic drugs to be administered by a nurse or intern under his direction. The present law provides that he may cause such drugs to be administered by a nurse or intern under his direction *and supervision.* S. 319 proposes to regulate the manufacture, sale and advertising of foods, drugs, cosmetics and devices. H. 386 proposes to authorize the organization of corporations to operate voluntary nonprofit osteopathic care plans "whereby osteopathic care is provided at the expense of such corporation to such persons or groups of persons as shall become subscribers to such plan, under contracts which will entitle each such subscriber to definite health *and surgical care* and supplies, by licensed and registered doctors of the osteopathic school of medicine in their office, in

hospitals, and in the home." As noted, this bill proposes to permit osteopaths to render "surgical care." It is extremely doubtful whether the licenses granted osteopaths by virtue of the present osteopathic practice act permits such licentiates to practice surgery.

Minnesota

Bills Introduced.—S. 1262 proposes to prohibit the retail sale or distribution of devices, appliances, drugs or medicinal agents used for the prevention of venereal disease except by licensed physicians and persons licensed by the State Board of Pharmacy to do so. S. 1289 and H. 1454 propose a procedure whereby hospitals not operated for profit and registered with the State Department of Health may be reimbursed for care and treatment rendered indigents injured in motor vehicle accidents. H. 1367 and S. 1248 propose to authorize the organization of corporations to operate not for profit hospital service plans whereby hospital service may be provided by a hospital or hospitals, with whom such corporations have contracted, to those persons who become subscribers to such plans under contracts which entitle each subscriber to stated hospital care.

Missouri

Bills Introduced.—S. 348, to supplement the osteopathic practice act, proposes that in the administration of any public health project within the state, whether conducted with state funds or with funds furnished by the United States government to be expended by any Missouri agency, "all doctors of medicine and doctors of osteopathy must be accorded equal rights and privileges." H. 692 proposes as a condition precedent to the issuance of a license to marry that both parties to the proposed marriage present the certificate of a licensed physician that he or she is free from venereal disease in a communicable stage.

Nebraska

Bill Introduced.—Bill 507 proposes to authorize the organization of corporations not for profit to operate nonprofit hospital service plans whereby hospital service may be provided by such corporations or by hospitals with whom they have contracted to persons who become subscribers under contracts with the corporations. Hospital service to be provided by such a corporation is to consist of hospital care, including board and room, general nursing care, use of operating room, and routine laboratory services.

New Jersey

Bills Introduced.—S. 318 proposes that the law making it a misdemeanor to inflict unnecessary cruelty on a living animal shall not be construed to prohibit or interfere with properly conducted scientific experiments performed under the authority of the State Department of Health. The present law apparently limits the institutions or societies which the department may authorize to conduct such experiments by stating that the department may authorize such experiments to be conducted by agricultural stations and schools maintained by the state or federal government or by medical societies, universities, colleges and philanthropic institutions incorporated or authorized to do business in the state and having among their corporate purposes investigation into the causes, nature, prevention and cure of diseases. A. 296 proposes extensive amendments to the existing medical practice act. Among other things, the bill proposes to authorize the issuance of licenses to naturopaths and to provide that two members of the board of medical examiners must be naturopaths. The bill also proposes that persons licensed to practice osteopathy prior to May 23, 1935, may continue to practice osteopathy "as herein defined," defining the practice of osteopathy to "include the diagnosing, treating, operating or prescribing for any human disease, pain, injury, deformity, mental or physical condition; *provided, however,* that a license to practice osteopathy shall not permit the holder thereof to prescribe, administer or dispense drugs for internal use in the treatment of any human ailment, disease, pain, injury, deformity, mental or physical condition or to perform such surgical operations as require cutting." The bill also proposes to redefine the practice of chiropractic to "include the diagnosing, treating, dietary and hygienic control, and the detecting and adjusting, by hand of vertebral subluxations for the relief of pain and disease; *provided, however,* that a license to practice chiropractic shall not entitle the holder to perform surgery or administer drugs." The bill proposes also to require applicants for a license to practice any form of the healing art to present evidence, among other things, of having completed an internship acceptable to the board for at least one year in a hospital approved by the board or in lieu thereof to have completed one year of postgraduate work acceptable to the board except that naturopaths and chiropractors may serve internships in professional schools or clinics approved by members of the board of examiners who are osteopaths, chiropractors and naturopaths. A. 459 proposes to enact a separate chiropractic practice act and to establish a board of chiropractic examiners to examine and license persons to practice chiropractic. The bill proposes to define "chiropractic" as "The science of diagnosing, locating and correcting interference with nerve transmission and expression. The license to practice chiropractic shall include diagnosing, treating and prescribing for any human disease, pain, injury, deformity, mental or physical condition; provided, however, that a license to practice chiropractic shall not permit the holder thereof to prescribe, administer, or dispense drugs in the treatment of any human ailment, disease, pain, injury, deformity, mental or physical condition or to perform such surgical operations as require cutting."

New York

Bills Introduced.—A. 2251 and S. 1786 propose to require the state to reimburse a county 75 per cent of the total expended by it in extending "physical repair" to physically handicapped adult unemployed persons. The bills define "physical repair" as "the substantial correction or cure, by surgical or medical treatment and care, or by hospitalization, or by use of approved apparatus or device, of physical defects or physical disabilities of physically handicapped adult unemployed persons in such manner and to such extent as reasonably may be expected to fit them for remunerative occupation or employment." The bills then impose on the counties or other political subdivisions the duty of supplying such "physical repair" to the individuals noted. A. 2252 and A. 2241 propose a system of compulsory and voluntary health insurance, whose benefits are to consist of all forms of medical, dental and hospital services. All employees, excepting only persons employed at other than manual labor and receiving wages in excess of $2,500 a year, are to be subject to the compulsory insurance of the bill. All other persons are eligible to accept the voluntary insurance offered by them. S. 1776 and A. 2243 propose to create a temporary commission to survey the existence and prevalence of hay fever in the state, to devise ways and means for its prevention and elimination and to recommend methods for the treatment, relief and cure of persons suffering from hay fever. The bill proposes to appropriate $10,000 to defray the expense of the commission. A. 2242 proposes to prohibit the employment as a domestic servant of any person who does not possess a physician's certificate, executed after a physical examination and a standard serologic test for syphilis, that the person named is not infected with syphilis, or, if infected, is not in a stage of that disease whereby it may become communicable. In effect, the bill proposes to require such servants to submit to the examination stated annually. S. 1719 proposes to recodify the insurance laws of the state. It includes an article IX-C, which will permit the organization of nonprofit corporations either (1) to furnish medical expense indemnity or (2) to operate hospital service plans to persons who become subscribers under contracts with such corporations. Medical expense indemnity is to consist of reimbursement for medical care provided through duly licensed physicians, for nursing service and for furnishing necessary appliances, medicines and supplies. Each such plan must be open to the participation of duly licensed physicians without discrimination against schools of medical practice. S. 1627 and A. 2082 propose to extend to March 15, 1940, the life of the committee authorized by chapter 682, Laws, 1938, to investigate the health requirements of the people and to recommend such health insurance proposals or proposals with respect to state medicine as it deems advisable. A. 2107 proposes, in effect, to permit each recipient of relief to select the physician or dentist he desires to treat him at state expense.

Oklahoma

Bills Introduced.—H. 519, to amend the medical practice act, proposes (1) to require representation on the board of medical examiners for regular, eclectic and homeopathic physicians,

omitting the provision in the present law which requires one member of the board to be a physio-medic physician; (2) to provide that "the employment of what is commonly known as 'cappers' or 'steerers' in procuring practice" shall be cause for the revocation or suspension of a license "Provided that the term 'Cappers' or 'Steerers' shall not be construed to apply to: Bona fide Agents of Hospitals and Clinics legally organized. Provided further that such hospitals or clinics shall not be permitted to enter into contracts for hospital or medical services to be performed within thirty days of the date of said contract and provided further that said organization of clinics or hospitals shall be organized on a mutual or cooperative non-profit plan in connection with some recognized farm or labor union or church or charitable organization"; (3) to make it a ground for revocation or suspension of a license for a licentiate to have professional connection with or to lend his name to any person engaged unlawfully in the practice of medicine and surgery or for a licentiate to engage in practice under any name other than the one specified in his license; (4) to provide that a licentiate whose license has been revoked or suspended by the board of examiners may appeal to the district court of the county of his residence, which is to try the case de novo, the present law providing for an appeal directly to the Supreme Court from the decision of the board, and (5) to provide that no decision of the board revoking or suspending a license shall become final "pending final decision of the Supreme Court of this State." H. 624 proposes to repeal the present chiropractic practice act and apparently the basic science act so far as it relates to chiropractors. The bill proposes that the governor of the state, the secretary of state and the chairman of the corporation commission shall constitute a board of commissioners to determine the reputability of chiropractic educational institutions. A person desiring to practice chiropractic must apply to this board for a certificate of reputability of the chiropractic institution from which he graduated. On the issue of such a certificate, a person designated as a trustee to enforce the act is required to issue without examination or any other showing of qualifications a license to practice chiropractic. Apparently an applicant to obtain such a license need not pass a basic science examination. The bill proposes to define chiropractic as "the science and art of Chiropractic as taught in reputable Chiropractic Educational Institutions; provided that the art of Chiropractic consists in the palpation and adjusting of disrelationship in or of the vertebral column, and incidentally that of any part of the human body that in any manner affects the attitude or relationship of the vertebral column, by the hands of the Chiropractor only, to relieve or remove interference with the receipt, transmission, or application of nerve force."

Pennsylvania

Bills Introduced.—H. 671 proposes a system of compulsory and voluntary health insurance, the benefits of which are to consist, among other things, of all forms of medical, dental and hospital services. All employees except farm laborers and domestic servants of an employer having less than three domestic servants are to be subject to the compulsory features of the bill. All other persons may elect to come under the voluntary provisions of the bill. H. 685 and H. 686 propose to authorize the organization of corporations to operate nonprofit medical service plans whereby medical services may be provided to subscribers of low income "for prepayment, periodical or lump sum payments." H. 709 proposes to prohibit the manufacture, distribution or advertising of misbranded or adulterated foods, drugs, cosmetics and devices. H. 716 proposes to authorize any licensed optometrist to issue the certificate of ocular and visual efficiency which may be required by any law of the commonwealth or by any ordinance or resolution of any political subdivision of the commonwealth. H. 727 proposes (1) to prohibit the operation of a pharmacy or hospital unless registered with the State Board of Pharmacy and (2) to prohibit any person or broker, except a person owning or operating or employed in a pharmacy, hospital, place of manufacture or wholesale vender's place of business from vending any drugs, cosmetics or medical supplies unless licensed by the State Board of Pharmacy. H. 728 proposes to place the sale and distribution of cosmetics, as defined, within the prohibitions of the pharmacy practice act. H. 756 proposes to require the Department of Welfare to supply hearing aids or devices to persons who are deaf or hard of hearing and who are financially unable to purchase them. H. 934 proposes to authorize the formation of corporations "for the purpose of establishing, maintaining and operating a non-profit healing art service plan whereby healing arts services may be provided through any person registered with such corporation to subscribers thereto and their dependents." Healing art services, according to the bill, means the general and usual services rendered and care administered by doctors of medicine, doctors of osteopathy, dentists, registered nurses and registered pharmacists. The bill proposes that each branch of the healing arts noted which desires to participate in such a corporation shall have at least one incorporator and that no branch of the healing arts shall have a majority of incorporators. S. 318 proposes to authorize the sexual sterilization of inmates of state institutions who are criminally insane or who have been convicted a second time of a sex crime. H. 786 proposes to enact a separate chiropractic practice act and to establish an independent chiropractic board of examination and licensure to examine and license persons applying for licenses to practice chiropractic. The bill defines chiropractic as "the examination of the human spine by observation palpation or X-ray and the adjustment of any or all misalignments of vertebrae or adjacent bones or tissues through the use of the hands." H. 818 proposes to appropriate $10,000 to the Department of Health for the care and maintenance of carriers of typhoid fever bacilli.

Rhode Island

Bill Passed.—H. 782 passed the house March 29, proposing to grant to hospitals treating persons injured by reason of an accident not covered by the workmen's compensation act, liens on all claims, rights of action, judgments or compromises accruing to the injured persons because of their injuries.

Bill Introduced.—S. 181 proposes to require all applicants for licenses to practice any form of the healing art as a condition precedent to examination and licensure by their respective "professional" boards, to pass examinations in anatomy, physiology, pathology, symptomatology, chemistry, bacteriology and public health, to be given by the board of examiners in the basic sciences. The members of this board are to be selected because of their knowledge of the basic sciences mentioned and each member is to be a member of the faculty either of Brown University, of Rhode Island State College or of Providence College. No member of the board may be actually engaged in the practice of the healing art.

Texas

Bill Introduced.—H. 897 proposes to prohibit the sale of any truss or other mechanical device commonly used for the relief of rupture or hernia, except on the written prescription of a licensed physician. The bill also proposes to make it unlawful for any person other than a licensed physician to offer to fit any such truss or mechanical device.

Vermont

Bill Enacted.—H. 68 was approved by the governor April 10, authorizing the organization of corporations to operate nonprofit hospital service plans whereby hospital care may be provided by hospitals with whom such corporations have contracted for such care to such of the public as become subscribers to plans under contracts which entitle each subscriber to stated hospital care.

Wisconsin

Bills Introduced.—A. 543, to amend the medical practice act, proposes that no hospital supported in whole or in part by public funds or exempt from public taxation shall discriminate against any physician whose license to practice has been revoked and subsequently restored, nor deny him admission to practice in such hospital. A. 574 proposes to require the expenditure annually of $25,000 for the study of and research into the causes, prevention and cure of cancer. A. 599 proposes to require licensed physicians who are nonresidents to file their licenses or certificates with the county clerk in each county in which they practice.

WOMAN'S AUXILIARY

Georgia

At a meeting of the auxiliary to the Clark County Medical Society, Dr. W. D. Gholston, Danielsville, spoke on socialized medicine. Miss Susan Myrick, columnist and feature writer of the Macon *Telegraph*, spoke on "Problems of the Adolescent" at a recent meeting of the auxiliary to the Bibb County Medical Society.

The auxiliary to the Fulton County Medical Society met recently at the Academy of Medicine in Atlanta. Mrs. Warren A. Coleman, president of the auxiliary to the Medical Association of Georgia, and Dean Raimundo de Ovies of St. Phillip's Cathedral gave addresses. The auxiliary sponsored a health program January 11, attended by presidents and health chairmen of the Parent Teacher Association. A film, "Three Counties Against Syphilis," depicted the work of the mobile unit last summer. The auxiliary has raised funds for the treatment of patients with infantile paralysis.

The auxiliary to the Richmond County Medical Society met at the home of Mrs. Ralph Chaney, Augusta, in November. Miss Fannie B. Shaw, director of health education of the state department of public health, was the speaker.

Idaho

The auxiliary to the Boise Medical Society met at the home of Mrs. O. F. Swindell January 10. Mrs. Edith Davis spoke on problems arising in the home and school in the care of twins and triplets. The south side auxiliary met January 13 at Twin Falls. Mrs. A. A. Boston reviewed an article on the American Medical Association which was recently published in *Fortune* magazine.

The auxiliary to the North Idaho Medical Association met in Lewiston January 18. The auxiliary is preparing a history of the medical men who were pioneers of the region and a collection of old instruments and other equipment used by them.

The auxiliary to the Kootenai County Medical Association met at the home of Mrs. Alexander Barclay Jr. in Coeur d'Alene January 3. Mrs. R. T. Henson, president, asked members to cooperate with other auxiliaries in compiling data on the early physicians of Idaho. Garments for infants were made and will be distributed through the county health unit.

Illinois

An auxiliary to the DeWitt County Medical Society was recently organized with the assistance of Mrs. Charles C. Winning, chairman of organization of the auxiliary to the Illinois State Medical Society.

Dr. Harry Otten, Springfield, spoke on socialized medicine at a meeting of the auxiliary to the McLean County Medical Society January 10.

At a meeting of the auxiliary to the Sangamon County Medical Society in Springfield January 9 Mrs. S. R. Magill reviewed "The Stormy Petrel of Surgery," and February 13 Dr. G. Henry Mundt of Chicago spoke on socialized medicine.

Iowa

The sixth Annual Health Essay Contest, sponsored by the Iowa State Medical Society on "Good Health and How to Maintain It," closed March 15. Any high school student in Iowa was eligible to participate. The judges included a member of the state department of public instruction, of the state department of health and of the Iowa State Medical Society and two members of the auxiliary.

Kentucky

The auxiliary to the Hardin County Medical Society in Elizabethtown was addressed by Mrs. Walter Scott, who spoke on the antepartum and maternity work which the TVA is doing in conjunction with the public health service.

Mrs. Arthur T. McCormack entertained the auxiliary to the Jefferson County Medical Society at Louisville on the occasion of the birthday of the Woman's Auxiliary Section of the *Kentucky Medical Journal*.

The Auxiliary has established a benevolent fund for widows and orphans of former members of the Jefferson County Medical Society. At a party to raise money for this fund in November $119 was realized. On November 30, the auxiliary, cooperating with the Social Hygiene Association, sponsored a motion picture "Under Five Flags," raising $25 for the benefit of the sewing unit of the auxiliary. The Hospital Committee raised funds for the Children's Free Hospital at Christmas time, and also distributed gifts to patients in the City Hospital.

Minnesota

The auxiliary to the Olmsted-Houston-Fillmore-Dodge County Medical Society met at the Mayo Foundation House, Rochester, January 4. Edward H. Weld Jr. discussed health insurance plans being tried in various localities. Mrs. H. C. Habein, president, gave an illustrated talk on England.

Dr. George A. Earl and Mr. F. M. Brist addressed the board meeting of the auxiliary to the Minnesota State Medical Association in St. Paul February 1.

Nebraska

Mrs. Lucian Stark, former member of the state legislature of Nebraska, discussed lobbying and legislative procedure at a meeting of the board of directors of the auxiliary to the Nebraska State Medical Association in Lincoln, January 16.

Oklahoma

The auxiliary to the Pittsburg County Medical Society met in December and prepared Christmas baskets, also contributing cod liver oil to families in need of this remedy. January 13 a meeting was held in McAlester. Mrs. Walter Dell reviewed the "Life of Baron Lerry, French Military Surgeon."

The auxiliary to the Garfield County Medical Society is helping underprivileged children in Enid.

Dr. Ned R. Smith gave an address on socialized medicine in foreign countries at a meeting of the auxiliary to the Tulsa County Medical Society January 3.

The auxiliary to the Oklahoma City Medical Society, January 25, resumed their regular monthly sewing and scrap-book making for the Crippled Children's Hospital, with sixty-seven members present. A report on Medical Legislation was given by Mrs. George Garrison, president of the auxiliary to the Oklahoma State Medical Association.

Oregon

An auxiliary to the Josephine County Medical Society was organized at Grants Pass in October. An address was given by Dr. S. B. Osgood, secretary of the county society. The members will have as a definite project the distribution of *Hygeia*.

The auxiliary to the Coos-Curry Counties Medical Society was held at Bandon in November. Many of the members drove long distances to attend the meeting. A program was held on "Socialized Medicine and How the Auxiliary Can Combat It."

Dr. Charles E. Sears spoke on "What the Medical Society Can Do to Provide Better Medical Aid to the People," and Dr. R. L. Benson on "The National Health Conference" before the auxiliary to the Multnomah Medical Society.

The Oregon auxiliary will stress the study of socialized medicine in all its auxiliaries this year.

Pennsylvania

The auxiliary to the Allegheny County Medical Society met in Pittsburgh November 22. Plans were made for forming study groups for the discussion of socialized medicine. Dr. George R. Harris, secretary of the medical society, and Mr. Homer Saint Gaudens, director of the Department of Fine Arts of Carnegie Institute, were speakers.

The auxiliary to the Berks County Medical Society in Reading January 21 held a health conference. Mrs. Augustus S. Kech discussed socialized medicine and Dr. Harry B. Corrigan spoke on "Communicable Diseases and Their Prevention."

Mrs. Walter F. Donaldson, president of the auxiliary to the Medical Society of the State of Pennsylvania, was speaker at a recent meeting of the auxiliary to the Lehigh Medical Society.

The auxiliary entertained with a card party November 30 for the benefit of the Medical Benevolence Fund.

The auxiliary to the Chester County Medical Society met at Glen Mills School November 15. The program was arranged by Major H. R. Hickman, superintendent.

At a meeting of the auxiliary to the Northampton County Medical Society November 9 Mrs. Donaldson spoke briefly on the enlarged public relations program that the state medical society had planned for the auxiliaries, suggesting that the county auxiliary hold a health institute each year.

South Carolina

Dr. W. A. Hart discussed the new Maternal Health Center in Richland County before the auxiliary to the Columbia Medical Society in November.

Dr. John F. Rainey spoke on heart disease in December before the auxiliary to the Greenville Medical Society. Among the guests were Mrs. Charles P. Corn, president-elect of the auxiliary to the Southern Medical Association, and Mrs. C. C. Ariail, president of the auxiliary to the South Carolina Medical Association.

Mrs. C. C. Ariail addressed the auxiliary to the Spartanburg County Medical Society at a recent meeting on "The Doctor's Wife and the Educational Project to Be Sponsored by Each Auxiliary."

Wisconsin

The auxiliary to the Dane County Medical Society, Madison, January 11, voted to donate $10 to the Chinese Aid Council for nursing and medical supplies.

The auxiliary to the Medical Society of Milwaukee County gave a tea and musicale in honor of the new officers January 13. More than 100 members were present. Dr. Eben J. Carey, dean of Marquette University School of Medicine, discussed the national health program at a meeting of the auxiliary February 10.

MEDICAL ECONOMIC ABSTRACTS

CASH INSURANCE IN FRANCE

According to a report of the French delegate to the recent meeting of the International Medical Association, the existence of a partial cash indemnity provision in the French system has enabled it to pass through a recent crisis without resorting to that deterioration of quality of medical service and consequent deception of the patient that invariably characterize such crises in systems based on service benefits.

According to the report, which appears in the *Revue internationale de médecine professionnelle et sociale* (**11**:133 [Nov.] 1938), the fall in the value of the franc led to an increase in the income limits for the insured and compelled the physicians to raise their fees as measured in the falling franc. The French system of sickness insurance provides that the insured shall pay approximately 20 per cent of a legal reimbursement fee schedule. The physician may charge whatever fee he wishes, which is paid by the insured, who then looks to the insurance organization for reimbursement of 80 per cent of a fixed schedule.

In 1937 and 1938 the cost of living increased so rapidly in Paris that the physicians were compelled to increase their charges. Since the reimbursement schedule remained fixed, the burden on the insured became much heavier until they were required in many cases to pay 50 per cent of the cost. To meet this situation, which in other countries has been met by a forced reduction of the quality of the service, the insurance administration, which had already raised the salaries of its own administrators, was compelled by the Ministry to raise the schedule of reimbursement. In spite of this increase, the insured is still compelled to pay about one third of the costs.

The French representative explains that the French system at least permits some fairly rapid adjustments to monetary or economic changes without the long and usually hopeless conflicts between physicians and insurance societies which arise out of attempts to adjust the payment for medical service.

UNEMPLOYMENT AND HEALTH INSURANCE IN GREAT BRITAIN

While the benefits provided by unemployment insurance in Great Britain have been frequently changed to meet conditions, health insurance provisions remain inflexible. This puzzles the Bureau of Research and Statistics of the Social Security Board, which has just published a report on "Unemployment and Health Insurance in Great Britain, 1911-1937," in which this conclusion concerning alterations in the respective systems is repeated several times. A royal commission was similarly puzzled in 1926 and could only say that this condition "seems to us difficult to defend."

The Bureau of Research and Statistics and the royal commission compared only cash payments for unemployment in the two systems and both overlooked the existence of the same failure to alter terms in accordance with new conditions in the provision for medical treatment. This inflexibility in medical service works a far greater injustice and probably offers the real explanation of the failure of cash payments during illness to keep step with similar payments under unemployment insurance. All existing compulsory sickness insurance systems balance their books by failure of patients to evaluate the quality of medical service given; this makes it unnecessary to raise cash premiums as scientific progress increases the cost of providing benefits.

Flexibility in unemployment insurance is due primarily to the fact that premiums and benefits are both paid in cash, the value of which can be judged by the insured. The inflexibility in sickness insurance is maintained by reason of the fact that when cash premiums are changed into service benefits before they reach the insured the latter are unable to judge what they receive and do not realize that the books are balanced at the expense of their health.

BEWARE OF COLLECTION AGENCIES

The officers of a large midwestern collection agency which used an "account purchasing" contract were sentenced to serve three years for use of the mails to defraud. After some court delays these officers are now in custody and on the way to the penitentiary.

For years physicians have been warned by THE JOURNAL to beware of collection agencies, especially those using contracts. An account purchasing contract gives the appearance of being a finance plan by promising to pay the physician from 50 to 80 per cent of the face value of current accounts listed for collection. Actually the agency using such a contract is not obligated to liquidate any accounts but offers the account purchasing device as an inducement to obtain a list of delinquent accounts from the physician.

Once the physician has signed this type of contract, he finds that it contains all the provisions of the old collection contract, permitting the agency to have ownership of the accounts, power of attorney to settle the accounts in any manner which the company chooses, full commissions on accounts when the dissatisfied physician seeks to have them withdrawn, and perhaps a docket fee entitling the agency to 50 cents on each account listed. A special feature of the account purchasing contract permits the agency to retain 25 or 30 per cent of the aggregate amount of the accounts listed for collection. If $500 worth of accounts has been listed, the agency is entitled, under the 30 per cent contract, to $150 before the physician has to be paid anything.

With the precedent set by the aforementioned case, collection agencies which pretend to be finance companies and withhold an accounting of money collected from delinquent debtors are now recognized by postal authorities as "schemes to defraud." Agents or officers of the agency in question have organized at least five other collection agencies which use similar contracts. There are also many other independently organized agencies that use such "account purchasing" contracts. The post office inspectors are waiting for complaints.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ADDITIONAL MEDICAL COLLEGE NEWS AND ARTICLES APPEAR IN THE STUDENT SECTION, PAGE 1643

CALIFORNIA

University News.—A short course for practicing physicians on 'Endocrinology and Related Metabolic Diseases" was given at the University of California Medical School, San Francisco, April 5-8. The medical school observed 'alumni day' March 22 as a part of the celebration commemorating the seventy-first charter anniversary of the University of California.

Epidemic Diarrhea of the Newborn.—Two outbreaks of epidemic diarrhea in the newborn were investigated during February, one in the southern part of the state and the other in northern California, according to the bulletin of the state board of health. Both outbreaks occurred in nurseries connected with institutions. Clinically, they were identical. Within from five to seven days after birth the infants became ill with diarrhea, dehydration, loss of weight and toxemia. Eleven cases occurred in one nursery and twenty-seven in the other. The exact cause of these outbreaks is unknown and all bacteriologic work undertaken up to March 18 had proved negative. Certain control measures have proved effective in preventing the spread of the epidemic.

COLORADO

Annual Spring Clinics.—The sixth annual spring clinics of the Pueblo County Medical Society will be presented April 28-29 at the Congress Hotel, Pueblo. The speakers will be:

- Dr. John B. Farley, Pueblo, Corpus Luteum and Its Role in Vomiting of Pregnancy
- Dr. Scott A. Gale, Pueblo, The Kidney in Pregnancy
- Dr. William T. H. Baker, Pueblo, Congenital Uterine Malformations
- Dr. Clinton K. Smith, Kansas City, Mo., Urinary Infections
- Dr. John D. Geissinger, Pueblo, Vomiting in Infancy
- Dr. Charles W. Streamer, Pueblo, A Resume of Some of the Newer Things in Medicine
- Dr. Lester L. Ward, Pueblo, Lesions of the Lung Excluding Pneumonia and Tuberculosis
- Dr. Osgoode S. Philpott, Denver, Current Ideas Regarding Etiology, Diagnosis and Treatment of Herpes Zoster
- Dr. Francis W. Cutts, Pueblo, Fatalistic Attitudes in Modern Medicine
- Dr. Samuel B. Potter, Pueblo, Relaxations of the Pelvic Floor: Causes
- Dr. J. Sims Norman, Pueblo, Early Orthopedic Treatment of Infantile Paralysis
- Dr. William Andrew Bunten, Cheyenne, Craniocerebral Injuries
- Dr. Kenneth M. Kelley Jr., Pueblo, Toxic Reactions Following the Use of Sedatives
- Dr. Royal H. Finney, Pueblo, Amebiasis
- Dr. Frank H. Zimmerman, Pueblo, Dementia Praecox
- Dr. Tate Miller, Dallas, Texas, Colitis

In the evening there will be a stag banquet at the Colorado State Hospital.

CONNECTICUT

The State of Health.—The general death rate in Connecticut was 9.7 per thousand population, the lowest on record, according to provisional figures. The births totaled 23,397 for the year, accounting for a rate of 13.1 per thousand population, the highest since 1933, when it was 13.2. The infant mortality rate was 36.3 per thousand living births. The maternal mortality rate was 2.9 per thousand living births from a total of sixty-seven maternal deaths.

DELAWARE

Society News.—A symposium on heart disease was presented before the New Castle County Medical Society, Wilmington, March 17 by members of the staff of the Woman's Medical College of Pennsylvania: Drs. Henry D. Jump, Robert G. Torrey, Jacob H. Vastine and William G. Leaman Jr. Dr. Joseph Stokes Jr., Philadelphia, discussed "Advances in the Study of Acute Infectious Diseases' before the society February 21. Dr. M. Edward Marten, Brooklyn, lectured at the Delaware Academy of Medicine March 28 on "Advantages of the State Medical Examiner in Contrast to the Present Coroner's Office."

DISTRICT OF COLUMBIA

Lectures by Professor Carlson.—Dr. Anton J. Carlson, professor of physiology, Department of Medicine, Division of Biological Sciences, University of Chicago, will address the Academy of Medicine, Washington, April 24 on "Science and the Common Life." He will address the Smith-Reed-Russell Society of George Washington University School of Medicine April 25 on "Notes on Medical Education and Medical and Public Health Services in Russia and China."

Portrait of Dr. William A. White.—A portrait of the late Dr. William A. White, former superintendent of St. Elizabeths Hospital, Washington, was presented to the hospital by the Rev. U. G. B. Pierce, president of the board of visitors, on behalf of Dr. White's friends and associates. It was accepted on behalf of the Department of the Interior by Secretary Harold L. Ickes, who paid tribute to Dr. White's contribution to the hospital and to American psychiatry and who emphasized the fact that the hospital "always had been administered by outstanding men who had been free from political interference." Dr. Winfred Overholser, superintendent, announced that Mrs. White had given to the hospital Dr. White's library relating to psychiatry and the broad field of medical sciences, it was formally accepted by Secretary Ickes.

IDAHO

New Director of Public Health.—Dr. Howard L. McMartin, Boise, formerly director of the division of maternal and child health and crippled children, state department of public welfare, has been appointed director of the division of public health of the department.

ILLINOIS

Tuberculosis Meeting.—The annual meeting of the Illinois Tuberculosis Association will be held at the Pere Marquette Hotel, Peoria, April 24-25. Among other speakers will be: Drs. Edward Kent Ellis, Murphysboro, "The Family Physician and the Tuberculosis Problem in Southern Illinois", William T. Holladay, Amboy, 'The Family Physician Views the Tuberculosis Problem", Loren L. Collins, La Salle, "The Sanatorium Aids the Family Physician," and Frederick M. F. Meixner, Peoria, "The Peoria Sanatorium District."

State Medical Meeting in Rockford.—The ninety-ninth annual meeting of the Illinois State Medical Society will be held at Rockford May 2-4 with headquarters at the Faust Hotel, under the presidency of Dr. Samuel E. Munson, Springfield. Dr. Leroy E. Parkins, Boston, will deliver the oration in medicine Tuesday afternoon on "Integration of Personality Factors in Health and Disease" and Dr. Hiram Winnett Orr, Lincoln, the oration in surgery Wednesday morning on "The Prevention and Cure of Local and General Infection in Compound Fractures and Other Open Wounds." Among the physicians on the program are:

- Dr. Isidor Harrison Tumpeer, Chicago, The Upper Respiratory Revenge of the Allergic Child
- Dr. Mitchell A. Spellberg, Chicago, Role of Ceviramic Acid in Various Clinical Conditions
- Dr. Karl A. Meyer, Chicago, Management of Local and Spreading Peritonitis Associated with Appendicitis
- Dr. Warren H. Cole, Chicago, Surgery of the Common Bile Duct
- Dr. Winston H. Tucker, Evanston, Rocky Mountain Spotted Fever in Illinois
- Dr. Howard A. Lindberg, Chicago, The Pneumonia Control Program in Illinois
- Dr. Pierre A. Steele, Decatur, Tularemia
- Dr. Lawrence M. Hilt, Grand Rapids, Mich., Some Pitfalls in Roentgenologic Diagnosis

The program includes symposiums on pneumonia and fractures, one session on endocrinology and Tuesday afternoon the following instruction courses:

- Dr. Jacob J. Potter, Rockford, Anatomy and Pathology of the Middle Ear Tract
- Drs. Thomas C. Galloway and Eustace J. Benjamin, Evanston, Acute Laryngeal Obstruction: Its Causes, Pathology and Treatment
- Dr. Thomas D. Allen, Chicago, Gonioscopy
- Dr. George P. Guibor, Ottawa, Ill., Concomitant Strabismus: Some Important Details in Its Diagnosis

The secretaries' conference will be held Tuesday evening with the following speakers:

- Dr. Robert S. Berghoff, Chicago, Cooperation of the County Secretaries with the Scientific Committee
- Dr. William W. Bauer, Chicago, The Influence of Health Education on the Practice of Medicine
- Dr. Herman M. Soloway, Chicago, Syphilis Control in Illinois: Its Relation to County Societies

Among others, Dr. Elston L. Belknap, Milwaukee, will address the Central States Society of Industrial Medicine and Surgery Tuesday morning on 'Practical Tests of Functional Capacity in Silicotics." At a meeting of the Physicians' Asso-

ciation, state department of public welfare Tuesday a feature will be a symposium on mental disorders following head trauma. The president's dinner will be Wednesday evening with Dr. Rock Sleyster, Wauwatosa, Wis., President-Elect, American Medical Association, as the speaker. There will also be a veterans' service committee dinner and various alumni luncheons.

Chicago

Lectures at Billings Hospital.—Dr. August Krogh, director of the Institute of Zoophysiology, University of Copenhagen, Denmark, and winner of the 1920 Nobel Prize in physiology, will lecture at the Billings Hospital, University of Chicago, May 2. His subject will be "The Effects of Posture on Circulation." Dr. Thomas Addis, San Francisco, will lecture at the hospital April 24 on "The Treatment of Nephritis."

Surgical Prize Awarded to Dr. Hedin.—The first annual award of the Chicago Surgical Society will be made at a meeting of the society May 5 to Dr. Raymond F. Hedin of Cook County Hospital and the department of surgery, Rush Medical College. Dr. Hedin's essay, entitled "Polypoid Disease of the Colon: Two Proposed Surgical Procedures, Including the Description of a Colonoscope," will be presented at the same meeting. The $250 prize is offered to some young man devoting himself to surgery in Chicago, who is not a member of the Chicago Surgical Society, for meritorious work in one or both of the fields of experimental and clinical surgery.

Course on the Rorschach Method.—S. J. Beck, Ph.D., will conduct a course in the application of the Rorschach method at Michael Reese Hospital, Chicago, May 15-20, the week following the annual convention of the American Psychiatric Association. Additional information may be obtained from the librarian of the hospital. Tentative plans are also being made for a similar ten day course to be offered later in the summer. The dates will be arranged to meet the convenience of prospective registrants. Interested persons having preferences as to date are invited to communicate with the librarian of the hospital.

INDIANA

Changes in Health Officers.—Dr. William Harry Hutto has been appointed health officer of Kokomo and secretary of the city board of health, succeeding Dr. William J. Martin. Dr. Claude Dollens, Oolitic, has been appointed health officer of Lawrence County, succeeding the late Dr. John S. Woolery, Bedford. Dr. Thomas J. McKean, Montpellier, has been named health officer of Blackford County to succeed the late Dr. Elmer D. Shadday.

Society News.—Dr. Jacob Arnold Bargen, Rochester, Minn., discussed "Medical and Preoperative Management of Intestinal Obstruction" before the Tippecanoe County Medical Society at Lafayette April 11.——The LaPorte County Medical Society was addressed in Michigan City March 16 by Dr. Reed M. Nesbit, Ann Arbor, Mich., on "Treatment of Urinary Tract Infections with Reference to the Newer Drugs."——At a meeting of the Floyd County Medical Society, New Albany, March 10, Dr. John F. Habermel, New Albany, spoke on "Early Signs and Symptoms of Cancer."——Dr. Andrew M. Brenner, Winchester, addressed the Randolph County Medical Society in Winchester March 13 on "Electrocardiography and Its Practical Application."——At a meeting of the Madison County Medical Society, Anderson, recently Dr. Kenneth G. Kohlstaedt, Indianapolis, spoke on "Medical Treatment of Biliary Tract Diseases."——Dr. Raymond W. McNealy, Chicago, addressed the Muncie Academy of Medicine March 14 on "Vitamins in Surgery."

IOWA

Public Health Meeting.—The Iowa Public Health Association will hold its thirteenth annual meeting at the Hotel Savery, Des Moines, April 24. The following speakers will participate, among others:

Dr. Roy R. Jones, U. S. Public Health Service, Medical Aspects of Industrial Hygiene.
L. O. Nolf, Ph.D., Iowa City, Trichina Larvae in Rats: Relation to Trichiniasis (Trichinosis) in Man.
Dr. Florian E. Schmidt, Chicago, Present Status of Antipneumococcic Serum and Sulfapyridine in the Management of the Pneumonias.
Dr. Paul Stephen, Des Moines, Report of a Food-Borne Epidemic of Typhoid Fever.

State Medical Meeting in Des Moines.—The eighty-eighth annual session of the Iowa State Medical Society will be held at the Hotel Fort Des Moines, Des Moines, April 25-27 under the presidency of Dr. Arthur W. Erskine, Cedar Rapids, whose address will be entitled "Principles and Practice." Out-of-state speakers will include:

Dr. Soma Weiss, Boston, Treatment of Circulatory Collapse and Shock.
Dr. Nymphus Frederick Hicken, Omaha, Diagnosis of Breast Tumors with Management of Carcinoma.
Dr. Edwin A. Merritt, Washington, Hyperparathyroidism and Its Roentgen Treatment.
Dr. Frank H. Lahey, Boston, New Ideas in Thyroid Surgery.
Dr. William H. Holmes, Chicago, Bacillary Dysentery.
Col. Kent Nelson, Omaha, Medical Department of the United States Army in Civilian Conservation Corps Activities.
Dr. William L. Benedict, Rochester, Minn., The Etiology of Chorioretinitis.
Dr. Willis C. Campbell, Memphis, Tenn., Use of Vitallium for Fixation of Fractures.
Dr. Irvin Abell, Louisville, Ky., subject not announced.
Dr. Harold R. Conn, Akron, Ohio, Treatment of Fractures of the Spine.

Tuesday and Wednesday afternoons the program will be devoted to sectional conferences, including a symposium on the determination of alcohol in blood and urine. Thursday afternoon there will be a symposium on fractures. A smoker will be held Tuesday evening and the annual banquet Wednesday evening. The forty-second annual meeting of the State Society of Iowa Medical Women will be held April 25. Branch 19 of the American Medical Women's Association will also meet the twenty-fifth. The tenth annual session of the woman's auxiliary to the state medical society will be held April 25-26.

KENTUCKY

State Bureau of Medical Service Created.—At the request of the council of the Kentucky State Medical Association, a bureau of medical service has been created in the state department of health, with Dr. John B. Floyd, Richmond, as director. The bureau will assist the medical profession of the state in providing medical service for the indigent and the medically indigent. The director will be available for consultation with the profession in the formulation of plans, rules and regulations. The resolution submitted to the governor by the council of the state medical association stipulated that all plans provide for freedom of choice of physician, that there should be no restrictions on prescription or treatment except such as are necessary for protection of the public health and, further, that any expenditures made for the expansion of public health and maternal and child health services should not include treatment of disease except so far as this cannot be accomplished through private physicians. Dr. Floyd, a graduate of the University of Louisville School of Medicine in 1915, has been director of the bureau of tuberculosis of the state health department for two years. He formerly practiced in Richmond. He has served two terms in the state legislature. The council's request to the governor for the establishment of the bureau was made at the request of Drs. Irvin Abell, chairman of the committee on public relations; Arthur C. McCarty, chairman of the committee on medical economics, and Elmer L. Henderson, chairman of the committee on the study and provision of medical care of the state medical association, all of Louisville.

LOUISIANA

State Medical Meeting at Alexandria.—The sixtieth annual meeting of the Louisiana State Medical Society will be held at the Bentley Hotel, Alexandria, April 24-26, under the presidency of Dr. Joseph A. O'Hara, New Orleans. The guest speakers will include Judge William H. Byrnes Jr., New Orleans, who will deliver the annual oration; Dr. James C. Masson, Rochester, Minn., on "Carcinoma of the Uterus," and Dr. Sidney A. Portis, Chicago, "Hepatitis: Its Etiology, Diagnosis and Treatment." Among the Louisiana physicians on the program are:

Dr. Maurice Campagna, New Orleans, The Incidence of Peptic Ulcer in the Negro.
Dr. John Preston Davis, Lake Providence, Symptoms, Diagnosis and Treatment of Pellagra with Special Reference to the Use of Nicotinic Acid.
Drs. Dean H. Duncan, Shreveport, and Ernest N. Carmouche, Pineville, Metrazol Therapy in Psychotic Excitement.
Drs. Joseph R. Kriz and Herbert J. Schattenberg, New Orleans, Endometrial Changes and Their Relation to Ovarian Dysfunction.
Dr. Henson S. Coon, Monroe, Use of an Anatomicophysiologic Incision in Appendicitis.
Dr. Monte F. Meyer, New Orleans, Fractures of the Malar Bone with Eye, Ear, Nose and Throat Complications.
Drs. Joseph N. Ane and Leon J. Menville, New Orleans, Irradiation Therapy in Endocrine Dysfunction.

The past presidents' dinner will be held Monday evening April 24. Entertainment during the session will include golf and skeet. Other societies planning to meet at this time are the Louisiana Pediatric Society, Louisiana Gynecological and Obstetrical Society, Louisiana Urological Society, the Loui-

siana branch of the National Gastro-Enterology Society and the Louisiana Coroners' Association. There will also be a conference of eye, ear, nose and throat specialists.

MARYLAND

Monthly Meetings on Maternal Mortality.—The Baltimore City Medical Society has adopted a plan to hold monthly meetings to discuss the problems of maternal mortality, the first of which will be held April 27. The plan follows the suggestion of the maternal mortality committee and is akin to the study of maternal deaths in Baltimore which has been conducted for the past three years by a joint committee representing the Baltimore City Medical Society and the city health department. This survey will be continued two more years. In the monthly sessions devoted to this subject, the name of the patient, the name of the physician and the name of the hospital, if death occurred in a hospital, will not be made known. The meetings will be held on the fourth Thursday of each month and will be open to any physician practicing in Maryland.

MASSACHUSETTS

Annual Session of Psychiatry Society.—The New England Society of Psychiatry will hold its annual meeting at the Metropolitan State Hospital, Waltham, April 25. The speakers will include John W. Thompson, Ch.B., Boston, and Dr. William Corwin, Waltham, on schizophrenia.

Society News.—A symposium on the use of physical medicine in orthopedics will be presented before the New England Society of Physical Medicine, Boston, April 26 by Drs. Claude L. Payzant, Howard Moore and Gordon M. Morrison and Lucy G. Marshall, P.T. Dr. Abraham Myerson, Boston, discussed "Combined Physical Therapy and Motivation in the Treatment of the Psychoses" before the society March 15.

Extension Courses.—The Massachusetts Medical Society cooperating with the state department of public health, the U. S. Public Health Service and the U. S. Children's Bureau recently conducted the following extension courses:

Dr. Meinolph V. Kappius, March 5, Barnstable, Bleeding in the Third Trimester of Pregnancy.
Dr. Roy J. Heffernan, March 2, Bristol North, Operative Obstetrics.
Dr. Richard Cannon Eley, February 28, Bristol South, Whooping Cough: The Present Status of Vaccine Therapy Both as Prophylactic and Therapeutic Measure, the Early Diagnosis by Laboratory Procedures, and the Treatment of Complications.
Dr. Chester S. Keefer, March 2, Hampden, Anemia: Modern Methods in Diagnosis and Treatment of Blood Dyscrasias.
Dr. Laurence B. Ellis, February 28, Middlesex East, Bright's Disease and Hypertension: Evaluation of New Therapy: Diagnosis.
Dr. Howard B. Sprague, March 2, Middlesex North, Heart Disease: The Treatment of "Heart Attacks" or "Cardiovascular Emergencies."

The lecturers are all of Boston.

MINNESOTA

Postgraduate Courses.—The third annual series of postgraduate courses for physicians in obstetrics and pediatrics will begin April 26 to continue for five consecutive weeks in ten centers of the state, it is reported. Sponsored jointly by the Minnesota State Medical Association, the University of Minnesota Medical School and the state department of health, the course is financed by social security funds. The schedule of the courses is: April 26, Pine City and Winona; May 3, Fergus Falls and Little Falls; May 10, Willmar and Virginia; May 17, Worthington and Grand Rapids; May 24, Albert Lea and Crookston. There will be one full day meeting in each center, beginning at 8 a. m. and composed of eight lecture and discussion periods, four each on obstetrics and pediatrics.

NEW JERSEY

Society News.—Dr. Edgar Mayer, New York, addressed the Hudson County Medical Society April 4 on early diagnosis of tuberculosis.——Dr. Elliott C. Cutler, Boston, addressed the Academy of Medicine of Northern New Jersey, Newark, April 20 on "Postoperative Complications." Dr. Foster Kennedy, New York, will give a lecture at the academy April 27 entitled "A Critique on Present Trends in Medical Education" under the auspices of the academy's committee on public health and medical education and the health committee of the Newark Contemporary. Oscar Riddle, Ph.D., Cold Spring Harbor, N. Y., addressed a meeting of the academy March 16 on "Our Uncontrollable Governor—The Pituitary Gland."——Dr. William G. Leaman Jr., Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, April 14 on "The Prognosis in Heart Disease."

NEW YORK

Women's Medical Meeting.—The Women's Medical Society of New York State will hold its annual meeting in Syracuse April 23-24 under the presidency of Dr. Madge C. L. McGuinness, New York. Papers will be presented by Drs. Sophie Rabinoff, New York, on "Some Health Problems in a District Health Program"; Jane Sands Robb, Syracuse, "Prognostic Significance of the S-T Interval" and Helen G. Walker, Buffalo, "Newer Aspects in the Diagnosis and Treatment of Tuberculosis." Drs. Laura C. Harris, Syracuse, and Marguerite P. McCarthy, Solvay, will present case reports on "Influenzal Meningitis with Recovery" and "Erythroblastic Anemia" respectively. Sunday afternoon the society will give a reception in honor of Dr. William A. Groat, Syracuse, president of the Medical Society of the State of New York, other officers and delegates to the state society.

New York City

The Adam Miller Lecture.—Dr. George Hoyt Whipple, dean and professor of pathology, University of Rochester School of Medicine and Dentistry, delivered the third annual Adam Miller Lecture at Long Island College of Medicine April 6. His subject was "Experimental Anemia and the Building of Hemoglobin in the Body."

Medical Committees for the World's Fair.—Committees in charge of the medical and health exhibits at the New York World's Fair were recently announced. Dr. Livingston Farrand, Brewster, is chairman of the general committee and the following are among chairmen of the subcommittees for the exhibits in the Hall of Medical Science:

Dr. Arthur W. Booth, Elmira, N. Y., chairman of the Board of Trustees of the American Medical Association, exhibit on medical education sponsored by the Association.
Dr. Rufus I. Cole, Mount Kisco, N. Y., exhibit on pneumonia, Lederle Laboratories.
Dr. Kendall Emerson, tuberculosis, Queensboro Tuberculosis and Health Association.
Dr. Alfred E. Cohn, heart disease, Ciba Pharmaceutical Products, Inc.
Dr. Francis Carter Wood, cancer, New York City Cancer Committee.
Dr. William F. Snow, syphilis, Parke, Davis & Co.
Dr. James Ralph Scott, diabetes, Eli Lilly & Co.
Dr. Paul Reznikoff, blood diseases and anemia, Eli Lilly & Co.
Dr. Oswald T. Avery, local and general infections, American Museum of Health, Rockefeller Foundation and Rockefeller Institute for Medical Research.
Dr. Thomas M. Rivers, filtrable viruses, same sponsors as for local and general infections.
Dr. Frederick P. Gay, immunity, same sponsors as for local and general infections.
Dr. Paul M. Wood, anesthesia, Winthrop Chemical Company.

OHIO

State Medical Meeting at Toledo.—The ninety-third annual meeting of the Ohio State Medical Association will be held in Toledo May 3-4 at the Commodore Hotel under the presidency of Dr. Barney J. Hein, Toledo. There will be three general sessions and six section meetings. Part of Wednesday afternoon will be devoted to round table conferences. Guest speakers at the general sessions will be:

Dr. Anthony J. Lanza, New York, Silicosis—Present Status.
Dr. Herman O. Mosenthal, New York, Treatment of Nephritis.
Dr. Elliott C. Cutler, Boston, Preoperative and Postoperative Care.
Dr. Allen F. Voshell, Baltimore, Important Features in the Treatment of Fractures.
Bradley M. Patten, Ph.D., Ann Arbor, Mich., Microcinematographic and Electrocardiographic Study of the First Heart Beats and the Beginning of the Circulation in Living Embryos.
Dr. Elmer L. Sevringhaus, Madison, Wis., Pituitary Therapy.
Dr. William W. Herrick, New York, Medical Complications of Pregnancy and the Puerperium.

Dr. Francis Bruce Fralick, Ann Arbor, will address the section on eye, ear, nose and throat on "The Muscle Balance in Routine Refractions"; the program also includes the following Ohio physicians:

Dr. Harry Goldblatt, Cleveland, Experimental Observations on the Treatment of Hypertension.
Dr. George M. Curtis, Columbus, Lobectomy in the Treatment of Bronchiectasis.
Drs. Charles S. Higley and Harry Hauser, Cleveland, Diagnosis, Prognosis and Treatment of Hodgkin's Disease.
Dr. James R. Reeves, Columbus, The Value of Skin Tests as an Aid to Biologic Therapy in Rheumatoid Arthritis.
Dr. John W. Holloway, Cleveland, Regional Ileitis.
Dr. William H. Evans, Youngstown, Problems of Nutrition Encountered by the Ophthalmologist and the Otolaryngologist.
Dr. Theodore T. Zuck, Cleveland, The Application of Recent Knowledge to the Management of Controlled Conditions.
Dr. Newton W. Kaiser, Toledo, Alcoholic Psychoses.
Dr. James G. Kramer, Akron, The Present Status of Pertussis Immunization.

Gov. John W. Bricker will speak at the banquet Thursday evening May 4. Another feature will be a public health luncheon sponsored by the section on public health and pre-

ventive medicine Wednesday noon, at which the speakers will be Drs. Carl A. Wilzbach, health officer of Cincinnati, and Roll H. Markwith, Columbus, new state health officer. There will also be a hobby exhibit and the annual golf tournament at the Sylvania Country Club, Toledo, Tuesday May 2.

PENNSYLVANIA

Society News.—Dr. Karl Kornblum, Philadelphia, addressed the Delaware County Medical Society, Chester, April 13 on "Roentgen Examination of the Maternity Patient."——Dr. Wells P. Eagleton, Newark, N. J., addressed the Blair County Medical Society March 28 on medical economics.——Dr. Joseph H. Barach, Pittsburgh, addressed the Fayette County Medical Society, Uniontown, April 6 on "Simplified Treatment of Diabetes."——Dr. Joseph C. Doane, Philadelphia, addressed the York County Medical Society, York, March 18 on "Alcoholism, Its Diagnosis and Treatment."——Dr. Henry T. Price, Pittsburgh, addressed the Harrisburg Academy of Medicine March 21 on "Meningitis in Children."——Dr. Aims C. McGuinness, Philadelphia, addressed the Dauphin County Medical Society, Harrisburg, March 7, on contagious diseases of childhood, with special reference to the uses of convalescent and immune human serums.

Philadelphia

Annual Campaign for Funds.—Philadelphia's annual campaign for funds, known as the "United Campaign" to finance 141 community agencies in welfare work is in progress for March and April. This year's goal is $4,000,000. It was stated that the fund was forced to cut its appropriations last year because insufficient money was collected.

Gifts to Woman's College.—The Woman's Medical College of Pennsylvania has received the following bequests in recent months: $25,000 from the late Dr. Jane Jenks Southern; $15,000 from the estate of Dr. Margaret P. Forcee-Kuyk, for endowment of the department of preventive medicine; $5,000 from the estate of Miss Maria Logan, Germantown; $7,500 from the estate of George Montgomery, New York, to establish a scholarship in the name of his deceased wife, Clara Babbitt Hyde Montgomery, and $20,000 from the estate of William E. Sellers for care of women and children in the college hospital.

Society News.—A symposium on prevention and early diagnosis of cancer was presented before the Philadelphia County Medical Society April 12 by Drs. Francis Ashley Faught, George E. Pfahler, John O. Bower, Louis H. Clerf, William Edward Chamberlain, Damon B. Pfeiffer and Catharine MacFarlane.——Speakers at a meeting of the Philadelphia Laryngological Society April 4 were Drs. Sol A. Goldberg on "Gangrene and Infection in Ear, Nose and Throat Complicating Diabetes Mellitus"; John B. Price, Norristown, Pa., "The Constitutional Background of Upper Respiratory Infections," and Myron A. Zacks, "Importance of Vestibular Findings Following Head Injuries."

Pittsburgh

Annual Meeting of County Society.—The Allegheny County Medical Society will hold its annual meeting May 2 at the William Penn Hotel with an afternoon scientific session followed by a banquet. The following speakers will appear on the scientific program:

Dr. Paul A. O'Leary, Rochester, Minn., Latent Syphilis and Wassermann-Fastness.
Dr. Walter E. Dandy, Baltimore, Diagnosis and Treatment of Lesions of the Cranial Nerves.
Dr. Wallace M. Yater, Washington, D. C., Heart Diseases Amenable to Surgery.
Dr. Harry E. Mock, Chicago, General and Special Rules in the Management of Skull Fractures.
Dr. Fred H. Albee, New York, Surgical Resection of Bone Sarcoma with Immediate Bone Graft Replacement.

Dr. Chauncey L. Palmer, president of the society, will preside, Hon. Cornelius D. Scully, mayor of the city, will make an address of welcome and Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, will speak on "American Medicine and the National Government."

SOUTH CAROLINA

Society News.—Dr. Herman J. Moersch, Rochester, Minn., addressed the Columbia Medical Society March 13 on "Inflammatory Lesions of the Gastric and Duodenal Mucosa: Their Significance in Medical Practice." Dr. Richard B. Josey, Columbia, spoke on "Cardiac Complications of Nephritis in Children."——Dr. Edwards A. Park, Baltimore, addressed the Florence County Medical Society, Florence, February 23 on "Vitamin Deficiencies."

TENNESSEE

The Flexner Lectures at Vanderbilt.—Dr. Albert Szent-Györgi, director of the Institute for Medical Chemistry and professor of medical chemistry, Royal Hungarian Franz Joseph University, Szeged, Hungary, is the guest of Vanderbilt University School of Medicine, Nashville, for two months under the Abraham Flexner Lectureship. During March Dr. Szent-Györgi delivered lectures on general principles of biologic oxidation, respiration of muscle, fermentation and some problems of intermediary metabolism, vegetable respiration and vitamins in health and disease. He is spending April at the university as visiting professor of biochemistry. Dr. Szent-Györgi was the winner of the Nobel Prize in physiology and medicine for 1937. The Flexner Lectureship was established in 1927 by Mr. Bernard Flexner, a brother of Abraham Flexner.

TEXAS

New Health Officers.—Dr. Lee E. Edens recently succeeded Dr. Durwood L. Dodd as health officer of Austin.——Dr. John M. Hooper, Floydada, formerly of Pampa, has been appointed director of public health for district No. 1, which includes sixty counties in the Panhandle and South Plains area.——Dr. Francis T. Isbell, Eastland, has been appointed health officer of Eastland County and Dr. Frank B. Boyle, Big Springs, of Howard County.

VIRGINIA

McGuire Lectures and Postgraduate Clinics.—Dr. Wilder G. Penfield, director of the Neurological Institute, McGill University Faculty of Medicine, Montreal, Canada, will give the McGuire Lectures at the Medical College of Virginia, Richmond, April 27-28 on "Epilepsy, Mechanism and Pathology" and "Epilepsies—Selective Study and Surgical Therapy." A postgraduate seminar on neuropsychiatry will be held on the morning of April 28 with the following speakers: Drs. Hugh C. Henry, Richmond, director of state hospitals and associate in psychiatry at the school; James Asa Shield, associate in psychiatry; Joseph R. Blalock, Marion, associate in psychiatry; Robert Finley Gayle Jr., professor of neuropsychiatry, and George B. Arnold, superintendent of the Capitol State Colony for Feebleminded and Epileptics, Colony. In the afternoon there will be discussions and demonstrations with the following participants: Drs. Charles Bagley Jr., Baltimore; John M. Meredith, Charlottesville; Claude C. Coleman and William Gayle Crutchfield, Richmond. The lectures will be at the Richmond Academy of Medicine.

WISCONSIN

William Snow Miller Lecture.—Dr. Ko Kuei Chen, professor of pharmacology, Indiana University School of Medicine, and director of pharmacologic research, Lilly Research Laboratories, Indianapolis, delivered the twelfth annual William Snow Miller Lecture at the University of Wisconsin Medical School, Madison, April 6. His subject was "Cyanide Poisoning and Its Treatment."

Society News.—Dr. Loyal Davis, professor of surgery, Northwestern University Medical School, Chicago, gave an address at the University of Wisconsin Medical School, Madison, March 11 under the auspices of Alpha Omega Alpha, on "Experimental and Clinical Experiences in the Surgical Treatment of Hypertension."——Dr. William J. Dieckmann, Chicago, addressed the Rock County Medical Society, Beloit, recently on "Toxemias of Pregnancy."——Dr. Walter G. Sexton, Marshfield, addressed the Winnebago County Medical Society, Oshkosh, March 2 on "Renal Stones."——Dr. Friedrich Eigenberger, Sheboygan, addressed the Sheboygan County Medical Society, Sheboygan, February 28 on "New Laboratory Methods in Diagnosis of Cancer." Dr. Dexter H. Witte, Milwaukee, addressed the Sheboygan Woman's Club February 21 at the request of the county medical society on "Medical Care."

WYOMING

District Meeting.—The third annual meeting of the Central District Medical Society was held at Casper April 15-16 with the following speakers:

Dr. Ralph M. Stuck, Denver, Surgical Treatment of Epilepsy.
Dr. John Harry Murphy, Omaha, Sulfanilamide, Its Use in Infectious Diseases of Children.
Dr. Atha Thomas, Denver, Treatment of Fractures of the Elbow in Children.
Dr. William W. Wasson, Denver, Diseases of the Lungs.
Dr. Paul J. Connor, Denver, Diseases of the Thyroid Gland in Relation to Endocrinology.
Dr. Clarence B. Ingraham, Denver, Difficult Labors.

GENERAL

The Kober Lecture.—Col. Joseph F. Siler, director of the Army Medical School, delivered the annual Kober Lecture at Georgetown University Medical School, Washington, D. C., March 28, on a new vaccine for typhoid developed by the army. Colonel Siler was presented with a check for $500, provided under the terms of the Kober Foundation. The speaker for this annual lecture is selected in alternating years by the Medical Society of the District of Columbia, the Association of American Physicians and the Association of Military Surgeons.

Society News.—At the recent annual business meeting of the American Heart Association in New York, the following officers were elected to serve two years: Drs. William D. Stroud, Philadelphia, president; Paul D. White, Boston, vice president, and Howard B. Sprague, Boston, secretary.——The twenty-fourth annual meeting of the National Recreation Association will be held in Boston October 9-13.——The annual meeting of the Associated State Committees on Postgraduate Medical Education will be held at the Hotel De Soto, St. Louis, May 17, at 12:30 p. m.

Foundation Invites Applications for Grants.—The Dazian Foundation for Medical Research, recently established in accordance with the will of the late Henry Dazian, New York (THE JOURNAL, January 21, page 251), is prepared to award fellowships to graduates in medicine for graduate study and research and grants to laboratories, hospitals and similar institutions for research in medicine. Applications and inquiries should be addressed to the Secretary, 180 East Sixty-Fourth Street, New York. The board of directors of the foundation is as follows: Drs. Emanuel Libman, New York, president; Israel Strauss, New York, vice president; Philip Finkle, New York, secretary; Harrison S. Martland, Newark, N. J.; Mr. Emil Friedlander, assistant secretary and treasurer; Mr. William W. Cohen, treasurer, Mr. Alfred L. Rose and Mr. Harold Williams.

Dr. Jelliffe Honored.—The April issue of the *Journal of Nervous and Mental Diseases* is a special anniversary issue commemorating the thirty-fifth year of editorship of Dr. Smith Ely Jelliffe. Commemoration exercises and a dinner were held at the New York Academy of Medicine, April 22. The issue contains reviews of the different phases of Doctor Jelliffe's work, as well as scientific articles. The contributors are Drs. Adolf Meyer, Baltimore, Frederick Tilney, George Draper, New York, Earl D. Bond, Philadelphia, Oskar Diethelm, New York, Abraham A. Brill, New York, Karl A. Menninger, Topeka, Kan., Henry A. Riley, New York, Richard H. Hutchings, Utica, N. Y., and Louis Casamajor, New York. The committee of organization of the ceremonies comprised Doctors Brill, Menninger and Riley, and Drs. Iago Galdston, New York, Bernard Glueck, New York, Benjamin Karpman, Washington, D. C., and Gregory Stragnell, Bloomfield, N. J. The concluding article is entitled "The Editor Himself and His Adopted Child." This is followed by Doctor Jelliffe's bibliography, compiled year by year since 1890 making a total of 411 references.

Survey Office to Be Moved.—Headquarters of the Mental Hygiene Survey Committee, supported by a group of organizations, will be moved July 1 from New York to the U. S. Public Health Service headquarters in Washington in order that the committee's work may be coordinated with that of the mental hygiene division of the service. Offices of the survey committee have been in connection with the National Committee for Mental Hygiene and the work has been carried on with funds provided by the Rockefeller Foundation, the American Psychiatric Association and the public health service. Dr. Samuel W. Hamilton is medical director and Dr. Grover A. Kempf of the public health service is associate medical director of the committee, which was formed in 1936 to survey as many as possible of the 336 mental hospitals in the United States and Canada, to promote research and to encourage wider distribution of teaching facilities. One hundred and sixty-nine institutions in forty states have already been surveyed. Organizations represented on the committee are the American Psychiatric Association, the American Neurological Association, the American Medical Association, the American Board of Psychiatry and Neurology, the National Committee for Mental Hygiene, the U. S. Public Health Service and the Canadian Medical Association.

Societies for Experimental Biology.—The annual meeting of the Federation of American Societies for Experimental Biology will be held at the Royal York Hotel, Toronto, Canada, April 26-29. The federation represents the American Physiological Society, the American Society of Biological Chemists, Inc., the American Society for Pharmacology and Experimental Therapeutics, Inc., and the American Society for Experimental Pathology. A joint session will be held Thursday morning with the following speakers:

Dr. Eugene M. K. Geiling, Chicago, The Comparative Pharmacology of the Pituitary.
Dr. Maurice S. Jacobs, Philadelphia, Hemolysis, Cell Permeability and Cell Specificity.
Albert Baird Hastings, Ph.D., Boston, Recent Observations on Electrolyte Distribution in Tissues and Body Fluids.
Dr. Thomas M. Rivers, New York, The Nature of Filtrable Viruses.

The physiologists will discuss, among other things, the nervous system, the heart and the circulation, endocrines and metabolism, the digestive secretions, sex hormones, insulin, vitamins and absorption, pituitary, thyroid and thymus, gastrointestinal motility and the liver and the pancreas.

Morton A. Rubin, Ph.D., and Dr. Harry Freeman, Worcester, Mass., Brain Potential Changes During Cyclopropane Anesthesia.
Dr. Kenton R. Phelps, Cleveland, A New Method for the Gradual Occlusion of Coronary Arteries.
Dr. Reginald A. Shipley, Cleveland, The Effect of Anterior Pituitary Injections on the Blood Acetone Bodies of Adrenalectomized Rats.
Dr. Hance F. Haney and Willard C. Roley, B.S., Portland, Ore., Effect of Bile on the Secretion of the Small Intestine.

A joint symposium on chemotherapy will be held by the biochemists and pharmacologists with the following speakers:

Michael Heidelberger, Ph.D., New York, The Scientific Background of the Use of Rabbit Antibody in Pneumonia.
Dr. Eli K. Marshall Jr., Baltimore, Bacterial Chemotherapy with Sulfanilamide-Type Compounds.
George W. Raiziss, Ph.D., Philadelphia, Antipneumococcic Effect of Sulfapyridine and Related Compounds in Mice.
Leonard H. Cretcher, Ph.D., Pittsburgh, Structure and Antipneumococcic Activity in the Cinchona Series.

Among the pharmacologists on the program are:

H. J. White, Baltimore, Relationship Between Temperature and the Streptococcidal Activity of Sulfanilamide and Sulfapyridine in Vitro.
Charles R. Linegar, Ph.D., Washington, D. C., Effect of Ergotamine on the Hemodynamic Actions of Acetylcholine.
Frank W. Maurer, Ph.D., Washington, D. C., Further Studies of the Ganglionic and Peripheral Actions of Physostigmine.
Dr. Albert G. Young and Frederick F. Yonkman, Ph.D., Boston, *Ethyl Yohimbine in Experimental Hypertension.*

Included in the many papers on pathology will be:

Drs. Owen H. Wangensteen and Clarence Dennis, Minneapolis, Experimental Proof of the Obstructive Origin of Appendicitis in Man.
Dr. Marian W. Ropes, Dr. Walter Bauer and William V. B. Robertson, Boston, *Enzymatic Hydrolysis of Mucins by a Bacterial Enzyme and by Vitamin C.*
Louis D. Greenberg, Ph.D., and Dr. James F. Rinehart, San Francisco, The Stability of Ascorbic Acid in Blood.
Dr. Granville A. Bennett and Morris F. Shaffer, Ph.D., Boston, The Passage of Type III Pneumococci from the Blood Stream into the Joints and Certain Other Body Cavities of the Rabbit.

The pathology section will hold a joint symposium with the immunologists Thursday. Friday there will be a symposium on the chemistry and physiology of red blood cells and on the chemical reactions of vitamins in vivo. The pharmacologic society will conduct a symposium Friday on the mechanics of respiration. Other symposiums include those on proteins, the synapse and carbohydrate metabolism. The annual dinner will be Friday evening.

Government Services

New Veterans' Hospital

President Roosevelt approved a site at Marion, Ill., April 11 for construction of a $1,400,000 veterans' hospital to serve downstate Illinois, southern Indiana and western Kentucky, it was reported. The new hospital will have accommodations for 500 veterans, including 350 domiciliary patients and 150 receiving hospitalization treatment.

White House Conference on Children

A White House Conference on Children in a Democracy is being organized with President Roosevelt as honorary chairman, Secretary of Labor Frances Perkins as chairman and Miss Katherine F. Lenroot, chief of the Children's Bureau, U. S. Department of Labor, as secretary. The first session will be held at the White House April 26 and the last early in 1940, according to an announcement. Among physicians on the planning committee are Drs. Fred L. Adair, Chicago; Clifford G. Grulee, Evanston, Ill.; Henry F. Helmholz, Rochester, Minn.; Felix J. Underwood, Jackson, Miss.; Midian O. Bousfield, Chicago, and James S. Plant, Newark, N. J.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 25, 1939.

X-Ray Examination in Acute Diseases of Respiratory Tract

At the section of radiology of the Royal Society of Medicine, Dr. Peter Kerley opened a discussion on x-ray examination in acute diseases of the respiratory tract. A portable apparatus was generally necessary. Fine detail was rarely required and speed was important. A working distance of from 2½ to 3 feet was ample. His usual procedure was to let the patient lie back against the screen in the sitting posture. When the shadow of a consolidated base merged with that of the diaphragm or when the respiratory rate was too high or the patient too young or too ill to cooperate, a screen examination might be decisive. As to films, his advice was to take plenty and to overexpose or overpenetrate, since the presence of fluid and consolidation might then be differentiated. A lateral view should always be taken.

The best recognized though not the commonest acute disease of the respiratory tract in childhood was miliary tuberculosis. In infants under 9 months old the usual appearance was a large caseating area of pneumonia in one lung with round foci all over both lung fields; in older children and adults there was a widespread infiltration of millet seed size or larger shadows but seldom a pneumonic area. The significance of the size of the lesions was not clearly established, but he did not believe that the finer and more discrete the lesions the better the prognosis, as had been stated by some authorities.

In pneumonia infants tended to show localization to the paravertebral sulci and older children a more diffuse type of shadow. The dominant feature in infants was a dense homogeneous opacity with an outer border running parallel to the mediastinum from apex to base. The homogeneity of the shadow, the sharp outer border and the distribution transgressed the lobar divisions of the lung and indicated a mediastinal effusion, which appeared to be a frequent complication of paravertebral pneumonia in young children. Between the ages of 2 and 10 years two types of bronchopneumonia could be recognized. In one the foci were large and ill defined and might coalesce but did not extend into the root of the lung, as in lobar consolidation; in the other the foci were sometimes described as miliary bronchopneumonia and appeared to be common after measles. The complications of bronchopneumonia and lobar pneumonia in children were collapse and the presence of fluid. The former could be detected by the low position of the interlobar fissure, the opacity of the lobe and the displacement of the mediastinum to the diseased side. Fluid could be localized, but the roentgenogram did not show whether it was purulent or not. In young children mediastinal effusions were frequent, while in older children the ordinary axillary type was commoner. Empyemas occurred in odd situations and might be overlooked, and sometimes pseudocavities due to acute vesicular emphysema occurred both with lobar pneumonia and with bronchopneumonia in children. All these conditions were difficult even for a skilled radiologist to interpret, and roentgenograms taken by a layman and interpreted by a general practitioner might lead to disastrous results. Ring shadows or pseudocavities in the roentgenograms in cases of lobar pneumonia had been described by American writers and regarded as areas of aseptic necrosis. Rabin regarded them as due to arteritis with thrombosis and infarction. They were a purely radiologic discovery and had never been confirmed post mortem. They might be due to delayed resolution following collapse of a large segment or lobe. Emphysema was a natural reaction to collapse, and there was no reason why overdistended lobules should not contain fluid levels. In cases of influenzal bronchopneumonia the appearances suggested an area of intense hyperemia with pea-sized foci of consolidation not tending to coalesce.

PARIS

(From Our Regular Correspondent)

March 18, 1939.

Increase in Alcoholism

An article by Dr. G. Lavallée of Paris, which appears in the March 11 *Concours médical*, is entitled "France, the Country of Alcoholism." During the World War some vigorous measures were taken by the government to suppress the sale of absinth and to limit the number of saloons. Although the manufacture of absinth is prohibited, 2,000 new saloons were licensed in 1933. Two years later, distillers of 96 per cent alcohol were given privileges in the way of reduced taxes. This was followed by a rapid increase in the total quantity distilled, so that the population is drinking more and more beverages containing as high as 50 per cent alcohol. The Académie de médecine passed resolutions in 1936 calling the attention of the government to the dangers incident to the increase in drinking and especially to the number of workers who, instead of being benefited by a reduction in the number of working hours to forty a week, were spending their leisure time in saloons. Professor Née of Rouen, in a French department where drinks containing even more than 50 per cent alcohol are commonly taken, stated that at the Hôtel Dieu of that city 220 cases of delirium tremens had been treated from 1935 to 1937 with a mortality of 56 per cent. Many of these patients were not employed and received a daily allowance from the government, most of which was spent in saloons. The Rouen Medical Society at a recent meeting urged the government to take steps immediately to cut down the number of saloons, regulate the manufacture of alcoholic drinks and close the saloons during certain hours as in England and Germany. The production of alcohol has increased from 940,000 hectoliters in 1850 to 4,772,110 in 1935. During the same period, importation of alcohol rose from 5,555 to 692,376 hectoliters. In 1914 only 1,415,000 hectoliters of alcohol in some form was drunk, as compared to 6,149,571 hectoliters in 1935. The net income of the largest two firms engaged in making alcoholic beverages in France has increased 63 per cent and 53 per cent in 1936 as compared to 1935.

Tetanus and Tetaniform Syndromes

The report of cases of tetanus following laparotomy or as a complication of the puerperium often raises the question both as to the atrium of infection and whether the clinical picture corresponded in every detail to that which it is customary to associate with an infection by the tetanus bacillus. This question was raised by Dr. Pierre Lombard, who read a paper at the January 31 meeting of the Académie de médecine. He stated that patients are admitted to hospitals whose clinical symptoms correspond in every detail to the classic picture of tetanus and yet who show no wound to explain the entrance of the toxin into the body. According to Dr. Lombard there are a number of tetaniform states which cannot be differentiated from tetanus of infectious origin. If a wound is present as a potential atrium, inoculation of some of the excised tissue into guinea pigs is a far more certain method of finding the tetanus bacillus than cultures. The author reported six cases of children in whom the clinical picture was typical for tetanus and yet animal inoculations were negative. In five of the children only a small superficial abrasion of the skin of some portion of the lower extremity could be found. In the sixth no skin abrasion or other evidence of recent or older injury

could be found. The patient, a boy aged 9 years, complained of a severe pain in the back, which had begun suddenly and subsided as rapidly. Four days later, recurrence of the pain in the back was accompanied by abdominal pain and rigidity of the arms and legs. Two days subsequent to another attack, the child was sent to the hospital with a diagnosis of tetanus. Every five minutes, typical tetanic contractures of the muscles of the lower extremities and abdomen with marked opisthotonos were observed. These attacks did not cease in frequency until large doses of parathyroid extract were given. About three weeks after admission to the hospital there was complete cessation of the tetaniform syndrome.

Primary Tuberculous Infection Reproduced in Monkeys

An important contribution to the method in which children are primarily infected by the tubercle bacillus was reported at the February 14 meeting of the Académie de médecine by Prof. Jean Troisier and Miss Sifferlen. In preliminary experiments they found that when a drop of a culture of tubercle bacilli was instilled into the nose of mice previously anesthetized with ether the acid fast bacilli could be found within three minutes in the pulmonary alveoli. Two minutes later, some of these bacilli were found within the alveolar monocytes even before any phagocytes were visible. For a second series of experiments, monkeys were employed. In animals infected by this method, pathologic changes were found at the end of from one to two months which corresponded in every detail to those observed in primary tuberculous infection of infants. In the lungs, the changes are in general found in the middle and inferior lobe on the side where the bacilli were instilled into the nose. The pulmonary lesions are the size of a pea but are accompanied by a caseous involvement of the tracheobronchial lymph nodes. Although no macroscopic signs of involvement of other viscera exists, their inoculation into guinea pigs shows that the tuberculous infection is a generalized one. These experiments were undertaken with the object of proving that infants in contact with tuberculous individuals can during sleep be infected through inhaling air containing tubercle bacilli.

Graduate Courses in English at Paris Hospitals

The faculty of the medical school of the University of Paris in collaboration with the Association des relations médicales and American Medical Society of Paris has organized graduate medical courses given in English. The cost is generally $6 a lesson, whether taken privately or in a group, and, if there are six students, each one will pay $6 for the entire course. Special arrangements can be made for courses exceeding a week. Courses in dissection may also be arranged. All graduates will be able, without additional charge, to witness operations or accompany the attending physicians or surgeons of the Paris hospitals on daily ward walks. Daily bulletins, similar to those employed in the larger medical centers of the United States, announce the operations to be performed at about twenty hospitals. These bulletins can, on request, be sent by special delivery to the hotel or boarding house where the graduate is stopping or to the Cité universitaire (Maison américaine), where lodging and meals can be secured at very moderate rates. Thus the graduate can plan his program for the following day, having received the bulletin the preceding evening. The medical school of the University of Paris will grant certificates for graduate work of not less than two months' duration. Arrangements can be made by writing to A. D. R. M. (Salle Béclard), Faculté de médecine, 12 rue de l'Ecole de médecine, Paris, for private courses in English in rheumatology, otolaryngology, infantile neuropsychiatry, endocrinology, cystoscopy and urethroscopy, neurology, operative technic, parasitology, cardiovascular diseases, pulmonary tuberculosis, gastro-enterology and pediatrics. This is the first time that a systematic effort has been made here to give graduate courses in English. The clinical material and laboratories are equal if not superior to those accessible to graduates in other parts of continental Europe. The professors giving these courses include many physicians of international reputation.

BERLIN

(From Our Regular Correspondent)

March 6, 1939.

The Development of Bronchoscopy

"Forty Years of Bronchoscopy" is the title of a lecture delivered before the Berlin Medical Society by Professor von Eicken, Berlin ordinarius in otorhinolaryngology. His teacher, Professor Killian, was really the founder of this method. Eicken too, as successor of Killian, has participated in the development of the bronchoscopic technic. After the invention of the laryngoscope by Garcia in 1854, a tube was first introduced into the esophagus by the clinician Kussmaul in 1867. In the exercise of this method one of Kussmaul's pupils placed the tube too far forward and observed the bifurcation of the bronchi. Warnings against introduction of tubes into the respiratory tract were quite common at that time. First in 1897 Killian, then at Freiburg-in-Breisgau, made a practical application of his theories: by means of a specially constructed esophagoscope he removed an aspirated bone from the trachea. Thereafter other interventions of this type were made. The attempt was also made to advance a tracheotomy opening and thus to reach as far as the right inferior lobe. But the direct oral method came to be carried on only after step-by-step perfection of the instrumentation had taken place. In the year 1906 Professor von Eicken himself, who had for long collaborated with Killian, was able to report on 600 successful removals of foreign bodies from the respiratory passages. As the method developed, the attendant difficulties multiplied. In time the profession, growing better acquainted with bronchoscopy, came to recognize that, if an aspirated body could not be quickly removed by the general practitioner, the patient should as soon as possible, namely within the first few hours after aspiration, be placed in the care of a specialist skilled in bronchoscopic technics. At present bronchoscopy is almost an everyday operation; removals of foreign bodies are reckoned in tens of thousands. According to the latest American contributions, however, the removal of foreign bodies represents but a small fraction of the interventions for which bronchoscopy is indicated. In America the method is above all used in the abolishment of postoperative pneumonia. If signs suggestive of pneumonia appear during the first postoperative days, coagulum and mucus are removed with the aid of the bronchoscope and the patients are thus spared the dreaded pneumonic complication. In conclusion von Eicken pointed out that the dense shadows in the roentgenogram after aspiration of foreign bodies may be mistaken for signs of pneumonia. Foreign bodies may produce not only atelectasis but in addition a serous exudation in the alveoli and a venous congestion that is often of high grade. The heavy shadows are based on the sum of these phenomena. The amazingly rapid clearing of the lung picture (often within a few hours) after removal of the foreign body may be explained as due to speedy resorption.

Research on the Pathology of the Liver

Professor Nonnenbruch, Prague ordinarius in internal medicine, discussed his investigations on hepatic disease before the Frankfort Medical Society. Continuous checking of the residual nitrogen provides a good measuring rod of the course of the illness. Urea and residual nitrogen maintain an interrelation in that the latter diminishes as the urea is increased by oral administration of urea or because of renal insufficiency. Liver extracts can produce the same results; urea is therefore a therapeutic agent capable of promptly abolishing a hepatargic

condition. Residual nitrogen, however, provides no clue to the secret of a coma hepaticum that is unaccompanied by increase in residual nitrogen and rest nitrogen. Coma hepaticum is not accompanied by any characteristic blood picture. Frequently a renal insufficiency participates in this condition; the urea then rises to a high level. In other cases there is a greater increase in residual nitrogen. Many times the potassium values in the blood and the cerebrospinal fluid are greatly elevated, a sign of the subsidence of so-called regulated permeability; but cases of coma hepaticum are occasionally seen in which the potassium value in the serum remains normal. In one case in which massive intravenous injections of dextrose solution were exhibited a "water intoxication" was manifested. Like uremia, coma hepaticum is not to be interpreted in terms of one specific toxin but rather represents a complex of disturbances. The following primary classification may be made on the basis of the blood chemistry: (1) coma hepaticum with increase of the residual nitrogen only (amino-acidemia, azotemia II), (2) hepatorenal coma with azotemia III and (3) coma without azotemia and without significant phenomena in the blood chemistry.

A New Type of Balneotherapy

As every one knows, a search is in progress throughout Germany for new materials that lend themselves to utilization as substitutes. In this connection the following new type of balneotherapy is reported: At Ziegenhals, a small Silesian watering place, so-called wood-pulp slurry (holzschlamm) has been used as a bathing medium for some time. This slurry is a by-product of paper making. The municipality of Ziegenhals has applied to the national patent office for a protective patent of this therapy in the hope that in future the town will be the only place in Germany where visitors with rheumatism and sciatica can be treated with pulp-slurry baths. Last year 5,200 baths of this type were administered. Since Ziegenhals expects a much greater influx of patients during the current year, and since the present accommodations are no longer adequate, a new bath house is to be constructed equipped with at least ten cabinets and having a capacity of from eighty to a hundred baths daily. From the standpoint of economics it is also an interesting fact that the same slurry in which the patients bathe can again be utilized in the manufacture of paper. The foregoing notice is thus far the only extant news with regard to the new use of wood-pulp slurry. No clinical report has been published to date although the new method has received mention in medical journals.

The Nursing Sisters and Tuberculosis

Extensive recent examinations of more than 40,000 members of the nursing sisterhoods have demonstrated that the profession of nursing sisters, despite the fact that its members are exposed to greater dangers than most professionally active women, still is characterized in all parts of Germany by favorable expectation of life. However, in view of the increasing number of occupational illnesses on a tuberculous basis, especially among youthful employees of the tuberculosis wards of hospitals, the establishment of a minimum age limit for permission to work among tuberculous patients has been deemed expedient. Accordingly the accident prevention code of the association of health and welfare employees has been supplemented by a new stipulation to the effect that the care and surveillance of actively tuberculous patients should be entrusted only to healthy persons, capable of resisting infection, who are not less than the age of 25 years. It is also stipulated that the attending physicians and any other persons whose occupation requires contact with tuberculous patients must be in good health and not likely to become infected. The fixing of the age limit at 25 was dictated primarily by the consideration that initial infection with tuberculosis is not only much rarer after the twenty-fifth year of life, but is usually of a milder character, if acquired.

AUSTRALIA

(From Our Regular Correspondent)

March 14, 1939.

Australian and New Zealand Association for the Advancement of Science

The recent meeting of the Australian and New Zealand Association for the Advancement of Science was in part reported in THE JOURNAL April 15, page 1520. An illuminating contribution to the medical section was a joint discussion on virus diseases. The discussion centered largely round the controversy as to whether viruses are to be considered independent living organisms or not, and proceeded along two main lines, one suggested by Dr. F. M. Burnet, who has done research on animal viruses at the Walter and Eliza Hall Institute, Melbourne, the other by R. J. Best, M.Sc., of the Waite Agricultural Institute, Adelaide.

Dr. Burnet expressed the view that viruses are essentially independent living organisms. He said that with the present definition of viruses as particulate agents of disease smaller than bacteria and susceptible of being grown only on living cells of a host, it was difficult to believe that there were any natural biologic divisions among the micro-organisms of disease. Certain strictly parasitic bacteria could not be grown apart from living cells, while among the larger "true" viruses were many features of resemblance to bacteria. The nature of viruses could be examined from three points of view: 1. Physicochemical: Complete physicochemical formulation of even the simplest virus was not likely to be attained. 2. Pragmatic: An approach could be made by seeking the working hypothesis best suited to the practical needs of the virus, the research worker, the clinician and the veterinary or plant pathologist. 3. Evolutionary: Here there were three possibilities: (*a*) the virus was a pathologically active fragment of the cell it parasitized, (*b*) it represented a surviving form of a precellular stage of evolution or (*c*) it was a specialized or degenerate descendant of a larger parasitic micro-organism. This third hypothesis seemed to him most likely to be true. It provided an explanation of the graded series from bacteria to the smallest viruses. It was well known that the more highly parasitic bacteria were harder to grow in vitro, produced more specific types of disease, and showed a greater tendency to intracellular growth. The rickettsias were almost certainly derived from bacteria which had developed a symbiotic habit in arthropods. With development of complete parasitism, viruses had lost to a greater or less extent their complement of enzymes and now made use of the enzymes and activated molecules of the host cell. The types of virus now in existence represented various stages in this process of parasitic degeneration.

R. J. Best subscribed rather to the view that viruses represented a surviving form of primordial living matter. He showed that many plant viruses and at least one animal virus had been isolated as proteins and that virus particles had now been obtained which were actually smaller than some protein molecules. While it had not yet been shown that virus properties were not due to some impurity of the protein crystals obtained, this now seemed unlikely. He expressed the view that whereas the protein itself when isolated did not show properties particularly different from any other protein body or phenomena to suggest that it was living, nevertheless when placed in a suitable environment the protein in that environment constituted an independent living system which metabolized and developed at the expense of the normal metabolism of its host and that in such an environment the virus protein reproduced itself at the expense of the energy of its host cell. Countering the argument that such a conception presupposed a higher stage of evolutionary development in the environment and so eliminated the possibility that viruses might represent a primordial form of life, Best replied that viruses were not

recognized only by their biologic activity in their host organism. This did not preclude the possibility that virus proteins existed at the present time in non-living environments since, if they did so, there was no method of recognizing their existence. He concluded by saying that viruses, being a group of living molecules intermediate between the macromolecules of the chemist and the micro-organisms of the biologist, much cooperative investigation from the physical, chemical and biologic aspects was required to elucidate their nature.

TISSUE SPECIFICITY OF INFLUENZA VIRUS

The tissue specificity of influenza virus was discussed by Dora Leish, M.Sc., of the Walter and Eliza Hall Institute, Melbourne. Many viruses, of which the influenza virus was a good example, were rather strictly limited to one particular tissue, in this case the lining of the respiratory tract. This tissue limitation was also shown when the virus was grown on embryonic organs. Influenza virus grew best in the lung of chick and guinea pig embryos, although innocuous to the adults of these species. The more embryonic the tissue, the wider the range of organs that would allow growth. Studies of this kind might throw light on the nature of the interaction between virus and susceptible cell.

PRINCIPLES AND TECHNIC OF PUBLIC EDUCATION

Dr. N. M. Gutteridge, lecturer in bacteriology, University of Queensland, said that the constructive possibilities of science were not fully utilized by the existing social organization, although its destructive possibilities were only too hastily developed. Where science tended to fall short was in its failure to control the interpretation of its advances and their application to society. In modern science lay the hope of civilization, but before society could derive full benefit from the discoveries of science it must find a way of spreading scientific information geared down to the layman's power of understanding. Dr. Gutteridge stressed the growing significance of public education especially in the field of constructive medicine. Unfortunately, the agencies playing the greatest part in public education today were commercial advertising and the films. Between the two a colossal and unremitting pressure was brought to bear on the public mind, and the advent of organized education in fields such as nutrition and physical education had to contend with this pressure. To develop an enlightened public opinion, we had to learn to speak a new language in order to compete with those other influences dominated by commercial interests. That language must be a dramatic rather than a rational one, and the appeal must come as much through emotion as through reason. The process was largely one of interpretation, and in it well developed radio and film technic could prove a valuable medium. This statement was illustrated by means of the British nutrition film entitled "Enough to Eat" and a dramatized broadcast on nutrition.

HEALTH EDUCATION IN QUEENSLAND

Dr. Gutteridge then described the active public education campaign which had been carried on in Queensland over the the last three years under the egis of the Queensland Nutrition Council. Dramatized broadcast sessions on nutrition, on lines similar to those of the health talks conducted by the American Medical Association, had been broadcast regularly twice a week. Frequent articles had appeared in the metropolitan and country press, as well as a six page annual nutrition supplement in the *Courier Mail*. The council had published a "menu-planning chart" and a year book, each of which had been widely distributed, and several courses of lectures on everyday nutrition had been arranged. A weekly dramatized broadcast entitled "Healthward Ho!" had the approval of the Queensland branch of the British Medical Association, and a further weekly session, entitled "The Fitness Forum," dealt with the subject of physical education. Each of these sessions embodied the modern technic of dramatization. The work had been placed on a sound financial basis by enlisting the support of approved advertisers such as pasteurized milk companies. Already the effect of this education had been noticed in the changing food habits of Queensland people. Reliable figures were difficult to obtain, but commercial companies concerned reported a considerably increased demand in milk, fruit and salad vegetables as well as a specially prepared wheat germ bread over the last two years.

BUENOS AIRES

(From Our Regular Correspondent)

Jan. 1, 1939.

National Congress of Medicine

The sixth National Congress of Medicine took place at Córdoba Oct. 15-21, 1938. This congress meets once every four years. It is organized in several sections, which embrace the various branches of medicine. The general topic was "Organization of Public Health in Argentina." The advisability of making the various departments of public health only a body with a central board of directors was shown. Drs. G. N. Martínez, Gregorio Aráoz Alfaro, E. Bullrich, A. Bidau, Pedro Escudero, Alberto Zwanck and Alfredo Sordelli were speakers.

"Arterial Hypertension" was the topic discussed in the section on internal medicine. Profs. Franz Volhard of Frankfort, Carl J. Wiggers of Cleveland, Gregorio Marañón of Madrid, B. A. Houssay of Buenos Aires and G. N. Martínez, Temístocles Castellanos and Ramón Brandán of Córdoba were speakers. In the section on dermatology the immediate establishment of regional leprosariums was advised, and the speakers favored the support of the laws concerned with abolishing the recognition and regulation of prostitution. The main topics discussed in the sections on physiology and pharmacology were, respectively, "Sounds of the Heart and Electrical Phenomena of Nervous Energy" and "Agents for Chemical and Sympatheticolytic Transmission."

Annual Congress of Surgery

The Congreso Argentino de Cirugía held its tenth annual reunion Oct. 9-15, 1938, in Buenos Aires with Prof. J. M. Jorge as president. Among the surgeons present were Drs. Brandão, A. Monteiro, J. Poggi, M. Gudin, O. Gualberto, E. Linz, M. de Andrade and Aresky Amorim of Brazil; Luis Vargas Salcedo, E. Patermann, D'Alessandri, A. Bahauser, Fernández and Vargas Molinare of Chile; J. Mussio Fournier, A. Navarro, D. Pratt, C. Nario, C. Stanjano, V. Armand Ugon and E. Palma of Uruguay; C. R. Gagliardone of Paraguay, and A. Parada of Bolivia. South American surgeons consider it regrettable that North American surgeons do not attend this yearly congress. They would bring important contributions to the congress and at the same time see the progress made by the surgeons of South America.

HYDATID CYSTS

Prof. Oscar Ivanissevich spoke on the first topic, "Hydatid Cysts of the Lung." He advised artificial pneumothorax before the operation when the cyst is small and uninfected. The cyst is slowly evacuated to prevent its rupture in the bronchi or in the pleura. Ninety-two patients with hydatid cysts of the lung underwent operation at the Instituto de clínica Quirurgica, of which Professor Ivanissevich is a member, and the mortality rate was from 14 to 19 per cent. In ten cases cough or hemoptysis followed the operation. In fifty-five cases residual cavities of the lung were visible on x-ray examination.

MALIGNANT BONE TUMORS

Prof. Oscar Copello introduced the second topic, "Malignant Bone Tumors." He had adopted the Kolodny classification and discussed fifty-three cases, which included thirty of osteogenic

sarcoma, twelve of Ewing's tumors and twenty-one of metastatic tumors. He advised combined surgical and roentgen treatment. Profs. José Guardado and Diego Brachetto-Brian discussed the subject from roentgenologic and anatomopathologic angles.

Diminution in Birth Rate

The birth rate has diminished in Argentina, which is the richest and most prosperous country in South America. From 1887 to 1900 there were forty births for each thousand of population and from 1901 to 1914 thirty-five. The birth rate has diminished still more since the World War. In 1937 there were sixteen births for each thousand of population. In the last few years Buenos Aires, with a population of 2,400,000, has shown an alarming diminution in birth rate.

Personals

Drs. F. Arrillaga, Guillermo A. Bosco, José Valls and R. F. Vaccarezza have been appointed to the chairs of clinical medicine, semeiologics, orthopedics and tuberculosis of the Faculty of Medicine of Buenos Aires.

Drs. P. I. Elizalde and Gonzalo Bosch have been appointed members of the Academia Nacional de Medicina of Buenos Aires.

Drs. E. del Castillo, Alfredo Biasotti, Leopoldo Giusti, Gregorio Aráoz Alfaro and O. Orías were appointed official representatives of Argentina to the first South American Congress of Endocrinology at Rio de Janeiro.

Lectures

The following lectures have been delivered in Buenos Aires: Profs. F. H. Quix of Utrecht on the labyrinth; G. Duval of Paris on surgery; Georges Dumas of Paris on psychology; Cesare Frugoni of Rome on medical clinics, Franz Volhard of Frankfort on renal diseases; Paul Hübschmann of Düsseldorf on pathologic anatomy of tuberculosis; Carl Wiggers of Cleveland on fibrillation, resuscitation and hypertension; H. Arruga of Madrid on detachment of retina; Pedro Ara of Madrid on conservation of anatomic preparations, and Antoine Alajouanine of Paris on neurology.

BUDAPEST

(From Our Regular Correspondent)

March 19, 1939.

Poisoning with Caustic Potash

Dr. G. Faludi reported at a recent meeting of the Interhospital Association on his experience with children suffering from poisoning with caustic potash. Over a period of twenty-three years he treated in the children's wards of St. Stephen's Hospital 1,722 such patients, of whom 938 had acute intoxication and 784 were suffering from esophageal stricture. Of these patients 55.40 per cent were boys and 44.60 per cent girls; 60 per cent were from 1 to 3 years old. Of those with acute intoxication 19.19 per cent died, and of those suffering from stricture 13.40 per cent died. Of those with acute intoxication who died, 83.33 per cent died within three days after admission to the hospital. Ninety-eight per cent of all intoxications were the result of accidents, 1 per cent were suicide and 1 per cent were murder. Strictures most frequently occurred in the middle and the lower third of the esophagus. Dilation with the esophagoscope is not without danger. During the course of the twenty-three years Dr. Faludi met with twenty-six artificial perforations of the esophagus, of which five had occurred before the patient was admitted to the hospital. Early use of the sound must be resorted to with children. It is regrettable, said Faludi, that this method is not as extensively adopted as it deserves, because with it the most severe strictures can be successfully treated. For severe strictures not adapted to treatment with regular sounds, he used Hacker's retrograde treatment with a thread, preceded by gastrostomy. This treatment sometir takes years, but even in cases of severe stricture it is conduc to good results.

As treatment is at best unsatisfactory, prevention is m important. This can be accomplished only by applying dra measures to exclude from households the use of caustics. It not an uncommon experience for a mother to put the cau which resembles sugar cubes, into a tumbler of water bes the wash tub and then go to the kitchen to see about coo ing the dinner. The small child, seeing the sugar-like thing the tumbler, drinks it. Such mishaps ten years ago were daily occurrence. Now, through radical changes in packing t caustic, drastic restriction as to its sale and wide enlightenme of the public, the rate of accidents is decreasing; neverthele at present Hungary leads in the frequency of caustic intoxic tion. Faludi appeals to the government to stop the sale caustic potash.

The Sense of Taste

Dr. Harald Tangl, lecturer at the University of Budapest, a paper on the sense of taste said that taste is a regressi sense in man, as he tastes only with his tongue while son animals, e. g. fishes, taste with their whole body. An infa tastes with the middle part of his tongue and an adult dete mines with the sides of his tongue whether food is pleasing c not. The whale has very few taste buds and gulps its food s quickly that it does not bother about the taste. Among horne cattle, taste is important, and they scrupulously select th grasses they like. The cow has about 15,000 taste buds, th antelope 50,000 and man 3,000.

We know four distinct tastes: sweet, salty, bitter and sour The sweet taste is perceived on the tongue the quickest, becaus the buds reacting on sweets are located at the tip of the tongue; then comes salty and then sour taste. Bitter things are tasted at the back of the tongue. Taste can be regulated Warm coffee requires less sugar than cold, because warmth is a stimulant to the taste buds. However much sugar is put into ice cream it will not seem too sweet, because when cooled the taste buds scarcely function. If the tongue is rubbed with ice, one fails to perceive different tastes, a good method in taking bitter drugs. Taste is such a fine sense that it cannot be overtaken by chemical procedures. The taste can be trained. Tea tasters are able to tell the place of origin of a tea after a single tasting Wine tasters can tell from where a certain variety of wine came and also whether the grapes from which it was made grew in a sunny or a shady field.

Marriages

ELIZABETH WASHINGTON KIRBY-SMITH, Sewanee, Tenn, to Mr. David Culbreth Clough of Dover, Del., January 7.

THOMAS EDWARD CAULFIELD JR., Woburn, Mass., to Miss Mary Smith Carroll of Gloucester, Nov. 26, 1938.

THOMAS EDMOND HUGHES, Richmond, Va., to Miss Mary Elizabeth Warren of Delaplane, February 23.

KENNETH L. CARTER, St. Louis, to Miss Frances Elizabeth Ritter of Mattoon, Ill., in December 1938.

DAN ARTHUR JARDINE, Douglas, Ga., to Miss Charlotte Williams of Haddock recently.

DEANE C. EPLER, Detroit, to Miss Kathryn Louise McNeil of Tiffin, Ohio, Nov. 10, 1938.

ROLF VAN K. EGGERS, Seattle, to Miss Kathryn Johnson of San Francisco, Nov. 5, 1938.

RICHARD VINCENT EBERT to Miss Virginia Bordeau Benjamin, both of Boston, recently.

CALVIN G. JACKSON to Miss Mary Lou Johnson, both of Kenton, Ohio, in January.

CLAUDE R. G. FORRESTER to Miss Ruth Emma Johns, both of Chicago, January 5.

Deaths

Alfred Stengel ⊕ distinguished physician of Philadelphia and distinguished equally as a medical writer and educator, died at his home in Philadelphia, April 10, aged 70. He had been associated with the University of Pennsylvania as a teacher and administrator for forty-six years.

Dr. Stengel was born in Pittsburgh, Nov. 3, 1868. He received his M.D. degree from the University of Pennsylvania in 1889. Soon after graduation he became assistant to Dr. William Pepper. In 1893 he joined the faculty of the University of Pennsylvania as instructor in clinical medicine. In 1896 he became clinical professor of medicine at the Woman's Medical College of Pennsylvania, retaining this position until 1898. He became professor of medicine in the University of Pennsylvania in 1911, and vice president of the university in charge of medical affairs in 1931. In this position he not only supervised the School of Medicine and the Graduate School of Medicine and such auxiliary divisions as the Phipps Institute but also the Evans Institute of Dentistry and the School of Veterinary Medicine. He was president of the board of the Wistar Institute of Anatomy and term trustee of the University of Pennsylvania, member of the trustees' executive board, and the manager of the Veterinary Hospital.



ALFRED STENGEL, M.D., 1868-1939

In his career in medicine he received many honors, including the honorary degree of doctor of laws from the University of Pennsylvania at the 165th anniversary, the honorary degree of doctor of laws from Lafayette College, and the honorary degree of doctor of science from the University of Pittsburgh.

His literary contributions to medicine were numerous, including "A Text-Book of Pathology" which went to eight editions between 1898 and 1924. He served as editor at one time of the *American Journal of the Medical Sciences* and was a contributor of various sections or volumes in most of the leading systems of medical practice. Dr. Stengel was editor of the American edition of Nothnagel's Cyclopedia of Medicine.

For two terms Dr. Stengel was president of the American College of Physicians and he was a member of the Association of American Physicians, the Philadelphia Pathological Society, and numerous other medical organizations. He was also consulting physician to the Philadelphia General Hospital, the Jewish Hospital, the Abington (Pa.) Memorial Hospital, the Norristown State Hospital, and the Woman's College Hospital. At the time of his death he was actively concerned with the development of a new building for obstetrics and gynecology at the University of Pennsylvania and with new space for a department of neurology.

In the American Medical Association Dr. Stengel served as member of the House of Delegates in 1905 and he had been a member of the editorial board of the *Archives of Pathology*. With his death, medicine lost a great teacher devoted to the highest ideals in the field of medical science, a builder of medical institutions, a man who exemplified in his life and his work the manner in which the physician may contribute in the highest degree to the advancement of his profession.

Angus McLean ⊕ emeritus professor of surgery at Wayne University College of Medicine, died at his home in Detroit on April 11 of carcinoma of the stomach, aged 76. He had a long and distinguished career in the field of medicine and was equally notable for his service as a great citizen of Detroit.

Dr. McLean was born in St. Clair, Mich., April 4, 1862. He graduated from the Collegiate Institute of Strathroy, Ontario, in 1880 and received his M.D. degree from the Detroit College of Medicine in 1886. Later he served in various capacities in the city and state government, holding at different times the position of city physician, quarantine inspector for the Port of Detroit, member of the state board of health and member of the city board of health. In his work in the field of medicine he was past president of the Wayne County Medical Society and the Michigan State Medical Society and was first president of the Detroit Academy of Surgery. He was appointed in 1905 to serve on the state board of health and in 1911 was made a member of the Detroit Board of Health.

During the World War he organized and was commanding officer of the Harper Base Hospital No. 17 in France and was cited for heroic work in the American Expeditionary Forces. He became president of the Medical Commission and was sent to Italy in October 1917. Later he was transferred from hospital duty and appointed special surgeon to the Peace Commission in France. By special order of General Pershing, he accompanied President Wilson on his homeward journey in February 1919. The War Department conferred on him the Distinguished Service Medal. In 1927, he was one of four physicians appointed by President Coolidge to attend the Military Medical Congress at Warsaw, Poland, at which time the President of Poland presented him with a medal on behalf of the Polish Army Officers' Medical School of Warsaw. He was also made honorary professor of medicine by the University of Warsaw.

In 1929, he was one of five physicians appointed by President Hoover to represent the United States in the Fifth International Congress of Military Surgeons at London and at the Royal Institute of Public Health at Zurich, Switzerland. For his work abroad he was recognized by the award of the Chevalier of the French Legion of Honor. He was also made an honorary member of the Federation of Soldiers of France and a member of the Société Française. In 1936, he was awarded the Order of Knight Commander of the Crown of Italy.

Dr. McLean was conspicuous in the general field of education, having been a member of the Detroit Board of Education since 1923, and president of the board in 1935. He served as chairman of the Michigan committee for the relief of German children and was decorated by the German government for this work.



ANGUS MCLEAN, M.D., 1862-1939

In his work in surgery he made numerous scientific contributions to surgical periodicals. He was consulting surgeon to the Children's Free, Woman's, St. Joseph's Mercy, Receiving and Providence hospitals and the Florence Crittenton Home.

Dr. McLean's career was an exemplification of the opportunities that America has offered in the past and how a young man may rise from humble beginnings. His father was a farmer. Dr. McLean, at various times in his career, was a lumber mill employee, a dock hand, a ship's watchman, a Great Lakes sailor and a pilot. He retained his interest in sailing, having his own yacht. He took part in every activity for the advancement of his community and for the development of his profession.

William Belfry Hendry, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1904; professor emeritus of obstetrics and gynecology at his alma mater; member of the *American Association of Obstetricians, Gynecologists and* Abdominal Surgeons and the American Gynecological Society; fellow of the American College of Surgeons, Royal College of Surgeons of Canada and the British College of Obstetricians and Gynecologists; served during the World War; consultant in obstetrics to the Toronto Board of Health and Federal Board of Health; consultant in obstetrics and gynecology to the Provincial Board of Health; on the staff of the Toronto General Hospital; aged 64; died, March 24, of leukemia.

James Francis Lynch ⊛ Hartford, Conn.; College of Physicians and Surgeons, Baltimore, 1913; fellow of the American College of Surgeons; aged 46; attending surgeon to St. Agnes' Home and House of the Good Shepherd; consulting surgeon to the Hartford Neuro-Psychiatric Institute and Hospital; consulting supervisor of surgery, Veterans Administration Facility, Newington; attending surgeon to St. Francis Hospital, where he died, January 7, of gastric hemorrhage.

Arthur Daniel Kurtz ⊛ Philadelphia; Jefferson Medical College of Philadelphia, 1908; formerly associate professor of orthopedic surgery at Temple University School of Medicine; member of the American Academy of Orthopedic Surgeons; fellow of the American College of Surgeons; on the staffs of the Misericordia Hospital, Jefferson Hospital and the Homewood School; aged 52; died, January 21, of essential hypertension and acute hemorrhagic nephritis.

Francis D. Pringle ⊛ Punxsutawney, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1903; past president of the Jefferson County Medical Society; for many years president of the city board of health and of the board of education; for fifteen years county health officer; aged 67; on the staff and formerly superintendent of the Adrian Hospital, where he died, January 29, of uremia.

William Lee Helms, Taylor, Texas; Louisville (Ky.) Medical College, 1904; member of the State Medical Association of Texas; past president of the Williamson County Medical Society; formerly city health officer and member of the school board; on the staff of the Wedemeyer Hospital; aged 68; died, January 2, in a hospital at Temple of injuries received in an automobile accident.

Arthur Guernesey Root, Albany, N. Y.; Albany Medical College, 1890; member and past president of the Medical Society of the State of New York; at one time professor of diseases of the throat and nose at his alma mater; member of the American Laryngological, Rhinological and Otological Society; formerly on the staff of the Albany Hospital; aged 71; died, February 26, of myocarditis.

Hugh Forsythe Lorimer ⊛ Englewood, Colo.; Columbus Medical College, 1883; in 1908 member of the House of Delegates of the American Medical Association; past president of the Ross County (Ohio) Medical Society; formerly member of the state board of health; aged 81; died, January 9, in the Presbyterian Hospital, Denver, of chronic myocarditis and paralysis agitans.

William Converse Kendall, Freeport, Maine; Georgetown University School of Medicine, Washington, D. C., 1896; for many years associated with the U. S. Bureau of Fisheries; was a member of the MacMillan Arctic Expedition; aged 77; died, January 28, in a hospital at Mobile, Ala., of intestinal obstruction and carcinoma of the rectum.

Brayton Eugene Kinne, Albany, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1901; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; visiting surgeon to the Memorial Hospital; aged 61; died, January 23, of arteriosclerosis, endarteritis obliterans and coronary disease.

George Quincy Johnson, Ardsley, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1882; member of the Medical Society of the State of New York; medical officer of the public schools; aged 79; on the staff of the Dobbs Ferry (N. Y.) Hospital, where he died, January 23, of coronary thrombosis.

Maurice Louis Goodkind ⊛ Chicago; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; professor of medicine at the University of Illinois College of Medicine; served during the World War; for many years on the staff of the Michael Reese Hospital; aged 71; died, January 4, of coronary occlusion.

Arthur Ernest Hale ⊛ Alva, Okla.; University of Kansas School of Medicine, Kansas City, Kan., 1913; past president of the Woods County Medical Society; served during the World War; aged 52; on the staff of the Alva General Hospital, where he died, January 11, of gas bacillus infection, following operation for ruptured diverticulum.

Willis Harland Flamm, Amarillo, Texas; John A. Creighton Medical College, Omaha, 1908; member of the State Medical Association of Texas; past president of the Potter County Medical Society; on the staffs of the Northwest Texas Hospital and St. Anthony's Hospital; aged 56; died, January 8, of heart disease.

William Wallace Larsen, ⊛ Le Mars, Iowa; State University of Iowa College of Medicine, Iowa City, 1913; member of the Iowa State Medical Society and the Radiological Society of North America; on the staff of the Sacred Heart Hospital; aged 55; died, January 19, of rhabdomyosarcoma with metastasis.

James Elmer Donnell, Cuba City, Wis.; Illinois Medical College, Chicago, 1907; member of the State Medical Society of Wisconsin; past president of the Grant County Medical Society; served during the World War; aged 62; died, January 19, in Dubuque, Iowa, of intestinal obstruction and carcinoma of colon.

John Frank Hastings ⊛ Kenosha, Wis.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906; past president and secretary of the Kenosha County Medical Society; on the staff of the Kenosha Hospital; aged 61; died suddenly, January 17, in Chicago, of chronic myocarditis.

Henry Wellington Cook, Hicksville, Ohio; Western Reserve University Medical Department, Cleveland, 1895; member of the Ohio State Medical Association; formerly member of the board of education of Hicksville and of the county board of education; aged 73; died, January 7, of bronchopneumonia.

Margaret Rodgers James, Allentown, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1929; member of the Medical Society of the State of Pennsylvania; on the staff of the Allentown Hospital; aged 35; was found dead, January 21, of injuries received in an automobile accident.

Joseph Edward Evans ⊛ P.A.S., Lieutenant, U. S. Navy, Charleston, S. C.; Harvard University Medical School, Boston, 1927; fellow of the American College of Surgeons; entered the navy in 1927; served during the World War; aged 40; died, January 25, in the United States Naval Hospital.

Raymond Barzillia Burr, Blair, Neb.; University of Nebraska College of Medicine, Omaha, 1927; member of the Nebraska State Medical Association; served during the World War; aged 42; died, January 9, in the Immanuel Hospital, Omaha, of coronary occlusion and arteriosclerosis.

Augustus William Hendricks, Allentown, Pa.; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; past president of the Lehigh County Medical Society; formerly city health officer; aged 70; died, January 31, of coronary embolism.

Clarence Paul Johnson, San Antonio, Texas; Baylor University College of Medicine, Dallas, 1929; member of the State Medical Association of Texas; on the staffs of the Nix and Robert B. Green Memorial hospitals; aged 38; died, January 14, when he fell from a twenty-one story window.

Marshall McDowell ⊛ Cynthiana, Ky.; Medical College of Ohio, Cincinnati, 1894; treasurer of the Kentucky State Medical Association; past president of the Harrison County Medical Society; on the staff of the Harrison Memorial Hospital; aged 66; died, January 26, of cerebral hemorrhage.

George Hazard Crooker ⊛ Providence, R. I.; Harvard University Medical School, Boston, 1893; veteran of the Spanish-American and World Wars; formerly on the staff of the Rhode Island Hospital; aged 73; died, January 12, of coronary thrombosis and bronchopneumonia.

John Alexander Jackson, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887; member of the Medical Society of the State of New York; aged 77; died, January 11, in St. Joseph's Hospital, Tampa, Fla., of cerebral hemorrhage.

George Stillman Clark, Worcester, Mass.; Harvard University Medical School, Boston, 1885; member of the Massachusetts Medical Society; aged 79; died, January 26, in the Memorial Hospital of arteriosclerotic gangrene followed by amputation of the left leg.

Francis Orman Hill, Monticello, Maine; Medical School of Maine, Portland, 1899; past president of the Aroostook County Medical Society; formerly member of the state legislature; aged 66; died, January 2, of coronary occlusion and cerebral hemorrhage.

William Henry Emery, Boston; Harvard University Medical School, Boston, 1870; member of the Massachusetts Medical Society; Civil War veteran; aged 90; died, January 21, in the Veterans Administration Facility, Bedford, Mass., of myocarditis and arteriosclerosis.

William T. Fitzgerald, Greenville, Ohio; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1891; formerly congressman; aged 79; died, January 12, of arteriosclerosis and streptococcic throat infection.

Guy Goodwin Fernald, West Concord, Mass.; Dartmouth Medical School, Hanover, N. H., 1899; member of the Massachusetts Medical Society; for many years on the staff of the Massachusetts Reformatory Hospital; aged 74; died, January 21,

Charles Whitefield Clark, Toronto, Ont., Canada; Hahnemann Medical College and Hospital, Chicago, 1866; Homeopathic Medical College of Missouri, St. Louis, 1867; aged 93; died, January 8, of carcinoma of the pancreas and duodenum.

Earle Wayne Cliffe, Youngstown, Ohio; Cleveland Homeopathic Medical College, 1909; member of the Ohio State Medical Association; served during the World War; aged 54; died, January 31, in St. Elizabeth's Hosptial of angina pectoris.

Charles Alexander Eastman, Detroit; Boston University School of Medicine, 1890; at one time inspector in the Indian Service of the U. S. Department of Interior; aged 80; died, January 8, of bronchopneumonia and chronic myocarditis.

John W. Cooper, Kempton, Ind.; Physio-Medical College of Indiana, Indianapolis, 1884; member of the Indiana State Medical Association; aged 80; died, January 23, in St. Francis Hospital, Beech Grove, of carcinoma of the stomach.

William E. Howell, Gallipolis, Ohio; Medical College of Ohio, Cincinnati, 1897; member of the Ohio State Medical Association; formerly county health officer; aged 70; was found dead in his automobile January 21, of heart disease.

Mark Jacob Gottlieb ⊕ New York; University and Bellevue Hospital Medical College, New York, 1909; on the staffs of the Beth Israel Hospital and the Hospital for Joint Diseases; aged 53; died, Dec. 21, 1938, of heart disease.

William Levi Ward, Victoria, Texas; University of Louisville (Ky.) Medical Department, 1880; aged 86; died, Dec. 27, 1938, in a local hospital of cerebral injuries received in an accidental fall down the stairway of his home.

George Benjamin Henke ⊕ Ontario, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1913; on the staff of the San Antonio Community Hospital, Upland; aged 54; died, January 25, of coronary occlusion.

Earl Berton Fitzpatrick ⊕ Martinez, Calif.; Oakland (Calif.) College of Medicine and Surgery, 1910; served during the World War; aged 51; died, Dec. 9, 1938, in the Community Hospital of tuberculosis of the bladder.

Frederick Leslie Dod, Kansas City, Mo.; University Medical College of Kansas City, Mo., 1904; member of the Missouri State Medical Association; served during the World War; aged 62; died, January 30, of pneumonia.

Arthur Wayland Howard, Wethersfield, Conn.; University of the City of New York Medical Department, 1890; member of the Connecticut State Medical Society; aged 71; died, January 16, of coronary thrombosis.

Theodore A. Erck, Leesburg, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1892; fellow of the American College of Surgeons; aged 75; died, January 10, of carcinoma of the mesentery.

William F. Finney, Trenton, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1874; aged 90; died, January 18, in St. Francis Hospital of prostatic hypertrophy and bronchopneumonia.

George W. Clayton, Laurel, Miss. (licensed in Mississippi in 1906); member of the Mississippi State Medical Association; on the staff of the Laurel General Hospital; aged 57; died, January 13, of angina pectoris.

Julius Arthur Dosher, Southport, N. C.; Baltimore Medical College, 1903; served during the World War; aged 59; on the staff of the Brunswick County Hospital, where he died, January 10, of pulmonary tuberculosis.

John Clifton, Vermillion, Kan. (licensed in Kansas in 1901); member of the Kansas Medical Society; formerly county health officer; aged 74; died, January 16, in Topeka of myocardial and renal insufficiency.

Rufus Peabody Hubbard, New York; Harvard University Medical School, Boston, 1883; aged 82; died, January 7, in St. Luke's Hospital of chronic glomerular nephritis and lobar pneumonia.

Clarence Denver Potter, San Francisco; Hahnemann Hospital Collge of San Francisco, 1896; member of the California Medical Association; aged 66; died, Dec. 8, 1938, of arteriosclerosis.

Horace Everett Doughty, Oxford, Maine; Baltimore Medical College, 1909; formerly member of the school board; aged 65; died, January 28, of nephritis and diabetes mellitus.

Jesse Willis Amey, Schenectady, N. Y.; University and Bellevue Hospital Medical College, New York, 1907; aged 67; died, January 11, in Miami, Fla., of cerebral hemorrhage.

Davis Leslie Askren, Fayoum, Cairo, Egypt; Central Medical College of St. Joseph, Mo., 1896; medical missionary; aged 65; died, January 18, of heart disease and emphysema.

Louis Philippe Dumont, Montreal, Que., Canada; Laval University Faculty of Medicine, Quebec, 1919; aged 43; was found dead, January 7, of poison, self administered.

Charles L. Baskin, Bremen, Ga.; Atlanta Medical College, 1895; member of the Medical Association of Georgia; aged 69; died, January 13, of uremia and paralysis agitans.

Patrick Joseph Brice, New Castle, Pa.; Jefferson Medical College of Philadelphia, 1907; aged 62; died, Dec. 17, 1938, in the New Castle Hospital of coronary occlusion.

Wilmer Kieffer Maglaughlin, Altoona, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1890; aged 71; died, Dec. 23, 1938, of cerebral hemorrhage.

Anna Beauregard Searcy Bourne, Springfield, Mo.; University of Missouri School of Medicine, Columbia, 1900; aged 76; died, January 14, of coronary thrombosis.

Daniel Burleigh Parkhurst, Ogunquit, Maine; Hahnemann Medical College and Hospital of Philadelphia, 1900; aged 79; died, Dec. 29, 1938, in Boston of myocarditis.

Joseph Leal d'Azevedo, Oakland, Calif.; College of Physicians and Surgeons, San Francisco, 1901; aged 63; died, Dec. 18, 1938, of arteriosclerotic heart disease.

John Aloysius Barry, Boston; Georgetown University School of Medicine, Washington, D. C., 1891; aged 77; died, Dec. 9, 1938, of carcinoma of the intestine.

George Howard White ⊕ Baltimore; Johns Hopkins University School of Medicine, Baltimore, 1906; aged 57; died, Dec. 21, 1938, of carcinoma of the colon.

Charles Cochran Kemble ⊕ Erie, Pa.; Jefferson Medical College of Philadelphia, 1897; aged 62; died, Dec. 24, 1938, in St. Vincent's Hospital of liver abscess.

Oliver R. Fore, Canton, Miss.; Atlanta College of Physicians and Surgeons, 1902; served during the World War; aged 63; died, Dec. 23, 1938, of gastric ulcer.

Cassius M. Clay, Milton, Fla.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1897; aged 83; died, Dec. 26, 1938, of endocarditis.

Aslak Milo Boe, Northfield, Minn.; University of Minnesota Medical School, Minneapolis, 1926; aged 40; died, January 8, of pulmonary tuberculosis.

Elizabeth Fear Leffingwell, Aurora, N. Y.; University of Buffalo School of Medicine, 1888; aged 76; died, Dec. 21, 1938, of carcinoma of the intestine.

Dilly Nelson Pattison, Oelwein, Iowa; State University of Iowa College of Medicine, Iowa City, 1897; aged 62; died, Dec. 26, 1938, of coronary sclerosis.

B. Cornelison, Louisville, Ky.; Keokuk (Iowa) Medical College, 1891; aged 87; died, Dec. 29, 1938, at the Norton Infirmary of cerebral hemorrhage.

Howard Nelson Nason, Mill River, Mass.; College of Physicians and Surgeons, Boston, 1909; aged 61; died, Dec. 12, 1938, of carcinoma of the prostate.

Philip T. Leighly, Hebron, Ind.; Kentucky School of Medicine, Louisville, 1888; aged 78; died, Dec. 31, 1938, of nephritis and chronic prostatitis.

Allen Bonebrake, Goldendale, Wash.; Willamette University Medical Department, Portland, Ore., 1883; aged 86; died, Dec. 31, 1938, of cerebral anemia.

Edwin Carman, Freeport, N. Y.; Long Island College Hospital, Brooklyn, 1889; aged 71; died, January 8, of chronic glomerular nephritis and uremia.

William Waldron Ware, Stanton, Tenn.; Vanderbilt University School of Medicine, Nashville, 1899; aged 65; died, Dec. 8, 1938, of arteriosclerosis.

William Allenson Greer, Fountain City, Tenn.; Vanderbilt University School of Medicine, Nashville, 1897; aged 67; died, Dec. 19, 1938, in Sebring, Fla.

Charles A. Monroe, Oakland, Calif.; Cleveland Medical College, 1895; aged 68; died, Dec. 13, 1938, of chronic myocarditis and pulmonary edema.

Charles William Haentschel, Haileybury, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1888; aged 78; died, Dec. 15, 1938.

Charles P. Hemphill, Sweatman, Miss.; Louisville (Ky.) Medical College, 1884; aged 81; died, January 28, of pneumonia.

Orlo L. Mapes, Lakeside, Ohio; American Eclectic Medical College, Cincinnati, 1886; aged 79; died, Dec. 23, 1938.

John W. Roark, Roanoke, Texas (licensed in Texas, under the Act of 1907); aged 66; died, Dec. 17, 1938.

S. D. Caver, Linnflat, Texas (licensed in Texas, under the Act of 1907); died in December 1938.

Correspondence

"RELATION OF PHYSICAL EXERTION AND EMOTION TO PRECIPITATION OF CORONARY THROMBI"

To the Editor:—In an article entitled "Relation of Physical Exertion and Emotion to Precipitation of Coronary Thrombi" in THE JOURNAL, March 11, Dr. J. C. Paterson categorically stated that coronary thrombi are precipitated by exertion and emotion. This is contrary to our observations previously published in THE JOURNAL and elsewhere.

In the summary the author states that "activities of a patient immediately preceding the onset of an attack of coronary thrombosis have no relation to the etiology of the precipitation of a thrombus but are purely coincidental." Yet the very next sentence is "The pathologic appearances in a series of fatal cases of coronary thrombosis suggest strongly that exercise and emotional stress are intimately concerned in the mechanism of coronary artery thrombosis." These statements are contradictory.

If the author means unusual activities a few hours to a few days prior to the closure rather than the activities immediately preceding it, we have his statement with regard to his two cases that "both persons were pursuing their ordinary activities until just before their fatal attacks, and patient 2 was known to have been without complaints and in good spirits three and one-half hours before his death." Hence the author cannot believe that effort immediately or sometimes before the occlusion was a factor.

Although the author states that "on purely pathologic grounds there is reason to believe that such physical and mental states, both of which result in temporary hypertension, cannot be excluded as precipitating factors of coronary thrombi," he actually gives purely theoretical arguments but neither pathologic nor clinical evidence. Our belief that coronary artery occlusion is not related to activity or emotional stress was based on carefully elicited histories in 800 ward and private cases and not on theoretical discussion of blood pressure.

The author assumes that subintimal hemorrhage, with which it is now agreed coronary occlusion is usually associated, is produced by exertion or emotion resulting in an increase in blood pressure in the subintimal capillaries. There is no proof for this assumption. Leary and other investigators have shown, and Paterson himself has corroborated, that subintimal hemorrhages are part of the progressive arteriosclerotic process in the coronary arteries; it is unnecessary to invoke a rise in blood pressure to explain them. As a matter of fact, Winternitz found it necessary to perfuse the coronary arteries at pressures of from 500 to 1,000 mm. of mercury in order to outline the subintimal capillaries. In spite of these enormous pressures, far beyond any figure attained in hypertension, rupture of the capillaries did not occur, although severe coronary sclerosis was present. Furthermore, we have now collected a group of forty patients who because of the presence of carcinoma, heart failure and the like had been in bed for weeks or months prior to the attack of coronary artery occlusion. In spite of the absence of effort in such persons, subintimal hemorrhage was just as common as in others going about.

Paterson's two cases indicate that in some instances a varying period may elapse between the onset of thrombus formation and the clinical attack. This is not a new idea at all, having been noted by a number of writers including Levy and Bruenn in THE JOURNAL in 1936. We realized therefore that it was necessary to know the activity of the patient for some time prior to the acute episode, and in the last 250 cases we have analyzed the activities of the patient during the entire four weeks prior to the attack. These data have confirmed our belief that activity plays no role in precipitating coronary thrombosis. Not only did the attack begin at rest, as a rule, but there was no history of undue exertion or emotion previously. The occurrence of coronary artery occlusion in the forty patients who had been bedridden for weeks and months is confirmatory evidence of this.

It seems reasonable to us to collect clinical facts and to correlate them with the pathologic observations or with some tested physiologic mechanism. Paterson has completely ignored the clinical facts. These can be obtained by any one who takes a detailed history of the events preceding an attack of coronary artery occlusion. He will be struck by the fact that classic coronary artery occlusion almost invariably occurs in the absence of effort, excitement and trauma. In 1,400 cases we found the activities associated with coronary artery occlusion as follows:

Sleep	22.3	53.4%
Rest	31.1	
Mild activity	20.2	44.5%
Moderate activity	8.5	
Walking	35.8	
Unusual exertion	2.0	2.0%

This trifling association of coronary artery occlusion with unusual exertion eliminates it as a factor in the precipitation of the attack; otherwise coronary artery occlusion should occur very much more frequently for all of us, including those with coronary artery sclerosis who exert themselves during the day. If effort or excitement were a factor in the onset of coronary occlusion, sufferers from coronary sclerosis would never dare to move, read a newspaper or listen to the radio.

Since coronary artery occlusion occurs usually at rest or during sleep, it is even possible to explain subintimal hemorrhage on the basis of a drop in blood pressure and not on a rise, as Paterson assumes. It has long been known that, in shock with a fall of blood pressure, capillary hemorrhages are present throughout the body. In patients with severe coronary sclerosis, bleeding from an ulcer, for example, may produce coronary insufficiency and death. There is a fall of blood pressure concomitant with the exsanguination and yet fresh subintimal hemorrhages may be found post mortem.

We found not only that physical activity or emotional stress was not a factor in the onset of coronary artery occlusion but that occupation also played no role, attacks being equally common in laborers and persons engaged in sedentary occupations. This further corroborates our belief.

ARTHUR M. MASTER, M.D.
SIMON DACK, M.D.
HARRY L. JAFFE, M.D.
New York

TUMORS IN TWINS

To the Editor:—I am making an analysis of records of tumors in twins and would be glad if you could lend me assistance by publishing this appeal for information to the medical profession of America:

A number of records have been published of tumors occurring in one or both members of a pair of twins. There is a divergence of opinion as to the conclusions that can be drawn from such reports. I am therefore asking all members of the profession who have had occasion to diagnose or treat tumors, either benign or malignant, in either one or both members of a pair of twins to communicate with me, giving the following information as far as possible:

Twin 1. Name Sex Tumor? Site Type
Age of onset Age at death Age, if still living
Was there operative or pathologic confirmation of the diagnosis?
Twin 2. Same information.

If the twins were of the same sex, were they so similar in appearance as to cause confusion in identity or were they dissimilar?

Those cases in which only one twin was affected are just as important as those in which both twins have the tumor. The names are important but will be kept confidential, because if the same person was treated by several physicians, all of whom were to send in information, the name would aid in checking the fact that there was a duplication. The age at the time tumor arose and the age at death or at which the twins are still living is of great importance also. If the tumor began in twin 1 six months ago and twin 2 has not yet shown it, the short duration of time must be considered in evaluating the record; but if the second twin has lived twenty years without the tumor developing, that point should be noted. Because there are not many available records of tumors in twins, I appeal to all members of the profession who read this note to send to me as soon as possible any data which they have on tumors in twins.

MADGE THURLOW MACKLIN, M.D., LL.D.,
London, Ont.
Assistant Professor of Histology and Embryology,
Medical School, University of Western Ontario.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

VITAMINS IN GREEN AND RIPENED FRUITS

To the Editor:—What difference is there in the vitamin potency of tree-ripened fruit and fruit picked green and allowed to ripen?

LEONARD T. CARLSON, M.D., Minneapolis.

ANSWER.—This question cannot be answered categorically because there is a paucity of information on the subject and other important considerations are implied by the question. Most of the studies relating to ripening of fruits and the vitamin content have been made on tomatoes and oranges, and some of them have been confined to vitamin C. It has been reported that fully matured but green tomatoes are lower in vitamin A and vitamin C than vine-ripened fruit and that green fruit when ripened in the air shows some increase in vitamins A and C but does not acquire the same vitamin content as tomatoes ripened on the vine. There appear to be no important changes in the vitamin B content during the process of ripening, irrespective of method.

Two rather extensive studies on oranges show that if the fruit is picked in the early stages of maturity (state laws require that a certain acid-sugar ratio must be reached in the juice before interstate shipment is permitted) the vitamin C content of the juice is fully equal to that reached at any later stage of maturity.

Treatment with ethylene gas or the gas from oil heaters is extensively used to change the color of immature fruit to that of naturally ripened fruit. It appears that the only important change produced by this treatment is a bleaching of the chlorophyll so that the color of naturally ripened fruit is produced. This process does not alter the vitamin content of the fruit.

The generalization may be made that fruit shows a lowering of vitamin C during storage, but there are no important changes with respect to the other vitamins. It is improbable, however, that the metabolic changes during storage proceed to an important degree during the period required for ripening after the fruit has been picked. It is not possible to state with assurance that from a practical standpoint there is a measurable advantage in consuming fully tree-ripened fruit as compared with fruit picked at such a stage of maturity that it can be ripened off the tree.

The vitamin C content of fruits is discussed in the paper "Vitamin C Methods of Assay and Dietary Sources" by Otto A. Bessey, THE JOURNAL, Oct. 1, 1938, page 1290.

SALT SUBSTITUTES AND NEPHRITIS

To the Editor:—Is it the sodium or chloride ion that is advised against in the treatment of renal conditions associated with edema? I thought it was the sodium ion that was the detrimental factor. If the sodium factor, then would not that be contraindicated in the use of commercial "Curtasal"-Winthrop? This is advised for use to flavor foods when the use of salt is not advised. It contains, they say, "sodium formate with the addition of a small amount of magnesium citrate and calcium formate." What might one use advantageously to flavor foods when regular salt is not advised?

M.D., Wisconsin.

ANSWER.—The early work on the relation between salt retention and edema laid undue emphasis on the chloride ion, largely because of the difficulty of analyzing for sodium. When it was later demonstrated that potassium chloride, calcium chloride and ammonium chloride actually produced diuresis in edematous patients, emphasis was shifted to the cation sodium. Further work on clinical and experimental states of dehydration and hydration, or edema, revealed a quantitative relation between sodium and water excretion or retention, respectively. However, the conclusion that the chloride ion is unimportant in edema in comparison with the sodium ion is not justified. It is much easier, other things being equal, to produce edema with sodium chloride than with the equivalent amount of sodium bicarbonate. This follows from the normal composition of body fluids, in which there is about four times as much chloride ion as bicarbonate ion. The antiedemic effect of other chlorides than sodium chloride is undoubtedly due as much to the inability of the body to retain sodium without chloride as to the inability to retain chloride without sodium. Therefore, both sodium and chloride should be restricted in the treatment of edema.

Commercial substitutes for salt usually contain sodium and calcium compounds of formic, malic or amino acids. These are partly excreted unchanged but largely converted into bicarbonates. Since sodium bicarbonate is less edema producing than sodium chloride, the moderate use of these salt substitutes may not harm the patient in spite of the theoretical objection to sodium intake.

Any salt-free condiment or flavoring agent may be allowed to an edematous individual. Pepper, vinegar, lemon juice, onion, paprika and cinnamon can be suggested. D-glutamic acid, which is converted to urea in the body, has been recommended in doses of from 5 to 10 Gm. a day. The sodium salt contains only one third as much sodium as sodium chloride, per gram, and is seven times as salty. This salt has been used extensively in Chinese cooking. Both d-glutamic acid and its sodium salt are available commercially in pure form.

According to information received from the Winthrop Chemical Company by the Council on Pharmacy and Chemistry, Curtasal is composed of sodium formate 98 per cent, magnesium citrate 1 per cent and calcium formate 1 per cent. This preparation has not been submitted to the Council or examined by the Chemical Laboratory.

References:

Salt Substitutes in the Diet, THE JOURNAL, Aug. 6, 132, p. 497.
Hosal and Bromhosal Not Acceptable for N. N. R., THE JOURNAL, July 22, 1933, p. 280.
Eka Salt Not Acceptable for N. N. R.. Annual Reprint of the Reports of the Council on Pharmacy and Chemistry for 1934, pages 46, 47 and 48.

ANTIGEN-ANTIBODY REACTIONS—DENATURED PROTEINS

To the Editor:—1. Has any successful concentration of antibodies been obtained by attempted separation of antibody from antigen? 2. Can a denatured protein be restored to its native state? I have a recollection that Anson and Mirsky made some attempts along this line.

ALBERT ZRUNEK, M.D., Chicago.

ANSWER.—1. This question can be considered from two points of view: first, whether the reaction between antigen and antibody is a chemically reversible reaction in the sense that in a mixture of the two substances an equilibrium is attained in which the speed of combination is equal to the speed of dissociation, and, second, whether the isolated product of the reaction of antibody and antigen, in the form of either sensitized bacteria or cells, or precipitate from precipitin reaction, can be separated by manipulation into its component parts.

Reversibility in antigen-antibody reactions has been the subject of much experimentation and is discussed in such publications as "Infection and Resistance" by Hans Zinsser and "The Chemistry of Antigens and Antibodies" by Marrack. Madsen, Arrhenius and Ehrlich proposed that the basic laws of chemical equilibrium and mass action applicable to the reaction of acids and bases can find their analogies in serologic reactions. On the other hand there are facts that are inconsistent with these theories, such as the Danyz phenomenon, in which there is a

different result when the same quantity of antigen is mixed with a given quantity of antibody and when it is mixed in divided amounts, and the observation that the precipitate from precipitin reactions does not always dissolve in excess of antigen as would be expected in true equilibriums. The fact does remain, however, that the combination of antigen and antibody is in some instances clearly reversible, as shown by the following experiment: If an amount of red cells is saturated with hemolytic amboceptor, washed free of excess of this reagent and then mixed with an amount of untreated red cells, all the red cells, both the original and the newly added ones, can be shown to be sensitized by the hemolysis following the addition of complement. The only explanation of this phenomenon is that red cells may combine with more amboceptor than is necessary for hemolysis but will give up the excess amboceptor in the presence of unsensitized red cells.

The combination of antigen and antibody may be destroyed by various manipulations. The efficacy of neutral mixtures of diphtheria toxin and antitoxin as immunizing agents indicates that in the body the toxin is slowly released from its combination with antitoxin. The readiness with which this combination can be broken up is illustrated also by the incident which occurred a few years ago when a commercial product of diphtheria toxin-antitoxin became highly toxic after it had been frozen. The precipitate from precipitin reactions and cells and bacteria sensitized with their corresponding immune serums can be treated with various reagents so as to release the bound antibody. Hypertonic or relatively strong alkaline solutions are usually employed and use is made of the method to obtain highly purified antibody solutions. Heidelberger and Kendall (*J. Exper. Med.* **64**:161 [Aug.] 1936) in this way obtained from the precipitate formed with pneumococcus polysaccharide and antipneumococcus serum a solution of antibody in which 93 per cent of the nitrogen belonged to the immune bodies.

2. Denaturation of proteins, in contradistinction to precipitation, carries with it the idea of permanence. The actual chemical changes that occur in the process of denaturation are consistent with this idea. While there are some writers who say that denaturation is a reversible process, they base their assertion solely on the fact that some, but by no means all, denatured proteins can be redissolved. But there have been few attempts to show that the properties of the redissolved protein are identical with the native protein. The best evidence on this point is obtained by immunologic means. Theoretically, denatured proteins should be antigenic because they are digestible, since digestibility and antigenicity are closely parallel. However, the insolubility of denatured proteins interferes with their antigenic properties. When resolution of denatured proteins can be accomplished without secondary alterations due to the solvent, or when denaturation can be produced without coagulation, the proteins can be used as antigens. In such instances the immune reactions have shown that in most cases denaturation results in marked changes in specificity and this, in turn, denotes changes in the chemical structure of the proteins. From this evidence it is probable that recovery of native properties of proteins after denaturation does not occur.

CEREBRAL TRAUMA AND DUODENAL ULCER

To the Editor:—I understand that a gastric or duodenal ulcer can be a sequel to a severe head injury. Please enlighten me on this subject and give references.

M.D., Manitoba.

ANSWER.—The relation between intracranial lesions and gastrointestinal ulcerative processes, according to Cushing's review of the subject (Peptic Ulcer and the Interbrain, *Surg., Gynec. & Obst.* **55**:1 [July] 1932), was first suggested by Carl Rokitansky as early as 1841. Within the last decade there have been several reports of brain tumors, operations and accidents with gastrointestinal ulcerative processes, and experimental evidence of this possible relationship has been produced.

Cushing reported three cases of acute perforating gastrointestinal lesions which followed operations for cerebellar tumors. He also cited two cases of gastric erosions following operations for brain tumor, two cases of gastric ulcer associated with malignant hypertension with choked disks, the case of a child of 10 with chronic cicatrizing duodenal ulcer associated with a recurring cerebellar tumor, and the case of a man with duodenal ulcer who had a recurrence of gastric distress associated with each of three exacerbations of intracranial symptoms from a radiosensitive tumor encroaching on the third ventricle.

Vanzant and Brown (*Am. J. Digest. Dis.* **5**:113 [April] 1938) described the case of a well nourished, healthy boy of 11 who was hit by a truck, taken to the hospital, treated for concussion for four days, and returned to school in another ten days. Twenty days after the accident his appetite failed and on eating he noticed pain in the epigastrium. Six weeks after the injury a diagnosis was made of contusion and laceration without localizing signs. There was a spinal fluid pressure of 180 mm. of water, and blood in the stools. Fluoroscopic examination showed a small, irritable, constantly deformed duodenal bulb. A diagnosis of duodenal ulcer was made and the symptoms disappeared on ulcer management.

Additional references:

Masten, M. G., and Bunts, R. C.: Neurogenic Erosions and Perforations of the Stomach and Esophagus in Cerebral Lesions, *Arch. Int. Med.* **54**: 916 (Dec.) 1934.

Opper, Lincoln, and Zimmerman, H. M.: Ulcers of the Digestive Tract in Association with Cerebral Lesions, *Yale J. Biol. & Med.* **11**:49 (Oct.) 1938.

SPASTIC QUADRIPLEGIA—TOXIC NEURITIS

To the Editor:—1. A white woman aged 50, seen two weeks ago, first noticed difficulty in talking about one year previously. This has gradually increased until now her speech is indistinct. Then she noticed a stiffness of her arms and later of her legs. The paralysis of the legs has progressed so that now she cannot walk and can only with great difficulty move the arms or legs at all. Mentally she seems alert and active but cannot use the muscles of speech to express herself. The blood pressure is 134 systolic, 90 diastolic; the pulse rate is 96. Physical examination shows spastic quadriplegia. She sits with her arms flexed and hands closed. As she sits, her legs tend to straighten out stiffly. The feet are inverted by muscular pull. The extremities show lead pipe rigidity, with greater resistance to flexion than to extension. The left side is more involved than the right. The Babinski reflex is present on the left side; no tremor is present; the fingers can be straightened passively but resist straightening. The Wassermann reaction is negative. The pupils are equal and react well to light. What is the most probable diagnosis? Could a brain tumor cause this? What line of treatment would be advisable? 2. A man about 50 years old has recently returned from Florida. While there he worked removing "bootjacks" from the trunks of some palmetto trees. Shortly after he developed a tingling and pain in both hands and arms. Following this he developed muscular weakness of both forearms and hands. The patient feels sure that this resulted from a poison in the muck under the bootjacks. Have cases of a toxic neuritis ever been reported caused by this? He worked a total of only fifteen or twenty hours. What is the probable duration of this condition and the best line of therapy?

M.D., Washington.

ANSWER.—1. The gradually increasing spastic quadriplegia in a patient 50 years of age without signs of arterial disease, over a period of two years, is suggestive of one of the degenerative diseases of the nervous system. The diagnosis is probably paralysis agitans without tremor. This would account for the speech defect as well as for the spastic paralysis of all four extremities. It would not, however, quite satisfy the finding of "lead pipe" rigidity or the presence of the Babinski reflex on the left side. The rigidity of paralysis agitans is not of the lead pipe type but gives rise, when passive motion is used, to the cog-wheel type of stiffness. The so-called lead pipe type is ordinarily confined to diseases of the pyramidal tract, paralysis agitans being one in which the extrapyramidal tracts are involved, including the motor cells in the basal ganglions of the brain and possibly elsewhere. The Babinski sign, moreover, is indicative of pyramidal tract disease and would not be found in the ordinary case of paralysis agitans. If these two signs are substantiated by repeated examination, another cause for the patient's symptoms should be sought.

The slow onset and progressive character of the disease are against thrombosis or hemorrhage as the etiologic agent, although either of these, if present in the upper cervical spinal cord or lower end of the medulla oblongata, might give rise to symptoms such as the patient presents. Tumor in this region should also be considered. The fact that there is no disturbance of sensation, however, militates against this diagnosis. In spite of the patient's age there is no reason to forego the amount of information obtainable from examination of the spinal fluid. Pressure studies and estimation of the protein content of the fluid might lead to a more positive diagnosis. If there is a hydrodynamic block in the spinal fluid, or if the protein is markedly elevated, tumor is likely and competent neurologic or neurosurgical advice should be sought.

2. So far as can be ascertained, there is no poisonous substance in the "bootjacks" from palmetto trees or in the muck which lies under them. Toxic neuritis, therefore, from these substances has not been reported. It is more likely that the patient suffers from one of the more ordinary types of infectious neuritis and that he should be treated along the usual lines for this disease. Such treatment consists in massage and galvanism to the muscles affected, if these muscles do not respond to the faradic current, and prevention of overstretching by the use of splints, if necessary. If there are obvious foci of infection elsewhere in the body, these should be removed. Antineuritic vitamin B might be added to the diet if the neuritis is at all extensive.

HYPOSPADIAS IN ADULT

To the Editor:—Please give me information on operations for hypospadias in adults. A man aged 30 has had some childhood diseases, an attack of influenza in 1919 and two attacks of gonorrhea. His physical examination is essentially negative except for a slight secondary anemia (color index 0.9) and a penile hypospadias. The urinary meatus is approximately 1½ inches back from the end of the penis. There is a definite chordee and a rudimentary urethral groove with a rudimentary corpus cavernosum reaching nearly to the end of the penis. There is a large dorsal prepuce in the shape of an apron. My plan of operation is to straighten out the penis by a transverse ventral incision with subsequent severing of the rudimentary cavernosum and suturing in the opposite direction. In the second step for building up the urethra proper I want to use the Ombredanne method, utilizing the prepuce. I wish to know your opinion as to this plan and I would like to know further whether the use of a permanent catheter during the first or second stage of the operation, or during both stages, is indicated. Is it advisable to destroy the hair follicles in case some hair bearing part of skin is used for building up the new urethra? There are plenty of references to be found as to the correction of this malformation in early childhood, but so far I have been unable to find anything dealing with the situation in adults.

M. D., California.

ANSWER.—Whether or not a man who is 30 years of age should have an operation for the correction of hypospadias may be open to debate. This depends on whether the patient is married; if he is, and can perform his marital duties, it might be well at 30 to "let well enough alone." On the other hand, if the patient is not married and wishes his defect corrected before he gets married, one might discuss the question of an operation for the hypospadias.

If the presence of the chordee prevents the patient from having satisfactory intercourse, one is justified in advising him to have the curvature straightened. As suggested, this may be done by making a transverse ventral incision. On the other hand, a good many men are now using the tube graft instead of the procedure suggested in the query. If the patient is married and his wife has borne children, it may be possible that correcting the deformity alone is all that may be needed. But if it is a question of sterility and if the external urethral orifice is far back, the urethra of course would have to be advanced in order to deposit the semen in the vagina. Then again, if the opening is only an inch or so behind the tip of the glans penis it might be well to leave it alone.

The objection to the use of the Ombrédanne method is the fact that hair may be present and stone formation may occur; therefore many men believe in the advisability of destroying the hair follicles.

Various types of operations are discussed and illustrated in textbooks on urology.

PERFORATION AND BLEEDING IN PEPTIC ULCER

To the Editor:—I would appreciate it if you would give me some information regarding an accident case under my care. 1. I should like to know the percentage of occurrence of perforation in ulcer ventriculi et duodeni according to the latest statistics. 2. What is the percentage of occurrence of bleeding in cases of ulcer of the stomach and duodenum? 3. What is the percentage of occurrence of the two in the same ulcer patient? 4. From what literature could I learn most about occurrence of bleeding in ulcer cases after trauma (heavy lifting and strenuous work)?

M. D., Massachusetts.

ANSWER.—A critical review of the recent literature on the incidence of perforation and bleeding in chronic gastric and duodenal ulcer reveals a variable array of statistics. This is particularly true with reference to bleeding. Statistics based on the cases admitted to the large metropolitan charity hospital or outpatient clinic differ materially from those published by the private hospital or private practitioner. There also is marked variation in the immediate mortality from bleeding ulcer following medical or surgical treatment. The incidence of acute and chronic perforation and hemorrhage is also influenced by the element of time; that is, the duration of the disease when the patient first came under observation and the duration of the period of observation thereafter. Therefore the data submitted are approximate, strictly speaking, rather than exact.

1. Acute perforation occurs in 5 per cent of ulcers of the stomach and duodenum. Statistics embracing a large series of surgically verified cases reveal that subacute (forme fruste) and chronic perforation occurs in from 25 to 28 per cent of both gastric and duodenal ulcers. The large majority of these (over 90 per cent) are of the chronic variety.

2. The percentage of occurrence of bleeding in both gastric and duodenal ulcer is 30.

3. The occurrence of both acute perforation and hemorrhage is infrequent. Available statistics are too meager on which to base any definite conclusions. Goldman (*Ann. Surg.* **40**: 541 [June] 1938) reported seven cases of this nature representing 2 per cent of the entire series reported. The impression that bleeding ulcers do not perforate and perforating ulcers do not bleed is justifiable to a considerable extent. However, as high as 8 per cent of duodenal ulcers which had given rise to hemorrhage of variable extent showed evidence of chronic perforation at operation.

4. The following textbooks and articles may be consulted:

Brahdy, Leopold, and Kahn, Samuel: Trauma and Disease, Philadelphia, Lea & Febiger, 1937, p. 181.

Custerman, G. B., and Balfour, D. C. The Stomach and Duodenum, Philadelphia and London, W. B. Saunders Company, 1936, p. 756.

Crohn, B. B. Affections of the Stomach, Philadelphia, W. B. Saunders Company, 1927, p. 621.

Beams, A. J. Industrial Aspects, *Ohio State M. J.* **32**: 130 (Feb.) 1936.

Alvarez, W. C.: Severe Gastric Hemorrhage Produced by Violent Abdominal Massage, THE JOURNAL, July 11, 1936, p. 129.

On the basis of repeated observation by competent authorities with large experience, the evidence seems indisputable that unusual physical or mental exertion as well as alcoholic debauches and external trauma can provoke gross hemorrhage in a patient harboring an acute or chronic peptic ulcer.

POSTOPERATIVE DEATH FROM ANURIA

To the Editor:—In a case of anuria following an operation for gangrenous appendicitis, death resulted forty-three hours after operation without indications of peritonitis, and with the patient in what seemed to be a good condition when he left the operating room. The patient, aged 37, weighed 175 pounds (79 Kg.), was the father of three healthy children and enjoyed good health until the operation except for two previous spells of abdominal pain that were suggestive of appendicitis, the first in 1936 and the second in July 1938. He was seen forty-eight hours after the first symptoms, November 9. Operation began at 7:05 p. m. and terminated at 8:50. A much thickened gangrenous appendix was removed and rubber drains were inserted down to the stump. He left the operating room with a pulse rate of 100, respirations 30, blood pressure 164 systolic, 64 diastolic. Before operation he had a red blood cell count of 5,180,000 with hemoglobin 100 per cent, white cell count 13,800, polymorphonuclears 86 per cent and with a urine specific gravity of 1.020 and negative for albumin, sugar, acetone, indican, red or white cells, casts, crystals or amorphous sediment. The Wassermann reaction was negative. After operation his condition seemed good. He had a morphine injection of one fourth grain (0.16 Gm.) at midnight and 4 a. m., with 2,000 cc. of 10 per cent dextrose in saline solution given during the night. He voided 10 ounces (300 cc.) of urine at 6 a. m., at which time the pulse was 98, respirations 22 and temperature 101. During the day of November 10 hypodermoclysis of 3,000 cc. of 10 per cent dextrose solution was given. The abdomen remained soft but the temperature went up to 103 F. and no urine was voided until death occurred at 3 a. m. November 11. The catheter was passed three times during this period but no urine was found in the bladder. The patient died in coma. Stimulants, oxygen and general symptomatic treatment were given. Did this anuria result from operative shock, the anesthetic (nitrous oxide and ether), by reflex action on a normal kidney or were we dealing with a previously damaged kidney that was functioning well? Was forty-three hours sufficient time for a fatal uremia in a previously normal person?

C. E. JUMPER, M. D., El Paso, Texas.

ANSWER.—In this case there was probably a previously damaged kidney. The damage had not been sufficient, however, to cause symptoms or produce albumin in the urine. Nonprotein nitrogen and urea estimation before the operation would have been of value and interest but certainly was not indicated in the emergency that existed. It would seem unlikely that nitrous oxide and ether or operative shock could have been an important factor in this case. An intravenous injection of 50 per cent dextrose solution might have been of some value, although it is doubtful.

CRYSTALLIZED BLOOD FOR DIAGNOSIS

To the Editor:—I am writing with regard to the article published in *Life* magazine January 2 on "Diseases Diagnosed by Crystallized Blood." I am much interested in this article and should like to know where I can obtain more detailed information concerning the subject.

PAUL G. WEISMAN, M. D., Colfax, Wash.

ANSWER.—The article in question was probably based on a report by Dr. P. Bégouin of Bordeaux at the June 28, 1938, meeting of the Académie de médecine of Paris. According to this report, blood for the test is obtained by needle puncture of the fingers and is received in distilled water to which a solution of chloride of copper is added. Crystallization takes place in the specimen in eighteen hours. The results were as follows: In cancer a correct diagnosis was made in thirty of seventy-nine cases of various types and in tuberculosis a correct diagnosis in eight of nine cases; in one patient who had syphilis and a cancer of the tongue, the former was diagnosed but not the latter; crystallization permitted a differential diagnosis to be made between a cancer of the epithelial type and other tumors such as sarcoma and those of a mixed cell type. It has been maintained by Pfeiffer, a Swiss chemist, who is the originator

of the test, that this method is also helpful in determination of the correct drug to be employed. It seems to be agreed that long training is required before one can attempt this method. The only one who has apparently tried the method so far is the French surgeon Dr. Bégouin and so far as can be determined he has not made any further observations since early in 1938. It is at least obvious from the foregoing that this method is highly experimental, that it will require much independent confirmatory evidence before it can be accepted and that it should under no circumstances replace the more established and definitely known reliable methods of diagnosis and treatment already available. This is another example of premature (to say the least) publicity in a nonmedical publication.

GOLD INJECTIONS AND COLITIS

To the Editor:—A young woman has been having gold injections for lupus erythematosus. During the process of treatment some tenesmus with frequency of bowel movements developed. At this time a maculopapular rash was noted on the chest and abdomen. The diarrhea insidiously progressed within the next two weeks into a fulminant colitis. Rectal discharges became frequent, bloody and purulent. On repeated cultures of the stools the predominant organism was identified as the diplostreptococcus described by Bargen. The heavy metals are notably eliminated in the intestinal tract. In overdoses (or susceptibility?) thrombosis of the small blood vessels of the intestinal mucosa occurs. Bargen has described the histologic appearance of ulcerative colitis as essentially a process of minute and discrete ulceration attendant on septic infarction of the blood vessels of the mucosa and submucosa of the colon. Whether Bargen is right in his contention that this organism is the causative agent of ulcerative colitis or whether, as Paulson has pointed out, this is one of a group of cocci whose normal habitat is in the ileum and which have been washed down into the colon is beside the point in this instance. Is it plausible to feel in this case that the resistance of the intestinal wall may have been lowered as a result of damage to the endothelium of the blood vessels in the excretion of the injected gold so that usually innocuous bacterial inhabitants have become facultative pathogens? Or is it safe to dismiss the sequence of heavy metal administration and diarrhea as purely coincidental and unrelated?

M.D., Connecticut.

ANSWER.—No references have been found in the literature to reactions from gold injections in which there was a complicating involvement of the mucous membrane of the colon. The patient did have a maculopapular eruption, however, over the chest and abdomen, and it would certainly be wise to discontinue further gold injections. It might be well to use bismuth injections instead. Before instituting that form of treatment, however, the blood should be examined carefully. With all of the heavy metals, it is well known that occasionally aplastic anemia and even agranulocytosis occurs. Is there a possibility of such a contingency in this case? If there is, one could understand the reaction in the colon, as there is no reason why such a reaction could not occur there just as well as in the pharyngeal space, for example.

HORSE DANDER AND HORSEHAIR IN ALLERGY

To the Editor:—I should like to call your attention to an apparent discrepancy between an answer under the subject "Asthma" in THE JOURNAL Nov. 12, 1938, and that under the subject "Allergy to Horsehair" in THE JOURNAL March 12, 1938. In the later answer it is stated that "even patients sensitive to horse dander are not sensitive to horsehair after its preparation for use in furniture." The answer on March 12 says that "therefore horsehair mattresses can cause symptoms in all but the least sensitive individuals." Does this difference exist between those who have asthma and those who have a vasomotor rhinitis or do the two answers represent individual opinions?

GORDON B. SMITH, M.D., Rutland, Vt.

ANSWER.—The inquiry resolves itself into a question of whether an individual who is sensitive to horse dander usually has a sensitivity to horsehair as found in mattresses and furniture or whether such an individual is never sensitive to horsehair. Several years ago, with the idea of attempting to solve this question, some experiments were made on horse dander sensitive individuals. Varying dilutions of extracts of horse dander, unwashed horsehair and horsehair after it had been prepared for use in mattresses were injected and the reactions noted. In one such instance the horse dander reacted with a dilution of 1 : 10,000,000 or higher. The unwashed hair gave its first reaction in 1 : 10,000 dilution and the washed hair in 1 : 100. In another highly sensitive individual the 1 : 10,000,000 gave a 3+ reaction, while the first doubtful reaction with the unwashed hair was with 1 : 1,000 and the extract of washed hair did not react in the strength of 1 : 50. This would indicate that by far the greatest amount of antigen is removed by the process of cleaning, washing and boiling. The washed hair contains less than $\frac{1}{10,000}$th part of the antigen. However, the fact remains that some horse dander antigen can be demonstrated and it is possible that some horse dander sensitive individuals will have trouble from horsehair as it is found in mattresses.

The practical application of these facts is that a large source of exposure such as a hair mattress should not be inflicted on a horse dander sensitive person, whether he has asthma or vasomotor rhinitis. It is questionable, however, whether a small amount of horsehair such as is found in the seats of chairs or in the padding of coats would be of any particular importance.

THERAPY OF STILL'S DISEASE

To the Editor:—A girl aged 9 years has been suffering from Still's disease for the last three or four years. She has had her tonsils and bad teeth out without any improvement and has been receiving a vaccine—I think Crowe's vaccine—at the hands of another physician. This little girl is becoming deformed and progressively worse. Is there anything which has been found useful in checking the progress of this disease?

M.D., Ontario.

ANSWER.—The following might be suggested as regards treatment:

1. A high caloric, high vitamin diet.
2. Bed rest.
3. Cevitamic acid, 25 mg. a day.
4. Crystalline vitamin B_1, 1 mg. a day.
5. Ten thousand units of vitamin D, each day.

Every effort should be made to prevent further deformities and to correct those already present. This can be accomplished only by means of physical therapy, exercises, and whatever conservative orthopedic measures such as the application of casts and the like are necessary.

Still's disease is at times unrelenting in its progress, despite all forms of therapy. This, however, is the exception rather than the rule. Occasionally one sees striking results from repeated small transfusions. A good conservative, supportive regimen aimed at maintaining as much joint motion as possible, plus the prevention and correction of deformities, should be carried out indefinitely and should never be abandoned even when any of the so-called specific measures are being employed.

TRAUMA AND THROMBOSIS

To the Editor:—A man aged 52 sustained a fracture of the right ascending ramus of the pelvis on Aug. 20, 1938. October 12 he was taken with distress in his chest and shortness of breath without actual pain. October 15 he began to cough, had a fever and developed a bronchial pneumonia. He recovered from the pneumonia after three weeks and on November 9 was taken with a pain in his right leg and the leg became swollen and somewhat discolored. He had a slight fever for ten days. A diagnosis of phlebitis was made. The heart shows some myocardial damage. It was impossible to tell whether the myocardial damage was of recent origin or of old standing. I should like to know how long after an injury it is possible to get a thrombus from the injury. Also can you mention some authorities or literature on this subject. In this case it was nearly three months from the time of the injury to the phlebitis. Could the pneumonia have been due to an infarct? Any information you can give on these subjects will be appreciated.

M.D., New York.

ANSWER.—A pelvic thrombosis following fracture of the pelvis is not infrequent; it may occur a few days after the injury but remain a short "silent" clot in the hypogastric vein without clinical manifestations. Such clots are more apt to give rise to pulmonary emboli than those in the external iliac or femoral veins. Later such clots in the pelvis may extend to the common or external iliac veins and give rise to a typical deep thrombophlebitis.

It is not stated in the query whether or not the patient was steadily immobilized from the time of the injury to the time of the symptoms in the chest; it is possible that this was an infarct, followed by consolidation, but the data supplied do not permit any opinion as to the cause of the bronchopneumonia. Sudden dyspnea with some cyanosis, lobar involvement followed by pleuritic rub, rusty sputum, and the x-ray finding of a triangular infarct with increased hilus shadows on the side of involvement are suggestive of a pulmonary embolus.

The time interval between trauma and thrombosis varies from a few days to several months. If the patient is immobilized as a result of the injury, small initial clots may grow by apposition until some mechanical, physiochemical or climatic stress suddenly makes the process manifest. The longest recorded interval between injury and embolism is the case of Strauss: a man aged 49 died of pulmonary embolism three months after fracturing his patella; eighteen days before death, however, a light embolic shower occurred.

References:

Brahdy, Leopold, and Kahn, Samuel: Trauma and Disease, Philadelphia and London, Lea & Febiger, 1937.

Vance, B. M.: Thrombosis of the Veins of the Extremities and Pulmonary Embolism as a Complication of Trauma, *Am. J. Surg.* 26: 19 (Oct.) 1934.

DILATION OF CERVIX AND STERILITY

To the Editor:—I have a patient who is anxious to have a baby. She is 30 years old and has been married six years. The family history, menstrual history and physical examination are essentially negative except for a mild case of malarial fever and pyelitis several years ago. A specialist who saw her stated that the mouth of the cervix was too small or closed and that if she had this dilated she would probably become pregnant. Since the menstrual history is essentially negative, I could not understand the rationale of this treatment. Will you please explain? It seems to me that the thing to do in this case would be to make a thorough study of the endocrine system and examine a specimen of semen from the male.

M.D., South Carolina.

ANSWER.—In a case in which menstrual blood can pass downward through the cervical canal there is obviously no anatomic barrier to the upward passage of spermatozoa. Two conditions not infrequently associated with stenosis of the external os require consideration when the complaint is sterility. Of these the first is retention and inspissation of the endocervical mucus, which may form a plug viscous enough to entangle the male cells. The second is female genital hypoplasia, of which a long, conical and anteflexed cervix with a pin-hole os is a familiar stigma. For the latter disorder dilation would be entirely useless. The presence or absence of the first abnormality can be determined precisely by direct observation of the endocervical secretions and by postcoital examination. If it is found to be present, repeated gentle dilations may produce some benefit; but more permanent results are obtained by a small posterior median discision. Otherwise dilation, though a time-honored procedure, has no value. The endocrine balance of the wife should certainly be investigated. It is of primary importance in all cases of sterility to evaluate the husband's semen according to the most critical mathematical standards before subjecting the wife to any elaborate treatment.

AZOOSPERMIA AFTER MUMPS ORCHITIS

To the Editor:—A man of 38 has azoospermia. At the age of 18 years he had bilateral mumps orchitis. It is not known whether he had spermatozoa before that or not. The testes now are about 40 per cent of usual size and apparently of normal consistency. He has developed normally otherwise. The growth of hair on the face is not heavy and there is not much hair on the body. The voice is normal. Sexual desire and ability are quite normal. The blood pressure is 95-100 systolic, 60 diastolic. The pulse at rest is 60, the temperature a little subnormal, the basal metabolism minus 10 per cent. The red cell count is normal, the white count low normal with mild eosinophilia at times. The patient is quite intelligent. He states that he tires easily on mental exertion and has difficulty in concentration. He is inclined to yawn more than normal. His general physical condition is fairly good and he stands physical exertion quite well. Do you believe that the use of anterior pituitary-like substance or testosterone or both would be of value? Have you any other suggestions as to treatment?

M.D., New York.

ANSWER.—At the present time it is not likely that spermatogenesis could be produced in this patient by the administration of the anterior pituitary-like principle from the urine of pregnant women or testosterone. Further observations of the basal metabolic rate should be made, because the level of metabolism is of much more importance than a single test. If the level should prove to be below minus 15 per cent, it should be raised to normal with desiccated thyroid.

SULFANILAMIDE FOR GONORRHEA: DOSAGE IN CHILDREN

To the Editor:—What is the dosage and what are the contraindications for sulfanilamide (oral and parenteral) in the adult in acute and chronic gonorrheal urethritis? Could this drug be given safely to infants and children? If so, in what dosage? What tests should be done in order to find out the tolerance of an office patient to sulfanilamide?

M.D., California.

ANSWER.—The systems of dosage employed by various urologists when sulfanilamide is used in the treatment of gonococcic infections vary somewhat. Probably the most commonly used system for ambulant patients consists of giving from 4 to 5 Gm. of sulfanilamide for two days, from 3 to 4 Gm. a day for five days and then from 2 to 2.5 Gm. a day for a week; this to be followed by 1.3 Gm. a day for two weeks, making the total course of treatment about one month.

The only real contraindication to the use of sulfanilamide is that the patient has previously been given the drug and has had a toxic reaction to the drug. To such a patient a test dose of 0.3 Gm. should be given and the patient kept under observation for possible immediate toxic reaction.

Sulfanilamide may be given with as much safety to infants and children as to adults. Because of a greater fluid intake, children require slightly larger doses of sulfanilamide than do adults. In children severely ill with an infection which may be treated with sulfanilamide the total dose the first day is based on 0.15 Gm. of the drug per pound of body weight. This is divided into six parts and is given at intervals of four hours. In children less severely ill the daily dose is based on 0.07 Gm. per pound of body weight and likewise split into six parts and given at four hour intervals.

Sodium bicarbonate may generally be administered concurrently with sulfanilamide. There is no test for susceptibility to the drug except the administration of a small test dose by mouth.

ASTHMA FROM CONJUGAL ASSOCIATION

To the Editor:—A man aged 32, a miller in a feed mill, has asthmatic attacks. These attacks come on only at night and when his wife is in the house. Previous to meeting his wife before marriage nine years ago the patient never had an attack. He has had complete physical examinations, negative Wassermann tests and forty-two negative pollen and food diagnostic tests. It appears that when his wife is away from home any length of time the attacks cease, but when she returns the attacks return. Being near other women does not bring on any attacks. The patient's wife has tried eliminating all forms of cosmetics and certain types of clothing for several months at a time, with no particular effects. She does not use waveset in her hair or any other form of preparations, such as dye. The patient's occupation does not seem to have any bearing on his case, because, as stated, he does not have any when his wife is away. *His attacks are of the severe asthmatic type, which require epinephrine for* relief, and this he must take nightly if his wife is at home. For a few years it has been impossible for them to sleep in the same bed at night. It has been suggested that the wife's hair might be the offending cause. Is this likely? A pharmaceutical house wants a pound of hair in order to make a vaccine for treatment. What would be the best procedure to determine the exciting cause of the attacks?

M.D., Pennsylvania.

ANSWER.—The evidence given would certainly seem to incriminate something associated with the wife. Assuming that this information is correct and that no factors other than the wife's surroundings play a part, the obvious thing is to have the wife avoid completely those materials which might possibly bring on asthma in her husband.

First of all, she should use nothing but hypo-allergenic cosmetics. She should especially avoid perfumes during the day as well as during the night. It would also be wise for both husband and wife to use plain soap instead of perfumed soap. By this method one should be able to rule out sensitivity to orris root. Incidentally, the patient himself should use no talcum powder or after-shave lotion except one made by those concerns making nonallergic preparations. It is also possible that the patient is sensitive to silk, and it would be well for the wife to substitute for silk nightgowns either cotton or linen.

Another possibility is that the husband might be sensitive to some contraceptive used by the wife such as a solution or a jelly of some sort. The use of such a preparation should be stopped for a trial. Of paramount importance is the necessity of complete testing of the skin. The query states that only forty-two pollen and food tests were carried out. This is by no means complete, as there are several hundred tests including such substances as feathers, animal danders, silk, kapok, furs, molds and yeasts, and house dust.

Lastly, the patient's occupation might lead to asthmatic attacks. However, it is hard to believe this important, as the attacks come on only at night and only when the wife is in the house.

CONGENITAL AMBLYOPIA

To the Editor:—Please give me some information on congenital amblyopia. What is the consensus as to classification as a functional or organic condition?

M.D., South Dakota.

ANSWER.—Ophthalmologic opinion is still greatly divided as to whether congenital amblyopia is a functional affair or whether it is due to some anatomic failure of development. Thus far no eye with clinically proved congenital amblyopia has ever received microscopic examination, but there seems to be clinical evidence that some cases are organic while others are purely functional. In the higher degrees of congenital amblyopia in which the vision is somewhere between 1/200 and 10/200, central visual acuity can never be developed to a higher degree, indicating an organic malformation as yet undetected. In the second type of case the central vision will vary between 2/200 and 0.2 and it can be improved considerably by continuous occlusion of the fellow eye. In the third type of case the vision will be between 0.2 and 0.6 and it can always be brought up to practically normal if the developmental work is started early enough in life. The latter two types would seem to be more functional than organic.

HEREDITY OF HEMOLYTIC JAUNDICE

To the Editor:—I should appreciate some information on the hereditary factor in hemolytic jaundice. A woman of 19 had her spleen removed with this diagnosis eight years ago. Her mother and two maternal aunts had splenectomies with the same diagnosis. She knows of no other cases in her family history on either side. She now comes asking the question "If I had children is it probable that some of them would have this disease?"

M.D., Massachusetts.

ANSWER.—Hemolytic jaundice seems to be inherited as a "dominant" mendelian character (Campbell, J. M. H., and Warner, E. C.: *Quart. J. Med.* **19**:333 [April] 1926). A dominant mendelian character is inherited directly from parent to child. Of the children half, on the average, will have the character and half will not. The former will again behave like their parents; the latter, provided they marry a normal person, which is almost certain to be the case with such a rare condition, will have normal children. Males and females are affected equally and are equally able to transmit the defect.

Occasionally jaundice is present from birth in a patient whose family history is negative. Such a case probably represents a curious mutation from the ordinary constitution of the family, but the disease will be transmitted as a dominant mendelian character as described (Cyclopedia of Medicine **7**: 593, 1934). The abnormal fragility of the red cells found in hemolytic jaundice may occur in latent cases without the other signs and symptoms of hemolytic jaundice, and it may persist after splenectomy.

LATE ANEMIA NOT RELATED TO SULFANILAMIDE

To the Editor:—In August 1938 I gave a 16 year old boy, living 15 miles out of town, at least 125 grains (8 Gm.) and no more than 150 grains (10 Gm.) of sulfanilamide over a period of four or five days for sore throat. Since he is the son of a telephone operator I heard from him frequently; he became quite cyanotic according to his mother's report and on the second or third night woke up with a "spell" lasting less than an hour, which I thought was a "nightmare" as a result of the gastric irritation. At intervals of two or three days for three or four weeks I had reports that the boy was normal. About the twenty-fifth of this month the boy seemed below par, and his mother took him to a local physician, who found a slight anemia (4 million plus); this physician is wondering whether the anemia might be the result of the action of the sulfanilamide given six months ago. The boy has seemed normal since, and I wish to know whether anemia often if ever lasts six months except following violent reactions.

J. D. MICHIE, M.D., Childress, Texas.

ANSWER.—There is little reason to suspect that an anemia noted six months after a course of sulfanilamide is the result of the patient having taken the drug. The anemias resulting from sulfanilamide therapy are generally acute or subacute hemolytic anemias, which clear up rapidly after the drug is stopped.

X-RAYS AND SCABIES

To the Editor:—How effective are the x-rays in the treatment of scabies? How many units may be used safely, how often repeated, and at what intervals? Do the mercurials, zinc and other metals in ointments or lotions interfere with the use of x-rays? In the case in question the outbreak has been confined to the back of the hand. Various ointments have caused the eruption to abate even to the point of apparent cure, but new outbreaks occur at intervals of two and three weeks. Gloves have been dry cleaned and boiled and bedding also. The history of the case is diagnostic of scabies and the burrows are typical.

M.D., Illinois.

ANSWER.—Given enough x-rays the itch mite and her eggs would be destroyed, but the skin of the patient would also suffer. Scabies requires treatment of the whole skin except that of the head; therefore x-rays are not adapted to its treatment, even though they are known to be effective. Scabies can be eradicated by much simpler means.

Yes, heavy metals and their salts impede the passage of x-rays, depending on the density of the metal, the amount overlying the skin and the character of the rays.

CORNEAL GRAFTING

To the Editor:—Would you outline the indications and contraindications along with the technic of corneal grafting after the methods of Castroviejo and the Russian procedure?

M.D., Pennsylvania.

ANSWER.—The indication for corneal grafting, regardless of the method used, is the presence of an opaque cornea that prohibits the adequate passage of light. The contraindications are somewhat more important and are based on experience. First is a corneal staphyloma, either with or without increased intra-ocular pressure; second, a chronic incurable infection of the tear passages, conjunctiva or cornea; third, calcareous deposits within the cornea; fourth, increased intra-ocular pressure, and fifth, lack of proper light perception. It is fairly well known that the cornea scarred by burns, particularly chemical burns, does not accept a transplant favorably, whereas a corneal transplantation is almost always successful in cases of old interstitial keratitis. There are various gradations between these two extremes.

Description of the Castroviejo and of the Filatov technic is too lengthy for these columns. Briefly, Castroviejo transplants a rectangle of cornea which has been removed by the twin knives that he designed, while Filatov transplants a round button of cornea which has been removed by a rotary trephine. Both surgeons are varying their technic continuously as experience improves their methods and technicians improve their instruments. Much remains to be done, but the results in the hands of these experts are encouraging.

ARGYRIA AND ANTISYPHILITIC TREATMENT

To the Editor:—A syphilitic woman used a mouth wash of strong solution of silver nitrate (lunar caustic sticks dissolved in warm water) for ulcers on her tongue in April 1938. She now shows a dark blue coloring of the skin of her entire body, which is slowly fading. What antisyphilitic treatment is contraindicated and what would be permissible and why?

D. T. COLE, M.D., Anna, Ill.

ANSWER.—There is no contraindication to antisyphilitic treatment in a case of argyria. The silver in the tissues is inert and difficult to affect by any kind of treatment. The claim has been made that argyria has improved after long continued ingestion of iodides but this has not been substantiated (Yandell, L. P.: Cyanosis from Nitrate of Silver Removed by Iodide of Potassium, *Am. Practitioner* **5**:329, 1872). Yandell's patient was given mercury vapor baths before the iodide was used. This is the only evidence that silver once deposited in the tissues is affected by antisyphilitic treatment. Others have tried it and reported no success.

In the case under discussion the syphilis should be treated without regard for the argyria.

TUBERCULOSIS AND ALUMINUM PAINT

To the Editor:—A man aged 24, working in a factory for the last three years spraying aluminum paint, contracted tuberculosis of the lungs. X-ray examination shows tuberculosis of the lungs and no silicosis. He wishes to collect compensation. How can we prove that his work was the cause of his tuberculosis?

M.D., Massachusetts.

ANSWER.—Proof of occupational origin of tuberculosis is rarely possible except in cases in which opportunities for contact with the tubercle bacillus are unusual; for example, nurses in tuberculosis hospitals. Excessive mortality from tuberculosis in any occupational group constitutes presumptive evidence of environmental factors that may depress natural resistance and permit new or preexisting foci of latent infection to cause active clinical disease. Preemployment examinations to prove the absence of such disease before exposure are essential; periodic examinations during exposure must demonstrate its evolution. Extra-occupational contacts with an "open" carrier must be excluded. Evidence is not available of high tuberculosis rate in aluminum spray painters.

VIABILITY OF TUBERCLE BACILLI ON PIPES—FORMALDEHYDE STERILIZATION

To the Editor:—I have been asked by a pipe lover who was bequeathed a fine collection of pipes, including both clay and wood bowls, five years ago by a tuberculous patient whether it would now be safe to smoke the pipes and if not whether there is any available procedure which will make the pipes safe and still not damage their smoking qualities or appearance.

M.D., California.

ANSWER.—Under the conditions mentioned there is no evidence to support the belief that tubercle bacilli would remain viable after five years. Experimental evidence has shown that tubercle bacilli die within sixty to ninety days under conditions in which they cannot metabolize. However, in order to make absolutely certain that no infection can be transmitted the pipes can be safely sterilized without damage to them in formaldehyde fumes.

INTRAVENOUS MEDICATION FOR PYELITIS

To the Editor:—What preparation is used for pyelitis intravenously?

J. LOUIS WALDNER, M.D., Loveland, Colo.

ANSWER.—A 40 per cent solution of methenamine in 5 cc. ampules is obtainable for intravenous administration. Prontosil (the disodium salt of 4-sulfamido-phenol-2'-azo-7'-acetylamino-1'-hydroxynaphthalene-3',6' disulfonic acid) is given intravenously. A 2.5 per cent solution is put up in ampules of 5 cc. Neoarsphenamine is given intravenously in a dose of 0.2 Gm. for coccic infections.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, April 15, page 1529.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Medical centers having five or more candidates desiring to take the examination, May 1-2 (Part II only—limited to a few centers), June 19-21, and Sept. 11-13. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. *Oral* examinations for all candidates, St. Louis, May 13-14. *Written.* Various places throughout the United States, Sept. 9. Applications must be filed by July 11. *Oral.* Part II. Philadelphia, Oct. 14-15. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Philadelphia, Oct. 30-Nov. 1. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various sections of the United States, Oct. 16 and Feb. 19. Formal application must be received before Aug. 20 for the Oct. examination and on or before Jan. 1 for the Feb. examination. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: General oral, clinical and pathological examinations for all candidates, Part II examinations (Groups A and B) will be held in St. Louis, May 15-16. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various cities throughout the country, Aug. 5. *Oral.* St. Louis, May 15 and Chicago, Oct. 7. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: St. Louis, May. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: St. Louis, May 12-13 and Chicago, Oct. 6-7. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Cincinnati, Nov. 15. Appointments must be made before July 15. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Chicago, May 13. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: St. Louis, May 11-14. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Part II.* New York, May 8 and May 9. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: White Sulphur Springs, W. Va., May 26-28. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

New York September Examination

Mr. Herbert J. Hamilton, chief, Bureau of Professional Examinations, reports the written examination held at Albany, Buffalo, New York and Syracuse, Sept. 19-22, 1938. The examination covered nine subjects. An average of 75 per cent was required to pass. Three hundred and fifty-nine candidates were examined, 221 of whom passed and 138 failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
University of Arkansas School of Medicine		(1938)	1
Georgetown University School of Medicine	(1937, 5),	(1938, 3)	8
Loyola University School of Medicine		(1938, 2)	2
Northwestern University Medical School	(1936),	(1938)	2
Rush Medical College	(1937, 4),	(1938)	5
School of Med. of the Division of Biological Sciences		(1934)	1
University of Illinois College of Medicine		(1933)	1
University of Kansas School of Medicine		(1935)	1
University of Louisville School of Medicine		(1938)	1
Johns Hopkins University School of Medicine		(1936)	1
Boston University School of Medicine		(1937)	1
Harvard University Medical School	(1937),	(1938)	2
Tufts College Medical School	(1922),	(1934), (1937)	3
University of Michigan Medical School	(1935),	(1937), (1938)	3
St. Louis University School of Medicine		(1935)	1
Columbia Univ. College of Physicians and Surgeons		(1938, 5)	5
Long Island College of Medicine	(1936),	(1937, 2)	3
New York Medical College and Flower Hospital		(1938, 2)	2
New York University College of Medicine	(1934),	(1936), (1937, 4), (1938, 7)	13
Syracuse University College of Medicine		(1938, 3)	3
University of Buffalo School of Medicine		(1938, 3)	3
University of Rochester School of Medicine		(1934)	1
University of Oregon Medical School		(1936)	1
Hahnemann Medical College and Hospital of Philadelphia		(1937), (1938)	2
Jefferson Medical College of Philadelphia		(1937), (1938)	2
Temple University School of Medicine		(1936), (1938)	2
University of Pennsylvania School of Medicine		(1937)	1
Woman's Medical College of Pennsylvania		(1937), (1938, 3)	4
Queen's University Faculty of Medicine		(1937, 2)	2
McGill University Faculty of Medicine		(1936), (1937)	2
Karl-Franzens-Universitat Medizinische Fakultat, Graz		(1932)	1
Medizinische Fakultät der Universität Wien	(1919, 2),	(1921), (1922), (1923), (1927), (1930), (1931), (1932), (1933), (1936, 4), (1937, 5), (1938, 7)	26
Deutsche Universität Medizinische Fakultät, Prag	(1929),	(1934), (1935)	3
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England		(1937)	1
Université de Paris Faculté de Médecine		(1937), (1938, 4)	5
Université de Strasbourg Faculté de Médecine		(1916), (1938)	2
Université de Toulouse Faculté de Médecine et de Pharmacie		(1932)	1
Albert-Ludwigs-Universitat Medizinische Fakultät, Freiburg		(1924), (1936)	2
Albertus-Universität Medizinische Fakultät, Königsberg		(1918), (1922), (1923), (1937)	4
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin	(1901), (1910), (1914), (1916, 2), (1921, 2), (1922, 2), (1924, 2), (1929), (1931), (1934), (1936)		15
Georg August-Universität Medizinische Fakultat, Göttingen		(1917)	1
Hamburgische Universität Medizinische Fakultät		(1920)	1
Johann Wolfgang Goethe-Universität Medizinische Fakultat, Frankfurt-am-Main	(1922), (1923, 2), (1927), (1936), (1938)		6
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg		(1928)	1
Ludwig-Maximilians-Universität Medizinische Fakultät, München	(1898), (1920), (1921), (1934),	(1936)	5
Medizinische Akademie Düsseldorf		(1933)	1
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultat, Bonn		(1938, 2)	2
Schlesische-Friedrich-Wilhelms-Unviersität Medizinische Fakultät, Breslau	(1914), (1919), (1920), (1922), (1923, 2), (1924, 2), (1926), (1933), (1934),	(1935)	12
Universität Heidelberg Medizinische Fakultät	(1921), (1922), (1934),	(1937)	4
Universitat Köln Medizinische Fakultat		(1923)	1
Universitat Leipzig Medizinische Fakultät		(1911)	1
Universität Rostock Medizinische Fakultät		(1920)	1
Vereinigten Friedrichs-Universität Medizinische Fakultät, Halle-Wittenberg		(1932)	1
Magyar Királyi Ferencz József Tudományegyetem Orvostudományi Kara, Szeged		(1933)	1
National University of Ireland		(1937)	1
Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia		(1935), (1936)	2
Regia Università degli Studi di Firenze. Facoltà di Medicina e Chirurgia		(1932), (1935)	2
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1936, 2)	2
Regia Università degli Studi di Siena. Facoltà di Medicina e Chirurgia		(1936)	1
Regia Università di Pisa Facoltà di Medicina e Chirurgia		(1936)	1
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow	(1935), (1936), (1937), (1938, 5)		8
University of Glasgow Medical Faculty		(1924), (1926)	2
University of St. Andrews Conjoint Medical School, Scotland		(1936)	1
Universität Basel Medizinische Fakultät	(1935, 2),	(1936, 3)	5
Universität Bern Medizinische Fakultät	(1935, 2),	(1936), (1937, 6), (1938, 4)	13
Universität Zürich Medizinische Fakultät		(1936)	1
Université de Genève Faculté de Médecine		(1933), (1935)	2
Université de Lausanne Faculté de Médicine		(1935), (1937), (1938)	3

School	FAILED	Year Grad.	Number Failed
Georgetown University School of Medicine		(1934)	1
Loyola University School of Medicine		(1937, 2), (1938)	3
Rush Medical College		(1937)	1
Columbia University College of Physicians and Surgeons		(1923), (1938)	2
Long Island College of Medicine		(1935)	1
New York University College of Medicine		(1938)	1
Hahnemann Med. College and Hospital of Philadelphia		(1937)	1
Jefferson Medical College of Philadelphia		(1912)	1
Temple University School of Medicine		(1937)	1
Karl-Franzens-Universitat Medizinische Fakultät, Graz		(1933)	1
Medizinische Fakultät der Universität Wien	(1919),	(1920), (1921), (1924), (1925), (1931), (1932), (1936), (1937, 2), (1938)	11
Deutsche Universität Medizinische Fakultat, Prag	(1922),	(1934), (1937)	3
Université de Nancy Faculté de Médecine		(1936)	1
Université de Paris Faculté de Médecine		(1937), (1938)	2
Université de Strasbourg Faculté de Médecine		(1908)	1
Albertus-Universität Medizinische Fakultät, Königsberg		(1911), (1927)	2
Eberhard-Karls-Universitat Medizinische Fakultät, Tübingen		(1922)	1
Friedrich-Alexanders-Universität Medizinische Fakultät, Erlangen		(1922)	1
Friedrich-Wilhelms-Universität Medizinische Fakultat, Berlin	(1904), (1912), (1913), (1920, 2), (1921), (1922), (1923, 2), (1924), (1925), (1926), (1929), (1930), (1934), (1935), (1936, 2), (1937, 3)		21
Georg August-Universität Medizinische Fakultat, Göttingen		(1921), (1937)	2
Hamburgische Universität Medizinische Fakultät	(1922), (1935),	(1936)	3
Hessische Ludwigs-Universitat Medizinische Fakultat, Giessen		(1909), (1910)	2
Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main	(1919), (1922), (1931),	(1938)	4
Julius-Maximilians-Universität Medizinische Fakultät, Würzburg		(1903), (1920), (1922, 2), (1928)	5
Ludwig-Maximilians-Universität Medizinische Fakultät, München	(1913), (1923, 3), (1935),	(1937)	6
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultat, Bonn		(1920), (1938, 2)	3
Schlesische-Friedrich-Wilhelms-Universitat Medizinische Fakultat, Breslau		(1914), (1919), (1924)	3
Thüringische Landesuniversitat Medizinische Fakultät, Jena		(1919)	1
Universität Heidelberg Medizinische Fakultät	(1910), (1922, 2), (1923), (1924)		5

Universität Köln Medizinische Fakultät.....(1923), (1924) 2
Universität Leipzig Medizinische Fakultät (1902), (1911), (1923), (1925), (1936)..... 5
Vereinigten Friedrichs-Universität Medizinische Fakultat, Halle-Wittenberg .....(1919) 1
Magyar Királyi Erzsébet Tudományegyetem Orvostudományi, Pecs .....(1926) 1
Regia Università degli Studi di Bologna. Facoltà di Medicina e Chirurgia.....(1936, 2) 2
Regia Università degli Studi di Pavia. Facoltà di Medicina e Chirurgia.....(1937) 1
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia.....(1932), (1935, 2), (1936, 7)..... 10
Regia Università degli Studi di Siena. Facoltà di Medicina e Chirurgia .....(1937) 1
Regia Università di Napoli Facoltà di Medicina e Chirurgia .....(1932), (1936, 3), (1938) 5
Regia Università di Pisa Facoltà di Medicina e Chirurgia .....(1934), (1937) 2
Uniwersytet Jozefa Pilsudskiego, Warszawa.....(1930) 1
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow (1937), (1938, 2) 3
Universitat Basel Medizinische Fakultät (1935), (1936, 2), (1937) 4
Universität Bern Medizinische Fakultat (1934), (1936), (1937), (1938) 4
Universität Zürich Medizinische Fakultät....(1935), (1937, 2) 3
Université de Genève Faculté de Médecine.....(1930), (1937) 2
University of Istanbul Medical Faculty.....(1916) 1

Twenty-three physicians were licensed by endorsement from December 11 through December 31. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Medicine	(1936), (1937)		N. B. M. Ex.
Georgetown University School of Medicine	(1937)		N. B. M. Ex.
Howard University College of Medicine	(1938)		N. Carolina
University of Georgia Medical Department	(1925)		Georgia
University of Louisville Medical Department	(1917)		Vermont
Johns Hopkins University School of Medicine	(1919)		N. Carolina
Harvard Medical School	(1937)		N. B. M. Ex.
St. Louis University School of Medicine	(1938)		Tennessee
New York Medical College and Flower Hospital	(1937)		N. B. M. Ex.
Eclectic Medical College, Cincinnati	(1938)		Ohio
Hahnemann Med. College and Hospital of Philadelphia	(1923)		New Jersey
Jefferson Medical College of Philadelphia	(1928)		Penna.
Medico-Chirurgical College of Philadelphia	(1915)		Penna.
University of Pennsylvania School of Medicine	(1931)		N. B. M. Ex.
University of Tennessee College of Medicine	(1932)		Tennessee
Baylor University College of Medicine	(1938)		Texas
Medical College of Virginia	(1935)		N. B. M. Ex.
Marquette University School of Medicine	(1938)		N. B. M. Ex.
Medizinische Fakultät der Universität Wien	(1924)		New Jersey
Deutsche Universitat Medizinische Fakultät, Prag	(1931)		New Jersey
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin	(1934)		Maryland
University of Kharkov Faculty of Medicine	(1915)		Russia

New Jersey Endorsement Report

Dr. E. S. Hallinger, secretary, State Board of Medical Examiners of New Jersey, reports 152 physicians licensed by endorsement during 1938. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine	(1937, 3) (1937) New York		Arkansas,
College of Medical Evangelists	(1925) Idaho, (1938)		N. B. M. Ex.
University of Southern California School of Medicine	(1937)		California
Yale University School of Medicine	(1933), (1935)		N. B. M. Ex.
George Washington University School of Medicine	(1927) (1935) Maryland		New York,
Georgetown University School of Medicine	(1928) (1935), (1936, 2), (1937)		New York, N. B. M. Ex.
Howard University College of Medicine	(1925) (1934) N. B. M. Ex., (1936) Tennessee		Ohio,
University of Georgia School of Medicine	(1937)		Georgia
Indiana University School of Medicine	(1936)		Indiana
State University of Iowa College of Medicine	(1910), (1930), (1935), (1936), (1937) Iowa		
University of Louisville School of Medicine	(1928) (1936), (1937) Kentucky		New York,
Louisiana State University Medical Center	(1938)		Louisiana
Johns Hopkins University School of Medicine	(1916) (1933) Maryland		New York,
University of Maryland School of Medicine and College of Physicians and Surgeons	(1934) (1934), (1935, 3), (1936, 2) Maryland		Colorado,
Boston University School of Medicine	(1926) (1931) Massachusetts, (1935) New York		N. B. M. Ex.,
Harvard Medical School	(1936)		N. B. M. Ex.
Tufts College Medical School	(1918) (1927) Massachusetts, (1931) Maine		New York,
University of Michigan Medical School	(1933), (1936)		Michigan
University of Minnesota Medical School	(1935)		Minnesota
St. Louis University School of Medicine	(1936) (1937) Missouri		Penna.,
Washington University School of Medicine	(1934)		Missouri
Albany Medical College	(1936)		New York
Columbia University College of Physicians and Surgeons	(1933), (1934), (1936) (1921), (1933), (1934, 2), (1935), (1936, 2), (1937) New York		N. B. M. Ex.,
Cornell University Medical College	(1928), (1935) (1927), (1931), (1933), (1934), (1936)		New York, N. B. M. Ex.
Long Island College Hospital			New York
Long Island College [illegible]			New York
New York Homeopath Hospital			New York
New York Medical College			N. B. M. Ex.
New York University, University and Bellevue Hospital Medical College			New York
New York University Colleg			New York
Syracuse University College			New York
Duke University School of Medicine	(1934, 2), (1935)		N. B. M. Ex.
Eclectic Medical College, Cincinnati	(1936, 2), (1937, 2)		Ohio
Western Reserve University School of Medicine	(1933)		Ohio
Hahnemann Medical College and Hospital of Philadelphia	(1924), (1930), (1933), (1934)		Penna., (1937) Maryland,
Jefferson Medical College of Philadelphia	(1933), (1935) (1935) Maryland, (1936) New York		Penna.,
Medico-Chirurgical College of Philadelphia	(1915)		Penna.
Temple University School of Medicine	(1936), (1937, 2) (1928), (1934, 2), (1936) Penna.		N. Carolina,
University of Pennsylvania School of Medicine	(1932) (1934), (1936) New York, (1920), (1931), (1937, 2)		N. B. M. Ex. Penna.
Woman's Medical College of Pennsylvania	(1919), (1935)		New York
University of Vermont College of Medicine	(1908), (1935, 2) (1933) N. B. M. Ex.		Vermont
Medical College of Virginia	(1935)		Virginia
University of Virginia Department of Medicine	(1928) (1931), (1935), (1937) Virginia		Tennessee,
Marquette University School of Medicine	(1937) (1938) N. B. M. Ex.		Wisconsin,
Dalhousie University Faculty of Medicine	(1937)		N. B. M. Ex.
Queen's University Faculty of Medicine	(1935)		New York
McGill University Faculty of Medicine	(1935)		New York
Univ. of Bishop College Faculty of Medicine, Montreal	(1905)		Maine
Medizinische Fakultät der Universität Wien	(1933), (1936)		New York
Deutsche Universität Medizinische Fakultät, Prag	(1933)		New Hamp.
University of Sheffield Faculty of Medicine	(1935)		New York
Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg	(1927)		New York
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin	(1934)		New York
Universität Köln			New York
Regia Università Chirurgia			Maryland
University of [illegible]			New York
Universität Be			New York
Universität Zü			N. B. M. Ex.

District of Columbia Reciprocity and Endorsement Report

Dr. George C. Ruhland, secretary, Commission on Licensure, reports twenty-three physicians licensed by reciprocity and one physician licensed by endorsement from Sept. 15 through Dec. 14, 1938. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University School of Medicine	(1934)		Maryland
Georgetown University School of Medicine	(1933), (1934)		Maryland
Howard University College of Medicine	(1931) (1932) Georgia, (1936) Maryland		Penna.,
Emory University School of Medicine	(1922), (1934), (1935)		Georgia
University of Kansas School of Medicine	(1936)		Kansas
Johns Hopkins University School of Medicine	(1936)		Maryland
St. Louis University School of Medicine	(1903)		Missouri
Columbia Univ. College of Physicians and Surgeons	(1922), (1911)		New York
Long Island College Hospital	(1935)		New York
Western Reserve University School of Medicine	(1935)		Ohio
Hahnemann Med. College and Hospital of Philadelphia	(1934)		Maryland
University of Pennsylvania School of Medicine	(1925)		Penna.
Woman's Medical College of Pennsylvania	(1934)		Penna.
University of Tennessee College of Medicine	(1926)		Tennessee
Medical College of Virginia	(1936)		Penna.
Univ. of Virginia Department of Medicine	(1932), (1936)		Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Virginia Department of Medicine	(1911)		U. S. Navy

Idaho October Examination

Hon. J. L. Balderston, former commissioner of law enforcement, reports the written examination held by the Idaho State Medical Examining Board, Oct. 3-5, 1938. The examination covered twenty-three subjects and included 160 questions. An average of 75 per cent was required to pass. Fifteen candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1937)	76
University of Colorado School of Medicine		(1937)	79
George Washington University School of Medicine		(1938)	78
Northwestern University Medical School		(1935)	83
Rush Medical College	(1936) 78,	(1937)	83
University of Michigan Medical School		(1936)	75
Washington University School of Medicine		(1937)	78
University of Nebraska College of Medicine		(1937)	79
Univ. of Oregon Medical School	(1917) 83, (1936) 85,	(1937)	82
University of Texas School of Medicine		(1937)	81
McGill University Faculty of Medicine		(1935)	75
Schlesische-Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau		(1935)	

Louisiana December Report

Dr. Roy B. Harrison, secretary, Louisiana State Board of Medical Examiners, reports the written examination held in New Orleans, Dec. 1-3, 1938. The examination covered twelve subjects and included 100 questions. An average of 75 per cent was required to pass. Twenty-nine candidates were examined, all of whom passed. Fourteen physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1938)	81.2,	83.9
University of Southern California School of Medicine	(1938)		86.4
Howard University College of Medicine	(1937)		82.2
Emory University School of Medicine	(1936)	82.5, (1938)	85.2
Loyola University School of Medicine	(1937)		82.2*
Northwestern University Medical School	(1938)		82.3
Indiana University School of Medicine	(1937)		83.1
Louisiana State University Medical Center	(1938)	85.3,*	87.4*
Tulane University of Louisiana School of Medicine	(1937)		83.1, 86.6, (1938) 78.9, 79.7, 82.7, 85.2†
University of Maryland School of Medicine and College of Physicians and Surgeons	(1938)	81.8,	84.2
University of Minnesota Medical School	(1938)		83.3*
New York University College of Medicine	(1938)		84.9
University of Oklahoma School of Medicine	(1938)		86.7
University of Cincinnati College of Medicine	(1938)		84*
University of Oregon Medical School	(1938)		85.4
Medical College of the State of South Carolina	(1938)		83.5
Baylor University College of Medicine	(1938)		79.4
University of Virginia Department of Medicine	(1938)		83.3
University of Wisconsin Medical School	(1938)		85.1
Queen's University Faculty of Medicine	(1930)		78.1†

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine	(1937)		Arkansas
Rush Medical College	(1901)		Illinois
Tulane University of Louisiana School of Medicine	(1935)		S. Carolina
University of Michigan Medical School	(1930)		Michigan
University of Minnesota Medical School	(1935)		Minnesota
University of Nebraska College of Medicine	(1933)		Nebraska
Meharry Medical College	(1928)		Tennessee
University of Tennessee College of Medicine	(1932), (1936)		Tennessee
Vanderbilt University School of Medicine	(1935)		Mississippi
Baylor University College of Medicine	(1936)		Texas
Medical College of Virginia	(1931)		Virginia
University College of Medicine, Virginia	(1912)		Virginia
University of Wisconsin Medical School	(1937)		Kansas

* This applicant has completed the medical course and will receive the M.D. degree on completion of internship. License has not been issued.

† Granted a Temporary Permit. License withheld pending completion of United States citizenship.

Wisconsin September Reciprocity Report

Dr. Henry J. Gramling, secretary, Wisconsin State Board of Medical Examiners, reports five physicians licensed by reciprocity at the meeting held in Milwaukee, Sept. 14, 1938. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Illinois College of Medicine	(1937)		Illinois
University of Minnesota Medical School	(1931)		Minnesota
Washington University School of Medicine	(1935)		California
University of Nebraska College of Medicine	(1931)		Nebraska
Marquette University School of Medicine	(1936)		Montana

National Board of Medical Examiners

The National Board of Medical Examiners reports that its certificate was awarded to eighty-seven applicants who were successful in the examinations in part III held in the fall of 1938. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
College of Medical [illegible]	(1937), (1938, 5)		6
Stanford University [illegible]			2
University of Colora[illegible]			1
Yale University Sch[illegible]			2
George Washington [illegible]			1
Georgetown Univers[illegible]			3
University of Georg[illegible]			1
Northwestern University Medical School	(1938)		1
State University of Iowa College of Medicine	(1937)		1
Johns Hopkins University School of Medicine	(1933), (1937, 5)		6
Boston University School of Medicine	(1936), (1937, 11)		12
Harvard Univ. Medical School	(1935, 5), (1936, 5), (1937, 2)		12
Tufts College Medical School	(1932), (1936), (1937, 5)		7
University of Michigan Medical School	(1935), (1937)		2
St. Louis University School of Medicine	(1935), (1937)		2
University of Nebraska College of Medicine	(1936)		1
Columbia University College of Physicians and Surgeons	(1936)		1
Cornell University Medical College	(1936)		1
New York Medical College and Flower Hospital	(1937, 6)		6
Syracuse University College of Medicine	(1936)		1
Duke University School [illegible]			2
University of Oklahoma [illegible]			1
University of Pennsylvar[illegible]			1
University of Vermont C[illegible]			6
Marquette University Sc[illegible]			1
University of Wisconsin Medical School	(1935)		1
McGill University Faculty of Medicine	(1937, 2)		2
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	(1935)		1
Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg	(1935)		1
Universität Bern Medizinische Fakultät	(1937)		1
Université de Lausanne Faculté de Médecine	(1920)		1

Ohio May-June Examination

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports the oral, written and practical examination held at Columbus, May 31-June 3, 1938. The examination covered ten subjects and included eighty questions. An average of 75 per cent was required to pass. Three hundred and five candidates were examined, 297 of whom passed and eight failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Med[illegible]	(1937)		82.1
Loyola Univers[illegible]			*
Northwestern [illegible]	(1938) 81.7, 86.9, 87.8		81.5,
Rush Medical College	(1937) 81.8,	(1938) 83.5,	87.7
School of Medicine of the Division of Biological Sciences	(1937)		88.1
University of Illinois College of Medicine	(1938)		86.9
University of Minnesota Medical School	(1932), 87.2, (1933)		88.5
Creighton University School of [illegible]			81.6
University of Rochester School [illegible]	82.8, 82.9, 84.2, 85.6, 87.4, 87.8		80.6,
Eclectic Medical College, Cincinnati	(1938)		80.2, 81.3, 81.5, 82.3, 82.3, 83.2, 83.3, 83.4, 83.6, 83.9, 84, 84.2, 84.3, 84.3, 84.4, 84.6, 84.8, 85.1, 85.2, 85.3, 85.5, 85.6, 86.8, 86.8, 87.1, 87.2, 87.2, 87.3, 87.6, 88.1, 88.4, 89.7
Ohio State University College of Medicine	(1938)		79.4, 79.7, 79.8, 80.3, 80.4, 80.5, 80.5, 80.7, 80.8, 81, 81.1, 81.3, 81.4, 81.5, 81.6, 81.7, 81.8, 81.9, 82.1, 82.1, 82.2, 82.2, 82.2, 82.3, 82.4, 82.4, 82.4, 82.4, 82.5, 82.8, 82.9, 83.1, 83.1, 83.1, 83.2, 83.4, 83.4, 83.4, 83.5, 83.5, 83.6, 83.6, 83.6, 83.6, 83.7, 83.7, 83.8, 83.8, 83.9, 83.9, 83.9, 83.9, 84, 84.1, 84.2, 84.3, 84.5, 84.6, 84.7, 84.7, 84.7, 84.8, 84.8, 84.9, 84.9, 85.1, 85.2, 85.2, 85.3, 85.4, 85.5, 85.8, 85.9, 85.9, 85.9, 86.1, 86.3, 86.4, 86.5, 86.5, 86.7, 86.8, 86.9, 87.2, 87.3, 87.3, 87.4, 87.7, 87.8, 88.1, 90.3
University of Cincinnati College of Medicine	(1938)†		80.3, 80.6, 80.6, 80.9, 81, 81.2, 81.3, 81.4, 81.4, 81.9, 81.9, 81.9, 82, 82, 82.1, 82.4, 82.6, 82.7, 83.1, 83.2, 83.2, 83.3, 83.4, 83.4, 83.4, 83.5, 83.6, 83.7, 84, 84, 84, 84, 84, 84.1, 84.1, 84.1, 84.1, 84.2, 84.2, 84.2, 84.3, 84.6, 84.6, 84.8, 85, 85.1, 85.2, 85.3, 85.3, 85.4, 85.4, 85.5, 85.7, 85.8, 85.8, 85.9, 86, 86.1, 86.2, 86.2, 86.3, 87.3, 87.4, 87.9, 88.5, 88.7
Western Reserve University School of Medicine	(1938)		79.5, 79.8, 80.3, 80.8, 80.8, 81.2, 81.4, 81.4, 81.7, 82, 82.3, 82.4, 82.4, 82.9, 83.3, 83.4, 83.5, 83.6, 83.7, 83.7, 83.7, 83.9, 83.9, 84, 84.1, 84.3, 84.3, 84.3, 84.4, 84.5, 84.6, 84.7, 84.7, 84.9, 84.9, 84.9, 85, 85.1, 85.1, 85.3, 85.5, 85.7, 85.7, 85.7, 85.7, 85.7, 85.9, 86, 86, 86.3, 86.5, 86.5, 86.5, 86.6, 86.7, 86.8, 86.8, 87.4, 87.8, 87.8, 88.7
Jefferson Medical College of Philadelphia	(1937)		84.7
University of Pennsylvania School of Medicine	(1937)		84.7
Woman's Medical College of Pennsylvania	(1938)		83.9
Marquette University School of Medicine	(1938)	82.2, 82.4, 82.5,	82.8, ‡
University of Toronto Faculty of Medicine	(1937)		85.9
McGill University Faculty of Medicine	(1938)		81.7
Medizinische Fakultat der Universitat Wien	(1937)		83.7
Deutsche Universitat Medizinische Fakultat, Prag	(1927)		76.3
Albert-Ludwigs-Universität Medizinische Fakultat, Freiburg	(1917)		78
Christian-Albrechts-Universität Medizinische Fakultat, Kiel	(1925)		77.7
Georg August-Universitat Medizinische Fakultat, Göttingen	(1919)		76.8
Hessische Ludwigs-Universität Medizinische Fakultät, Giessen	(1927)		78.7
Ludwig-Maximilians-Universitat Medizinische Fakultat, München	(1937)		80.5
Universitat Heidelberg Medizinische Fakultat	(1931)		80.6
Regia Università degli Studi di Roma. Facoltà di Medicine e Chirurgia	(1936)		77.5
Licentiate of the Royal College of Physicians, Licentiate of the Royal College of Surgeons, Edinburgh, and Licentiate of the Royal Faculty of Physicians and Surgeons, Glasgow	(1937)		81.9

School	FAILED	Year Grad.
Loyola University School of Medicine		(1938)
Université de Paris Faculté de Médecine		(1926)
[illegible] Fakultät, Freiburg		(1929)
[illegible] sche Fakultät, München		(1907)
[illegible] Medizinische Fakultät, Breslau		(1917)
Universität Heidelberg Medizinische Fakultät		(1908)
Regia Università degli Studi di Genova. Facoltà di Medicina e Chirurgia		(1924)
Université de Lausanne Faculté de Médecine		(1936)

* These applicants have completed the medical course and will receive the M.D. degree on completion of internship. Licenses have not been issued.

† These applicants have received the M.B. degree and will receive the M.D. degree on completion of internship.

‡ This applicant has completed the medical course and will receive the M.D. degree on completion of internship. License has not been issued.

Book Notices

The Relation Between Injury and Disease. By Jewett V. Reed, B.S., M.D., F.A.C.S., Assistant Professor of Surgery, Indiana University, Indianapolis, and Charles P. Emerson, A.B., M.D., D.Sc., Research Professor of Medicine, Indiana University. Collaborating: E. B. Mumford, B.S., M.D., F.A.C.S., Consultant U. S. Veterans Bureau Hospital. Cloth. Price, $7.50. Pp. 577, with 21 illustrations. Indianapolis: Bobbs-Merrill Company, 1938.

A new and strange pseudopathology has been slowly evolving in the courts, based on so-called expert medical testimony, especially in connection with diseases of industrial workers, alleged to be the result of injury. This strange pseudopathology will become more and more unscientific unless physicians in court become more determined to substitute propter hoc reasoning for the post hoc arguments which in many cases determine decisions. Physicians in cases of injury in which there is an element of liability recognize that many of the settlements made are unfair if judged on their scientific merits although just in view of the medical testimony presented to the court. Many injured persons receive little or nothing for physical disabilities justly compensable, while others receive awards for diseases not due to injury. The purpose of this book is to reduce the number of such injustices. It is designed to be helpful especially to (1) lawyers who present accident cases before courts and boards, (2) officials of insurance companies which carry casualty risks and (3) physicians and surgeons. It is based on the authors' thirty-six years of experience. Their discussions are limited to well recognized diseases; in some injury may be a primary etiologic factor, in others it never is and in still others it may modify the course. In the study of cases in which trauma and disease are assumed to be associated the physician should critically scrutinize the history of the accident and separate the actual facts of the injury from the statements given by the patient. He should also have personal knowledge of all the features of the patient's disease and be accurately informed as to all the factors which could possibly have entered into its cause.

Nouvelle pratique dermatologique. Publiée par MM. Darier, Sabouraud, Gougerot, Millian, Pautrier, Ravaut, Sézary, Clément Simon. Secrétaire Général: Clément Simon. Tome VIII. Dermatologie topographique; thérapeutique; médecine légale; table alphabétique. Par MM. P. Blum et al. Half-Cloth. Price, 300 francs. Pp. 867, with 178 illustrations. Paris: Masson & Cie, 1936.

The first 380 pages of volume VIII, which brings to a close this huge work, are devoted to topographic dermatology. This is of great value to the general practitioner but of much less value to the specialist in that it is largely repetitious. It is interesting, however, owing to the fact that it is the first contribution of its kind since the work of Sabouraud, which appeared in 1905 and which was translated into several languages.

Sabouraud and Pignot in fifty-two pages cover the semeiology of the scalp. About the same number of pages are taken up by Bory on the topographic dermatology of the face and nose. The illustrations in this article are numerous and excellent. Fernet follows with about eighty pages on the lips, mouth and tongue. This constitutes a valuable contribution to the volume and, although the illustrations are not as numerous as in the preceding article, they are in sufficient number and of the highest quality. A short paper by Montlaur on the topographic dermatology of the large folds is thorough and of much value even to the specialist. Thorel contributes a short article on the male external genitalia and Bralez does the same on the female external genitalia. The illustrations in both are all that could be desired. Gonin gives a few paragraphs to each of the many conditions affecting the anal region. Burnier makes the most of the pages allotted him to list and describe the disorders of the hands and feet. Payenneville describes the dermatoses of the mammae, and Blum those of the umbilicus.

The second half of the volume is devoted to therapeutics, plastic surgery and medicolegal dermatology with an introduction by Darier. Fernet discusses the general hygiene of the skin and scalp. This is followed by forty-four pages on general therapy by Darier and Dreyfus. Included are such subjects as internal treatment of cutaneous accidents, treatment of the cutaneous sensitization by hemotherapy and serotherapy, peptone therapy, lactotherapy, urinotherapy and the use of the "substance P" of Oriel, heat therapy, vaccinotherapy and chemotherapy. Under the last heading the drugs used in dermatology are listed alphabetically and discussed in detail. The various regimens are then taken up, acid and alkaline regimens, the methods of modifying the metabolism of the skin, modification of the vitamin equilibrium, uric acid, the fats and the proteins. Glandular therapy is thoroughly covered, after which the chapter is ended with several pages devoted to treatment of the central nervous system.

Fernet and Heurre contribute an exhaustive article of forty pages to internal treatment of the dermatoses, sixteen pages to pharmaceuticals and forty-two pages to external treatment.

The physical agents used in dermatology are discussed and evaluated by Girondeau. The author describes the indications for and the technic of the use of the douche filiforme, hot air, actinotherapy, infra-red high frequency currents, the diathermic or electric bistoury, the galvanic current, electrolysis, ionization and electrical baths.

Cottenot covers, as well as any one could in forty-three pages, the technic and the results of the use of the roentgen ray and radium in dermatology. Solente describes the preparation of carbon dioxide snow and the technic of its application to lesions of the skin. Although many dermatologists hesitate to treat epitheliomas with the snow, the author does not hesitate to use it in selected cases and finds the results superior to those of any other method.

Ravaut has thoroughly covered the field of electrocoagulation in forty pages. There are many illustrations showing the marvelous results it is possible to attain with this method. The pictures of the epitheliomas of the face and the left hand and of the melanomas of the face and the foot are particularly impressive.

An excellent chapter on plastic surgery is contributed by Dufourmentel. The technic for face lifting and for correction of various deformities of the face is set forth in much detail and illustrated with line drawings. A most interesting part of the chapter is the method of correcting ptosis of the mammae. The illustrations shown before and after treatment would seem to indicate conclusively that the technic is highly successful in such cases.

The volume closes with a chapter on medicolegal dermatology by Vivatte and Sidi. Obviously this chapter, which is thorough, is primarily for the French and has little to offer to dermatologists of other countries.

An excellent index of sixty-eight pages is appended.

Giants of Medicine in Pioneer Kentucky: A Study of Influences for Greatness. By William Allen Pusey, A.M., M.D., LL.D. [Reprinted from February 1938 issue of Medical Life.] Boards. Pp. 35-64. New York: Froben Press, 1938.

Having been reared in Kentucky and having personal knowledge of its geography, its people and its resources, William Allen Pusey is in the fortunate position of being able to portray the courage, resourcefulness, vision and ability of its pioneers and with a facile pen to pay tribute to their attainments. This he has interestingly and adequately done. The circumstances under which these pioneers lived and worked, including a lack of hospitals, of trained nursing personnel, of a knowledge of surgical cleanliness, of instruments of precision as we now know them, of the aid of the blessed insensibility of anesthesia and the presence of inherent and seemingly insuperable difficulties, make the incredulity of their contemporaries readily understandable and emphasize their claims to renown for the development of greatness. Bardstown, with the most illustrious courts and bar in the West, had but 820 inhabitants when Brashear did the first hip joint amputation in 1806. Danville, with McDowell's home under the shadow of the state capitol, had but 432 inhabitants in 1809, when he did his first ovariotomy, and but 804 at the time of his death in 1830. Lexington, the Athens of the West, then as now a remarkable town in a wonderful country, had but 1,795 inhabitants at the time of the establishment of the medical school, Transylvania University, in 1799, and but 6,997 when Dudley was at the zenith of his career. In his study of the influences for greatness to be found in a then virgin country, inhabited by hostile savages and the beasts of the forest, Dr. Pusey gives due credit to the type of people who settled this frontier, well equipped physically, mentally and socially for the struggle of the survival of the fittest. They

were well endowed with those qualities for which Americans are noted the world over, independence of thought, enthusiasm of purpose, courage to undertake and patience to carry through: in the words of Dr. Pusey "a vigorous breed of men trained to its highest efficiency by the exactions of frontier life." Written in beautiful clear language, this history of medical pioneers proves an entrancing one.

Der Magenkrebs. Von Dr. med. Georg Ernst Konjetzny, o. ö. Professor der Chirurgie der Hansischen Universität, Hamburg. Cloth. Pp. 289, with 155 illustrations. Stuttgart: Ferdinand Enke, 1938.

Konjetzny, one of the foremost authorities on the subject, summarizes thirty years of study of the problem of gastric carcinoma. He reaffirms the views previously published, coordinates the data, adds much new material and presents a complete picture of our present knowledge of the genesis of gastric carcinoma and its clinical application. In the introduction he calls attention to the well known fact that the stomach is the organ most frequently affected by carcinoma and that today the majority of patients so afflicted come to the internist and the surgeon too late for cure. In the battle against gastric carcinoma only two possibilities exist: prophylaxis or early radical surgical treatment. Under the heading of etiology Konjetzny discusses first the rôle of heredity and concludes that cancer as such is not inherited, only a certain tendency or organ disposition. External conditions are thought to be the more important factors. The theory of contagiousness and infectivity seems disproved, as does the Cohnheim concept of carcinoma arising from embryonal cells left over after the development of the fetus and its organs. Trauma is considered significant only as it relates to the sequelae of corrosion of the mucosa, as in acid or alkali poisoning. Virchow's theory of carcinoma as a resultant of local disease processes is accepted, and a large section of the monograph is devoted to the thesis that "the chronic inflammatory conditions which demand greatest consideration as the basis of gastric carcinoma formation are the chronic gastritis with its sequelae and the chronic gastric ulcer."

Konjetzny's life work indeed has been the study of the relationship between chronic gastritis, benign ulcer and carcinoma. He views gastritis as the basis for both ulcer and carcinoma. In his experience gastric carcinoma is always associated with a pronounced chronic atrophic or atrophic-hyperplastic gastritis. Carcinoma never develops in a normal gastric mucosa. The essential process in the gastritis-carcinoma relationship is not the inflammation but regenerative changes in the epithelium constantly induced by it. The complete transition from pure gastritic changes to polyp formation and carcinoma is described in detail and well documented with convincing illustrations. The carcinomatous development begins in the cells over a broad area of the mucosa and hence is multicentric in origin. The subject of carcinomatous transformation of a benign ulcer is discussed at length. The conclusion is reached that it is not possible by clinical methods alone to make such a diagnosis. Pathologic evidence, especially the histologic, is more definite, but here also difficulties exist. The diagnosis cannot be made on the basis of any single pathognomonic finding but rather by a careful analysis of all the evidence. Carcinoma may develop in the edge of a benign ulcer or adjacent to the ulcer but independent of it, related not to the ulcer but to the gastritis, to which Konjetzny attributes both the ulcer and the carcinoma. With regard to the differentiation of ulcer-gastritis and carcinoma-gastritis Konjetzny says that in ulcer the gastritis is usually more acute and is localized to the antrum whereas in carcinoma the gastritis tends to be more chronic and to involve larger areas of the gastric mucosa. There is, however, no specific or fundamental difference.

Among the macroscopic forms of carcinoma Konjetzny distinguishes (1) the pronounced mushroom or polypoid tumor, which develops chiefly in the lumen of the stomach, (2) the ulcerated dishlike growth with clearly defined borders, (3) the ulcerated carcinoma without a definite wall or a sharp border and with infiltration of the gastric wall beyond the edge of the ulcer and (4) the definitely diffuse type in which the borders of the tumor are not palpable, usually beginning in the antrum, and consisting particularly of the so-called linitis plastica and carcinoma fibrosum. The microscopic types are variable and are not to be correlated with the macroscopic. The prognosis for surgical treatment is, on the whole, much better in the first and second groups than it is in the third and fourth. A histologic classification is not of much prognostic value.

Effective therapy depends first on early examination and second on gastric resection of all early carcinomas and indeed of all cases of polypoid gastritis, this being definitely a precarcinomatous, if not already carcinomatous, condition. All patients with digestive symptoms should report promptly to the physician, who should use all available diagnostic means necessary for the establishment of a definite diagnosis. The history, physical examination and gastric analysis are not sufficient but should be combined with a search for occult blood in the stool and with careful roentgenologic and gastroscopic examination. These methods are most valuable. The author is opposed to exploratory laparotomy as a diagnostic procedure because the methods mentioned are reliable and also because small carcinomas often cannot be palpated even when the surgeon has the stomach in his hands. When a portion of the stomach is held in suspicion clinically, it should be resected. Resection should be carried out in almost all cases of carcinoma even though a very radical operation is required, such as complete gastrectomy or partial gastrectomy combined with partial colectomy. The chief contraindications to resection are definite, proved distant metastases or extensive carcinomatous peritonitis. Significant palliative effects have been obtained even when Krukenberg tumors had to be removed in addition to the gastric lesion. In spite of the fact that Hitzenberger and Merkler found thirteen year cures in only 2 per cent of 272 patients with gastric carcinoma, Konjetzny feels that undue pessimism is not warranted even in the young. The longest cure observed in the Breslau clinic was that of a man operated on when 31 years old and was known to be well twenty-one years later. With earlier diagnosis and earlier radical resection, better results should be obtained.

Essentials of Medicine. By Charles Phillips Emerson, M.D., Research Professor of Medicine, Indiana University, Indianapolis, and Nellie Gates Brown, R.N., Director of Training School for Nurses, Ball Memorial Hospital, Muncie, Indiana. Thirteenth edition. Cloth. Price $3. Pp. 845, with 164 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1938.

The evolution of this volume through thirteen editions since 1908 has been an account of medical and nursing school programs during the last thirty years. Originally intended as a primer for the medical student's study of disease, the book at present is chiefly in the hands of the student nurse. The authors in preparing this edition have patterned it on the unit plan, following suggestions in the curriculum guide for schools of nursing. A section of doubtful value is the one intended to encompass the field of public health and medical sociology, an impossible task in five pages. Furthermore, with the mention of a drug such as sulfanilamide, the failure to list and discuss the toxic signs and symptoms is a real error, especially at a time when all are interested in this new drug and its dangers. The student nurse here has presented for her the essentials of medicine in a concise yet readable 1, 2, 3 form. The volume should continue to be one of the most popular in the series of nursing manuals.

Malaria in the Netherlands. By N. H. Swellengrebel and A. de Buck. Cloth. Price, 5 florins. Pp. 267, with 25 illustrations including 2 plates. Amsterdam: Scheltema & Holkema, Ltd., 1938.

The authors, both from the Institute of Tropical Hygiene of Amsterdam, have presented an interesting book on an old but ever changing and expanding theme. One might think that such a subject would be dry and uninteresting, but this book is presented in such a way that it easily holds the attention. The authors have done a perfectly tremendous amount of careful and continued investigation, and one must be impressed by the enormous amount of difficult work involved in gathering the data presented.

It is something of a surprise to know that the Netherlands presents such a serious malarial problem. It lies far to the north and even though it is low and full of canals, one would naturally think of malaria as only an occasional importation

as it is in most of our northern latitudes. But the authors show that special development and adaptation of a short-winged anopheles mosquito is such that the malarial parasites remain active after the sexual activities have subsided and that the mosquitoes are able to convey infections actively until December, by remaining constantly in the homes of the inhabitants and more or less regularly feeding on them. Even though thousands are diverted into stables and feed on live stock there are so many mosquitoes that most houses contain some, hidden away in dark recesses, where they are not easily found. The number seems to be in direct relation to the efficiency of the housekeeper.

Some progress has been made in malaria control, but the authors show how many difficult problems are involved, healthy carriers being being one of the most difficult. Each new addition of territory reclaimed from the sea adds a new focus. It appears that the ditches draining the land are the source of most of the mosquito breeding. The short-winged variety breeds best in water of rather high salinity, while the long-winged anopheles, also abundant, breeds in fresh water but appears not to be a vector of any importance. The authors conclude that satisfactory control will come only at a later time when the canals are so diluted with fresh water that the short winged vectors will be largely eliminated.

A final and instructive chapter is included on the treatment of dementia paralytica with malaria and a description of the careful control exercised, as well as the valuable studies made on the life cycle of malarial parasites in these carefully controlled observations. The material is convincing and will be of value to any one engaged in public health work, but it is by no means limited to this field. Every doctor who comes in contact with malaria will profit by its perusal.

Pathological Technique: A Practical Manual for Workers in Pathological Histology Including Directions for the Performance of Autopsies and for Microphotography. By Frank Burr Mallory, A.M., M.D., Sc.D., Consulting Pathologist to the Boston City Hospital, Boston, Mass. Cloth. Price, $4.50. Pp. 434, with 11 illustrations. Philadelphia & London: W. B. Saunders Company, 1938.

Little fault can be found with this small work on the methods for staining and handling tissues removed from the body for further study. Everything in the book has been accepted as proper technic in most of the country's major laboratories. This is merely intended to be a compend of accepted practical technics and as such is little concerned with theory or complicated methods. The results to be expected from each stain are listed at the end of each description of method. The descriptions are highly practical, are listed in outline form and are sufficiently complete. The portion on rapid frozen section technic is too brief, since such cursory dismissal does not permit description of modern technic highly useful to the surgical pathologist. However, this volume seems aimed at the postmortem laboratory and as such a fairly complete treatise on necropsy procedure is presented. There are some tables and a brief section on photography, the latter being useless to the professional and a bit too difficult and brief for the amateur. Illustrations are few, an omission painfully noticeable in a laboratory manual. This brief volume describes most of the stains necessary for use in a well equipped laboratory and would make a valuable addition to a pathologist's library.

Die Ernährung der olympischen Kämpfer in Vergangenheit und Gegenwart. Von Adolf Bickel, Professor der pathologischen Physiologie an der Friedrich-Wilhelms-Universität, Berlin. Bücher der Hygiene und Volksernährung, Band III. Herausgegeben von Dr. Max Winckel. Paper. Price, 1 mark. Pp. 36. Berlin: Deutsche Verlagsgesellschaft m. b. H., 1938.

This little book is a lecture delivered by the author on invitation to the Academy of Medicine of Athens, Greece. It is a relatively popular application of part of the thesis of his longer book, The Relation of the Quality of Protein to the Process of Assimilation, published in Basle by Benno Schwabe & Co. in 1938. The book is of primary interest to general physiologists, nutritionists, team physicians and those interested in research in the physiology of exercise. It is of general interest to the sportsman physician. The author has investigated sources, including Gardiner's Greek Athletic Sports and Festivals, for information concerning the type of diet used by the athletes of the ancient Olympic period. He has compared the ancient diet with that of various groups of participants in the 1936 Olympics at Berlin. In view of his observation that the diet consisted primarily of animal and vegetable protein in both groups, the paper inquires into the possible reasons for this emphasis. The work of Zuntz, Loewi, Mueller and Caspari in 1906 indicated that alpine climbers with "arbeits hypertrophie" established indulged their heavy activity using a diet relatively free from protein and composed mostly of the so-called energy foods with no noticeable detrimental physical effects. Attempt is made to rationalize the high protein diet, postulated as the athlete's instinctive choice, on the basis of the increase in oxidation accompanying high protein intake and the rallying of glycogen from known and possibly unproved sources to meet the strain of heavy athletic training and competition. Consideration by tables is given the relative value and oxidizing influence of some forty forms of protein, as well as their possible effects on glycogen availability and storage.

A Text-Book of Dental Histology and Embryology Including Laboratory Directions. By Frederick Bogue Noyes, B.A., D.D.S., Sc.D. Fifth edition revised by Isaac Schour, B.S., D.D.S., M.S., Professor of Histology and Head of Department, University of Illinois College of Dentistry, and Harold Judd Noyes, B.S., D.D.S., M.D. Cloth. Price, $6.50. Pp. 415, with 281 illustrations and 15 plates. Philadelphia: Lea & Febiger, 1938.

For twenty-five years this eminently practical textbook has served as an introduction to dental training, covering as it does a much wider field than the title indicates. This edition reflects the newer ideals and standards of scientific dentistry. When one considers the chapters on the postnatal development of the head, the lymphatic system and tooth eruption and the discussions of comparative and experimental anatomy, the book is really a work on the biology of the teeth. The developing tooth, with its rapid, regular growth and its immediate response to certain changes in the blood, is becoming a veritable growth kymograph, and this type of book commands a general scientific audience (even though the chapter on operative dentistry is likely to set the layman's teeth on edge). Dr. Schour has reorganized the material and has added much that is new. Pathologic conditions, especially caries, are included, as well as normal structure, but the emphasis is kept on the physiologic interpretation of minute structure. The introductory chapters on embryology are followed by descriptions of the histogenesis and definitive structure of the various dental tissues. Here the "histophysiologic remarks" are provocative and stimulating. Thus (p. 113) one reads: "Enamel automatically records in its structure its own stages of formation and calcification as well as its response to systemic disturbances. These records remain permanent after the enamel has completed its formation and calcification and has lost the kymographic properties of its growing period." The new chapter on gums and gingivae is excellent. There are an appended laboratory outline and a good index.

Beitrag zur Kenntnis sklerosierender Entmarkungsprozesse im Gehirn mit besonderer Berücksichtigung der diffusen Sklerose (Strümpell-Heubner): Eine klinisch-anatomische Studie. Von Lárus Einarson, Professor anatomiae an der Universitat Aarhus, und Axel V. Neel, Privatdozent Psych. Laboratorium d. Universitat Kopenhagen. Acta Jutlandica Aarsskrift for Aarhus Universitet X,2. Paper. Price, 7 kroner. Pp. 160, with 72 illustrations. Copenhagen: Einar Munksgaard, Leipzig: Georg Thieme, 1938.

This monograph is based on a careful clinical and microscopic study of six new cases of demyelinizing lesions of the brain. In four of these cases the condition belonged to the class of the Strumpell-Heubner diffuse scleroses and in the other two it was difficult to classify. On the basis of this study the authors come to a new classification of the demyelinizing diseases and attempt to interpret cases reported in the literature in the light of their new conception. They distinguish five types: (1) the blastomatous reactive form, (2) the exogenous inflammatory form, (3) the nonfamilial degenerative form, (4) the heredodegenerative familial form and (5) the peculiar concentric sclerosis of Balo. They propose as a generic term for all these lesions "leukoencephalopathia scleroticans diffusa." Their classification is based on the microscopic appearances, and they believe that with all these lesions many and varied etiologic factors play a part simultaneously. The monograph is well illustrated and has an extensive bibliography. It will be useful to any neuropathologist interested in this interesting group of pathologic conditions.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Use of Drugs or Operative Surgery by Osteopath Unlawful.—Frankowsky, an osteopath, was licensed in Illinois to treat human ailments without the use of drugs or operative surgery. He was convicted of practicing medicine by the use of drugs, medicines or operative surgery and appealed to the Supreme Court of Illinois.

The medical practice act of Illinois provides for the issuance of three kinds of licenses: (1) to practice medicine in all its branches; (2) to treat human ailments without the use of drugs or medicines and without operative surgery, and (3) to practice midwifery. Frankowsky contended that the act was unconstitutional because its classification of practitioners was false, arbitrary, discriminatory and unscientific. He further argued that the practice of osteopathy includes the use of operative surgery, antiseptics and anesthetics but that, under the act, he could not be licensed to practice osteopathy according to its tenets, including surgery, unless he also studied the use of drugs and medicines in which he did not believe. But, the Supreme Court pointed out, the constitutionality of the medical practice act had been repeatedly upheld. In *People* v. *Witte*, 315 Ill. 282, 146 N. E. 178, 37 A. L. R. 672, the court specifically upheld the reasonableness of the division of all practitioners who seek to cure human maladies into two classes, one class consisting of those having the right to practice medicine in all its branches, including operative surgery, and the other class consisting of those who seek to treat human ailments without the use of medicines or operative surgery. Such a classification is based on a difference in attainments and not on any named method or school of healing. The legislature was not bound to enact a statute which provided for the licensing of applicants from the various schools of healing by creating a separate class for each school with distinct qualifications. The limitations laid down in the statute are voluntary; if an applicant who believes in curing human ailments without the use of drugs or surgery desires to use either, he may qualify himself by meeting the requirements of the statute for a license to practice medicine in all its branches. Frankowsky's contention that he was discriminated against because, in order to practice surgery, the act required him to take instruction in the use of drugs and medicines when he did not believe in their use was answered in the Witte case as follows:

> The practice of surgery requires the use of antiseptics, anaesthetics, and other drugs and medicines. Hence the Legislature required instruction in drugs and medicines as a necessary qualification to enable a physician to perform a surgical operation. In its judgment, no person ought to be permitted to practice surgery without showing a knowledge of drugs and medicines.

Because in the judgment of the Supreme Court no new ground of attack on the constitutionality of the medical practice act had been made, it refused to assume jurisdiction in the case and transferred it to the appellate court of Illinois, first district, second division. In a memorandum decision, the appellate court affirmed the judgment of conviction.—*People v. Frankowsky (Ill.), 13 N. E. (2) 178; 15 N. E. (2d) 894.*

Medical Practice Acts: Chiropractic as the Practice of Medicine.—Three chiropractors were convicted of violating the medical practice act of Texas. They appealed to the court of criminal appeals, which in each case held that the complaint was sufficient and that the evidence justified the judgment of conviction.

In the Hoy case, the defendant was charged with maintaining an office where he offered to treat human beings for diseases and disorders; that he held himself out as capable of effecting a cure thereof without having first registered a license to practice medicine in the office of the clerk of the district court, as required by law, and that on a certain day he treated a named person for a disease and disorder and charged money therefor. At the trial, the patient named in the information testified that he consulted the defendant relative to a physical or nervous ailment, that the defendant, after informing him that he had "misplacements of the vertebrae," gave him no medicine or performed no surgical operation but undertook manually to adjust his vertebrae, and that he paid the defendant $50 for a series of such adjustments. It was further shown that Hoy had not registered any license in the office of the district clerk. The defendant complained that the trial court erred in refusing to sustain challenges for cause which he had interposed with respect to certain jurors who had served previously on juries which had convicted defendants charged with violating the medical practice act. If it had been shown to the trial court, said the appellate court, that the facts in the present case were the same as or similar to those adduced on the trial of the preceding cases, then the challenge for cause should have been sustained. In the absence of any such showing, the trial court correctly overruled the challenge, the challenged jurors having stated that their prior jury service would not affect their opinion or conclusion in the pending case, that they knew none of the facts in the case and that they were not prejudiced against the defendant.

In the Ehrke case, the evidence showed that the defendant maintained an office where he pursued his occupation as a chiropractor and that on a certain day he treated a named patient for nervousness for which he received compensation and that he had not registered a license in the office of the clerk of the district court. An indictment or information, said the court of criminal appeals, for practicing medicine without a license is sufficient if it substantially follows the language of the statute. Furthermore, it is well settled that chiropractors who make adjustments for compensation come within the purview of the medical practice act and must comply with the requirements of that act in order to be entitled to practice.

In the Lanford case, the defendant admitted that he had lived in Brownwood for six years and had been a chiropractor all that time. The evidence showed that he visited a named patient and gave him "a little adjustment and rubbed his jaw —and the back of his neck." The defendant admitted making the visit and that he received $2 as a fee. This evidence was held sufficient to sustain the conviction.

Having found no error in the records, the judgments of conviction were affirmed.—*Hoy v. State (Texas), 115 S. W. (2d) 629; Ehrke v. State (Texas), 115 S. W. (2d) 631; Lanford v. State (Texas), 115 S. W. (2d) 632.*

Workmen's Compensation Acts: Cecitis and Appendicitis Attributed to Trauma.—The deceased was a woman aged 19 who had apparently been in good health. On April 20, in the course of her employment, she slipped, it was claimed, from a stool on which she was standing and struck her right side against the sharp edge of a metal table. No one saw her fall, but within ten or fifteen minutes after the alleged injury she informed a fellow worker that she had been injured in the manner stated, and during that interval a Mr. Crowley saw her sitting on a stool with her hand pressed tightly against her right side. When she reached home shortly afterward her mother observed a swollen and bruised area on her right side. The published report does not make clear what her condition was between that time and May 9, on which day her appendix was removed. At the operation the cecum and the appendix were found inflamed, but there was no perforation. Peritonitis and pneumonia developed and death followed May 15. The claimant, the guardian of the minor child of the deceased, claimed compensation under the Michigan workmen's compensation act. The department of labor and industry awarded compensation. The employer and its insurance carrier appealed to the Supreme Court of Michigan.

Basing its finding solely on the testimony of the physician who performed the appendectomy, the department of labor and industry held in effect that the accidental injury complained of was the proximate cause of death in that it aggravated or produced the appendicitis and that the peritonitis and pneumonia that caused death resulted from the operation to remove the appendix. It would be difficult to determine, the physician had testified, whether the inflammation and infection of the cecum

and appendix were "due to injury or due to some other inflammation," but in his opinion the cecum became infected because the devitalization of the tissue by the trauma enabled infection to set in more easily. He testified further that the probabilities of the cecum becoming infected to the extent that it was from anything other than injury were very slight; that the infection spread from the cecum to the appendix because inflammation in the cecum tends to travel downward, and as the cecum is a blind pouch the "pus or infection" tends to accumulate there and pass on down into the appendix, and that the immediate cause of the death of the deceased was the peritonitis and pneumonia that resulted from the infection and inflammation. Under the circumstances, the Supreme Court could not agree with the contention of the employer and its insurer that the testimony of this physician was incompetent and inadmissible, because his conclusions were based on facts which were not supported by the evidence and because, while it was permissible for him to express an opinion, it was not permissible for him to give his conclusions. The court pointed out that, although the witness did announce his conclusions, he also expressed his opinion that the injury was the cause of the condition which he found.

The finding of the department of labor and industry, said the Supreme Court, that the deceased had sustained an accidental injury arising out of and in the course of her employment was supported by sufficient evidence. The testimony of her fellow worker as to what the deceased told her concerning the injury was admissible as a part of the res gestae and so came within an exception to the rule that hearsay evidence is inadmissible. Furthermore, the statement of the deceased as to her injury was substantiated by the testimony of her mother and of Mr. Crowley as to what they observed shortly after the injury.

The award in favor of the claimant was affirmed.—*Froman v. Banquet Barbecue, Inc. (Mich.), 278 N. W. 758.*

Society Proceedings

COMING MEETINGS

American Medical Association, St. Louis, May 15-19. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Academy of Tuberculosis Physicians, St. Louis, May 13-14. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.

American Association for the Study of Goiter, Cincinnati, May 22-24. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.

American Association for Traumatic Surgery, Hot Springs, Va., May 8-9. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.

American Association of Genito-Urinary Surgeons, Williamsburg, Va., May 24-26. Dr. Charles C. Higgins, 2050 East 93d St., Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Cleveland, June 5-8. Dr. V. S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., April 30-May 1. Dr. Henry E. Sigerist, 1900 Monument St., Baltimore, Secretary.

American Association on Mental Deficiency, Chicago, May 3-6. Dr. E. Arthur Whitney, Washington Road, Elwyn, Pa., Secretary.

American Bronchoscopic Society, Rye, N. Y., May 26. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.

American Dermatological Association, Montebello, Canada, May 31-June 3. Dr. Fred D. Weidman, University of Pennsylvania Medical Laboratories, Philadelphia, Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., May 1-2. Dr. Russell S. Boles, 1901 Walnut St., Philadelphia, Secretary.

American Gynecological Society, White Sulphur Springs, W. Va., May 22-24. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.

American Heart Association, St. Louis, May 12-13. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.

American Laryngological Association, Rye, N. Y., May 24-26. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.

American Laryngological, Rhinological and Otological Society, Chicago, May 10-11. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medico-Legal Association, Chicago, May 12-13. Dr. Michel Pijoan, 124 Commonwealth Ave., Boston, Secretary.

American Neurological Association, Atlantic City, N. J., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Buffalo, N. Y., June 5-8. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

[illegible] Society, New York, May 22-23. Dr. Thomas J. [illegible] 40th St., New York, Secretary.

[illegible] Society, Sky Top, Pa., Apr. 27-29. Dr. Hugh Culloch, 325 North Euclid Ave., St. Louis, Secretary.

American Physiological Society, Toronto, Canada, Apr. 26-29. Dr. A. C. Ivy, 303 East Chicago Ave., Chicago, Secretary.

American Psychiatric Association, Chicago, May 8-12. Dr. Arthur H. Ruggles, Butler Hospital, Providence, R. I., Secretary.

American Radium Society, St. Louis, May 15-16. Dr. Frederick W. O'Brien, 465 Beacon St., Boston, Secretary.

American Rheumatism Association, St. Louis, May 15. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 1. Dr. Isaac Starr, University of Pennsylvania Hospital, Philadelphia, Secretary.

American Society for Experimental Pathology, Toronto, Canada, April 26-29. Dr. Paul R. Cannon, Dept. of Pathology, University of Chicago, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Toronto, Canada, Apr. 26-29. Dr. G. Philip Grabfield, 319 Longwood Ave., Boston, Secretary.

American Society for the Study of Allergy, St. Louis, May 15-16. Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Texas, Secretary.

American Society of Biological Chemists, Toronto, Canada, Apr. 26-29. Dr. C. G. King, Univ. of Pittsburgh, Dept. of Chemistry, Pittsburgh, Secretary.

American Society of Clinical Pathologists, St. Louis, May 12-14. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.

American Surgical Association, Hot Springs, Va., May 11-13. Dr. Charles G. Mixter, 319 Longwood Ave., Boston, Secretary.

American Therapeutic Society, St. Louis, May 12-13. Dr. Joseph F. Elward, 1726 Eye St. N.W., Washington, D. C., Secretary.

American Urological Association, White Sulphur Springs, W. Va., May 29-June 1. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Arkansas Medical Society, Hot Springs National Park, May 8-10. Dr. W. R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Associated Anesthetists of the United States and Canada, St. Louis, May 15. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary General.

Association for the Study of Internal Secretions, St. Louis, May 13-14. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Association of American Physicians, Atlantic City, N. J., May 2-3. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

Association of Military Surgeons of the United States, Washington, D. C., May 8-10. Dr. H. L. Gilchrist, Army Medical Museum, Washington, D. C., Secretary.

California Medical Association, Del Monte, May 1-4. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, New Haven, May 25-26. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, April 25-27. Mr. Theodore Wiprud, 1718 M St. N.W., Washington, Executive Secretary.

Federation of American Societies for Experimental Biology, Toronto, Canada, Apr. 26-29. Dr. D. R. Hooker, 19 West Chase St., Baltimore, Secretary.

Florida Medical Association, Daytona Beach, May 1-3. Dr. Shaler Richardson, 111 W. Adams St., Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta, Apr. 25-28. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Illinois State Medical Society, Rockford, May 2-4. Dr. H. M. Camp, 224 S. Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, Apr. 25-27. Dr. Robert L. Parker, 3510 Sixth Ave., Des Moines, Secretary.

Kansas Medical Society, Topeka, May 1-4. Mr. C. G. Munns, 112 W. 6th St., Topeka, Executive Secretary.

Louisiana State Medical Society, Alexandria, Apr. 24-26. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, Apr. 25-26. Dr. Walter Dent Wise, 1211 Cathedral St., Baltimore, Secretary.

Massachusetts Medical Society, Worcester, June 6-8. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.

Minnesota State Medical Association, Minneapolis, May 31-June 2. Dr. B. B. Souster, 11 West Summit Ave., St. Paul, Secretary.

Mississippi State Medical Association, Gulfport, May 9-11. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.

National Gastroenterological Association, New York, June 1-2. Dr. G. Randolph Manning, 1819 Broadway, New York, Secretary.

Nebraska State Medical Association, Grand Island, May 2-4. Dr. R. B. Adams, 414 Federal Securities Bldg., Lincoln, Secretary.

New Hampshire Medical Society, Manchester, June 8-9. Dr. Carleton F. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 6-8. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New Mexico Medical Society, Gallup, May 11-13. Dr. L. B. Cochenour, 219 W. Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Syracuse, April 24-27. Dr. Peter Irving, 2 East 103d St., New York, Secretary.

New York State Association of Public Health Laboratories, Valhalla, May 8. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.

North Carolina, Medical Society of the State of, Cruise to Bermuda, May 9-14. Dr. T. W. M. Long, Roanoke Rapids, Secretary.

North Dakota State Medical Association, Fargo, May 8-10. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.

Ohio State Medical Association, Toledo, May 3-4. Mr. C. S. Nelson, 79 E. State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Oklahoma City, May 1-3. Dr. L. S. Willour, Third and Seminole, McAlester, Secretary.

Rhode Island Medical Society, Providence, June 7-8. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., Apr. 29. Dr. W. C. Spain, 116 E. 53d St., New York, Secretary.

Society of Surgeons of New Jersey, Elizabeth, May 31. Dr. Walter E. Mount, 21 Plymouth St., Montclair, Secretary.

South Dakota State Medical Association, Aberdeen, Apr. 24-26. Dr. Clarence E. Sherwood, Madison, Secretary.

Texas, State Medical Association of, San Antonio, May 8-11. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

17: 1-130 (Jan.) 1939

Cyanosis in Mitral Stenosis. P. Cossio and I. Berconsky, Buenos Aires, Argentina.—p. 1.

*Coronary Artery Disease Analyzed Post Mortem, with Special Reference to Influence of Economic Status and Sex. W. H. Gordon, E. F. Bland and P. D. White, Boston.—p. 10.

*Isolation of Nicotine from Human Urine. O. M. Helmer, K. G. Kohlstaedt and I. H. Page, Indianapolis.—p. 15.

Tissue Pressure: Objective Method of Following Skin Changes in Scleroderma. W. A. Sodeman and G. E. Burch, New Orleans.—p. 21.

Postphlebitic Varicose Ulcer: Surgical Treatment, with Special Reference to the Communicating Veins of the Lower Leg. R. R. Linton and J. K. Keeley, Boston.—p. 27.

Intracranial Vascular Lesions. W. M. Craig, Rochester, Minn.—p. 40.

Effect of Mediastinal Lesions on Pressures in Antecubital and Femoral Veins: Report of Fifty-Two Cases. H. H. Hussey, Washington, D. C.—p. 57.

Bilateral Carotid Sinus Denervation in a Patient Having Syncopal Attacks and a Congenital Vascular Anomaly: Report of Unusual Case. A. H. Elliot, N. T. Ussher and C. S. Stone, Santa Barbara, Calif.—p. 69.

Thrombophlebitis Migrans: Case Report. L. Hirschhorn, J. R. Lisa and R. J. Goldstein, New York.—p. 76.

Ventricular Extrasystoles Induced by Electrical Stimulation of the Exposed Human Heart Rotated 30 Degrees Counterclockwise on Its Vertical Axis. C. J. Lundy, I. Treiger and R. Davison, Chicago.—p. 85.

Study of Transverse Diameter of the Heart Silhouette with Prediction Table Based on the Teleoroentgenogram. H. E. Ungerleider and C. P. Clark, New York.—p. 92.

Coronary Artery Disease.—Gordon and his co-workers tried to determine the influence of the "economic status" on the general incidence and distribution of coronary artery disease. They examined the postmortem records of 600 economically well-to-do patients and for comparison 2,800 patients from the public wards of hospitals. The incidence and degree of significant coronary artery disease occurring in these two groups were determined. The public ward patients came largely from the low middle class of wage earners, many of whom were able to pay in part for their hospitalization. The data show that after the age of 70 years there is no difference in the incidence of coronary artery disease in men and women. Before that age there was much more in men than in women. The disproportion was most pronounced in young adults, the approximate ratio was three young men to one woman. This unequal incidence was evident in both coronary disease and complete occlusion. The relative incidence and the degree of coronary atherosclerosis were found to be significantly greater in the 600 private patients than in the 2,800 general ward patients. The greatest difference occurred in the middle-aged patients, in whom coronary occlusion was found to be twice as frequent in the private group. This difference was most striking in middle-aged men. These observations are in general agreement with clinical impressions.

Nicotine in Human Urine.—Helmer and his colleagues isolated nicotine, as crystalline oxalate and picrate, from the urine of persons who smoke. Its pharmacologic properties are the same as those of pure nicotine. They found that most of the nicotine disappears from the urine within three to four days after smoking is discontinued. Nicotine appears to be the substance responsible for the marked pressor action of many specimens of urine. Unless tobacco has been eliminated as a source of pressor substance in urine, conclusions relating urinary pressor substances to arterial disease are not justifiable. It has been suggested that nicotine might be retained by the body when there is a decrease in renal function.

Annals of Internal Medicine, Lancaster, Pa.

12: 907-1174 (Jan.) 1939

Experimental Heart Disease. G. E. Hall, Toronto.—p. 907.

*Pneumococcic Lobar Pneumonia: Report of 245 Cases, with Special Reference to Specific Serum Therapy. B. Horn, Bridgeport, Conn.—p. 922.

Urinary Diastase in Acute Pancreatic Necrosis: Experimental Investigation. C. J. Smyth, Ann Arbor, Mich.—p. 932.

Effect and Rate of Removal of Pyruvic Acid Administered to Normal Persons and to Patients With and Without "Vitamin B Deficiency." R. W. Wilkins, Soma Weiss and F. H. L. Taylor, Boston.—p. 938.

Acute Disseminated Lupus Erythematosus, a Systemic Disease. E. Rose and D. M. Pillsbury, Philadelphia.—p. 951.

The Aging Process: A Medical-Social Problem. G. M. Piersol and E. L. Bortz, Philadelphia.—p. 964.

*Clinical Study of Malignant Hypertension. I. H. Page, New York.—p. 978.

The Problem of Rheumatism and Arthritis: Review of American and English Literature for 1937 (Fifth Rheumatism Review). P. S. Hench, Rochester, Minn.; W. Bauer, Boston; M. H. Dawson, New York; F. Hall, Boston; W. P. Holbrook, Tucson, Ariz., and J. A. Key, St. Louis.—p. 1005.

Pneumococcic Lobar Pneumonia.—In two and a half years Horn states that 245 cases of lobar pneumonia were encountered. Of these 164 were of type I, II, V, VII, VIII or XIV pneumococcus pneumonia, for each of which specific serum is available. There were 104 type I cases, eighty-four of which were treated with serum, with a mortality of 3.6 per cent. This was in contrast to a 10 per cent fatality in the type I cases not treated with serum. Of thirty-three cases of types V, VII, VIII and XIV pneumonia treated with specific serum the mortality was 3 per cent compared to 12.5 per cent in the non-serum treated cases. Only three cases of type II pneumococcus pneumonia were observed. Serum was given and prompt crisis occurred, with recovery. In the total of 120 serum treated cases the death rate was 3.3 per cent while in the 125 non-serum treated cases the mortality was 16.8 per cent. Serum sickness was observed in only twelve cases. Cutaneous and eye tests for sensitivity can reduce serious serum complications to a negligible minimum. From his experience the author believes that type I serum should be given as early as possible and in large amounts, no matter how late the patient is seen. Also all patients having pneumonia of the types for which therapeutic serum is available should be given the benefits of specific serum therapy.

Malignant Hypertension.—Page states that the diagnosis of malignant hypertension was made in thirty cases when the following morbid changes were observed: (1) hemorrhage and papilledema in the eyegrounds, (2) normal or moderately reduced renal efficiency (unless the disease was of relatively long duration), (3) rapid advance of the morbid changes, (4) elevated arterial pressure often with immoderately high diastolic pressure and (5) normal or slightly reduced plasma proteins and hemoglobin. Malignant hypertension appears to be a syndrome of varied origin. Both men and women suffer from it, men more often. It is a disease of early middle age but may occur in youth or late middle age, seldom in old age. As a rule, hypertensive-vascular disease in the family is not common. It is not unusual for these patients to have had scarlet fever. The chief complaints are headaches, visual disturbances and fatigue. Far less frequent are dyspnea, convulsions, fainting, weakness, precordial discomfort and edema of the ankles. As a rule striking contrast exists between the neurotic behavior of patients with essential hypertension and equable emotions of those with malignant hypertension. The kidneys produce few symptoms. Nausea and vomiting occur often. Severe loss of weight is common. The simultaneous occurrence of these symptoms and signs bode ill for the patient's life. Impressive both to patient and physician is the sudden occurrence of blindness in one eye due to hemorrhage. The results of physical examination usually convince one that the syndrome is rapidly progressive and bears little resemblance to the chronicity of essential hypertension. The heart may not have time to hypertrophy, but dilatation of marked degree is not unusual. Laboratory examination discloses that the heart is seriously injured. This is shown especially by inversion of the T waves in leads 1 and 2. The function of the kidneys may be only moderately impaired until within weeks or months of death, at least as measured by urea clearance or the maximal ability to concentrate urine. More than the normal number of erythrocytes

is found in the urine, indicating that the renal blood vessels have not escaped morbid changes. Hemoglobin in the blood is normal or moderately diminished in the early stages. During the terminal phase it may be sharply reduced. These changes resemble those of chronic nephritis rather than those of essential hypertension.

Annals of Surgery, Philadelphia

109: 161-320 (Feb.) 1939

Variation in the Cholesterol, Bile Pigment and Calcium Salts Contents of Gallstones Formed in Gallbladder and in Bile Ducts with the Degree of Associated Obstruction. D. B. Phemister, H. G. Aronsohn and R. Pepinsky, Chicago.—p. 161.

Further Evidence That Pancreatic Juice Reflux May Be Etiologic Factor in Gallbladder Disease. J. A. Wolfer, Chicago.—p. 187.

Study of Results of Surgical Treatment of Peptic Ulcer. F. B. St. John, H. D. Harvey, J. A. Gius and E. N. Goodman, New York.—p. 193.

Carcinoma of Peripapillary Portion of Duodenum. M. M. Lieber, Philadelphia; H. L. Stewart, Boston, and H. Lund, Uniontown, Pa.—p. 219.

Neurofibrosarcoma of the Small Bowel: Report of Two Cases. A. J. Miller and L. W. Frank, Louisville, Ky.—p. 246.

Dilatation of the Colon: Report of Case Following Development of Aortic Aneurysm; Relieved by Dilatation of Anal Sphincters. H. J. Shelley, New York.—p. 257.

Celiac Ganglionectomy and Plexus Resection for Tabetic Gastric Crises. F. L. Pearl, San Francisco.—p. 263.

Bilateral and Unilateral Renal Agenesis. H. M. Soloway, Chicago.—p. 267.

Dermoid Cyst of the Bladder: Case Report. A. Lidzki, Wilno, Poland.—p. 274.

Cysts of the Urachus: Report of Two Cases. H. I. Kantor, New York.—p. 277.

Whole-Thickness Grafts in Correction of Contractures Due to Burn Scars: Three Case Reports. H. Conway, New York.—p. 286.

*Pilonidal Sinus: Sacrococcygeal Ectodermal Cysts and Sinuses. M. Gage, New Orleans.—p. 291.

*Gas Gangrene Following Therapeutic Injections. C. H. Harney, Philadelphia.—p. 304.

Effect of Constant Gastric Suction on Acid-Base Equilibrium of the Body. J. M. Sullivan, Madison, Wis.—p. 309.

Pilonidal Sinus.—Gage divides pilonidal sinuses and cysts into four groups: (1) sacrococcygeal dimple and sacrococcygeal dimple sinus, (2) true pilonidal sinus confined to the subcutaneous tissue, (3) true pilonidal sinus extending into the sacral canal and (4) true pilonidal sinuses which are continuous with the subarachnoid space and canal of the spinal cord. He describes a method by which surgical excision and primary suture will give a high percentage of cures and a low incidence of recurrence. After the sinus tract has been defined and stained the operative procedure is as follows: With the patient in the prone position a pillow is placed beneath the pubes, and straps of adhesive tape are applied to the buttocks on either side and fastened to the table. The straps separate the buttocks and act as retractors. In the noninfected type an incision can be made directly into the sinus, the sinus easily dissected from the surrounding tissue with a minimal loss of tissue and the resulting wound closed by suture. However, in the majority of instances secondary sinuses are present and necessitate a more extensive dissection. An elliptic incision is made around the primary opening of the sinus and extends down to the periosteum over the sacrum or sacrococcygeal region. If necessary a probe is introduced from the mouth of the accessory sinus through the tract into the open wound, facilitating the dissection of the secondary sinus tracts. The wound is thoroughly inspected and remnants of the sinus tract are searched for and dissected. All bleeding points are ligated with fine silk and the wound is closed by retention sutures of silk or silkworm gut. After closure of the wound edges a dead space is present at the bottom of the wound. If this dead space is not obliterated a recurrence will take place. Complete apposition of all wound surfaces and obliteration of all dead spaces is secured by pressure over the wound. This pressure must be constant and distributed evenly and is obtained by the use of moistened sea sponges. This pressure dressing is left undisturbed for a period of from ten to twelve days. If it becomes necessary to change the dressing, the sponge pressure must be repeated. The author used the foregoing method in forty-two cases of pilonidal sinus, without a single recurrence. There have been nine cases of cutaneous infection with good healing and in one a deep infection which necessitated wound opening developed, but this healed by open granulation. Strug has used the same method in fifty-four cases, with primary healing of the wound in fifty-two. Streptococcic gangrene of the skin developed in one case and serum accumulated in the wound in the other; this was aspirated three times before healing was completed. There have been no recurrences in his cases.

Gas Gangrene Following Therapeutic Injections.—A total of eighty-six cases of gas gangrene following the injection of medicaments have been reported, one of which is cited by Harney. Seventy-six of the eighty-six cases terminated in death. This figure is in marked contrast to the mortality of 49.7 per cent in 607 collected cases of gas gangrene following various injuries. The sites of injection were stated in fifty-nine of the reported cases and of these fifty-five were in one or both thighs, the buttocks or the abdominal wall. In nearly all cases reported, cultures were taken of the drugs, syringes, needles and solutions. A preparation of caffeine and digitoxin was found by Heuss to contain gas organisms. Nauwerck found gas bacilli in a preparation of caffeine sodium salicylate solution. Semenoff and Anschutz were able to find gas bacilli in cultures from the needles used in their cases. Dimtza found gas bacilli in one syringe, one needle and four files of the type used in breaking glass ampules. In all other instances in which studies were carried out the drugs, solutions, syringes and needles were found to be sterile. The most frequent diseases from which the patients given the injections suffered were pneumonia, typhoid and malaria. In twenty-one cases clinical symptoms of gas gangrene appeared between ten and thirty-six hours following the contaminated injections. The time elapsing between the appearance of the clinical symptoms and death varied from one to seven days in forty-five cases. It is considered highly significant that fifty-five of fifty-nine contaminated injections were given into areas of the body surface which might easily be soiled by fecal material. For this reason these areas should be avoided when giving hypodermic or intramuscular injections. However, if they must be used the skin should be sterilized instead of receiving the perfunctory dab with a sponge which is customary in most hospitals.

Archives of Neurology and Psychiatry, Chicago

41: 223-434 (Feb.) 1939

Variation in Vascularity and Oxidase Content in Different Regions of the Brain of the Cat. A. C. P. Campbell, Boston.—p. 223.

*Studies in Mongolism: II. The Thyroid Gland. C. E. Benda, Wrentham, Mass.—p. 243.

Cerebral Circulation: II. Reaction of Pial Arteries to Increase in Blood Pressure. M. Fog, Copenhagen, Denmark.—p. 260.

Body Build in Schizophrenia, with Special Regard to Age. H. Gray and J. G. Ayres, San Francisco.—p. 269.

Connections of the Pulvinar. J. W. Papez, Ithaca, N. Y.—p. 277.

Syncope, Convulsions and the Unconscious State: Relation to Hyperactive Carotid Sinus Reflex. L. J. Robinson, Palmer, Mass.—p. 293.

Progressive Confusional Syndrome Accompanying Injuries of the Cervical Portion of Spinal Cord. T. J. Putnam, Boston.—p. 298.

Therapeutic Use of Curare and Erythroidine Hydrochloride for Spastic and Dystonic States. M. S. Burman, New York.—p. 307.

Lymphomatoid Diseases Involving the Spinal Epidural Space: Pathologic and Therapeutic Consideration. J. Browder and J. A. de Veer, Brooklyn.—p. 328.

Thomas Willis on Narcolepsy. W. G. Lennox, Boston.—p. 348.

Sudden "Brain Death" in Schizophrenia with Extensive Lesions in Cerebral Cortex. N. Malamud and D. A. Boyd Jr., Ann Arbor, Mich.—p. 352.

Hemiballismus: Clinicopathologic Study. F. P. Moersch and J. W. Kernohan, Rochester, Minn.—p. 365.

Progressive Fall in Protein Content of Cerebrospinal Fluid Withdrawn Above a Tumor of the Cauda Equina: Diagnostic Aid. H. D. Fabing, Cincinnati.—p. 373.

Ketonemia in Cases of Mental Disorders. J. W. Thompson and J. H. Aste-Salazar, Boston.—p. 375.

The Thyroid Gland in Mongolism.—Benda points out that facts seem to indicate that hyperthyroidism during the prenatal period is a cornerstone on which rests the explanation of mongolism. Pathologic study of the thyroid in fourteen cases of mongolism reveals that alterations are invariable. These consist in involutional changes: distention of acini, filled with colloid and composed of low epithelium; folding and confluence of acini; diffusion of colloid in the surrounding spaces; overgrowth of epithelium in thick piles, like an adenomatous growth, without formation of new vesicles; changes in the form and shape of the epithelium; increase in stroma, and degeneration of glandular tissue. The changes seen in mongolism differ from those in myxedema and suggest a temporary stage of hyperfunction or dysfunction. It is not known whether the thyroid in mongoloid infants worked too effectively or too early. It is more probable that the condition results from other

influences which affected the embryo. There may be the influence of the maternal thyroid or some other stimulating factor resulting from unbalance of the maternal endocrine glands. There may be also stimulation through some other endocrine gland in the mongoloid organism itself. The microscopic appearance of the thyroid in mongolism reminds the author of the histologic changes seen in cases of pituitary disease.

Archives of Ophthalmology, Chicago

21: 211-408 (Feb.) 1939

Central Angiospastic Retinopathy. S. R. Gifford and G. Marquardt, Chicago.—p. 211.
Cultivation of Trachomatous Conjunctival Epithelium in Vitro. P. Thygeson, with technical assistance of Nancy Roberts, New York.—p. 229.
Peculiarities of Well Known Ocular Diseases in the Netherland East Indies. A. W. M. Houwer, Batavia, Netherland East Indies.—p. 235.
*Mixed Tumor of Lacrimal Gland. T. E. Sanders, St. Louis.—p. 239.
Evolution of Sucking Disk for Intracapsular Extraction of Cataract. T. J. Dimitry, New Orleans.—p. 261.
Dissociated Monocular Nystagmus with Paresis of Horizontal Ocular Movements. M. B. Bender and E. A. Weinstein, New York.—p. 266.
Pathologic Picture of Retinal Detachment: Survey. B. Samuels, New York.—p. 273.
Nutritional Cataract and Relation of Galactose to Appearance of Senile Suture Line in Rats. R. E. Eckardt and L. V. Johnson, Cleveland.—p. 315.
Automatic Trephine for Glaucoma. A. S. Green and M. I. Green, San Francisco.—p. 328.
Operative Procedure for Glaucoma of Shallow Chamber Type: Multiple Excisions of Root of Iris and Deepening of Anterior Chamber. O. Barkan, San Francisco.—p. 331.
Histologic Changes in Lens Produced by Galactose. S. R. Gifford and J. Bellows, Chicago.—p. 346.
Entity of Muscle Recession: Short Résumé of Its Technic and Principles with New Supplementary Notes and Illustrations. P. C. Jameson, Brooklyn.—p. 362.

Mixed Tumor of Lacrimal Gland.—Sanders discusses the records of twelve proved cases of mixed tumor of the lacrimal gland. Ten of the patients have been followed for more than two years. The presenting symptoms in the twelve cases were essentially those of a slowly growing orbital tumor. The most striking symptom was exophthalmos, for which the patient sought medical advice. In several instances this was first noted by persons other than the patient. Probably the most consistent diagnostic finding was the presence of a palpable mass in the region of the lacrimal gland under the outer half of the superior orbital brim. The earliest ocular complaint was transient, indefinite diplopia. As the mass increased in size this was accompanied by a limitation of movement. In six cases there was marked loss of vision below 3/60 when the patients were first seen, and two patients had moderate loss of vision. The vision of six was normal, but in these cases there was usually subsequent loss as the condition progressed. In the majority of cases the onset was insidious, with a slow but steady progression of symptoms. The patients complained of surprisingly little pain or discomfort. Several had an occasional dull ache in the orbit. The general health of practically all the patients was good. Of eleven cases in which surgical treatment was employed, there was recurrence in ten. One patient refused operation and died in six years with marked local invasion and metastases to the liver, lung and mediastinum. Four of the patients had metastases. Five are dead from intracranial extension due to a marked tendency for bony invasion. Microscopically the growths seem identical with mixed tumors of other locations. The invasive element seems to be the epithelium. The recurrence is probably due to incomplete removal. Pathologically the mixed tumors are probably a definite pathologic entity of dual origin, with the characteristic tendency of the epithelial element to become locally invasive. Irradiation is of little aid and early complete surgical removal is indicated. If there is evidence of bony invasion, a resection of the entire tumor-bearing area is indicated; but, if the invasive tumor is limited to the soft tissues, exenteration may be sufficient.

Arkansas Medical Society Journal, Fort Smith

35: 163-186 (Feb.) 1939

Refraction. L. Gardner, Russellville.—p. 163.
Combined Use of Chemotherapy and Artificial Fever in Treatment of Neurosyphilis. F. M. Adams, Hot Springs National Park.—p. 166.
Pneumococcic Pneumonias and Type Specificity. F. E. Schmidt, Chicago.—p. 170.

Missouri State Medical Assn. Journal, St. Louis

36: 49-98 (Feb.) 1939

The Eye in Congenital Syphilis. J. McLeod, Kansas City.—p. 49.
Early Eruptive Syphilis. T. B. Hall, Kansas City.—p. 53.
The Laboratory as a Guide to Diagnosis and Treatment of Syphilis. G. V. Stryker, St. Louis.—p. 54.
Manifestations of Late Syphilis. J. Grindon Jr., St. Louis.—p. 55.
Use of Fever Therapy in Treatment of Syphilis. A. J. Kotkis, St. Louis.—p. 57.
Syphilis of Bones and Joints. F. A. Jostes and M. B. Roche, St. Louis.—p. 61.
Effect of Therapy on Insulin Requirement in Diabetes. B. Y. Glassberg, St. Louis.—p. 69.
Some Recent Advances in Ophthalmology. C. S. Smith, Springfield.—p. 72.

New Jersey Medical Society Journal, Trenton

36: 69-134 (Feb.) 1939

Recurrent Dislocation of the Shoulder. T. Nicola, Montclair.—p. 73.
Diagnosis and Treatment of Malignant Diseases of the Nose and Nasal Sinuses. L. A. Schall, Boston.—p. 78.
Progress in Ophthalmology. A. Rados, Newark.—p. 81.
Salicylate Poisoning: Report of Case. R. E. Jennings, East Orange.—p. 90.
Management of Missed Abortion: Maternal Welfare Article Number Thirty-Four. S. A. Cosgrove, Jersey City.—p. 92.

New York State Journal of Medicine, New York

39: 191-298 (Feb. 1) 1939

Study of the Distribution of Physicians in New York State. J. S. Lawrence, Albany.—p. 199.
Forensic Neuropsychiatry. M. Keschner, New York.—p. 218.
Pneumonia in the Westchester County (New York) Health District, 1931-1935. E. A. Lane, White Plains.—p. 225.
The Responsibility of the Physician in Preventive Proctology. L. A. Buie, Rochester, Minn.—p. 232.
*Prognosis of Insured Neurotics: Study of 1,000 Disability Insurance Claims. P. G. Denker, New York.—p. 238.
Heart Disease and Pregnancy. R. C. Tilghman, Baltimore.—p. 248.
Outline of Treatment for Syphilis: Methods and Technic Followed in Department of Dermatology of the Vanderbilt Clinic: Part III of a Series. A. B. Cannon, New York.—p. 254.

Prognosis of Insured Neurotic Persons.—Denker followed up 1,000 disability claims in which the diagnosis was psychoneurosis. These claimants were all insured and if totally disabled received varying amounts of money in monthly payments depending on the amount of insurance carried. The disability occurred from one to twenty years after the insurance policy was issued. The diagnosis in all instances was made by a physician and often corroborated by a nerve specialist. In the New York area most of the cases were examined by the author himself. Total disability was recognized only after the insured had been ill for at least three months and to an extent that would prevent him from engaging in any occupation for remuneration or profit. The milder or more transient neurotic disturbances are therefore automatically excluded from this study. The follow-up study was made at least five years and, in many cases, from ten to fifteen years after disability had commenced. The great risk of error in labeling a patient neurotic became apparent early in the study. It was found that 293 cases had been erroneously diagnosed "psychoneurosis," the true nature of the illness manifesting itself in most cases within one year as some organic disorder. The age at onset of the neurosis in the 707 true neurotic persons varied from 19 to 59 years, the average age being 37.2 years. This is in contrast to the slightly higher average age of the erroneously diagnosed group, in which 40.8 years was obtained. It appears that middle age in the male produces the greatest neuroses, possibly because his responsibilities are greatest and his career made or broken at this period. In the female this age incidence is somewhat lower. Of the 707 patients, 384 were men and 323 women. However, only from 12 to 14 per cent of the insurance policies during these years (1915 to 1930) were held by women. Neuroses were therefore from three to four times as frequent among insured women as among insured men, which corresponds with the clinical frequency of neurosis in women. No definite conclusions can be drawn as regards occupation, but there is a definitely high incidence of neurosis among clerical workers, executives, teachers and professional people in contrast to the greatly diminished number among manual workers and housewives. Only forty-five of the 707 truly neurotic patients gave a history of a familial mental taint. There were eighteen male

and four female deaths in the entire series, death being due to various causes. Approximately three fourths of the patients recovered within two years of the onset of their neurosis. A little less than half recovered within the first year. It seems that neurotic persons receiving $200 or more per month, who have been ill for three years, practically never get well. The monthly disability check appears to eliminate the incentive to get out and fight life's struggles and, in addition, it acts as a constant reminder to the highly suggestible, mentally ill patient that he is disabled. It appears that it would be much wiser to pay these claims by some form of lump sum settlement at the end of the first year of disability or sooner.

Ohio State Medical Journal, Columbus

35: 121-240 (Feb.) 1939

Interpretation of Clinical Chemical Procedures. J. H. Talbott, Boston.—p. 137.
Recent Advances in Gynecology. P. K. Champion, Dayton.—p. 147.
Angina Pectoris. J. T. Quirk, Piqua.—p. 151.
Report of Case of Beta Hemolytic Streptococcus Meningitis Treated with Sulfanilamide. W. H. Falor, Akron.—p. 154.
Arsine Poisoning: Report of Two Cases. K. D. Smith and T. E. Rardin, Columbus.—p. 157.
Pancreatic Cysts: Report of Two Cases. R. M. Carmichael, Cincinnati.—p. 160.
Newer Treatment Methods in Schizophrenia. E. A. Baber, Cincinnati.—p. 163.
Symptoms and Physical Findings in Peripheral Arterial Disease. L. N. Atlas, Cleveland.—p. 169.
Hypometabolism and Hypothyroidism. R. M. Watkins, Cleveland.—p. 171.
Management of Chronic Urticaria. J. Forman, Columbus.—p. 175.

Surgery, Gynecology and Obstetrics, Chicago

68: 129-256 (Feb. 1) 1939

*Aseptic Necrosis of Bone: I. Infarction of Bones in Caisson Disease Resulting in Encapsulated and Calcified Areas in Diaphyses and in Arthritis Deformans. S. C. Kahlstrom, Bath, N. Y.; C. C. Burton, Dayton, Ohio, and D. B. Phemister, Chicago.—p. 129.
Early Diagnosis of Cervical Carcinoma. A. Wollner, New York.—p. 147.
Early Phases of Prostatic Hyperplasia. C. L. Deming and C. Neumann, New Haven, Conn.—p. 155.
Anatomy of Pelvic and Urogenital Diaphragms, in Relation to Urethrocele and Cystocele. A. H. Curtis, B. J. Anson and C. B. McVay, Chicago.—p. 161.
Early Surgery in Biliary Disease. E. L. Eliason and J. P. North, Philadelphia.—p. 167.
Obstetric Influences on the Weight Curve of the Newborn. W. C. C. Cole, Detroit.—p. 179.
*Evaluation of Intradermal Test for Pregnancy. Susanne R. Parsons, Santa Barbara, Calif.—p. 187.
*Role of Tuberculosis in Anal Fistula. L. A. Buie, N. D. Smith and R. J. Jackman, Rochester, Minn.—p. 191.
Modified Schoemaker Gastrectomy for Chronic Gastric Ulcer. J. Morley, Manchester, England.—p. 197.
Supracondylar Fracture of the Humerus: Analysis of 330 Cases. I. E. Siris, Brooklyn.—p. 201.
Use of Metycaine for Producing Block Anesthesia of Sacral Nerves. E. B. Tuohy, Rochester, Minn.—p. 222.
Management of the Third and Fourth Stages of Labor: Based on 11,000 Deliveries. M. Leff, New York.—p. 224.
*Fat Necrosis—Granuloma of the Breast. S. F. Livingston and M. Lederer, Brooklyn.—p. 230.
Improved, Radical Technic for Repair of Hydrocele Testis. M. Wolf, New Orleans.—p. 236.
Follow-Up of Hernia Repair. A. B. Longacre, New York.—p. 238.

Aseptic Necrosis of Bone.—Kahlstrom and his co-workers report the results of a clinical and roentgenologic study of four cases of caisson disease with extensive changes in the skeleton. One case came to necropsy and in another a biopsy was performed on the involved head of the femur. Extensive lesions were revealed in diaphyses and in epiphyses of certain bones with changes in the joints. The evidence appears to be conclusive that the primary lesion is an accumulation of nitrogen gas in the bones—intravascular or extravascular—with circulatory interference and a resultant massive aseptic necrosis. In the head of the femur or humerus the necrotic lesions may break down and be invaded and eventually replaced by new bone or fibrous tissue. Invasion of portions of the epiphysis may be followed by calcification and arrested transformation, especially in portions of the epiphysis away from the articular surface. Involvement of the articular cortex and cartilage leads to the slow development of arthritis deformans with or without osteocartilaginous loose bodies. The lesions in the shafts are much more numerous and extensive than in any reported case of bland infarction or aseptic necrosis of bone. The necrosis was of the interior of the diaphysis in all instances. It is difficult to state whether the lesions in the bones produced by the nitrogen gas were the result of nitrogen embolism or of nitrogen accumulation within the medullary cavity and direct compression of blood vessels and other tissues or a combination of the two. Lesions of the soft parts are known to be produced by both methods. Points in favor of nitrogen embolism are that (1) the lesions were frequent (in three cases) in the heads of femurs in which the end arteries are known to be found frequently and (2) the metaphyses of the lower end of the femur and of the upper end of the fibula and both ends of the tibia were affected in some cases while their epiphyses escaped, which would favor embolism of the branches of their nutrient arteries. Points against the embolic theory are (1) the enormous size and symmetrical distribution of the necrotic areas and (2) absence of involvement of the bones of the trunk. In favor of the local pressure on blood vessels and other tissues of nitrogen gas accumulated in the medullary cavities is the limitation of the process to the bones of the extremities. These bones are rich in fatty marrow, while the bones of the trunk which have higher temperatures than the bones of the extremities (Huggins and Blocksom) contain hematopoietic marrow. Since fats and lipoids are known to absorb approximately five times as much nitrogen as other tissues, more nitrogen should be liberated within the bones of the extremities than within the bones of the trunk in caisson disease. The best treatment of any form of necrosing lesion of the head of the femur (including caisson disease necrosis) is prolonged abstinence from weight bearing, thus permitting reorganization of the necrotic area, and if possible replacement by new bone with the avoidance of collapse of the head.

Intradermal Test for Pregnancy.—Parsons found that the intradermal test, according to the results obtained in 100 pregnant women and forty postpartum or known nonpregnant women, gives an unreliable test for pregnancy, since it was inaccurate in both the control group and in the known pregnant group with an error of from 4 to 72 per cent. In the early months of pregnancy, error of as high as 72 per cent was obtained. Age, menstruation, days post partum and duration of pregnancy had little influence on the readings. Follutein was found to react more often both in the pregnant and nonpregnant groups, owing perhaps to a protein reaction rather than to the gonadotropic hormone present. Difficulty was experienced in making the readings, as pigmentation of the skin and degrees of erythema were influencing factors which often left in doubt the classification into which the test should fall. From a review of the 679 cases in which the intradermal skin test was performed, the test has proved entirely unreliable in the hands of the workers who have attempted to repeat the work of Gilfillen and Gregg. There seems to be no choice among the various hormone preparations used; all yield equally unreliable results.

Tuberculosis in Anal Fistula.—In order to clarify, if possible, the controversy regarding tuberculosis as a cause of anal fistula, Buie and his colleagues studied 206 consecutive cases of anorectal fistula. Guinea pigs that received subcutaneous injections and those that received intraperitoneal injections of tissue from eleven patients died within three weeks. This low percentage of failures can probably be accounted for by the fact that a method of attenuation of the colon bacillus was employed. More deaths occurred before this time limit expired in the cases of those guinea pigs injected intraperitoneally than occurred after the time limit. Of the 195 cases (94.7 per cent) studied successfully and completely, tuberculosis was not found in 163 cases. In thirty-two cases, evidence of the presence of tuberculosis was found somewhere in the body. Of this group of thirty-two cases, ten gave evidence of a tuberculous "focus"; that is, seven showed healed or inactive pulmonary tuberculosis, two an active pulmonary lesion and one tuberculosis of the cervical lymph nodes. Inoculation of animals, routine histopathologic studies and subsequent study of numerous sections of tissue did not reveal evidence of tuberculosis in the anorectal fistula. Inoculation of animals gave positive results in twenty-two cases, whereas routine microscopic study of sections from an adjacent piece of fistulous tissue gave positive results in only eight cases. These results approach closely those of other

investigators who have used the same method of studying sections of a similar nature. Of the twenty-two patients who were proved to have a tuberculous fistula, seventeen were shown to have, in addition, a so-called focus of tuberculosis elsewhere in the body. In one of the remaining five cases the organism was demonstrated in sections of tissue taken from the fistula. In the twenty-two cases in which positive results were obtained, the average time required for healing was seventy-three days as compared with an average of twenty-nine days in the 173 cases of nontuberculous fistula. Whether a fistula is tuberculous or not should not alter the type of treatment employed.

Fat Necrosis of Breast.—Livingston and Lederer present two cases of fat necrosis of the breast. The first case is particularly instructive because, although it fulfilled all clinical criteria for a diagnosis of a malignant growth, it proved to be a benign lesion. The diagnosis made preoperatively was carcinoma and a radical amputation was performed. In the second case a correct preoperative diagnosis was made and only the lesion was removed. If one was to speculate regarding the cycle of evolution of fat necrosis, it can be said that first either there is trauma from external causes or direct pressure of the breasts from their own weight. If the trauma is severe with injury to blood vessels, one may see areas of ecchymosis. If the trauma extends more deeply there may be no visible evidence of blood extravasation. The presence of pigment in cells suggests that there has been hemorrhage. There is a fat splitting ferment (lipase) in the blood as well as in the fat itself. Fat tissue, being unstable, breaks down easily into its constituents, fatty acids and glycerin. Fat necrosis and fat splitting are two different processes frequently allied, necrosis being the principal event and fat splitting only an accompaniment. The necrosis of fat tissue accompanied by a splitting into fatty acids and glycerin is considered to be a degenerative phase which is closely followed by repair. This repair is characterized by the appearance of spindle, round and giant cells (Menville). Since the majority of fat necrosis is subcutaneous, the fibrous repair tissue acts like strong cords which have no elasticity but have a tendency to retract. Adair states that, early in the cycle of fat necrosis, small cysts may form. After several years these cystic cavities may contain a mixture of small and large calcareous masses. If these tumors are left undisturbed, the contents and wall of the cyst solidify into a calcareous mass. Fat necrosis more closely resembles carcinoma than other benign lesions. The treatment is local excision of the tumorous mass.

United States Naval Med. Bulletin, Washington, D. C.

37: 1-212 (Jan.) 1939. Partial Index

Surgical Shock. H. K. Gray and L. R. Chauncey.—p. 1.
Recent Advances in Endocrinology: Résumé. O. J. Brown.—p. 22.
Recent Advances in the Knowledge of the Vitamins. W. W. Hall.—p. 46.
Sulfanilamide and Chemotherapy: Supplementary Report. R. A. Bell.—p. 73.
Gonorrhea Treated with Sulfanilamide. M. S. Mathis and P. J. McNamara.—p. 114.
Sulfanilamide in Treatment of Gonorrhea Aboard Ship. C. A. Young and J. H. Ward Jr.—p. 129.
*Immune Transfusions in Lymphogranuloma Inguinale. J. P. Brady.—p. 131.
Treatment of Scabies. G. E. Thomas.—p. 137.
Electric Welding, Particularly Eye Hazards and Protective Measures. T. J. Carter.—p. 138.
Time Study of Morbidity and Mortality in the United States Navy. J. M. Wheelis Jr.—p. 142.
The New Policy of Training Naval Flight Surgeons. J. C. Adams.—p. 150.

Immune Transfusions in Venereal Lymphogranuloma.—Brady points out that of sixteen patients with venereal lymphogranuloma given transfusions from immune donors (having had the disease and recovered from it not less than ten weeks before) all showed distinct clinical improvement in mental attitude, color, appetite and definite increase in weight. The disease may be one in which immunity is acquired with formation of immune bodies in the blood stream. The author believes that immune transfusion as a therapeutic agent is worthy of further investigation in this condition and to verify his results. The possibilities of the blood bank are widened if the foregoing results are verified. The naval service offers an excellent opportunity for this study both because of the prevalence of the disease and because of the number of donors obtainable.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 97-146 (Jan. 21) 1939

Thoracolysis: Conservative and Selective Operation for the Treatment of Certain Cases of Pulmonary Tuberculosis. L. O'Shaughnessy and G. Mason.—p. 97.
Critical Review of Extrapleural Pneumothorax. R. Nissen.—p. 100.
Anesthesia in Thoracic Surgery. J. T. Hunter.—p. 102.
*Inguinal Lymph Gland Biopsy in Diagnosis of Tuberculous Disease of Knee. H. J. Seddon.—p. 105.
Electro-Encephalogram in a Case of Pathologic Sleep Due to Hypothalamic Tumor. W. G. Walter, G. M. Griffiths and S. Nevin.—p. 107.
"Sodium Thio-Ethamyl" (Sodium Iso-Amylethylthiobarbiturate). C. L. Hewer.—p. 109.

Inguinal Lymph Gland Biopsy in Tuberculosis of Knee.—Two and a half years ago it was suggested to Seddon (by Fitzgerald) that examination of an inguinal lymph gland on the affected side of a joint suspected of tuberculous infection might give valuable information. For removal of the gland local anesthesia is employed, except in small children. The operation is a biopsy and nothing more. The results in the diagnosis of eighteen cases of tuberculous disease of the knee are given. In a few of these cases inguinal biopsy was not required to establish the diagnosis; since material from the knee was available, however, the author felt justified in removing glands from these patients in order to establish the reliability of the method. There were only three negative results in the series. A positive result is of the greatest possible value, but a negative one cannot be taken to exclude tuberculous disease of the joint. To ensure himself that a positive result could not possibly be fortuitous the author removed glands from other regions in four cases, in none of which was there any evidence of tuberculous disease. Since gland biopsy is a worthwhile procedure, the next step is to apply it in doubtful cases of arthritis of other joints. The merit of the method is its simplicity and safety.

Glasgow Medical Journal

13: 1-56 (Jan.) 1939

Benign Lymphocytic Meningitis. D. A. Cannon.—p. 1.
*Survey of Results of Fractures of Long Bones of the Lower Limb. A. M. Murray.—p. 9.

Fractures of the Lower Limb.—Murray gives the results with fractures of the femur obtained from 1926 to 1935 and of the tibia and fibula from 1932 to 1936 inclusive. Only those cases about which detailed information was available are included in the tabulation of the results. Many of the older patients have died subsequently as the result of other illnesses. Considerable numbers, chiefly of male patients, have been lost sight of owing to the recent migration to England of workers in heavy industries, which in itself presupposes a satisfactory result. The total number of fractures of the femur in males more than 15 years of age was seventy-six. Of these twenty-nine were fractures of the neck of the femur and forty-seven were fractures of the shaft. Nine patients died in the hospital. There were seventy-seven fractures of the femur in females more than 15 years of age. Fifty-four were fractures of the neck and twenty-three were fractures of the shaft of the femur. Eight deaths occurred in the hospital. The total number of fractures of the femur in children up to 15 years of age was seventy-seven, all of which were fractures of the shaft. There were three deaths. There were 214 fractures of the bones of the lower leg: ninety-six in males and fifty-three in females more than 15 years of age and sixty-five in children less than 15 years of age. Only seven deaths occurred in the hospital in this group of patients. Apart from those with immediately fatal results, no patients were subsequently unfit for any occupation. Primary amputation was necessitated owing to damage to the soft tissues and vessels in only two cases. Quite a number of the patients had had both legs broken at the same or different times. When one leg had been operated on and the other treated conservatively the patient maintained that the leg on which the operation was performed was less easily fatigued than the other one. In no case in which operative measures were adopted did nonunion of the bone follow. Since the introduction of stainless steel there has been less reaction in the tissues than formerly. Sepsis following operative treatment of a compound fracture occurred in a few instances but always cleared up quickly leaving no permanent ill

effects. Good results (provided that reduction is efficient) seem to depend to a large extent on (1) the amount of damage to the soft tissue rather than purely bony damage and (2) the patient himself, particularly when he has reached the ambulant stage and is no longer in need of hospitalization. After-treatment appears to be as much a social as a medical problem. The financial aspect is of primary consideration in many cases. Perhaps some arrangement could be made whereby the ambulant patients would be sent out to camps and encouraged to do all sorts of odd jobs and to play games in a modified way until they were fit to return to work. Should they be unfit for their original employment, the onus of finding other work should fall on the former employer. In this way, although the patient would not benefit financially, his incentive to complete recovery would be greater and there would be less scope for the malingerer.

Irish Journal of Medical Science, Dublin

No. 156: 741-788 (Dec.) 1938

Recent Advances in the Surgical Treatment of Pulmonary Tuberculosis. F. J. Henry.—p. 741.
Treatment of Tuberculous Cavities. B. O'Brien.—p. 748.
Leuko-Erythroblastic Anemia: Reports on Three Cases. J. McGrath.—p. 755.
Cardiazol Treatment of Dementia Praecox. H. Bewley.—p. 762.
Geniculate Herpes: Cases. H. L. Parker.—p. 766.
Polycystic Disease of the Liver. T. E. Bradshaw.—p. 768.

Medical Journal of Australia, Sydney

1: 1-48 (Jan. 7) 1939

The Case for Individual Isolation: Its Use in Infectious Diseases and in the Care of Infants. H. J. Sinn.—p. 4.
*Note on a Series of Laboratory Infections with the Rickettsia of Q Fever. F. M. Burnet and M. Freeman.—p. 11.
*Further Series of Laboratory Infections with the Rickettsia of Q Fever. D. J. W. Smith, H. E. Brown and E. H. Derrick.—p. 13.
Rickettsia Burneti: Cause of Q Fever. E. H. Derrick.—p. 14.
Theories of Shock and Their Relation to Burns. J. B. Devine.—p. 14.

Infections with Rickettsia of Q Fever.—Burnet and Freeman describe a series of mild or subclinical laboratory infections with Q fever. The infections were recognized by serologic tests—rickettsial agglutination and protection tests in mice. A mite, Lyponyssus bacoti Hirst, is suspected of being the responsible vector from experimentally infected mice. The mode of infection has not been definitely determined. Since two of the five laboratory workers infected have never worked with the organism, and one of them has been entirely engaged in clerical work, it is strongly suspected that the infection was carried by some freely moving arthropod vector. Mice have been used as laboratory animals in practically all the work on Q fever, and the human infections must have arisen eventually from these. Two ectoparasites are present in the authors' stock of mice; the common mouse louse, Polyplax serrata, is almost always to be found in small numbers and the blood-sucking mite Lyponyssus bacoti Hirst has appeared at times in large numbers. At other times the stock appears to be free from this parasite. Circumstantial evidence points strongly toward the mite, which moves freely and is known to bite human beings, as the responsible vector; but no experimental evidence of its capacity to transmit infection has been obtained.

Q Fever in Laboratory Workers.—Smith and his associates cite two cases of laboratory infection with Q fever. In each case the Q virus was found in the patient's blood by guinea pig inoculation, and Q agglutinins were demonstrated in the serum during convalescence. The infections were associated with mouse experimentation. While the mite Liponyssus bursa (Berlese) was present at times on the mice and was therefore a potential vector, the authors ascribe the infections to direct contact with infective mouse tissues.

Practitioner, London

142: 1-136 (Jan.) 1939

The Importance of Diet and General Treatment in Dermatology. H. W. Barber.—p. 1.
Psychologic Factors in Skin Diseases. C. H. Rogerson.—p. 17.
Significance and Treatment of Itching. W. N. Goldsmith.—p. 36.
Pyogenic Infections of the Skin. G. H. Percival.—p. 55.
Diagnosis and Treatment of Common New Growths of the Skin. S. Thomson.—p. 67.
The Modern Treatment of Eczema. F. F. Hellier.—p. 80.
Alopecia. J. E. M. Wigley.—p. 89.
Fear. J. R. Rees.—p. 99.
First Aid in Air Raids. C. H. Carlton.—p. 107.
Diet in Health and Disease. XIX. General Principles of Diet in Childhood. B. Rivet.—p. 115.

Presse Médicale, Paris

47: 177-200 (Feb. 4) 1939. Partial Index

*Complex Mechanism of Edema in Patients with Heart Disease. J. Doumer.—p. 183.

Mechanism of Edema in Heart Disease.—Doumer says that the edemas of patients with cardiac disorders are generally attributed to purely mechanical factors. Cardiac insufficiency causes disturbances in the peripheral circulation, which in turn leads to stasis and to venous hypertension. The latter causes excess pressure in the capillary network and, under the influence of this excessive hydrostatic pressure, serous transudation and edema develop. This explains certain edemas of cardiac origin but it does not seem to explain all of them. The edemas seem to be of a more complex nature in patients with aortic defects, with hypertension, with coronary lesions and in those with cardiac insufficiency with normal heart and presenting the aspects of left-sided ventricular insufficiency. It is known that left-sided ventricular insufficiency does not produce peripheral edemas or at least it does not produce them until the secondary insufficiency of the right side of the heart has developed. The edemas which complicate the syndrome of insufficiency of the left ventricle are not hard and they pit readily. Moreover, they are not cyanotic but pale like those of patients with renal disease. The author further discusses the hydropigenous factors of a humoral or tissular type, then the noncardiac edemas of patients with heart disease and finally the cardiac insufficiency that is of edematous origin. He reaches the conclusion that the edemas of patients with heart disease are mechanical edemas only in certain cases and to a certain extent. In the development of edematous infiltration there enter multiple factors, some of which are probably only indirect consequences of the progressive cardiopathy. As long as these factors are incompletely understood it is impossible to draw practical conclusions. Once they have been penetrated, however, it will doubtless be possible to face the problem of the treatment of the edemas as well as of certain conditions of heart failure if it is confirmed that certain hydropigenous conditions may exercise secondarily a harmful action on the function of the myocardium.

Sang, Paris

13: 113-224 (No. 2) 1939

Anemia in Patients with Bright's Disease. M. Loeper and P. Perreau.—p. 113.
Diagnostic Significance of Plasmocytic Tendency in Infectious Mononucleosis. R. Waitz.—p. 131.
*Clinical Value of Coaguloretractovisometry in Internal Diseases. L. Blacher.—p. 140.

Coaguloretractovisometry in Internal Diseases.—Blacher says that he has employed his own method of coaguloretractovisometry on the blood of 147 patients. Describing this method in a previous report, he differentiates between "the reaction of coagulability" (coagulation of the upper layer of the blood) and "the reaction of coagulation" (coagulation of the lower portion of the blood). Moreover, he distinguishes between the "time of the reaction of coagulability" (the time elapsed from the mixture with the reagent to the moment of appearance of coagulation) and the "time of the reaction of coagulation" (interval required for the coagulation of the remaining blood). In the present report he finds that the variations of the coagulability of the blood, which are ascertained in diverse internal diseases, are typical for each particular disorder. Not only are the quantity, quality and amplitude of the deviations of the evolution of the coagulability characteristic for the more or less grave forms of the hemorrhagic conditions, but they reveal the nature of the pathogenic agent and the length of time it has been active. In morbid states there are observable modifications not only of the reactions of coagulability but also of the structure of the clots. According to their physical properties, the clots can be classed as hard, soft, liquid and "sanguinolent." The marbling of the clotted blood, which the author observed most frequently in cases of hemorrhagic disturbances of the hepatosplenic system, indicates the absence of the reaction of retractility in the clotted blood. The variations in the course of the coagulability of the blood in the hypochromic anemias indicate either impending hemorrhage or occult bleeding. In pernicious anemia, liver treatment exerts

a perceptible action on the retractility of the coagulated blood, particularly the retractive force of the clot. The oscillations of the phase of coagulability do not depend on the evolution of the reaction of retractility and on its force; on the contrary, the retractive force of the coagulum depends most often on the evolution of the reaction of retractility of the clotted blood. The peculiarity of the detected traits in the coagulability in the course of diverse diseases procures for each of these diseases a new pathognomonic symptom, which may be helpful both in the diagnosis and in the prognosis. The variations in the coagulability of the blood are directly related to the condition of the liver and of the spleen. The spleen exerts an inhibiting effect on the course of the coagulation and especially on the reaction of the retractility of the clot. The liver is the principal producer of the substances that are necessary for the process of coagulability, whereas the spleen regulates the process. The variations of the course of the reactions of the coagulability of the blood are concomitant to the corresponding oscillations in all the corpuscular system of the peripheral blood. The strongest modifications of this phenomenon have been revealed in the course of a thrombopenia with a thrombocytic formula "deviation to the right" without acrochromatic or achromatic platelets.

Anales del Inst. Modelo de Clin. Médica, Buenos Aires

18: 1-688 (No. 1) 1937. Partial Index

Alteration of Esophageal Mucosa and Its Folds from Roentgen Point of View. R. S. Abad.—p. 248.
*Perforated Cholecystitis: Anatomoclinical Variations. J. A. Caeiro.—p. 638.

Perforated Cholecystitis.—Caeiro reports six cases of perforation of the gallbladder in the course of calculous cholecystitis. He found that the condition is due to necrosis of the walls of the structure. The clinical and anatomopathologic forms of perforation depend on the type, either acute or benign, of the infection by which the evolution of perforation is controlled and also on the presence or absence of peritoneal adhesions. He observed that acute perforation takes place in gallbladders which contain fluid at great pressure or calculi obstructing the cystic duct. Perforation takes place at the point of greatest pressure or where the calculi are impacted. The gallbladder is not inflamed, although the walls are thickened. There are no adhesions from the structure. Perforation of slow evolution takes place in calculous cholecystitis of long duration. The gallbladders are filled with calculi and there are many adhesions through which the structure is joined with one or several visceral organs. Perforation takes place at the point of greatest pressure of the calculi or at the point of union of the gallbladder with adhesions. Perforation at the lower aspect of the gallbladder is frequently complicated by the formation of fistulas between the gallbladder and the colon and duodenum. That at the upper aspect of the structure is frequently complicated by fistula of the liver. In either case the gallbladder empties its contents into the organ with which it joins, through the fistula. Perforation of the liver is complicated by grave abscess of the liver and degeneration of the liver parenchyma. When perforation is at the lower aspect of the gallbladder there is a history of the patient with grave repeated infection, frequently with jaundice, inflammation or tumors at the subhepatic region, a grave peritoneal reaction and symptoms simulating gastric or duodenal ulcers. When it is at the upper aspect of the gallbladder, pain in the liver and acute hepatitis are the predominant symptoms. An early diagnosis is of importance. The treatment consists of cholecystectomy, at the end of which an ample drainage is left.

Archivos de Pediatria del Uruguay, Montevideo

10: 1-72 (Jan.) 1939. Partial Index

Bacteriology of Nontuberculous Diseases of the Lungs in Children. G. Elkeles.—p. 20.
*Meningo-Encephalitic Complications of Typhoid in Children. E. Peluffo and C. E. Castells.—p. 35.

Meningo-Encephalitic Complications of Typhoid in Children.—According to Peluffo and Castells, typhoid bacteria have a special affinity for the nervous system, especially in children. The most frequent complications of typhoid in children are those involving the meninges or the brain with development of a special type of encephalitis. The acuteness of the complications vary in different cases. Meningitis is more frequent and less grave than the encephalitic complications. It may develop at any time in the course of typhoid. Sometimes the meningeal reactions are the predominant symptoms of typhoid, and again grave suppurative meningitis may develop. The encephalitic complications may cause bulbar, cerebellar ataxic, mesencephalitic, choreic, cortical aphasic, mental and epileptic symptoms. The prognosis of the complications, especially encephalitis, is grave. Until recently symptomatic treatment was resorted to, but satisfactory results have now been reported in the literature in cases of typhoid encephalitis from a treatment with immunotransfusion. The authors report four cases in children between the ages of 3 and 4 years. In none of the patients was immunotransfusion resorted to. Three patients died. The one who recovered has mental sequels.

Zeitschrift für Krebsforschung, Berlin

48: 169-282 (Dec. 17) 1938. Partial Index

Neoplasm of Mamma-like Structure in External Gastric Layers of Rabbit After Prolonged Treatment with Estrogen. Hannah Pierson.—p. 177.
Behavior of Lipoids of Implantation Tumors in Organism of Host. A. Lang and A. Rosenbohm.—p. 183.
*Regeneration of Skin of Mice After Preliminary Treatment with Cancerigenic Substances. Doris Dietrich.—p. 187.
Experiments with Heterotransplantation of Tumor Tissues. H. W. Schmidt.—p. 223.
Photochemistry of Antilytic Factor in Cancer. B. Bugyi.—p. 227.
Primary Tumors of Epididymis. B. Falconer.—p. 243.

Skin After Treatment with Cancerigenic Substances.—In this paper Dietrich reports studies on the part played by regeneration in the pathogenesis of experimental cancer. It was her aim to find answers to the following problems: 1. How does regeneration take place in skin that has been treated with cancerigenic substances? 2. Is it possible to produce cancer earlier in this manner than is possible merely by chemical irritation? 3. Is this production of malignancy due to a latent cancerigenic characteristic of the epithelium which becomes manifest as the result of the stimulus of regeneration, or is an action of the cancer producing substance on the general organism responsible for this special course of regeneration? The author made studies on sixty-six mice which had been treated with cancerigenic substances (tar and benzpyrene). After various periods of time, pieces of skin were removed from the site that had been painted with cancerigenic substances and from another site (posterior portion of the back). The pieces were sectioned and subjected to microscopic examination. The wounds were left open following the excision and after twelve days of regeneration another excision was made at the same sites and these pieces too were examined microscopically. It was found that, depending on the length of painting with the cancerigenic substance, the skin showed thickening of the epidermis with desquamation, formation of cones, papillomas or atypical proliferations. The pieces excised from the unpainted sites never showed changes in the epidermis; that is, they were identical with those from mice that had not been painted with cancerigenic substances. Thus the untreated pieces of skin gave no indication that the painting with cancerigenic substances had caused a general alteration in the organism. In two cases the regeneration on the untreated site showed more pronounced conical formations than is normally the case, but it would be going too far to conclude from this that painting of a site with cancerigenic substances causes general changes in the organism. The site that had been painted with cancerigenic substances showed considerable deviations of regeneration. During a certain stage of the painting with cancerigenic substances the added regeneration stimulates the as yet unchanged epithelium to an increase in layers, to greater cone formation and partly even to proliferation with atypical transformation. It may be said that by the addition of regeneration the epithelium is transformed from a precancerous into a cancerous condition. However, it appears that the proliferating epithelium or the one that has already undergone cancerous degeneration may show normal regeneration. The innate drive of the cell toward

regeneration with the aim of bridging a defect is not changed or inhibited by painting with cancerigenic substances. To be sure, the time required is usually somewhat longer than normal. In the final estimation of these studies in which the author also cites a report by Brunschwig, Tschetter and Bissel on "Wound Healing and Neoplasia," she says that her microscopic studies did throw some light on this relationship between regeneration and cancerigenic action. Her studies indicate that the tendency to proliferation is accelerated by regeneration and that the regeneration is the eliciting factor for proliferation, if an anlage to it existed previously.

Geneeskundig Tijdschr. v. Nederl.-Indië, Batavia

79: 1-64 (Jan. 3) 1939

*Clinical Investigations in Connection with Beriberi: Significance of Edema in Beriberi. F. M. Meyers.—p. 3.
Vitamin C Content of Fruits in the Dutch East Indies. J. P. Spruyt.—p. 17.
Method of Examination in Treatment of Malaria. J. Kuipers.—p. 24.
Noteworthy Case of Snake Bite Poisoning. W. M. G. Helfferich.—p. 40.

Edema in Beriberi.—A deficiency in vitamin B_1 (aneurin) appears under two distinct clinical syndromes: (1) as a simple polyneuritis and (2) as a complex syndrome with polyneuritis, edema and a disturbance in the function of the heart and blood vessels. Studies by Meyers were made to determine the significance of the edema in beriberi. In most cases of simple polyneuritis the appearance of the nervous lesions is preceded by other, usually infectious, processes. This is not the case in beriberi. Moreover, the polyneuritides do not seem to be early forms of beriberi and the transformation of polyneuritis into beriberi seems to be the exception rather than the rule. On the basis of purely anamnestic information it was not possible to discover any difference in the dietetic insufficiency of the two types of patients. Heart disease is also absent in about half of the cases of polyneuritis without edema, and heart disease is present in 92 per cent of the cases of polyneuritis with edema. Yet it is hardly possible to consider the edema in beriberi as only of cardiac origin. The vascular syndrome after an injection of epinephrine which is typical for beriberi (Aalsmeer) is absent in the majority of cases of polyneuritis, and Volhard's diuresis test has a normal course in these cases. Volhard's test may have the same result in beriberi, in which the edema is of a pronounced transient character. These transient edemas represent probably the simplest and purest picture of the edema of beriberi. They are of a hydrostatic nature and seem to be caused by a lowering of the tonus of the arteriolar walls and by an increased tension in the capillary system. The epinephrine blood pressure curve (Aalsmeer) which is typical for beriberi seems to be a manifestation of this. The question why edema exists only in some of the cases of deficiency in vitamin B_1 thus leads to the inquiry after the causes of the circulatory failure. This question has not been answered as yet, but since treatment with aneurin cures the edema as well as the nervous lesions it seems probable that the first has an intrinsic rather than an extrinsic origin.

Norsk Magasin for Lægevidenskapen, Oslo

99: 1289-1384 (Dec.) 1938

Otogenic Encephalitis. T. Leegaard.—p. 1294.
Vitamin B_1 Therapy in Delirium Tremens. J. Kloster.—p. 1301.
*Acute Terminal Ileitis. H. F. Harbitz.—p. 1305.
Spontaneous Rupture of Aorta with Dissecting Aneurysm in Boy Aged 14½. K. Harstad.—p. 1311.
Binasal Hemianopia with Tumor in Posterior Fossa. A. Torkildsen.—p. 1317.
Case of Late Rupture of Ligament of Extensor Pollicis Longus after Fracture of Radius. N. Clemetsen.—p. 1322.
Case of Abdominal Abscess with Unusual Etiology (Salmonella?). O. Hartmann.—p. 1329.
Pyloric Stenosis in Gastritis. C. Schultz.—p. 1333.
*Symptomatology of Mitral Stenosis. O. Jervell and G. Grytting.—p. 1337.
Sulfanilamide in Malaria. W. Loennecken Jr.—p. 1353.
Investigation on Acidity Relation in Chronic Peptic Ulcer Before and After Ulcer Treatment. Ruth Ramberg.—p. 1358.

Acute Terminal Ileitis.—Harbitz reports two cases of acute terminal ileitis in youths aged 15 and 19 respectively. It was characterized by subacute onset, abdominal pain for from eight to ten days and then aggravation with severe pain in the right iliac fossa. On rectal exploration there was tenderness on the right side. There was a marked red thickening of the distal end of the ileum in one case; in the other, palpation of the intestine showed a leathery thickening like that in linitis plastica, but glandular enlargement dominated the picture, in the first case with one gland the size of a walnut and another the size of a pigeon's egg, in the second case with a hard glandular tumor about the size of a hen's egg. Acute terminal ileitis, the author says, may be considered as a distinct entity. Clinically it usually appears as an acute or subacute appendicitis. Although the affected portion of the ileum can hardly be palpated, the pronounced enlargement of the glands should be noticed. The disease occurs most often in the first two decades of life. Treatment should as a rule be exploratory laparotomy and appendectomy. The appendix is usually of fairly normal appearance and a relationship to the inflammation in the ileum is doubtful. The author expects certain roentgenographic changes in the lower part of the ileum seen in his cases some months after the laparotomy in the acute stage, probably as a result of the earlier acute ileitis, to disappear gradually, but continued observation is called for. He wishes to stimulate after-examination in cases of conservatively treated acute terminal ileitis. He adds that chronic terminal ileitis occurs most often in the third and fourth decades of life, usually with the symptoms of a chronic enteritis, and may resemble an ulcerous colitis; chronic diarrhea is most often the first symptom. Infiltrations develop in the lower ileum, with ulcerations, abscesses and perforations. The affected intestinal portion gradually becomes narrowed and a true ileus may occur. In addition to palpation, x-ray examination is of decisive significance. Treatment often consists of the employment of laparotomy with drainage, with later entero-anastomoses and finally resection.

Mitral Stenosis.—Jervell and Grytting studied 169 cases of mitral stenosis (in forty-four men, 125 women) observed during the last five years. In eighty-two (twenty-nine men, fifty-three women) there was history of one or more attacks of rheumatic fever. Fifty-nine (ten men, forty-nine women) had no history of diseases to be connected causatively with the valvular defect; these cases, predominating in women, are thought possibly to depend on a disposition in women to rheumatic infections without clinical symptoms. The rheumatic fever in most cases occurred between the ages of 10 and 20. Most of the patients were between 20 and 40 years of age, forty-four were over 50 and three over 70. The duration in the fourteen patients who died, aged from 24 to 65, was from two to twenty-eight years. Eighty patients had palpitations, which in nineteen were the first symptom. Fifty-eight reported pain in the heart region, fourteen of these typical angina pectoris; in five this symptom led to the diagnosis. When asystolia sets in, dyspnea dominates the picture; 134 had dyspnea during rest or on exertion, and in 121 it was the first symptom. The authors say that mitral stenosis in the first stage may be difficult to diagnose. A presystolic or diastolic murmur is the characteristic auscultatory observation. The diastolic murmur may be loud or soft, short or long continued. A systolic murmur was established in 118 of the 169 cases, clear diastolic murmur in 115, presystolic murmur in thirty and gallop rhythm in twenty-four. In six cases there was no certain murmur and in seven only a systolic murmur. X-ray examination is of great value in the diagnosis of mitral stenosis, electrocardiographic examination being less important. There is distention of the pulmonary artery, right ventricle and left auricle, and signs of pulmonary stasis are often present. "Mitral configuration" appeared in fifty-six cases (73.9 per cent), enlargement of the heart in fifty-four cases (71.1 per cent) and both "mitral configuration" and enlargement in 52.6 per cent. Compensatory hypertrophy of the heart can be anatomically established; dilatation is believed to occur first, and the enlargement of the heart established on x-ray examination is regarded as a dilatation. There was arrhythmia in 102 patients and hypertonia in nineteen, with permanent hypertension of more than 200 in only three. Mitral stenosis is not seldom combined with other valvular defects. If early diagnosis of mitral stenosis is made and the patient's manner of living regulated early, the asystolic stage may be avoided or at all events delayed.

THE STUDENT SECTION

of the

Journal of the American Medical Association

Devoted to the Educational Interests and Welfare of Medical Students, Interns and Residents in Hospitals

SATURDAY, APRIL 22, 1939

The Legal Status of the Intern

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Read before the Thirty-Fifth Annual Congress on Medical Education and Licensure, Chicago, Feb. 14, 1939.

In the last quarter century twenty-one states and Alaska have made the hospital service a requirement for licensure. Some medical schools withhold the degree until one year at least has been served. In 1938 the Council on Medical Education and Hospitals reported for the United States 7,354 internships in 729 approved hospitals and for Canada forty-eight approved hospitals. In addition, clinical clerkships in teaching hospitals, where men have varying types of duties, furnish an opportunity for the student to become familiar with the service in advance of formal appointment. A change has been noted in the place of the intern in the educational scheme. Whereas in the past the service in the hospital was considered postgraduate training and optional with the student, longer training as a resident is now required and the intern is regarded more as an undergraduate, still pursuing his medical course, learning the art as well as the science of medicine. Longer periods of intern service are offered and consequently the assumption of more responsibility for adequate care of the hospital patient. With increased responsibility has come the necessity for wider knowledge, more maturity of judgment and better poise.

When the intern enters the hospital, he learns for the first time in his life that he is liable for his acts not only as an individual member of society but as a professional man. Besides, once the medical student comes in intimate contact with patients he is amenable to the statute governing the practice of medicine in his state. For the first time his every word and every act are scrutinized, often remembered and frequently misunderstood by a person rendered hypercritical by illness. The intern by a thoughtless remark alone can cause a malpractice suit for the physician referring the patient. Observations concerning previous diagnosis and treatment are particularly dangerous, because the patient rarely understands and never correctly describes any medical opinion or procedure.

COSTLY MISTAKES

With improvement in the technic of diagnosis and treatment and the consequent increase in mechanical manipulations, the opportunities for costly mistakes are enormously increased. A broken spinal puncture needle, the silkworm-gut suture left in the abdominal wall, the wrong solution injected into a body cavity, an infection following a trifling operation may cause the intern untold trouble with possibly the loss of reputation in the locality, the loss of money and indirectly great damage to the prestige of the hospital. Thoughtful men in all departments of medicine are disturbed at the way in which litigation is increasing, the ease with which it can be started, the complicated, costly, and to physicians the cumbersome methods of the Law. They are astounded at the ease with which the slightest slip in technic is magnified when presented to a jury of laymen, and the difficulty of getting the truth to prevail. The hospital may protect its property and its employees; the visiting staff can rely on the insurance company to assume liability. Apparently the intern, if attacked as an individual, is without protection. One insurance company in New England, with long experience in this field, offers no way in which the intern may be covered. Another company specializing in liability insurance replies: "Our Hospital Policy covers the liability of a hospital on account of the negligent acts of interns, resident physicians, and medical students. It will not, however, cover the liability of resident physicians, interns or medical students themselves." Insurance companies demand a certain competence, experience, medical society membership and the good opinion of men of the same standing. House officers cannot yet meet these standards. Besides, it appears that if a liability contract were devised the high cost would be a deterrent to many

young men still under expense of education. Until the legal status of the intern is determined by precedents or, better, by statute the hospital can scarcely afford to insure him.

The hospital has a selfish interest in protecting the intern from himself for its own salvation. One can but feel that too often the intern is given too much latitude in the conduct of ward service. No one believes today that an internship prepares any man to become a safe, conservative surgeon. And that often appears to be the aim of the student himself. Some of the dissatisfaction existing in unnecessary and harmful operative work done in private practice springs from the practice of permitting the house surgeon to do by himself operations for which he is not trained.

Many hospitals with a small resident staff require many routine administrative duties and the assumption of altogether too much responsibility in the performance of technical procedures. Hospital administrators complain that the intern is poorly prepared to do his job. But, as Dr. Lucius R. Wilson says, "The intern is suddenly transported from the environment of the medical school he knows so well and finds himself in a new hospital constructed and operated along different lines from the one he knew as a student. The hospital routines are different, its rules and regulations developed from years of experience with its particular problems are hard to understand. The staff have names with which he is unacquainted, he knows little, if anything, of their contribution to medicine; the hospital routines following different channels from those strongly entrenched in his mind."

As has been pointed out by more than one hospital executive, not only is the intern entitled to the conventional precedent book of routine matters but he should be introduced to his new duties by some one who will be a sympathetic adviser, who can interpret to the newcomer methods and customs of that hospital, in which otherwise he may grope and stumble during his whole appointment.

HOSPITALS ARE COMPLEX ORGANISMS

He should be taught that hospitals are complicated organisms, serving in a most personal manner the public made up of all types of individuals, dealing with persons sensitized by illness, with relatives and friends even more demanding and more critical. The opportunities for trouble in the hospital exist in every procedure, every minute of the day, and involve every employee and officer and every physical feature of the plant.

The intern is charged with the duty of carrying out the instructions of the attending physician except in emergency. When an emergency arises it is incumbent on the intern to exercise his own judgment until report can be made to the attending physician.

The intern may be charged with failure to obtain consent for an operation from a husband or the parent of a minor. Care must be used that state laws are observed. Permission should be reviewed by the superintendent's office. He is liable for malpractice in the case of a minor, to the majority of the patient and whatever the statute of limitations may be beyond that; in one state to the age of 23.

In obtaining permission for necropsy the intern must get the signature of the right person, preference being given to the relative who assumes control of the body, bearing in mind that a minor cannot grant permission, though he is the sole survivor. One must be certain that the person granting permission clearly understands the nature of the necropsy and that the scope is definitely established, as well as understood and followed by the pathologist. Where the coroner system prevails one must be careful in doing autopsies on the orders of that officer. Limitations of his power exist and outraged relatives may cause difficulty. Every city has regulations as to what constitutes medicolegal or "medical examiners'" cases, including abortions, prisoners, wounds and deaths from criminal violence. Failure to report such may be serious for the hospital.

The house officer is amenable to the law and held for his acts in privileged communications in the same way as physicians in private practice. He is forbidden to communicate with patients for the purpose of engaging the services of attorneys.[1] He is forbidden to report deaths to or recommend particular undertakers. He may be summoned to court with hospital records and compelled to testify to facts. Interns must respond to subpena, but hospitals may and sometimes do refuse to disclose the names of members of the house staff who have treated patients involved in lawsuits, because much time is lost in attending court. The New York law is so comprehensive that the intern had best avoid all relations with attorneys except as the superintendent of the institution directs.

An intern at a charity hospital referred accident cases which he had solicited to two attorneys. Although he denied an agreement, he fully expected to be paid. He was advised to plead guilty to the charge and was sentenced to three months in the penitentiary (297 N. Y. S. 103[2]). He is subject to the national and state income tax laws. The superintendent of the hospital returns to the tax authority each year the list of employees having a minimum income, with board and living, if furnished, computed at approximately $500 a year.[3]

1. Hayt and Hayt: Legal Aspects of Hospital Practice, New York, 1938, p. 86.
2. Cited by Hayt and Hayt.[1]
3. Hayt and Hayt: Legal Aspects of Hospital Practice, p. 15.

Many hospitals are getting a larger number of personal injury, street accident and compensation cases than ever before. Larger numbers of citizens come within the categories covered by various types of protection. The intern will treat many more of these cases in a short service than the private physician. The hospital should therefore have a clearly defined routine for his guidance, since the payment of the hospital bill and the patient's chances of financial recovery depend so much on prompt and proper reporting.

INTERNS' COUNCILS

The national Wagner act and the little Wagner acts of the states bring the place of the intern as an employee to the serious consideration of hospital authorities. Interns' councils, formed for scientific purposes for the maintenance of standards, should not be the cells for labor agitation. Demands for higher salaries have disturbed thoughtful physicians interested in fostering the spirit of true hippocratic medicine and loyalty to the ideals of the past. Criticism has been heard of breaking of contracts by interns without much consideration for the hospital.

It is unfortunate that social legislation compels the hospital to place the intern in the category of employees. "An employee is one whose duties consist in the rendition of prescribed services and not the accomplishment of specific objects, and whose services are continuous, not occasional or temporary." [4]

For compensation purposes the intern is covered by the law governing employees. Interns and nurses in a hospital maintained by municipal or other political units are also within the compensation law coverage. In a case of voluntary insurance by a charitable trust an intern is also held to be an employee.[1] An intern in the Cook County Hospital contracted epidemic meningitis and died. An award to his widow by the arbitrator was set aside by the industrial commission but it was affirmed by the circuit court and by the Supreme Court of Illinois. "A distinction is drawn between the position of a visiting or consulting physician and that of an intern, who has placed his time and service at the call of a superior. The intern is under a duty to spend his days and nights at the hospital, and to render any service, administrative or medical, exacted by the hospital through its administrative agents, within the range prescribed by propriety and custom. He is a servant or employee by every test of permanence of duty, intimacy of contact, and fulness of subjection." [5] When the Social Security Act is extended to include hospitals, the house officer will doubtless be included in its coverage.

4. Commissioner of Internal Revenue, act of 1928, quoted by Supreme Court of Massachusetts in Mallory v. White, 8 F. Supp. 989.
5. Hayt and Hayt: Legal Aspects of Hospital Practice, p. 178.

LIMITS OF RESPONSIBILITY

No general doctrine exists fixing the limits of responsibility of different types of hospitals and the different classes of persons attached to the hospitals. Court decisions vary from state to state. House officers, along with pathologists and roentgenologists as well as private physicians and special duty nurses, are classed as nonadministrative employees. The general rule is that the hospital is not liable for their negligence. Administrative employees, all those attached to the superintendent's office, for instance, form the other group. Responsibility for their conduct may rest on the hospital, a knotty problem which the courts have considered for years.

The policy of today seems based on the acceptance of the fact that the hospital is not liable for the negligence of its doctors and nurses in any matter included in the patient's "medical care and attention." In some cases in which an operation is performed the intern, as well as the nurses, has been held to be the delegate of the surgeon, to whose orders he is subject. This includes the preparation for the operation. In the alleged performance of an operation without the consent of the patient, this was the opinion of the court. The fact that the house physician acts under the orders of his superior, who is a licensed practitioner, does not relieve him of responsibility. "The surgeon who performs an operation is not responsible for the acts of his assistants and nurses unless they are his own employees." So, the house surgeon who works with him cannot look to the chief for protection.

The doctrine is widely accepted that a hospital is not responsible for the acts of its visiting staff. The hospital undertakes to provide for the patient the services of its house staff. It does not promise to perform these services itself. The charitable hospital is relieved from responsibility for the acts of its employees provided it has not been negligent in its choice of employees. On the other hand, ". . . a hospital conducted for private gain is liable in damages to patients for injuries resulting from negligence of the nurses and employees. A patient is admitted to a hospital conducted for private gain under either an express or implied obligation that he receive such reasonable care and attention for his safety as his mental and physical condition, if known, may require" (*Meridan Sanatorium* v. *Scruggs*, 83 So. 532).

Under Wisconsin law a charitable hospital is to be regarded as exempt from liability to a patient for the negligence of its chief administrative officer in selecting employees who are either incompetent or negligent and also for the negligence of such employees in administering to the needs of the patient (*Morrison* v. *Henke*, 165 Wisconsin 166, 160 N. W. 173).

Though the private hospital has been held responsible for the negligence or tortious acts of its employees, nurses, house staff, the charitable hospital, since the case of *MacDonald* v. *Massachusetts General Hospital* (120 Mass. 432) of 1876 has been, practically throughout the country, freed of this responsibility unless negligence in the employment of its servants was shown; but in *Glavin* v. *Rhode Island Hospital* (12 R. I. 411), in which the patient brought suit for the alleged malpractice of an intern, the court rejected this doctrine. "Where there is a duty, there is prima facie, at least, liability for its neglect, that when a corporation . . . is created for certain purposes which cannot be exercised without the exercise of care and skill, it becomes the duty of the corporation . . . to exercise such care and skill, and the fact that it acts gratuitously . . . will not exempt it from liability for any neglect of duty . . ." It is understood that the legislature of Rhode Island saw fit to exempt the hospital from liability. But the intern whose alleged malpractice was the basis of the suit is still open to attack.

Ever since 1846, when the theory of absolute immunity of the charitable institution resting on its "trust funds" was enunciated, down to the present time many court decisions have been handed down. Other states have accepted decisions of the New York State courts in large part. Confusion has resulted largely because there has been no movement by those most interested to clarify matters by legislative enactment.

"Instability of economic conditions, especially within the last ten years, has greatly altered and visibly changed the mental reactions of the average individual within our community. Particularly in the larger population centers the older, confidential and trusted relationship between the physician and his patient has given way to habits of medical shopping. There has been an increasing tendency to seek legal redress through malpractice claims. This has affected both the medical practitioner and the hospitals. The rise of more universal use of insurance for health, for accident liability and compensation, has also disturbed the management of hospitals to no small degree. It has stimulated greed in certain groups of individuals and has resulted in attempts to abuse both medical and hospital facilities through sharp practice. The hospital's stand must at all times be one of equity and this is often rendered difficult." [6]

Relief of illness, teaching and research comprise the functions of the hospital. Devotion to these has kept trustees, administrators and staff from adopting the methods of big business. They have not been active in legislation. When disputes arise, specific charges of negligence end in another court decision. The definition of the basic rights, duties and obligations of the patient, the hospital house staff and visiting staff are not defined by statute law. And it would appear that the majority of hospitals are exempted from liability for the acts of its interns, and the visiting staff members may not be responsible. The great danger is that the intern may be the most exposed of all those attached to the hospital.

6. Hayt and Hayt: Legal Aspects of Hospital Practice, p. x.

INTERNS AND LICENSURE

The physician is, quite properly, completely absorbed in healing the sick and, if he is fortunate, doing his bit in improving the practice of medicine. He is interested in practical methods for helping the underprivileged. He is loyal to his patients and they apparently are to him. He is rarely interested in legislation or politics. When he receives a communication from a lawyer making a claim against him the doctor stands aghast. He cannot believe that any patient can be responsible for this, to him, outrageous attack. The practice of the courts is a dread and a mystery; they hold no allure for him. On the other hand, accustomed to direct action, he feels that their methods are cumbersome, wasteful and inefficient.

No uniform policy for limited licensure or exemption of interns from provisions of the law exists in the various state enactments. Thirty-six states practically ignore the medical student and the intern. Sixteen states have statutory provision, most of them being exceptions to the application of the medical practice act. In a few states the intern and/or the medical student is affirmatively permitted to practice medicine in a hospital under the guidance of teachers. Apparently, Massachusetts alone grants "limited registration" for the definite period of his internship (section 9A ch. 112) on completion of three and one-half years of medical study in approved schools. The state also grants a limited license to (section 9A ch. 112) "assistants in medicine who are under supervision of an instructor," students who have completed at least two years in medical school. Limitations are placed on the activities of such students, and the hospital and the other institutions to which they are attached under the direction of staff members. For the period of his limited registration the intern is permitted to sign birth and death certificates.

New Hampshire permits "resident physicians" to practice in any legally incorporated hospital. This is not wholly satisfactory, since no report of appointment is required of the "resident" or the hospital. Supervision cannot be exercised by the board of registration. Physicians ineligible for registration may become, for an indefinite period, whole time members of the staff of such institutions as the state tuberculosis

sanatorium or the hospital for mental diseases without compliance with the medical act. A lenient attitude is shown interns apparently by boards of registration out of consideration for the financial position of these young men, many of whom do not intend to locate in the state. All of them are known to be under the supervision of mature staff members, who with the hospital are presumed to be responsible for the conduct of house officers.

But should the intern as an unlicensed physician be charged with malpractice he is indeed vulnerable and his defense is handicapped. The attorney for the plaintiff emphasizes the illegality of his action. In addition to the charge of professional misconduct he is charged with crime. In some instances in which the hospital has been freed from the charge of negligence the intern himself has been charged with the same offense. In those states where the internship service is demanded for licensure the decision of a Wisconsin court is pertinent:

> It cannot be said that the performance of the duties with which it was alleged the defendants were charged were duties that it would have been lawful for them to perform. The law recognizes that a hospital internship of at least twelve months is required before a license to practice medicine may be granted. Although under the law no person may practice medicine, or hold himself out as authorized to practice medicine, without first securing the required license or certificate, yet the law itself requires an internship as a part of one's medical education before one can be licensed to practice. This is a legal sanction of the performance of such duties on the part of interns as are usually and ordinarily performed by them. The performance of such duties does not constitute the practice of medicine or a representation that the intern is authorized to practice medicine.[7]

A widely quoted decision of the New York Court of Appeals (*Hendrickson* v. *Hodkin et al.*, 276 N. Y. 252, 11 N. E. [2 D] 899) sets a precedent for possible court decisions making a hospital liable for the practice of any person not licensed by the state authorities.

MALPRACTICE

Malpractice is a distasteful subject. But it is an important subject, and if the experience of the recent past is to be that of the future it will demand more consideration. Hospitals with their trustees, staff, nurses and employees as well as private practitioners are all involved. No hospital is immune to the charge and there is no person concerned with medical care of patients in the hospital who is not liable to attack. House officers have been made defendants in actions for malpractice to the point that serious consideration should be given to means for their protection. A recent case, involving assault because of lack of a state certificate, and malpractice as well, required the united efforts of counsel for the hospital and attorneys for the state medical society to free the accused.

Nearly all suits for alleged malpractice end in a verdict for the defendant, but the effects of inevitable publicity faced by the house officer, the sense of unjust persecution can but injure the morale of any young man, whose career may be terminated then and there. Practically never is lack of knowledge the basis of complaint. Those interested in this subject feel that malpractice claims are increasing. Certainly suits against hospitals are common enough. Modern social philosophy demands security for the individual without his own responsibility for himself. The facility with which insurance can be purchased for almost every contingency, the widespread knowledge that almost everybody is insured, leads to unusual demands for satisfaction by the injured. It is no longer possible for the injured to be the cause of his own accident, and the law of contributory negligence has nearly ceased to operate.

It is a fact that some hospitals are understaffed, and interns, some routine administrative work being essential, may be hurried or become careless or, because of fatigue, make the fatal slip in technic or the thoughtless remark that leads to trouble. Sufficient oversight by the staff and relief from some routine will prevent such errors. To the ward patient the intern is the patient's doctor, coming closer, by far, to the man or woman than the chief visiting surgeon. We cannot forget that.

It may be argued that the chances for malpractice suits involving the intern are rare. But the slight yet perceptible increase in this sort of litigation, and the eagerness of attorneys for business, do not increase the safety of the intern. Such cases, like many others taken on a contingent fee basis, possess a nuisance value at least. Some settlement, however small, must be made, or one must face the alternative of expensive litigation. Attention should be directed to the evolution of some scheme for protection of the intern from attack.

CONCLUSION

From this study one may conclude that the exact status of the intern has not been established. To his medical school he may be a student or an alumnus, to the hospital an officer or an employee or an independent contractor (private opinion of attorney), to the state a student or a physician either licensed or unlicensed. With the change in our concept of the internship as an essential part of the education of the physician with gradual standardization of the state requirements for the practice of medicine, with the increasing emphasis on longer hospital training, the status of the entire house staff should be definitely established.

7. Medicolegal Cases: Abstracts of Court Decisions of Medicolegal Interest 1931-1935, Chicago, American Medical Association, 1936, p. 257.

The house officer should have the protection of the law and certainly the moral protection of the hospital and organized medicine. State boards of registration should either demand registration before internship or grant exemption from the requirements of the medical practice act. Suits for malpractice having a serious effect on the future of these young men should be prevented. It is a matter of concern for us all.

The contribution of the members of the Federation of State Medical Boards might well be, where it is lacking, a legalizing of the position of the intern, for the protection of the man himself and the hospital he serves. The grant of a temporary certificate as provided in the Massachusetts law would remove much of his handicap.

Brown House.

Comments and Reviews

CONCERNING INTERNS AND INTERNSHIPS

Abridgment of an article by Reginald Fitz, Wade Professor of Medicine, Boston University School of Medicine, and published in the Journal of the Association of American Medical Colleges, March 1939.

There regularly develops in medical schools at the end of the third year, or early in the fourth year, an epidemic of worry over internships. This seems a pity, because the clinical work should not be interrupted by extraneous factors.

From two successive surveys of the Massachusetts interns and internships, it is apparent that our internships are regarded as useful and that our interns, in general, are promising young men. The better students select our better teaching hospitals in which to be trained; on the whole, the better the internship offered, the better is the scholastic record of the intern who is accepted; the weaker hospitals which offer the poorest training attract the poorest students.

Not all of the best scholars in the Boston schools care to remain in Massachusetts for their internships; in fact, some of our best students prefer to go to other parts of the country for intern training. To make up for their loss, we attract graduates from other schools. On the whole, this also is satisfactory. The men from outside schools, as a general rule, are acceptable and stimulating scholars, so that to have them wish to come to Massachusetts is a feather in our cap.

A situation has arisen, however, which is not so pleasant. Hospitals naturally wish to attract to themselves the best possible interns they can get, and to do this they appear to vie with one another in making their appointments at earlier dates than do their competitors.

For many years the Boston teaching hospitals have held examinations for interns on or about January first. A number of hospitals outside Boston were written to for information concerning the date at which their 1939 appointments will be made to include candidates who will not graduate until June. Twenty-three hospitals have replied to this letter. Each of these hospitals can safely be guaranteed to any student as offering as good an internship as is obtainable in the United States. In most instances they represent teaching hospitals in various parts of the country which are in the habit of drawing away from Massachusetts fourth year student material of the highest caliber. These hospitals make their appointments as early as November (two hospitals), early in December (five hospitals), and mostly during the Christmas holidays, a time which appears to be convenient for personal interviews between hospital and applicant to take place.

Thirty-nine hospitals in New England approved for intern training, but not strictly allied with medical schools, also replied to the letter. In this group the answers were particularly interesting. One hospital is so forehanded as to make intern appointments in July for men who will not graduate until the following June. Another makes its appointments in September, one in October, one in November, many in December, and only a comparative handful after the first of the year. One excellent hospital wrote, very honestly, "In years past we have always made our appointments on or about February 15, but from our experience of the past year we found that many of the applicants for our internships canceled their applications and some even canceled their appointments which they have received because they had accepted appointments in hospitals elsewhere. It is our feeling that we should make our appointments this year not later than January 1. We wish that there might be some way that the intern committees serving the various hospitals could come to a definite understanding as to the date of appointment for interns."

COMPETITION FOR INTERNS

Medical schools in other parts of the country wish that such ardent competition for interns as now exists could be done away with and that intern committees serving the various hospitals could come to a definite understanding as to a uniform date of appointment for interns.

Nor is the problem a new one. Thirty years ago a representative hospital, such as the Massachusetts General Hospital, held its examination for interns in the early spring. Little by little, however, as the importance of internships was universally acknowledged and as the competition for interns grew keener, the date of examination for the Massachusetts General Hospital was pushed back closer to the beginning of the fourth year in order to keep in step with what other hospitals were doing. This method of approach to the situation was not effectual. All that happened was that other hospitals pushed their examinations even further ahead.

Finally, medical students themselves began to complain of what was happening. In 1937 Victor Richards, a junior in the Stanford University School of Medicine, published an interesting paper entitled "The Internship," giving an undergraduate's point of view on the matter.

Nearly a year ago the third year classes of the Harvard Medical School and of Tufts Medical College wrote letters to the Boston Committee suggesting, in effect, that it would be highly desirable from these students' point of view if some arrangement could be established by which intern appointments could be made in various hospitals at about the same time, thus to "avoid the complications and duplications heretofore experienced."

Thus, it is apparent that medical schools, hospitals and students all dislike the present confusion and feeling of competition regarding intern appointments. Some sort of a reform is badly needed.

DESIRABILITY OF A REASONABLE TIME SCHEDULE

As to what can be done and how to do it is more difficult to say. Boston has made efforts, sporadically, to have its examinations for interns in the teaching hospitals come at the same time as do the examinations for interns in other teaching centers. This effort has never met with any wholehearted support, chiefly because each hospital is apt to desire a personal interview with prospective interns and it is practically impossible to work out a reasonable time schedule that will suit every one. The Intern Placement Bureau of the Association of American Medical Colleges is playing a helpful part in the matter, and as the bureau develops its scope it may become even more useful. Fundamentally, however, in Boston we feel that, since hospitals, students and medical schools recognize the evils of the present way of doing things, the reason that these evils have not been corrected must depend on lack of positive leadership and a lack of any well defined, broad policy.

If the schools would agree to give out no information regarding any student's abilities to any hospital before a certain date to be agreed on, part of the more ruthless competitive methods now in use for attracting interns might be done away with. And if the hospitals would live up to an agreement not to examine intern candidates or to make intern appointments before a date to be set by the American Hospital Association, the matter would be still further clarified. Finally, it might be possible for the teaching hospitals to combine examinations in some manner and to interchange candidates, thus doing away with unnecessary examinations and traveling on the part of students.

THE HIGH ROAD

Abridgment of an address by Dr. Howard T. Karsner, professor of pathology, delivered at the commencement exercises, Western Reserve University School of Medicine, June 15, 1938, and published in the Clinical Bulletin of the University Hospitals of Cleveland, September 1938.

Ordinarily a long life may be expected to have furnished equanimity and wisdom. Add to this a life in a laboratory, secluded from the bewilderments and hurly-burly of competitive efforts in the world of affairs, with time for meditation and leisure, the setting is right for an outlook of wide perspective. If that laboratory man happens to be a pathologist, his hands stretch out on one side to the so-called nonclinical divisions and on the other to the glamorous clinics. He may be not much of a scientist and nothing of a clinician, but he has an acquaintance with both and he usually thinks his field gives him privileges in the way of liberal interpretations.

What can he say to those who are ready to enter the fields of practice? Can he give advice about the details of practice and, if he could, would his recommendations have concrete value? What can he say about the specialties and the specialists? Can he dilate on the confused state of world affairs? Tempting as these questions are, this occasion gives me the opportunity to speak of broader principles in the hope that they will offer guidance to the high road to a happy life spent in service of one's fellow men.

This is said in no spirit of abstruse altruism. It refers rather to the adventures of that scientific pursuit which, by the selection of a career, students have laid out for themselves. Full of interest in its daily work with patients, exciting in its new discoveries, enlightening in its contacts with the phenomena of nature, revealing in its study of mind and matter, consoling in its successful results and tragic in its failures, this calling of ours has spiritual rewards not to be equaled in any other profession.

The distinguished members of our profession all have put something more into their work than their less noteworthy colleagues. To be sure they have an aptitude, a gift, a flair for the

task, they have had good fortune from time to time, but they have applied themselves incessantly to attain success and, above all, they have believed in and loved the job they chose. Claude Bernard once said "We stand upon the intellectual shoulders of those medical giants of bygone days and, because of the help they afford us, we are able to see a little more clearly than they were able to do."

There are features of our profession which deserve particular thought. First, some comment about the case as a patient. You have devoted the major part of four years to becoming competent to determine the disease from which the patient is suffering and the means of managing it intelligently. This training will always be a considerable part of your psyche and this foundation must ever be refreshed, extended and deepened. Go to meetings, read the journals, discuss with your associates, attend graduate courses but, after all, the continuation of your own initiative and progress depends on an inquiring and critical intelligence which never falters. Thus you can improve your knowledge of organic disease, without which you lose dignity as a physician and become little more than a pedler of pills. If your attention is confined to diagnosis and treatment you may know much about disease but little about the patient. This has often been spoken of as a difference between the science and the art of medicine. It is no art to be well aware of the social and psychologic implications of illness, nor is it an art to be so devoted to the welfare of your patient that with sympathy and consideration you will aid him in his necessary adjustments. It is not an art to be human and humane. These are inherent qualities of that spirit which has called you into the field of medicine. No courses in medical schools are necessary for kindly, generous and thoughtful consideration of those frailties of human nature which often alter personality when illness strikes. There are, however, dangers in sympathy. The physician must guard against allowing his feelings to overcome his judgment. Thus, in order to carry on successfully, a balance must be attained between sympathy and calm appraisal of the situation. If the doctor can assure himself that his diagnosis is correct and his treatment appropriate, he can await the outcome with poise and equanimity which are essential to him and to the welfare of his patient.

SO-CALLED IMAGINARY ILLNESSES

In your courses of instruction you have dealt largely with disease as expressed by organic disturbances. You have given consideration also to the personal aspects of disease but you probably have paid little attention to what are often thoughtlessly called imaginary illnesses. If this is true I desire to remind you that in the practice of medicine you will be repeatedly confronted by patients with this sort of disturbance. You may easily become impatient with patients' complaints for which, even after the most careful examination, you can find no organic basis. You may be tempted often to dismiss the matter and the patient with the comment that there is nothing wrong or you may resort to some more or less shady method to shock him out of his beliefs. This may be effective, but only temporarily. Psychoneurosis is a real disease, even though you may not find an organic basis. The headache from which the psychoneurotic suffers is headache, his pain is genuine, his vomiting is not imaginary. His incapacity is an economic problem and his suffering cannot be alleviated by telling him there is nothing wrong. The child who was blind because a firecracker exploded near him was unable to see even if his eyes were normal. The boy who could not swallow was really emaciated even though his esophagus was perfect. The woman bedridden for years was an invalid in spite of the fact that her spine was unaffected. This disease does not spare man, woman or child, rich or poor; even if its basis is emotional, that in itself is fact. It is your duty to find the reason for this disturbance and to teach or reeducate your patient to adapt himself to his environment, to adjust himself to his limitations, to make himself at peace with the world. The meaning of the word doctor is teacher and it can have no better exemplification than in the management of the psychoneurotic. If the general practitioner cannot care for the patient he must not turn him away but refer him to one who by temperament and training can. This course is more than the treatment of the current attack. When properly carried out it gives the patient a new outlook, it trains him to be dependent on himself and thus prevents recurrence or new manifestations. This whole problem presses on all branches of medicine. You cannot avoid its consideration by saying that you will ultimately specialize, for all those who practice in whatever specialty must deal with the problem.

RATIONAL PSYCHOTHERAPY

This aspect of practice is more important than your individual success. Its neglect by physicians has had as much to do with exploitation by the cultists as any other factor in society. The responsibility for the upbuilding of the cults rests largely on the shoulders of your predecessors who have neglected the psychoneurotic, and the cults will continue to grow if you fail in your duty to your patients and your profession. If we in medicine were to recognize the merits of rational psychotherapy and utilize it, we would not be subject to the humiliation of having our friends and patients cured by a

twist of the foot or a travestied verse from the Bible, nor need we resort to these tricks. We cannot comfort ourselves that this quackery appeals only to the unintelligent, for we know well educated, fine people who voluntarily subject themselves to it. The reason behind this is often that the doctor has failed in his job. He has neglected psychoneuroses and has left the patient to his own resources. The patient, unfamiliar with the nature of or reason for his illness, then turns to some one who will help him. It is no reflection on his education or intelligence that he does not know what ails him. His doctor has failed him and he still needs help. The personality and salesmanship of the quack are ready substitutes for appropriate medical care. What we need is to fulfil our function as teachers. We have our faults, we shall make errors, we shall find that new discoveries make our older methods obsolete, we shall learn that truth is only relative. In spite of failures we can point with pride to our progress. With continued study, widening experience, careful observation and sound logic our successes become proportionately greater. Let us be true to our calling and earn the tranquillity that loyalty engenders. Go forth on the road and follow it to the heights. I wish you all success and happiness.

PHYSICAL FITNESS AT UNIVERSITIES

Abridgment of a discussion published in Nature, May 14, 1938. It refers especially to universities in England.

Those Englishmen who are acquainted with the universities of Canada and the United States have long had cause for astonishment at the way in which the universities of Great Britain have lagged behind those of America in their care for the health and fitness of their students. In those countries at any rate it cannot be suggested that the desire to produce a healthy population is a sign of latent militarism or of any peculiar brand of politics. To an American or Canadian student—or professor—visiting Great Britain it seems incredible that in most universities there is no medical examination whatever, either at entry or later on, no organized system (voluntary or compulsory) of physical exercise, little provision (except in a few privileged places) for healthy recreation "in the spare half-hour," no arrangement to provide medical or surgical advice or treatment when required.

The causes of this neglect are various and to some degree, at least, a matter for speculation: the medieval view, based on a false antithesis of mind and body, that the universities exist solely for the training of the intellect; a superstitious horror of anything which might savor of organization, discipline or compulsion in personal affairs; a belief in the magic of laissez-faire; the dominant position in public life of Oxford and Cambridge, where the colleges exert a parental influence, where most of the students are not so poor, and where games and recreations are much easier to get; indifference; a fear that students themselves might not cooperate. The last cause at least is removed by the publication of a pamphlet[1] on behalf of the students themselves. It is peculiarly timely because, unknown to its writers, a new movement was already under way and that movement will be given greater confidence and strength by the knowledge that the National Union of Students is openly and emphatically sympathetic. The committee of the union which discussed the matter "was struck with the fantastic lack of attention there had been in this country to scientific methods of physical education. . . . It became more and more impressed with the importance of preventive as well as curative methods." The systems in other countries, it found, "indicate a very general acceptance by the universities of a great measure of responsibility for the physical as well as the intellectual well-being of their students, a responsibility which is still to a large extent shirked by the universities of Great Britain."

FACILITIES FOR RECREATION

In the autumn of 1937 the National Fitness Councils for England and Wales and for Scotland invited the University Grants Committee to advise on the distribution of a capital sum of £230,000 to aid the universities of Great Britain in providing urgently needed facilities for healthy recreation and for physical exercise. The sum itself is small—only about one tenth of the annual Treasury grant, for all purposes, to the universities—and it can do no more (it was not intended to do more) than catalyze the interest of the universities themselves and perhaps of their potential benefactors. That, however, it is beginning to do, and although the £230,000 itself cannot be spent otherwise than on facilities for healthy recreation—on gymnasiums, swimming baths, squash courts and the like—it has set the universities thinking and planning, and ultimately very much more may result. In most of them, indeed if not all, voluntary medical examinations are to be instituted, lectures will doubtless be given on matters relating to health, the status of members of the staff dealing with physical training is to be raised, the cooperation of scientific and medical departments is to be sought, committees are to be formed to consider the place of student health as a proper function of a university and probably, under the guidance of the Medical

1. Student Health: Report of an Enquiry into University Health Services by the National Union of Students, London, National Union of Students, 1938.

Research Council in certain special centers, a scientific examination of the problem is to be instituted. An attempt is to be made in fact to give to the subject of bodily and mental health and fitness its proper university status. Those, however, who take a longer view will realize that it is not merely "student health" as such which is to be aimed at but, through the universities, the intelligent and conscious application of a new biologic outlook on human beings, an outlook intended ultimately to affect the entire community.

To recognize disease, minor ailments, chronic undernutrition, mental trouble or anything lowering the level of happiness, fitness and usefulness in university students, and to provide means of improvement, are important enough. Even more important, however, in the long run is to send out steadily into the community a stream of intelligent and keen young people who have learned, even in a minor way, what a health service can do for them and their friends. and how necessary it is to the happiness and well-being of the people.

ACHIEVEMENTS OF STUDENT COUNCIL

The Student Council at Wayne University College of Medicine, Detroit, has matured as a competent student self-government body, said the dean, Dr. Raymond B. Allen, in his recent annual report. Among its noteworthy achievements have been the establishment and successful administration of an honor system for the conduct of examinations in the college, the publication of the student-alumni journal, which is entering its second successful year, the publication of a student handbook, the creation of an interfraternity council, the establishment of a local chapter of the National Association of Medical Students and the institution of student-faculty-alumni banquets, which have served as an active socializing influence for all three groups and have helped to develop an *esprit de corps* and pride in the school without which the work of the faculty would be without real value.

Another significant contribution of the Student Council has been its analysis of student questionnaires which solicited constructive criticism on the medical curriculum. This study clearly indicates that the students recognize the importance and value of sound fundamental training in the medical sciences. Suggestions have been forthcoming which have helped to improve the effectiveness of the teaching program. The faculty recognizes that students are not competent to pass on the content of the medical curriculum, but it appreciates that students are in a position to know whether or not the faculty efforts are effective in attaining educational objectives.

One aspect of the Student Council's study relates to the economic status of the students. Inquiry was made into the outside activities of students which of necessity detract from their ability to apply themselves to medical studies. The council was not surprised to find that a large proportion of the students support themselves entirely or in part through gainful employment. Some students hold eight hour night positions in industry. The majority of these, however, are engaged in some form of medical service, usually in the nature of first aid posts in industrial plants. Fortunately, such duties are not arduous and serve in some ways to promote rather than hinder their medical education. However, it is perfectly clear, Dean Allen said, that a large fraction of students do not receive sufficient financial support to be in a position to gain the greatest possible benefit from their studies. This study, therefore, indicates that means must be found for furthering the security of deserving, needy students. The board of education and the alumni association of the college of medicine have, through loan funds, rendered great help in the neediest of cases. Many students, however, are reluctant to go into debt for their medical education and do so only in the greatest extremity, usually to meet tuition fees. The solution is obvious: scholarships should be available for students who have proved their right to such subsidy. Some aid is rendered through the National Youth Administration and through student assistantships. These devices, however, are not to be encouraged for the reason that the student is required to give time which he would otherwise be devoting to his studies.

Interest in Civic Affairs

It is just as important that physicians be made social conscious as it is that the public be made health conscious. This can be brought about effectively by emphasis on the community aspects of medicine both in the medical school and after graduation. Such a study and social interest on the part of the medical profession will insure its rightful heritage of preserving the health of the public and supervision of all forces engaged, for four reasons: First, it will stimulate the young physician to take an active interest in civic affairs, and to seek and accept public positions for which his training makes him especially adapted. He will thus become more familiar with the social and medical status of his community, and sympathetic with and interpret the needs of the man of the street. Secondly, it will give the physician a better understanding of the factors which may have lowered the patient's resistance and apply appropriate measures to remove them. It is generally recognized that a patient's mental attitude often has a great influence on the course of a disease. Social and economic conditions directly affect the mental status of the patient and are often, therefore, of prime importance in dealing with his disease.—Wahl, H. R.: Community Aspects of Medicine, *J. A. Am. M. Coll.* **13**:14 (Jan.) 1938.

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items to be considered for publication in the Student Section.

Student Book Exchange at Michigan

The Board of Regents of the University of Michigan, Ann Arbor, at a meeting in December, gave permission for the establishment of a Student Book Exchange at the university on condition that only used books would be handled. A committee was formed comprising the dean of students, the dean of women, and representatives of the Michigan Union and the Michigan League to direct the venture. The exchange operated for the first time February 3-17 and sold books to about 2,000 students. About 1,700 students left books to be sold, setting the price that they wished to receive, with the understanding that the exchange would retain 10 per cent of the sale price to cover expenses. The next sale of used books will be in September, for which books will be received in the exchange as early as June.

New Division of Bronchoscopy

A division of bronchoscopy and esophagoscopy is being organized at Louisiana State University Medical Center, New Orleans, in anticipation of the opening of the new Charity Hospital, which will contain a fully equipped unit provided with biplane fluoroscope and similar equipment. Dr. George J. Taquino will be in charge of the division in the medical school, the staff to consist of members of the department of surgery and the division of otorhinolaryngology. Dr. Chevalier Jackson, Philadelphia, has been visiting professor of bronchoscopy and esophagoscopy at the medical center since it was opened in 1931.

Banquet for Premedical Students

The fifth annual banquet for premedical students throughout Texas was held recently under the sponsorship of the Texas Alpha chapter of Alpha Epsilon Delta. Dr. John W. Spies, dean, University of Texas School of Medicine, Galveston, was toastmaster; the speakers were Drs. Holman Taylor, Fort Worth, secretary of the Texas State Medical Association, and Dr. William R. Houston, Austin. Seven colleges were represented by 364 premedical students.

Dr. Lapham Appointed Dean at Tulane

The president of Tulane University has announced the appointment of Dr. Maxwell E. Lapham as dean-elect of the school of medicine of the university to succeed Dr. Charles C. Bass in 1940. In that year Dr. Bass will reach the retiring age.

Dr. Lapham, now 39, was born in New York and graduated from the University of Pennsylvania School of Medicine in 1925, following which he served two years as an intern at the Presbyterian Hospital, Philadelphia, and then was house surgeon at the International Grenfell Hospital in Labrador. He was a resident in the University Hospital, Philadelphia, for two years and then engaged in the private practice of medicine for three years. In 1933 Dr. Lapham took up graduate medical extension teaching, giving courses of instruction to practicing physicians throughout the state of Virginia under the auspices of the University of Virginia and in cooperation with the Virginia State Medical Society and the Medical College of Virginia. Later for two years he gave extension courses in obstetrics to practitioners in Mississippi in cooperation with the Mississippi State Health Department, the Mississippi State Medical Society and Tulane University.

In 1937 Dr. Lapham was appointed director of the extension division of the department of graduate medical studies at Tulane. He will continue in this capacity for several months, as well as in his work as assistant professor of obstetrics and in the fall he will undertake a tour of the medical schools in this country and in some foreign countries.

Examinations for Internships in Naval Hospitals

An examination is held in November each year for senior medical students of class A medical schools who desire to obtain an internship in one of the United States naval hospitals. Senior medical students who qualify for appointment to an internship will be appointed acting assistant surgeons with rank of Lieutenant (junior grade) for temporary service during the intern year. On satisfactory completion of the internship, the intern will be allowed to appear for competitive examination for appointment as assistant surgeon with the rank of Lieutenant (junior grade) in the medical corps of the navy. Should the intern desire to return to the practice of medicine in civil life, his appointment as an acting assistant surgeon will be terminated and he will be honorably discharged from the naval service. To be commissioned in the medical corps of the navy the candidate must be a citizen of the United States between 21 and 32 years of age and he must pass both professional and physical examinations. On accepting an appointment as acting assistant surgeon for internship, the officer will receive a compensation of $2,699 a year if he has no dependents, and $3,158 a year if he has dependents. Successful candidates for appointment as interns will be appointed in July and will be assigned for internship to a naval hospital either in Boston, New York, Philadelphia, Washington, D. C., Norfolk, Va., San Diego, Calif., or Mare Island, Calif. The period of internship is one year, is rotating and consists of about five months medical, five months surgical and two months laboratory duties. For additional information address the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Harvard Extends Its Public Service

Extension of the public service of the Harvard Medical School in Boston through the newly formed department of legal medicine was announced January 5 by the dean in his annual report. Dr. Alan R. Moritz, after another year in Europe, will return to build up the department of legal medicine and to put at the disposal of the state the contributions that such a department can make to problems of law enforcement and of public health which come within its scope. Dr. Moritz came to Harvard from the University Hospitals, Cleveland, in 1937, to be the first holder of the professorship of legal medicine established under the terms of a gift designated as the George Burgess Magrath Endowment for Legal Medicine. He succeeds the late Dr. George Burgess Magrath, who taught legal medicine at Harvard from 1907 to 1937.

Dean C. Sidney Burwell said that the medical school has a direct and useful contribution to make to the community and that in turn it is dependent on many

community organizations for essential parts of its teaching opportunities.

The Harvard Medical School is associated with fourteen local hospitals through clinical teaching or investigation. A close coordination exists between the state department of public health, the department of public health of the city of Boston, similar departments in other cities, and appropriate departments of the medical school and school of public health. Thus the medical school is happily able to make some return to the community which supports it not only in training practitioners of medicine and investigators, Dean Burwell said, but in contributing to the care of the community's sick and to other aspects of community life where expert medical knowledge is useful.

The Wassermann Laboratory of the Massachusetts Public Health Department, established in 1909 by the Medical School, is still housed in Harvard buildings. The laboratory affords facilities for testing the blood and spinal fluid of patients in the state hospitals for mental disease. In 1917 the Massachusetts State Tumor Diagnosis Service was established as a joint activity of the Massachusetts Department of Health and the Collis P. Huntington Memorial Hospital of Harvard. This service supplies pathologic diagnostic service for physicians in the state and for hospitals without service of their own. Harvard Medical School also organized and established the Vaccine and Serum Laboratory at Forest Hills. For several years the Faculty of Medicine has arranged a series of public Sunday afternoon lectures on medical subjects at which last year the total attendance was more than 3,000.

Medical College of Virginia

The historic Egyptian Building at the Medical College of Virginia is being made fireproof; the remodeling will also provide an auditorium seating 400, done in the Egyptian manner. In the future the Egyptian Building will house the departments of pathology and bacteriology.——An eighteen story hospital to replace the Memorial and Dooley hospitals is under construction and should be ready for occupancy in the spring of 1940.——An additional floor which is being added to McGuire Hall will furnish medical facilities for the departments of physiology and pharmacology.——The new dormitory completed last July has been named Hunton Hall in honor of the late Eppa Hunton Jr., a member of the Board of Visitors for many years. These and other construction projects at the Medical College of Virginia will involve an expenditure of more than $2,000,000.

Yale Alumni Day

Special lectures, clinics, ward rounds, laboratory demonstrations and conferences were presented at Yale University School of Medicine, New Haven, Conn., February 22, in celebration of Alumni University Day. Guests were also invited to visit the laboratories and see the facilities of all departments of the school, including the Clinic of Child Development and Laboratories of Primate Biology. There were demonstrations of the ultracentrifuge, of the laminograph, of the bioelectrical potentials in living systems, of the apparatus for studying electrophysiology of the brain, of the heart sounds by loud speaker and of monkeys and chimpanzees with spinal and cerebral lesions. The day closed with an assembly in the auditorium of Sterling Hall of Medicine, which was addressed by Drs. Francis G. Blake on "Sulfapyridine in Pneumococcal Infections," Milton C. Winternitz on "The Pathology of Arteriosclerosis," Hugh M. Wilson on "Body Section Roentgenography," and by the dean, Stanhope Bayne-Jones, on "Plans for the Future of the School."

Ohio State Board Questions

Following are the questions used by the State Medical Board of Ohio in practice, Dec. 7, 8 and 9, 1938, at Columbus:

1. A patient returning from a late summer motor trip, complains of headache, diarrhea and slight fever of ten days' duration—what would you suspect and what other signs would you look for? How establish a diagnosis?
2. Give three possible terminations of arterial hypertension and upon what sign would you base the most probable in a given case?
3. Discuss undulant fever: the etiology, usual source in this country, symptoms and treatment.
4. Give the symptoms of suspected coronary occlusion and how to establish the diagnosis?
5. Give the symptoms of Addison's disease with treatment.
6. Give the usual etiology of enuresis and treatment.
7. How would you recognize pyloric stenosis in a recently born infant?
8. How would you manage a case of acute diarrhea in a 2 year old child?
9. Enumerate the most common symptoms of schizophrenia. Give the clinical course of a typical case.
10. Name the most frequent organic psychoses and state the most common mental symptoms characteristic of the entire group.

Convention of the Association of Medical Students

The third annual convention of the Association of Medical Students held in Philadelphia beginning Dec. 22, 1938, was attended by 303 delegates, of whom 279 were medical students and twenty-four were visitors, including one representative of the American Youth Congress; the women medical student delegates numbered thirty-eight. The delegates came from twenty-four states and the District of Columbia; India, Korea and Canada were also represented, while six premedical colleges sent representatives to learn about the Association of Medical Students. Twenty-three resolutions were passed at the business session. The program of this convention was published in the December Student Section in THE JOURNAL. Student Trawick H. Stubbs of Emory University Medical School, Atlanta, Ga., and Student David E. Hepford, Temple University Medical School, Philadelphia, were elected co-presidents of the association for this year.

Senior Students Tour Pharmaceutical Laboratories

The present seniors of Indiana University School of Medicine made a tour of inspection of the Eli Lilly & Co. pharmaceutical laboratories at Indianapolis recently and were guests at a luncheon at the laboratories and a dinner at the Hotel Severin. Dr. Clayton G. Weigand was the principal speaker; Dr. Willis D. Gatch, dean of the medical school, represented the students on the program. An annual tour of inspection of these laboratories has been made by each senior class for nearly twenty-five years.

Dinner to New Dean

Dr. William S. McEllroy, who was recently appointed dean of the University of Pittsburgh School of Medicine, was honored with a dinner at the Hotel Schenley March 1 by alumni of the school and friends. Dr. Charles H. Henninger, Pittsburgh, president-elect of the Medical Society of the State of Pennsylvania, was master of ceremonies, and addresses were made by Chancellor John G. Bowman, Dr. Alexander H. Colwell and Dr. McEllroy.

Annual Lecture at University of Colorado

The first annual Nu Sigma Nu lecture before the faculty and students of the University of Colorado School of Medicine, Denver, was delivered April 7 by Dr. Walter L. Palmer, associate professor of medicine at the School of Medicine of the Division of Biological Sciences, University of Chicago, whose subject was "Recent Advances in the Study of Gastric Disease."

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, NO. 17 — COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS — APRIL 29, 1939

COLLEGE EDUCATION FOR THE FUTURE DOCTOR

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You will all remember the old definition of an expert as an ordinary man away from home giving advice. Although I am a fair distance from my academic base, I should like to think that I could qualify on other grounds as an expert on the subject that I am venturing to discuss this morning. What I have to say concerns premedical training and in a previous incarnation I spent a great deal of time with premedical students. I taught organic chemistry for some dozen or more years in the winter and in the summer to both men and women. I have written innumerable letters to many of the deans present in this audience, recommending in no uncertain terms people whom, I regret to state, I knew all too little about. Furthermore, I have taken part in innumerable discussions with other chemists from many colleges about educational matters and almost without fail the conversations turned to a discussion of some of the iniquities of the medical school admission committees. More recently I have had the opportunity of discussing educational matters with deans and college administrators and again the problem of the relation of medical schools to liberal arts colleges has repeatedly arisen.

According to statistics published a few years ago somewhat more than 50 per cent of the students entering the medical schools of the country complete a four year college course. Another 27 per cent finish three years of collegiate work. It is with these students who comprise about three quarters of the matriculants in our medical schools that I am concerned this morning. What sort of an education should these future doctors receive in college? It seems to me that we cannot answer this question in general terms. There probably are as many answers as there are students. But before we come to the difficult matter of prescribing for the future let us examine the present situation. Let us see how the premedical requirements of the various medical schools affect the present college education of the future doctor.

It is important to bear in mind that today there probably are two applicants for every position in a first year medical class. For certain of the schools, the ratio may run as high as ten to one. Certain effects of this competition I think have not been generally appreciated, though they are clearly evident to those teachers and administrators in our colleges who are concerned with premedical education. I have received testimony from many different colleges that the desire to present a convincing record of scientific work to impress the admission committee is a potent factor in determining a student's program. It is not a question of doing well in the minimum prescribed courses in chemistry, physics and biology. It is not a question of taking more science either as an educational discipline or because the student likes the work. It is merely a question of taking scientific courses solely to impress the medical school authorities.

I realize that officially almost every medical school is at pains to deny that any preference is given to candidates who have studied more than the minimum premedical subjects. I know that many deans, professors and members of the medical profession protest that what they all desire is a man with a liberal education—not a man who has been through four years loaded with premedical sciences. The trouble is very few people believe this group of distinguished witnesses —least of all the students. And since each case of acceptance or rejection of a candidate for admission to a medical school cannot be argued in open court and the decision of the committee duly publicized, misunderstandings and, indeed, fantastic rumors are bound to arise.

Now those who complain about the present situation (and their name is legion) are not necessarily opposed to a scientific course in a liberal arts college as a preparation for medicine. What they are opposed to is, first, what they believe to be the inconsistency between the theory and practice of the admission offices of the medical schools; second, the pressure on all students who want "to play safe" to take more than the minimum premedical requirements whether they are interested in science or not; and, third, the apparent failure of the medical schools to clarify their own desires with regard to even the minimum premedical requirements.

That there is some confusion in the medical faculties themselves in this matter of premedical requirements, I am sure this audience will agree. Part of the difficulty arises from the fact that the total professional training of a medical man must depend to some extent on his plans for the future. If he is to become a research worker in medical science he should study the fundamental sciences in considerable detail in college. If he is to be a general practitioner the minimum scientific premedical requirements may well suffice. Since this total professional training includes the college years, it is impossible to draw up blanket specifications for the college education of the future doctor without answering the question "What sort of a doctor is the man to be?"

Read before the Thirty-Fifth Annual Congress on Medical Education and Licensure, Chicago, Feb. 13, 1939.

A rather amusing illustration of the present confusion of opinion in the medical profession concerning premedical studies was brought out by replies to a recent questionnaire sent to a small group by the dean of one of our large medical schools. Members of the faculty and eminent practitioners living nearby sent in long letters. I have taken the liberty of combining extracts from these documents in what I must admit is a highly arbitrary manner. I assure you that the general effect which the following synthesized statement leaves in the reader's mind is not a bit more confusing than the effect of reading all the letters in toto. Here is the composite opinion as to premedical requirements:

Good fundamental education in physics, biology, chemistry, zoology and comparative anatomy, he should have a reading knowledge of French and German . . . in addition to being well grounded in inorganic chemistry it would be desirable for the student to be well prepared in the elements of quantitative chemical procedures and in the laws governing the behavior of electrolytes in solution . . . The student's curriculum should include thorough courses in general zoology or general biology, comparative vertebrate anatomy and vertebrate embryology. The growing importance to the general physician of a knowledge of genetics makes a course in this subject very desirable . . . But it is to be hoped that the student would spend most of his time at college working in history, English and literature for the last chance most medical students have at any type of cultural courses is gone with the granting of the A.B. degree . . . [In summary] we would say that a student should bring with him to the medical school a fair degree of native intelligence, a fine character, an integrated personality and a training which has taught him the rudiments of the scientific manner of thinking . . . A modicum of factual knowledge in the special fields of chemistry and biology is also important.

The present situation is to say the least somewhat obscure. The difficulties of laying down one set of rules to cover the college education of all future doctors —even the scientific education—seems to be insurmountable. We are confronted with the fact that today the liberal arts colleges are expressing more and more dissatisfaction with the premedical requirements and the procedure of medical school admission committees. This dissatisfaction comes from presidents, deans and teachers of the humanities as well as from those directly concerned with teaching premedical subjects. What is to be done about it? I have heard only one concrete suggestion for a radical change that seems to me to offer hope. I venture to pass it on with enthusiasm, but without too much expectation that it will be accepted. The suggestion is as follows: Encourage college freshmen who are looking forward to a medical career to apply for admission to a medical school three years in advance. Let the admission committee base its rejection or conditional acceptance of such applications on the school record, on the first year college record, and on performance in such tests as the scholastic aptitude test. After the undergraduate in question has been tentatively enrolled as a future medical school student, let there be cooperation between the medical school and the college in working out through a joint committee an intelligent college program for the remaining three years. For those with a real scientific bent, concentration in chemistry or biology or a combination of the two may be in order. For others the main line of endeavor may be history or philosophy or literature with only the minimum amount of science. The program would be made to suit the student. The representatives of the medical faculty would have in mind the needs of the profession, and the representative of the college faculty would supply intimate knowledge of the student and the offerings of the institution in question. The joint committee should insist on every student's broadening out as much as possible during his college years. The fact that the medical school faculty was concerned with the college work of the premedical student would, I believe, lend an authoritative tone to any regulations which emphasized the importance of nonscientific studies. There are some undergraduates who follow more readily the guide of a professional faculty than the advice of college professors. In short, intelligent guidance would be possible. At present the competitive system and the mystery surrounding the science requirements put both the college teacher and the college student in a position where in many cases intelligent guidance is no more possible than in betting on a horse race. A further obvious advantage of the proposed scheme is that some 6,000 to 10,000 students who now prepare for medical school and fail each year to gain admittance would not be led down an educational path which comes to a dead end. Of course, even if this radical reform were widely adopted it would be necessary to reserve a certain number of places in each first year medical class for promising students who decided late in their college career to study medicine.

There are many objections to the proposal which I am sure are springing up in your minds. Most serious, at first sight, would be the difficulty of deciding at so early an age as to the promise or lack of promise of the boy in question. This difficulty is, I believe, not as great as might be assumed. The evidence available indicates that there is an excellent correlation between the criteria I have suggested and those usually employed (i. e. the total college record). If this is so, the mistakes would be no greater perhaps than now. The difficulties of judging as to the prospective student's character and personality are great, I admit. But, on balance, the advantages of such a scheme might outweigh the disadvantages.

Let me consider the question of the purely scholastic capacity of the student. At present this is estimated from the college record and from the letters that professors write about his actual ability in courses. The evidence which I have been able to gather indicates that there is a very close correlation, at least in Harvard College, between the work of the freshman year and the subsequent college record of the man. Furthermore, there is a fairly good correlation between many of the criteria which we use for admission such as school record and examination and the total college record. This being true, it is clear that there would be only a slight error introduced if the work of the freshman year and the school record were used as a basis for admission to the medical school instead of the present four years' work in college. To illustrate, may I give you a bit of evidence (I cannot claim it is conclusive) which I had gathered by the Assistant Dean of Harvard College. He examined the records of a group of men in Harvard College who went on to the Harvard Medical School and found the correlation coefficient between the freshman year's work and the whole college record to be 0.73 (significantly high). Or, to put the matter in more concrete form, let us suppose that the Harvard Medical School had selected from among the Harvard College candidates solely on the basis of their academic record. Of the first fifty-six men whom they would

take on the basis of their entire college record, forty-two would have been taken on the basis of the freshmen year alone. And, of the fourteen who would have been selected as freshmen but on the basis of their four year records would not have "made the grade," eight were borderline cases; and only six did very poor work during the remainder of their college career. There would have been six bad selections, but there is no reason at all why in such a scheme as I am suggesting acceptance might not be conditional on the student continuing to have a respectable record in the remaining three years of his college course. I think this evidence is enough to show that there is no very serious obstacle to the scheme from the point of view of estimating the student's intellectual capacity.

Now I, for one, am not ready to advocate this radical departure on a large scale. But I should like to urge that a conference of deans of half a dozen medical schools and a couple of dozen liberal arts colleges might explore the possibilities in this direction. What the proposal amounts to is a recognition that the four years in college and the four years in medical school be considered as a total educational unit and that the individual student be guided through these eight years by advice from both the college and the medical school authorities working together.

If such a conference of college and medical school authorities could be convened for a discussion of this problem, there are one or two other less radical suggestions I should like to urge for consideration. First, I should like a subcommittee of biochemists from the medical faculty and chemists from the college to try to formulate some more concrete outline of the minimum requirements. Similarly, the anatomists and the physiologists on the one hand and the biologists on the other might come together. I am not afraid of too narrow a premedical course nor am I afraid that the medical schools would dictate to the colleges. I believe cooperation is much to be preferred to the present highly unsatisfactory exchange of mutual recriminations.

Finally, I should like to urge upon the medical school faculties a serious consideration of ways and means of insuring that the future doctor may not only really receive the rudiments of a liberal education in college but be inspired to continue his liberal education throughout his professional course. To make any such proposal effective is difficult in the extreme. It can be done only if the medical school professors are willing to pay more than lip service to the ideals of a liberal education. Even four years in college devoted entirely to languages, literature, history, philosophy and the social sciences is too short a time to provide a truly liberal education. It is essential, it seems to me, to develop a sympathetic point of view in the medical schools toward a continuation of a student's education in something besides medicine. If the colleges will cooperate with the medical schools in guiding the student through the four years before he enters the medical school, will the medical schools in turn try to pay some attention to keeping alive the liberal arts tradition in the student's mind while he is studying medicine? Perhaps the history of medicine would provide in some instances the central core around which a continuation of liberal studies could be continued in a medical school. For others a discussion of the problems of socialization of medicine might furnish a basis for interest in something outside of medical work. Above all, if doctors could be made to acquire the habit of reading something other than scientific or professional literature on the one hand, or trash on the other, much of the complaint about the narrowly trained specialist would disappear. For the capable student who can work quickly there is time enough I feel sure. But the motivating force toward a liberal education is totally lacking in most of our professional schools today.

In short, I am advocating this morning a consideration by medical school and college authorities, acting together, of the scientific, professional and liberal education of the future doctor. I am suggesting that we try discarding the old concept of four years of scientific and liberal education followed by four years of professional training. In place of this we might regard the whole eight years as a unit with the aim of providing a balanced intellectual diet suited to each student's talents and interests in the hope that we might thus reach our goal of turning out both a well trained doctor and an educated man.

THE ORGANIZATION AND SUBJECT MATTER OF GENERAL EDUCATION

ROBERT M. HUTCHINS, LL.D.
President, University of Chicago
CHICAGO

Since you have two other college presidents on the program to tell you about college education it is obvious that you do not expect from any one of them the answer to your questions about it. You believe, like the rest of the world, that all presidents are liars, and you hope from a study of the differing lies of the three of us to discover the truth for yourselves. Speaking for myself, I find Mr. Conant's lies very persuasive, so much so that I shall drop out of this paper as I go along any lies of my own that are in conflict with his.

I assume that we are all agreed on the purpose of general education and that we want to confine our discussion to its organization and subject matter. I believe that general education should be given as soon as possible, that is, as soon as the student has the tools and the maturity it requires. I think that the program I favor can be experienced with profit by juniors in high school. I therefore propose beginning general education at about the beginning of the junior year in high school. Since I abhor the credit system and wish to mark intellectual progress by examinations taken when the student is ready to take them, I shall have no difficulty in admitting younger students to the program if they are ready for it and excluding juniors if they are not.

The course of study that I shall propose is rigorous and prolonged. I think, however, that the ordinary student can complete it in four years. By the ingenious device I have already suggested I shall be able to graduate some students earlier and some later, depending on the ability and industry that they display.

General education should, then, absorb the attention of students between the ages of 15 or 16 and 19 or 20. This is the case in every country of the world but ours. It is the case in some eight or nine places in the United States. Where the high school and the junior college are part of a large city school system, the organization

Read before the Thirty-Fifth Annual Congress on Medical Education and Licensure, Chicago, Feb. 13, 1939.

has been successful. Where, as at the University of Chicago and Stephens College, the institution has either a small high school or none at all, the insignificant size of the first two years of the program and the large size of the last two create great difficulties. If you have seventy students entering the four year unit at the junior year in high school and 700 entering at the freshman year in college, it is absurd to talk about a coherent four year program. You must have a curriculum that the 700 can enter in the middle without being handicapped because they did not enter at the beginning.

If in such institutions as my own the scheme I advocate is to succeed, we shall have to convince local parents, at least, that it is wise for them to send their children to us two years earlier than they have been accustomed to sending them. I think that if parents cannot be persuaded to do this the University of Chicago should abandon collegiate work altogether and give up its freshman and sophomore years. Those years at present are a foreign body in the otherwise admirable constitution of the university. The students in them have different ambitions from those in the divisions above; the teachers have different ambitions, too. But if ties cannot be found for these two years above they must be found below; for I do not believe that two years at any level is long enough to provide an adequate education. It is suggestive that two year units do not exist anywhere else in the world; they are known only in the United States.

I may mention at this point one aspect of the organization of general education which ought to be trivial but in this country is most important. I favor awarding the bachelor's degree in recognition of general education; I favor awarding it at about the end of the sophomore year. This suggestion is not so startling as many people seem to think. President Butler of Columbia advocated it in his annual report for the year 1901-1902. In France the *baccalaureat* is used to indicate the satisfactory completion of general education. The reasons for giving it the same significance here are first that it now has no significance at all. The bachelor's degree means four years in college. As the president of Hiram has lately said, "To most college 'students' who sit long enough and patiently enough and docilely give back a modicum of the wisdom that has flowed past their ears, there will come in time the reward of their long-sitting, sheepskins to cover their intellectual nakedness. . . . The usual requirements for graduation, 'a minimum of 120 hours with additional credit for physical education,' may represent little more than hours of painful but patient sitting. Their blood relationship to achievement is so far removed as to make the claimed relationship laughable."

But it is not only the credit system and the examination-by-the-teacher-who-taught-the-course system that make the B.A. certify merely to four years of sitting. It is also and I think principally the fact that the standard four year college of liberal arts is and must be concerned with both general and specialized education. Even in some of the oldest and most conservative of these colleges you will find that the student may indulge in extreme specialization at an early stage. Yet the preparation with which students enter these colleges is such that the colleges must also give them a general education. These two aims can only confuse the colleges and hence confuse the significance of the degree that they offer.

Columbia, Johns Hopkins, Chicago and several other places have attempted to meet this situation by dividing the first two years from the last two. Some institutions have even given them different staffs and administrations. Here we face again the problems raised by two year units. The first two years is not long enough for general education; the last two is not long enough for advanced study. The remedy would seem to be a four year unit beginning with the junior year in high school and leading to the bachelor's degree, and after that a three year unit beginning with the junior year in college and leading to the master's degree. The bachelor's degree would then indicate an adequate general education and the master's an adequate experience in advanced study. This master's degree should also indicate that the holder is qualified for a teaching position in which research is not expected or required.

The last two years of the present college of liberal arts is left stranded when the college is divided into upper and lower divisions. We have found at Chicago that one of our more difficult problems is how to provide any intelligible plan of advanced study in the junior and senior year. Some of our departments have succeeded in persuading students to plan their courses beginning with the junior year for three years to the master's degree. These departments have been able to effect notable improvements in both the general cultivation and the specific training of their graduates. I recommend the award of the bachelor's degree at the end of the period of general education, that is at about the end of the sophomore year, for the sake of advanced study as much as for the sake of general education

It may be objected that many students will not want to add a year to their program of advanced study. This in my view is an argument for the plan. The educational system will be compelled to accommodate the youth of the nation up to the end of the junior college, that is, to about 19 or 20. There is no reason why it should accommodate them after that. Beginning with the junior year, education should be limited to those who are able and willing to profit by it. We should rigorously select our students at the university level, by which I mean the beginning of the junior year. Since, therefore, many students should terminate their education at the end of the sophomore year, one problem is how to induce them to do so. I think they will stay on and, through sheer importunity, get themselves a degree unless they can receive some recognizable and popular insignia at the end of the sophomore year. The bachelor's degree is recognizable and popular. Since it serves no useful purpose at present, I believe it should be made to serve the very useful one of persuading students to get out of education who should not be permitted to remain in it.

If general education is to be given between the beginning of the junior year in high school and the end of the sophomore year in college and if the bachelor's degree is to signify the completion of it, the next question is what is the subject matter that we should expect the student to master in this period to qualify for this degree?

Now I do not hold that general education should be limited to the classics of Greece and Rome. I do not believe that it is possible or desirable to insist that all students who should have a general education must study Greek and Latin. I do hold that tradition is important in education; that the primary purpose of education, indeed, is to help the student understand the

intellectual tradition in which he lives. I do not see how he can reach this understanding unless he understands the great books of the western world, beginning with Homer and coming down to our own day. If anybody can suggest a better method of accomplishing the purpose, I shall gladly embrace him and it.

Nor do I hold that the spirit, the philosophy, the technology or the theology of the Middle Ages is important in general education. I have no desire to return to this period any more than I wish to revert to antiquity. Some books written in the Middle Ages seem to me of some consequence to mankind. Most Ph.D.'s have never heard of them. I should like to have all students read some of them. Moreover, medieval scholars did have one insight; they saw that in order to read books you had to know how to do it. They developed the technics of grammar, rhetoric and logic as methods of reading, understanding and talking about things intelligently and intelligibly. I think it cannot be denied that our students in the highest reaches of the university are wofully deficient in all these abilities today. They cannot read, write, speak or think. I do not suggest that we should attempt to introduce the trivium and quadrivium into the American college. I do say that we must try to do for our own students what the seven liberal arts did for the medieval youth. If the Middle Ages have any suggestions to make on this point, we should welcome them. We need all the help we can get.

I should like to remark in passing that in the Middle Ages people went to universities at 13 or 14. They read books and experienced disciplines that are regarded as far too difficult for university professors today. Most of the great books of the western world were written for laymen. Many of them were written for very young laymen. Nothing reveals so clearly the indolence and inertia into which we have fallen as the steady decline in the number of these books read in our schools and colleges and the steady elimination of instruction in the disciplines through which they may be understood. And all this has gone on in the sacred name of liberalizing the curriculum.

The curriculum I favor is not too difficult even for very ordinary American students. It is difficult for the professors but not for the students. And the younger the students are the better they like the books, because they are not old enough to know that the books are too hard for them to read. Something like the course of study I should favor is now in force at St. John's College, Maryland. There an unselected group of indifferently prepared students are studying these books with tremendous enthusiasm thirty-five hours a week. They read last fall ten dialogues of Plato and voted to have extra classes so that they might read and discuss the rest of them. In connection with the reading, they are going through a formidable course of instruction in grammar, rhetoric, logic and mathematics.

The entire freshman class at Columbia is now reading and discussing twenty-five of the great books in philosophy and literature. I understand that Rushing Week at Columbia was a failure because the students were too interested in the reading to be interested in fraternities, that the books are the chief subject of discussion at all informal student gatherings, and that the only complaint comes from teachers in other courses who feel that their work is suffering from the excitement the books in the Humanities course arouse. For eight years and more I have taught these books to unselected pupils in our University High School and to freshmen, sophomores, juniors and seniors in college. Not one of them has suggested that the books were too hard or that they were not worth reading. I can testify from this experience, though not, of course, very scientifically, that students who can read anything thrive on these books and that the younger they are the more they thrive.

Those who think that this is a barren, arid program, remote from real life and devoid of contemporary interest have either never read the books or do not know how to teach. Or perhaps they have merely forgotten their youth. These books contain what the race regards as the permanent, abiding contributions its intellect and imagination have made. They deal with fundamental questions. It is a mistake to suppose that young people are interested only in football, the dramatic association and the student newspaper. I think it could be proved that these activities have grown to their present overwhelming importance in proportion as the curriculum has been denatured. Students resort to the extracurriculum because the curriculum is stupid. Young people are interested in fundamental questions. They are interested in great minds and great works of art. They are, of course, interested in the bearing of these works on the problems of the world today. It is, therefore, impossible to keep out of the discussion, even if the teacher were so fossilized as to want to, the consideration of current events. But these events then take on meaning; the points of difference and the points of similarity between then and now can be presented. Think what a mine of references to what is now going on in the world is Plato's Republic or Mill's Essay on Liberty. If I had to prescribe an exclusive diet for young Americans, I should rather have them read books like these than gain their political, economic and social orientation by listening to the best radio commentators or absorbing the New York *Times*. Fortunately we do not have to make the choice; they can read the books and listen to the commentators and absorb the New York *Times* too. I repeat: these important agencies of instruction—the radio and the newspaper—and all other experiences of life, as a matter of fact—take on intelligibility as the student comes to understand the tradition in which he lives. Though we have made great advances in technology, so that the steam turbine of last year may not be of much value in understanding the steam turbine of 1939, we must remember that the fundamental questions today are those with which the Greeks were concerned; and the reason is that human nature has not changed. The answers that the Greeks gave are still the answers with which we must begin if we hope to give the right answer today. The answers they gave have affected human history so profoundly that we cannot approach the issue of the purpose of the state, for example, without unconsciously reflecting their views. We may apply to these early thinkers the words of Cardinal Newman about Aristotle: "Do not suppose, that in thus appealing to the ancients, I am throwing back the world two thousand years, and fettering philosophy with the reasonings of paganism. While the world lasts, will Aristotle's doctrine on these matters last, for he is the oracle of nature and of truth. While we are men, we cannot help, to a great extent, being Aristotelians, for the great Master does but analyze the thoughts, feelings, views, and opinions of human kind. He has told us the meaning of our own words and ideas, before we were born. In many subject-matters,

to think correctly, is to think like Aristotle; and we are his disciples whether we will or no, though we may not know it." Do not suppose that in thus including the ancients in my course of study I am excluding the moderns. I do not need to make a case for the moderns. I do apparently need to remind you that the works of the ancients lie at the foundation of the tradition in which we live.

Do not suppose, either, that because I have used as examples the great books in literature, philosophy and the social sciences I am ignoring natural science. The great works in natural science and the great experiments must be a part and an important part of general education. Here again I am not concerned with the method; I am concerned with the end. The student should understand the leading ideas in the natural sciences. Do you think he does today? On the contrary, what he gets today is either a superficial shower from a survey course or professional instruction from the first day of the freshman year, based apparently on the notion that every member of the class is going to be a chemical engineer. General education is not professional education. The curriculum must be designed to prepare the student for intelligent citizenship. The type of scientific instruction that I received in college has no place in the kind of college I am proposing. As for survey courses of the usual variety, they have no place there either. They degenerate too easily into a rapid tour of all the facts known in physics, chemistry and biology. The basis of the scientific program should be the great landmarks of scientific work, the books and the experiments.

Neither at Columbia nor at Chicago has anybody interested in the kind of curriculum I am suggesting had the facilities for the kind of scientific instruction we have wanted to give. At St. John's College those facilities are available and are now being used. It appears that between a half and a third of the course of study will be mathematics and natural science. In fact, St. John's is the only college in the country in which every student must take laboratory science for four years.

Another problem that has disturbed those who have discussed this issue is what books I am going to select to cram down the throats of the young. The answer is that if any reasonably intelligent person will conscientiously try to list the hundred most important books that have ever been written I will accept his list. I feel safe in doing this because (*a*) the books would all be worth reading and (*b*) his list would be almost the same as mine. There is, in fact, startling unanimity about what the good books are. The real question is whether they have any place in education. The suggestion that nobody knows what books to select is put forward as an alibi by those who have never read any that would be on anybody's list.

Only one criticism of this program has been made which has seemed to me on the level. That is that students who cannot learn through books will not be able to learn through the course of study that I propose. This, of course, is true. It is what might be called a self-evident proposition. I suggest, however, that we employ this curriculum for students who can be taught to read and that we continue our efforts to discover methods of teaching the rest of the youthful population how to do it. The undisputed fact that some students cannot read any books should not prevent us from giving those who can read *some* the chance to read the best there are.

I could go on here indefinitely discussing the details of this program and the details of the attacks that have been made on it. But these would be details. The real question is Which side are you on? If you believe that the aim of general education is to teach students to make money; if you believe that the educational system should mirror the chaos of the world; if you think that we have nothing to learn from the past; if you think that the way to prepare students for life is to put them through little fake experiences inside or outside the classroom; if you think that education is information; if you believe that the whims of children should determine what they should study, then I am afraid we can never agree. If, however, you believe that education should train students to think so that they may act intelligently when they face new situations; if you regard it as important for them to understand the tradition in which they live; if you feel that the present educational program leaves something to be desired because of its "progressivism," utilitarianism and diffusion; if you want to open up to the youth of America the treasures of the thought, imagination, and accomplishment of the past, then we can agree, for I shall gladly accept any course of study that will take us even a little way along this road.

REFRESHER COURSES IN CLINICAL PEDIATRICS

AN EXPERIENCE IN POSTGRADUATE EDUCATION

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SAN FRANCISCO

Two fundamental pedagogic methods have guided all attempts at postgraduate medical education. Information developed at medical centers must be taken to the practitioner or the practitioner must be brought to the medical center for organized teaching in the medical specialties. For various reasons both methods have met with only moderate and in many cases no success. The reasons for this are (1) the expense of organization of postgraduate medical courses at the medical centers for the few physicians who are able to get away from their practice, (2) the expense to the physician student of remaining away from his practice for from four to six weeks and (3) in the bringing of medical school teachers to the practicing physician, the lack of understanding by the academician of the problems which confront the general practitioner. Because these methods of instruction are markedly different from those used for undergraduate medical students, many mistakes have been made in choosing teaching personnel. In other words, there has been a lack of experienced teaching personnel in this field. Finally, there has been lethargy on the part of the medical profession in recognizing the needs and benefits (value) of adequate postgraduate medical education.

With the passage of the Social Security Act in 1935, adequate funds became available for the first time to supply postgraduate teaching to the physicians of the United States. At the end of the fiscal year 1936-1937 (June 30, 1937) postgraduate training was provided with child and maternal health funds for local practicing physicians and dentists in thirty-four states. Of these states twenty-two reported a total enrolment of

From the Utah State Board of Health and the Curricula of Public Heath and Department of Pediatrics of the University of California Medical School.

6,193 physicians in obstetrics and nineteen an enrolment of 5,009 physicians for courses in obstetrics.

It is now time to analyze the methodology in this teaching and to attempt to benefit by the experience of those who have been engaged in the work. It is my purpose in this paper to describe an experience in public health teaching which was conceived and carried out as an experiment in postgraduate education. The results are still somewhat intangible, but it is hoped that in a follow-up report some member or members of the Utah State Board of Health will write a critical analysis from their point of view. This may indicate what plan of approach was best in order that such a course may be more successfully repeated.

ORGANIZATION OF THE UTAH STATE BOARD OF HEALTH TO ADMINISTER MATERNAL AND CHILD HEALTH SERVICES

The state of Utah is essentially rural. The total population in 1930 was 507,847.[1] Of the twenty-nine counties all but five have a population density under ten persons per square mile.

There are 508 physicians in the state, with the number of persons per physician ranging from 719 in Salt Lake County to 2,703 in Tooele County. Under the state board of health the local health regulations are administered under the district plan. The state is divided into five health districts and one full time county health unit. Each district is administered by a full time health officer holding a certificate in public health.

The division of maternal and child health is administered from the state office by a director. A supervising nurse in this division administers the public health nursing program, working with the supervisors in each district and the public health nurses under a generalized nursing plan.

A nutritionist and an adviser on school health education are employed under the division of maternal and child health. Briefly the program of this division is to give advisory and consultation service to all local health groups and agencies, particularly in rural sections and sections of greatest economic need; to employ local physicians to conduct well baby, preschool and health conferences; to promote immunization against the communicable diseases; to promote better nutrition and health education in the schools, and to correlate these integral parts of the program with the dental and the crippled children's program wherever this is possible.

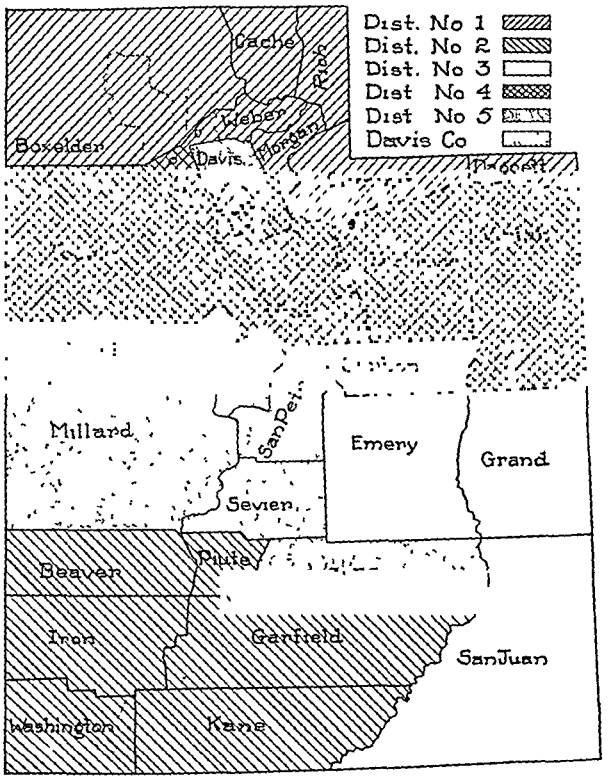
The well baby and preschool conference and immunization program are conducted under the supervision of the district health officers and the director of the maternal and child health division of the Utah State Board of Health by qualified local physicians, certified by the component society and approved by the state board of health. The state board of health pays local physicians at the rate of $5 for the first hour and $2.50 for each subsequent hour, with a travel allowance of 10 cents a mile beyond 5 miles. About $19,000 was budgeted for this during the current fiscal year.

With this administratively sound program it soon became apparent that in many cases the local physicians were deficient in modern technics on the conduct of well baby conferences and factual information demanded by many parents. Consequently it was deemed advisable to conduct postgraduate courses in order to raise the general standard of these conferences, and in May 1938 I accepted an invitation from the Utah Board of Health to spend two months in that state with this purpose in mind. The following program was developed with the sanction of the state medical society.

1. Houston, D. C., and Hill, R. M. Heath Conditions and Facilities in Utah, Utah State Planning Board, April 1936.

METHODS USED IN POSTGRADUATE TEACHING

In each case the details of the program were left entirely in the hands of the district health officer, and he used the services of the consultant as he felt would best suit the component medical societies. These societies were advised that the time allotted to each district would be on the basis of the number of physicians in the district. Consequently two weeks was spent in each of districts 1, 4 and 5, with one week each allotted to districts 2 and 3. The wisdom of this division of time will be discussed later.



Public health districts of Utah in 1938

There are three groups which the consulting physician meets in conducting postgraduate medical courses. The approach is quite different with each.

The Public.—This group is starved for accurate information concerning the scientific facts of maternal and child care. This is not so much the fault of the local physician as it is the result of fads and misinformation given to the public by their grandmothers and by lay magazines. Consequently education must be given; for example the details of adequate antepartum care and data as to the value of and time for immunization are frequently requested by parents. A common sense talk on child training and guidance is also in order. These are usually given at public meetings, and herein lies their greatest shortcoming. The information does not reach a sufficient number of people to make it worth while. The more intelligent people of the community are always present, but those who need it most are invariably absent. Several public meetings of this type were held in all but one district. They were attended by from fifty to 250 mothers, grandmothers and teachers and a few fathers. The talks given became standardized

to include an introduction aimed at showing the need for cooperation with the district health officer and the scope of the general public health movement. This gave an opportunity to include in a subtle way such information as the need for antepartum Wassermann tests and venereal disease control in general. Infant feeding, including solid food additions and the need of and time for immunizations were discussed, and recent advances in these fields were outlined. Finally, about fifteen minutes was devoted to habit formation and child guidance work. This part of the talk invariably precipitated a number of interesting questions for further discussion. It was my feeling that this method was a very strenuous one for the consultant to repeat in each town, considering the relatively few people reached.

TABLE 1.—*Sample Schedule for Dr. Amos Christie, Assistant Professor of Pediatrics, University of California Medical School, in Health District No. 4*

		July 11-July 23, 1938	
Date	Time	Place	Service
July 11	a. m.	Santaquin	Consultation with physicians
	p. m.	Vernal	
July 12	a. m.	Maeser	Infant and preschool conference
	p. m.	Vernal	Consultation with physicians
July 13	a. m.	Mount Emmons	Infant and preschool conference
	p. m.	Roosevelt Fort Duchesne	Consultation with physicians
July 14	a. m.	Upalco	Infant and preschool conference
	p. m.	Whiterocks	Consultation with physicians Return to Provo
July 15	a. m.	Provo	Consultant, crippled children's diagnostic clinic
July 15	p. m.	Provo	Consultant crippled children's diagnostic clinic
July 16	a. m.	Provo	Office administration
	p. m.	Provo	Office administration
July 18	a. m.	Provo	Consultation with physicians
	p. m.	Provo	Consultation with physicians Meeting of Utah County Medical Society and registered nurses
July 19	a. m.	Provo	Consultation with physicians
	p. m.	Pleasant Grove American Fork	Consultation with physicians
July 20	a. m.	Provo	Office
	p. m.	Provo	Consultation with physicians
	Evening		Pediatric clinic with Utah County Medical Society
July 21	a. m.	Provo	Consultation with physicians
	p. m.	Lehi and American Fork	Consultation with physicians
	Evening		Public meeting sponsored by Utah County Medical Auxiliary
July 22	a. m.	Provo	Office
	p. m.	Provo	District nurses' conference
July 23	a. m.	Provo	District nurses' conference

The radio should offer, whenever available, a means of getting the required information to more people. Its shortcomings, however, are obvious to all who listen to it. For programs to be effective the script must be professionally prepared, and such service is usually not obtainable.

This medium, however, was tried in a district where a small radio station had an outlet of a possible 27,000 listeners. A time (from 5 to 5:30 p. m.) was arranged, and two half hour broadcasts were given. The subjects were "Diet and Growth in the Young Infant" and "The Premature Infant." The scripts were prepared with the idea of the listener's interest, and after each ten or twelve minutes a woman's voice was interjected to ask specific leading questions. In this way detailed information as to additions of solid food and the need and reason for cod liver oil, for example, were covered. The same voice, impersonating a typical mother, also asked pointed questions and was answered in conversational style concerning the prophylaxis of communicable diseases.

This method would seem more logical than the public meeting for reaching the public and would allow the physician more time for contact with the local physicians.

The Physician.—Three methods were used in reaching the medical profession: (1) the personal visit to the physician's office, (2) meetings of the component medical societies, at which clinics were held and talks given, and (3) attendance, on invitation, by from two to four physicians at a properly conducted well baby conference. The third method was most difficult, yet successful.

It is problematic which of the three methods can be used to the greatest advantage and which should precede the other. If a satisfactory meeting with good attendance can be arranged with the county medical society, this offers the greatest possibility of results because all further teaching methods to be used are dependent on the initial contact. The consultant must give a tactful and sincere presentation of what he is attempting to accomplish. It must be followed by a talk (not a lecture) on one of several subjects of practical value to the practitioner. I myself have discussed such subjects as recent advances in sulfanilamide therapy and some aspects of congenital syphilis. These subjects were of topical interest at the time and of definite value to the practitioner. The latter subject also allows for the opening of a discussion of adequate antepartum care.

In one county such a didactic talk was followed by a clinic. This included the presentation in academic style of from five to seven cases which were of diagnostic, prognostic and therapeutic interest. With overemphasis on suggestions of practical value, the way is open for pleasant and adequate contact with physicians in their own offices.

Office visiting is generally unsuccessful unless the practitioner has spent some time and thought preparing for the interview. Frequently he does not realize his problems or is reluctant to reveal his apparent inadequacy in a discussion of recent advances. The most subtle methods must frequently be used to draw him out. This was accomplished in some cases by an informed third person asking leading questions.

These personal interviews are of great value to physicians, and, if the physicians can be encouraged to ask their problem patients to come to the office for consultation, much teaching can be accomplished in an hour and a half or two hours. The consultant should be prepared to visit the homes of the patients, and a diagnostic bag is a minimum requirement.

There is a small group of older physicians who desire to show their complete ability to handle all problems pertaining to the diseases of men, women and children and who do most of the talking. No method was found to combat this type of individualism, and I am convinced that only a successful contact or repeated visits in a meeting of such a physician's colleagues will engender the necessary feeling of cooperation for a successful follow-up. It cannot be too firmly emphasized that in all relations with fellow practitioners the entire tone of the meeting or personal interview should be so conversational as to break down any prejudice against the visiting professor, whose ideas might be too unpractical and academic to be of use to the practitioner. Material must be presented with the attitude of "here it is if you can use it."

It should be remembered that the primary purpose in Utah was to raise the standards of well baby conference work, for which state and federal funds were being spent liberally.

Most practicing physicians who have been out of medical school more than ten years do not realize the tremendous educational value to the mother of this type of conference and have not kept up with the demands on the part of parents to know the fundamentals of habit training or the striking clinical points, such as rickets and anemia, which the physician should observe in such an examination. The conduct of the well baby examination is unique, and yet it is only with considerable difficulty and tact that it is possible to make the older physician receptive to this type of demonstration. Care should be taken in such teaching not to have too many cases. From eight to ten are sufficient for a two and a half hour clinic, and when they are carefully chosen by the public health nurses much can be accomplished. The importance of history taking, the value of reemphasis to the mothers and the fundamentals of infant feeding and solid food additions may be brought out. The value of prophylaxis against communicable diseases must be emphasized, and mothers should be encouraged to discuss their children's habit problems.

It is my feeling that herein lies the major value of the well baby conference and that an excellent bit of teaching can be given by efficient demonstration. The smile of satisfaction on the part of the mother whose questions have been adequately answered and whose baby has been completely examined will be sufficient evidence that the well baby conference to be successful must be more than a baby show or a weighing by the nurses. It must be conducted by a physician qualified to interpret disease at its outset and capable of making an examination sufficiently complete to promote confidence. He must be able to handle questions the answers to which are in any government bulletin on infant care or child management and are not the magic of pediatricians only.

The Public Health Personnel.—Factual information given to the health officers and public health nurses can be of considerable value to them in their future contacts with the medical profession. Therefore an association of the consultant with the public health officer is of importance in refresher courses on recent advances in maternal and child health, bringing communicable disease control and immunization methods up to date. There is no place in rural health work for the "arm chair health officer." The best health officer is first a good doctor and then a health administrator and educator. In other words, the health officer who will roll up his sleeves and use his training and knowledge of practical clinical problems to assist the practitioner will promote his program further and faster than the desk sitting type of health administrator. The schools for the training of rural health officers will do well to recognize this fact.

The district health officer and the public health nurse are the keystone of any program, and any association by them with the consultant is desirable. The health officer is the one to introduce the consultant to the physicians, as such an introduction should improve his future contact with them.

In each health district a nursing conference was called on the last day on which the consultant would be in that district. Discussions of local problems pertaining to the program were carried out openly and frankly, and considerable good work was done. At many of these joint meetings of public health personnel, social workers were invited and principals of schools attended. This presented an excellent opportunity for actual case studies to be shown. It was possible to demonstrate where better correlation of existing facilities would lead to greater efficiency in the broad program.

Two sample schedules made out by district health officers are shown in the accompanying tables. These were arranged through the cooperation of the secretaries of the medical societies and were circulated to all physicians. In this way any physician could participate in all or parts of the program.

THE EDUCATION OF THE CONSULTANT

It has been suggested that many mistakes have been made in postgraduate medical education by a teaching personnel untrained in the technics of teaching persons whose very choice of the medical profession spells "rugged individualism." It would therefore be unfair to omit in such an analysis as this a discussion of the ways in which my eyes were opened to the needs and local conditions confronting practitioners and rural health officers. It was possible to observe rural health

TABLE 2.—*Sample Schedule for Dr. Amos Christie, Assistant Professor of Pediatrics, University of California Medical School, in Health District No. 5*

Date	Town	Service
July 26	Nephi	Consultations with physicians
July 26	Mount Pleasant	Public address, 8 p. m.
July 27	Fairview	Consultations with physicians
July 27	Ephraim	Consultations with physicians
July 27	Manti	Consultations with physicians
July 28	Spring City	Infant conference, 9:30 a. m., relief society room
July 28	Mount Pleasant	Medical meeting, 8 p. m., Dr. Madsen's office
July 29	Gunnison	Infant conference, 10 a. m., town hall
July 29	Chester	Infant conference, 2 p. m., schoolhouse
July 29	Manti	Medical meeting, 8 p. m., schoolhouse
July 30	Salina	Consultations with physicians
August 1	Annabella	Infant conference, 10 a. m., relief society room
August 1	Venice	Infant conference, 2 p. m., church house
August 1	Richfield	Medical meeting, 8 p. m., Dr. Lowe's office
August 2	Bicknell	Infant conference, 10 a. m.
August 2	Soa	Infant conference, 2 p. m.
August 3	Scipio	Infant conference, 10 a. m.
August 3	Fillmore	Public address, 3 p. m., first ward church
August 4	Oak City	Infant conference, 10 a. m., church house
August 4	Hinckley	Infant conference, 2:30 p. m., grade school
August 5	Eureka	Infant conference, 10 a. m., school
August 5	Manti	Talk to welfare group, 2 p. m., court house

administrative problems which had been discussed in the classroom under actual test in the field. This practical experience should enable one to temper and even change many of one's theoretical ideas in the future. An example is my conviction that well baby conferences in rural communities must be open to all socio-economic groups. I am certain that there is no place in rural health work for well baby conferences limited to indigents.

Much was learned from rural practitioners in the way of clinical pediatrics. A notable instance was the experience of seeing eight patients with Rocky Mountain spotted fever. Colored photographs of rashes were obtained which will be of inestimable value for medical school teaching, and observations were made on the value and limitations of the vaccine prepared for this condition.

There was an opportunity to study the cause and clinical picture of pseudohypertrophic muscular disease, which seemed to have a high incidence in the state.

Other unusual educational opportunities presented themselves. Observations were made on the mottled tooth enamel due to the high fluoride content of the water of certain isolated areas in Utah. The seeming geographic and climatic incidence of rheumatic fever, previously described by Paul, was also noted. The high

incidence of thyroid enlargement in school children and of rickets in certain communities and the sharply localized areas of tremendous tonsillar hypertrophy were a constant source of interest and education.

A cooperative medical plan started in an isolated county whose people were without the services of a doctor for four years was observed in operation and studied with interest.

SUMMARY

Throughout these experiences in the postgraduate teaching field, the several approaches noted were evaluated with the idea of setting up a better program if it was to be repeated under somewhat similar circumstances in another community. Certain opinions were gained which should be of value in the repetition of an organized program in postgraduate medical education.

The practitioner has developed a tremendous responsibility to his patients. He cannot afford to leave his community for refresher courses for as long as two weeks. The people have learned to depend on him to a point where they will not accept a temporary locum tenens for even that short period. The practitioner feels this responsibility keenly and, despite any possible changes in the practice of medicine which may result from the changing times, this patient-doctor relationship must be preserved. It is for this reason that postgraduate medical education must be taken to the doctors.

I would suggest that this may best be done by a full time physician, whom I choose to call a circuit rider. This term has the connotation of the lawyer who pioneered the West, as did Abraham Lincoln in his day. A full time person, well trained in a branch of clinical medicine and serving for not longer than two years, could learn much to take back to his medical center and by reason of his academic training could keep the practitioners in the outlying districts well up on his subject. By traveling from place to place, by knowing local conditions and by possessing factual information and tact, he might be able to raise the standards of medical practice to a high degree. Herein may lie the future of postgraduate medical education.

There should be a well defined purpose before such a program is initiated, and this should be kept in mind at all times. If this purpose is to raise the standard of well baby conferences, all efforts should be directed to this purpose, at the sacrifice of lay education, nursing education or the solving of individual medical problems of the physicians.

The greatest need for postgraduate medical education or refresher courses in pediatrics is felt by men who have been away from medical school more than five years. More time must be allowed for those rural areas where it is impossible for the physicians to leave their practices for refresher courses.

This brings up the question of division of time, and a better arrangement should be sought than time per number of physicians in any one area. I would suggest that a short course of lectures does not reach the physicians who need the instruction most. Two weeks is insufficient for the accomplishment of anything constructive in any one area or district. One month or, preferably, two months should be the minimum requirement. I believe that the consultant should acquaint himself first with local conditions and the personalities peculiar to the area. In this way he can accomplish more, particularly if the available time is not spread too thinly over too wide an area.

Choosing the person who is to act as consultant or instructor is most important, and time, thought and energy should be expended on obtaining the best possible physician. In other words, for a well defined purpose a clinical instructor may be a better selection than a professor. Graying hair will stand in good stead for the consultant.

It is a well known fact that one of the great deficiencies in the training of health officers has been the lack of adequately trained teaching personnel with an understanding of postgraduate educational technics to give these men the real benefit of the progress in public health. It would be well to spend some of the available funds in the teaching of teaching personnel. I believe that the training of health officers for rural areas should be directed more along clinical lines. The promotion of a program is best accomplished by a health officer who, by reason of his knowledge of clinical medicine, can be of positive assistance to the practitioner in his clinical problems.

It would seem that the extension of education to the people has given rise to the national health movement. There is no evidence of an ebbing tide. It is my hope that this record of an experience in postgraduate education will stimulate further reports so that inadequacies may be realized and technics sought for remedying them.

THE COMMUNITY HOSPITAL

WHAT IT SHOULD BE

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In considering this subject—particularly at the present time when the question of great expansion of hospital facilities at governmental expense is under discussion—the matter of definitions appears of outstanding importance. Just what is meant by the term "hospital" and just what is a "community hospital"?

Is a hospital simply a building where the sick may be housed and presumably cared for by one or more members of the medical profession or is it, to be worthy of the name, far more than that?

In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of June 11, 1938, it was stated that in the entire United States there are "but thirteen counties no part of which is within thirty miles of a registered general hospital."[1] This statement presumably was intended as anticipatory evidence that the need for additional hospital facilities, as later set forth by the Technical Committee on Medical Care in Washington last July, was exaggerated, and the argument was buttressed at the very end by the statement "There may be some localities in which hospital facilities are needed. However, the Commonwealth Fund, which for the past ten years has been awarding hospitals to communities which seemed to be able to maintain such institutions with proper standards, has thus far made eleven awards." This statement is but a weak buttress for, while it is true that only eleven awards were made, the reasons were, first, financial limitations, each hospital, with nurses' home and equipment, costing the Commonwealth Fund on the average about $235,000; and, second, the fact that the staff of the Commonwealth

Read before the Thirty-Fifth Annual Congress on Medical Education and Licensure, Chicago, Feb. 13, 1939.

1. Distribution of Hospital Service, *Current Comment*, J. A. M. A. 110: 2013 (June 11) 1938.

Fund's Division of Rural Hospitals, for a minimum period of five years and frequently for a longer time, has found it necessary to devote much time and attention to the establishment and maintenance of operating standards—matters with which the rural community is usually reasonably unfamiliar and which have some bearing on the importance of the definition of a hospital above referred to. Even the fact that a community "seemed to be able to maintain proper standards" is far from a guaranty that it will do so or even knows how. Certainly the fact that only eleven awards were made bears little relation to the need for additional rural hospitals or to the number of applications received, which have run into the hundreds.

Again, a "registered hospital," [2] says the American Medical Association, means one concerning which "evidence concerning irregular or unsafe practices . . . has not come to the attention of the Council on Medical Education and Hospitals." On this basis, 6,128 hospitals are on the latest registered list and 617 are omitted.[3] Members of the staff of the Commonwealth Fund have visited a good many registered hospitals which in our opinion are anything but assets to their communities and which in some cases are little if anything more than rather badly run boarding houses for the sick, with little and poor equipment and with questionable medical or surgical service. Many of these are very small; many are proprietary, sometimes operated by physicians of doubtful education and experience, in which some odd medical procedures are carried on.

Let me hasten to say that I am not indulging in that form of indoor sport, which is at present quite popular, of damning the American Medical Association. On the contrary, while it may perhaps be considered, with justice, somewhat overly conservative, it has among other valuable achievements done a great job in improving the standards of medical practice and of medical education, and in protecting the public. It has also done much of value in the hospital field, and since it can scarcely be expected to investigate on the ground every two-by-four establishment that chooses to call itself a hospital, perhaps we of the Commonwealth Fund staff and others familiar with hospitals are to blame for not calling "irregular and unsafe" practices to the attention of the Council on Medical Education and Hospitals; or, possibly a wiser policy would be to register only hospitals known to be regular and safe rather than those not known to be irregular and unsafe.

However, lest I still be misunderstood, let me turn momentarily to another side of the picture. Within the last few months an individual who is greatly interested in the hospitalization phase of the National Health Program proposed at the Washington Conference last July argued at some length, in conversation with me, for the establishment of very small (eight to twelve bed) hospitals—"crossroads hospitals," I believe this person called them—to be located in sparsely populated and very poor rural districts, to be "reasonably protected from fire" and equipped with a "moderate x-ray and simple laboratory." While in my judgment reasonable protection from fire is obtainable, when one is talking of hospitals, only by absolutely fireproof construction, and while I was not and am not particularly clear as to what a "moderate x-ray and simple laboratory" might be, nevertheless, admitting these points as possible for the sake of the argument, I inquired how in such a hospital, in such a community, it would be possible to supply the necessary medical and surgical service of really good quality, the technical service for the operation of the alleged x-ray and laboratory, satisfactory graduate nursing personnel, and the various other things which go to make up a hospital worthy of the name. To my complete astonishment the answer to this question was "All that is really needed is a good surgeon." Asked how such a good surgeon could be obtained in such a community where usually one is not likely to be found, the answer was that he could be imported. In my judgment, really good care for the patients in a hospital requires a number of other branches of medical service of high quality in addition to surgery. Nor does it seem to me likely in a community so sparsely settled and so poor in resources that no good surgeon has ever been attracted there, that one could be imported and persuaded to stay there even by a government subsidy, considering the opportunities for good surgeons in more pleasant regions. Again, the advocacy of such a plan for hospital expansion makes important the definition of a hospital.

A GOOD COMMUNITY HOSPITAL

If I may venture to say so, without being too obvious, it would seem to me that an adequate definition of a hospital which would render a worth while service to a given rural community involves two parts: the first relating to the building and its equipment, the second to the quality and type of service rendered within that building.

The building should be absolutely fireproof, whether large or small. It should be equipped not necessarily for every service which the best urban medical centers are prepared to render but certainly for every service which a reasonably competent medical profession is able to provide and without such equipment cannot provide satisfactorily. Such equipment should certainly include first-class clinical laboratory facilities, an x-ray plant adequate for diagnostic purposes, but not for therapy unless there is a physician trained to administer it, properly lighted, ventilated and equipped operating and delivery rooms, necessary facilities for the preparation of food including special diets, an adequate heating plant, reasonably comfortable wards and rooms—all these things to the extent that you are all familiar with—together with the best arrangements possible to emphasize what may be termed the safety factor, such as is provided by well separated operating and delivery rooms, isolation facilities for contagious cases, provision for prevention of cross infections, and so on. Certainly such conditions as have been recently related to me concerning a small "hospital" containing five patients in close proximity, three postpartum cases, one of scarlet fever and one of poliomyelitis do not make possible the type of provision indicated. One might add as a desirable if not essential quality such planning as will make for convenience in careful and orderly service, with absence of unnecessary noise and fatigue. The list could be enlarged.

Given such a plant, of what value will it be? That will depend entirely on the quality of those who are available to utilize the facilities and render the necessary service—the physicians and surgeons, the nurses, technical assistants for the x-ray and laboratory, even the cook.

Such a plant is largely useless without competent physicians, surgeons and other personnel. Nor can the best of physicians and surgeons serve their patients to good advantage without first-class facilities. Granted

2. Hospitals Registered by the American Medical Association, J. A. M. A. **110**: 986 (March 26) 1938.
3. Summary of Hospital Data, J. A. M. A. **110**: 959 (March 26) 1938.

that there are cases on record of difficult operations successfully performed on the kitchen table with the most primitive appliances, it is the successful ones, I suspect, that we hear about and not the failures—or the unnecessary deaths.

This, then, would be my definition of a hospital: a fireproof, properly equipped plant (whether small or large) with a medical staff and other personnel competent to render the service made possible by such a plant. With full realization that good hospitals vary somewhat in the degree of their excellence and that the competence of the physician is a relative matter, even so there is a minimum in terms of plant, equipment, medical staff and personnel below which a hospital ceases to be an asset and in my judgment becomes a liability—even a menace to the people of a community—and I fear that the descent below that minimum is far more common than is generally known.

If this definition is so far correct or even approximately so, it requires to be considered in determining the need for additional community hospitals and of how best to meet that need.

A community hospital is simply a general hospital which is prepared to serve the people of its community without regard to race, creed or financial status. It must be prepared to render a large amount of free service. Either a private voluntary hospital or a public, tax-supported one may render such service of high quality. Few proprietary hospitals render any great amount of free service or provide opportunities for hospital service to more than a small fraction of the physicians of the community; and few therefore can qualify as community hospitals. The Commonwealth Fund in its rural hospital program has devoted its attention to the type of hospital organized as a corporation not for profit, governed by an elected voluntary board and conducted by agreement in accordance with accepted standards. This is not to say that a public hospital cannot be operated as a community institution with equally high standards, provided—and this is not always easy—political control is avoided.

A community hospital of the type I have been attempting briefly to indicate should be of what size and serve how large an area? These two matters are somewhat interrelated. Such a hospital must make provision for patients of both sexes, of different races (certainly in the South), for different types of conditions which require to be separated. With the provision of such bed facilities and of the various types of equipment and of technical service, it has appeared from our experience that twenty-five beds is an irreducible minimum to provide what the various patients require and do it at reasonable expense. From forty to fifty beds has appeared a better minimum, permitting a wiser and more careful segregation of patients and a lower patient day cost. Nor does there appear any reason why such a hospital should not serve a population within a radius of 25 to 35 miles regardless of county lines. With the improvement of roads and transportation facilities that has, again in our experience, proved entirely practicable.

SPECIAL PROBLEMS

What then of the various sparsely settled and very poor areas—such for example as may be found in Catron County, New Mexico? This county, of some 7,000 square miles, had a population in 1930 of 3,283; in 1931 it had one physician. If such a hospital as I have described should be built there, how would it be staffed, how many occupants would it have? A circle of 35 miles radius in such a county would have a population of less than 400. Build a hospital as small as you like, run the cost of operation per patient as high as you like, still in such an area how can medical, nursing and other technical service of competent character be obtained and retained? I do not know the answer. Perhaps there is no satisfactory answer; perhaps it would be better for the patient to be taken long distances to a really good institution rather than to risk the poor quality of care which is frequently all that is available or can with practicability be made available in some very poor and sparsely settled districts.

The experience of the Commonwealth Fund would indicate, however, that there are many rural districts where a good community hospital of from forty to fifty beds could serve a reachable population group of sufficient size, where the nucleus at least of a satisfactory medical staff is available and other trained personnel are obtainable. We have assisted in providing such plants in eleven instances in almost as many states. We believe that they have been of great service and we know that many other similar districts are to be found.

In choosing the location for such hospitals it is important not only to avoid overlapping service areas and consequent unnecessary duplication of facilities but to relate the location of one hospital to that of others and so far as possible to key the community hospitals with the facilities of large urban medical centers and teaching centers. Such arrangements when practicable will create the possibility of informal affiliations, which contribute much in the way of consultant service, educational opportunity and the provision of skilled care for certain patients whom even a good community hospital may not be able to treat adequately. To hospitalize a given state will require careful study and planning if such advantages are to be secured.

I have been considering the hospital in this paper only as providing proper care for the sick. The value of a really good community hospital as a means and channel of education of physicians, nurses and of the public at large has not been dwelt on. In the hospitals with which the Commonwealth Fund has been concerned, the value of organization of the medical staff, of the contact and consultation between physicians, of regular staff meetings for discussion of cases and methods, of consultant pathologic service, of more formal medical institutes and clinical demonstrations, of postgraduate fellowships, of the constant interchange of ideas—these values I can only mention and refer you to a paper by Dr. Lester J. Evans,[4] medical associate of the Commonwealth Fund, read before this body a year ago. As Dr. Evans said, "Such a hospital makes its contribution to education simply by being the kind of hospital it is. In it the doctor finds opportunity for professional growth by learning from what he does and by hearing about what others do. The educational value of this experience is what the doctor makes it."

There is need for many more such hospitals in the United States. No hospital of lesser quality, in my judgment, is worth the having or worth the cost. And it is worth while to note and ponder the following statement by the Catholic Hospital Association:

> The Association is sympathetic with the plan of providing hospital facilities in those areas of the country in which such facilities are not found at the present time, or in which hospital facilities are relatively inaccessible. It cautions, however, against a precipitate and indiscriminating multiplication of hospitals

4. Evans, L. J.: The Rural Hospital, J. A. M. A. 110:945 (March 26) 1938.

and would recommend that the erection of new hospitals . . . be not stimulated except when a prudent prevision of the hospitals' operation and when, furthermore, an adequate staff, medical and administrative, can be provided, with due attention to both the economic and the professional viewpoint.[5]

Those words are in my judgment absolutely sound. Provision of adequate funds to erect, equip and operate community hospitals where they are needed, where they will be utilized, where they can be operated with reasonable economy and where adequate medical and other professional service is available is much to be desired. But intelligent planning, thoughtful foresight, wise administration, physicians of first quality, trained in modern medicine, and other trained personnel—these things are prerequisite to the successful expenditure of funds, large or small. No medical or health ideal, so far as hospitalization is concerned, is obtainable, nor is any measurable advance in that direction obtainable, in any other way.

THE RELATION OF ANESTHESIOLOGY TO MEDICAL EDUCATION

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This paper has been written to emphasize the need for undergraduate and graduate instruction in anesthesiology and to describe ways and means of its accomplishment.

Recent advances in medicine have widened the scope of anesthesiology to include problems which were only dreamed of twenty-five years ago. The insistence of patients on complete abolition of pain has made more prevalent the use of depressant drugs and the administration of such drugs in larger doses. There results a necessity for clinicians especially trained in the administration of pain-relieving drugs and the management of depressed states. For reasons too numerous to discuss fully here, the medical profession finds itself in the anomalous position of having an obvious lack of clinicians trained in anesthesiology and having scant provision for such training in our medical schools and hospitals.

OBJECTIONS

The following six arguments against clinical instruction are so frequently advanced as to warrant reference to them in some detail: 1. A sufficient number of physicians will not be interested. 2. Present day excellent instruction in the basic science departments makes clinical instruction in anesthesia superfluous. 3. "A little knowledge is a dangerous thing." 4. The medical school curriculum is already overcrowded. 5. The economic adjustments necessary for instruction and the employment of physicians specializing in anesthesia are impossible. 6. The administration of anesthetics is an art, not a science, and as such may be done quite as well by one without scientific training. Each of these six opinions is probably honestly held by some persons and should be honestly answered.

1. The impression that a sufficient number of physicians will not be available is erroneous. Young doctors will show interest in proportion to the inspiration which is imparted to them. The practice, so common at present in many of our medical schools, of delegating not only the technical administration of anesthetics but also the clinical teaching to persons without professional qualifications does not stimulate the interest or respect of the medical student and hospital intern. Conversely, it is noticeable that applications for residencies in anesthesia in hospitals come in higher proportion from Canada and from districts in this country where the administration of anesthetics is limited to graduates in medicine. In centers where professional training has become recognized, there is ample demand for positions. Furthermore, the professional and financial success of others in the specialty adds to its appeal. Recognition of the anesthesiologist as a specialist in certain phases of medicine and therefore as a valuable consultant to other departments adds to the attractiveness of the specialty. Such recognition has been withheld only because of improper teaching and lack of example.

2. The contention that all necessary instruction in anesthesia is provided by good courses in physiology, biochemistry and pharmacology can be based only on an entirely inadequate conception of the clinical importance and relationships of anesthesiology. Careful consideration will show that clinical interpretation and application of basic science knowledge is admittedly necessary in every other branch of medical education. Anesthesiology deserves no less clinical interpretation. It deals with the management of patients acutely depressed by drugs, with artificial respiration, resuscitation, the maintenance of free air passages, the administration of oxygen and other gases, and with the recognition of evidences of oxygen want and carbon dioxide excess, to mention but a few of its ramifications. Many circumstances of depression due to accident or illness bring about changes in the body similar to those accompanying anesthesia. In the medical or surgical wards, however, such disturbances take place over a period of hours or often days, whereas in the operating room they develop often in a matter of minutes and can be followed through cause, development and treatment in a single teaching period. Here then is the ideal place to teach these fundamentals to the student. In later practice, whether he becomes a specialist or a general practitioner, he will have daily use for this knowledge.

3. The dean of a great school has offered as an excuse for complete absence of clinical instruction in anesthesia from his curriculum the quotation "A little knowledge is a dangerous thing." This argument is quite as applicable to the clinical teaching of surgery or any other portion of medical practice. The argument has two obvious fallacies: 1. Lack of clinical teaching will not prevent graduates in medicine from considering themselves competent to deal with matters of anesthesia. Thus by its own standards the argument fails. The minimum of knowledge is already assumed by the medical graduate; therefore he is dangerous; therefore the school should amplify his knowledge as much as possible, at least to the extent of showing him his limitations. 2. The fundamentals of anesthesia are matters of everyday application in every branch of medical practice and therefore cannot be omitted. Training in anesthesiology will amplify a little knowledge gained in other departments and make the young graduate a safer rather than a more dangerous practi-

5. Hospital Progress **19**: 387 (Nov.) 1938.

From the Department of Anesthesia, University of Wisconsin Medical School.

Read before the Thirty-Fifth Annual Congress on Medical Education and Licensure, Chicago, Feb. 14, 1939.

tioner. Whether students are to administer anesthetics or not, they should go out from medical school prepared at least to care for patients while they are subject to drug depression, sometimes induced by an overdose. Physicians must in all justice be possessed of sufficient knowledge of the clinical use of anesthesia to recognize the good from the bad. They should be able to save a life by reestablishing a patent airway or performing efficient and safe artificial respiration when necessary. That some recent graduates are dependent on the fire or police department or on their boy scout manuals for artificial respiration is a serious reflection on present day medical education.

4. That the curriculum is too crowded to include clinical anesthesiology is more apparent than real. Even without formal lecture periods the student, patient and anesthetist can constitute a teaching unit in ward or operating room. When the department was established at the University of Wisconsin twelve years ago there appeared to be no time available for lectures. However, the first year one hour was assigned, the next three hours and the year following six hours. With the present arrangement, to be described later, the curriculum seems no more crowded than twelve years ago. It is apparent therefore that, once the need is appreciated, available time will be found.

5. That no money is available for the establishment of a department of anesthesia on a professional basis may temporarily be true in some institutions. Medical progress modifies budgeting and may involve an added outlay for equipment, replacements and other changes. A well qualified director of anesthesia, who is capable of filling with credit the chair in the faculty of the medical school, should command an income comparable to that of other members of the staff. In the light of the increased scope of the service rendered, necessary budgetary adjustments are insignificant. In some institutions ill advised purchases, lack of attention to home construction of apparatus, and waste of materials have increased costs. With proper reorganization certain economies may result. The change has actually been made in some institutions with a definite financial saving within the first three year period.

6. There can be no question that the administration of anesthetic drugs is an art just as is the skilful handwork of the clever surgeon, but it is an art in the application of fundamental principles of basic science. The minute to minute necessity for the utilization of knowledge of physiology, of pharmacology, of biochemistry, of anatomy and even of physics is appreciated by every keen anesthetist. The rapidity with which changes may occur and the need for accurate thinking and prompt judgment are not exceeded elsewhere in medical practice. The trained anesthesiologist is a scientist applying scientific knowledge of respiration and circulation both in the operating room and in the wards. Art in anesthesia, to be safe for the patient, must be based on a scientific foundation quite as broad and fundamental as is the foundation for the art of surgery.

CONTRIBUTIONS TO GENERAL MEDICAL EDUCATION

Whatever type of practice they expect to pursue, young physicians must go out with sufficient knowledge of clinical anesthesia to recognize its limitations and its possibilities. Somewhere in the medical curriculum, students must be provided the opportunity to correlate the basic pharmacologic facts regarding depressant drugs with their clinical application. They must be taught the proper management in the wards of patients under the influence of such drugs. They must recognize the physiologic and biochemical disturbances which accompany the depression of respiration and circulation as well as have a knowledge of the measures and technics available to correct such disturbances. Such matters can be taught more effectively and more easily during the study and care of the surgical patient before, during and after anesthesia than at any other time.

A series of combined didactic lectures and clinical demonstrations on narcotized patients can be utilized for undergraduate teaching. A laboratory course in surgical technic can be utilized to emphasize the more fundamental principles and to permit experience in open drop technic. During a short period of the fourth year and of the internship the student may serve with the anesthesia department, gaining knowledge through discussion as well as practical experience.

Emphasis is laid on the side effects both of the drugs and of the technic. The principles on which depend the choice of sedative and narcotic drugs and their dosage are discussed, and their administration is demonstrated. Methods of maintaining patent air passages and the treatment of depression are practiced. Indications for and methods of administering pneumotherapy are demonstrated and discussed. Various supportive treatments of depression by rectal, subcutaneous and intravenous routes are discussed and technics of administration demonstrated. The causes and treatment of acute respiratory derangement accompanying and following anesthesia are discussed and demonstrated when possible. The physiologic principles of technic for obstetric pain relief and the physiologic and biochemical balance in the mother as an influence on the condition of the child at birth are stressed. During the administration of pain-relieving drugs to women in labor, the anesthetist has an ideal opportunity to impress on students the fundamental physiologic interrelationship between mother and fetus and the influence which he may exercise on the condition of the fetus by the judicious or injudicious administration of gases or other drugs to the mother. The physical state of patients before operation and their postoperative course in the light of the effects of drugs is studied and recorded by both the senior student and the intern. Such a course of supervised instruction and experience we believe essential in the general medical education of every young physician.

In anesthesiology, as in almost all phases of teaching, service and instruction go hand in hand. Consciously or unconsciously, the student imitates the instructor's service to others and emulates his success. Seeing the anesthetist approach patients with judicious recognition of the problems in medicine and psychology which they present, the student will realize the seriousness of assuming responsibility for the patient's life while administering drugs the therapeutic doses of which range from 65 to 90 per cent of the lethal doses. The student observes that the patient's welfare is the constant concern of the anesthetist and that by means of frequent observations and accurate detailed records the anesthetist can note minute to minute changes, can interpret and assess their significance, can adjust his own course accordingly and can consult with the surgeon should circumstances require a change in the planned procedure. If the student should become a surgeon, he will benefit by knowing to what extent he may rely on the cooperation and advice of the anesthetist

and to what extent he may feel free to attend to the operative procedure without being concerned about the anesthesia. If the anesthetist is qualified to assume complete responsibility for the general condition of the patient, the surgeon's attention may be devoted entirely to teaching and carrying out the surgical procedure, more time may be spent allowing the surgical neophyte to obtain some practice and the young surgeon may be permitted more safely to take the full responsibility for many surgical procedures.

SPECIALISTS

One can hardly start a discussion of the training now required to qualify as an anesthesiologist without first commenting on the debt the profession owes to the many self-taught specialists who have pioneered in this neglected field. Starting with the object of providing patient and surgeon with the best available conditions during operations, many physicians have, through years of service, coupled their extensive experience with a scientific attitude of observation and inquiry to build the practice of anesthesiology into the science it is today. They have contributed the numerous developments which now make intensive training almost obligatory before a younger man can call himself their equal. That these self-taught anesthesiologists still constitute the backbone of the specialty is evident from the fact that only three of the nine members appointed to the American Board of Anesthesiology have qualified by way of formal postgraduate training.

With the larger conception of anesthesia service coming to recognition at this time, it would seem that within a few years any hospital of 100 beds or more with an average proportion of surgical work will need the full time of at least one specialist in anesthesia to perform the various duties connected with a complete service. The qualifications of such a specialist should equal those necessary for certification by the American Board of Anesthesiology, an affiliate of the American Board of Surgery. To qualify for the examination of this board at present, a physician must be of good moral character, of ethical standing, a member of the American Medical Association, licensed by law to practice medicine, a graduate of a grade A medical school, a former hospital intern and a specialist of at least four years' standing, two years of which should have been spent in intensive graduate study. After 1941, in the opinion of the board, the special preparation should consist of six years' specialization, three of which should be spent in thorough training "in the clinical phases of anesthesiology and in anatomy, physiology, pharmacology, biochemistry and other basic sciences which are necessary to proper understanding of the problems involved in the specialty of anesthesiology." Such instruction must have been received in institutions approved by the Council on Medical Education and Hospitals.

The recent rapid increase in the number of institutions offering adequate training and the number and qualifications of the applicants are most encouraging. It may be asked what is to become of these physicians after they finish their training. Placing young specialists in the United States has so far not proved difficult. The demand on the part of medical schools and large teaching hospitals has exceeded the supply. Eventually a saturation point of teaching positions will of course be reached. However, several obvious circumstances will bring about satisfactory adjustments. Established departments tend to expand in scope, requiring an increasing number of associates and assistants. Many men are intensely interested in anesthesiology but not in teaching as a major interest or in research activities. Although they are quite as capable as the teachers, their preference is for private practice in hospitals without university affiliations. The minimum amount of instruction to the house staff necessary in such hospitals is given willingly by these men just as it is by attending staff members in other specialties. The fact that hundreds of physicians who had little or no formal training in anesthesiology, either graduate or undergraduate, have succeeded in such practice in the past proves that there will be abundant need for well trained practitioners in the future.

RESEARCH

It should be emphatically stressed that research is merely a by-product of a department of anesthesiology. First and foremost should come good service to patients, then teaching and finally, when these are assurred, research.

The physical signs induced by, the character of the response to, and the effective dose of anesthetic and depressant drugs are not the same with animals as with man, yet the laboratory is the logical starting point for any physiologic or pharmacologic investigation which may ultimately receive clinical study and final evaluation. Several recent advances in anesthesiology serve to emphasize that cooperative effort between the laboratory worker and the clinician is essential. In addition to purely clinical research, the anesthetist is capable of contributing much toward the satisfactory amalgamation of laboratory and clinical data through discussion of the planning of experiments involving anesthesia and cooperative assistance in the laboratory, aid in checking the results of animal experiments with human beings, offering to the basic science departments the opportunity for clinical observation of their problems, carrying clinical problems to the basic science experts for their consideration and investigation, and independent investigations. The control of the patient essential to proper anesthesia provides admirable circumstances for the study of changing bodily function incident to the anesthetized state.

TECHNICIANS

Surgeons have depended and still depend, to a constantly decreasing extent, on technicians for the administration of anesthetics. A reference to this situation is therefore necessary. The aid of the nursing profession has been priceless. The neglect by the medical profession of so important a function has thus been compensated to some extent. It is obvious, however, to one who has spent many years in training others in the technical as well as in the scientific aspects of pain relief that a more appropriate field for the nurse-technician in medicine is to be found in obstetrics and minor surgery, if indeed such technician assistance is necessary. True, one not possessed of a medical background can be taught to do many things in medical practice. However, the minute by minute need for knowledge and judgment in matters pharmacologic as well as physiologic is rarely so great in normal obstetrics and during certain surgical procedures as it is during the administration of a majority of anesthetics. Decisions during delivery of a parturient woman or during the removal of an appendix are seldom so likely to affect directly

the later incidence of morbidity or even mortality as are the decisions which must be made and acted on during the management of the anesthetized patient. If a technician must be used—and the present need in some localities is admitted—a physician well versed in anesthesiology should be constantly close at hand. The practice, current in some medical schools, of training nurses as anesthetic technicians and sending them out to administer anesthetics without supervision is perpetuating an unjustifiable hazard.

Our experience has taught us two important facts. 1. The employment of anesthesia technicians in a hospital seriously embarrasses the satisfactory training of medical students and doctors. 2. The average intern, after good training in the basic sciences and a half year of reliable undergraduate instruction in the clinical use of anesthesia, can, at the end of a month of carefully supervised practical experience in the operating room, be trusted with the welfare of an anesthetized patient more safely than can the average technician after years of experience. This statement is made advisedly and after long observation of persons working in both categories.

ESTABLISHMENT OF A DEPARTMENT

In what does a department of anesthesiology in a medical school consist? First and without doubt there must be a director, a physician who is the best possible clinical anesthetist as well as teacher. Progress will be more satisfactory if the director's time is devoted solely to one institution. His income should be adequate to maintain him on a par with the heads of other departments. Immediate need for assistants will depend on local circumstances and the size of the hospital. Once such a director is a part of the faculty and hospital staff, gradual development of a department in the hospital and in the school should take place. The basis of both teaching and research is good clinical anesthesia. The director's time during the first year therefore should be concerned mainly with learning the ways of the surgical staff and the staffs of other departments and fitting himself to supply their individual needs. During the director's second year, a short course of lectures and demonstrations to undergraduates can advantageously begin. If the curriculum is hopelessly crowded, possibly an hour can be offered here and there from some branch of surgery or from obstetrics. Gradually the need will become more apparent and the time will become available. As soon as possible, one or two fourth year students at a time should be assigned in rotation to clinical anesthesia. A student will learn more during one week full time than during three weeks part time. The same is true of interns. The longer the period of contact, the better will be the result. During the director's second year, residencies in anesthesia may be thought of, the number depending on the size of the hospital. Only after the clinical work is running smoothly, with the full confidence of the surgical staff, can undergraduate teaching, then graduate teaching and finally research be undertaken.

A SAMPLE DEPARTMENT

The department at the University of Wisconsin as constituted at present will be described, not because it approaches the ideal but because we are familiar with it. Organizations in existence for a shorter time are already more nearly ideal. Some of these have been initiated in hospitals connected with medical schools,[1] while others are in hospitals without teaching affiliations.[2]

This department may be outlined as follows:

A. Personnel
1. Professor of anesthesia in medical school and director of anesthesia, university hospitals; full time; salary from medical school and fee privileges for private patients
2. Instructor in anesthesia: former resident; salary from medical school
3. Research fellow: former resident; salary jointly from research fund and hospital. It is hoped to make two or three permanent associates in the future
4. From five to seven residents: duration of appointment three years; prerequisites M.D., rotating internship and preferably one year residency in internal medicine or two in general practice; stipend and maintenance similar to those of other departments
5. Interns; spend one month in the anesthesia service
6. Fourth year medical students; one week full time; fifty students in each class

B. Teaching
1. Undergraduate
   (*a*) One lecture, second year (courtesy of the pharmacology department)
   (*b*) Course in surgical technic and anesthesia (given to one half of the third year class each semester)
   Instructor and two residents supervise anesthesia and teach fundamentals of open drop ether and chloroform anesthesia with dogs
   Twenty three-hour laboratory periods a year
   (*c*) Sixteen lectures second semester of third year, one hour periods
   Demonstration-lecture usually with anesthetized patient; quiz
   (1) History, terminology and scope of anesthesiology
   Review of Fundamentals of Physiology
   (2) Circulation
   (3) Prophylaxis and treatment of circulatory disturbances
   (4) Respiration
   (5) Prophylaxis and treatment of respiratory disturbances
   (6) The autonomic nervous system
   Review of Fundamentals of Pharmacology
   (7) Nonvolatile agents and correctives
   (8) Gases and vapors (including fire hazard)
   Fundamentals of Technic
   (9) Oral, rectal, subcutaneous and intravenous technics
   (10) Open drop technic; signs of anesthesia
   (11) Carbon dioxide absorption technic
   (12) Other inhalation technics (partial rebreathing, etc.)
   (13) Physiology, pharmacology and technic of obstetric pain relief

1. References include:
Gatch, W. D.: Anesthesia in Curriculum and Clinic, J. A. M. A. **69**: 367 (Aug. 4) 1917.
Herb, Isabella: Anesthesia in Relation to Medical Schools and Hospitals, Am. J. Surg. **35**: 50 (April) 1921.
Bourne, W.: On the Teaching of Anesthesia to Medical Students, Brit. J. of Anaesth. **1**: 74 (No. 2) 1923.
Waters, R. M.: The Requirements of an Anesthesia Service, Anesth. & Analg. **9**: 219 (Sept.-Oct.) 1932.
Wright, A. M.: Teaching and Anesthesia Service from the Viewpoint of Surgery, ibid. **14**: 246 (Nov.-Dec.) 1935.
Rovenstine, E. A.: Anesthesia at Bellevue Hospital, Hospitals **10**: 84 (June) 1936.
Dollar, D. M.: The Teaching of Anesthesia, Anesth. & Analg. **15**: 225 (Sept.) 1936.

2. References include:
Salzer, M.: Anesthesia as a Part Time Specialty, Tr. Sect. Surg., Gen. & Abd., A. M. A., 1922, pp. 45-52.
Palmer, C. B.: Organization of a Hospital Anesthesia Department, Anesth. & Analg. **11**: 50 (April) 1923.
Miller, A. H.: Organization of the Anesthesia Service of the General Hospital, J. A. M. A. **101**: 1119 (Oct. 7) 1933.
Leech, B. C.: Organization and Management of a Department of Anesthesia in a 200 to 400 Bed Hospital, Anesth. & Analg. **13**: 192 (Sept.-Oct.) 1934.
Ruth, H. S.: Anesthesia Service, ibid. **14**: 243 (Nov.-Dec.) 1935.
Schwartz, A. L.: Professional Anesthesia: A Hospital Plan in Operation Eighteen Years, J. Indiana M. A. **29**: 165 (April) 1936.
Tovell, R. M.: The Department of Anesthesia, Hartford Hospital: A Report for 1937, Anesth. & Analg. **17**: 268 (Sept.-Oct.) 1938.

Fundamentals of Local and Block Anesthesia

(14) Pharmacology, principles, toxicity (prophylaxis and treatment)

(15) Block technics: emphasizing simple field blocks and spinal blocks

(16) Therapeutic and diagnostic procedures with anesthetic drugs

(*d*) Each fourth year student for one week full time with department; preoperative check of patients scheduled for operation; operating room work; postoperative check of patients; record keeping

2. Postgraduate

(*a*) Intern, twelve of house staff, one month each full time

(*b*) From five to seven residents, three year periods

First and third years, clinical anesthesia with some teaching experience and research

Second year, research major interest (anesthesia problems) with courtesy contact in laboratories of pharmacology or physiology, or clinical research

Trial being made of a limited number of six month appointments of graduates already practicing anesthesiology who wish a postgraduate course; not yet established; if adopted, tuition will have to be charged

(*c*) The department is open to visiting physicians at all times, though no clinical experience is offered such visitors

C. Departmental meetings

(*a*) Current literature review and discussion, two hour session, Monday 7 p. m.

One member reports each week on journals assigned to him; 106 journals covered, with occasional articles from others

A small departmental library maintained; medical school library near at hand

(*b*) Clinical work: Review of past week's cases, including deaths of surgical patients; two hour session, Wednesday, 1 p. m.

Meetings attended by whole anesthesia staff, including intern, student and visitors; chairmanship, in rotation, by residents

(*c*) First year residents required to attend all undergraduate lectures

(*d*) All members of the department expected to attend hospital staff meetings, including clinical-pathologic conferences and university medical meetings

Preoperative rounds are made each evening, when the clinical records of patients are reviewed and transferred to departmental record sheets; after the patients are seen, orders are written for premedication. Odd hours are utilized by residents and interns to examine records and patients after operation and to complete the anesthetic record. The record sheet is then coded to a Hollerith punch card for permanent filing. All records are sorted yearly and a statistical survey of the work of the department compiled. An effort is made to have each resident write at least one paper and gain experience in lecturing to medical students.

The review of basic science for the resident, aside from his attendance at undergraduate lectures, is accomplished in an entirely informal way. Frequent contact with a skeleton, models and charts in the department aids him in coordinating his knowledge of anatomy with the technic of injection anesthesia. Experimental blocks and dissection of the cadaver are made possible through the courtesy of the anatomy department. Joint research efforts are constantly in progress with the departments of physiology and pharmacology and other basic science groups as well as with the various departments of clinical practice. Constant reference to the literature is stimulated as a result of discussions in the operating room and at departmental meetings. This has seemed sufficient for all practical purposes.

A department of anesthesia must conform to the needs of the institution served. In the plan outlined, two permanent associates with an eventual rank of associate professor are essential for future development. The instructor should be retained on a semipermanent basis. Such a personnel is an essential if the short term (six months) instruction to graduates is instituted.

SUMMARY

By anesthesiology is meant not only the science of the administration of drugs for the comfort of patients during operation but also the management of patients in depression from other causes. Pneumotherapy, intravenous therapy, therapeutic and diagnostic procedures involving the use of anesthetic drugs, and other efforts based on similar scientific knowledge, logically fall within the scope of anesthesiology. Clinical instruction in this subject is sound educational policy in the broad training of every physician. The outline given of the establishment and conduct of such a department in a teaching hospital and medical school is not ideal but may afford a groundwork on which better organizations may be constructed in other medical schools and in the various hospitals. The patient under the influence of pain-relieving drugs, together with the department of anesthesia, constitutes a natural decussation of many of the pathways between basic science and clinical teaching. Appreciation of this relation is, we believe, a contribution to our educational program.

NOTE.—The references cover only the published accounts of established departments of anesthesia. There are many departments, especially of recent origin, which have not been described in the literature.

THE INTRAVENOUS USE OF SODIUM SULFAPYRIDINE

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The very slight solubility of sulfapyridine (2-[*p*-aminobenzene sulfonamide] pyridine) in water renders parenteral administration of this drug difficult when a route other than oral administration is desired. The poorer and more erratic absorption from the gastrointestinal tract of sulfapyridine as compared to sulfanilamide [1] necessitates its parenteral use in certain cases if high blood concentrations are to be attained. Sulfanilamide is sufficiently soluble to allow the use of subcutaneous administration of a saturated solution in physiologic solution of sodium chloride but in the case of sulfapyridine several liters of fluid would have to be given. Whitby [2] has suggested the injection of an oil suspension of sulfapyridine intramuscularly. There are objections to this procedure and even possible dangers.[3] The very soluble sodium salt of sulfapyridine recently described and studied by Marshall, Bratton and Litchfield [1] would appear to offer a means of parenteral administration of the drug.

This investigation has been aided by a grant from the John and Mary R. Markle Foundation and a grant from the Chemical Foundation, Inc., of New York.

From the Department of Pharmacology and Experimental Therapeutics and the Department of Medicine, Johns Hopkins University School of Medicine.

1. Marshall, E. K., Jr.; Bratton, A. C., and Litchfield, J. T.: Science **88**: 597 (Dec. 23) 1938. Long, P. H., and Feinstone, W. H.: Proc. Soc. Exper. Biol. & Med. **39**: 486, 1938.
2. Whitby, Lionel: Lancet **2**: 1095 (Nov. 12) 1938.
3. Long, P. H.: Lancet **1**: 60 (Jan. 7) 1939.

Since a solution of sodium sulfapyridine is strongly alkaline (p_H 10.4 to 11.0), the only possible route of parenteral administration is the intravenous one. The p_H of such a solution is somewhat higher than that of a sodium salt of a barbiturate [4] and lower than that of alkalinized arsphenamine,[5] but the total amount of alkali given at a dose would be greatest in the case of sodium sulfapyridine. With the experience of intravenous injection of barbiturates and arsphenamine as a background, it seemed proper to use sodium sulfapyridine intravenously as an emergency measure if animal experimentation on its acute toxicity by this route seemed to justify its clinical trial. Since any delayed toxic effects and chronic toxicity from the intravenous use of sodium sulfapyridine must obviously be identical with these effects produced by the same blood concentrations of sulfapyridine administered orally, we have investigated in animals only the acute toxicity of sodium sulfapyridine by intravenous injection. The following data are taken from an unpublished study of Marshall and Litchfield on certain aspects of the pharmacology of sulfapyridine.

TABLE 1.—*Toxicity of Sodium Sulfapyridine for Dogs*

Dog	Dose, Gm./Kg.	Per Cent Solution Injected	Blood Level Mg. per 100 Cc. 1 Hour After	Symptoms
A	0.1	10	10.0	None
B	0.1	5	11.1	Vomited once
B	0.1	10	11.3	Vomited once
B	0.1	20	10.9	None
C	0.1	20	17.1	None
D	0.1	20	9.7	None
E	0.1	5	10.5	None
F	0.2	10	24.2	Slight ataxia
C	0.2	10	20.8	Slight muscular twitching
G	0.2	10	22.3	Slight muscular twitching and ataxia
H	0.2	10	20.4	None
I	0.3	20	37.8	Vomiting, muscular tremor and convulsions
J	0.3	20	36.5	Vomiting, convulsions, muscular tremors
K	0.5	20	55.5	Vomiting, convulsions, died in 6-10 hours
L	0.5	20	60.6	Vomiting and convulsions
M	0.5	20	52.8	Vomiting and convulsions
N	0.5	20	58.8	Vomiting and convulsions
O	0.5	20	64.5	Vomiting and convulsions, died in 3 hours

In table 1 is given a summary of the experiments on dogs. The symptoms from an intravenous injection of a solution of the sodium salt are identical with those observed in mice and dogs by Marshall, Bratton and Litchfield [1] after oral administration of this drug. With the exception of slight vomiting in one animal, symptoms were not observed with 0.1 Gm. per kilogram; with 0.5 Gm. per kilogram severe symptoms and convulsions were always seen, and death occurred in two out of the five dogs injected with this dose. Neither the strength of the solution used nor the rate of injection seemed to influence the symptoms, except those seen during the first few minutes, when collapse occurred if the solution was given too rapidly. Blood concentrations [6] were done at intervals on all the animals, but those taken at about one hour (from forty-five to sixty minutes) after injection are given because at this time equilibrium between blood and tissues is certainly complete and maximum symptoms are seen. One can note the approximate proportionality between dose and blood concentration. In table 2 are summarized data on the intravenous injection of the sodium salt into rabbits. It is clear that rabbits, even on the basis of blood concentrations, are more resistant than dogs; this may be due to the fact that the rabbit acetylates sulfapyridine very rapidly and shows a more rapid fall in blood concentration with time than does the dog, which does not acetylate at all.

On account of the well known effects on circulation and respiration caused by the injection of insoluble organic acids which require a large amount of alkali for solution,[4] the effect of the injection of solutions of sodium sulfapyridine on the blood pressure and the respiration of anesthetized dogs was studied. Under light ether anesthesia, five dogs were given eleven injections of 0.1 Gm. per kilogram of sodium sulfapyridine in either 5 or 20 per cent solution, the time of injection varying from one half to ten minutes. The effect appears to depend on the strength of the solution and the rate of injection. With strong solutions injected rapidly, a marked fall of blood pressure and decrease of respiration occur; with weak solutions injected slowly, practically no change in blood pressure or respiration is observed. Various intermediate reactions between these extremes were observed. In the accompanying tracing the two extremes are shown.

Since it has been shown [7] that when sulfanilamide is injected intravenously or when a sufficiently high concentration in the blood is attained by oral administration renal function is temporarily depressed, the effect of the intravenous injection of sodium sulfapyridine on the creatinine clearance of dogs has been investigated. Three or four control periods were taken to determine the creatinine clearance, an intravenous injection of 0.1 Gm. per kilogram of sodium sulfapyridine was given and the creatinine clearance was measured for several periods during the next two or three hours. No change was observed in the creatinine clearance under these conditions, indicating that in dogs an immediate effect is not produced on renal function by the intravenous injection of this dose of sodium sulfapyridine.

TABLE 2.—*Toxicity of Sodium Sulfapyridine for Rabbits*

Rabbit	Dose, Gm. per Kg.	Per Cent Solution Injected	Blood Level Mg. per 100 Cc. 1 Hour After Free	Blood Level Mg. per 100 Cc. 1 Hour After Total	Symptoms
B	0.3	20	20.5	32.0	None
A1	0.5	10	44.0	54.8	Muscular twitching, mild convulsions
A2	0.5	10	45.1	56.0	Muscular twitching, mild convulsions
A3	0.5	10	45.7	49.1	Muscular twitching
A4	0.5	10	41.1	53.7	Muscular twitching
E	0.5	5	40.0	44.5	Temporary respiratory stoppage, muscular twitching
F	0.5	5	52.3	52.3	Muscular twitching, slight rigidity
G	0.5	5	....	....	None
D	0.5	20	30.6	40.0	None

In view of the foregoing considerations and experimental studies on animals, a careful clinical trial of the intravenous use of sodium sulfapyridine was undertaken. It seemed that a dilute solution of the sodium salt should be used and injected fairly slowly. A 5 per cent solution in sterile distilled water was chosen. On the basis of no ionization of the salt this would be slightly hypotonic, while on the basis of complete ioniza-

4. Intravenous Use of Barbital Compounds, Report of the Council on Pharmacy and Chemistry, J. A. M. A. **97**: 1886 (Dec. 19) 1931.

5. Elvove, Ephraim, and Clark, W. M.: Bull. 135, Hyg. Lab., U. S. P. H. S., March 1924.

6. Determinations of sulfapyridine in blood were done by diazotization and coupling with *N-(1-naphthyl)ethylenediamine*. A 1:50 or 1:100 dilution was used and readings were made with a photoelectric colorimeter (Bratton, A. C., and Marshall, E. K., Jr.: J. Biol. Chem., to be published).

7. Marshall, E. K., Jr.; Cutting, W. C., and Emerson, Kendall, Jr.: The Toxicity of Sulfanilamide, J. A. M. A. **110**: 252 (Jan. 22) 1938

tion it would be slightly hypertonic. In point of fact it is probably isotonic or very nearly so. The p_H of this solution is from 10.7 to 10.8. Since the sodium salt used [8] contained a molecule of water of crystallization, 3.8 Gm. of the salt for a patient weighing 65 Kg. would be equivalent to 0.05 Gm. per kilogram of sulfapyridine; 3.8 Gm. was the standard dose adopted for adult patients.

Injections of sodium sulfapyridine have been given to thirty patients. No symptoms of untoward effects have been noted in any case except vomiting during or immediately after the injection. No respiratory or acute circulatory disturbances were apparent during or immediately after the injection. No abnormality was observed in the routine examination of specimens of urine taken after the injection. It is interesting to note that vomiting is produced in both dogs and human subjects when sulfapyridine is given intravenously, so that the hypothesis of gastric irritation as its cause must be questioned. Determination of blood concentration values at various times after injection were made in fifteen injections in ten patients. The summary of the histories of these ten cases are given:

REPORT OF CASES

CASE 1.—W. D., a Negro aged 46, entered Johns Hopkins Hospital Feb. 9, 1939, suffering from type III pneumococcus lobar pneumonia which involved the greater part of both lung fields. The blood culture was negative. Treatment was instituted by administering sulfapyridine orally. On the day after entry the temperature was still elevated. Sodium sulfapyridine was given by the intravenous route at 8 p. m. February 10 and again February 11. The oral administration of sulfapyridine was continued as before. The patient made an uneventful recovery and was discharged February 28.

CASE 2.—J. S., a white man aged 20, entered Johns Hopkins Hospital Feb. 16, 1939, suffering from type II lobar pneumonia which involved the left lower lobe. The blood culture was negative. Sulfapyridine was administered by mouth, but because of a recrudescence of fever February 18 and the fact that the "free" blood sulfapyridine was only 2.7 mg. per hundred cubic centimeters, sodium sulfapyridine was administered by the intravenous route at 2 p. m. and 8 p. m. that day. The patient made an essentially uneventful recovery, which was marred only by a sterile pleural effusion which developed February 25 and required paracentesis on two occasions before it disappeared. He was discharged March 10.

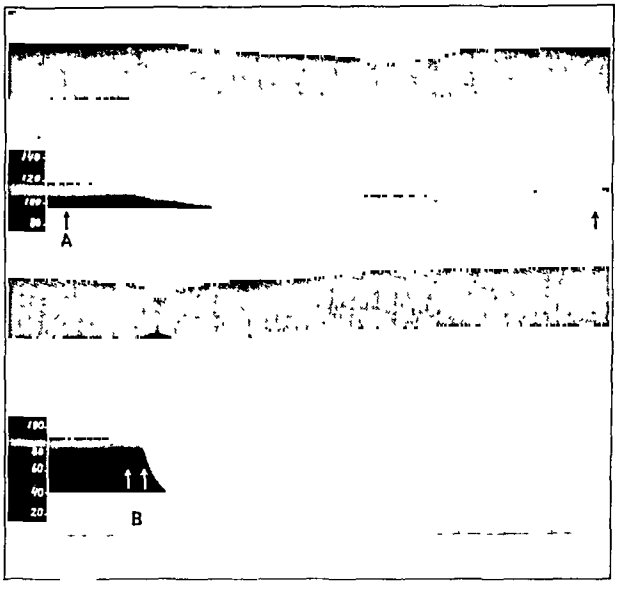
CASE 3.—C. W., a Negro aged 35, entered Johns Hopkins Hospital Feb. 20, 1939, suffering from type IV pneumococcus lobar pneumonia involving the right upper and left lower lobes. The blood culture was negative. Treatment was started with sulfapyridine by mouth. On the morning after entry to the hospital his temperature was still elevated and the level of sulfapyridine in the blood was 2.9 mg. per hundred cubic centimeters. He was therefore given the sodium salt of sulfapyridine by the intravenous route. Sulfapyridine was continued by mouth. On the eighth day the drug was discontinued because a moderate leukopenia and neutropenia developed. Recovery, however, was uneventful and he was discharged March 9.

CASE 4.—M. F., a white woman aged 47, entered Johns Hopkins Hospital Feb. 26, 1939, suffering from type III pneumococcus lobar pneumonia involving the right middle lobe. The blood culture was negative. The patient appeared quite ill. Treatment was begun with sulfapyridine administered by mouth. On the following day the temperature was elevated and the level of the sulfapyridine in the blood was 2.9 mg. per hundred cubic centimeters. She was given one intravenous injection of sodium sulfapyridine. Oral medication with sulfapyridine was continued and the patient made an uneventful recovery. She was discharged from the hospital March 12.

8. We are indebted to Dr. Randolph T. Major of Merck & Co. for a supply of the sodium salt and to Dr. K. K. Chen of Eli Lilly & Co. for the sodium salt in sterile ampules for intravenous injection.

CASE 5.—I. F., a white woman aged 38, entered Johns Hopkins Hospital Feb. 25, 1939, suffering from type III lobar pneumonia involving the right upper, middle and lower lobes. She appeared to be quite ill and showed marked distention. The blood culture was negative. Treatment was instituted by the administration of sulfapyridine by mouth. February 26 no great improvement was noted and the patient was given 3.8 Gm. of sodium sulfapyridine by the intravenous route. Medication by mouth was continued and the patient made an uneventful recovery, being discharged from the hospital March 18.

CASE 6.—G. S., a Negro aged 32, entered Johns Hopkins Hospital Feb. 4, 1939, suffering from primary type VIII pneumococcus peritonitis with bacteremia. The blood culture showed one colony of type VIII pneumococcus per cubic centimeter of blood. An exploratory laparotomy and appendectomy with drainage was done. The appendix was subsequently found to be normal. Treatment was instituted February 5 with sulfapyridine in a 0.1 per cent solution by the intravenous route. On the following day 3.8 Gm. of sodium sulfapyridine was given by the intravenous route and this dose was repeated February 7. Treatment with sulfapyridine by mouth was begun February 8. The patient's recovery was uneventful and he was discharged from the hospital February 23.



Effect of intravenous injection of sodium sulfapyridine on blood pressure and respiration of dogs anesthetized with ether. In *A*, upper curve shows respiration, lower curve mean blood pressure. In *B*, upper curve shows respiration, middle curve mean blood pressure, lower curve time in minute intervals. Time tracing applies for both *A* and *B*. In *A*, between the two arrows, slow intravenous injection of 0.1 Gm. per kilogram of sulfapyridine in the form of a 5 per cent solution of its sodium salt. In *B*, between arrows, rapid intravenous injection of 0.1 Gm. per kilogram of sulfapyridine in the form of a 20 per cent solution of its sodium salt.

CASE 7.—M. S., a Negress aged 50, entered Johns Hopkins Hospital Feb. 6, 1939, suffering from type III pneumococcus lobar pneumonia involving the left upper and lower lobes. Treatment with type III antipneumococcus rabbit serum was started. A blood culture taken February 6 was negative but one taken February 8 showed twenty-one colonies of pneumococcus type XVI per cubic centimeter of blood. February 8 3.8 Gm. of the sodium salt of sulfapyridine was administered twice by the intravenous route and was repeated by the next day. Oral medication with sulfapyridine was commenced February 9 and continued until February 18. Recovery and convalescence were uneventful. The patient was discharged from the hospital March 7.

CASE 8.—H. H., a Negro aged 30, entered Johns Hopkins Hospital Feb. 25, 1939, suffering from type I lobar pneumonia involving the right lower lobe. He appeared to be very ill. The blood culture showed type I pneumococci. Treatment was instituted by the intravenous administration of sodium sulfa-

pyridine and was continued on the next day by giving sulfapyridine by mouth. The drug was discontinued on the fifth day of treatment because an acute hemolytic anemia developed. Recovery, however, was uneventful, and the patient was discharged March 13

Cases 9 and 10 were essentially negative.

COMMENT

In table 3 certain additional data concerning these patients are given. The dose per kilogram is expressed in terms of sulfapyridine, the values for blood concentrations before and at various times after the injection in terms of sulfapyridine, the first figure representing the free and the second the total. In the first five cases it is to be noted that the blood concentration values represent the effect of oral as well as intravenous administration. The blood pressure was taken just before the injection and again as soon as the injection was completed. The figures for blood concentrations at various times after the injection emphasize certain important facts. It is obvious that distribution between blood and tissues is complete or nearly complete from five to ten minutes after the completion of the injection, as very little decrease occurs in these values for the next hour. The blood concentration is remarkably well sustained after a single intravenous injection, and in this respect the human subject resembles the dog more than the rabbit. One notes that the blood concentration of total sulfapyridine at one hour after injection has been from 5 to 8 mg. per hundred cubic centimeters higher than before injection; the increase in the concentration of the free form is about the same, indicating that little or no acetylation takes place in the first hour. By the fourth hour conjugation of the injected drug has begun, but in cases 3 and 8 practically no acetylsulfapyridine is present.

The intravenous use of sodium sulfapyridine is advantageous in that blood levels of from 5 to 8 mg. per hundred cubic centimeters can be attained with great speed and certainty. Not only in cases in which administration of sulfapyridine by mouth is impossible or in which intestinal absorption is very poor, but also in cases in which prompt action of the drug is imperative, the intravenous route is advisable. On the other hand, the potential dangers associated with intravenous medication in general and especially with strongly alkaline solutions of weak acids such as arsphenamine and the barbiturates must not be forgotten.[4] Hence the intravenous use of sodium sulfapyridine should be limited to conditions in which oral administration is impossible or does not suffice for successful therapy.

Since our use of the intravenous injection of sodium sulfapyridine has been confined to pneumococcic infections, a statement of our present practice in treating pneumococcic lobar pneumonia with sulfapyridine may be given here.

In mildly or moderately ill adult patients it is our practice to administer an immediate dose of 4 Gm of sulfapyridine by mouth. Then maintenance doses of 1 Gm. of the drug are given orally at intervals of four hours until the patient's temperature has been normal for at least forty-eight hours. The dose of the drug is then reduced to 1 Gm. every six hours and this regimen is continued until resolution of the pneumonic process is well under way, at which point 0.5 Gm of sulfapyridine four times a day is begun and maintained until the lungs are clear.

If, however, the patient seems to be severely ill, the sodium salt of sulfapyridine is given by the intravenous route. The dose is calculated on the basis of 0.05 Gm of sulfapyridine per kilogram of body weight (equivalent to 0.06 Gm. per kilogram of the sodium salt with 1 mole water of crystallization). The drug is made up in a 5 per cent solution in sterile distilled water and is given by the intravenous route. It should be injected slowly at the rate of 5 cc of the solution per minute. Great care should be taken that none of the solution of sodium sulfapyridine gets outside of the vein; otherwise a bad slough may result, as the solution is very alkaline. This dose may be repeated at intervals of from six to eight hours. Sulfapyridine in doses of 1 Gm. every four hours by mouth should be started at the time of intravenous therapy. Rarely have we found it necessary to give more than two injections of sodium sulfapyridine.

We also employ the solution of the sodium salt of sulfapyridine in the treatment of patients with pneumonia who are not responding to therapy by mouth because of poor absorption from the gastrointestinal tract. If on the day following the beginning of sulfapyridine treatment by mouth the patient's temperature is not below 101 F. rectal and the concentration of free sulfapyridine in the blood is below 4 mg. per hundred cubic centimeters, a single dose of 0.06 Gm of the sodium salt per kilogram of body weight in a 5 per cent solution is administered by the intravenous route. The oral administration of sulfapyridine is continued according to schedule. In our experience this has resulted in prompt return of the temperature to normal.

TABLE 3.—*Data on Intravenous Injection of Sulfapyridine in Patients*

Case	Weight, Kg	Dose, Gm per Kg	Blood Concentration in Mg per 100 Hundred Cubic Centimeters*						Blood Pressure	
			Before	5 Min	10 Min	1 Hr	4 Hrs	12 Hrs	24 Hrs.	Before	After
1	52	0.062	4.8, 7.1 6.1, 9.3			11.8, 14.5 11.6, 15.1	10.3, 14.1 8.9, 12.7	6.1, 9.3	. . .	118/80	114/80
2	65	0.050	2.7, 4.5 5.7, 8.0	9.2, 10.9 13.5 15.7		..	6.1, 7.8 9.8, 12.8			110/60 120/60	120/0 120/0
3	62	0.052	6.9, 6.9	15.6, 15.2	..	14.0, 13.9	13.5, 13.6				
4	57	0.057	2.9, 3.6	. .	9.7, 11.0	8.9, 10.6	. .			100/50	100/0
5	62	0.052	5.3, 5.4	.	13.9, 14.6	11.7, 12.5	.				
6	54	0.060	3.6, 4.3 0.4, 1.8		.	7.5, 9.2 5.7, 7.5	5.5, 7.9 3.9, 5.7	1.3, 3.3	0.5, 1.7		
7	60	0.054	0.0, 0.0 5.4, 9.3		.	5.5, 6.0 12.6, 17.3	.... .		.		120/0
8	45	0.072	0.0, 0.0 6.8, 7.3	11.8, 11.8 18.1, 18.2	.	8.1, 8.1 14.8, 15.0	6.8, 7.3 13.9, 14.3				
9	65	0.050	0.0, 0.0		6.6, 6.9	5.9, 6.6	4.4, 5.6		0.7, 1.2		
10	60	0.054	0.0, 0.0			5.2, 5.3	3.9, 4.6	2.7, 3.4	1.3, 1.8		

* The first figure in each column represents free, the second figure total

The intravenous use of the sodium salt is also of value in the treament of patients who are vomiting. Nausea and vomiting may still occur, as has been stated previously, but, because the drug is being given intravenously, effective blood levels may be maintained. We are not certain as to what concentrations of the drug in the blood are most effective. Our experience leads us to believe that a level of 4 mg. per hundred cubic centimeters or more is desirable in pneumonia of adults.

ACUTE MYOCARDIAL INFARCTION NOT DUE TO CORONARY ARTERY OCCLUSION

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It is well known that the clinical and electrocardiographic features of coronary thrombosis may be observed in patients in whom a coronary artery thrombus is subsequently not found at necropsy. In such patients the clinical picture may have been caused by a myocardial infarct in the absence of a coronary artery occlusion. The occurrence of recent myocardial infarction without acute coronary thrombosis has been noted by Libman,[1] Oberndorfer,[2] Büchner,[3] Hamburger and Saphir,[4] Dietrich,[5] Levy and Bruenn[6] and others.[7] We have therefore undertaken a detailed systematic study of the myocardium and of the coronary vessels in order to determine the relative frequency of myocardial infarction without coronary occlusion and to discover, if possible, what physiologic factors and what clinical conditions are responsible.

It is theoretically conceivable that myocardial infarction may occur whenever there is severe myocardial ischemia, even in the absence of a mechanical occlusion of the coronary arteries. Severe myocardial ischemia and consequent acute myocardial necrosis may result from a relative inadequacy of the coronary blood flow for the functional demands of the myocardium or from changes in the blood itself. Thus Christ[8] produced disseminated areas of ischemic necrosis in the hearts of animals poisoned by carbon monoxide, while Herzog and others[9] observed areas of degeneration and hemorrhagic myonecrosis in human beings who had been poisoned in this manner. Similar areas of myocardial necrosis have been observed in persons suffering from severe anemia[10] and in animals in which anemia had been produced experimentally.[11] In cases of angina pectoris, either during an attack of spontaneous cardiac pain[12] or during exercise tests,[13] electrocardiographic changes similar to those of coronary thrombosis have been noted. These changes may be attributed to a transient functional insufficiency of the coronary flow with consequent ischemia and even necrosis of the myocardium. Büchner[14] discovered disseminated areas of myocardial necrosis in persons who had had attacks of angina pectoris during the last days of their lives but who had not suffered a coronary thrombosis. Although these isolated observations indicate that myocardial infarction may result from an inadequate coronary blood flow (coronary insufficiency) without coronary occlusion, a systematic investigation of its occurrence in human beings has not yet been reported.

It is now evident that the characteristic electrocardiogram of coronary thrombosis is due not to the thrombosis but to the resulting myocardial infarction, so that the same picture might be expected whether the myocardial injury was caused by a coronary occlusion or by coronary insufficiency. In cases in which there is pulmonary embolism, one often encounters not only a clinical picture[15] but also an electrocardiogram[16] which is identical with that of coronary thrombosis. In a recent study we[17] presented evidence that under certain circumstances pulmonary embolism may induce severe insufficiency of the coronary circulation with consequent myocardial infarction. Although there was no coronary artery thrombus, the myocardial infarct was associated with clinical and cardiographic phenomena ordinarily observed in cases of coronary thrombosis. One of us, with Sohval,[18] also observed myocardial infarction without coronary thrombosis in cases of calcific aortic stenosis (Mönckeberg) and suggested that many of the resemblances of calcific aortic stenosis to coronary sclerosis and thrombosis were actually due to such myocardial lesions. A detailed investigation of this question will be reported later.

The following report of cases of myocardial infarction not due to coronary thrombosis is made both to emphasize the frequency of this condition and to note its relationship to some of the problems already mentioned.

MATERIAL

Thirty-four cases of acute myocardial infarction without coronary thrombosis were observed among the 2,000 autopsies performed at the Mount Sinai Hospital in the last four years. Three of the previously reported cases[18] of calcific aortic stenosis were again studied because they also presented myocardial infarctions without thrombosis. Of the thirty-four more recent cases twenty-eight were observed in the last thousand autopsies, while only six were encountered in the preceding thousand autopsies. This increase is undoubtedly due to a more systematic study of the hearts in the last

From the Medical Services and the Laboratories of the Mount Sinai Hospital.

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few years, during which time we directed special attention to the subject of myocardial infarction without thrombosis. It emphasizes that diligent search is necessary to discover these lesions. In the last thousand autopsies, in which there were twenty-eight cases of myocardial infarction without coronary thrombosis, there were also sixty-three cases of myocardial infarction due to acute coronary thrombosis. Thus, as much as 31 per cent of the total number of cases of myocardial infarction occurred without acute coronary thrombosis (table 1).

TABLE 1.—*Cases of Myocardial Infarction in 2,000 Consecutive Necropsies**

Autopsy Numbers	Total	With Coronary Thrombosis		Without Coronary Thrombosis	
		Number of Cases	Per Cent	Number of Cases	Per Cent
9,001–10,000	62	56	90	6	10
10,001–11,000	91	63	69	28	31

*There were three additional cases utilized from necropsies preceding No. 9,001.

In thirty-two of the total thirty-seven cases, the heart on gross examination presented severe recent myocardial damage. Five other hearts presented microscopic acute myocardial lesions, which were discovered only on systematic study of a series of cases of recurrent pulmonary embolism.

Whenever acute myocardial lesions without recent coronary thrombosis were noted, the main coronary arteries and their branches were studied in detail throughout their course to make sure that a thrombus was not overlooked. In routine postmortem examinations, even when these are carefully performed, a coronary thrombus may be missed. We believe, so far as possible without complete microscopic serial sections, that our systematic study of the coronary vessels excludes the possibility that a coronary thrombus was present. Recent reports[19] and personal observations have shown that many so-called coronary artery thrombi are really occlusions of the coronary arteries secondary to a hemorrhage into an arteriosclerotic plaque. Such occlusions, like primary coronary artery thrombosis, produce myocardial infarction. In none of the cases of myocardial infarction here reported were there occlusions due to hemorrhage within the wall of the coronary artery. Nor were there multiple closures of the small myocardial branches of the coronary arteries. All the hearts were personally examined by us.

Transverse sections were made throughout the entire course of each main artery and its branches, at intervals of 3 mm. Extremely narrowed portions of the vessels or areas that were suspected of being the site of a thrombus were sectioned at even closer intervals and were studied microscopically. Whenever possible, the following branches were carefully examined: the left anterior descending and its primary and secondary rami; the left circumflex and its branches to the anterior wall of the left ventricle, to the obtuse margin of the heart and to the posterior wall of the left ventricle; the main right coronary branch; the right circumflex artery and the branches to the posterior interventricular sulcus and to the posterior wall of the left ventricle, and the branches of the right coronary to the anterior and posterior walls of the right ventricle and to the acute margin of the heart. The branches to the auricles were also examined but were frequently of minute caliber or could not be followed. The degree of arteriosclerosis and narrowing of the various coronary vessels and of the coronary ostiums was graded from one to four plus, according to their severity. The myocardium itself was diligently studied, grossly and histologically, sections being taken from the anterior and posterior portions of the right and left ventricle, of the interventricular septum, of the anterior and posterior papillary muscles and of any additional areas that appeared abnormal. The hearts were also examined for disease of the valves, pericarditis, endocardial abnormalities and mural thrombi.

19. (a) Paterson, J. C.: Capillary Rupture with Intimal Hemorrhage as a Causative Factor in Coronary Thrombosis, Arch. Path. **25**: 474 (April) 1938. (b) Wartman, W. B.: Occlusion of the Coronary Arteries by Hemorrhage into Their Walls, Am. Heart J. **15**: 459 (April) 1938. (c) Winternitz, M. C.; Thomas, R. M., and LeCompte, P. M.: The Biology of Arteriosclerosis, Springfield, Ill., Charles C. Thomas, 1938.

CLINICAL FEATURES

The clinical features are best presented in groups of cases, according to the various diseases that precipitated or predisposed to the myocardial infarction (table 2). In general, however, the entire series of cases presented one or more of the following clinical pictures: (1) cardiac pain and other clinical and cardiographic signs resembling coronary thrombosis, (2) cardiac failure with or without sudden death, (3) shock and (4) intercurrent diseases unrelated to the heart. Thus, in a general way the clinical pictures resembled those encountered in myocardial infarction due to coronary thrombosis.

The largest group, twelve cases, was associated with recurrent pulmonary embolism. Four of the patients had suffered from hypertension and an equal number from attacks of angina pectoris. In three there were symptoms of congestive heart failure. Five of the patients died in shock. Electrocardiograms had been taken in six of the cases and in three of them the cardiographic abnormalities suggested an acute coronary occlusion.

A second large group included nine instances of calcific aortic stenosis. The patients were all men and, except for one man of 30, were between the ages of 50 and 74. Hypertension was present in four cases and angina pectoris in five. Except for one patient, they were hospitalized because of symptoms of failure of the left side of the heart, to which usually those of failure of the right side were eventually added. In four of the cases death occurred rather suddenly and unexpectedly. Bundle branch or intraventricular block was present in four, and T and RT abnormalities were present in five of the cases. The clinical diagnosis most commonly suggested was coronary arteriosclerosis and cardiac failure. In two a diagnosis of coronary thrombosis had been made.

TABLE 2.—*Clinical Groups of Cases of Myocardial Infarction Without Coronary Thrombosis*

	Number of Cases
Pulmonary embolism	12
Calcific aortic stenosis	8
Coronary narrowing, old occlusion and cardiac failure	6
Postoperative infarction	4
Severe acute anemia	3
Malignant hypertension with cerebral complication	3
Occlusion of superior mesenteric artery	1
Total	37

A third group was composed of six cases in which coronary insufficiency was apparently due to severe

coronary disease itself, without recent occlusion and without any associated valvular or extracardiac factor capable of inducing coronary insufficiency. At least three of the patients had had moderate hypertension. In all but one there was a history of angina pectoris, usually related to effort. Evidence of failure of the right side of the heart was found in all. Usually there was an intensification of the signs of failure shortly before death, or else there was an acute attack of severe and persistent cardiac pain or of pulmonary edema and shock. The electrocardiograms were interpreted as indicative either of myocardial damage or of a previous myocardial infarction. In two cases there were progressive electrocardiographic changes characteristic of recent myocardial infarction.

Four cases were observed in which myocardial infarction appeared after an operative procedure. The ages ranged from 54 to 79. Three were patients with hypertension and diabetes. Two of them had had attacks of acute urinary retention due to prostatic obstruction; one died five days after a suprapubic cystostomy; in the other clinical and cardiographic evidences of myocardial infarction developed in the third week after a similar operation. In a third case, on the second day after operation for a strangulated femoral hernia, the blood pressure dropped from 168 mm. of mercury systolic and 90 diastolic to 110 systolic and 64 diastolic. Transient atrioventricular dissociation developed and she died suddenly on the seventeenth day after operation with symptoms of shock. The fourth patient died three days after a cecostomy for an obstructing carcinoma of the sigmoid colon.

In three cases, myocardial infarction was found in persons who clinically presented a cerebral complication of severe hypertension. In all three the systolic pressure was well above 200 mm. of mercury and the diastolic pressure above 120. During the week before death, evidence of progressive cerebral softening, characterized by a stiff neck, changes in the reflexes and an appearance resembling decerebrate rigidity developed in one patient. The second patient suddenly became unconscious, suffered a hemiplegia and died in pulmonary edema and shock. The third patient, a woman aged 28, presented signs of uremia and acidosis. Eight days before death convulsions developed which were attributed to hypertensive encephalopathy. In none of these cases was there a fall in blood pressure.

In the remaining four cases anemia or shock may have played a role in precipitating coronary insufficiency and ensuing myocardial infarction. One patient was a woman aged 19 in whom in the fifth month of pregnancy a bloody diarrhea developed as the result of ulcerative colitis. Following sulfanilamide therapy her temperature rose to 106 F., the hemoglobin dropped to 15 per cent and she died with symptoms of peritonitis and bronchopneumonia. Sulfanilamide itself has not been found to produce myocardial necrosis. The second patient was a man aged 59 who vomited a large amount of black fluid, became very weak and had several loose, bloody and tarry stools. The hemoglobin fell to 45 per cent. Despite transfusions, acrocyanosis of both hands and feet developed and he went into collapse and died eleven days after the onset of the attack. The third patient was a man aged 78 in whom signs of shock developed as the result of an occlusion of the superior mesenteric artery with infarction of the intestine. The fourth was a man aged 66 with severe acute hemolytic anemia.

PATHOLOGY OF THE HEART

Ordinarily, infarction denotes the morphologic changes, including necrosis, in an organ whose blood supply is interrupted. Technically, therefore, the objection could be raised that the lesions observed in these cases cannot be termed infarcts because there is no actual occlusion of the nutritive vessels. The myocardial changes seen in the cases cited, however, were indistinguishable from those ordinarily described as infarcts and, like infarcts, consisted of areas of necrosis due to ischemia caused by an inadequate coronary blood supply. Occasionally a large confluent area of muscle was affected, similarly to that observed with recent occlusion of a major coronary vessel. More often, however, there were smaller isolated or disseminated foci of myomalacia, recognizable grossly.

The myocardial lesions were, in the main, confined to the wall of the left ventricle and its papillary muscles. The vulnerability of this site has been previously stressed by Büchner.[14] This localization was especially remarkable when, as in a few cases, the acute myocardial damage was entirely or almost entirely confined to one of the papillary muscles of the left ventricle. The anterior wall was affected somewhat more frequently than the posterior, but as a rule there were microscopic lesions in both of these segments of the left ventricle. Another feature of localization of the myocardial lesions is their occurrence in the subendocardial region. This is the portion of the myocardium farthest removed from the blood supply and therefore most severely affected by a relative insufficiency of the coronary flow. The localization of acute ischemic myocardial lesions to the subendocardial region also suggests that the nourishment of muscle fibers through the thebesian vessels is insignificant.

The gross changes varied in severity and extent. They consisted of greenish, yellowish or grayish discoloration of the muscle tissue, which was often streaked or mottled with hemorrhage. Often, however, hemorrhagic areas appeared on microscopic examination to be areas of organization with numerous congested capillaries and other small vessels. Occasionally the gross appearance of the affected myocardium was that of fatty change. Healed fibrous areas were often associated with acute necrosis. In some cases there were extensive fibrotic areas or aneurysms of the heart wall due to an old coronary occlusion.

Microscopic study revealed acute, organizing and chronic lesions. Early evidences of myocardial degeneration consisted of an uneven staining of the muscle fibers with the appearance of darker and lighter eosinophilic bands and loss of myostriation. Signs of more severe ischemic change were vacuolization of the muscle fibers, karyorrhexis or complete disappearance of their nuclei and, finally, homogenization and disappearance of muscle fibers. Sometimes there were large areas of vacuolated muscle fibers and fibrous tissue. In the vicinity of the necrotic muscle there were usually reactive foci of polymorphonuclear leukocytes, lymphocytes and mesenchymal cells[20] and sometimes focal or widespread areas of hemorrhage. Organization occurred early, as indicated by fibroblasts, cellular edematous connective tissue and congested blood vessels.

As a rule the coronary vessels showed extensive arteriosclerotic thickening with narrowing of their lumens. The left anterior descending branch appeared

20. Ehrlich, J. C., and Lapan, B.: The Anitschkow Myocyte, to be published.

to be most frequently and most severely involved, although the circumflex branch of the left coronary and the main right coronary and its circumflex branch were also conspicuously affected. There was no evidence either of intramural hemorrhage or of recent thrombosis of the coronary arteries or their branches. In the group of cases presenting coronary narrowing and failure, without other associative disease, there was almost invariably evidence of an old coronary occlusion. On the other hand, there were several cases in the group presenting pulmonary embolism and isolated instances in the other groups in which the coronary vessels were essentially normal or gave only slight evidences of arteriosclerosis without narrowing (table 3).

Except in a few cases the hearts were markedly hypertrophied and weighed considerably more than normal. However, a number were of normal size. The heart of a 19 year old girl with anemia weighed only 225 Gm. But as a rule the heart weights averaged between 400 and 500 Gm. The largest hearts were those associated with calcific aortic stenosis. The weights ranged between 450 and 1,300 Gm., the average being 710 Gm.

TABLE 3.—*Heart Weight and Degree of Coronary Narrowing*

Group	Heart Weight, Gm.		Degree of Coronary Narrowing		
	Average	Range	None or Slight	Moderate	Severe
Pulmonary embolism...	420	300–560	4	2	6
Calcific aortic stenosis.	710	450–1300	2	3	3
Coronary narrowing and old coronary occlusion	380	260–460	0	0	6
Postoperative	465	420–580	1	0	3
Malignant hypertension	450	360–495	2	1	0
Severe acute anemia...	440	225–660	2	0	1
Occlusion of superior mesenteric artery....	475	.....	0	1	0
Totals			11	7	19

ILLUSTRATIVE CASES

CASE 1.—*Massive pulmonary embolism* (practice of Dr. Samuel Silbert).

A man aged 58 had for fifteen years suffered pain in the left calf on walking. For two weeks there was pain in both legs even at rest. Occasionally the patient had suffered from precordial pain, which was also worse on exertion. Examination revealed a large heart and a systolic murmur at the apex. The popliteal vessels were closed. The blood pressure was 130 systolic and 80 diastolic. The diagnosis was arteriosclerotic narrowing of the arteries of the lower extremities.

After two weeks in bed the patient contracted an infection of the left foot and lymphangitis of the left leg. The next day attacks characterized by loss of consciousness, feeble pulse and temporary cessation of respiration developed. Eight days later he died in one such attack. An electrocardiogram, revealing depression of the ST interval in leads 1 and 4, elevation in lead 3 and diphasic T waves in lead 4, was interpreted as suggesting acute myocardial infarction. Postmortem examination revealed massive pulmonary embolization involving the pulmonary conus and the main branches of the pulmonary artery; subacute myomalacia of the septum and left ventricle, and severe arteriosclerotic narrowing of the main branches of the left coronary artery, but no occlusion.

CASE 2.—*Calcific aortic stenosis* (service of Dr. George Baehr).

A man aged 68 had a history of mild diabetes and excessive alcoholism. For one year he had suffered from weakness, dyspnea and substernal and precordial pain on exertion. Eight days before his admission to the hospital, very severe and persistent cardiac pain developed, accompanied by intense dyspnea and prostration. An electrocardiogram, taken five months before admission, disclosed a prolonged PR interval (0.28 second) and intraventricular block. His blood pressure at that time was 170 systolic and 90 diastolic.

Examination in the hospital revealed slight cyanosis, congestion of the base of the lungs, enlargement of the heart and a harsh diffuse systolic murmur, loudest over the aortic area. The blood pressure was 90 systolic and 65 diastolic. The clinical diagnosis was coronary artery thrombosis and diabetes mellitus. The patient died twelve hours after admission.

Necropsy showed diffuse myocardial necrosis, especially in the subendocardium of the left ventricle and in the posterior papillary muscle, calcific stenosis of the aortic valve, carcinoma of the fundus of the stomach, and cirrhosis of the liver. The coronary vessels were moderately arteriosclerotic but widely patent.

CASE 3.—*Severe coronary narrowing without recent occlusion* (service of Dr. George Baehr).

A woman aged 42 had suffered from dyspnea and angina pectoris on effort and from intermittent claudication for five years. Six months before admission to the hospital she had a severe attack of cardiac pain, which recurred intermittently for seven weeks. During three months in bed the patient became intensely dyspneic and orthopneic, and edema of the ankles developed. After a partial remission the symptoms became greatly intensified three days before admission. On examination the patient was acutely dyspneic, orthopneic and somewhat cyanotic. The heart was enlarged to the left and its sounds were of poor quality. There was a gallop rhythm with a rate of 120 a minute. There were a large tender liver, dependent edema, pleural effusions and engorgement of the cervical veins. The blood pressure was 110 systolic and 55 diastolic but rapidly fell to 80 systolic and 60 diastolic. The electrocardiogram, taken a day after admission, disclosed a ventricular tachycardia with a rate of 200 a minute, right axis deviation, widening and notching of the QRS complexes and inversion of the T wave in lead 3. The patient died thirty-six hours after admission. The clinical diagnosis was coronary sclerosis, recent coronary thrombosis and congestive heart failure.

Postmortem examination revealed moderate arteriosclerotic narrowing of the left and severe narrowing of the right coronary artery and branches. There was an old atherosclerotic occlusion of the main right coronary artery, a large scar of a healed infarct with early aneurysm of the anterior wall of the left ventricle and acute myomalacia of the interventricular septum. Recent coronary occlusion could not be found.

COMMENT

The myocardial lesions in these cases were interpreted as being due to an intense myocardial ischemia caused by an inadequate coronary blood supply. Clinically and pathologically these cases did not appear to differ essentially from those presenting myocardial infarction due to an acute thrombotic occlusion of the coronary vessels. In most instances, coronary insufficiency was due in part to atherosclerotic narrowing of the coronary arteries. However, these changes did not usually appear sufficient in themselves to produce the acute myocardial necrosis, and in some cases myocardial infarction occurred when the coronary vessels were normal. It is likely that the associated disease, such as pulmonary embolism and calcific aortic stenosis, acted as a precipitating or contributing factor in the myocardial infarction. Occasionally two of these diseases were combined in one case. That these associated diseases were not merely coincidental appears to be corroborated by their frequency in cases of myocardial infarction without coronary thrombosis. Further support may be found in the pathologic physiology and clinical signs of these diseases, which indicate that there is a relative diminution in coronary flow and myocardial ischemia. Myocardial necrosis without coronary occlusion in the epileptic has been ascribed to spasm of the coronary arteries.[21] The possible role of coronary

21. Neubürger, Karl: Ueber die Herzmuskelveränderungen bei Epileptikern, Frankfurt. Ztschr. f. Path. 46: 14, 1933.

spasm in the production of myocardial infarction in the cases here reported is a matter of conjecture.

The relation of recurrent pulmonary embolism to myocardial infarction is discussed in detail elsewhere. We believe that coronary insufficiency occurs with pulmonary embolism chiefly because of the attendant shock. The associated asphyxia and exaggerated vagal reflexes causing coronary constriction may also play a role. Myocardial necrosis is not an invariable result of pulmonary embolism. Pulmonary embolism is most likely to produce myocardial ischemia severe enough to cause morphologic myocardial change if there is recurrent embolization, if the coronary arteries are already narrowed by arteriosclerosis, if the heart is previously hypertrophied and if there is an adequate duration of life after the embolism.

Clinical evidences of myocardial ischemia in calcific aortic stenosis are quite familiar. They consist essentially of angina of effort, conduction disturbances, abnormalities of the RS-T transitions and T waves in the electrocardiogram, and sudden death. The conspicuous hypertrophy of the hearts, the average weight of which in our series was 710 Gm., indicates the increased demand for blood in these cases. Presumably there is a chronic state of myocardial ischemia due to an inadequate coronary supply even when the coronary vessels themselves are normal. But frequently in these cases there was, in addition, moderate or severe narrowing of the coronary vessels, which tended to increase the coronary insufficiency. Coronary insufficiency in cases of calcific aortic stenosis is due, on the one hand, to the greater blood supply needed to accommodate the increased musculature and work of the heart and, on the other hand, to the diminished coronary flow because of the high intraventricular tension and increased systolic peripheral coronary resistance.[22] The coronary flow is further diminished when the vessels are narrowed by arteriosclerosis. This disproportion between coronary flow and myocardial requirement is accentuated during exertion because of the absence of ventricular reserve.

The pathologic physiology of coronary insufficiency in the remaining groups of cases can only be conjectured. In the cases occurring after operation, the shock of operation itself may have been an important factor; but it should be emphasized that in three of our four cases in this group the patients had hypertension and diabetes with large hearts, narrow coronaries and clinical and pathologic evidence of a previous coronary occlusion. The shock factor may be invoked also in cases of myocardial infarction associated with severe gastrointestinal hemorrhage and with embolism of the superior mesenteric artery. In cases presenting severe anemia, myocardial infarction might have resulted from the reduced oxygen-carrying power of the blood. Anemia per se was an extremely uncommon cause of myocardial infarction in our material. A systematic study of the relation of myocardial infarction to anemia will be reported.

The relationship between cerebral complications, particularly cerebral thrombosis, and myocardial infarction is also uncertain. The three patients in this group all had severe (so-called malignant) hypertension and large hearts, but their coronary vessels were surprisingly little altered. Myocardial changes in cases of malignant hypertension have been reported by Schürmann and MacMahon.[23] We believe that these lesions are the result of functional coronary insufficiency and not of the altered permeability of the coronary vessels, which these authors have termed "dysorie."

The remaining group of cases, in which acute myocardial infarction occurred as a result of coronary narrowing alone, is of special interest. Apparently such narrowing, if severe enough, can produce extreme myocardial ischemia and consequent acute infarction in the absence of acute occlusion. Usually a previous occlusion, arteriosclerotic or thrombotic, of a main coronary branch had already seriously compromised the coronary blood supply, while a large aneurysmal scar of the healed infarct had reduced the effective cardiac musculature. These incidents were denoted clinically not only by angina pectoris of effort but also by signs of congestive heart failure. Progressive narrowing of the remaining, already narrowed, coronary vessels finally produced sufficient ischemia to cause acute morphologic changes. The immediate precipitating factor is uncertain, but the occurrence of the acute infarction is usually denoted clinically by an intensification of the signs of failure with or without cardiac pain.

Finally, it should be reemphasized that the clinical features and electrocardiographic alterations attributed to acute coronary thrombosis are due actually to the resulting myocardial damage. Since acute myocardial necrosis may occur with severe coronary insufficiency without thrombosis, it is clear that in such a disease as calcific aortic stenosis and other conditions associated with coronary insufficiency, a clinical picture identical with that of coronary thrombosis may be observed and no coronary thrombus found. It would appear more accurate to employ the clinical diagnosis myocardial infarction than coronary thrombosis. An attempt should be made to determine clinically the presence of a contributing cardiac or extracardiac factor which may be responsible for the infarct.

SUMMARY

1. Thirty-seven cases of acute myocardial infarction not due to coronary thrombosis were observed in some 2,000 autopsies. In the last 1,000 autopsies 31 per cent of the cases of myocardial infarction were found without recent coronary thrombosis.

2. Twelve cases were associated with pulmonary embolism, eight with calcific aortic stenosis and six with intense coronary narrowing and old occlusion; four occurred after operation and three after a cerebral accident in patients with malignant hypertension. In three there was severe anemia and in one an occlusion of the superior mesenteric artery.

3. It is suggested that the acute myocardial damage in the various cases was due to intense coronary insufficiency. This insufficiency was due in part to arteriosclerotic narrowing of the coronary arteries and to myocardial hypertrophy but also to the abnormal circulatory dynamics of the associated disease, which usually precipitated the infarction. Myocardial infarction may also be due solely to progressive coronary narrowing of extreme degree.

4. Sudden death in aortic stenosis and other diseases associated with coronary insufficiency may be caused by severe myocardial ischemia and necrosis without recent occlusion of the coronary artery.

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REMOVAL OF THE THYMUS

SURGICAL VERSUS ROENTGEN RAY EXTIRPATION

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In a series of recent articles, co-authors Shay, Gershon-Cohen, Fels and the Meranzes [1] have reported that roentgen ray destruction of the thymus gland in young albino rats produced a delayed development of the male testes, with resultant temporary sterility, and a hypophysial change similar histologically to that produced by castration. These changes were said to be progressive to the age of 100 days, after which reparative processes were said to be instituted which resulted in complete recovery of the testes. These observations deserve careful consideration in the light of the many negative results previously obtained by surgical extirpation of the thymus. We believe that the average clinician should be aware of the differences in effect of the two methods. It is with this fact in mind that we wish to present our experimental results and views on this controversial subject.

We would assume that roentgen ray ablation of the thymus gland, experimentally at least, was for the same primary purpose as surgical removal, namely to determine what effects a lack of thymus secretion would have on the experimental animal. We would further assume that similar results should be obtained under the two circumstances.

Park and McClure,[2] who reviewed the entire subject of thymectomy and who included a series of experimental observations on dogs, were of the opinion that extirpation of the thymus probably does not influence growth or development and the thymus is not essential to life. Hammar,[3] Crotti,[4] Marine [5] and Andersen [6] have likewise reviewed the literature and have arrived at essentially the same conclusions. Our own observations, which we wish to present, add only to the confirmation of their data.

Pappenheimer [7] showed that complete removal of the thymus gland in the rat could be effected through surgical means. He made serial sections through the viscera of the neck and thorax to prove that there were no remnants postoperatively. Einhorn and Rowntree [8] believe that surgical removal is more satisfactory than roentgen irradiation. We wish at the outset to concur with them and with others who have performed thymectomy on the albino rat in the observation that thymectomy through the midline, sternum-splitting incision described by Basch [9] is a simple and complete operation. It required no longer than five minutes to anesthetize the animal, expose and remove the gland and repair the wound. Subsequent autopsy did not show regeneration of fragments. Thus the removal of the thymus could be said to be complete and final. Furthermore, it did not entail subjecting the animals to the repeated trauma which would result from the relatively massive doses of roentgen rays on four successive days, as in the procedure of Shay and his co-authors.[1] Yet these writers suggest that total destruction of the thymus is more easily and completely effected by roentgen irradiation. They insist that irradiation resulted in complete atrophy of the thymus and at the same time state that complete removal was not necessary to obtain the results which they report.

EXPERIMENTAL OBSERVATIONS AND RESULTS

Our observations were made on twenty-four male Wistar albino rats; twelve were thymectomized at an average age of 25 days, and twelve, used as controls, were subjected to the identical operative technic except for the actual removal of the gland. The rats were killed and examined post mortem at an average age of 90 days. The hypophysis, thyroid, adrenals, testes, epididymides and spleen were removed and weighed. Supplementary recordings as to body weight, head weight, body length and tail length were also made. These measurements were subjected to small sample statistical analysis in order to observe more accurately whether or not mathematically significant changes had occurred. All methods employed were standardized ones, previously used and described.[10]

*A Comparison of Mean Weights and Differences in Thymectomized and Control Male Wistar Albino Rats**

(From 25 to 90 day animals)

	Control	Tests	Difference
Body weight	267.00	265.30	—1.70
Head weight	21.46	21.65	+0.19
Body length	22.05	21.87	—0.18
Tail length	20.16	19.83	—0.33
Hypophysis	0.0083	0.0078	—0.0005
Thyroid	0.0180	0.0182	+0.0002
Adrenals	0.0278	0.0285	+0.0007
Spleen	0.5613	0.4917	—0.0696
Testes	2.8708	2.8178	—0.0530
Epididymides	0.7853	0.7609	—0.0244

* Measurements in grams or centimeters.

As a result of this experiment, we were unable to confirm any of the observations reported by Shay and his co-workers.[1] There were no significant quantitative changes in the length of the body and tail or in the weight of the head, body, hypophysis, thyroid, suprarenal glands, testes and epididymides. Weekly recordings of the body weight did not reveal significant changes. There was a significant change in the weight of the spleen, but we wish to reserve this fact for

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1. (*a*) Gershon-Cohen, Jacob; Shay, Harry; Fels, Samuel S.; Meranze, Theodore, and Meranze, D. R.: Studies in the Physiology of the Thymus, Science **87**: 20 (Jan. 7) 1938; (*b*) The Thymus: The Effect of Atrophy of Thymus Following Roentgen Irradiation, Am. J. Roentgenol. **39**: 263 (Feb.) 1938; (*c*) The Thymus: Studies of Some Changes in the Gonads and Pituitary Following Its Destruction by Roentgen Irradiation, J. A. M. A. **112**: 290 (Jan.) 1939.

2. Park, E. A., and McClure, Roy D.: The Results of Thymus Extirpation in the Dog with a Review of the Experimental Literature on Thymus Extirpation, Am. J. Dis. Child. **18**: 317 (Nov.) 1919.

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4. Crotti, André: Thyroid and Thymus, revised edition, Philadelphia, Lea & Febiger, 1922.

5. Marine, David, in Cowdry, E. V.: Special Cytology, New York, Paul B. Hoeber, Inc., 1928, vol. 1, section 18, p. 558.

6. Andersen, Dorothy H.: The Relationships Between the Thymus and Reproduction, Physiol. Rev. **12**: 1 (Jan.) 1932.

7. Pappenheimer, A. M.: The Effects of Early Extirpation of the Thymus in Albino Rats, J. Exper. Med. **19**: 319, 1914.

8. Einhorn, Nathan H., and Rowntree, Leonard G.: The Biological Effects of Thymectomy, Endocrinology **21**: 659 (Sept.) 1937.

9. Basch, K.: Beiträge zur Physiologie und Pathologie der Thymus: I. Ueber die Ausschaltung der Thymusdrüse, Jahrb. f. Kinderh. **64**: 285, 1906; quoted by Park and McClure.[2]

10. Freudenberger, C. B., and Hashimoto, E. I.: A Summary of Data for the Effects of Ovariectomy on Body Growth and Organ Weights of the Young Albino Rat, Am. J. Anat. **62**: 93 (Nov.) 1937. Freudenberger, C. B., and Clausen, F. W.: Quantitative Effects of Thyroxin on Body Growth and Endocrine Glands of Young Albino Rats, Anat. Rec. **69**: 171 (Sept.) 1937.

future confirmation with another group of animals, which we are at present studying.[10a]

Criticism might arise from the fact that our rats were 25 days of age at the time of operative removal of the thymus, but Andersen,[6] whose work is not quoted by Shay,[1] with a more nearly comparable group of young male rats did not confirm their results. She reported that in animals thymectomized at the age of 1 day, for which litter mates served as controls, there were no significant alterations in the age or weight at puberty. She summarized her results by stating that "from an analysis of this work on thymectomy, we may conclude that thymectomy does not prevent, hasten or delay the arrival of sexual maturity, and it does not prevent the occurrence of normal litters. In other words, aside from the immediate effects of the operative injury, it has not been shown that deprivation of thymus, even in early life, has any effect upon the development and function of the sexual apparatus."

In reviewing the articles submitted by Shay and his co-workers [1] we were somewhat at a loss as to the exact number of litter mates used in their experiment. It was stated [1b] that there were thirty-five litters of animals, but there was no record in any of the articles of individual protocols to which reference could be made. The growth chart appears to have been constructed from one litter of animals (litter 19). Likewise, the organ weight: body weight ratios appear to have been derived from observations made on one litter (litter 18). In similarly limited data, it is always possible to obtain great variation in either direction, depending on the litter selected. Since their three papers, which followed in rapid succession, were admittedly incomplete, we have no doubt that future papers will contain the necessary data.

COMMENT

In view of the marked discrepancies in the results obtained with the two methods, i. e. surgical extirpation and roentgen ray ablation of the thymus, some explanation would seem logical.

The male albino rat at the age of 48 hours has an average length of from 47 to 52 mm.[11] The aperture of from 8 to 10 mm. through which Shay and his co-workers [1] irradiated the thymus would therefore constitute approximately one fifth of the total body length of the animal. This would seem to be a relatively large area to subject to massive roentgen ray exposure, although these authors [1b] went to some lengths to prevent stray irradiation.

Dissection of 2 day old animals reveals that in many instances the two superior poles of the thymus gland extend paratracheally as high as the thyroid gland. Further, there is hardly a difference of from 5 to 7 mm. between the upper portion of the body of the thymus and the lower portion of the thyroid. Conceivably, in order to effect complete exposure of the thymus gland, one must direct the roentgen rays dangerously close to the area of the thyroid; in fact it is questionable whether one could be absolutely certain that the thyroid gland did not receive stray irradiation. In further substantiation of these anatomic hypotheses, these authors say: "In some animals we tried to give exposures above the area of the thymus. This was found to be impossible, because in order to avoid the region of the thyroid the upper part of the thymus was usually involved, so that varying degrees of destruction of the thymus resulted in this group." Obviously, if it was impossible to avoid the upper part of the thymus during irradiation of the area near the thyroid gland, we must assume, conversely, that it would also be impossible to avoid the thyroid gland or immediately adjacent areas in attempting to destroy the thymus completely.

In strapping the animal to the board, the head is necessarily extended, throwing the base of the sphenoid bone, on which rests the pituitary gland, nearly to the level of the upper reaches of the superior poles of the thyroid gland. It would seem then that difficulty would be encountered in shielding not only the thyroid gland but also the hypophysis itself from the large doses of roentgen rays to which the thymus was subjected.

We mention these facts only because it has long been known [12] that extirpation of the thyroid gland gives rise to changes in the hypophysis which to us seem strangely similar to those described by Shay as the "physiologic castration" due to destruction of the thymus by roentgen rays.

Let us compare these descriptions. Shay [1b] said: "The pituitary gland seems slightly enlarged, more in the male than in the female. And the anterior lobe is the part most involved. There is an increase in the number of basophils. They are enlarged and show irregularities in staining affinity. So-called castrate cells make their appearance. . . . Eosinophils seem normal, although possibly slightly decreased in number." On the other hand, from experiments on an entirely different organ (thyroid), Severinghaus, Smelser and Clark,[13] in reviewing work by Simpson and Hunter,[14] Marine,[15] Trautmann,[16] Bryant [17] and Kojima [12] and also their own observations on pituitary changes resulting from removal of the thyroid gland, reported as follows: "Marked changes occur in the anterior lobe of the pituitary. The basophils are increased in number, are of maximum size, and give the pituitary the castrate appearance. Many have deeply chromatic elongated nuclei. Large numbers of typical castration cells are present." Certainly one might be justified in suspecting from these descriptions alone that the pituitary changes reported by Shay [1] might be in part due to unsuspected injury of the thyroid gland by the roentgen rays.

Furthermore, although in the literature available to us we were unable to find reports on the effects of removal of the thyroid gland at the early age at whcih the thymus experiment was undertaken, clinically it has often been demonstrated in cretins that there is a delay in growth of the sexual glands and accessories as well as in sexual maturation. With these observations in mind, the possibility cannot be excluded that effects other than those directly attributable to irradiation of the thymus gland might have contributed to the results reported by Shay and his co-workers.

10a. Since this article was submitted for publication on Feb. 8, 1939, additional data have been obtained making a total of twenty-four test animals with a similar number of controls. The results confirm the observations recorded.

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12. Kojima, M.: Studies on the Endocrine Glands: II. The Relations of the Pituitary Body with the Thyroid and Parathyroid and Certain Other Endocrine Organs in the Rat, Quart. J. Exper. Physiol. **11**: 319, 1917.

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17. Bryant, A. R.: The Effects of Total Thyroidectomy on the Structure of the Pituitary Gland in the Rabbit, Anat. Rec. **47**: 131, 1930.

SUMMARY AND CONCLUSIONS

Observations made on the effects of removal of the thymus gland from twelve male Wistar albino rats at the age of 25 days, and statistically compared with those on a similar group of controls, showed at 90 days that there were no mathematically significant changes in the length of the body and tail or in the weight of the body, head, hypophysis, adrenals, thyroid, testes and epididymides. The weekly increase in weight was not significantly altered. Microscopic sections of the testes of thymectomized animals showed no departure from the normal. Thymectomized animals between puberty and the age of 90 days were found to be capable of inseminating normal female animals.

Descriptions of the effects of ablation of the thymus by means of roentgen rays, as recorded by Shay and his co-authors, cannot be harmonized with the many reports of experimenters who surgically removed the gland. A partial review of the literature would suggest that the changes obtained by those employing roentgen rays might be due to injury to the thyroid gland.

TEMPORARILY POSITIVE KAHN AND WASSERMANN REACTIONS

IN INFECTIOUS MONONUCLEOSIS: REPORT OF A CASE

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The fact that temporarily positive serologic tests for syphilis may occur in infectious mononucleosis without evidence of syphilis has been noted but is not generally recognized. Apparently the earliest notation of this finding was made in 1928 by Löhe and Rosenfeld,[1] who described what they termed "monozytenangina" in a housewife aged 40. In the light of present knowledge this case would seem quite compatible with the angiose variety of infectious mononucleosis. It was Weber,[2] however, who in 1930 first called attention to the fact that temporarily positive serologic tests for syphilis may occur in glandular fever. He reported three cases which all yielded transiently positive serologic reactions as evidenced by positive Wassermann or Meinicke tests. A year later Gooding[3] described a series of twenty-seven cases (from the London epidemic of 1930) in which sixteen cases gave either a positive or an "incompletely" positive Wassermann reaction. Those cases which showed a negative Wassermann reaction were said in most instances to have yielded a positive Kahn reaction.

Radford and Rolleston[4] have also reported two cases of glandular fever with positive Wassermann reactions, but syphilis does not seem to have been adequately excluded.

Bernstein[5] in 1934 noted in two instances the association of a false positive Wassermann reaction with increased heterophile antibody titer, though the Eagle[6] flocculation tests were negative. In both patients the serums subsequently yielded negative Wassermann reactions on the twenty-fourth and fifty-eight day of disease respectively.

During the current year Hatz[7] has reported a case of infectious mononucleosis with a transiently false positive Wassermann reaction, a negative Kline reaction and a sheep cell titer for heterophile antibodies not rising above 1:32.

Out of sixty cases of infectious mononucleosis observed at the Johns Hopkins Hospital during the past five years, Bernstein[8] has recently collected six cases (including two cases previously reported) with temporarily false positive serologic reactions for syphilis. Of the sixty patients, thirty-seven had been given routine Eagle or Wassermann tests, the remainder not having been given serologic tests for syphilis.

In view of the clinical significance of these data it has seemed worth while to report the following case:

REPORT OF CASE

A student nurse, aged 23, admitted to the New Haven Hospital Jan. 10, 1938, complained of a cutaneous eruption.

Dec. 29, 1937, she had reported to the Nurses' Infirmary with an infection of the upper respiratory tract lasting two days. At that time she had complained of sore throat, swollen eyes, nasal discharge and slight general malaise. Elevation of temperature was minimal, reaching only 100 F. on the first day and falling to normal on the second day. January 9 the patient noticed a cutaneous eruption in the right antecubital fossa which, by the morning of January 10, had spread considerably. There were no other symptoms and she felt quite well. There was no history of syphilis and no reason to suspect that an acquired or congenital syphilitic infection existed.

On admission to the New Haven Hospital January 10 there was observed a rather faint morbilliform eruption over the neck, chest, abdomen, upper part of the back and in the right antecubital fossa. The anterior cervical nodes were enlarged and in both posterior cervical chains enlarged nontender nodes could be readily palpated, the enlargement being greater on the right than on the left. The temperature was 99.8 F. and the patient seemed quite comfortable and did not appear ill. The spleen was not palpable.

On admission the leukocyte count was 6,050 with 65 per cent lymphocytes. Among these were found a number of large cells, characteristic of those ordinarily present in infectious mononucleosis. The sheep cell agglutination test was positive in a dilution of 1:512. The Kahn reaction was 4+ and the Wassermann reaction was negative with the alcoholic antigen but 4+ with the cholesterinized antigen.

The patient's subsequent clinical course was quite satisfactory. She never felt particularly ill and she remained afebrile. The cutaneous eruption totally disappeared within twenty-four hours. The course of the sheep cell agglutination titer, the Kahn and Wassermann reactions and the blood counts are summarized in the accompanying table.

The enlargement of most of the cervical lymph nodes disappeared within a week after admission to the hospital, but several nodes could be palpated in the right posterior chain as late as February 5, and on March 5 a single node in the same chain was still palpable. February 5 a slight papular eruption over the forehead developed but subsided by March 5.

Agglutinations for various bacteria were done on the serum of February 5. There was no agglutination with the following antigens: Eberthella typhi, Salmonella paratyphi, Salmonella schottmülleri, Eberthella paradysenteriae (Flexner), Eberthella dysenteriae.

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1. Löhe, Heinrich, and Rosenfeld, Herbert: Ueber Monozytenangina mit anschliessendem vorübergehend [illegible] Erythema nodosum, zugleich ein Beitrag zur [illegible]ischen luetischer und nichtluetischer Angina, Dern [illegible] 3 (April) 1928.
2. Weber, F. P.: Glandular Fever and Its Lymphotropic Blood Picture—Sometimes Without Obvious Glandular Enlargement, M. Press (London) **130**: 65-67 (July 23) 1930. Weber, F. P., and Bode, O. B.: Beitrage zum "Drüsenfieber," München. med. Wchnschr. **78**: 1598-1600 (Sept. 18) 1931.
3. Gooding, S. E. F.: On Glandular Fever or Infectious Mononucleosis, Practitioner **127**: 468-483 (Oct.) 1931.
4. Radford, Maitland, and Rolleston, J. D.: Two Cases of Glandular Fever Simulating Typhus, Lancet **2**: 18-19 (July 5) 1930.
5. Bernstein, Alan: Antibody Responses in Infectious Mononucleosis, J. Clin. Investigation **13**: 419-435 (May) 1934.
6. Eagle, Harry: Studies in the Serology of Syphilis: VIII. A New Flocculation Test for the Serum Diagnosis of Syphilis, J. Lab. & Clin. Med. **17**: 787-791 (May) 1932.
7. Hatz, Bernard: The Wassermann Reaction in Infectious Mononucleosis with Report of a Case with Unusual Clinical Features, Am. J. Clin. Path. **8**: 39-45 (Jan.) 1938.
8. Bernstein, Alan: False Positive Wassermann Reactions in Infectious Mononucleosis, Am. J. M. Sc. **196**: 79 (July) 1938.

On admission the case was first regarded as one of German measles in that the cutaneous eruption, enlargement of the posterior cervical nodes and leukopenia seemed compatible with this diagnosis. But the presence of sheep cell agglutinins in high titer, the blood picture of January 10 and the fact that eruptions similar to this type are known to occur in infectious mononucleosis [9] all pointed to the latter diagnosis rather than to that of German measles.

It is important to note that without the proper blood studies one would have seriously considered secondary syphilis in this case and might have begun immediate intravenous antisyphilitic therapy.

COMMENT

There are several unusual features in this case, namely the high and persistent titer for heterophile antibodies, the atypical clinical picture of infectious mononucleosis simulating German measles and the relatively long duration of the false positive Kahn and Wassermann reactions.

A titer of 1:4,096 for heterophile antibodies is higher than one ordinarily finds in infectious mononucleosis, and whether or not there is any relation between this and false positive Wassermann reactions is not clear. Bernstein [8] has observed a sheep cell titer of 1:33,000 in a patient whose serologic reaction was negative while on the other hand in one of his cases presenting both positive Eagle and Wassermann reactions the sheep cell titer was only 1:64. In addition, the heterophile antibodies in Hatz's case [7] never rose above a titer of 1:32.

Apparently, false positive serologic reactions for syphilis may appear in infectious mononucleosis as early as the first week of disease. They usually revert to negative some time during the third to the seventh week, though in the present case they did not become negative until the tenth week. The heterophile antibodies still persisted in high dilution even at this time, thus failing to show a parallelism with the course of the Wassermann reaction.

There has been no adequate explanation advanced for the cause or nature of the false positive reactions, and it is a phenomenon which deserves further investigation in view of the fact that one is dealing with a disease of unknown etiology. Partial removal of heterophile antibodies has no effect on the tests for syphilis, nor do the sheep cell titers necessarily parallel these tests.

It is also unknown whether cases of infectious mononucleosis with falsely positive Wassermann reactions fall into a special group, or, if not, how frequently they occur in the general run of infectious mononucleosis. In Gooding's group of cases from the London epidemic of 1930 the incidence was over 60 per cent. In Bernstein's series [8] of sporadic cases the incidence of transiently positive Wassermann reactions was 16 per cent.

During the past seventeen years at the New Haven Hospital there have been observed forty-six admissions in which the diagnosis of infectious mononucleosis has been made. In thirty-seven of these cases either Kahn or Wassermann tests were done, with the result that three of these, including the present case, yielded positive results. Of the other two patients the first was a girl aged 8 years who was admitted on the eleventh day of disease. At that time the Wassermann reaction was negative with the alcoholic antigen but 1 plus with the cholesterinized antigen. The second patient was a college student aged 20, admitted on the seventeenth day of illness. He had as a complication a severe Vincent's stomatitis. On the day of admission the Kahn reaction was 2+, the Wassermann reaction was negative with both the alcoholic and the cholesterinized antigen, and the sheep cell agglutination titer was 1:128. Unfortunately there is no record of serologic tests having been repeated in either of these first two cases. It seems reasonable to suppose, however, that in both instances the mechanism of the positive tests may have been similar to that observed in the third case, since no history of syphilis was obtained in either case and no congenital stigmas were present. If one considers that these three cases are similar, the present incidence of transiently (?) positive tests for syphilis in the series of cases at the New Haven Hospital is approximately 8 per cent, as contrasted with Bernstein's incidence of 16 per cent and Gooding's incidence of over 60 per cent. It should be emphasized, however, first that routine Wassermann tests were not done in our whole series; secondly, that serologic tests for syphilis were not repeatedly carried out, and, thirdly, that Kahn tests were usually done on admission during the very early stages of the disease. It seems possible, therefore, that more patients with positive reactions for syphilis might have been observed if blood tests had been repeated during the subsequent course of the illnesses described.

Blood Counts, Sheep Cell Agglutinations, Kahn and Wassermann Reactions

Date	Day of Disease	White Blood Cells	Lymphocytes, per Cent	Sheep Cell Agglutinin Titer	Kahn Reaction	Wassermann Reaction	
						Alcoholic	Cholesterinized
1/10/38	13	6,050	65	1:512	4+	—	4+
1/12/38	15	7,300	53				
1/15/38	18	4,500	47	1:4,096	4+	—	4+
1/22/38	25	.....	..	1:2,048			
2/ 5/38	39	.....	..	1:512	2+	—	4+
2/11/38	45	7,050	28	1:512	1+	—	—
2/19/38	53	.....	..	1:512	1+	—	2+
3/ 5/38	70	.....	..	1:256	—	—	—
4/ 5/38	101	.....	..	1:256	—	—	—

9. Tidy, H. L.: Glandular Fever and Infectious Mononucleosis, Lancet 2: 180-186 (July 28), 236-240 (Aug. 4) 1934.

Capsule Formation and Virulence.—A characteristic of certain species and strains of bacteria which may well be regarded in some cases as a manifestation of adaptation to parasitic existence, as probably was first suggested by Babes, consists in the formation of a capsule. This structure in such organisms as the various types of pneumococci and Friedländer bacilli appears to be composed of various kinds of complex carbohydrate gums. That produced by the anthrax bacilli is described by Tomcsik as a protein or protein-like substance. It extends about the somatic portion of the bacterium and can be sharply differentiated from this vegetative body by suitable staining procedures. The experiments of Danysz were among the first to indicate a definite relationship between the formation of a capsule and virulence in pathogenic bacteria, and many subsequent studies have in the main served to establish this structure as being of great significance in permitting the survival of the bacterium in vivo. Its presence, nevertheless, cannot be taken as an infallible sign of an organism's capacity to cause disease, since a number of harmless encapsulated saprophytes are known.—Zinsser, Hans; Enders, John F., and Fothergill, LeRoy D.: Immunity Principles and Application in Medicine and Public Health, New York, Macmillan Company, 1939.

VERTEBRAL FRACTURES PRODUCED BY METRAZOL-INDUCED CONVULSIONS

IN THE TREATMENT OF PSYCHIATRIC DISORDERS

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Convulsions induced by metrazol have been widely applied in the past few years in the treatment of mental disorders. At first limited to the treatment of schizophrenia, this therapy is now being employed for the affective disorders [1] and also for severe psychoneuroses.[2] Von Meduna [3] in one of his early papers stated that, although the treatment was quite drastic, no inherent danger was involved. Occasional fractures of the long bones and dislocations have been reported.[4] Recently

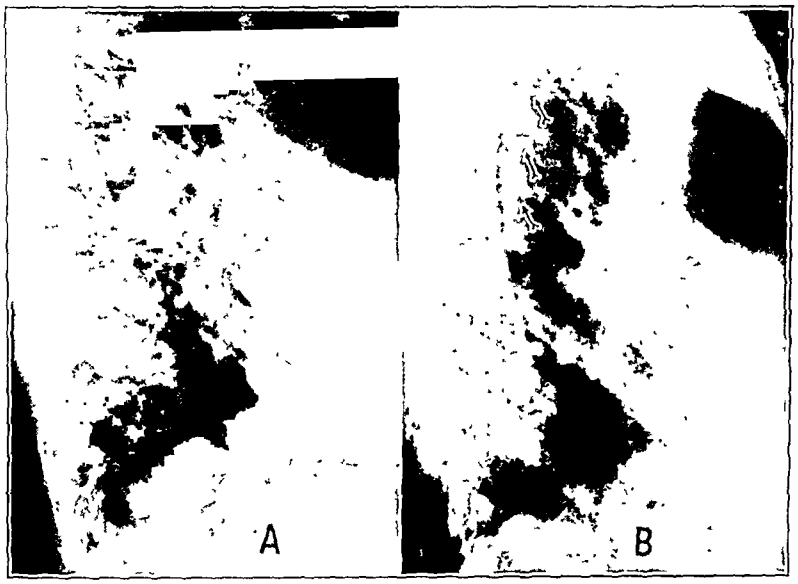


Fig. 1 (case 31).—*A*, taken before the convulsion, reveals no abnormalities, *B*, taken after the convulsion reveals compression fractures of the fourth and sixth thoracic vertebrae and possible injury to the fifth.

von Meduna and Friedman [5] compiled statistics from various sources with regard to the "mechanical" complications, which include dislocations and fractures of the extremities. They did not include the numerous temporomandibular dislocations which undoubtedly occur but which are reduced without difficulty or sequelae. They reported an incidence of 1.1 per cent of such "mechanical" complications. A survey of the literature discloses no reference to vertebral injuries as the result of metrazol therapy except the recent report by Wespi [6] of a case of fracture of the seventh thoracic vertebra. It is our purpose to report a series of cases of treatment with metrazol in which compression fractures of the thoracic vertebrae were found in a very large percentage after the convulsions.

Attention was attracted to the spine when several patients complained of more or less severe backache, localized chiefly to the midthoracic region, after the convulsions. X-ray examination of the spine disclosed compression fractures of the bodies of the vertebrae. Therefore all available patients who had received metrazol therapy, whether they had complained of backache or not, were examined by means of roentgenograms. Recently, in order to eliminate the possibility that the fracture may have existed prior to treatment, we have in several instances examined the spine before treatment and found it normal, whereas after the convulsions fractures were demonstrated by roentgenograms.

Convulsions induced by metrazol were utilized in the treatment of fifty-eight psychiatric patients, twenty-three males and thirty-five females. Of these, fifty-one (twenty males and thirty-one females) were available for examination. The youngest patient treated was 15 and the oldest 50, the average age for the entire group being 28.7 years. Fractures were found in a total of twenty-two (43.1 per cent) of the patients examined, of whom six were males (30 per cent) and sixteen females (51.6 per cent). The fractures were all found in the thoracic vertebrae and were most common in the midthoracic region. The number of segments affected varied from one to eight and averaged between three and four. Table 1 lists in detail the observations in the fifty-eight cases and includes the mental diagnoses and the number of metrazol convulsions. Table 2 summarizes the results of the x-ray examinations.

REPORT OF CASES

CASE 31.—C. G., a white woman aged 28, single, admitted to the Psychiatric Institute Dec. 16, 1938, with a manic-depressive psychosis, depressed type, of three months' duration, was well nourished, of asthenic habitus and normal on physical and laboratory examination. Roentgenograms of the thoracic part of the spine Jan. 10, 1939, showed no bone or joint abnormalities. January 11 the injection of 3 cc. of 10 per cent solution of metrazol, followed fifteen minutes later by 4 cc., produced only petit mal attacks. January 13 the injection of 5 cc. followed fifteen minutes later by another 5 cc. produced only petit mal attacks. January 15, 6 cc. elicited only a petit mal attack. January 18, 7 cc. produced a generalized convulsion resembling an epileptiform attack. Later that day the patient complained of moderate pain in the midthoracic region of the back. Stereoscopic x-ray films of the thoracic part of the spine taken the same day showed compression fractures of the bodies of the fourth and sixth thoracic vertebrae and suggestive but less convincing evidence of an injury to the fifth (fig. 1).

CASE 32.—G. L., a white woman aged 28, single, admitted to the Psychiatric Institute Nov. 16, 1938, with a manic-depressive psychosis, depressed type, of six months' duration, was well nourished, of pyknic habitus and normal on physical and laboratory examination. Roentgenograms of the thoracic and upper lumbar parts of the spine Jan. 10, 1939, revealed no bone or joint abnormalities. January 11 the injection of 4 cc. of a 10 per cent solution of metrazol produced a generalized

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1. Young, R. H., and Young, G. A.: Treatment of the Psychoses with Induced Hypoglycemia and Convulsions, J. A. M. A. **112**: 496-499 (Feb. 11) 1939.
2. Low, A. A.; Sonenthal, I. R.; Blaurock, M. F.; Kaplan, Maurice, and Sherman, Irene: Metrazol Shock Treatment of the "Functional" Psychoses, Arch. Neurol. & Psychiat. **39**: 717-736 (April) 1938.
3. von Meduna, Laszlo: Die Konvulsionstherapie der Schizophrenie, Psychiat.-Neurol. Wchnschr. **37**: 317-319 (July 6) 1935.
4. Beckenstein, Nathan: Results of Metrazol Therapy in Schizophrenia, Psychiatric Quart. **13**: 106-113 (Jan.) 1939. Winkelman, N. W.: Metrazol Treatment in Schizophrenia, Am. J. Psychiat. **95**: 303-316 (Sept.) 1938.
5. von Meduna, Laszlo, and Friedman, Emerick: The Convulsive-Irritative Therapy of the Psychoses, J. A. M. A. **112**: 501-509 (Feb. 11) 1939.
6. Wespi, Hans: Ein Fall von spontaner Wirbelfraktur im Cardiazolanfall, Schweiz. Arch. f. Neurol. u. Psychiat. **42**: 404-406, 1938.

epileptoid convulsion, which was repeated January 13 with the same dose. Later that day the patient complained of moderate pain in the midthoracic region of the back. Stereoscopic x-ray films of the thoracic part of the spine taken the same day showed evidence of compression fractures of the fifth, sixth, seventh, eighth and ninth thoracic vertebrae.

COMMENT

The technic of administering metrazol to induce convulsions in these patients was only slightly modified from that described by Meduna,[3] in that a smaller initial dose (3 cc. or, rarely, 4 cc. of a 10 per cent solution) than the 5 cc. advocated by him was given intravenously. The majority of convulsions occurred with a dose of from 4 to 6 cc. Later in our treatment, if a convulsion was not produced another injection of 1 cc. more than the original amount was given in fifteen minutes. If this did not elicit a grand mal attack, treatment was discontinued for that day. A similar procedure was used on subsequent treatment days, the dose being increased 1 cc. until a convulsion was attained. Treatments were given twice or, more often, three times weekly. The maximum dose of metrazol used was 11.5 cc. We wish to emphasize that none of our patients received any injury from external causes, such as falling out of bed or striking the body against the wall or the headboards or footboards of the bed during a convulsion. The patients were under constant observation until they were fully conscious and in complete contact with their surroundings. This procedure is similar to that recently advocated by Meduna and Friedman.[5]

We have found that the pattern of the convulsion induced by metrazol is similar to that described by Finkelman, Steinberg and Liebert.[7] In general, from five to ten seconds after the intravenous injection of metrazol, convulsive movements began in the face, shoulders and arms; these were followed quickly by a rhythmic clonic phase. In about fifteen seconds a tonic phase ensued. The head was retracted and the body was held rigid. This phase lasted from five to thirty seconds and was followed by another clonic phase, during which the spine was repeatedly flexed. It is possible that the vertebral injuries occur during this phase of the convulsion.

TABLE 1.—*Vertebral Fractures Following Metrazol-Induced Convulsions in Psychiatric Patients*

Case No.	Name	Age	Diagnosis	X-Ray Report*	Backache	No. of Convulsions	Maximum Dose of Metrazol, Cc.
			Female Patients				
1	S. B.	30	Manic-depressive psychosis; agitated, depressed	No fracture	None	3	5
2	G. C.	17	Schizophrenia	T6-7-8	None	19	7
3	L. C.	25	Schizophrenia	T7-8	Mild	3	4
4	D. C.	26	Schizophrenia	Not available for x-ray examination	None	23	6
5	A. C.	43	Manic-depressive psychosis; depressed	No fracture	Mild	5	7.5
6	R. D.	30	Psychoneurosis; anxiety and depression	No fracture	Mild	5	6
7	F. E.	43	Involution melancholia	No fracture	Moderate	18	6
8	B. F.	30	Schizophrenia	Not available for x-ray examination	Moderate	3	5
9	M. G.	17	Schizophrenia	No fracture	Mild	5	7
10	C. G.	27	Agitation and depression with schizophrenic features	T4-5-6-7-8	Severe	6	7
11	L. G.	26	Schizophrenia	No fracture	Severe	15	8
12	B. H.	30	Schizophrenia	Not available for x-ray examination	Moderate	14	7
13	M. J.	27	Manic-depressive psychosis; depressed	T7-8	None	4	7
14	M. K.	18	Manic-depressive psychosis; depressed	T5-6-7-8	Moderate	2	4
15	D. K.	22	Schizophrenia	No fracture	None	22	8.5
16	R. L.	24	Schizophrenia	T5-6-7-8-9	Moderate	25	10.5
17	M. M.	26	Schizophrenia	No fracture	None	12	6.5
18	M. M.	23	Schizophrenia	No fracture	None	12	4.5
19	H. O.	33	Manic-depressive psychosis; depressed	T6-7-8	Severe	1	3
20	J. Q.	33	Schizophrenia	T5-6-7-8-9-10-11-12	Moderate	6	7
21	A. R.	28	Manic-depressive psychosis; depressed	No fracture	None	2	3
22	D. R.	22	Schizophrenia	Not available for x-ray examination	Moderate	3	6
23	F. S.	41	Schizophrenia	T5-6-7-8	None	7	9
24	A. S.	27	Manic-depressive psychosis; depressed	T6-7-8	None	7	5
25	Y. S.	22	Manic-depressive psychosis; agitated, depressed	T5-6-9	Severe	21	7
26	B. S.	18	Schizophrenia	T4-5-6-7-8	Severe	21	6.5
27	F. S.	38	Manic-depressive psychosis; depressed	No fracture	None	3	5
28	M. W.	36	Manic-depressive psychosis; depressed	No fracture	None	1	4
29	T. W.	32	Schizophrenia	T5-6-7-8-9	Severe	10	5
30	L. W.	19	Schizophrenia	T4-5-6-7	Mild	13	5
31	C. G.	28	Manic-depressive psychosis; depressed	T4-5-6†	Moderate	1	7
32	G. L.	28	Manic-depressive psychosis; depressed	T5-6-7-8-9†	Moderate	2	4
33	E. W.	33	Manic-depressive psychosis; depressed	No fracture†	None	3	4.5
34	E. W.	28	Schizophrenia	No fracture	None	16	6
35	A. S.	20	Schizophrenia	No fracture	None	20	6.5
			Male Patients				
36	C. P.	50	Involution melancholia	No fracture	Mild	4	10
37	H. J.	30	Schizophrenia	No fracture	None	10	7
38	I. C.	24	Manic-depressive psychosis; depressed	T6	None	8	7
39	L. S.	20	Psychoneurosis; obsessive-compulsive	No fracture	None	9	8
40	S. M.	21	Schizophrenia	T5-6-7-8-9	None	10	6
41	E. K.	32	Depression	No fracture	None	11	8
42	E. P.	21	Psychoneurosis; anxiety and depression	No fracture	None	1	5
43	E. J.	32	Schizophrenia	No fracture	None	12	11
44	E. B.	37	Psychoneurosis; obsession and depression	No fracture	None	1	5
45	A. F.	34	Schizophrenia	No fracture	None	9	6
46	A. S.	15	Schizophrenia	Not available for x-ray examination	Mild	5	8
47	S. N.	40	Manic-depressive psychosis; depressed	T5-6-7	None	6	7
48	W. P.	24	Psychoneurosis; obsession and depression	No fracture	None	0	7
49	H. B.	36	Psychoneurosis; obsession and depression	No fracture	None	0	7
50	N. S.	21	Manic-depressive psychosis; circular	No fracture	None	10	5
51	M. P.	22	Schizophrenia	No fracture	None	15	8
52	C. P.	31	Schizophrenia	Not available for x-ray examination	None	22	11.5
53	H. K.	24	Schizophrenia	No fracture	None	14	5
54	B. S.	33	Schizophrenia	T7-8-9	None	5	10
55	H. M.	22	Schizophrenia	No fracture	None	8	9
56	M. H.	43	Manic-depressive psychosis; depressed	T3-4-5-6	None	7	9.5
57	E. A.	40	Manic-depressive psychosis; depressed	T4	None	9	5
58	H. C.	41	Involution melancholia	Not available for x-ray examination	None	6	11

* The letter T and the number represent a compression fracture of the corresponding thoracic vertebra.
† A roentgenogram taken prior to metrazol therapy revealed no fracture.

7. Finkelman, Isidore; Steinberg, D. L., and Liebert, Erich: Treatment of Schizophrenia with Metrazol by Production of Convulsions, J. A. M. A. **110**: 706-709 (March 5) 1938.

In our series there was no relationship between the total number of convulsions and the appearance of the fractures or the number of vertebrae affected. Several patients sustained fractures after one or two convulsions, while others showed no evidence of injury after eighteen or twenty-two seizures.

TABLE 2.—*Summary of Vertebral Fractures in Metrazol-Treated Patients*

	Male	Female	Total
No. of patients treated	23	35	58
No. of patients examined roentgenographically	20	31	51
No. of patients with vertebral fractures	6	16	22
Percentage of patients with vertebral fractures	30.0	51.6	43.1

In order to indicate that in all probability these fractures did not result as a consequence of any peculiarity in our technic or dosage, we wish to cite a case recently observed at this hospital but not included in our series. The patient had had two metrazol-induced convulsions at another institution. On his admission to the Psychiatric Institute, compression fractures of the seventh, eighth, ninth and tenth thoracic vertebrae were found on the roentgenograms.



Fig. 2 (case 26).—A white girl aged 18, with schizophrenia, had twenty one metrazol-induced convulsions. A roentgenogram then revealed compression fractures of the fourth, fifth, sixth, seventh and eighth thoracic vertebrae.

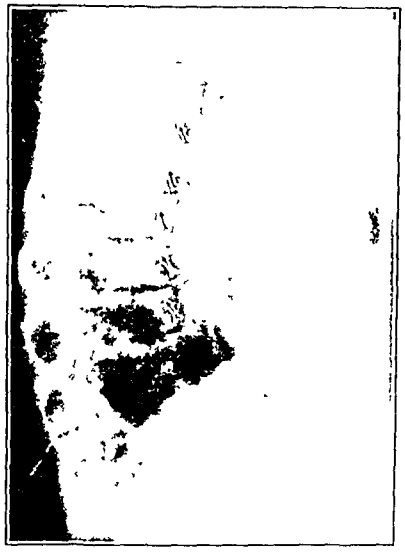


Fig. 3 (case 29).—A white woman aged 32, with schizophrenia, had ten metrazol-induced convulsions. A roentgenogram then revealed compression fractures of the fifth, sixth, seventh, eighth and ninth thoracic vertebrae.



Fig. 4 (case 19).—A white woman aged 33, with a manic depressive psychosis of the depressed type, had one metrazol induced convulsion. A roentgenogram then revealed compression fractures of the sixth, seventh and eighth thoracic vertebrae.

In general the degree of injury bore no relationship to the intensity of the subjective complaint of backache. Many patients who complained of pain in the back did not present any demonstrable vertebral fractures, whereas others with fractures, especially male patients, did not complain of pain. There did not appear to be any direct relationship between the occurrence of fracture and the habitus or age of the patient. All our patients were physically healthy and well nourished, stemming from the middle class of society, and showed no evidence of nutritional disturbance.

The most frequently affected segments were in the midthoracic region. In the roentgenograms, the appearance of the fractures varied. Fragmentation and compression of the anterior portion of the upper surface of the body was most common. In about half the cases the fractures manifested themselves only by a slight forward displacement of a disklike fragment of the upper portion of the body. Flattening in the vertical direction and wedge formation were often seen. In several instances the compression of the body was marked, resulting in a shortening of the vertical diameter to about one half its normal height. Moderate kyphosis and scoliosis were noted in a number of cases as a concomitant deformity.

The fractures of the bodies of the vertebrae were probably caused by the action of the muscles of the spine and trunk. The preponderance of fractures of the anterior portions of the vertebral bodies suggests that they are produced by sudden anterior flexion of the spine. Similar fractures after the spasms of tetanus have previously been reported.[8] Roberg[9] called attention to the bending force of the powerful spinal flexors and the relatively weak opposing extensors in producing compression fractures of the anterior portions of the midthoracic vertebrae in tetanus.

Although the complication of vertebral fracture is serious, our observations tend to agree with the published reports of the efficacy of metrazol therapy in the treatment of psychiatric disorders. To prevent this complication, we are investigating a method whereby the patient is placed on his side and acutely flexed, the metrazol being injected while he is in this position. It is hoped thereby to reduce the sudden flexions of the spine which may be the cause of the vertebral injuries. We have had too few patients treated in this new position to report regarding its effectiveness.

SUMMARY AND CONCLUSIONS

1. In fifty-one cases of psychiatric disorders in which metrazol was used to produce convulsions, x-ray examinations of the thoracic part of the spine were subsequently performed.

2. These examinations revealed compression fractures of the vertebrae in 43.1 per cent of the cases. The incidence was higher in female patients than in male patients.

3. In most instances the fractures were multiple.

8. Chasin, Adib. Ueber Veranderungen in der Wirbelsaule nach Tetanus, *Fortschr. a. d. Geb. d. Röntgenstrahlen* **46**: 427-441 (Oct.) 1932. Zukschwerdt, L., and Axtmann, R.: Wirbelveränderungen bei Wundstarrkrampf, Deutsche Ztschr. f. Chir. **238**: 627-634, 1933.

9. Roberg, O. T., Jr.: Spinal Deformity Following Tetanus and Its Relation to Juvenile Kyphosis, J. Bone & Joint Surg. **19**: 603-629 (July) 1937.

4. It is probable that these fractures are produced by acute anterior flexion of the spine, which occurs during the convulsion induced by metrazol.

5. In view of the beneficial effects of metrazol in the therapy of mental diseases, attempts are being made to avoid this complication.

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Clinical Notes, Suggestions and New Instruments

PURPURA HAEMORRHAGICA FOLLOWING USE OF SEDORMID

TWO ATTACKS IN ONE PERSON

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Cases of purpura haemorrhagica after the use of sedormid (allyl-isopropyl-acetyl-carbamide) have been reported with increasing frequency since 1933. Joekes [1] reviewed the literature on this subject and stated that there were to date thirty-seven reported cases of purpura haemorrhagica due to sedormid. Since the period covered by his recent survey, seven more cases have been added to the literature.[2] It is interesting to note that on March 5, 1938, the Council on Pharmacy and Chemistry of the American Medical Association [3] declared sedormid not acceptable for New and Nonofficial Remedies. Also of the twenty recorded observers, only four are Americans.[4] In view of this we feel that it might be pertinent to describe a recent case of severe purpura haemorrhagica with two separate episodes due to this sedative.

REPORT OF CASE

A white woman aged 57 complained of multiple subcutaneous hemorrhages, which she had noticed on finishing her housework that evening. No injury had been sustained to account for the condition. Her legs, thighs, arms, body and mouth had hundreds of hemorrhages ranging in size from petechial spots to areas 6 cm. in diameter. Many of these larger areas were raised from 2 to 3 mm. in height; none were painful when touched. The hemorrhages in the mucous membrane of the mouth were of two varieties, some being flat and others pedunculated. The heart and lungs were normal; the abdomen, liver and spleen were not palpable. A capillary fragility test [5] produced 100 petechial hemorrhages in five minutes, and the entire forearm and hand became hemorrhagic. The clinical impression was of aplastic anemia, scurvy or idiopathic purpura.

When she was hospitalized early the next morning the areas had increased in size, a large hematoma was present on one elbow and she was spitting blood. A vitamin C saturation test [6] gave a normal result, 625 mg. (of 1,000 mg. given intravenously) being excreted in five hours. X-ray studies of the extremities for evidence of subperiosteal hemorrhages gave negative results.

No new hemorrhages appeared after her entrance into the hospital, which was concomitant with the large dose of vitamin C. Since she had shown a general avitaminosis a year before and because she had a habit of taking sedatives for insomnia, the possibility suggested itself that the excretion of dietary vitamin C had been accelerated by some drug (acetylsalicylic acid, for one, has been reported to cause depletion of vitamin C reserves [7]). For this reason 1,000 mg. of crystalline vitamin C (cebione-Merck) was given in 10 cc. of water intravenously each day. No other medication was administered. Studies of the blood made almost daily are presented in the table.

Questioning about self-prescribed medicine brought the information that the patient had taken one-half tablet of sedormid nightly for several months, with no ill effects. After a lapse of about a month she took a whole tablet the night before the onset of purpura. She recalled that she soon became acutely ill, with chills, fever and excessive thirst. A sleepless night was followed by a raging headache the next morning. Feeling better later, she had been astonished on changing her clothes in the evening to find her skin spotted with hemorrhages.

After a week's hospitalization, when her blood platelets had started to increase and her hemorrhages to disappear, the patient was discharged. Because sedormid was suspected of being the cause of her illness, it was not readministered for fear of recurrence.

Two months later she again took one-half tablet of sedormid at bedtime. Within two hours chills and fever were experienced, and her stomach "felt as if it were stretching." The next day her mouth was filled with hemorrhages, so that she was spitting blood continuously. There was oozing from the nose, and scattered over her body were approximately 300 petechial hemorrhages. Several large ecchymotic areas, all less than 2.5 cm. in diameter, appeared over the elbows and thighs. Two days later more hemorrhages appeared on the extremities. She was ashen colored and appeared ill. As she now refused intravenous injections, oral doses of 1,000 mg. of vitamin C were given daily. It required three weeks for the areas to disappear. At the present time, one month after the recurrence, she has residual stiffness of her knees, which may have been caused by hemorrhage into the joints.

Studies of the Blood

Day of Illness	1st	3d	4th	6th	7th
Red blood cells (per cubic millimeter)	3,760,000	4,236,000	3,870,000	3,990,000	4,250,000
White blood cells (per cubic millimeter)	4,900	3,750	3,350	3,850	4,150
Platelets (per cubic millimeter)	90,000	84,000	52,000	110,000	140,000
Hemoglobin, %	86	79	74	80	82
Color index	1.11	.86	.88	.96	.80
Bleeding time (minutes)	5	4	3	2 to 3	2½ to 3
Coagulation time (minutes)	6½	5½	5	4½	4½ to 5
Differential count (per 100):					
Neutrophils	62.5	36	47	36	38
Eosinophils	1.5	6	3	2	2
Basophils	2	0	0	0	1
Monocytes	2.5	4	5	5	6
Small lymphocytes	29.5	52	42	54	48
Large lymphocytes	2	2	3	3	5

COMMENT

While it is probable that many persons have suffered no ill effects from sedormid, a study of forty-five cases of purpura haemorrhagica following its use should cause real concern. The different stages at which illness may appear are of interest. Of the persons in whom purpuric manifestations developed, the majority indicated an allergotoxic reaction, since they had taken it for some time with no untoward effects, only to show hemorrhages when they resumed it after varied lapses of time. In another group apparently an intolerance for it developed, purpura appearing after a period of continued use. A still smaller number of persons who are reported to have reacted to their first dose seemed to have an idiosyncrasy for this drug. In all cases there was a strikingly similar clinical picture, followed generally by complete recovery on withdrawal of sedormid. In one instance, however, a psychosis was reported to have followed the disappearance of visible symptoms, and in the reported case

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1. Joekes, T.: Purpura Haemorrhagica (Werlhof) after Taking Sedormid, Lancet **2**: 305 (Aug. 6) 1938.

2. Vogl, Alfred: Die Pathogenese der akuten thrombopenischen Purpura, Wien. Arch. f. inn. Med. **32**: 273 (May) 1938. Loewy, F. E.: Thrombocytopenic Purpura from Sedormid, Brit. M. J. **2**: 320 (Aug. 6) 1938. Miller, Charles, and Rosenheim, M. L.: Purpura After Taking Sedormid, Lancet **2**: 402 (Aug. 13) 1938.

3. Sedormid not Acceptable for N. N. R., report of the Council on Pharmacy and Chemistry, J. A. M. A. **110**: 740 (March 5) 1938.

4. Vogel, A.: Purpura Haemorrhagica Following the Use of Allyl-Isopropyl-Acetyl-Carbamide, abstr. J. A. M. A. **105**: 612 (Aug. 24) 1935. Boas, E. P., and Erf, L. A.: Thrombocytopenic Purpura Following Medication with Sedormid and with Phenobarbital, New York State J. Med. **36**: 491 (April 1) 1936. Hoffman, A. M.; Kahn, Julius, and Fitzgibbon, J. P.: Thrombocytopenic Purpura Following Allyl-Isopropyl-Acetyl-Carbamide (Sedormid), J. A. M. A. **110**: 725 (March 5) 1938. Moody, A. M.: Thrombocytopenic Purpura Following Use of Allyl-Isopropyl-Acetyl-Carbamide (Sedormid), ibid. **110**: 726 (March 5) 1938. Since this paper was submitted, two more cases have been reported (Hill, David B.: Thrombopenic Purpura Following Allyl-Isopropyl-Acetyl-Carbamide (Sedormid), J. A. M. A. **111**: 1459 (Oct. 15) 1938.

5. Wright, I. S., and Lilienfeld, Alfred: Pharmacologic and Therapeutic Properties of Crystalline Vitamin C (Cevitamic Acid), with Especial Reference to Its Effects on the Capillary Fragility, Arch. Int. Med. **57**: 241 (Feb.) 1936.

6. Wright, I. S.; Lilienfeld, Alfred, and MacLenathen, Elizabeth: Determination of Vitamin C Saturation, Arch. Int. Med. **60**: 264 (Aug.) 1937.

7. Daniels, A. L., and Everson, G. J.: Influence of Acetylsalicylic Acid (Aspirin) on Urinary Excretion of Ascorbic Acid, Proc. Soc. Exper. Biol. & Med. **35**: 20 (Oct.) 1936.

there is residual stiffness of the knees. One is led to speculate, therefore, on the possibility of such serious manifestations as may result from lesions in the brain and other important areas.

CONCLUSION

Evidence accumulated by various authors over five years demonstrates that sedormid may cause a serious hemorrhagic syndrome. This emphasizes the need for further study of its properties, restriction of its sale except on a physician's prescription and caution on the part of the physician in recommending its use.

A SIGN OF ULNAR PALSY

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It seems to me worth while to point out the diagnostic importance of a sign of ulnar palsy that is apparently little known and is not even mentioned, for example, in the leading textbooks of neurology or in monographs on the peripheral nerves. This sign consists of a position of abduction assumed by the little finger. For years I have been observing this sign and have found it to be present in many cases, regardless of the cause of the palsy.[1]

Sometimes the fourth finger too has a tendency to assume a position of abduction, but usually it is only the little finger that is found in an abnormal position. In many cases this abduction was nearly extreme and resembled a paralytic contracture. It was found to be most conspicuous when the patient was asked to extend his fingers at the proximal joints. The importance of this sign has become increasingly evident from numerous experiences which indicate that this tendency of the little finger to be abducted may constitute an early (in some cases the first) and also a late sign of ulnar palsy.

It is my definite impression that from this point of view the sign deserves special attention. To illustrate this, the case of an intelligent female patient who had a slowly developing ulnar palsy is cited. This patient reported that the first thing she had noticed in respect to her hand was a tendency of the little finger to deviate outward. In other cases this deviation outward of the little finger has been noticed together with the beginning of paresthesias in the fourth and fifth fingers.

To show the importance of this sign as a very late manifestation of ulnar palsy, another case may be cited—that of a physician who fourteen years ago suffered a severe traumatic right-sided ulnar palsy. In the course of time all the signs of this palsy (atrophies, paralyses, sensory changes) completely subsided. In this case the abducted position of the little finger is now the only remaining demonstrable sign of an ulnar palsy sustained fourteen years ago. Recently I saw a patient who had been operated on for late ulnar palsy successfully by Dr. H. C. Naffziger fourteen years ago. In this case the position of abduction of the little finger has been the outstanding clinical feature.

From the physiologic standpoint this sign is easily understandable. Adduction of the little finger is performed by the interosseous and abduction by the hypothenar muscles. Both groups of muscles are innervated by the ulnar nerve. However, in abduction of the little finger, the musculus extensor digiti minimi proprius and the branch to the little finger of the musculus extensor digitorum communis also play a definite part. These are both innervated by the nervus radialis. If the muscles innervated by the ulnar nerve are weak, those innervated by the intact nervus radialis predominate in strength and abduct the little finger. Thus it is understandable why this abduction of the little finger in ulnar palsy is best seen when the musculus extensor digitorum communis comes into action and extends the fingers and the hand. In cases of combined palsy of the nervus ulnaris and nervus radialis this sign would not be present. Normally the spreading of the fingers and abduction of the little finger is much more forcefully performed with the fingers extended than with the fingers flexed. In ulnar palsy this difference is much more pronounced in the little finger. This proves again the importance of the extensors of the little finger in the mechanism of its abduction.

From the Division of Neurology of the University of California Medical School.

1. Wartenberg, Robert: Kleine Hilfsmittel der neurologichen Diagnostik, Nervenarzt. 3: 594, 1930.

Borchardt[2] described a case of ulnar palsy in which he assumed that only the musculus abductor digiti quinti was preserved. Foerster cited this case as a proof that this muscle was innervated by the nervus medianus. Foerster[3] presented a photograph made in a case of disease of the nervus ulnaris in which there was marked abduction of the fifth finger. He stated that in this case all the muscles of the hand that normally are innervated by the nervus ulnaris were innervated by the nervus medianus, except for the musculus interosseus volaris tertius (adductor digiti quinti).

These two explanations of the phenomenon are based on the supposition that the median nerve in these cases innervated the muscles usually regarded as innervated by the nervus ulnaris. Aside from the fact that this must occur only exceptionally, such an explanation does not come into consideration in my cases, in which the picture was in every way typical and there was no other evidence of innervation by the nervus medianus as a substitute for the nervus ulnaris. There was typical involvement of all the muscles normally innervated by the nervus ulnaris.

In another case of abduction of the little finger in ulnar palsy Foerster[3] assumed that, after the ulnar nerve had been affected, all the muscles had been restored to normal except the musculus adductor digiti quinti. The isolated palsy of this muscle had thus led to an abducted position of the little finger. This explanation by Foerster seems to me a little far fetched, as it is not understandable how, after all of the other muscles controlled by the nervus ulnaris had been restored, one would remain affected for many years.

My explanation appears more simple and adequate. I assume that abduction of the little finger in ulnar palsy is due to the predominance of the musculus extensor digiti quinti and the branch of the musculus extensor digitorum communis to the little finger over the muscles innervated by the nervus ulnaris which adducts the finger. Thus it is not necessary to resort to the extraordinary supposition that in ulnar palsy only the adductor digiti quinti may be involved or fail to be restored, or that the abductor digiti quinti has been spared. My explanation is supported by the strong influence of the extensors of the fingers on their abduction in cases of slight ulnar palsy, the abduction of the little finger becoming more than usually enforced when the fingers are extended, i. e., when the extensors come into play.

With regard to the use of this sign in differential diagnosis, it is worth while mentioning that Hoff and Schilder[4] found, in cases of cerebellar disease and of beginning multiple sclerosis with cerebellar lesions, this same tendency of the little finger to abduction.

2. Borchardt, cited by Foerster.[3]
3. Foerster, Oxfried, in Lewandowsky, Max: Handbuch der Neurologie, Ergaenzungsband, Berlin, Julius Springer, 1929, pt. 2, p. 1132.
4. Hoff, Hans, and Schilder, Paul: Phänomen des kleinen Fingers. Deutsche med. Wchnschr. 54: 1200 (July 20) 1928.

USE OF SERUM TELLURITE AGAR FOR THE ISOLATION OF PNEUMOCOCCI

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Serum tellurite agar,[1] which is used as a routine in this laboratory for the examination of cultures taken from the throat and nose for Corynebacterium diphtheriae, has been found very satisfactory for the isolation of pneumococci.

On this medium practically all strains of pneumococci produce very characteristic colonies. The colonies, which vary in size from 0.1 to 1 mm. in diameter, are very thin and flat, entire and gray with a brownish gray center. Some give the appearance of having a raised edge and a depressed center. Recently isolated and virulent type III pneumococci produced large (from 3 to 4 mm.), raised, watery, mucoid, light gray colonies. While the morphologic appearance of the colonies of pneumococci on this medium is very much like that produced on ordinary blood

From the Bureau of Bacteriology, Maryland State Department of Health.

1. Dissolve 1.5 [illegible] agar in beef infusion broth. Adjust hydrogen [illegible] 7.2 and 7.4, bottle in convenient amounts [illegible] rilize in the autoclave at 15 pounds pressure for twenty minutes. Melt this base in the Arnold sterilizer when ready to use and cool to 50 C. Add 5 per cent sterile human or hog serum, 0.2 per cent of dextrose from a sterile solution (2 cc. of a 10 per cent dextrose solution to 100 cc. of base) and 0.01 per cent of potassium tellurite (1 cc. of a 1 per cent sterile solution). Pour into Petri dishes.

agar, the pneumococcus colonies are easily distinguished from those of streptococci. The colonies are not always typical, however, until the plates have been incubated for twenty-four hours.

In general, streptococci produce raised, black colonies on serum tellurite agar. Certain strains of hemolytic streptococci which produce large mucoid colonies are difficult to distinguish from the colonies of type III pneumococci. The mucoid streptococcus colonies are, however, darker than pneumococcus colonies and do not usually have an entire edge. The tellurite medium has the added advantage that proteus-like and spore-forming bacteria do not produce spreading colonies.

This method has been found to facilitate greatly the routine isolation of pneumococci from mixed cultures.

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Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE. HOWARD A. CARTER, Secretary.

FEVER THERAPY BY PHYSICAL MEANS

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During the past few years, interest in the production of fever by physical means has greatly increased. More than 600 articles have been written and published on the subject. Excellent research work has been done, and conservative scientific conclusions have been drawn. The value of fever therapy as an important therapeutic agent in the treatment of certain diseases has been definitely proved.

The treatment of more than fifty diseases by means of artificial fever therapy has been attempted. The results in the majority of these diseases were not encouraging, although with a selected few the method has given promise of great usefulness. It must be emphasized, however, that fever therapy is probably of little or no value in the treatment of many diseases concerning which its use has been studied, and in some diseases it may even become dangerous.

GENERAL PRINCIPLES

Numerous studies on the effects of fever produced by physical means indicate that these effects produce certain definite changes in the body.

Effects on Circulation.—The pulse and circulatory rates are increased by fever therapy, and both the volume output of the heart and the velocity of the blood may be increased by as much as 400 per cent. There is an initial increase which is followed by a decrease in the pulse pressure. There is a marked increase in the pulse volume in the fingers of the patient in all types of artificial fever with the exception of that caused by foreign proteins. It has been suggested that the vasodilatation which occurs during fever produced by foreign protein is possibly of central origin, whereas that which occurs in artificial fever induced by external heating, with consequent prevention of loss of heat, is chiefly of peripheral origin.

The maximal increase of circulation in artificial fever occurs, in general, at temperatures between 103 and 104 F. (39.4 and 40 C.). Alterations appearing in the electrocardiogram are not uniform. The electrocardiograms show disappearance of the normal sinus arrhythmia, and the cardiac rhythm becomes remarkably regular. The conduction time (PR interval) is shortened about 0.02 to 0.06 second during the elevation of bodily temperature, being shortest at 105 F. The conduction rate concomitantly slows to its former velocity as the temperature falls.

Studies made by means of sphygmograms, phlebograms and electrocardiograms of patients undergoing fever treatments indicate that the total filling time of the ventricle is rapidly reduced by the time the temperature is elevated to 100.5 F. and reaches its lowest figure at 103.5 F. After this, the filling time increases slightly, so that it again becomes greater than the emptying time.

The curves illustrating filling times suggest that both the distressing symptoms and the subjective discomfort often experienced by patients during the induction of artificial fever might be accounted for by an inadequate filling of the heart because of an insufficient duration of the filling time. Compensation may be accounted for by a more adequate ventricular filling brought about by an increase in the duration of the filling time.

There is little or no change in the volume of the blood and no change in the viscosity of the blood when the intake of fluids is encouraged during the fever sessions. Artificial fever unaccompanied by sweating does not of itself bring about any considerable change in the blood volume, but when fever is accompanied by profuse perspiration, the reduction in blood plasma may be so great as to produce peripheral vascular collapse.

Absorption of fluids from the intestinal tract may be retarded during high fever, but the intravenous administration of fluids permits rapid restoration of blood volume. The visible capillaries of the nail beds are increased in number and size. The erythrocyte count generally is not changed. There is an initial decrease in the number of leukocytes, with a subsequent increase. There is a leukocytosis which starts during the fever period and rises in tidelike fashion with the addition of waves of neutrophilic cells and then gradually recedes to prefebrile levels in from twenty to twenty-four hours. This leukocytosis is varied, the total cell count ranging from 10,000 to 60,000.

Prolonging the fever, especially at high temperatures, delays leukocytosis or at least produces a smaller increase in leukocytes than does a shorter or less intense session of fever. It has been shown that continuous high fever in the rabbit prevents leukocytosis and may eventually lead to leukopenia. This action is explained by a progressive fall in the lobe index (number of nuclear lobes per hundred polymorphonuclear leukocytes), indicating that the bone marrow is pouring cells into the blood but is unable to keep pace with the emigration of these cells to the tissues.

Sessions of fever produce nuclear changes in the polymorphonuclear leukocytes, and these changes are in part toxic and in part the result of accelerated metabolic activity. There is a tendency to hypersegmentation and to the production of macropolycytes.

Bone marrow which has been previously stimulated but which is not being actively depleted by demands made by the tissues will respond to artificially induced fever by marked leukocytosis. Conversely, bone marrow which is being stimulated actively but which is also being drained by demands of the tissues will respond with only slight leukocytosis. This is illustrated by the slight response to the malarial paroxysm which

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occurs late in this disease. The same bone marrow, after a period of recuperation following quinine treatment, will respond by marked leukocytosis when subjected to artificial fever.

Histologic studies of organs of animals subjected to fever sessions continuously until death disclose focal accumulations of polymorphonuclear leukocytes which often reach the proportions of abscesses. In the lymph nodes there is early and progressive destruction of the lymphocytes followed by polymorphonuclear infiltration and later by a marked proliferation of actively phagocytic clasmatocytes. At this later stage, the nodes thus involved are hypoplastic without evidence of lymphocytic regeneration.

There is slight, if any, change in the nitrogenous constituents (urea, uric acid and creatinine) of the blood. There is a consistent increase in the clearance of the creatinine content, in contrast to wide variations of the clearance capacity which occur during infection. There is little or no change in the non-nitrogenous constituents, such as sugar, phosphorus, lipids and calcium, except, occasionally, for a slight increase, which in turn depends on an increase in concentration of the blood. There occurs no significant decrease in the lipids of the plasma such as is seen in the presence of acute infections. There is usually an alteration in the acid-base equilibrium of the blood which tends to produce slight alkalosis. Marked alkalosis may be noted. It has been concluded that fever characterized by severe dehydration and hyperventilation induces pronounced alkalosis. The degree of alkalosis which approaches critical levels is dependent on the severity of the dehydration and on the extent of hyperventilation. Opinions vary as to the effect on the hemal concentration of the chlorides. Some investigators claim that there may be a marked decrease in this concentration, whereas others declare that there is no significant change. If salt or a weak saline solution is administered by mouth during treatment, the hemal concentration of chlorides diminishes very little. If no sodium chloride is administered, profuse sweating and a diminished concentration of chlorides are to be expected. It has been noted that in seven cases the development of jaundice followed prolonged fever therapy. Two significant effects common to each case were found: (1) the increase in the icteric index was accompanied by a low value for the serum chloride and a diminished excretion of urinary chlorides and (2) the jaundice could be relieved only by the administration of large amounts of sodium chloride, and not by the administration of carbohydrates. Proper attention to the chloride and water balances "is apparently the most important factor in the technic of administering prolonged fevers." The oxygen content and oxygen-combining power of venous blood are increased. Opinions also vary as to the effect of artificial fever on the agglutinins of the blood, but the agglutination titer is generally within normal limits. The action of complement-fixing antibodies is temporarily diminished, but there is no change in the opsonic index. In studies on the effects of fever, great modifications in the antibodies of normal and syphilitic patients following fever were found. Studies made by means of a calorimeter on the mechanism of heat loss from the human body showed that "the mechanism for heat loss is adequate to care for twelve times the basal heat production" and that "spontaneous fever is due almost entirely to malfunction of the mechanism for heat loss."

Other Effects.—Examination of the effects of fever therapy on the gastric contents reveals a sudden decrease in the amount of chlorides and an increase in the amount of lactic acid. The urine is increased in amount, but temporary oliguria generally occurs. The reaction of the urine is unchanged, but the urine may be slightly alkaline and its specific gravity may be increased. The basal metabolic rate is increased approximately 7 per cent for each degree of fever induced. Cold fluids taken by mouth produce fluctuation in the gastric temperature but do not appreciably affect the general temperature. The comparison of the temperatures observed in the median antebrachial vein, rectum, uterine cervix, Hunter's canal, bladder and spinal canal indicate that records of the rectal temperature provide an accurate index to the temperature of the deep tissues. After each treatment there may be a temporary loss of weight as a result of loss of fluids unless sufficient fluids are taken by mouth, but this lost weight is quickly regained and after a course of fever therapy a patient usually retains his original weight or even gains weight.

PATHOLOGIC CHANGES

Hemorrhagic encephalitis and hemorrhagic pneumonitis have been noted in some instances in which extreme hyperpyrexia was induced. Deterioration of, and hemorrhage into, the cortex of the suprarenal gland may occur after induction of such hyperpyrexia. In the large viscera of laboratory subjects killed by hyperpyrexia there were found regions of focal degeneration and cloudy swelling. It has been observed that no demonstrable changes in nerve tissues occur in laboratory animals whose temperatures were elevated to 111.5 to 111.9 F. for from thirty-three to seventy-five minutes. Rabbits which were subjected until death to febrile temperatures not exceeding 108.3 F. were seen to have peripheral nerves characterized by degenerative changes of the reversible type. Intensity of the changes was directly proportional to the degree of febrile temperature induced in each animal. In rabbits subjected to intermittent periods of induced fever (during which the average bodily temperature varied between 106.1 and 107.8 F. for a total of from eighteen to fifty hours with one week of recovery time allowed between the last exposure and the time of killing) the peripheral nerves exhibited only mild intensities in the reversible types of degenerative change. If the bodily temperature of the animals was raised to 107.6 to 108.5 F. for eight hours and thirty days intervened between the time of exposure and the time of killing, the nerves showed a marked return to the normal status. Inferential evidence presented with this study indicated that regional anoxia was a contributing factor of considerable importance in the causation of the degenerative changes in the peripheral nerves observed after artificial fever.

At necropsy after death resulting from the induction of artificial fever, as observed in the experimental laboratory and elsewhere, pathologic lesions have been found which are similar to the lesions discovered at necropsy after death caused by the administration of nitrous oxide anesthetic. These lesions would seem to indicate that death may result from anoxia.

BACTERICIDAL EFFECTS

Neisseria gonorrhoeae is generally destroyed by a temperature of from 106 to 107 F. (41.1 to 41.6 C.) in from six to twenty-seven hours. In a high percentage of cases of syphilis, dark field illumination wi-

not reveal the presence of Spirochaeta pallida after the patient has been treated with fever induced by physical means. Mycobacterium tuberculosis, Streptococcus haemolyticus or Streptococcus mitior when exposed to temperatures within physiologic ranges in vitro show no cultural changes. Micrococcus catarrhalis, Haemophilus conjunctivitidis, Haemophilus influenzae, Brucella abortus, Escherichia coli, Eberthella typhosa, Streptococcus haemolyticus, Streptococcus viridans and Diplococcus pneumoniae (type I and type III) usually resist a temperature of 107 F. (41.6 C.) in vitro for twenty-four hours; an occasional strain shows some reduction in number.

DESCRIPTION OF APPARATUS

There are various devices for the production of artificial fever. The most common devices used at present are the air conditioned cabinets, luminous heat cabinets, air conditioned cabinets used in conjunction with short wave diathermy, electric blankets and zipper bags or blankets used in conjunction with short wave diathermy.

Air conditioned cabinets produce a rise in the bodily temperature by circulating hot, humid air over the body. Hyperpyrexia is produced by the heated air. The dry air temperature of these cabinets is usually maintained at between 110 and 130 F., and the humidity is maintained at as high a percentage as possible (from 80 to 95). These cabinets are heated by small radiant heaters similar to the units found in the household electric heater. The humidity may be maintained by a 1,000 to 2,000 watt immersion heater placed in a pan of water. The air is circulated by means of small fans. This type of cabinet can be used with entire satisfaction to produce artificial fever without the aid of a diathermy apparatus. Several such cabinets are on the market.

There is a luminous heat cabinet which is similar in its action to the air conditioned type except that it is heated by four or five 200 watt carbon filament bulbs situated in the top of the cabinet. It has a fan and humidifying pan with which to circulate and humidify the air. This type of cabinet can be constructed easily by any hospital carpenter for from $150 to $250.

Short wave diathermy machines have become very efficient in the production of artificial fever. The most satisfactory means of using short wave diathermy is to employ it in conjunction with an air conditioned cabinet. Fever is induced by means of the short wave electromagnetic cable or electrostatic plates; the bodily temperature is maintained by means of the air conditioned cabinet.

High frequency currents, short wave diathermy and, likewise, conventional diathermy can be used in conjunction with blanket packs or bags with slide fasteners. This procedure is satisfactory for administering short sessions of fever but is not satisfactory for the production of prolonged high fever. The blanket pack or the bag with slide fastener exerts an extremely confining effect on the patient, so that it is almost impossible for him to withstand many hours of fever. Various kinds of electric blankets, some of which are designed in the form of a large sleeping bag, have been constructed for use in fever therapy. They are less expensive than cabinets, but their great disadvantage is that the patients enveloped within them are closely confined. These blankets, if employed at all, should not be used when a temperature of more than 103 or 104 F. (39.4 or 40 C.) is required. None have yet been approved by the Council on Physical Therapy of the American Medical Association.

Hydrotherapeutic Methods.—The production of fever by means of hot baths is still being used successfully by some investigators. Although prolonged hot tub baths are enervating, they elevate the patient's temperature rather rapidly and may maintain it at a fairly high level for from one to two hours. After the fever has been induced by means of the bath it can be maintained by means of blankets or, better still, by means of a simple radiant heat cabinet.

The simple tub bath is as inexpensive and uncomplicated as any method of producing fever. It seems likely that as physicians continue their search for simpler and better methods of producing artificial fever by physical means, they will more frequently elevate the temperature by means of hot baths and maintain it with a radiant heat cabinet.

In administering the hot spray bath, the nude patient is placed in a cabinet in the supine position with his head protruding from one end, as if he were lying in an air conditioned or other type of heat cabinet. He is then sprayed with a series of very fine jets of nebulized hot water, the temperature of which is controlled by means of a thermostat. This spray cabinet will produce a rapid rise in bodily temperature if the temperature of the water can be maintained at the proper degree. One supposed advantage of this method is the fact that the thermostat can be switched immediately, thus releasing a momentary spray of cold water. The brief spray of cold water will exert a refreshing effect on the patient; at the same time, if the switch to the cold water is maintained for a brief time only, there will be an increase in the bodily temperature instead of a decrease. Apparently the momentary contraction of the peripheral capillaries caused by the cold spray drives the warm peripheral blood into the splanchnic regions, thus producing an additional and a more rapid increase in the systemic temperature. The chief detriment to the use of the spray cabinet is that the operator must depend on a general water supply as the source of heat, and it is rarely possible to obtain a constant flow of sufficiently hot water.

Other Conduction Methods.—A simple method of inducing hyperpyrexia by wrapping the patient in blankets and rubber sheeting has been used. With this method, no source of heat other than the natural heat of the body is utilized; however, four or five hours is necessary in which to elevate the bodily temperature to 104 F. (40 C.), which would seem to be an unnecessarily long period of discomfort before the required high temperature is achieved. If this method is to be used, it would seem expedient to use at least a few hot water bottles in the patient's wrapping in an attempt to induce the fever more rapidly.

In using the hot water bottle and blanket method, the patient is simply wrapped in a number of thick blankets and surrounded by a number of hot water bottles. The great disadvantage of any blanket method of inducing hyperpyrexia rests in the fact, as has been indicated, that nearly all patients are rendered extremely uncomfortable by the confinement of their limbs occasioned by the necessarily tight wrapping of so many heavy coverings.

PERSONNEL

A carefully trained team consisting of technicians and a physician is essential to the safe conduct of fever therapy. The personnel of the fever therapy depart-

ment is almost as important as the personnel of the operating room. A competent physician familiar with all the reactions which can be evoked by this type of therapy should be in attendance at all times during the treatment. The treatments should be administered by registered nurse-technicians who have been trained for at least one month or six weeks in a well organized fever therapy department of a hospital or under the close supervision of some person who has had such training. It has been said "The percentage of cooperative patients is directly related to the expertness and the tact of the nurse in charge." Failure to achieve a measure of success with fever therapy in many institutions arises from the fact that the attending nurses have not been adequately trained and familiar with the physiological principles that are essential to effective treatment. For many reasons the use of fever therapy should be confined to institutions. It must be borne in mind at all times that fever therapy is not without danger. Though it is entrusted to a corps of highly trained workers, serious complications can and do occur during its administration.

TECHNIC

Selection of Patients.—Emphasis cannot be laid too strongly on the need for careful selection of patients. The patient should be subjected to a careful physical examination before treatment, and if there is any degree of hypertension, cardiac disease or severe debility he should be rejected. Functional disorders of the heart need not contraindicate fever therapy, and under satisfactory control patients with diabetes may also be accepted. Pulmonary tuberculosis may not be a contraindication per se, but the associated respiratory involvement may prevent the satisfactory elevation to, and maintenance of, high temperature. Fever therapy is not contraindicated by the presence of subacute carditis or inactive rheumatic heart disease; on the contrary, it may be of benefit in such conditions. In general, it might be said that any contraindication to major surgical procedures is likewise a contraindication to this type of therapy.

Management of Patients During Treatment.—Fever therapy is not tolerated uniformly by all patients; as is the case with other types of therapy, toleration depends on the reactions of the individual patient. The average person should be told what to expect of the treatment, should be enlightened as to the various physical changes that will occur and should be informed that the treatment is severe but not intolerable. Persons who have no idea of what to expect during the fever treatment frequently become extremely nervous, so that they cannot be controlled for the desired length of time. There is a certain group of extremely nervous, easily excitable persons who will not tolerate the treatments.

The most common untoward results observed during fever therapy are headache, restlessness, nausea, vomiting, tetany and muscle cramps. Heat prostration may occur. Restlessness requires sedation, which may be repeated every two or three hours. There is considerable variance of opinion concerning the best sedative, but in the experience of most workers codeine, pantopon, dilaudid and morphine sulfate have been satisfactory. It has been contended that carbamide sedatives are more satisfactory for basic sedation than the barbituric acid group of drugs. The latter are respiratory depressants and may also increase the danger of hemorrhage and patchy necrosis of the central nervous system. Such hemorrhage and necrosis may be produced by anoxia which often exists during fever therapy or simply by the barbiturates when administered in toxic doses. Therefore, the combination of barbiturates and fever seems ill advised. It seems essential to keep the patient quiet but never in a state of narcosis sufficient to prevent his reacting to questioning. Nausea and vomiting may be controlled by intravenous injections of from 500 to 1,000 cc. of 5 per cent dextrose and 1 per cent sodium chloride in solution during the treatment. Tetany may be corrected readily by the intravenous injection of 10 cc. (approximately 2½ fluidrachms) of calcium gluconate. From a study of the metabolism of chloride and water it has been concluded that the maintenance at a high level of the patient's intake of fluid and sodium chloride is of the utmost importance. For the average six to ten hour period of fever treatment, a total intake of from 3,000 to 5,000 cc. (3 to 5 quarts) of fluid has been found effective. An intake of sodium chloride of at least 20 Gm. (approximately 5 drachms) will cover the chloride loss in perspiration for the average treatment. The maintenance of fluid and chlorides may be accomplished easily by having the patient drink from 3 to 6 liters of a solution of 0.3 or 0.6 per cent sodium chloride, iced, during the session of fever. The patient may also be allowed to drink sweetened tea, orange juice, lemonade and carbonated beverages. He should be instructed to ingest a meal rich in carbohydrates on the night before a fever treatment. In some cases an intravenous injection of from 500 to 1,000 cc. of a solution of 5 per cent dextrose in physiologic solution of sodium chloride should be made on the morning of treatment.

The skin of the patient should be observed frequently during treatment. The feet and legs may be protected by a covering of terry cloth placed in position at the beginning of the treatment. If a region of erythema appears on any part of the body, that region should be protected by a towel. If the erythema becomes more prominent, a cold cloth or a piece of ice may be applied. By observing such precautions and by elevating the patient's temperature gradually, one can prevent what might otherwise develop into severe burns.

When air conditioned cabinets are used, the dry air temperature should be maintained between 110 and 130 F. (43.3 and 54.4 C.) in association with high humidity and low air velocity. With this procedure, there is little necessity for covering the patient and burns of the skin are infrequent.

Episodes of delirium occur not infrequently during prolonged high fever. Delirium, unless it is violent, does not contraindicate continuance of the treatment.

There is usually an increased oxygen saturation of the venous blood during the early part of a fever session but later if there is circulatory failure there may be a severe anoxemia and anoxia. The factors producing this anoxia are increased temperature of the blood and the resulting increased demand for oxygen in the tissues and, in some instances, failure of circulation. Oxygen inhalation is an important factor during fever treatments. At one time oxygen tents were used over the heads of patients in fever cabinets in an attempt to increase the effectiveness of therapy, the assumption being that the high oxygen saturation of the blood thus obtained might be an important factor in the curative effect of the fever. With bodily temperatures of from 101.8 to 105.9 F. (38.8 to 41.1 C.), the oxygen content of the venous blood was observed to be considerably

elevated. When the bodily temperature was elevated and oxygen was also administered, the percentage oxygenation of the hemoglobin frequently was found to exceed 95; however, a clinical estimate of the procedure indicated that the combination of oxygen and fever was only slightly more effective against disease than was fever alone. It was decided, however, to consider the use of oxygen in conjunction with fever therapy only from the standpoint of additional safety to the patient. The oxygen tent was found cumbersome and difficult to use, because most patients objected seriously to being entirely enclosed. The use of nasal catheters has been suggested, as has also use of the so-called face tent.

More recently, use of one of the two types of the new Boothby-Lovelace-Bulbulian oxygen face masks has been found effective. The mask is laid lightly over the patient's nose and he is permitted to inhale oxygen at intervals during one half to three fourths of the entire treatment. The adjustment is so arranged as to permit a partial rebreathing and a partial admixture of atmospheric air. *Patients do not object to this type of mask,* because it is light, readily applied and easily lifted off at any moment to allow sponging of the face and administering of fluids by mouth. The intermittent administration of oxygen during all fever treatments is an important additional safety factor in the prevention of the dangerous after-effects of anoxia that have been so clearly described by a number of investigators.

There should be a well trained fever therapy nurse in constant attendance on the patient. At no time should she be more than a few feet away. The pulse rate, temperature and respiratory rate should be recorded every fifteen minutes for the first hour of therapy and every ten minutes thereafter. A careful record should be made of the amounts of fluid intake and also of the reactions of the patient. The temperature should be taken during the first hour by both mouth and rectum and thereafter by rectum exclusively. Electrical indicating thermometers are extremely convenient and satisfactory and their use allows the nurse-technician to give more attention to the patient. The blood pressure should be recorded every hour during the treatment. Any untoward reactions of the patient seen by the technician should be reported immediately to the physician in charge, who should be within calling distance at all times.

COMPLICATIONS

Mention already has been made of the reactions that may occur during a session of fever, such as headaches, nausea, vomiting, tetany and abdominal cramps. Nausea and vomiting also may be present during the evening after treatment, although they are usually relieved within twenty-four hours. Herpetic lesions on the lips and in the mouth, nose and pharynx may be so severe as to render eating and drinking difficult for a time. These lesions tend to disappear even though fever treatments are continued at regular intervals.

Occasionally superficial burns occur, especially on the arms and chest. However, these usually do not interfere with subsequent sessions of fever, and they can be avoided in practically all cases if the precautions previously mentioned are followed.

One of the most serious complications is circulatory collapse with a possibly fatal termination. Circulatory disturbance may occur during treatment in spite of the more careful antetherapeutic examination and even though the condition of the patient is apparently good during the treatment. In cases of circulatory collapse, the usually accepted treatment for shock is administered. Not only a rise of the temperature above safe physical limits but other serious consequences may be avoided by discontinuing treatment whenever any of the following conditions are found: (1) a systolic blood pressure of less than 80 mm. of mercury, (2) a pulse pressure of less than 20 mm. of mercury and (3) a pulse rate of 160 beats or more which is constant for more than thirty minutes. Often in the presence of these conditions cooling the patient momentarily may result in an improvement that will last throughout the treatment. It is now known that circulatory collapse occurring during fever therapy may be caused by the loss of fluids resulting from excessive perspiration. If the systolic blood pressure recedes below 80 mm. of mercury during the treatment, intravenous injection of from 500 to 1,000 cc. of physiologic solution of sodium chloride containing 5 per cent dextrose should be started at once. This is a most important safety measure; it will often permit continuation of treatment by replacing the lost fluids and by raising the blood pressure to within safe limits.

Another complication of a serious nature, infrequently encountered, is heat stroke. The patient's temperature rises suddenly to 107 F. (41.6 C.) or above. The pulse becomes hard, but its rate is not increased in proportion to the elevation of temperature. The blood pressure increases and coma and pulmonary edema may suddenly develop. The patient should be removed from the cabinet immediately and cooled by means of a tepid sponge bath and by a fan which blows cool air directly on the body. This procedure is considered preferable to the use of ice baths, which may contract the peripheral capillaries and lessen heat radiation. If pulmonary edema and apparent cerebral edema occur, the patient should receive a solution of hypertonic dextrose (50 per cent) by intravenous injection or a venesection should be done. The temperature may rise rapidly to 110 F. or more, with fatal results, or return to normal. If it returns to normal, care should be taken that the patient's condition does not proceed to a state of shock accompanied by a subnormal temperature.

THERAPEUTIC INDICATIONS

As is the case with many new therapeutic agents, artificial fever has been recommended for the treatment of a large number of diseases. As mentioned previously, it has been used for no less than fifty different ones. Space does not permit detailed consideration of the use of artificial fever produced by physical means in the treatment of all the conditions for which it has been recommended or used, which are as follows: adiposis dolorosa, allergic dermatitis, bronchial asthma, bronchiectasis, Buerger's disease, cerebral atrophy complicated by chronic otitis media, chorea, chronic sinusitis, dermatitis herpetiformis, epidemic encephalitis, epilepsy, infections of the gallbladder, gonorrheal arthritis, gonorrheal corneal ulcer, gonorrheal endocervicitis, gonorrheal epididymitis, gonorrheal prostatitis, gonorrheal salpingitis, gonorrheal urethritis, pelvic inflammatory disease, Hodgkin's disease, infectious arthritis, interstitial keratitis, subacute iritis, meningococcic septicemia, multiple sclerosis, mycosis fungoides, optic atrophy, osteogenic sarcoma, osteomyelitis, Parkinson's syndrome, peripheral vascular disease, psoriasis, psychoses, radiculitis, Raynaud's disease, rheumatic fever, sciatic neuritis, scleroderma, syphilis, syphilitic meningitis, ocular syphilis, syphilis of the nervous system, trichinosis, tumor and undulant fever.

It must be emphasized most strongly that fever therapy is probably of little or no value in the treatment of a number of these diseases. It would be distinctly dangerous to use fever therapy in some of the diseases for which it has been recommended. Among these may be mentioned: arteriosclerosis, subacute bacterial endocarditis, hepatic infections, pyelitis, staphylococcic septicemia and tuberculosis. Recent studies have added greatly to information on the treatment of some diseases by artificial fever; such studies should be consulted before artificial fever induced by physical means is employed to treat the disease in question.

Subacute Bacterial Endocarditis (Endocarditis Lenta).—It has been demonstrated definitely that, although there are some slight temporary relief of pain and a lowering of temperature following artificial fever therapy, no permanent beneficial effects can be noted after the hyperpyrexic treatment of patients having subacute bacterial endocarditis. Because of the presence of small vegetations of bacteria and fibrin on the endocardium, the marked increase in the velocity of the blood produced by fever therapy apparently increases the danger of embolism. Either cerebral or other embolism may occur. In addition it has been demonstrated that Streptococcus viridans is able to resist the highest temperature that the human body can tolerate. It is believed that any further attempts to use fever therapy for subacute bacterial endocarditis should be abandoned.

Bronchial Asthma.—Despite the fact that in a fairly large number of cases of intractable bronchial asthma fever therapy has brought about favorable results, it is felt that it should not be attempted in such cases unless all other means have failed. The results are frequently only temporary, and in some instances no improvement can be obtained. In no instance should fever therapy be attempted as an office procedure. It is the opinion of one investigator that hyperpyrexia of itself will be of only temporary, if indeed any, value but that when it is used in conjunction with other forms of treatment it is a most valuable adjunct.

Chorea.—The total number of cases of chorea treated by artificial fever induced by physical means is still too small to permit formation of any final conclusions. The studies do indicate, however, that the treatment of chorea by this method should be continued in well equipped institutions. Several investigators have found that choreiform movements cease in as many as 80 per cent of cases. Other investigators have reported more than 400 attacks of chorea for the alleviation of which the patients received fever therapy. Sixteen patients who had suffered from associated rheumatic carditis were also benefited. Comparative analyses of ninety-five cases in which the patients received fever therapy and of seventy-five in which they did not disclose a definitely lowered incidence of rheumatic manifestations among those patients who received fever therapy. Fever therapy was effective in cutting short an attack of chorea. The presence of associated active carditis was not a contraindication to its use; in fact, the carditis was perhaps benefited by it. The immediate results were excellent and recovery occurred in the majority of cases. The procedure of treatment for chorea has varied with different investigators, but in general it is believed that ten or twelve sessions of from two to three hours daily, with bodily temperatures maintained at from 104 to 105 F. (40 to 40.5 C.), form the procedure of choice. Some workers, however, have employed from four to six sessions, each of which was from five to eight hours in duration, maintaining the bodily temperatures between 104 and 105 F. (40 and 40.5 C.) and repeating these sessions every third or fourth day. Typhoid vaccine has been used with satisfactory results, the temperature being raised to 104 or 105 F. (40 or 40.5 C.) and maintained at a constant elevation for from five to six hours by means of a blanket pack. It is felt, however, that the fever therapy produced by physical means is more easily controlled and that children will accept and tolerate it more readily.

Gonorrhea.—The effects of artificial fever therapy produced by physical means on gonorrhea and its complications are conclusive. Reports by several investigators are available concerning the pyrexic treatment of gonorrhea in a large series of cases. More than 1,000 cases of gonorrhea treated by artificial fever induced by physical means have been recorded during the past five years. The percentage of remissions in the series of cases previously mentioned has been approximately 90. The rationale of the application of fever therapy to gonorrhea has been based of course on the thermolabile properties of the gonococcus.

When fever therapy was first used for gonorrhea, the patient's bodily temperatures were raised to from 106 to 107 F. (41.1 to 41.6 C.) and maintained at this level for six hours. The patient usually received from three to ten treatments, administered every third day. Later it was found that when gonorrheal infections were treated for periods equal to or slightly less than the thermal death time of the gonococcus, there was usually destruction of that organism. Many workers began to use fever sessions of long duration, the usual session being ten hours, maintaining the bodily temperatures at from 106 to 107 F. (41.1 to 41.6 C.). The duration of the treatment administered at 106.7 F. (41.5 C.) may be sufficient to equal 85 per cent of the thermal death time of the gonococcus and yet fail to result in a cure; on the other hand, treatment brief enough to equal only 10 per cent of the thermal death time occasionally results in a cure. The variation in effectiveness is probably influenced by the condition of the defense mechanism of the body. In the use of single fever sessions of ten hours' duration with bodily temperatures maintained at from 106 to 107 F. (41.1 to 41.6 C.), the results have been most satisfactory. In 94.6 per cent of ninety-nine cases there was remission after an average of 1.1 sessions, each ten hours in duration.

Since the introduction of sulfanilamide into therapeusis, the need for artificial fever in treating gonorrhea has become less; however, there remains a certain percentage of patients who cannot tolerate sulfanilamide or with whom sulfanilamide does not eradicate the disease. For these the combination of sulfanilamide and hyperpyrexia has proved most efficacious.

Gonorrheal Arthritis.—In most cases startlingly good results have been obtained with artificial fever in the treatment of gonorrreal arthritis. Most reports show that approximately 60 to 80 per cent of the patients become symptom free and that an additional 10 per cent are markedly improved; the other 10 per cent remain unimproved. The results are better when the treatment is instituted early in the course of the disease than when it is delayed until the disease has reached a chronic stage. The procedure used in the treatment of gonorrheal arthritis is the same as that for gonorrhea in general.

Other Gonorrheal Complications.—Gonorrheal ophthalmia has been shown to respond readily to fever induced by physical means, results revealing themselves in the form of subsidence of the inflammation, disappearance of the organism from the conjunctival tissues, acceleration of healing and a shortened stay in the hospital. Gonorrheal endocervicitis, gonorrheal prostatitis, gonorrheal salpingitis, gonorrheal pelvic inflammatory disease and gonorrheal endocarditis have been shown to respond favorably to prolonged high artificial fever. In the treatment of gonorrheal infections in the female, it has been found advantageous by some investigators to use local pelvic heating in conjunction with fever therapy. This may be done either by using vaginal applicators with which to heat the pelvis by a high frequency current or by using Elliott vaginal applicators with hot water as the thermal agent.

Infectious Arthritis.—About 30 per cent of one group of patients with infectious arthritis who were treated with artificial fever were significantly improved. The other 70 per cent exhibited little or no improvement. Fever sessions of short duration, during the course of which the bodily temperatures are elevated to from 101 to 103 F. (38.3 to 39.4 C.) by means of fever cabinets and hot baths, have been used; in conjunction with other corrective physical therapy they have appeared to be of benefit.

Meningococcic Septicemia.—Recoveries from this disease following the use of intense fever (of seven to ten hours in duration), with the temperature at 106.8 F. (41.5 C.), have been reported. Certain strains of meningococci were seen to exhibit a reduction in growth when they were maintained in culture at temperatures ranging from 40 to 42 C. (104 to 107.6 F.). Five strains were destroyed or greatly reduced in number within five hours or less. Fever therapy seems worthy of trial in selected cases of meningococcic infection.

Multiple Sclerosis.—The results of fever therapy in the treatment of multiple sclerosis for the most part have been unfavorable, although the number of cases reported is still too small to permit the formation of final conclusions.

Mycosis Fungoides.—After the induction of artificial fever by physical means, eight of ten patients having this disease were seen to obtain moderate improvement, an improvement, however, which apparently was only temporary.

Neuritis.—Low fever has been recommended as a safe and efficient means of treating neuritic and radicular pains.

Parkinson's Syndrome.—The use of artificial fever therapy for the condition causing this syndrome has not been particularly satisfactory. In seeking relief from this syndrome, it would probably be best to heed the statement "Fever therapy in the form of diathermy or malarial or bacterial injections seems to produce no permanent benefit. It may even do harm."

Rheumatic Fever.—It would seem that the treatment of rheumatic fever by artificial fever may sometimes be justified. After the use of artificial fever therapy in a small series of cases, patients often reported considerable relief of pain and swelling of the joints; there was a reduction in the leukocyte count and a decrease in the sedimentation rate of the erythrocytes.

In a comparative study of a small series of patients, some treated by means of artificial fever and some untreated, there was a striking reduction in the percentage of polyarthritis and also in the deaths from heart disease in the fever-treated group. Further analysis of the patients who had heart disease showed that the severity of the cardiac lesion was considerably greater in the untreated group; however, the two groups were small and the observation periods were not sufficiently long to warrant any final conclusion. The procedure used in the treatment of such patients usually consists of sessions of fever therapy four or five hours in duration with bodily temperatures maintained at from 104 to 105 F. (40 to 40.5 C.).

Syphilis (Early Primary).—Preliminary clinical investigations seem to indicate that, when artificial fever therapy is combined with chemotherapy, better results can be obtained than by the use of either form of therapy alone. However, in its present stage of development, fever therapy could not possibly be made available to the average patient having a primary syphilitic lesion. When the bodily temperature has been elevated to more than 105 F. (40.5 C.) for fifty hours in ten sessions of five hours each, this procedure being combined with thirty injections of an antisyphilitic chemical agent, cutaneous manifestations of the disease, including chancres, have been reported to respond with surprising promptness, so that no living, motile spirochetes can be found in any of the primary lesions after the first fever treatment. Progressive improvement in serologic reactions has appeared in the majority of cases. The results of treatment in control groups for which either fever therapy or chemotherapy was used indicated that neither of these methods alone was as effective as the combined procedure.

Dementia Paralytica.—The use of artificial fever produced by physical means in the treatment of dementia paralytica is becoming more and more extensive; however, there is still insufficient evidence available for the investigator to conclude that such fever will be more or less satisfactory than malarial fever. Most observers who have made careful comparative studies feel that fever produced by physical means offers a slightly higher percentage of immediate clinical remissions than does therapeutic malarial fever; however, it has been claimed by certain authorities in the field of syphilology that the relapse rate for physically induced fever will be higher than that for malarial fever. Certainly it will be several years before any final conclusions can be drawn; nevertheless, the best available comparative studies indicate that 70 per cent of patients with dementia paralytica who were treated with physically induced fever were immediately benefited by the treatment and that two years and eight months later 66.6 per cent of them remained improved; whereas, of a control group treated by malarial therapy, 63.3 per cent were improved immediately and two years and eight months later 56.6 per cent remained improved. These observations seem to indicate that the response of dementia paralytica to physically induced fever is apparently as well sustained as improvement brought about by therapeutic malaria. Much larger series of cases will have to be studied before final conclusions can be drawn.

Tabes Dorsalis.—It is generally agreed that patients with tabes dorsalis may be benefited by physically induced fever. Some investigators feel that tabetic pains and gastric crises respond more rapidly and with greater certainty to physically induced fever than to therapeutic malarial fever. Again it must be stressed

that the number of cases collected is not large enough to permit formation of any final conclusions. As additional evidence is collected, however, it becomes more apparent that physically induced fever may be of great value in the treatment of syphilis, particularly the tertiary manifestations of the disease.

Other Forms of Syphilis.—A number of investigators have reported encouraging results following the use of physically induced fever in the treatment of ocular syphilis, and there have been favorable reports also on the use of fever therapy for tabetic dementia paralytica, meningovascular syphilis and asymptomatic neurosyphilis.

Tuberculosis.—The study of the effect of fever therapy on dogs which had been subjected to experimental tuberculosis disclosed a temporary improvement, and as compared with that of control dogs, life was prolonged. Investigations, however, indicate that in the presence of tuberculosis, artificial fever therapy should be employed only with great care even in experimental studies. There is grave danger of doing harm to the patient if fever therapy is used for this disease. The study of this phase of the treatment of tuberculosis should for the present remain entirely in the hands of research workers.

Undulant Fever.—Several investigators have noted that in a small series of cases of undulant fever there has been a rather striking response to fever therapy. About 80 per cent of the patients treated exhibited definite clinical remissions with prompt disappearance of symptoms; however, the number of patients so treated is still insufficient to permit formation of final conclusions concerning the effectiveness of fever therapy. The procedure has been to administer five hour sessions of fever with bodily temperatures maintained at between 105 and 106 F. (40.5 and 41.1 C.); usually from one to three such treatments are necessary.

Conclusions with Respect to Diseases Treated.—Studies made to date seem to indicate that the chief sphere of usefulness of fever induced by physical means lies in the treatment of gonorrhea, both acute and chronic, and its complications. It would appear that artificial fever may be of value in the treatment of syphilis, particularly when it is combined with chemotherapy. While there is a suggestion that artificial fever produced by physical means may be helpful in the treatment of intractable bronchial asthma and in selected cases of chronic infectious arthritis, chorea and undulant fever, the clinical data are not sufficient to permit formation of any final conclusions. Its value in about forty other diseases remains to be proved. It seems to offer promise of considerable usefulness as a therapeutic agent.

CONCLUSIONS

Continued study has emphasized the fact stressed by the Council on Physical Therapy, namely that production of fever by physical means is strictly a hospital procedure, that it is essential that a well trained personnel be in complete charge of the work, that skilled nurse-technicians who have had at least one month's supervised training administer the treatments and that a physician be in constant attendance.

Patients to be treated by fever should be selected with as much care as those who are to undergo major surgical operations. The dangers that have been mentioned, embolism, hemorrhage and sudden death, are extremely rare when the administration of fever is in the hands of a competent, well organized group. However, it is to be expected that there will be a sh mortality resulting from a treatment that is as her as this one. If the treatments are given without pro control or are considered simple office procedures, th will be danger of harm to the patient or even dea

Opinions vary as to the best and safest means of p ducing fever. Almost any one of the methods descri in this article may be used with the confidence that will produce favorable results, provided the team workers has developed a good technic for the particu method to be employed.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUN ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LIST IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED

FRANKLIN C BING, Secretary

CLAPP'S CHOPPED FOODS—SPINACH, GREEN BEANS, CARROTS, BEETS

Manufacturer.—Harold H. Clapp, Inc, Rochester, N Y

Description.—Canned chopped spinach, green beans, carro and beets, respectively, slightly seasoned with salt The veg tables are cut into small particles of relatively uniform size

Manufacture.—These products are treated essentially accor ing to the methods used in the preparation, canning and he processing of canned strained vegetables. Each vegetable in th Clapp's Chopped Food line, however, is not strained but passed through a chopping machine which consists of a seri of circular knives rotating between grates. The size of the foo particles produced is determined by the opening in the grate

Analyses (submitted by manufacturer).—

	Spinach, %	Green Beans, %	Carrots, %	Beet %
Moisture	93 9	91 1	92 8	91 5
Total solids	6 1	8 9	7 2	8 5
Ash	1.8	0 9	0 6	1 0
Sodium chloride (NaCl)	0 4	0 5	0 5	0 5
Fat (ether extract)	0 4	0 3	0 2	0 2
Protein (N×6 25)	1.4	1 6	0 7	1 0
Crude fiber	0 5	1.1	0 5	0 5
Carbohydrates other than crude fiber (by difference)	2 0	5 0	4 2	5 7

Calories.—Spinach 0.17 per gram, 5 per ounce. Green bean 0.3 per gram, 8 per ounce. Carrots 0 2 per gram, 6 per ounce Beets 0.3 per gram, 8 per ounce.

Vitamins.—No evidence has been provided the Council as t the vitamin content of these products. The method of prepara tion and processing is designed to retain the natural vitami values to the highest degree consistent with adequate and safe heating processes. Contact of the product with air durin processing is avoided as far as possible.

Claims of Manufacturer.—These products are intended pri marily for use in feeding infants who no longer require the vegetables to be strained or puréed.

CELLU BRAND BLACKBERRY JUICE

Distributor.—Chicago Dietetic Supply House, Inc, Chicago

Description.—Canned blackberry juice packed without added sugar.

Manufacture.—Fully ripened blackberries on which no spray material has been used are carefully selected, washed, sorted preheated and pressed through ordinary press cloth. The resu ing juice is run into cans and the cans are sealed and hea processed

Analysis (submitted by distributor).—Moisture 85 4%, to solids 14.6%, ash 0.4%, fat (ether extract) 0 6%, pro (N × 6 25) 0.1%, crude fiber 0.02%, carbohydrates other t crude fiber (by difference) 13.5%, invert sugar 12 7%, sucro 0.1%.

Calories.—0 6 per gram; 17 per ounce.

MEDICAL LICENSURE STATISTICS FOR 1938

ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The Council on Medical Education and Hospitals of he American Medical Association presents herewith ıedical licensure statistics for the thirty-seventh conecutive year. The report covers the year 1938 and eals with statistics regarding (*a*) medical licensing oards of the United States, the District of Columbia, he terıitories and the possessions of the United States, *b*) examining boards in medical specialties, (*c*) oards of examiners in the basic sciences, and (*d*) the Jational Board of Medical Examiners.

Official reports have been contributed by the medical censing boards of all states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands; the homeopathic boards of Connecticut, Delaware, Louisiana and Maryland; the eclectic examıng board in Arkansas; the twelve basic science oards in operation (Arizona, Arkansas, Colorado, Connecticut, the District of Columbia, Iowa, Minneota, Nebraska, Oklahoma, Oregon, Washington and Visconsin), the thirteen approved examining boards ı the medical specialties and the National Board of Medical Examiners. The homeopathic board of Louisiana did not license any one during the year. Likewise no physicians were licensed in the Canal Zone.

The cooperation of the officers of the boards in supplying complete reports has made possible this annual ompilation. The Council and THE JOURNAL wish to xpress thanks and appreciation to those who have upplied these data, for without their help such presenation would not have been possible.

Reports of all examinations and those licensed by ndorsement of credentials are carefully compared with he lists of graduates furnished by medical school officials, so that errors ın names of candidates, the medical school or the years of graduation are promptly corrected. In the occasional instance in which the applicant, according to the records, has not graduated or there is some irregularity, the state board is notified. Credentials of physicians coming from abroad aıe verified by direct correspondence with official agencies abroad so far as is possible. The statements regarding the medical education and licensure therefore of all physicians are accurate.

The data were also entered in the biographic file of physicians and others maintained by the Directory Department of the American Medical Association, thus serving a dual purpose. More than thirty licensing boards obtain from the Council verification of biographic data and other claims before granting a license or permission to take the licensing examination. This service is available to all boards.

The tables referring to medical licensing board results include figures regarding the number of candidates for medical licensure ın 1938, the number licensed and the number added to the profession.

LICENSES ISSUED

The first table presented in these statistics includes figures covering the number of licenses issued during the year in the various states, territories and possessions. There were 9,493 licenses ıssued, 6,548 on the basıs of examination and 2,945 by ıeciprocity and endorsement. In several states (table 12) the inteınship ıs a requisite for practice, but a physician is permitted to take the examination in most of these states and ıf successful his license is withheld until completion of his ınternship. Licenses are also withheld for lack of citizenship or minor technicalities. The figures,

TABLE 1.—*Licenses Issued—1938*

	Licensed on Basıs of		
	Exami nation	Reciprocity and Endorsement	Total
Alabama	29	45	74
Arizona	15	23	38
Arkansas.	75	31	106
California	403	208	611
Colorado.	78	36	114
Connecticut	73	72	145
Delaware.	14	5	19
District of Columbia	33	66	99
Florida.	153	0	153
Georgia.	72	37	109
Idaho	28	0	28
Illinois	485	110	595
Indiana.	109	73	182
Iowa	95	66	161
Kansas	92	30	122
Kentucky	79	58	137
Louisiana	167	32	199
Maine	38	15	53
Maryland	227	47	274
[illegible]	207	105	312
[illegible]	206	166	372
[illegible]	219	31	250
Mississippi	34	26	60
Missouri	174	69	243
Montana	11	36	47
Nebraska.	85	11	96
Nevada	5	11	16
New Hampshire	15	30	45
New Jersey	281	152	433
New Mexico	2	31	33
New York	1,078	482	1,560
North Carolina	85	71	156
North Dakota	15	10	25
Ohio	351	124	475
Oklahoma	42	38	80
Oregon.	53	18	71
Pennsylvania	513	81	594
Rhode Island	26	21	47
South Carolina	39	18	57
South Dakota	8	8	16
Tennessee	180	21	201
Texas	200	175	375
Utah	12	7	19
Vermont	23	21	44
Virginia	127	62	189
[illegible]	72	51	123
[illegible]	65	41	106
[illegible]	114	44	158
Wyoming	7	8	15
U. S. Terr and Possessions*	34	22	56
Totals	6,548	2,945	9,493
Totals for 1937	6,621	3,186	9,807
Totals for 1936	6,271	2,762	9,033
Totals for 1935	5,717	2,193	7,910

* Alaska, Hawaii, Puerto Rico, Virgin Islands

therefore, for those licensed after examination include many who were examined in 1937 and even a few in previous years. New York issued the largest number of licenses, 1,560, California 611, Illinois 595 and Pennsylvania 594. These states are the only ones which registered more than 500. Twenty states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands licensed less than 100. Candidates were licensed after examination in every state, the lowest being two in New Mexico. Alaska and the

(CONTINUED ON PAGE 1700)

Marginal Number	SCHOOL	Alabama		Arizona		Arkansas		California		Colorado		Connecticut		Delaware		Dist. Columbia		Florida		Georgia		Idaho		Illinois		Indiana		Iowa		Kansas		Kentucky		Louisiana		Maine		Maryland		Massachusetts		Michigan	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	ARKANSAS																																									
1	University of Arkansas School of Medicine....					69	0	1	0											0	1					1	0			2	0					2	0						
	CALIFORNIA																																									
2	College of Medical Evangelists							68	2	3	0							3	1			1	0	1	0					2	0											3
3	Stanford University School of Medicine							62	1			1	0									1	0																			
4	University of California Medical School							58	0													1	0																			2
5	University of Southern California Sch. of Med.							40	0																							1	0			1	0					
	COLORADO																																									
6	University of Colorado School of Medicine...					2	0	40	0													1	0	1	0									1	0						
	CONNECTICUT																																									
7	Yale University School of Medicine											1	0					2	0					1	0									1	0	1	0				
	DISTRICT OF COLUMBIA																																								
8	George Washington University School of Med.					2	0									15	0	2	0			2	0									1	0	1	0	9	1	1	0		
9	Georgetown University School of Medicine					2	0			4	0	1	0	7	0	2	0																	3	0	1	0	4	0	4	0
10	Howard University College of Medicine													1	0	1	0							1	0									1	0			1	0		
	GEORGIA																																									
11	Emory University School of Medicine	5	0															15	5	32	0																			1	0	1	0
12	University of Georgia School of Medicine	1	0															5	2	32	0													2	0						
	ILLINOIS																																									
13	Loyola University School of Medicine							5	0			1	1					0	1					76	0	2	0	1	0					1	0			1	0			3	0
14	Northwestern University Medical School	1	0	1	0			11	1	4	0	1	0					8	0			2	0	59	0	2	0	1	0	1	0			1	0					2	0	9	0
15	University of Chicago, Rush Medical College	2	0					16	1			1	0					4	1			3	0	58	0	2	0	4	1	1	0	1	0			1	0	1	0	4	0
16	University of Chicago, The School of Medicine of the Division of Biological Sciences	1	0					2	0									1	0	1	0			20	0	1	0	1	0							1	0	1	0	3	0
17	University of Illinois College of Medicine			2	0			10	0	1	0					1	0	6	1					133	0	3	0			1	0									1	0
	INDIANA																																									
18	Indiana University School of Medicine																							1	0	82	0					1	0					1	0		
	IOWA																																									
19	State University of Iowa College of Medicine			1	0			6	0									2	0					1	0			78	10												
	KANSAS																																									
20	University of Kansas School of Medicine							2	0			1	0																	67	0							1	0		
	KENTUCKY																																									
21	University of Louisville School of Medicine							5	0									5	1							2	0					76	1								
	LOUISIANA																																									
22	Louisiana State University Medical Center			1	0													1	0															65	0						
23	Tulane University of Louisiana Sch. of Med.	6	0					1	0									10	0	2	0													92	2						
	MARYLAND																																									
24	Johns Hopkins University School of Medicine											1	0	3	0			1	0					2	0	2	0									1	0	6	8	0	4	0
25	University of Maryland School of Medicine and College of Physicians and Surgeons											1	0					2	1															2	0	1	0	7	7	0	3	0
	MASSACHUSETTS																																									
26	Boston University School of Medicine											1	0																	1	0	1	0			3	0			9	1
27	Harvard Medical School	2	0					5	0			5	0					3	0	1	0			2	0	1	0			1	0					3	0			18	0
28	Tufts College Medical School			1	0			3	0			12	0					3	0																	10	0	1	0	35	3
	MICHIGAN																																									
29	University of Michigan Medical School							2	0									4	1			1	0	2	1															5	0
30	Wayne University College of Medicine							2	0																																	7
	MINNESOTA																																									
31	University of Minnesota Medical School					1	0	2	0			1	0			1	0							1	0	1	0			4	0			2	0			1	0	2	0
	MISSOURI																																									
32	St. Louis University School of Medicine							11	1			1	1					2	1					3	0	1	0													1	0
33	Washington University School of Medicine	2	0	1	0			3	0							1	0	2	0			2	0					1	0												
	NEBRASKA																																									
34	Creighton University School of Medicine			1	0			16	2	1	0	1	1					1	0			1	0	1	0					6	1					1	0			1	0
35	University of Nebraska College of Medicine			1	0			3	1					1	0			0	1			1	0																		
	NEW YORK																																									
36	Albany Medical College											1	0					1	0																			6	0	2	0	
37	Columbi					1	0	1	0					1	0			3	2					2	0			1	0			2	0					1	0	3	0
38	Cornell	2	0							2	0																									1	0					
39	Long Is					1	0			1	0			1	0																					1	0	1	0		
40	New Yor					1	0			2	0							1	0																			1	0		
41	New Yor									2	0							2	0					1	0							1	0								
42	Syracuse					1	0			1	0																														
43	Universit			1	0																																				
44	University of Rochester School of Medicine							2	0			1	0			1	0	1	0																	1	0	2	0	2	0
	NORTH CAROLINA																																									
45	Duke University School of Medicine							2	0			1	0					2	0															1	0					1	0
	OHIO																																									
46	Ohio State University College of Medicine																	3	1																						
47	University of Cincinnati College of Medicine																	4	0															1	0	1	0			1	0
48	Western Reserve University School of Medicine							1	0									2	0																						
	OKLAHOMA																																									
49	University of Oklahoma School of Medicine	1	0					1	1	2	0							1	1											3	0			1	0			1	0		
	OREGON																																									
50	University of Oregon Medical School							4	0													4	0	1	0			1	0	1	0			1	0			1	0		
	PENNSYLVANIA																																			1	0	3	4	1	2	0	
51	Hahnemann Medical Coll. and Hosp. of Phila.							1	0			0	1	2	0																			2	0	1	0	1	0		
52	Jefferson Medical College of Philadelphia	1	0					2	0			4	0	2	0			3	1	1	0					1	0					1	0							2	0
53	Temple University School of Medicine							1	0			1	0	2	0	1	0	5	1																	1	0				
54	University of Pennsylvania School of Medicine	1	0	2	0			3	0			2	0	1	0	1	0	4	2			1	0	1	0													1	1		
55	University of Pittsburgh School of Medicine																	3	0																						
56	Woman's Medical College of Pennsylvania							2	0																																
	SOUTH CAROLINA																																									
57	Medical College of the State of South Carolina																	2	0					1	0									1	0						
	TENNESSEE																																									
58	Meharry Medical College																	1	0					1	0					1	0			1	0	0	1			1	0
59	University of Te	1	0															6	2															2	0			4	0		
60	Vanderbilt Unive	1	0					1	0			1	0					5	0	2	0	1	0									1	0								

P = Passed; F = Failed.

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50					
Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Hawaii, Puerto Rico	Totals	Examined—Passed	Examined—Failed	Percentage—Failed	No. Boards Examined by Marginal Number
F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F					
							1 0									1 0	2 0	0 1				1 0	2 0	2 0	1 0		88	86	2	2.3	15 1
	1 0	1 0	1 0					1 0	0 1	1 0		1 0	1 0									2 0		1 0			95	91	4	4.2	17 2
							1 0						1 0													1 0	72	71	1	1.4	7 3
																										1 0	62	62	0	0.0	4 4
			1 0		0 1																						44	43	1	2.3	5 5
							1 0		1 0			1 0							1 0			1 0		1 0	1 0		52	52	0	0.0	12 6
					1 0			1 0																		1 0	9	9	0	0.0	8 7
					3 0		14	1 1 0		1 0		1 0	8 0						2 0			1 0				2 0	68	66	2	2.9	17 8
	1 0				20 0		17	7 3 0					15 0	3 0					2 0	2 0			1 0			1 0	101	94	7	6.9	20 9
3 0					2 0		5	1 4 0					3 0				5 0				6 0						34	33	1	2.9	12 10
							3	0 8 0							1 0		2 0					1 0				77	72	5	6.5	12 11
							0	1 1 0					2 0									1 0	1 0	1 0			46	43	3	6.5	8 12
	1 0				4 0		4	5	1 0	9 1			6 0									2 0	2 0	2 0	1 0	3 0	136	128	8	5.9	21 13
	1 0	2 0	1 0		2 0		4	0 1 0		8 0		2 0					1 0		2 0			9 0	3 0	0 0	1 0	1 1	161	159	2	1.2	31 14
3 0	3 0			1 0	4 0	1 0	12	1 1 0	2 0	3 0		1 0	4 0			2 0		1 0	4 0		1 0	5 0	5 0	4 0	1 0	1 0	173	169	4	2.3	34 15
1	1						4	0		1 0								1 0						2 0			44	43	1	2.3	16 16
	2 0						2	0		1 0													1 0	4 0	2 0		173	172	1	0.6	16 17
																						2 0				1 0	91	91	0	0.0	7 18
1 0													3 0	1 0													107	96	11	10.4	9 19
1 0							2	0				2 0	1 0													1 0	80	80	0	0.0	10 20
		1 0					4	1 3 0		2 0			1 0						1 0			3 0	2 0		1 0	112	109	3	2.7	16 21
					1 0													1 0								69	69	0	0.0	5 22
							1	0									3 0	2 0			1 0			1 0		1 0	135	133	2	1.5	13 23
2 0							1	0 3 0	1 0	2 0			2 0	0 1								1 0	1 0				100	99	1	1.0	18 24
					5 0		0	1 1 0					7 0	1 0									3 0			2 0	107	105	2	1.9	13 25
					1 0		5	1						2 0	0 1												26	23	3	11.5	9 26
1 0				1 0	6 0		12	0		1 0			5 0	3 0					4 0	1 0			6 0		5 0	1 0	96	96	0	0.0	24 27
				5 0	1 0		6	2						3 0								1 0					86	81	5	5.8	12 28
1 0					4 0		11	0											1 0				1 0				130	128	2	1.5	12 29
																											77	77	0	0.0	2 30
	1 0				2 0					7 0	2 0		1 0		3 0							2 0		2 0		143	142	1	0.7	20 31
3 0							6	2					5 0				15 0	2 0		1 0		2 0				124	119	5	4.0	14 32
1 0							2	0 1 0					2 0					2 0 1 0				1 0			1 0	104	104	0	0.0	16 33
1 0		15 0			7 0		5	2		1 0 1 0		1 0			1 0			1 1				4 0		1 0		75	68	7	9.3	21 34
1 0		66 0					3	1			5 0				1 0							5 0		1 0		95	92	3	3.2	13 35
	1 0						19	0																		22	22	0	0.0	4 36
					2 0		68	4					4 0	1 0				1 0				2 0	1 0			104	98	6	5.8	16 37
					1 0		46	2 1 0				1 0	1 0	1 0						1 0		1 0				66	64	2	3.0	14 38
			1 0		3 0		67	6						1 0												82	76	6	7.3	8 39
					7 0		14	1																		28	27	1	3.6	7 40
				1 0	5 0		104	4 3 0					2 0											1 0		128	124	4	3.1	12 41
					2 0		31	3				1 0														39	36	3	7.7	5 42
					1 0		46	4	1 0																	53	49	4	7.5	4 43
					3 0		22	2 1 0		8 0														1 0			47	45	2	4.3	12 44
					1 0			4 0					2 0										1 0				15	15	0	0.0	9 45
									91	0			1 0										2 0				99	98	1	1.0	5 46
									66	0			1 0										3 0	1 0			79	79	0	0.0	9 47
									61	0			3 0										1 0	4 0			74	74	0	0.0	8 48
							2	0			45	0 1 0						1 0				1 0					64	62	2	3.1	13 49
							2	0				32 0 1	0									14 0		2 0			68	68	0	0.0	13 50
					25 0		5	5		7 0			72	1 1 0									4 0				160	152	8	5.0	11 51
		1 0	17 0				15	1 9 0		2 0		1 0	87	0 3 0						1 0		1 0	1 0			162	160	2	1.2	22 52
			11 0				8	2 8 0		3 0			69	2				1 0			1 0		2 0	1 0		122	117	5	4.1	17 53
1 0			10 0				11	2 9 0		3 0			86	1	1 0		1 0	1 0				1 0		2 0		158	153	5	3.2	23 54
													60	0												65	65	0	0.0	3 55
					2 0		6	2 2 0		1 0			13	0								1 0					31	28	3	9.7	8 56
			1 0				1	0 4 0					2 0		36 0											48	48	0	0.0	8 57
2 2																	33 2										41	39	3	11.4	7 58
									0 1								74 0						1 0			0 1	105	101	4	3.8	9 59
								3 0					1 0 1	0			38 0						1 0				64	64	0	0.0	14 60
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50					

Marginal Number	SCHOOL	1 Alabama P	F	2 Arizona P	F	3 Arkansas P	F	4 California P	F	5 Colorado P	F	6 Connecticut P	F	7 Delaware P	F	8 Dist. Columbia P	F	9 Florida P	F	10 Georgia P	F	11 Idaho P	F	12 Illinois P	F	13 Indiana P	F	14 Iowa P	F	15 Kansas P	F	16 Kentucky P	F	17 Louisiana P	F	18 Maine P	F	19 Maryland P	F	20 Massachusetts P	F	21 Michigan P	F
	TEXAS																																									
61	Baylor University College of Medicine							2	0									0	1																								
62	University of Texas School of Medicine							1	0									1	0	1	0	1	0											1	0					2	0		
	VERMONT																																									
63	University of Vermont College of Medicine			1	0							6	0					1	0																	1	0			1	0		
	VIRGINIA																																									
64	Medical College of Virginia											1	0			2	0	2	1																							
65	University of Virginia Department of Medicine													1	0			3	1																							
	WISCONSIN																																									
66	Marquette University School of Medicine							4	1			1	0					1	0			1	0	2	0									1	0			1	0			7	0
67	University of Wisconsin Medical School							2	0															2	0					2	0			1	0			1	0			1	0
	CANADA																																									
68	Dalhousie University Faculty of Medicine	1	0																																							
69	Laval University Faculty of Medicine																																							1	0		
70	McGill University Faculty of Medicine			1	0			9	1			2	0					1	0			1	0	1	0	2	0											3	0	1	0
71	Queen's University Faculty of Medicine											1	0															1	0					1	0							
72	University of Alberta Faculty of Medicine																					1	0					1	0													
73	University of Manitoba Faculty of Medicine																	1	0			1	0															1	0			
74	University of Montreal Faculty of Medicine																																									
75	University of Toronto Faculty of Medicine							1	0			1	0					2	4					3	0											1	0			0	1		
76	University of Western Ontario Medical School	1	0																																					1	0		
77	Foreign Medical Faculties							19	3	9	0	9	16									1	0	48	7	6	1	4	0	1	0			2	7	16	34	17	18	0	1
78	Extinct Medical Schools																	7	7															1	0	0	1					
79	Unapproved Schools and Undergraduates			1	0	1	0			18	3	0	4			1	0	2	0					60	4													68	196		
80	Totals	29	15	72	417	81	97	14	33	194	72	28	502	109	106	94	82	186	46	265	427	226																			
81	Totals—Examined—Passed	29	15	72	402	78	73	14	33	153	72	28	490	108	90	93	81	184	39	227	207	225																			
82	Totals—Examined—Failed	0	0	0	15	3	24	0	0	41	0	0	12	1	11	1	1	2	7	38	220	1																			
83	Percentage—Failed	00	00	00	36	37	247	00	00	211	00	00	24	09	104	11	12	11	15?	142	51.5	04																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21																			

P = Passed; F = Failed

(CONTINUED FROM PAGE 1697)

Virgin Islands licensed none by examination. Florida and Idaho grant licenses only on the basis of examination. Massachusetts and Rhode Island have no reciprocity privileges but endorse diplomates of the National Board of Medical Examiners. The total number licensed, 9,493, was 314 less than in 1937 but 460 more than in 1936 and 1,583 more than in 1935. On the basis of examination the figures decreased 73 and those licensed by reciprocity or endorsement decreased 241 compared with the figures for 1937. The 9,493 licenses issued do not, however, represent individuals, since several have been licensed in more than one state during the year. Nor does it represent additions to the medical profession at large, since the majority of the 2,945 licensed by reciprocity and endorsement, with the exception of those licensed on the basis of foreign credentials, and many of the National Board diplomates, have migrated from other states. Table 8 shows how many of those licensed were never before registered and therefore represent the number added to the medical profession.

TOTAL EXAMINED

In table 2 are included figures referring to those examined for medical licensure by individual states throughout the year, giving the number who passed and who failed in each state. There were 7,454 examined, of whom 6,582 passed and 872 failed, representing sixty-seven four year approved medical schools in the United States and eight of the medical schools of Canada, seventy-nine faculties of medicine and seven licensing corporations of other countries, eleven medical schools now extinct, eight unapproved institutions and several osteopathic colleges. Two undergraduates were examined. Osteopaths who were granted the privilege to practice medicine, surgery or both by the medical boards are included in these statistics, eliminating, for instance, those osteopaths in California who were granted privileges as physicians and surgeons by the osteopathic board. There were 5,606 graduates of approved medical schools in the United States examined, of whom 2.9 per cent failed; 163 graduates of approved Canadian medical schools, 9.2 per cent of whom failed, 1,166 graduates of schools outside the United States and Canada, principally in Europe, with 38.6 per cent failures, thirteen who graduated from schools now extinct with 69.2 per cent of failures, and 504 from unapproved and osteopathic schools and two undergraduates, of whom 47.0 per cent failed. These 506 represented 163 graduates of osteopathic schools, of whom 101 passed and sixty-two, 38.0 per cent, failed; 341 graduates of unapproved schools, of whom 166 passed and 175, 51.3 per cent, failed, and two undergraduates, one of whom failed. The latter were examined in Mississippi and New Jersey. Graduates of osteopathic schools were examined by the medical boards of nine states—Colorado, Connecticut, District of Columbia, Massachusetts, New Hampshire, New Jersey, Oregon, Texas and Virginia—while graduates of unapproved schools were examined in twelve states and Hawaii—Arizona, Arkansas, Florida, Illinois, Massachusetts, New Jersey, New Mexico, New York, Ohio, Pennsylvania, Texas and Vermont. Of the 163 osteopaths, fifty-eight were examined in New Jersey, forty-one in Massachusetts, thirty-four in Texas and twenty-one in Colorado. Other states examined fewer than five. Of those graduates of other than recognized schools, Massachusetts examined 223, Illinois sixty-four, Ohio thirty-two and New Jersey seven. All other states examined fewer than five. Osteopaths in Colorado, Massachusettts, New Hampshire, New

| Marginal Number | 23 Mississippi | | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | 50 Hawaii, Puerto Rico | | Totals | Examined—Passed | Examined—Failed | Percentage—Failed |
|---|---|---

ined in ten states. The highest percentage of failures was 27.3, representing the University of Western Ontario Medical School; of eleven examined, three failed.

Nineteen medical schools had no failures before state licensing boards, namely the Universities of California, Colorado, Yale, Indiana, Kansas, Louisiana State, Harvard, Wayne, Washington, Albany, Duke, Cincinnati, Western Reserve, Oregon, Pittsburgh, South Carolina, Vanderbilt, Vermont and Wisconsin.

Thirteen graduates of medical schools now extinct were examined in four states with 69.2 per cent failures, a total of 1,166 graduates of medical schools outside the United States and Canada were examined in twenty-eight states, while 506 unapproved graduates and undergraduates were examined in twenty states.

In 1937, 7,325 were examined, of whom 6,594 passed and 731, 10.0 per cent, failed, as compared with 7,454 examined in 1938, of whom 6,582 passed and 872, 11.7 per cent, failed. There were 129 more examined than in 1937; twelve less passed but the failures increased 141. Elsewhere are given figures representing actual licentiates and additions to the medical profession.

GRADUATES OF 1936, 1937 AND 1938 EXAMINED FOR MEDICAL LICENSURE IN 1938

In table 3 are presented figures recording graduates of 1936, 1937 and 1938 examined for medical licensure in 1938. Altogether 6,118 were examined, 5,669 of whom passed and 449, 7.3 per cent, failed. Of these, 5,153 represented medical graduates of sixty-seven approved medical schools in the United States, of whom 5,043 passed and 110, 2.1 per cent, failed. Ninety-nine graduates of eight approved schools in Canada were examined, ninety-four of whom passed and five failed. There were 507 recent graduates of medical faculties outside the United States and Canada examined, of whom 322 passed and 185, 36.5 per cent, failed. There were also examined 359 graduates of medical schools not approved by the American Medical Association, of whom 210 passed and 149, 41.5 per cent, failed. Of

TABLE 3.—*Graduates of 1936, 1937 and 1938 Examined for Medical Licensure in 1938*

School	Totals	Examined—Passed	Examined—Failed	Percentage—Failed	Number of Boards Examined by
ARKANSAS					
University of Arkansas School of Medicine	87	85	2	2.3	15
CALIFORNIA					
College of Medical Evangelists	90	87	3	3.3	16
Stanford University School of Medicine	70	69	1	1.4	5
University of California Medical School	61	61	0	0.0	3
University of Southern California School of Med.	43	43	0	0.0	4
COLORADO					
University of Colorado School of Medicine	48	48	0	0.0	8
CONNECTICUT					
Yale University School of Medicine	5	5	0	0.0	5
DISTRICT OF COLUMBIA					
George Washington University School of Medicine	64	62	2	3.1	16
Georgetown University School of Medicine	95	89	6	6.3	18
Howard University College of Medicine	29	29	0	0.0	11
GEORGIA					
Emory University School of Medicine	68	65	3	4.4	10
University of Georgia School of Medicine	41	39	2	4.9	6
ILLINOIS					
Loyola University School of Medicine	131	123	8	6.1	20
Northwestern University Medical School	144	143	1	0.7	30
University of Chicago, Rush Medical College	164	161	3	1.8	32
University of Chicago, The School of Medicine of the Division of Biological Sciences	40	39	1	2.5	14
University of Illinois College of Medicine	164	164	0	0.0	14
INDIANA					
Indiana University School of Medicine	87	87	0	0.0	5
IOWA					
State University of Iowa College of Medicine	103	92	11	10.7	8
KANSAS					
University of Kansas School of Medicine	72	72	0	0.0	5
KENTUCKY					
University of Louisville School of Medicine	101	99	2	2.0	15
LOUISIANA					
Louisiana State University Medical Center	69	69	0	0.0	5
Tulane University of Louisiana School of Medicine	127	125	2	1.6	13
MARYLAND					
Johns Hopkins University School of Medicine	79	78	1	1.3	11
University of Maryland School of Medicine and College of Physicians and Surgeons	105	104	1	1.0	13
MASSACHUSETTS					
Boston University School of Medicine	19	18	1	5.3	6
Harvard Medical School	51	51	0	0.0	21
Tufts College Medical School	64	63	1	1.6	9
MICHIGAN					
University of Michigan Medical School	120	119	1	0.8	10
Wayne University College of Medicine	77	77	0	0.0	2
MINNESOTA					
University of Minnesota Medical School	128	127	1	0.8	16
MISSOURI					
St. Louis University School of Medicine	118	116	2	1.7	13
Washington University School of Medicine	99	99	0	0.0	15
NEBRASKA					
Creighton University School of Medicine	72	65	7	9.7	19
University of Nebraska College of Medicine	85	85	0	0.0	11
NEW YORK					
Albany Medical College	20	20	0	0.0	2
Columbia University College of Physicians and Surgeons	83	81	2	2.4	11
Cornell University Medical College	57	57	0	0.0	12
NEW YORK (Continued)					
Long Island College of Medicine	79	75	4	5.1	7
New York Medical College and Flower Hospital	24	24	0	0.0	5
New York University College of Medicine	119	116	3	2.5	10
Syracuse University College of Medicine	38	35	3	7.9	4
University of Buffalo School of Medicine	52	48	4	7.7	3
University of Rochester School of Medicine	37	36	1	2.7	6
NORTH CAROLINA					
Duke University School of Medicine	13	13	0	0.0	8
OHIO					
Ohio State University College of Medicine	96	96	0	0.0	4
University of Cincinnati College of Medicine	77	77	0	0.0	9
Western Reserve University School of Medicine	67	67	0	0.0	5
OKLAHOMA					
University of Oklahoma School of Medicine	63	61	2	3.2	13
OREGON					
University of Oregon Medical School	64	64	0	0.0	13
PENNSYLVANIA					
Hahnemann Medical College and Hospital of Philadelphia	156	149	7	4.5	10
Jefferson Medical College of Philadelphia	146	146	0	0.0	19
Temple University School of Medicine	114	110	4	3.5	14
University of Pennsylvania School of Medicine	141	137	4	2.8	21
University of Pittsburgh School of Medicine	61	61	0	0.0	2
Woman's Medical College of Pennsylvania	28	27	1	3.6	8
SOUTH CAROLINA					
Medical College of the State of South Carolina	45	45	0	0.0	6
TENNESSEE					
Meharry Medical College	40	36	4	10.0	5
University of Tennessee College of Medicine	97	96	1	1.0	6
Vanderbilt University School of Medicine	56	56	0	0.0	10
TEXAS					
Baylor University College of Medicine	86	84	2	2.3	9
University of Texas School of Medicine	87	84	3	3.4	7
VERMONT					
University of Vermont College of Medicine	31	31	0	0.0	6
VIRGINIA					
Medical College of Virginia	86	86	0	0.0	11
University of Virginia Department of Medicine	60	59	1	1.7	6
WISCONSIN					
Marquette University School of Medicine	67	65	2	3.0	10
University of Wisconsin Medical School	43	43	0	0.0	9
CANADA					
Dalhousie University Faculty of Medicine	13	13	0	0.0	5
Laval University Faculty of Medicine	0	0	0	0.0	0
McGill University Faculty of Medicine	45	43	2	4.4	19
Queen's University Faculty of Medicine	13	12	1	7.7	5
University of Alberta Faculty of Medicine	2	2	0	0.0	2
University of Manitoba Faculty of Medicine	5	5	0	0.0	4
University of Montreal Faculty of Medicine	2	2	0	0.0	2
University of Toronto Faculty of Medicine	13	12	1	7.7	7
University of Western Ontario Medical School	6	5	1	16.7	3
Foreign Medical Faculties	507	322	185	36.5	18
Unapproved Schools	359	210	149	41.5	17
Totals	6,118				
Totals—Examined—Passed		5,669			
Totals—Examined—Failed			449		
Percentage—Failed				7.3	

United States schools 2.1 per cent failed, of the Canadian graduates 5.1 per cent failed, of those educated outside the United States and Canada 36.5 per cent failed, and of graduates of unapproved schools 41.5 per cent failed. Of the United States graduates, the school having the highest percentage of failures, 10.7; was the State University of Iowa College of Medicine, whose graduates were examined in eight states. Ten per cent of the graduates of Meharry Medical College failed, while 16.7 per cent of the graduates of the University of Western Ontario Medical School failed. Twenty-eight schools in the United States had no failures among its recent graduates examined for medical licensure in 1938. Graduates of Rush Medical College were examined in thirty-two states, Northwestern graduates in thirty, Harvard and the University of Pennsylvania in twenty-one, and Loyola in twenty states. Two states licensed recent graduates of Wayne, Albany and Pittsburgh. The greatest number examined by any one state was New York, 1,014, Pennsylvania was second with 489, Illinois examined 451, California 379 and Ohio 322.

More than 100 were examined from sixteen schools, the highest being the 164 graduates each of Rush Medical College and the University of Illinois College of Medicine. Forty-five graduates of McGill University Faculty of Medicine were examined in nineteen states, while none from Laval University Faculty of Medicine were examined. Only five graduates of Yale during the years named were examined in five states and only thirteen graduates of Duke University School of Medicine, who were examined in eight states. Of these two schools, as shown in table 2, Yale had only nine graduates of all years examined, none of whom failed, and Duke fifteen, with no failures. The State University of Iowa had 107 graduates of all years examined with 10.4 per cent failures, while Meharry had forty-four examined with 11.4 per cent failures.

The figures shown in table 3 are subdivided by years in the following tabulation:

Graduates of	1936 Passed	1936 Failed	1937 Passed	1937 Failed	1938 Passed	1938 Failed
Medical schools in the United States	379	15	1,358	37	3,306	58
Medical schools in Canada	23	2	48	2	23	1
Foreign faculties of medicine	120	82	153	81	49	22
Unapproved medical schools and osteopaths	28	46	42	67	140	36
Totals	550	145	1,601	187	3,518	117

Of the 3,364 graduates of approved medical schools in the United States examined in 1938, fifty-eight failed, while thirty-seven of the 1,395 examined in 1937 failed and fifteen of the 394 examined in 1936 failed. The greatest percentage of failures was among the unapproved graduates.

FAILURES

In table 4 are presented for each state the number of candidates examined or granted licenses by endorsement or reciprocity and the number licensed after one failure and after two or more failures, these two groups being classified by indication whether the failure or failures have been in the state in which they are receiving a license or elsewhere.

Of the total number examined or endorsed, 9,527, 357 failed, 182 after one examination in the state in which they were licensed in 1938 and sixty-three elsewhere, while eighty-five failed more than once in the state awarding the 1938 license and twenty-seven elsewhere, leaving 9,170 licensed without ever having failed a medical licensing examination.

In the computation of this table it was noted that an osteopath was licensed in Massachusetts who was unsuccessful in passing the examination in Massachusetts on six occasions. Of the graduates of unapproved schools licensed in Massachusetts five failed four previous examinations, four had five failures before successfully passing, two failed nine times, one failed twelve times and another failed at fourteen examinations. New Hampshire granted a license by endorsement to a candidate who failed examinations in other states seven times. New Jersey issued licenses to two individuals with five failures. In New York, four had four previous failures, one failed five times and another had six unsuccessful examinations, while still another had seven unsuccessful examinations. Texas endorsed a candidate with seven failures.

TABLE 4.—*Failures Before Medical Licensing Boards by Licentiates of 1938*

	Number Examined or Registered by Reciprocity or Endorsement	Number Licensed After One Failure: Failed in State Where Licensed	Number Licensed After One Failure: Failed Elsewhere	Number Licensed After Two or More Failures: Failed in State Where Licensed	Number Licensed After Two or More Failures: Failed Elsewhere
Alabama	74	..	2	..	..
Arizona	38	..	..	..	..
Arkansas	103	..	..	..	..
California	*610*	*4*	*6*	*2*	*2*
Colorado	114	..	..	..	..
Connecticut	145	1	2	1	..
Delaware	19	..	..	..	..
District of Columbia	99	..	2	..	1
Florida	153	5	1	1	1
Georgia	109	..	..	..	..
Idaho	28	..	..	..	..
Illinois	600	1	2	2	2
Indiana	181	1	1	..	..
Iowa	161	..	2	..	..
Kansas	123	..	1	..	..
Kentucky	139	..	1	..	..
Louisiana	216	2	..	..	..
Maine	54	..	..	..	..
Maryland	274	2	2	2	..
Massachusetts	312	12	3	24	1
Michigan	391	1	1	..	..
Minnesota	250	..	..	..	..
Mississippi	57	..	..	..	..
Missouri	243	3	..	..	..
Montana	47	..	2	..	..
Nebraska	96	..	..	..	..
Nevada	16	..	..	..	..
New Hampshire	46	..	2	..	1
New Jersey	433	17	12	5	5
New Mexico	33	..	..	..	..
New York	1,560	123	7	48	12
North Carolina	156	..	..	..	..
North Dakota	25	..	..	..	..
Ohio	466	1	2	..	..
Oklahoma	84	..	..	..	..
Oregon	71	..	..	..	..
Pennsylvania	593	1	3	..	..
Rhode Island	47	1	..	..	..
South Carolina	57	..	..	..	..
South Dakota	16	..	..	..	..
Tennessee	200	..	2	..	..
Texas	375	5	2	..	2
Utah	19	..	..	..	..
Vermont	47	..	1	..	..
Virginia	189	..	..	..	..
Washington	123	..	1	..	..
West Virginia	106	..	2	..	..
Wisconsin	158	..	..	..	..
Wyoming	15	..	..	..	..
Hawaii, Puerto Rico	56	2	1	..	..
Totals	9,527	182	63	85	27

TABLE 5.—*Credentials Presented by Physicians for Licensure by Reciprocity and Endorsement—1938*

Marginal Number	Total Licensed	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Gov't Services	National Board of Medical Examiners	Hawaii, Puerto Rico	Canadian & Foreign	Miscellaneous
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Alabama	15	..	..	1	..	1	..	..	..	..	2	..	..	..	1	1	1	8	..	1	..	3	1	..	4	..	..	..	..	..	2	..	..	3	1	..	1	..	..	..	1	..	7	..	..	2	..	..	1	..	..	3	..	..	..
Arizona	23	..	..	..	1	..	..	..	..	..	..	..	6	..	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..	..	1	..	..	2	..	1	..	..	..	..	..	..	2	1	1	..	..	..	1	..	..	4	..	..	..
Arkansas	31	..	..	..	3	..	..	..	..	..	..	..	3	..	..	..	..	3	..	2	..	..	..	..	4	..	..	1	..	..	1	..	..	1	3	..	..	..	..	..	1	..	8	1	..	..	1	..	..	..	..	..	..	..	..
California	208	..	1	1	..	6	..	..	..	..	3	..	2	11	3	6	8	1	1	1	1	3	9	16	..	10	1	16	..	..	1	..	27	..	1	9	3	..	7	8	..	2	3	4	2	2	1	1	3	..	1	..	7	22	1	..	..
Colorado	36	..	..	..	2	..	..	..	..	1	..	..	6	..	2	2	1	..	..	..	..	1	1	..	3	..	6	..	..	1	..	2	..	..	2	1	..	..	..	..	..	..	..	1	..	1	1	..	..	..	1	..	1	..	..	..
Connecticut	72	..	..	..	2	..	..	1	1	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	2	..	14	..	..	1	..	1	1	..	..	..	..	2	..	..	..	1	..	..	..	..	..	44	..	..	..
Delaware	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..
Dist. Columbia	66	..	..	..	..	1	..	..	..	..	4	..	..	1	..	1	..	1	1	16	1	1	1	..	1	..	..	..	..	..	5	..	..	1	..	..	..	..	..	6	..	..	..	1	1	..	..	3	..	..	1	..	1	17	..	1	..
Florida	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Georgia	37	..	..	1	1	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	1	2	1	..	..	..	..	1	..	..	2	..	2	1	..	1	..	3	..	6	3	..	..	4	..	..	..	..	..	5	..	..	..
Idaho	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Illinois	110	2	..	4	4	3	..	..	1	..	1	..	..	7	6	2	..	..	..	4	..	4	3	..	13	..	4	..	..	1	..	..	..	..	8	3	1	6	..	..	..	6	3	1	..	..	..	1	..	..	2	20	..	..	..
Indiana	73	..	..	2	..	1	..	..	..	..	..	..	14	..	2	3	8	2	..	4	..	7	..	1	5	..	..	..	..	1	..	3	1	..	10	1	..	..	..	..	..	3	..	1	1	..	..	..	1	..	..	2	..	..	..
Iowa	66	..	..	..	1	..	..	..	..	..	1	..	15	1	..	5	1	..	..	..	..	3	6	..	3	..	12	..	..	..	..	5	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	9	..	..	..
Kansas	30	..	..	..	1	..	..	..	..	..	1	..	4	1	..	..	..	..	..	..	..	..	..	..	10	..	3	..	..	1	..	..	..	..	1	2	..	..	..	..	..	1	1	..	..	..	..	1	..	2	..	2	..	..	..
Kentucky	58	..	..	..	..	..	..	..	..	..	2	..	3	1	..	..	..	3	..	3	..	6	1	..	2	..	..	..	..	..	2	..	..	11	1	..	..	..	..	1	11	..	..	..	2	..	..	1	1	..	6	..	..	..
Louisiana	32	..	..	3	..	..	..	..	..	..	1	..	2	1	..	1	..	..	..	1	..	1	2	2	1	..	2	..	..	..	..	2	..	..	..	..	..	..	..	1	..	1	1	..	..	2	..	..	1	..	1	6	..	..	..
Maine	15	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	1	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	2	..	..	1	..	..	4	..	..	..
Maryland	47	..	..	..	2	..	..	1	3	..	..	..	5	..	..	..	1	..	..	..	..	1	..	..	1	..	1	..	..	..	..	3	3	..	2	..	..	..	5	..	..	..	1	2	..	..	3	..	1	..	..	12	..	..	..
Massachusetts	105	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	105	..	..	..
Michigan	166	1	..	2	4	3	1	...	..	..	2	..	24	1	7	2	4	3	..	6	..	..	3	..	5	..	10	..	..	1	..	5	1	..	32	..	..	4	..	..	..	11	11	..	..	2	..	1	4	..	..	16	..	..	..
Minnesota	31	..	..	..	..	..	..	..	..	..	..	..	5	..	1	..	..	1	..	1	..	..	..	..	..	1	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	3	..	..	13	..	..	..
Mississippi	26	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	3	..	..	..	2	..	..	10	3	..	..	..	..	1	..	..	1	..	..	..
Missouri	69	..	..	3	..	2	..	..	..	..	1	..	5	1	2	10	1	1	1	2	..	1	..	..	2	..	2	..	..	1	..	1	1	..	1	2	..	..	..	1	..	8	1	..	..	1	..	..	..	..	7	..	1	..
Montana	36	..	..	..	1	..	..	..	..	..	..	..	4	1	2	..	1	..	..	1	5	..	2	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	7	..	1	..
Nebraska	11	..	..	..	..	..	..	..	1	..	..	..	2	..	3	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	1	..	..	1	..	..	..	1	2	..	..	7	1	..	..
Nevada	11	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1	..	1	..	..	..	..	1	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New Hampshire	29	..	..	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	2	..	5	..	..	1	..	1	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
New Jersey	152	..	..	3	1	1	..	..	..	..	1	1	..	1	5	..	2	1	2	11	2	2	1	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	4	..	..	..	..	..	7	..	5	..
New Mexico	31	..	..	4	2	..	..	..	1	..	..	..	1	1	..	1	3	..	1	2	..	..	..	..	1	..	..	..	1	..	..	30	3	..	8	..	..	16	..	..	..	2	..	..	3	4	..	..	1	..	28	..	..	..
New York	482	1	..	1	7	..	2	1	1	..	2	..	2	5	7	..	1	1	1	61	3	3	9	..	1	..	2	..	..	17	..	12	..	22	..	..	12	..	1	..	17	15	..	3	16	..	..	4	..	..	192	6	21	..
North Carolina	71	..	..	..	..	1	..	1	..	..	3	..	..	..	1	1	..	..	2	..	2	1	..	1	..	..	..	..	..	6	..	..	4	..	..	2	..	8	..	7	..	..	..	19	..	2	..	..	..	10	..	..	..
North Dakota	10	..	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..
Ohio	124	..	..	1	2	1	..	..	..	..	1	..	3	4	3	3	6	3	..	3	..	15	..	..	18	..	1	..	..	1	..	10	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	4	..	..	..
Oklahoma	38	..	..	2	..	1	..	..	..	..	..	..	3	..	1	3	..	1	..	..	..	2	..	1	5	..	2	..	..	..	..	1	..	2	..	..	..	10	..	2	..	9	..	..	2	3	..	1	3	..	..	19	..	..	..
Oregon	17	..	..	..	1	..	..	..	..	..	..	..	2	..	1	1	..	..	..	..	..	1	1	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	3	..	1	3	..	1	1	..	..	3	..	..	..
Pennsylvania	81	1	..	..	1	..	1	1	..	..	..	..	2	1	3	1	..	2	..	3	1	1	1	..	1	..	1	..	..	..	13	..	8	3	..	6	..	1	..	..	1	..	2	..	..	..	..	..	..	..	4	..	..	..
Rhode Island	21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	..	..	..
South Carolina	18	..	..	..	..	..	..	..	..	..	5	..	1	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21	..	..	..
South Dakota	8	..	..	..	..	1	..	..	..	..	..	..	..	..	3	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	2	..	..	..
Tennessee	21	2	..	..	..	1	..	..	..	..	2	..	..	..	..	..	1	2	..	1	..	..	..	1	2	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..
Texas	138	1	..	11	3	3	..	..	..	..	3	..	12	3	1	9	2	22	1	3	..	5	4	5	..	..	3	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	5	..	..	..
Utah	7	..	..	..	..	1	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	9	1	..	5	8	..	1	..	..	..	11	..	..	..	2	1	..	3	..	3	..	..	..
Vermont	21	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Virginia	62	..	..	..	3	1	..	..	5	..	1	..	1	2	..	..	4	2	..	6	..	..	..	..	..	..	..	..	1	..	..	6	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11	..	1	..
Washington	51	..	..	..	6	2	..	..	..	..	..	..	..	..	6	..	..	1	..	2	..	..	2	..	2	1	5	..	..	3	..	2	1	..	2	..	..	4	..	1	..	8	2	..	..	1	1	..	..	..	10	..	..	..
West Virginia	41	..	..	1	..	..	..	1	..	..	..	..	1	..	..	4	..	..	..	7	..	1	..	1	..	..	3	..	..	..	..	..	..	..	..	5	1	..	..	..	..	..	..	..	2	..	..	..	..	..	16	..	..	..
Wisconsin	41	..	..	..	1	..	..	..	..	..	16	..	..	..	1	..	1	..	..	..	..	2	4	..	5	1	3	..	..	..	..	1	..	7	..	..	5	1	..	..	..	1	..	8	..	..	1	..	..	1	..	..	..
Wyoming	7	..	..	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	3	1	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..
U. S. Terr. and Possessions*	22	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Totals	2,002	8	1	37	50	36	7	6	14	2	36	3	155	35	70	67	19	67	10	149	15	70	65	13	111	6	87	0	2	75	0	175	29	2	154	27	17	95	2	23	9	149	61	7	17	87	9	14	36	2	17	673	8	29	5
Marginal Number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54

* Alaska, Hawaii, Puerto Rico, Virgin Islands.

Twenty-two states licensed physicians who never failed a state board examination, while New York licensed 190, Massachusetts forty and New Jersey thirty-nine who previously failed. Licensure of candidates with failures occurred in twenty-six states, the District of Columbia, Hawaii and Puerto Rico but, with the exception of Massachusetts, New Jersey and New York, no state licensed more than fifteen.

REGISTRATION BY RECIPROCITY AND ENDORSEMENT

The number of physicians granted licenses to practice medicine and surgery without examination on presentation of satisfactory credentials are given in table 5. There were 2,902 so registered who presented licenses from other states, Canada and foreign countries, the certificate of the National Board of Medical Examiners, one of the government services, or other credentials.

Definite reciprocal relations are reported by twenty-four states. Twenty-six states, including five that have regularly established reciprocal relations, will register licentiates who present credentials which correspond to those required by their respective states at the time such licenses were issued. The medical practice acts of many give the examining board the privilege of using its discretion in determining the acceptability of a candidate. The reciprocity and endorsement policies of the various states are presented in table 6. In addition there is also indicated whether licenses are granted to diplomates of the National Board of Medical Examiners or to retired officers of the government services. Specific requirements such as professional practice, basic science certificate, oral examination and internship is recorded, as is also the fee demanded. Florida, Idaho, Massachusetts and Rhode Island do not have reciprocal or endorsement arrangements with any state. Massachusetts and Rhode Island, however, will register diplomates of the National Board of Medical Examiners by endorsement. Those desiring licenses by this method in Arizona, Arkansas, Colorado, Connecticut, District of Columbia, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, Washington and Wisconsin are required to obtain a certificate from the board of examiners in the basic sciences before being eligible for licensure. Some states have additional requirements for graduates of schools outside the United States and Canada. Other requirements or exemptions are mentioned in footnotes.

In table 5 it will be noted that New York granted the greatest number of licenses by endorsement in 1938 (482), California the second highest (208), Michigan 166, New Jersey 152, Texas 138, Ohio 124, Illinois 110 and Massachusetts 105. All other states licensed fewer than 100 by this method. The largest group representing the same type of credentials were the 673 diplomates of the National Board of Medical Examiners. More than 100 physicians holding licenses in Illinois, Maryland, Missouri, New York, Ohio and Tennessee, respectively, were licensed in the various states. Twenty-nine physicians were certified on the basis of Canadian and foreign credentials. Only 175 physicians with New York licenses secured certificates elsewhere, while 482 were registered in New York on the basis of credentials. The number of physicians registered in New York on the basis of foreign credentials was twenty-one, whereas in 1937 it was 146. During the year the New York Board of Regents ruled that all would be required to pass examinations. The Regents' decision was appealed in a test case and the Supreme Court issued an order restraining the Regents from requiring foreign born physicians to pass an examination before practicing in New York. The Appellate Division of the Supreme Court supported the position taken by the Regents. The Regents are not endorsing any foreign licenses but requiring that all applicants take the regular medical examination.

One physician in the District of Columbia was licensed on the basis of German credentials by a special act of Congress. One was registered in Missouri on Canadian credentials. Five in New Hampshire were issued licenses by endorsement of credentials from Canada and Quebec one each and Germany three. The twenty-one in New York represented one with Russian credentials, two with Austrian and eighteen German degrees. One candidate in Vermont was certified on the basis of English credentials. Altogether, twenty-nine were licensed by five states.

Three states accepted credentials from Hawaii and Puerto Rico. One was endorsed by presentation of a Hawaiian license in California, and one in Montana and six in New York by endorsement of licenses issued in Puerto Rico. In addition, five were admitted to private practice in the Virgin Islands.

Not included in the table are forty-three osteopaths licensed by the board of medical examiners in five states, namely one in New Hampshire and thirty-seven in Texas granted the right to practice medicine and surgery, one each in Oregon and Wyoming licensed to practice osteopathy and surgery, and three granted this privilege in Wisconsin. Likewise excluded are those osteopaths granted licenses to practice medicine and surgery in California.

Of the five homeopathic boards in existence—Arkansas, Connecticut, Delaware, Louisiana and Maryland—only two issued licenses by endorsement, Connecticut and Delaware, which licensed two and one respectively. The Eclectic Board in Arkansas also registered one.

Diplomates of the National Board of Medical Examiners were registered in thirty-eight states, the District of Columbia, Alaska, Hawaii and Puerto Rico.

Maryland had the greatest number of its licentiates registered in any state, sixty-four, who were given the right to practice in New York. Alabama, Arizona, Connecticut, Delaware, Florida, Idaho, Montana, New Hampshire, North Dakota, Rhode Island, South Dakota, Utah, Washington and Wyoming had less than ten of their licentiates endorsed to other states. Two states had no physicians endorsed—Nevada and New Mexico. Arizona had only one endorsed, and Florida, New Hampshire, North Dakota, Rhode Island and Wyoming only two.

Included in the group at the side of the table listed as "U. S. Territories and Possessions" are Alaska, Hawaii, Puerto Rico and Virgin Islands.

A total of 2,902 physicians secured licenses by this method in 1938.

The physicians licensed by reciprocity and endorsement in 1938 and, in addition, forty-three osteopaths so licensed by medical examining boards are recorded by school of graduation and state or territory where licensed in table 7. All the four year medical schools in the United States (sixty-seven) and nine in Canada were represented. The largest number of graduates of any one school were from Harvard Medical School,

ninety-eight, who were licensed in twenty-nine states. Georgetown had eighty-seven licensed by this method in seventeen states, the University of Nebraska eighty-three in twenty-five states, and Northwestern seventy-seven in thirty states. Graduates of forty-two faculties of medicine in Europe and seven licensing corporations of Great Britain, three unapproved institutions and several osteopathic schools were licensed without examination. Graduates of thirty-six schools now extinct were also represented.

Of the 2,945 candidates licensed by reciprocity and endorsement, 2,668 were graduates of sixty-seven approved medical schools in the United States, forty-six graduates of nine approved medical schools in Canada, 115 graduates of European institutions, fifty-three of medical schools now extinct, twenty graduates of unapproved medical schools and forty-three osteopaths.

TABLE 6.—*Reciprocity*

Compilation of data furnished by state examining boards. This information is not guaranteed, as there may have been

Marginal Number	The Examining Board of	Reciprocates with, or Endorses Certificates Granted by: Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	Marginal Number
1	Alabama	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	Arizona	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
3	Arkansas (regular board)	+	..	..	+	+	..	..	+	..	+	..	+	+	+	+	+	+	..	+	..	+	+	+	+	..	+	+	..	+	+	3
4	California	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
5	Colorado	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
6	Connecticut (regular board)	..	..	..	..	..	..	..	..	..	..	..	..	.	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
7	Delaware (regular board)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	7
8	District of Columbia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
9	Florida	No reciprocity or endorsement policies											..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
10	Georgia	+	..	+	+	+	..	..	+	..	..	..	..	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	+	+	+	10
11	Idaho	No reciprocity or endorsement policies											..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
12	Illinois	+	..	+	+	+	..	..	+	..	+	..	..	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	..	+	+	..	12
13	Indiana	+	..	+	+	+	..	..	+	..	+	..	+[32]	..	+	+	+	+	+	+	..	+	..	+	+	..	+	+	..	+	+	..	13
14	Iowa	+	..	+	+	+	..	+	+	..	+	..	+	+	..	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	14
15	Kansas	+	+	+[10]	+	+	..	+	+	..	+	..	+	+	+	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	15
16	Kentucky	+	..	+	+	+	..	+	+	..	+	..	+	+	+	+	..	+	..	+	..	+	+	+	+	..	+	+	+	+	+	+	16
17	Louisiana (regular board)	+	+	+	+	+	..	+	+	..	+	..	+	+	+	+	+	..	+	+	..	+	+	+	+	..	+	+	+	+	+	+	17
18	Maine	.	..	..	+	+	..	+	+	..	+	..	+	+	+	+	+	+	..	+	..	+	+	+	+	..	+	+	+	+	+	+	18
19	Maryland (regular board)	+	..	+	+	..	..	+	+	..	+	..	+	+	+	+	+	+	+	..	..	+	+	+	+	..	+	+	+	+	+	+	19
20	Massachusetts	No reciprocal relations											.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20
21	Michigan	+	+	+	+	+	+	+	..	+	..	..	+	+	+	+	+	+	+	+	..	..	..	+	+	+	+	+	+	+	+	+	21
22	Minnesota	+	..	+	+	..	..	+	..	+	..	..	+	..	+	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	22
23	Mississippi	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
24	Missouri	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
25	Montana	+	+	+	+	+	..	+	+	..	..	..	..	+	+	+	+	..	+	+	..	+	+	+	+	..	+	+	+	..	+	..	25
26	Nebraska	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26
27	Nevada	..	..	+[21]	+	+	..	..	..	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	..	+	+	..	+	..	..	27
28	New Hampshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	28
29	New Jersey	+	..	..	+	+	..	..	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	..	..	..	..	+	..	+	..	..	29
30	New Mexico	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	30
31	New York	+	..	..	+	..	..	+	..	..	..	..	..	+	+	..	..	..	..	+	..	..	+	..	..	..	..	..	+	..	..	..	31
32	North Carolina	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	32
33	North Dakota	+	..	+	+	..	..	..	..	..	+	..	+	+	+	+	+	+	+	+	..	+	..	..	..	+	+	+	+	+	+	+	33
34	Ohio	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	..	..	..	34
35	Oklahoma	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35
36	Oregon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	36
37	Pennsylvania	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
38	Rhode Island	No reciprocal relations											..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	38
39	South Carolina	+	..	..	..	..	..	..	..	..	+	..	..	.	+	+	+	+	+	..	..	..	+	..	+	..	+	..	+	..	..	..	39
40	South Dakota	+	+	+	+	+	..	..	+	..	+	..	..	+	+	+	+	+	..	..	..	+	..	+	..	+	..	+	..	+	+	+	40
41	Tennessee	+	..	+	+	+	..	..	+	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	..	..	..	..	..	41
42	Texas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
43	Utah	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43
44	Vermont	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	44
45	Virginia	+	..	+	+	..	..	+	+	..	+	..	..	+	+	+	+	+	+	+	..	+	+	+	+	+	+	..	..	..	..	..	45
46	Washington	+	..	..	+	+	..	..	..	..	+	..	..	..	+	..	+	+	..	+	..	.	+	+	+	+	+	+	..	+	..	..	46
47	West Virginia	+	..	+	..	..	..	+	+	..	+	..	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	..	..	..	..	47
48	Wisconsin	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48
49	Wyoming	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	49
50	Alaska	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50
51	Hawaii	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51
52	Puerto Rico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52

Some states have additional requirements for graduates of schools outside the United States and Canada.

1. 1st P, first papers required; +, full citizenship required.
2. In most cases there is a small additional recording or registration fee.
3. If state of original license grants similar privileges.
4. Internship accepted in lieu of one year's practice.
5. Professional practice required.
6. No professional practice required.
7. Just preceding application.
8. No basic science reciprocity—examination must be within the state.
9. Basic science certificate required either by reciprocity or examination in addition to basic science subjects of National Board.
10. Reserve officers not eligible.
11. Applicant's diplomate certificate must be dated not less than one year prior to the filing date in California of an application; applicant must also have been a resident of some state or territory of the United States for a period of at least one year after the date of his diplomate certificate.
12. Oral examination required when original license is ten or more years old.
13. Applicant must have resided in the state used as basis of application for one year after date on said certificate.
14. Oral examination required.
15. Unless in practice in another state for five years.
16. Six months of which must be just preceding application.
17. Practical, clinical examination required.

CANDIDATES ADDED TO THE PROFESSION

Licentiates representing additions to the profession during 1938 are recorded in table 8. The figures represent candidates examined in 1938 and licensed; also those examined in previous years whose licenses were withheld and issued in 1938, and those certified on the

basis of the certificate of the National Board of Medical Examiners, government services, Canadian and foreign credentials. In the main they represent recent graduates. Altogether, 6,252 were added to the profession. The number removed by death annually approximates 4,000. These figures indicate that at least 2,000 were added to the medical profession in 1938. It is assumed that the great majority of those licensed are in practice. It is interesting to note that, of 9,493 licenses issued throughout the year, 6,252 are actual additions to the medical profession. The largest number in any one state added to the profession was in New York, 1,204; Illinois added 464 and Pennsylvania 452, while South Dakota added only two. More than 300 were added in California and Ohio. Between 200 and 300 were added to the physician population of Maryland, Massachusetts, Michigan, New Jersey and Texas. Indiana, Louisiana, Minnesota, Missouri, Tennessee, Virginia and Wisconsin increased their population of physicians by between 100 and 200. Thirty-one states, the District of Columbia, Alaska, Hawaii and Puerto Rico added less than 100. Of the number of licentiates representing additions to the medical profes-

(CONTINUED ON PAGE 1710)

and Endorsement Policies

changes of which this office has not been advised. For an authentic statement write directly to the medical board.

	Reciprocates with, or Endorses Certificates Granted by																				Requirements						
Marginal Number	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska	Puerto Rico	At the Discretion of the Board	National Board of Medical Examiners	U. S. Government Services	Basic Science Certificate	Internship	Professional Practice	Citizenship [1]	Fees, Dollars [2]	Miscellaneous	Marginal Number
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+	+	..	+	1[4]	+	50	..	1
2	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	+	+[8]	+[5 6]	+[8]	..	3[4 7]	..	100	..	2
3	+	..	+	+	+	..	+	..	..	..	+	+	..	+	+	..	+	+	..	..	..	..	+[9]	..	+	..	1[4]	+	50[39]	..	3
4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[12]	+[11]	+[10]	..	..	1[13]	..	100	..	4
5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[9]	..	+	..	1[4]	1st P	50	..	5
6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	+[14 6]	..	+[15]	..	3[4 16]	1st P	50	..	6
7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+[5]	+	..	+	2	+	100	..	7
8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[3]	+	+[5]	+	+	2[7]	..	50	..	8
9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
10	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	..	..	..	..	+	..	..	..	0	+	50	..	10
11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	.	.	..	..	..	..	..	..	..	..	..	11
12	..	..	+	+	+	+	+	..	..	..	+	+	+	+	+	..	+	+	+	..	..	..	+[17]	+[10 17]	..	+	1[4]	..	25	[17]	12
13	+	+	+	+	+	..	+	..	..	+	+	+	+	+	+	..	+	+	+	..	..	..	+	..	..	..	1[4]	+[33]	50	..	13
14	+	+	+	+	+	..	+	..	..	+	+	..	+	..	+	+	+	+	+	..	..	..	+	..	+	+	1[4]	+	50	..	14
15	..	+	+	+	+	..	+	..	+	+	+	+	+	+	+	..	+	+	+	..	..	..	+	..	..	..	1[4 7]	+	..[38]	..	15
16	..	.	..	+	+	..	+	..	+	+	+	+	+	+	+	..	+	+	..	..	..	..	+	+	..	..	1[4]	+	50	..	16
17	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	..	..	..	..	..	..	+	1[4]	1st P[40]	50	..	17
18	..	..	+	+	+	+	+	..	+	..	+	+	+	+	+	..	+	+	+	..	..	..	+[11]	..	..	..	1[4]	1st P	52	..	18
19	..	+	..	+	+	+	+	..	+	..	+	+	..	+	+	..	+	+	..	..	..	+	+	..	..	..	1[4]	1st P [20]	50	..	19
20	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	..	0	..	25	..	20
21	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	..	..	+	+[35]	..	+[37]	+	1[4]	+	50	[34]	21
22	+	+	..	..	+	+	+	..	..	..	+	+	+	+	+	+	+	+	+	..	..	..	+	..	+	..	0	+	75	[17]	22
23	..	.	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	..	1[4]	1st P	50.25	..	23
24	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	+[33]	1[4]	+	50	..	24
25	..	+	+	+	+	..	..	+	..	+	..	+	+	..	+	+	+	+	+	..	+	..	+[14]	..	..	..	1[4]	+	75	..	25
26	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	+	..	1[4]	+	50[36]	..	26
27	+	..	..	+	+	+	+	..	..	+	+	..	+	+	..	..	+	+	..	+	..	..	+	..	..	+[33]	1[4]	+	100	[12]	27
28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	+	0	..	20	..	28
29	+	..	+	+	+	..	+	..	..	..	..	+	+	+	+	..	+	+	..	..	..	+	+	..	..	+	0	1st P	100	..	29
30	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	..	..	1[4]	+	50	..	30
31	..	+	..	+	..	..	..	..	..	..	+	+	+	..	+	..	..	+	..	..	+	+	+	..	..	..	0	1st P	25	..	31
32	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	..	..	0	+	50	..	32
33	..	+	..	+	+	+	..	..	..	+	..	+	..	+	..	+	+	+	+	..	..	..	+	..	..	+	1	1st P	50[32]	[14]	33
34	+	+	+	..	+	+	+	..	+	+	+	+	+	+	+	..	+	+	+	..	..	..	+	..	..	..	1[4]	1st P	50	[23]	34
35	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	+	+	1[4]	+	100	..	35
36	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[9 30]	..	+	+	1[4]	1st P	100	..	36
37	..	.	..	..	..	..	..	..	..	..	..	.	..	.	..	..	..	..	..	..	..	+	+	+	..	+	2[24]	1st P	100	..	37
38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	..	+	0	1st P	20	..	38
39	..	+	.	+	..	..	+	..	..	..	+	+	..	..	+	..	..	+	..	..	..	..	+	..	..	..	1[4]	+	50	..	39
40	..	+	+	+	+	+	..	..	+	..	+	+	+	..	+	+	+	+	+	..	..	..	..	+	+	+[28]	+	1	1st P	50	..	40
41	+	+	..	+	+	..	+	..	+	+	..	+	+	..	+	+	+	+	+	..	..	..	..	+	+	..	..	0	+	10	..	41
42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	+	..	..	..	1[25]	+	50	..	42
43	..	..	..	..	..	..	..	..	..	..	..	..	.	.	..	..	..	..	..	..	..	+	+	+	..	+	0	1st P	50	..	43
44	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	+	..	+	0	..	50	..	44
45	+	+	..	+	+	..	+	..	+	+	+	+	..	+	..	+	+	+	+	..	..	+	+	+	..	..	2[26]	1st P	50	..	45
46	..	..	..	..	+	+	+	..	..	+	+	+	+	+	..	..	..	+	+	..	..	..	+[8]	..	+[8]	+	0	+	25	..	46
47	..	+[27]	+	+	..	+	..	+	+	+	+	+	+	+	..	..	..	+[28]	+	..	..	..	+	..	..	+	2[4]	..	100	..	47
48	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	+	+	+	1[29]	..	50[22]	..	48
49	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	+[14]	+	..	+	0	+	50	..	49
50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	..	+	0	..	100	..	50
51	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[14]	..	..	..	..	..	25	..	51
52	+	..	..	..	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[39]	..	+	0	+	25	..	52

18. Same as charged Kansas.
19. Regular and Homeopathic boards.
20. Required of graduates of foreign medical schools.
21. Regular board.
22. Fee same as applicant's state charges if more than $50.
23. Oral examination required if applicant's state requires it.
24. If an applicant passes the examination in the state from which he transfers after the completion of his internship, no practice is required.
25. Internship accepted if served in this state.
26. Internship accepted—considered equivalent to two years' practice.
27. Five years' practice.
28. Conditionally.
29. A two year internship is accepted.
30. License by National Board certificate at examination fee of $15 unless holding a license from another state.
32. Clinical examination required.
33. Reciprocity applicants only.
34. Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established.
35. May be licensed after a special (written) supplemental examination.
36. Fee for license on basis of National Board certificate $25.
37. For matriculants after Oct. 17, 1937.
38. After July 1, 1939.
39. While in active duty only.
40. Permanent license withheld until completion of citizenship.

TABLE 7.—*Candidates Licensed by Reciprocity and Endorsement—1938*

Marginal Number	SCHOOL	1 Alabama	2 Arizona	3 Arkansas	4 California	5 Colorado	6 Connecticut	7 Delaware	8 District of Columbia	9 Florida	10 Georgia	11 Idaho	12 Illinois	13 Indiana	14 Iowa	15 Kansas	16 Kentucky	17 Louisiana	18 Maine	19 Maryland	20 Massachusetts	21 Michigan	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	50 U. S. Terr. & Poss.*	Totals	Marginal Number
	ARKANSAS																																																				
1	University of Arkansas School of Medicine	1	..	1	1	..	..	..	..	..	2	..	1	2	..	..	..	3	..	..	..	2	..	1	4	..	..	..	..	4	..	5	..	..	1	3	..	..	..	..	..	..	11	..	..	..	..	1	..	..	1	47	1
	CALIFORNIA																																																				
2	College of Medical Evangelists	1	1	..	3	4	..	..	1	..	1	..	1	..	3	..	3	..	..	3	1	1	..	..	3	3	..	..	..	2	3	2	..	2	..	..	..	..	..	..	..	1	1	..	1	..	7	..	..	..	5	63	2
3	Stanford University School of Medicine	..	1	..	32	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	3
4	University of California Medical School	..	..	..	3	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	..	..	..	..	7	4
5	University of Southern California School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	5
	COLORADO																																																				
6	University of Colorado School of Medicine	..	..	3	9	..	..	..	1	..	..	..	2	1	1	..	..	..	..	..	..	3	..	..	1	..	..	..	..	..	3	1	..	..	2	..	..	..	..	..	1	..	2	1	..	1	2	..	..	2	..	36	6
	CONNECTICUT																																																				
7	Yale University School of Medicine	..	..	..	3	..	12	..	..	..	..	..	1	..	..	..	..	..	..	1	1	3	..	..	..	..	..	..	..	2	..	14	..	..	1	..	..	1	..	..	..	..	..	..	1	1	1	..	..	..	..	48	7
	DISTRICT OF COLUMBIA																																																			
8	George Washington University School of Medicine	..	1	..	6	..	..	..	6	..	..	..	1	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	1	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	27	8
9	Georgetown University School of Medicine	..	..	..	2	..	2	..	16	..	..	..	1	..	..	..	..	..	1	5	1	2	..	..	..	1	2	..	..	5	..	32	..	1	4	..	..	3	5	..	..	..	..	..	1	..	1	..	..	1	..	87	9
10	Howard University College of Medicine	1	..	..	..	..	..	1	1	..	1	..	3	1	..	1	..	..	..	..	..	2	..	..	1	..	..	..	..	3	..	6	1	..	..	..	..	2	..	..	..	..	..	1	..	1	..	1	..	..	..	30	10
	GEORGIA																																																				
11	Emory University School of Medicine	2	..	..	1	..	..	..	3	..	2	..	1	..	1	..	2	..	..	..	..	2	..	..	1	..	..	..	..	..	1	6	2	..	1	..	..	..	1	..	..	..	1	..	..	1	..	..	..	..	..	28	11
12	University of Georgia School of Medicine	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	..	1	..	2	2	..	..	..	..	..	4	..	1	2	..	..	..	..	..	..	..	..	..	17	12
	ILLINOIS																																																			
13	Loyola University School of Medicine	..	2	..	..	..	..	..	..	..	..	..	3	1	2	1	..	..	..	..	..	4	1	..	..	1	1	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	29	13
14	Northwestern University Medical School	2	1	..	12	2	..	..	..	..	..	1	6	8	7	1	2	1	..	1	2	10	2	..	1	2	1	..	..	..	2	3	..	1	1	..	1	3	..	..	..	7	1	..	..	1	..	3	1	1	77	14
15	University of Chicago, Rush Medical College	..	1	..	1	4	..	..	..	..	..	1	5	9	3	1	1	2	..	2	2	5	2	..	..	1	..	..	..	..	..	6	..	..	6	..	2	1	..	1	..	1	..	..	..	..	1	..	2	..	1	62	15
16	University of Chicago, The School of Medicine of the Division of Biological Sciences	..	1	..	1	..	..	..	2	..	..	..	3	2	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	16
17	University of Illinois College of Medicine	1	1	..	6	1	..	..	..	..	..	..	4	..	7	2	1	1	..	1	..	5	2	..	3	1	..	..	1	..	..	1	1	1	..	3	..	1	..	..	..	2	7	..	..	..	1	..	8	..	..	62	17
	INDIANA																																																			
18	Indiana University School of Medicine	..	..	..	3	..	..	..	1	..	..	..	5	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	3	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	18
	IOWA																																																			
19	State University of Iowa College of Medicine	..	1	..	8	2	1	..	..	..	..	..	5	2	..	..	..	..	..	..	..	..	5	1	..	2	1	3	..	1	5	..	6	..	..	2	1	1	2	..	..	2	..	1	1	..	..	6	1	..	..	..	63	19
	KANSAS																																																			
20	University of Kansas School of Medicine	..	..	..	7	2	1	..	1	..	..	..	2	2	3	2	..	..	..	..	..	..	..	..	..	13	1	..	..	..	..	1	..	..	..	3	3	1	1	..	..	..	..	6	..	..	..	..	..	..	..	..	49	20
	KENTUCKY																																																			
21	University of Louisville School of Medicine	1	..	..	1	..	1	..	1	..	1	..	..	6	1	..	1	..	..	1	..	1	..	1	1	2	..	..	..	3	3	1	1	..	..	..	..	..	1	..	1	..	..	3	..	4	..	..	..	..	53	21
	LOUISIANA																																																			
22	Louisiana State University Medical Center	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
23	Tulane University of Louisiana School of Medicine	9	1	3	2	1	..	..	..	..	2	..	3	1	..	..	3	1	..	1	1	3	1	3	3	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	2	..	..	..	..	..	8	22
	MARYLAND																																																			
24	Johns Hopkins University School of Medicine	..	..	2	2	2	..	..	3	..	1	..	3	3	..	..	2	..	1	3	1	6	1	..	2	..	..	..	..	2	..	14	1	..	2	2	..	2	2	..	..	1	..	..	1	5	3	2	1	..	..	76	23
25	University of Maryland School of Medicine and College of Physicians and Surgeons	1	..	..	1	..	1	..	2	..	..	..	1	1	..	..	..	..	..	3	..	1	1	1	..	..	..	..	..	7	..	19	1	..	1	..	..	2	1	..	..	..	..	..	3	..	4	..	..	..	..	70	24
	MASSACHUSETTS																																																			
26	Boston University School of Medicine	..	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	19	..	..	..	..	..	..	..	..	3	..	5	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	3	..	4	..	..	51	25
27	Harvard Medical School	1	..	..	6	..	7	..	2	..	2	..	3	1	2	1	2	..	1	..	26	2	2	..	3	1	..	..	5	1	1	12	2	..	2	..	1	3	4	..	..	1	..	1	..	2	..	..	..	..	..	31	26
28	Tufts College Medical School	..	..	..	3	..	1	..	1	..	1	..	..	..	..	..	..	..	1	..	31	1	..	..	..	..	..	..	7	3	..	9	1	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	88	27
	MICHIGAN																																																			
29	University of Michigan Medical School	2	..	..	6	1	1	..	1	..	..	..	3	5	1	1	2	1	2	1	..	2	..	1	..	..	1	..	1	2	..	3	1	1	11	2	1	1	..	..	..	6	..	..	2	1	..	1	1	1	66	29
30	Wayne University College of Medicine	1	..	..	2	..	..	..	..	..	..	..	..	..	1	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	..	1	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	14	30
	MINNESOTA																																																			
31	University of Minnesota Medical School	..	..	..	8	1	..	..	..	..	1	..	2	..	6	1	1	2	..	..	..	3	1	..	5	..	1	..	1	..	1	..	..	3	1	..	..	..	..	1	..	..	7	1	..	..	..	..	1	..	..	56	31
	MISSOURI																																																			
32	St. Louis University School of Medicine	1	1	2	8	..	..	..	1	..	1	..	1	1	..	3	1	..	1	1	..	2	..	..	1	1	..	..	1	2	..	3	..	..	17	1	..	..	..	..	..	1	3	..	..	..	3	..	4	..	..	71	32
33	Washington University School of Medicine	2	1	1	9	2	..	..	..	..	..	..	7	..	2	2	..	1	..	1	2	3	1	..	3	2	..	..	..	1	..	3	1	..	3	3	1	1	..	..	..	1	2	..	..	1	..	5	..	2	64	33

* Alaska, Canal Zone, Hawaii, Philippine Islands, Puerto Rico, Virgin Islands

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(CONTINUED FROM PAGE 1707)

sion during 1938, 5,755 secured this privilege by examination and 497 by the endorsement of credentials. Those licensed by endorsement consist of a few licensed on foreign credentials and to a large extent diplomates of the National Board of Medical Examiners. Figures for three previous years and 1938 are shown here for comparison:

Licentiates Representing Additions to the Medical Profession in Four Years

Year	Examination	Reciprocity and Endorsement	Total
1935	5,098	411	5,509
1936	5,546	628	6,174
1937	5,808	602	6,410
1938	5,755	497	6,252

In 1935 there were 5,098 added by means of examination and 411 by endorsement of credentials, a total of 5,509. In 1936 there were 665 more added than in 1935; in 1937, 236 more than in 1936 and 901 more than in 1935. In 1938 there were 158 fewer than in 1937 but seventy-eight more than in 1936 and 743 more than in 1935. Physicians were added in Alaska, Hawaii and Puerto Rico in 1938.

TABLE 8.—*Licentiates Representing Additions to the Medical Profession—1938*

	Examination	Reciprocity and Endorsement	Total
Alabama	25	..	25
Arizona	11	..	11
Arkansas	73	..	73
California	361	9	370
Colorado	73	1	74
Connecticut	54	30	84
Delaware	7	..	7
District of Columbia	25	12	37
Florida	34	..	34
Georgia	69	4	73
Idaho	9	..	9
Illinois	456	8	464
Indiana	104	2	106
Iowa	87	3	90
Kansas	87	..	87
Kentucky	79	5	84
Louisiana	153	..	153
Maine	27	1	28
Maryland	218	8	226
Massachusetts	147	76	223
Michigan	193	7	200
Minnesota	155	8	163
Mississippi	32	1	33
Missouri	166	6	172
Montana	3	1	4
Nebraska	84	..	84
Nevada	3	..	3
New Hampshire	13	8	21
New Jersey	234	15	249
New Mexico	2	1	3
New York	1,027	177	1,204
North Carolina	83	4	87
North Dakota	5	2	7
Ohio	345	15	360
Oklahoma	39	..	39
Oregon	42	2	44
[illegible]	438	14	452
[illegible]	16	13	29
[illegible]	39	2	41
[illegible]	2	..	2
Tennessee	178	5	183
Texas	192	35	227
Utah	11	..	11
Vermont	18	4	22
Virginia	124	1	125
Washington	56	7	63
West Virginia	28	..	28
Wisconsin	105	3	108
Wyoming	3	..	3
U. S. Territories and Possessions*	20	7	27
Totals	5,755	497	6,252

* Alaska, Hawaii, Puerto Rico.

Table 9 records the licentiates representing additions to the medical profession grouped in nine geographic divisions in 1938; namely the New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain and Pacific states as well as Alaska, Hawaii and Puerto Rico. The largest number, 1,905, was added to the Middle Atlantic group, the East North Central 1,238, the South Atlantic 658, the West North Central 605, the West South Central 492, the Pacific 477, the New England group of states 407, the East South Central 325, and the Mountain division 118. Thirteen each were added in Hawaii and Puerto Rico and one in Alaska.

TABLE 9.—*Licentiates Representing Additions to the Medical Profession Grouped in Geographic Divisions—1938.*

	Examination	Reciprocity and Endorsement	Total
New England			
Maine	27	1	28
New Hampshire	13	8	21
Vermont	18	4	22
Massachusetts	147	76	223
Rhode Island	16	13	29
Connecticut	54	30	84
	275	132	407
Middle Atlantic			
New York	1,027	177	1,204
New Jersey	234	15	249
Pennsylvania	438	14	452
	1,699	206	1,905
East North Central			
Ohio	345	15	360
Indiana	104	2	106
Illinois	456	8	464
Michigan	193	7	200
Wisconsin	105	3	108
	1,203	35	1,238
West North Central			
Minnesota	155	8	163
Iowa	87	3	90
Missouri	166	6	172
North Dakota	5	2	7
South Dakota	2	..	2
Nebraska	84	..	84
Kansas	87	..	87
	586	19	605
South Atlantic			
Delaware	7	..	7
Maryland	218	8	226
District of Columbia	25	12	37
Virginia	124	1	125
West Virginia	28	..	28
North Carolina	83	4	87
South Carolina	39	2	41
Georgia	69	4	73
Florida	34	..	34
	627	31	658
East South Central			
Kentucky	79	5	84
Tennessee	178	5	183
Alabama	25	..	25
Mississippi	32	1	33
	314	11	325
West South Central			
Arkansas	73	..	73
Louisiana	153	..	153
Oklahoma	39	..	39
Texas	192	35	227
	457	35	492
Mountain			
Montana	3	1	4
Idaho	9	..	9
Wyoming	3	..	3
Colorado	73	1	74
New Mexico	2	1	3
Arizona	11	..	11
Utah	11	..	11
Nevada	3	..	3
	115	3	118
Pacific			
Washington	56	7	63
Oregon	42	2	44
California	361	9	370
	459	18	477
Territories and Possession			
Alaska	..	1	1
Hawaii	8	5	13
Puerto Rico	12	1	13
	20	7	27
Totals	5,755	497	6,252

In table 10 those representing additions to the medical profession are arranged by schools; the same as those examined are listed in table 2, existing approved medical schools in the United States and Canada, foreign faculties of medicine, schools now extinct and unapproved schools and undergraduates.

The 6,252 physicians representing additions to the medical profession included graduates from the sixty-seven approved medical schools of the United States, eight approved schools in Canada, and others. The 119 and by reciprocity or endorsement sixteen. There were 668 graduates of foreign faculties of medicine, two from extinct medical schools and 282 unapproved graduates and undergraduates. Altogether there were 5,755 graduates of all schools examined, 497 by reciprocity or endorsement, a total of 6,252.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION

Since 1918 the minimum requirement of preliminary education exacted by the Council on Medical Edu-

TABLE 10.—*Licentiates Representing Additions to the Medical Profession Classified by Schools, 1938*

School	Examination	Reciprocity and Endorsement	Total
ARKANSAS			
University of Arkansas School of Medicine	80	1	81
CALIFORNIA			
College of Medical Evangelists	83	17	100
Stanford University School of Medicine	67	1	68
University of California Medical School	59	..	59
University of Southern California School of Medicine	43	..	43
COLORADO			
University of Colorado School of Medicine	45	1	46
CONNECTICUT			
Yale University School of Medicine	7	30	37
DISTRICT OF COLUMBIA			
George Washington University School of Medicine	60	4	64
Georgetown University School of Medicine	90	43	133
Howard University College of Medicine	30	1	31
GEORGIA			
Emory University School of Medicine	53	1	54
University of Georgia School of Medicine	34	..	34
ILLINOIS			
Loyola University School of Medicine	107	2	109
Northwestern University Medical School	129	4	133
University of Chicago, Rush Medical College	142	4	146
University of Chicago, The School of Medicine of the Division of Biological Sciences	36	2	38
University of Illinois College of Medicine	150	2	152
INDIANA			
Indiana University School of Medicine	86	..	86
IOWA			
State University of Iowa College of Medicine	90	..	90
KANSAS			
University of Kansas School of Medicine	67	1	68
KENTUCKY			
University of Louisville School of Medicine	95	5	100
LOUISIANA			
Louisiana State University Medical Center	57	..	57
Tulane University of Louisiana School of Medicine	117	2	119
MARYLAND			
Johns Hopkins University School of Medicine	81	6	87
University of Maryland School of Medicine and College of Physicians and Surgeons	98	2	100
MASSACHUSETTS			
Boston University School of Medicine	20	21	41
Harvard Medical School	76	55	131
Tufts College Medical School	61	37	98
MICHIGAN			
University of Michigan Medical School	93	2	95
Wayne University College of Medicine	79	..	79
MINNESOTA			
University of Minnesota Medical School	121	5	126
MISSOURI			
St. Louis University School of Medicine	104	5	109
Washington University School of Medicine	87	6	93
NEBRASKA			
Creighton University School of Medicine	63	1	64
University of Nebraska College of Medicine	79	2	81
NEW YORK			
Albany Medical College	20	5	25
Columbia University College of Phys. and Surgs.	78	12	90
Cornell University Medical College	56	17	73
Long Island College of Medicine	74	6	80
New York Medical College and Flower Hospital	27	38	65
New York University College of Medicine	115	9	124
Syracuse University College of Medicine	36	3	39
University of Buffalo School of Medicine	47	3	50
University of Rochester School of Medicine	42	..	42
NORTH CAROLINA			
Duke University School of Medicine	14	19	33
OHIO			
Ohio State University College of Medicine	92	..	92
University of Cincinnati College of Medicine	67	..	67
Western Reserve University School of Medicine	62	1	63
OKLAHOMA			
University of Oklahoma School of Medicine	53	..	53
OREGON			
University of Oregon Medical School	55	1	56
PENNSYLVANIA			
Hahnemann Medical College and Hospital of Phila.	123	1	124
Jefferson Medical College of Philadelphia	142	3	145
Temple University School of Medicine	103	2	105
University of Pennsylvania School of Medicine	131	7	138
University of Pittsburgh School of Medicine	60	..	60
Woman's Medical College of Pennsylvania	24	3	27
SOUTH CAROLINA			
Medical College of the State of South Carolina	41	1	42
TENNESSEE			
Meharry Medical College	37	..	37
University of Ten[illegible]	92	..	92
Vanderbilt Univer[illegible]	53	2	55
TEXAS			
Baylor University College of Medicine	80	..	80
University of Texas School of Medicine	78	..	78
VERMONT			
University of Vermont College of Medicine	25	13	38
VIRGINIA			
Medical College of Virginia	81	1	82
University of Virginia Department of Medicine	33	..	33
WISCONSIN			
Marquette University School of Medicine	57	3	60
University of Wisconsin Medical School	45	..	45
CANADA			
Dalhousie University Faculty of Medicine	13	2	15
Laval University Faculty of Medicine	..	..	..
McGill University Faculty of Medicine	49	9	58
Queen's University Faculty of Medicine	17	..	17
University of Alberta Faculty of Medicine	2	..	2
University of Manitoba Faculty of Medicine	8	..	8
University of Montreal Faculty of Medicine	3	2	5
University of Toronto Faculty of Medicine	21	3	24
University of Western Ontario Medical School	6	..	6
Foreign Medical Faculties	638	30	668
Extinct Medical Faculties	1	1	2
Unapproved Schools and Undergraduates	245	37	282
Totals	5,755	497	6,252

greatest numbers from any one school were 152 from the University of Illinois College of Medicine, 146 from Rush Medical College and 145 from Jefferson Medical College. Of the United States schools the Albany Medical College had the fewest, twenty-five, while only two were represented from the University of Alberta Faculty of Medicine. McGill University Faculty of Medicine added fifty-eight of its graduates to the physician population of the United States. From the United States schools there were 4,752 graduates added to the profession by examination and 413 by reciprocity or endorsement of credentials, a total of 5,165. From the Canadian schools 135 were added, by examination

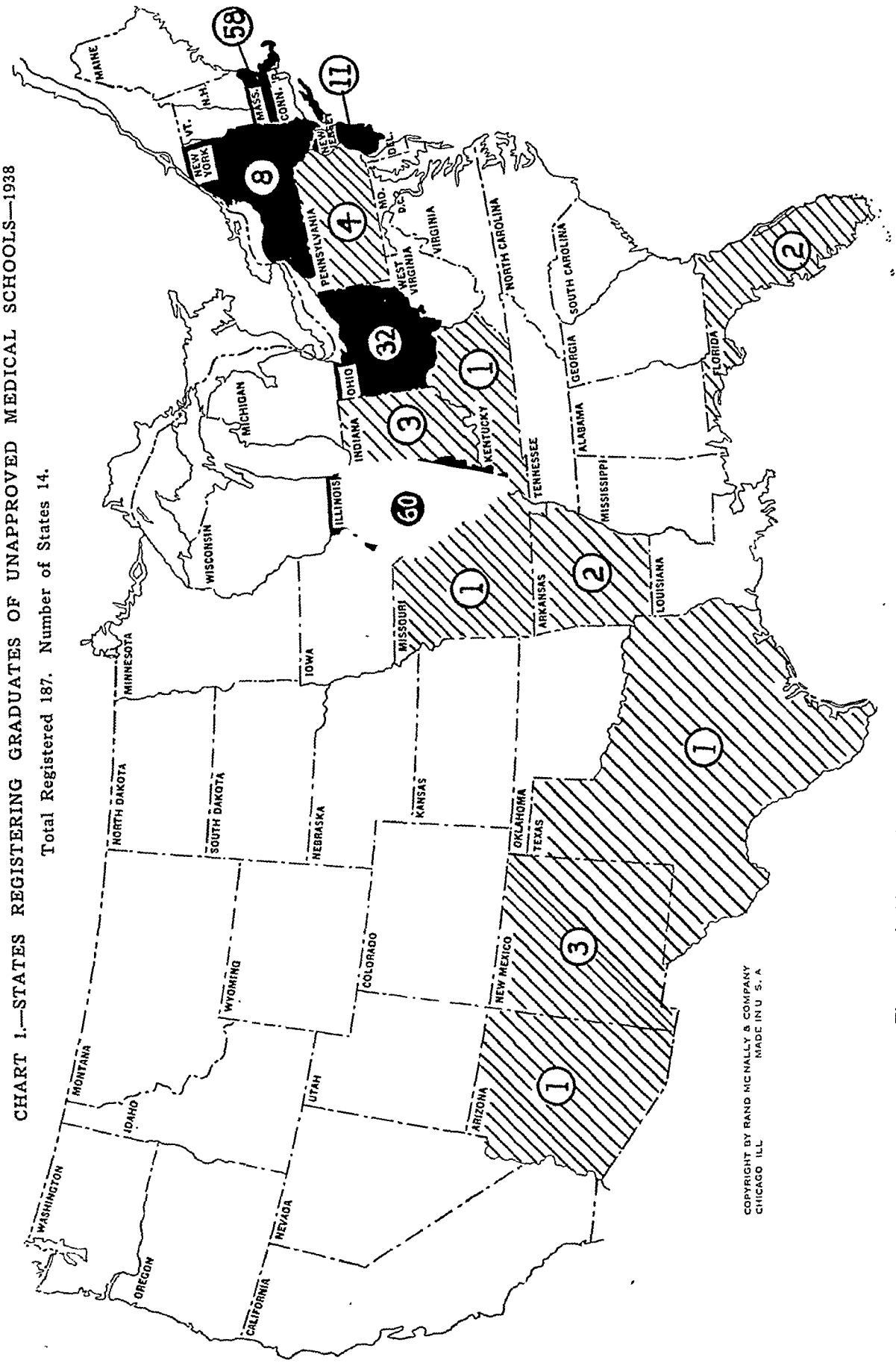
cation and Hospitals in its Essentials of an Acceptable Medical School has been two years of college work. Six states, however, have not yet revised or amended their statutes to conform with these prerequisites, although with one exception these states do not as a rule license other than graduates of approved schools (table 11).

REQUIRED HOSPITAL INTERNSHIPS

The medical schools and licensing boards requiring or planning to require a hospital internship for state licensure and the M.D. degree, respectively, are shown in tables 12 and 13. The effective date of the requirement is also shown in table 13.

CHART 1.—STATES REGISTERING GRADUATES OF UNAPPROVED MEDICAL SCHOOLS—1938

Total Registered 187. Number of States 14.



The states in black registered more than 5 such candidates, those shaded 5 or less.

As revealed in table 12, twenty-one states, the District of Columbia, Alaska, and Puerto Rico require that all applicants for licensure possess a hospital internship. The first state exacting this requirement was Pennsylvania in 1914. The requirement in Alabama and Louisiana became effective in 1939. In addition, other states require the internship of graduates of medical faculties abroad and reciprocity or endorsement applicants. These data are found in tables 6 and 20.

TABLE 11.—*State Requirements of Preliminary Training*

Two Years of College		
Alabama	Maine	Oregon
Arizona	Maryland	Pennsylvan'a
Arkansas	Michigan	Rhode Island
Colorado	Minnesota	South Carolina
Delaware	Mississippi	South Dakota
District of Columbia	Montana	Tennessee
Florida	Nevada	Texas
Georgia	New Hampshire	Utah
Idaho	New Jersey	Vermont
Illinois	New Mexico	Virginia
Indiana	New York	Washington
Iowa	North Carolina	West Virgin a
Kansas	North Dakota	Wisconsin
Kentucky	Oklahoma	Wyoming
Louisiana		
One Year of College		
California		Connecticut
High School Graduation or Its Equivalent		
Massachusetts	Missouri	Nebraska	Ohio

TABLE 12.—*Internship Required by Medical Licensing Boards of All Candidates* *

Alabama	Michigan	Rhode Island
Alaska	New Hampshire	South Dakota
Delaware	New Jersey	Utah
District of Columbia	North Dakota	Vermont
Idaho	Oklahoma	Washington
Illinois	Oregon	West Virginia
Iowa	Pennsylvania	Wisconsin
Louisiana	Puerto Rico	Wyoming

* In addition some states require the internship of graduates of medical faculties abroad and reciprocity or endorsement applicants. See tables 6 and 20.

TABLE 13.—*Internship Required by Medical Schools*

	Effective Date
University of California Medical School	1919
College of Medical Evangelists	1927
University of Southern California School of Medicine	1933
Stanford University School of Medicine	1919
Loyola University School of Medicine	1922
Northwestern University Medical School	1920
University of Illinois College of Medicine	1922
Louisiana State University Medical Center	1934
Wayne University College of Medicine	1924
University of Minnesota Medical School	1915
Duke University School of Medicine*	1932
University of Cincinnati College of Medicine	1926
Marquette University School of Medicine	1920
Canada	
University of Manitoba Faculty of Medicine	
Dalhousie University Faculty of Medicine	
McGill University Faculty of Medicine	
University of Montreal Faculty of Medicine	

* Requires a two year internship

CANDIDATES EXAMINED FROM 1934 TO 1938 INCLUSIVE

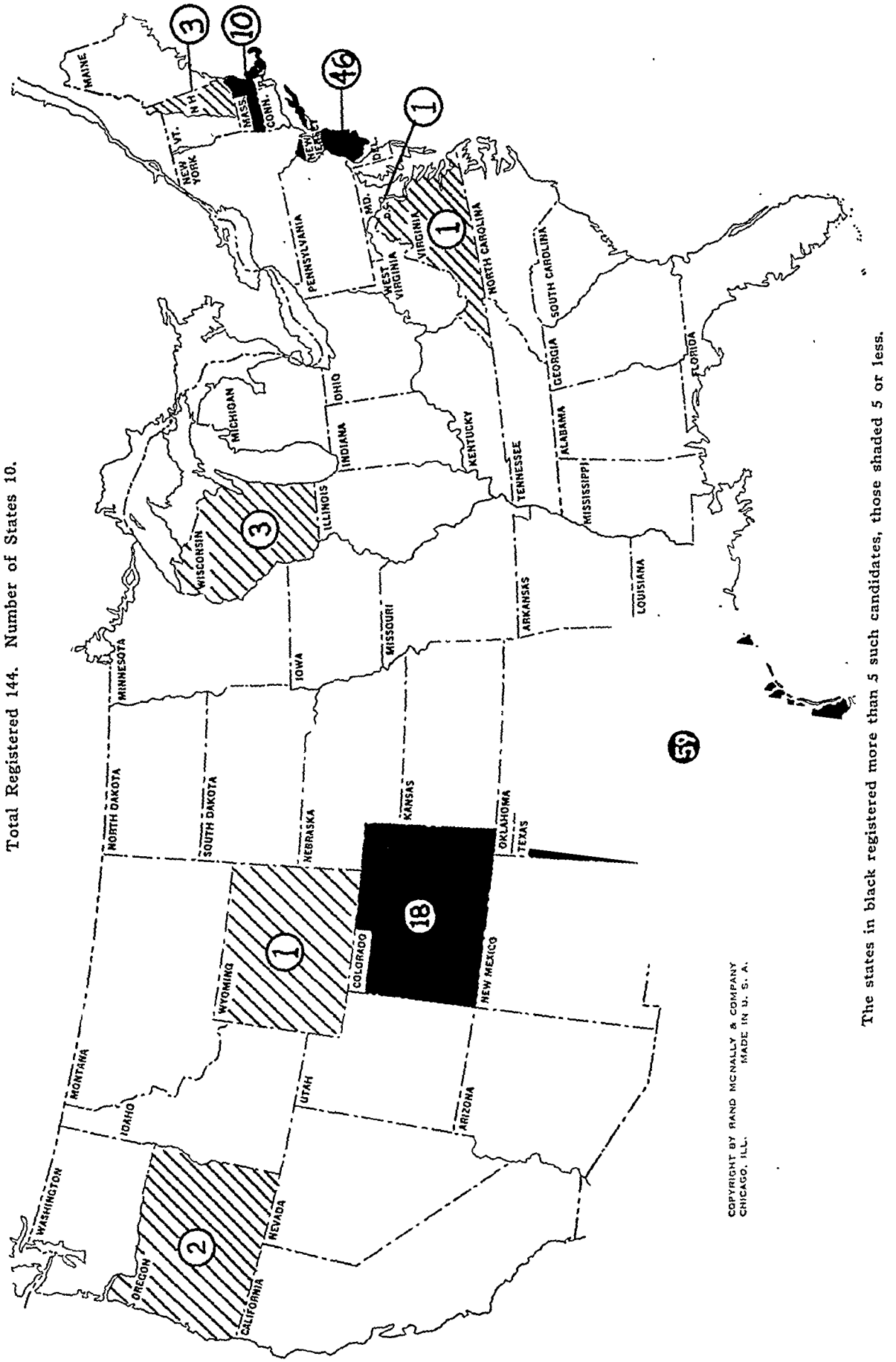
In table 14 are listed the number of candidates examined in the various states, territories and possessions in the last five years, 1934-1938 inclusive, showing those who passed and failed. In this period New York licensed 4,793 candidates, Pennsylvania 2,511, Illinois 2,240, California 1,751, Ohio 1,557, Massachusetts 1,214, Michigan 1,143, New Jersey 1,056 and Maryland 1,036. Thirty-one states licensed less than 500 and eleven less than 100. The smallest number (nine) were examined in New Mexico. The percentage of candidates who failed in the examinations in the past five years is given in the last column. The percentage of failures in all states has increased from 8.4 in 1934 to 11.7 in 1938. In the five year period, 47.2 per cent of the applicants failed in Massachusetts. The high percentage in this state is due to the fact that by law the licensing board is required to admit to its examination the graduates of unapproved schools, many of whom repeatedly fail. Connecticut had 21.6 per cent failures in five years and Florida 19.7 per cent. The third highest proportion of failures was in New York with 21.3 per cent. The comparatively high percentage in this state is occasioned by the fact that New York admits a great many graduates of foreign medical schools to its licensing examination. Florida has no reciprocal relations with any state, all candidates applying being required to take the licensing examination. Graduates of earlier years experience difficulty in passing examinations. On the other hand, Arkansas, Nebraska, New Hampshire, New Mexico, North Carolina, Oklahoma and Oregon—seven states

TABLE 14.—*Candidates Examined—1934-1938, Inclusive*

	1934		1935		1936		1937		1938		Totals for Five Years		
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Percentage Failed
Alabama	20	0	37	0	23	4	26	1	29	0	135	5	3 6
Arizona	7	2	8	2	20	9	14	2	15	0	70	15	17 6
Arkansas	53	0	42	0	46	0	48	0	72	0	261	0	0 0
California	303	16	328	14	369	18	349	20	402	15	1,751	83	4 5
Colorado	66	2	59	1	79	1	76	3	78	3	358	10	2 7
Connecticut	70	12	63	13	76	30	80	21	73	24	362	100	21 6
Delaware	14	7	13	5	17	0	14	2	14	0	72	14	16 3
Dist. Columbia	50	1	43	1	32	1	41	0	33	0	199	3	1 5
Florida	105	27	135	24	154	44	164	38	153	41	711	174	19.7
Georgia	80	0	88	2	89	0	83	0	72	0	412	2	0 5
Idaho	13	0	7	1	13	0	20	0	28	0	81	1	1 2
Illinois	368	13	423	10	471	6	488	5	490	12	2,240	46	2 0
Indiana	143	4	115	4	118	0	123	2	108	1	607	11	1 8
Iowa	100	0	77	1	103	0	88	0	95	11	463	12	2 5
Kansas	98	0	95	0	96	0	82	0	93	1	464	1	0 2
Kentucky	80	2	81	0	84	0	81	1	81	1	407	4	1 0
Louisiana	122	0	134	0	133	1	173	1	184	2	746	4	0 5
Maine	35	0	45	1	53	0	58	2	39	7	230	10	4 2
Maryland	204	17	194	28	202	34	209	27	227	38	1,036	144	12 2
Massachusetts	236	170	199	239	271	239	301	219	207	220	1,214	1,087	47 2
Michigan	225	2	244	1	238	0	211	1	225	1	1,143	5	0 4
Minnesota	139	0	173	0	191	1	219	0	219	2	961	3	0 3
Mississippi	28	1	30	1	22	4	22	2	31	1	133	9	6 3
Missouri	186	2	214	8	202	3	168	12	174	3	944	28	2 9
Montana	9	0	8	0	15	0	4	1	11	0	47	1	2 1
Nebraska	86	0	90	0	75	0	79	0	85	0	415	0	0 0
Nevada	5	0	8	1	9	0	5	0	5	0	18	1	5 3
New Hampshire	6	0	4	0	24	0	17	0	16	0	67	0	0 0
New Jersey	175	10	182	5	168	6	250	33	281	53	1,056	107	9 2
New Mexico	1	0	1	0	3	0	2	0	2	0	9	0	0 0
New York	834	193	879	195	932	249	1,070	291	1,078	372	4,793	1,300	21 3
North Carolina	75	0	65	0	64	0	83	0	85	0	372	0	0 0
North Dakota	12	1	14	1	14	0	13	0	15	2	68	4	5 6
Ohio	261	6	295	3	312	2	347	5	342	11	1,557	27	1 7
Oklahoma	73	0	62	0	70	0	49	0	46	0	300	0	0 0
Oregon	28	0	55	0	48	0	58	0	53	0	242	0	0 0
Pennsylvania	466	10	464	6	541	1	528	4	512	9	2,511	30	1 2
Rhode Island	84	3	53	4	22	7	38	7	26	1	173	22	11.3
South Carolina	46	0	49	0	92	0	46	1	39	1	212	2	0 9
South Dakota	10	0	20	0	15	0	17	2	8	0	70	2	2 8
Tennessee	173	0	181	1	178	1	207	1	179	3	918	6	0 7
Texas	165	2	188	4	178	19	181	19	200	26	912	70	7 1
Utah	20	0	20	1	23	0	10	0	12	0	85	1	1 2
Vermont	30	0	26	0	38	0	26	0	26	1	146	1	0 7
Virginia	132	4	109	1	110	0	150	2	127	0	628	7	1 1
Washington	45	0	44	0	58	1	57	0	72	0	276	1	0 4
West Virginia	25	0	38	0	39	0	60	1	65	1	247	2	0 8
Wisconsin	118	4	111	0	111	1	118	0	114	0	572	5	0 9
Wyoming	1	1	3	0	1	0	2	1	7	0	14	2	12 5
U. S. Terr. and Possessions	29	4	40	6	21	12	39	4	34	9	163	35	17 7
Total examined	6,140		6,435		6,914		7,325		7,454		34,268		
Passed	5,624		5,851		6,220		6,594		6,582		30,871		
Failed	516		584		694		731		872		3,397		
Percentage failed	8 4		9 1		10 0		10 0		11.7		9 9		

CHART 2.—MEDICAL LICENSING BOARDS REGISTERING OSTEOPATHS TO PRACTICE MEDICINE, SURGERY OR BOTH—1938

Total Registered 144. Number of States 10.



The states in black registered more than 5 such candidates, those shaded 5 or less.

—had no failures Alabama, California, Colorado, the District of Columbia, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Missouri, Montana, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, West Virginia and Wisconsin—twenty-eight states—had less than 5 per cent of failures A total of 34,268 candidates were examined in the five years from 1934 to 1938 inclusive, of whom 30,871 passed and 3,397 failed, 9 9 per cent. These figures represent examinations given and not individuals A candidate who fails more than once in a given year is counted as only one failure, but should he fail in one of the succeeding years in another state he is counted in that year also Likewise, if a candidate fails and later passes, whether in the same or a later year, he is counted as failed and passed With a total of 3,397 failures for the five year period, it seems likely that there were approximately 30,000 individuals

TABLE 15.—*Registration—1904-1938*

Year	All Candidates Examined			Registered Without Written Examination	Total Registered
	Examined	Passed	Percentage Failed		
1904	7,035	5,692	19 3	1,004	6,696
1905	7,178	5,688	20 8	394	6,082
1906	8,038	6,371	20 7	1,502	7,873
1907	7,278	5,730	21 3	1,427	7,157
1908	7,775	6,089	21 7	1,284	7,373
1909	7,235	5,860	19 6	1,381	7,246
1910	7,009	5,717	18 4	1,640	7,357
1911	6 964	5,582	19 8	1,243	6,8 5
1912	6 880	5,467	20 5	1,272	6,739
1913	6,402	5,252	18 6	1,292	6,544
1914	5,579	4,379	21 5	1,439	5,818
1915	5 334	4,507	15 5	1,399	5,906
1916	4 8 6	4,149	14 9	1,353	5,502
1917	4,753	4,084	14 1	1,360	5,444
1918	3,666	3,183	13 2	1,047	4,230
1919	4,750	4,074	14 2	2,545	6,619
1920	4,795	4,061	15 3	2,558	6 619
1921	4,824	4,227	12 4	2,185	6,412
1922	4,031	3,539	12 2	2,073	5,612
1923	4,726	4,027	14 8	2,403	6,430
1924	5,390	4,754	11 8	1,918	6 672
1925	5,999	5,447	9 2	1,860	7,307
1926	5,766	5,310	7 9	1,951	7,261
1927	5,382	4 995	7 2	2,174	7,169
1928	5,452	5,084	6 8	2 227	7,311
1929	5,627	5,280	6 2	2,419	7,699
1930	5,563	5,247	5 7	2,366	7,613
1931	5,608	5,260	6 2	2 212	7,472
1932	5,666	5 238	7 6	1,884	7,122
1933	5,670	5,241	7 6	1,989	7,230
1934	6,140	5,624	8 4	2,160	7,784
1935	6,435	5,891	9 1	2,195	8,046
1936	6 914	6,220	10 0	2,764	8 984
1937	7,325	6,594	10 0	3,186	9,780
1938	7,454	6,582	11 7	2,945	9,527

examined. It is to be assumed that the majority of those who fail are later reexamined and licensed in some state This figure gives a fair estimate of the number of physicians added to the profession each year. On page 1710 will be found exact totals for several years

REGISTRATION 1904 1938

A study of totals and percentages for thirty-five years (1904-1938) is presented in table 15 The number (6,582) who passed in 1938 was twelve less than in 1937 but 362 more than in 1936 and 890 more than in 1904 The number registered without examination, 2,945, was 241 less than in 1937 However, contrasting these figures with those for 1904 will show the great use being made of this system of licensure By both methods, examination and endorsement of credentials, 9,527 were registered, 253 less than in 1937. The number registered in 1937, 9,780, represented the largest number of candidates registered in thirty-five years Of those examined in 1938, 11 7 per cent failed as compared with 21 7 per cent in 1908 The failures in recent years represent to a large extent graduates of unapproved schools and foreign faculties. They are responsible also for the increase in the percentage of failures in 1938 as compared with the last four or five years.

While these figures represent those registered in the years given, they do not in all states represent the number licensed in a given year. Licenses are withheld in many states, as indicated in the text describing table 1.

TABLE 16.—*Graduates of Approved Schools and Others Registered 1922-1938*

Year	Graduates of Approved Schools		Others		Totals
	Number	Per Cent	Number	Per Cent	
1922	4,519	80 5	1,093	19 5	5,612
1923	5,196	80 8	1,234	19 2	6,430
1924	5 685	85 2	987	14 8	6,672
1925	6,313	86 4	994	13 6	7,307
1926	6,438	88 7	823	11 3	7,261
1927	6,410	89 4	759	10 6	7,169
1928	6,584	90 1	727	9 9	7,311
1929	7,002	91 0	697	9 0	7,699
1930	7 011	92 1	602	7 9	7,613
1931	6,931	92 8	541	7 2	7,472
1932	6,675	93 7	447	6 3	7,122
1933	6,774	93 7	456	6 3	7,230
1934	7,170	92 1	614	7 9	7,784
1935	7,362	91 5	684	8 5	8,046
1936	7,922	88 2	1,062	11 8	8 984
1937	8,371	85 6	1,409	14 4	9,780
1938	8 300	87 1	1,227	12 9	9,527

There appears to be no marked increase or decrease in the total number of candidates registered from 1904 to 1933, but from 1934 to 1937 the number registered has been markedly increasing although there was a decrease in 1938 of 253 as compared with 1937. However, the number licensed without examination since 1906 has been increasing, owing to the almost universal recognition of the certificate of the National Board of Medical Examiners The decrease in the number registered in 1918 was due to the sudden withdrawal of physicians and recent graduates from civilian life Again in 1922 there was a notable reduction, this figure resulting from the small number that began the study of medicine in 1918

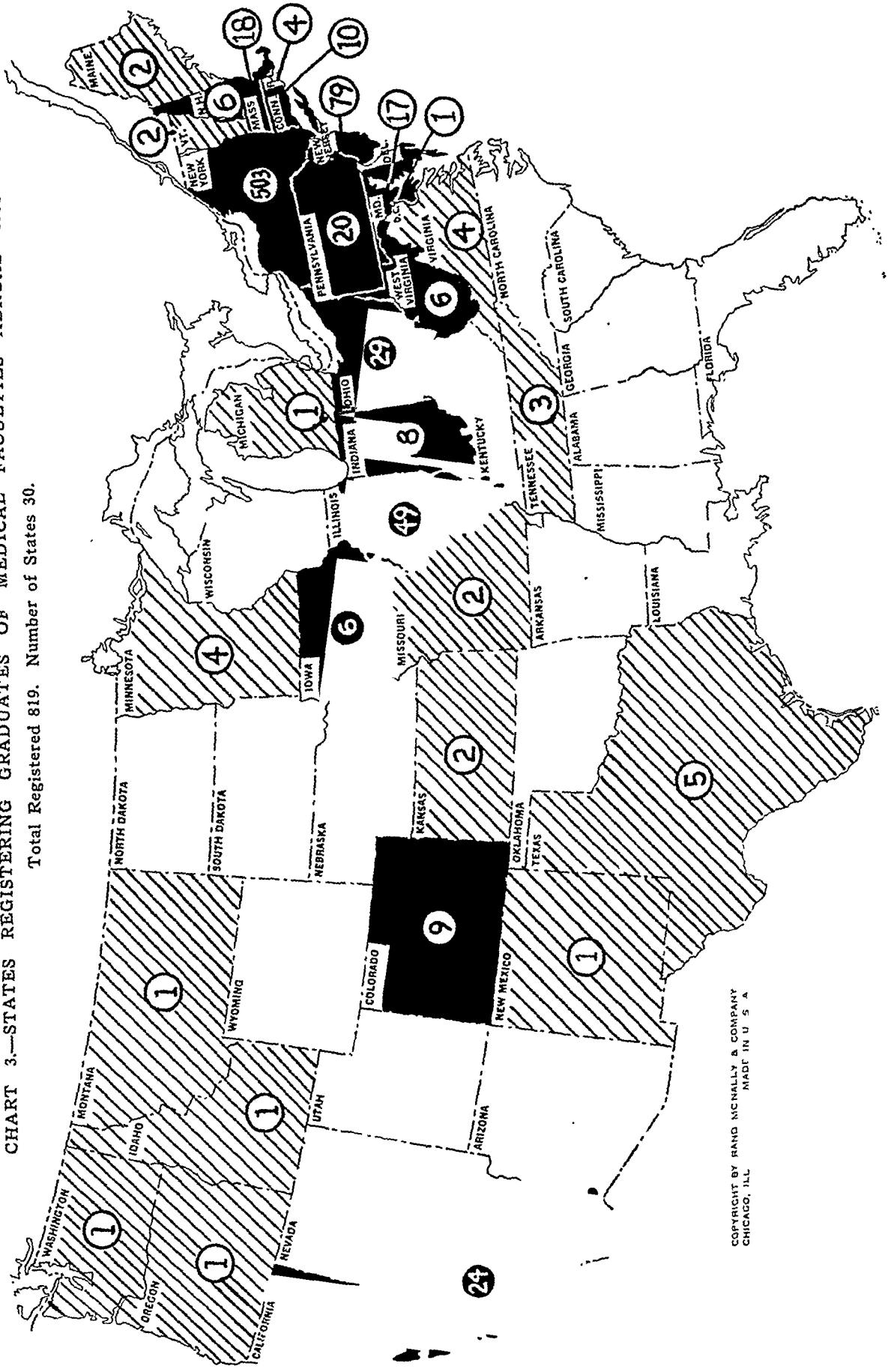
TABLE 17.—*Graduates of Unapproved Medical Schools Registered—1934-1938*

	Examination					Reciprocity and Endorsement					Total
	1934	1935	1936	1937	1938	1934	1935	1936	1937	1938	
Arizona	0	0	0	2	1	0	0	0	0	0	3
Arkansas	1	0	0	0	1	0	0	0	0	1	3
California	1	1	0	0	0	0	2	0	0	0	4
Florida	1	1	1	2	2	0	0	0	0	0	7
Idaho	0	0	0	0	0	1	0	0	0	0	1
Illinois	33	67	84	82	60	0	0	0	0	0	326
Indiana	0	1	0	0	0	0	0	0	0	3	4
Kansas	1	0	0	0	0	0	0	0	0	0	1
Kentucky	1	1	0	0	0	0	0	2	2	1	7
Massachusetts	54	26	77	96	58	0	0	0	0	0	311
Mississippi	1	0	0	0	0	1	0	0	0	0	2
Missouri	0	0	0	0	0	0	2	0	0	1	3
Nebraska	0	0	0	0	0	0	0	0	1	0	1
New Jersey	0	0	5	1	7	4	0	1	2	4	24
New Mexico	0	0	1	0	1	0	2	1	0	2	7
New York	0	0	0	0	0	0	0	13	14	8	35
North Carolina	0	0	1	2	0	0	0	0	0	0	3
North Dakota	0	0	0	0	0	0	1	0	0	0	1
Ohio	0	16	31	23	32	1	0	0	0	0	103
Oklahoma	0	1	0	0	0	0	0	0	0	0	1
Pennsylvania	0	0	0	1	4	0	0	0	0	0	5
Rhode Island	0	1	0	0	0	0	0	0	0	0	1
South Dakota	0	1	0	0	0	0	0	0	0	0	1
Texas	0	0	0	0	1	2	0	0	3	0	6
Virginia	0	0	0	1	0	0	0	0	0	0	1
Wisconsin	0	0	0	0	0	0	0	1	0	0	1
Alaska and Hawaii	1	0	1	1	0	0	0	1	0	0	4
Totals	94	116	231	211	167	9	7	19	22	20	567

There was a decrease of twelve in the number registered by examination in 1938 and a larger decrease in the number registered by reciprocity or endorsement The graduating class of 1938 of medical schools in the United States was 183 fewer than that for 1937, which

CHART 3.—STATES REGISTERING GRADUATES OF MEDICAL FACULTIES ABROAD—1938

Total Registered 819. Number of States 30.



The states in black registered more than 5 such candidates, those shaded 5 or less.

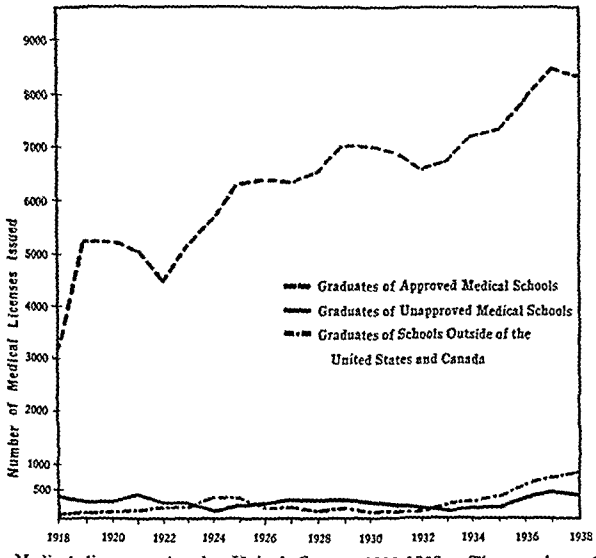
was 5,377 and may account for the decrease. It may also be due to the fact that several of the states are proceeding with more caution in the licensure of graduates of foreign credentials exacting additional requirements, such as an internship or further training in a medical school in the United States, in order to test their fitness for the practice of medicine in this country. It was also anticipated that the number of those registered to practice medicine and surgery would decrease,

TABLE 18.—*Graduates of Schools of Osteopathy Registered by Medical Examining Boards—1934-1938*

	Examination					Reciprocity and Endorsement					
	1934	1935	1936	1937	1938	1934	1935	1936	1937	1938	Total
Colorado	10	13	16	19	18	0	0	0	0	0	76
Connecticut	1	0	1	1	0	0	0	0	0	0	3
Dist. of Columbia	0	0	0	0	1	1	0	0	0	0	2
Massachusetts	21	5	12	18	10	0	0	0	0	0	66
New Hampshire	0	0	1	4	2	0	0	0	2	1	10
New Jersey	0	2	0	52	46	0	0	0	0	0	100
Oregon	0	0	1	1	1	0	0	2	0	1	6
Texas	7	7	11	17	22	17	13	34	72	37	237
Virginia	2	4	4	2	1	0	1	0	0	0	14
Wisconsin	2	0	3	1	0	3	0	5	2	3	19
Wyoming	0	0	0	0	0	1	2	4	4	1	12
Totals	43	31	49	115	101	22	16	45	80	43	545

as there has been a reduction in medical school enrolments in recent years. In seventy-seven schools in the United States there were 22,888 students enrolled in 1935, 22,564 in 1936, 22,095 in 1937 and 21,587 in 1938. Classes in subsequent years in many cases will be further reduced.

The percentage of failures in 1938 was 11.7, the highest percentage since 1924, when 11.8 per cent failed. This increase is largely the result of the failure of many



Medical licensure in the United States, 1918-1938. The number of medical licenses issued includes duplicate registration.

of the graduates of unapproved schools and osteopaths granted medical privileges to pass the test on the first try. This is further outlined in subsequent tables.

SOURCE OF PHYSICIANS REGISTERED

The educational fitness of the individuals registered in seventeen years, 1922-1938, is shown in table 16. Of the 9,527 registered by all methods in 1938, 8,300, or 87.1 per cent, graduated from approved medical schools and there were 1,227, 12.9 per cent, other practitioners registered. In the computation of these figures, all schools rated as class A and B by the Council on Medical Education and Hospitals since 1907 are classified as approved. In the column "Others" are included graduates of institutions prior to 1907 of foreign faculties of medicine, class C graduates, undergraduates, osteopaths and graduates of schools that have been refused all recognition as medical schools.

Of the 9,527 graduates registered in 1938, 6,582 were registered after examination and 2,945 by endorsement. There were 5,446 graduates of approved medical schools in the United States, 148 graduates of approved Canadian medical schools registered and 988 others. Likewise among those registered by endorsement there were 2,668 graduates of approved medical schools in the United States and forty-six graduates of approved medical schools in Canada and 231 others.

LICENSURE OF PHYSICIANS 1918-1938

In graphic form are here presented data regarding the licensure of physicians in twenty-one years. Three significant curves are shown; namely, graduates of approved medical schools, graduates of unapproved medical schools and graduates of foreign medical faculties. The number of approved graduates in the period shown has always been in the bracket above 3,000, while in the other groups it has until recent years been below 500. The number of unapproved graduates is gradually decreasing, although the number licensed with foreign credentials is increasing.

GRADUATES OF UNAPPROVED MEDICAL SCHOOLS REGISTERED

In table 17 will be noted the total number of graduates of those institutions which do not meet the standards for approval outlined by the House of Delegates of the American Medical Association who were registered with or without examination from 1934 to 1938.

Fourteen states registered 187 such graduates in 1938, 167 by examination and twenty without examination. The number decreased by forty-six the number registered in 1937. One each was licensed in Arizona, Kentucky, Missouri and Texas. One undergraduate was licensed in 1938 in New Jersey.

In the five year period shown, 866 graduates of unapproved schools and undergraduates were registered, 789 by examination and seventy-seven by reciprocity.

Chart 1, on page 1712, indicates by shaded lines those registering fewer than six graduates of unapproved medical schools and by a solid area those registering more than five such candidates during 1938.

MEDICAL EXAMINING BOARDS REGISTERING OSTEOPATHS TO PRACTICE MEDICINE, SURGERY OR BOTH

In table 18 are given the number of graduates of schools of osteopathy registered with or without examination by medical examining boards from 1934 to 1938 inclusive.

In 1938 ten states registered such individuals, 101 by examination and forty-three by endorsement of credentials. These osteopaths were registered in Colorado, the District of Columbia, Massachusetts, New Hampshire, New Jersey, Oregon, Texas, Virginia, Wisconsin and Wyoming and were granted the right to practice medicine, surgery or both by the board of medical examiners. These facts for 1938 are shown graphically in chart 2, on page 1714.

In the five year period 1934-1938, 545 graduates of osteopathic schools were registered in eleven states.

In Colorado osteopaths are admitted to the examination for a license to practice medicine. They have no

(CONTINUED ON PAGE 1720)

TABLE 19.—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada—1938*

| Marginal Number | | 1 California | | 2 Colorado | | 3 Connecticut | | 4 Idaho | | 5 Illinois | | 6 Indiana | | 7 Iowa | | 8 Kansas | | 9 Maine | | 10 Maryland | | 11 Massachusetts | | 12 Michigan | | 13 Minnesota | | 14 Missouri | | 15 New Hampshire | | 16 New Jersey | | 17 New York | | 18 Ohio | | 19 Oregon | | 20 Pennsylvania | | 21 Rhode Island | | 22 Tennessee | | 23 Texas | | 24 Virginia | | 25 Washington | | 26 West Virginia | | 27 Hawaii, Puerto Rico | | Totals | Examined—Passed | Examined—Failed | Percentage—Failed | No. of Boards Examined by | Marginal Number |
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| | | |

(CONTINUED FROM PAGE 1717)

separate board. The statute of Colorado is silent with respect to the scope of practice authorized by a license issued to osteopaths.

TABLE 20.—*Requirements of Candidates for Medical Licensure on the Basis of Credentials Obtained in Countries Other Than the United States and Canada*

	Admitted by Examination	Admitted by Endorsement of State License*	Citizenship	Basic Science Certificate	Internship	Further Medical Training	Examination Fee, Dollars	Other Requirements
Alabama	+	.	+	..	—	..	10	1
Arkansas (regular board)	Not accepted							
California	+	..	..		+[2]	+[2]	25	.
Colorado	+	..	1st P	+	..	..	25[4]	3
Connecticut (regular board)	+		1st P	+	.	.	25	.
Delaware (regular board)	+	+	+	..	+	..	25	5
District of Columbia	+	+[6]	..	+	+	..	25	..
Florida	+	.	+	..	..	+[7]	25	..
Georgia	+	..	+	..	..	+[7]	20	.
Idaho	+		+[8]	..	+	..	25	
Illinois	+	..	..	..	+	..	10	.
Indiana	+	+	+[9]	.	..	+[7]	25	
Iowa	+[10]	.	+	+	+[2]	+[2]	25	
Kansas	+	..	+	..	+	..	25	11
Kentucky	.	+[12]	+	..	+	..	..	
Louisiana	Not accepted							
Maine	+	..	1st P	.	+	..	25	11
Maryland (regular board)	+	..	1st P	.		..	25	11
"	+	..	"			..	25	.
"	+	+	+	.	+	+[7]	35	
"	+	+	+	+		.	20	11
Mississippi	+	+	1st P			.	10	.
Missouri	+	+	+	.	+		15	
Montana	+	+	+	.	.	..	50	..
Nebraska	+	+	+	+		.	25	
Nevada	Not accepted							
New Hampshire	+	+	..	.	+	.	20	.
New Mexico	Not accepted							
New York	+	+	1st P	.		.	25	.
North Carolina	Not accepted							
North Dakota	+	.	.	..	+	..	..	11
Ohio	+[10]	+	1st P	..	+[13]	+[13]	25	11
Oklahoma	Not accepted							
Oregon	+	..	1st P	+	+[2]	+-	25	
Pennsylvania	+	.	1st P	.	+	..	25	11
Rhode Island	+	.	1st P	..	+[14]	..	20	.
South Carolina	Not accepted							
South Dakota	+	+	1st P	+[15]	+	.	20	..
Tennessee	Not accepted							
Texas	+	+	+		.	.	25	.
Utah	..	+[12]	1st P		+	.		.
Vermont	+[10]	+			+		20	.
"	+	..	1st P			.	25	..
"	+	.	1st P	+	+	+[7]	.	.
	Not accepted							
Wisconsin	Not accepted							
Wyoming	Not accepted							

Compilation of data furnished by state examining boards. This information is not guaranteed as there may have been changes of which this office has not been advised. For an authentic statement write directly to the medical board.

* Refer to chart of "Reciprocity and Endorsement Policies" for further data

Reports from Arizona and New Jersey were not received

1. Certificate of National Board of Medical Examiners and licensure in country in which school of graduation is located
2. Internship or one year in medical school in United States.
3. Certificate of National Board of Medical Examiners
4. For graduates of last five years; if more than five years $50.
5. Residence of one year in Delaware
6. Provided similar privileges are accorded licentiates of District of Columbia by licensing agency of the jurisdiction from which the applicant comes
7. Senior year in Class A medical school in United States
8. Effective in May 1939
9. Reciprocity applicants only.
10. Application must be filed six months prior to date of examination
11. Licensed to practice medicine and surgery in country in which school of graduation is located
12. Diplomates of National Board of Medical Examiners eligible for licensure only.
13. At the discretion of the board.
14. Internship and one year graduate work.
15. After July 1, 1939
16. Applicants from schools in England and Scotland only

In most states all foreign credentials must be visaed by the American consul.

The Connecticut statute provides that any registered osteopath may practice either medicine, surgery or both, as the case may be, after passing a satisfactory examination before the medical examining board.

The Massachusetts statute, by definition, includes *osteopathy in the practice of medicine and does not* differentiate the type of license issued to an osteopathic applicant. The medical practice act requires that any applicant for license to practice must be in possession of a degree of doctor of medicine, or its equivalent, from a legally chartered medical school that gives a full four year course of instruction of not less than thirty-two weeks in each year.

In New Hampshire osteopaths are granted the right to practice medicine and surgery by the Board of Registration in Medicine.

Osteopaths who are duly registered and licensed to practice osteopathy in the state of New Jersey, who present three years of practice of surgery in a hospital approved by the Board of Medical Examiners, may be admitted to the examination to be licensed to practice medicine and surgery.

The statutes of Texas provide for the issuing of a license to practice medicine only. So far as the statutes indicate, the osteopaths are not restricted in their field of practice.

In the District of Columbia, Oregon, Virginia, Wisconsin and Wyoming, osteopaths are granted the right to practice surgery.

TABLE 21.—*Annual Registration*

Arkansas (Eclectic Board only)	Minnesota
California	Nebraska
Colorado	Nevada
Connecticut	New York
Florida	North Dakota
Georgia	Oregon
Idaho	Pennsylvania
Iowa	Texas
Kansas	Utah
Louisiana	Wyoming

Four states—Alabama, Delaware, Mississippi and North Carolina—require physicians to pay annually an occupational or commercial tax. The fee for this registration is generally $2

ANNUAL REGISTRATION

Twenty states, as shown in table 21, require that all physicians licensed register annually, whether or not they reside in the state.

PHYSICIANS EXAMINED ON THE BASIS OF CREDENTIALS OBTAINED IN COUNTRIES OTHER THAN UNITED STATES AND CANADA

An inquiry into the number of citizens of the United States studying medicine in faculties of medicine abroad has been carried on by the Council on Medical Education and Hospitals since 1931, when it became evident that great numbers were going to Europe to pursue medical courses. During the academic year 1937-1938, 1,346 citizens of the United States were enrolled in faculties of medicine abroad and 318 completed the medical course and have it is presumed returned to the United States to practice medicine. Similar figures obtain for other years. This influx of graduates from foreign medical schools has been a problem of major importance in the last few years from the point of view of hospital training, licensure and subsequent adjustment in the field of medical practice and is being further complicated by the migration to this country of physicians from central Europe.

Data recently received from state boards of medical licensure pertaining to the requirements of candidates for medical licensure holding credentials from medical schools outside the United States and Canada are presented in table 20. Reports were received from forty-six states and the District of Columbia. Eleven states report that, because of the inability to evaluate foreign credentials, holders of such certificates are not eligible for licensure. Of the remaining thirty-five states, twenty-nine require either United States citizenship

TABLE 22.—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada by Licensing Boards of the United States and Possessions, 1933-1938*

	1933-1937		1938	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed
AUSTRALIA				
University of Adelaide	1	0.0	0	0.0
University of Sydney	1	0.0	0	0.0
AUSTRIA				
Karl-Franzens-Universität, Graz	21	38.1	5	40.0
Leopold-Franzens-Universität, Innsbruck	7	28.6	3	33.3
Universität Wien	200	27.5	128	28.1
BELGIUM				
Université Catholique de Louvain	4	50.0	0	0.0
Université de Liège	5	80.0	0	0.0
Université Libre de Bruxelles	2	0.0	1	0.0
Universiteit Gent	1	100.0	1	100.0
CHILE				
Universidad de Chile, Santiago	2	0.0	0	0.0
CHINA				
Pennsylvania Medical School, Shanghai	2	0.0	3	33.3
Woman's Christian Medical College, Shanghai	0	0.0	1	0.0
CHOSEN (KOREA)				
Severance Union Medical College, Keijo	2	100.0	0	0.0
CUBA				
Universidad de la Habana	16	43.8	1	0.0
CZECHOSLOVAKIA				
	18	38.9	12	33.3
	5	80.0	0	0.0
	7	71.4	2	100.0
	5	60.0	0	0.0
DOMINICAN REPUBLIC				
Universidad de Santo Domingo	1	0.0	0	0.0
ENGLAND				
Fellow of the Royal College of Physicians of London	1	0.0	0	0.0
Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society of London	5	60.0	0	0.0
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London	2	50.0	0	0.0
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England	57	8.8	9	0.0
University of Birmingham	3	0.0	0	0.0
University of Bristol	1	0.0	1	0.0
University of Cambridge	1	0.0	0	0.0
University of Durham, Newcastle-upon-Tyne	8	25.0	0	0.0
University of Liverpool	1	0.0	0	0.0
University of London	8	37.5	0	0.0
University of Oxford	1	0.0	0	0.0
University of Sheffield	6	16.7	3	0.0
ESTONIA				
Université de Tartu	1	0.0	1	100.0
FRANCE				
Université de Bordeaux	2	50.0	0	0.0
Université de Lyon	5	40.0	1	0.0
Université de Montpellier	5	40.0	1	0.0
Université de Nancy	0	0.0	1	100.0
Université de Paris	75	33.3	38	39.5
Université de Strasbourg	3	0.0	1	0.0
Université de Toulouse	5	20.0	1	0.0
GERMANY				
	42	38.1	21	28.6
	13	53.8	21	38.1
	3	0.0	4	50.0
	9	44.4	9	44.4
	3	33.3	0	0.0
	10	60.0	8	75.0
	189	31.7	146	37.0
	1	0.0	11	36.4
	47	19.1	11	27.3
	6	0.0	5	60.0
am-Main	39	30.8	28	39.3
	32	40.6	25	48.0
	5	40.0	4	50.0
	62	27.4	56	39.3
	9	33.3	5	60.0
	1	0.0	3	66.7
Bonn	9	22.2	22	54.5
Breslau	42	28.6	43	35.0
Thuringische Landesuniversitat, Jena	5	20.0	2	50.0
Universität Heidelberg	42	14.3	41	41.5
Universität Köln	21	33.3	11	45.5
Universität Leipzig	27	37.0	18	61.1
Universität Rostock	6	50.0	9	33.3
Vereinigten	2	0.0	2	50.0
Westfälische	3	66.7	0	0.0
GREECE				
National University of Athens	11	72.7	5	100.0
GUATEMALA				
Universidad Nacional de Guatemala	2	50.0	0	0.0
HUNGARY				
Magyar Királyi Erzsébet Tudományegyetem, Pecs	6	50.0	3	33.3
Magyar Királyi Ferencz József Tudományegyetem, Szeged	4	25.0	3	66.7
Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest	33	30.3	7	42.9
Magyar Királyi Tisza-István-Tudományegyetem, Debrecen	2	50.0	0	0.0
IRAN (PERSIA)				
Government Medical School, Teheran	1	100.0	0	0.0
IRELAND				
Licentiate of the Royal College of Physicians of Ireland and Licentiate of the Royal College of Surgeons in Ireland	3	0.0	1	100.0
National University of Ireland	6	16.7	2	50.0
University of Dublin	11	27.3	2	50.0
ITALY				
Regia Università di "Benito Mussolini" di Bari	1	0.0	0	0.0
Regia Università di Bologna	40	47.5	26	53.8
Regia Università di Catania	0	0.0	2	50.0
Regia Università di Firenze	6	66.7	6	16.7
Regia Università di Genova	10	80.0	2	100.0
Regia Università di Messina	2	100.0	2	100.0
Regia Università di Milano	5	40.0	2	100.0
Regia Università di Modena	7	85.7	4	50.0
Regia Università di Napoli	134	61.9	41	61.0
Regia Università di Padova	20	60.0	4	50.0
Regia Università di Palermo	24	62.5	3	33.3
Regia Università di Pavia	2	0.0	1	100.0
Regia Università di Perugia	4	25.0	0	0.0
Regia Università di Pisa	2	50.0	11	45.5
Regia Università di Roma	188	49.5	37	49.1
Regia Università di Siena	4	50.0	4	75.0
Regia Università di Torino	2	0.0	0	0.0
JAPAN				
Japan Medical College, Tokyo	1	100.0	1	100.0
LATVIA				
Latvijas Universitäte, Riga	0	0.0	1	100.0
LEBANON				
American University of Beirut	3	0.0	2	0.0
Université de St. Joseph, Beyrouth	3	66.7	0	0.0
MEXICO				
Escuela Libre de Homeopatia del Estado de Puebla	1	100.0	1	100.0
Escuela Médico Militar, México, D. F.	4	75.0	1	100.0
Instituto Literario y Científico, San Luis Potosi	1	100.0	0	0.0
Universidad Nacional, México, D. F.	13	46.2	0	0.0
NETHERLANDS				
Rijks-Universiteit te Leiden	3	0.0	0	0.0
Rijks-Universiteit te Utrecht	0	0.0	1	0.0
Universiteit van Amsterdam	1	0.0	0	0.0
NORWAY				
Kongelige Frederiks Universitet, Oslo	1	0.0	0	0.0
POLAND				
Uniwersytet Jana Kazimierza, Lwów	4	50.0	0	0.0
Uniwersytet Jozefa Pilsudskiego, Warszawa	1	0.0	2	50.0
Uniwersytet Stefana Batorego, Wilno	1	0.0	0	0.0
PORTUGAL				
Universidade de Lisboa	4	75.0	0	0.0
RUMANIA				
Universitatea din Bucuresti	2	50.0	0	0.0
Universitatea Regele Ferdinand I-iu din Cluj	7	57.1	0	0.0
SCOTLAND				
Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow	1	0.0	0	0.0
Licentiate of the Royal College of Physicians of Edinburgh	1	0.0	0	0.0
Licentiate of Edinburgh				
Surgeons of	8	0.0	0	0.0
Licentiate of the Royal C of the Roy geons, Glasgow	125	21.6	61	19.7
School of Medicine of the Royal Colleges, Edinburgh	1	0.0	0	0.0
University of Aberdeen	14	14.3	0	0.0
University of Edinburgh	66	10.6	4	0.0
University of Glasgow	32	0.0	7	0.0
University of St. Andrews	96	12.5	4	25.0
SOUTH AFRICA, UNION OF				
University of Cape Town	1	0.0	0	0.0
SPAIN				
Universidad Central de España, Madrid	5	20.0	0	0.0
Universidad de Santiago	1	0.0	0	0.0
Universidad de Sevilla	1	0.0	0	0.0
SWITZERLAND				
Universität Basel	63	27.0	40	25.0
Universität Bern	127	35.4	58	32.8
Universität Zürich	66	27.3	28	35.7
Université de Genève	66	27.3	21	42.9
Université de Lausanne	46	32.6	25	32.0
TURKEY				
University of Istanbul	1	100.0	1	100.0
UNION OF SOCIALIST SOVIET REPUBLICS				
First Moscow Medical Institute	2	50.0	0	0.0
Kharkov Medical Institute	4	50.0	0	0.0
Kiev Medical Institute	3	66.7	1	100.0
Military Medical Academy, Leningrad	1	100.0	0	0.0
Psycho-	1	100.0	0	0.0
Saratov	4	75.0	0	0.0
Second	1	0.0	0	0.0
Tomsk	1	0.0	0	0.0
YUGOSLAVIA				
Beogradskog Universiteta	2	50.0	0	0.0
Zagrebaskog Universiteta	1	0.0	0	0.0

or first papers as a condition precedent to taking the state board examinations and fifteen of these states require full citizenship. In some states the requirement is made by rule of the medical board, in others the provision is by statute. In addition, other restrictions are imposed. Nine states require a certificate in the basic sciences. Twenty-two states require a one year internship in a United States hospital approved for intern training. In nine states there is a requirement of a senior year's work in an approved medical school in the United States. In three states the candidate must be in possession of the certificate of the National Board of Medical Examiners. Application for licensure must be on file six months prior to the date of examination in two states.

TABLE 23.—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1938*

Year	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	303	30.7
1936	588	382	35.0
1937	920	637	30.8
1938	1,166	716	38.6
Totals	4,103	2,616	36.3

Many of the foreign graduates are seeking or are serving internships in approved hospitals. In 1937 there were 245 employed in 105 hospitals throughout nineteen states. In 1938, 149 approved hospitals in twenty-nine states reported a total of 312. The Council has adopted the following resolution in an effort to assist hospitals in solving the perplexing problems associated with the selection of graduates from foreign schools:

Resolved, That, when suitable graduates of class A schools in the United States and Canada are not available, hospitals approved for intern training may accept graduates of European universities who have passed parts I and II of the examinations of the National Board of Medical Examiners.

Table 19 presents statistics covering physicians examined on the basis of credentials obtained in countries other than the United States and Canada by licensing boards of the United States and by Hawaii and Puerto Rico in 1938. It is not known how many are citizens of the United States. The figures in the accompanying tabulations therefore represent both American and foreign born physicians educated abroad. Seventy-nine medical faculties, excluding seven licensing corporations, of eighteen European and five other countries were represented. There were 1,166 examined, of whom 716 passed and 450, 38.6 per cent, failed. Graduates of the University of Berlin (146) were examined in fourteen states, 37.0 per cent of whom failed. Twelve states examined students of the Universities of Vienna and Munich, and ten states graduates of the Universities of Heidelberg and Rome. All other schools were represented in less than ten states. Twenty-six states, Hawaii and Puerto Rico examined physicians educated abroad. The state of New York had the greatest number, 730, of whom 433 passed and 297, 40.7 per cent, failed. New Jersey examined 106, with sixty-six successful and forty unsuccessful results; 37.7 per cent failed. Illinois was third with fifty-five examined, forty-eight passed and seven, 12.7 per cent, failures.

In addition to the figures represented in this table, twenty-six graduates of foreign medical faculties were licensed in 1938 without examination by endorsement of their credentials. This is a considerable reduction over 1937. This is due in large part, as described in the text regarding reciprocity and endorsement candidates, to the decision of the New York Board of Regents, which state licenses the majority of such physicians, no longer to admit such applicants to licensure without examination.

Relative to the registration by the state of New York of graduates of the extramural schools in Great Britain, the New York State Education Department in January 1939 further directed that such registrations cease for all students hereafter admitted to these institutions and that the department no longer issue qualifying certificates to American students seeking admission to these schools. The department will continue to recognize, however, those already having received the qualifying certificate and already engaged in study in these schools. The schools referred to are the School of Medicine of the Royal Colleges, Edinburgh; Anderson College of Medicine, Glasgow; St. Mungo's College Medical School, Glasgow, and the Schools of Surgery, Royal College of Surgeons in Ireland, Dublin.

Chart 3, page 1716, shows in graphic form the states which during 1938 registered graduates of foreign medical faculties by examination, reciprocity and endorsement, or both. Included in the figures on the chart are those licenses granted by reciprocity and endorsement on the basis of a license obtained after examination from a medical board in this country. From a perusal of tables 2, 5 and 7 it can be ascertained how many were licensed by both these means in the various states. The states which licensed more than five graduates are indicated in black on the chart; those shaded, five or less. Fourteen states registered more than five, sixteen less than five. These thirty states altogether registered 819.

In table 22 are assembled figures showing the standing during the five year period 1933-1937 of the graduates of faculties of medicine outside the United States and Canada admitted to licensing examinations in this country. Included also is a tabulation for the year 1938. One hundred and twenty-nine foreign faculties and ten of the licensing corporations of Great Britain were represented. During the five year period, 2,430 were examined and, in 1938, 1,166. The largest number from any one school in the five year period was the University of Vienna, 200, of whom 27.5 per cent failed. The University of Rome in the five year period was second, 188, of whom 49.5 per cent failed. There were 180 from the University of Berlin with 31.7 per cent failures.

Table 23, the last in this group of statistics, records the number of graduates of faculties of medicine abroad examined in the United States in nine years, 1930 to 1938 inclusive. There were 246 more examined in 1938 than in 1937 and 999 more than in 1930. During the nine year period, 4,103 were examined, of whom 2,616 passed and 36.3 per cent failed.

The Council on Medical Education and Hospitals does not grade or classify medical schools outside the United States and Canada. No opportunity is afforded for visiting and inspecting such schools, nor are official reports received from them. The Council therefore has no evidence on which to base a rating. A list of foreign schools which has been published from time to time merely serves as a key to the American Medical Directory and indicates the names of the institutions which physicians now licensed to practice in the United States attended or from which they graduated.

EXAMINING BOARDS IN MEDICAL SPECIALTIES

The House of Delegates of the American Medical Association at its annual session in 1933 passed the following resolution:

Resolved, That the Council on Medical Education and Hospitals is hereby authorized to express its approval of such examining boards in medical specialities as conform to the standards of administration formulated by the Council; and be it further

Resolved, That the Board of Trustees of the American Medical Association be urged to use the machinery of the American Medical Association, including the publication of its directory, in furthering the work of such examining boards as may be accredited by the Council.

Standards were formulated by the Council and approved by the House of Delegates, June 11-15, 1934. Thirteen boards have to date been approved, and those certified at the time of the publication of the fifteenth edition of the American Medical Directory are identified in the directory by the key A.B. 1, 2, and so on. The key number of the boards, the year incorporated and the number of certificates awarded to date appear in the following tabulation. The number certified by some of the boards has been reduced by death. Recorded therefore are the active diplomates.

Certificates Awarded by Examining Boards in Medical Specialties

Key A B	Name of Board	Year	Certificates Awarded (Active Diplomates)
1	American Board of Pediatrics	1933	1,335
2	American Board of Psychiatry and Neurology	1934	617
3	American Board of Orthopaedic Surgery	1934	578
4	American Board of Dermatology and Syphilology	1932	415
5	American Board of Radiology	1934	1,199
6	American Board of Urology	1935	553
7.	American Board of Obstetrics and Gynecology	1930	792
8	American Board of Internal Medicine	1935	1,703
9	American Board of Pathology	1936	689
10	American Board of Ophthalmology	1917	1,600
11	American Board of Otolaryngology	1924	2,807
12	American Board of Surgery	1937	1,039
13	American Board of Anesthesiology	1937	47
	Total		13,374

To date 13,374 have been certified in thirteen specialties. Each of these boards has published a booklet containing a brief statement regarding its organization personnel, purposes and qualifications for eligibility for certification, which is available on request to the officers of these boards or to the American Medical Association.

BASIC SCIENCE BOARDS

Boards for the examination in the basic sciences of all those desiring ultimately the right to practice the healing art functioned in eleven states and the District of Columbia in 1938, namely Arizona, Arkansas, Colorado, Connecticut, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, Washington and Wisconsin. Basic science requirements were established in Michigan in 1937 but do not apply to any person matriculated in any medical, osteopathic or chiropractic school or college on or before Oct. 15, 1937. South Dakota enacted a basic science law in 1939 but it does not apply to students regularly registered and enrolled as of March 15, 1939, in schools of medicine, osteopathy and chiropractic. The years in which the various acts were enacted are shown in table 1.

Statistics based on the number of candidates certified in 1938 and those who failed to secure this certification, together with the totals for other years shown for comparison, are included in the accompanying tabulations. Similar data have been published in the State Board Number of THE JOURNAL since 1928.

The subjects in which examinations are conducted in the respective states and the District of Columbia are given in table 2. The subjects included in basic science examinations are specified by the statutes. The examination boards may neither add to nor subtract from such subjects. While the laws of some of these states include reciprocal agreements, the certificate is obtainable after examination in the majority of instances.

TABLE 1.—*States Having Basic Science Laws and Year of Enactment*

Arizona	1933	Minnesota	1927
Arkansas	1929	Nebraska	1927
Colorado	1937	Oklahoma	1937
Connecticut	1925	Oregon	1933
District of Columbia	1929	South Dakota	1939
Iowa	1933	Washington	1927
Michigan	1937	Wisconsin	1925

Applicants examined during 1938 in the various groups—physicians, osteopaths, chiropractors or students, and those unclassified—are included in table 3. The twelve boards functioning examined 1,325 candidates. Of this number, 1,168 were doctors of medicine, eighty-one osteopaths and thirty-two chiropractors; for forty-four it was not possible to determine what profession they represented. In applying for a basic science certificate it is not necessary in several of the states to mention the school of practice, but by checking the biographic records of the American Medical Association it has been possible to determine what profession the majority of the candidates represented. The remainder compose the unclassified group. Of all examined, 1,095 passed and 230 failed, 17.4 per cent. Of the physicians examined 12.2 per cent failed, of the osteopaths 42 per cent, of the chiropractors 75 per cent and of those unclassified 68.2 per cent. There were 1,026 physicians who passed, forty-seven osteopaths, eight chiropractors and fourteen unclassified. Minnesota examined the largest number, 266, of whom 21.1 per cent failed. The next largest number, 198, were examined in Wisconsin, with 8.1 per cent failures. Osteopaths were examined in Arizona, Arkansas, Colorado, Connecticut, District of Columbia, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin: in fact, in every state except Oklahoma. Chiropractors were examined in Connecticut, Iowa, Minnesota,

TABLE 2.—*Subjects of Examinations*

	Examinations Required in							
	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology	Hygiene and Public Health
Arizona	+	+	+		+	+	+	.
Arkansas	+	+	+			+	+	
Colorado	+	+	+			+	+	..
Connecticut	+			+	+	+	+	..
Dist. Columbia	+	+	+			+	+	.
Iowa	+	+	+		+	+	+	
Michigan	+	+	+			+	+	+
Minnesota	+	+	+		+	+	+	..
Nebraska	+	+	+		+	+	+	..
Oklahoma	+	+	+			+	+	..
Oregon	+		+		+	+	+	.
South Dakota	+	+	+			+	+	.
Washington	+		+		+	+	+	.
Wisconsin	+			+		+	+	

Oregon, Washington and Wisconsin. The highest percentage of failures, 37.5, was in Iowa, which examined forty physicians, sixteen osteopaths, three chiropractors and thirteen unclassified candidates.

The number of certificates granted by examination, reciprocity and endorsement are recorded in table 4. A total of 1,095 certificates were granted after examination; 1,026 were issued to physicians, forty-seven to osteopaths, eight to chiropractors and fourteen to

TABLE 3.—*Applicants Examined—1938*

	Physicians		Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Arizona	41	0	4	0	0	0	0	13	58	45	13	22.4
Arkansas	65	3	5	0	0	0	2	0	75	72	3	4.0
Colorado	29	6	2	1	0	0	0	1	39	31	8	20.6
Connecticut	131	2	1	2	1	2	0	0	139	133	6	4.3
District of Columbia	23	7	1	1	0	0	0	0	32	24	8	25.0
Iowa	26	14	12	4	0	3	7	6	72	45	27	37.5
Minnesota	202	40	5	8	2	3	1	5	266	210	56	21.1
Nebraska	84	19	0	3	0	0	0	0	106	84	22	20.8
Oklahoma	68	10	0	0	0	0	0	0	78	68	10	12.8
Oregon	67	14	2	2	0	1	3	3	92	72	20	21.7
Washington	124	25	2	7	3	9	0	0	170	129	41	24.1
Wisconsin	166	2	13	6	2	6	1	2	198	182	16	8.1
Totals—Examined	1,168		81		32		44		1,325			
Totals—Passed	1,026		47		8		14		.....	1,095		
Totals—Failed	142		34		24		30		.....	.....	230	
Percentage failed	12.2		42.0		75.0		68.2		.....	.....	...	17.4

persons who were unclassified. In addition there were 293 candidates certified without examination, by reciprocity or endorsement, consisting of 267 physicians, twenty-four osteopaths and two listed as unclassified. Iowa accepted the greatest number without examination, seventy, of whom sixty-nine were physicians and one was an osteopath. Minnesota registered sixty-three physicians and five osteopaths by this method. Wisconsin certified forty-two physicians, seven osteopaths and one unclassified, and Arkansas thirty-seven

TABLE 4.—*Certificates Issued by Examination, Reciprocity and Endorsement—1938*

	Examination					Reciprocity and Endorsement					
	Physicians	Osteopaths	Chiropractors	Unclassified	Totals	Physicians	Osteopaths	Chiropractors	Unclassified	Totals	Registered
Arizona	41	4	0	0	45	0	0	0	0	0	45
Arkansas	65	5	0	2	72	37	6	0	0	43	115
Colorado	29	2	0	0	31	15	2	0	0	17	48
Connecticut	131	1	1	0	133	0	0	0	0	0	133
District of Columbia	23	1	0	0	24	22	0	0	0	22	46
Iowa	26	12	0	7	45	69	1	0	0	70	115
Minnesota	202	5	2	1	210	63	5	0	0	68	278
Nebraska	84	0	0	0	84	8	1	0	0	9	93
Oklahoma	68	0	0	0	68	0	0	0	1	1	69
Oregon	67	2	0	3	72	11	2	0	0	13	85
Washington	124	2	3	0	129	0	0	0	0	0	129
Wisconsin	166	13	2	1	182	42	7	0	1	50	232
Totals	1,026	47	8	14	1,095	267	24	0	2	293	1,388

physicians and six osteopaths. Arizona, Connecticut and Washington licensed none without examination. Arizona, and Washington, by law, have no reciprocal agreements. No chiropractors were licensed without examination but two in the unclassified group were certified by this method.

The number of candidates examined, or certified by reciprocity or endorsement, from 1927 to 1938 inclusive will be found in table 5. In 1928, when five boards were functioning, there were 646 physicians examined, of whom sixty, or 9.3 per cent, failed and fifty-nine other practitioners, of whom twenty-eight, or 47.5 per cent, failed. In 1938, 1,293 physicians and ninety-five other practitioners were certified. During the twelve year period a total of 9,370 physicians were examined, of whom 1,122, 12.0 per cent, failed and 931 other practitioners, of whom 507, 54.5 per cent, failed. During this period 1,532 physicians were certified without examination, while only ninety-one other practitioners were so registered.

Altogether, 10,295 certificates have been issued by basic science boards since 1927, of whom 9,780 were granted to physicians and 515 to other practitioners. From the high percentage of failures in the other practitioner group it seems apparent that the enforcement

TABLE 5.—*Total Candidates—1927-1938*

		Physicians					Other Practitioners					
		Examinations					Examinations					
	Number of Boards	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified
1927	5	305	279	26	8.5	26	305	22	15	7	31.8	1	16
1928	5	646	586	60	9.3	19	665	59	31	28	47.5	0	31
1929	7	668	610	58	8.7	75	685	66	31	35	53.0	0	31
1930	7	685	606	79	11.5	118	724	78	30	48	61.5	4	34
1931	7	680	586	94	13.8	141	727	107	48	59	55.1	0	48
1932	7	657	590	67	10.2	106	696	78	44	34	43.6	12	56
1933	8	601	527	74	12.3	121	648	60	30	30	50.0	10	40
1934	9	815	725	90	11.0	127	852	51	26	25	49.0	11	37
1935	10	882	761	121	13.7	110	871	74	33	41	55.4	4	37
1936	10	1,032	891	141	13.7	230	1,121	66	26	40	60.6	13	39
1937	12	1,231	1,061	170	13.8	192	1,253	113	41	72	63.7	10	51
1938	12	1,168	1,026	142	12.2	267	1,293	157	69	88	56.1	26	95
Total		9,370	8,248	1,122	12.0	1,532	9,780	931	424	507	54.5	91	515

of basic science laws affects most seriously this group. The object of these boards has been to provide a means of insuring that all candidates seeking authority to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art. Basic science bills are being advocated in several states and bills are pending in the legislature.

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners was organized in 1915 and chartered March 17, 1922, under the laws of the District of Columbia. Its purpose was to establish in this country a qualifying examination of such character that successful candidates could be admitted to the practice of medicine by state boards of medical licensure. Its constitution provides for a membership of thirty. This includes six members representing the federal services, five members nominated by the Federation of State Medical Boards of the United States, three members nominated by the Association of American Medical Colleges, two members nominated by the Council on Medical Education and Hospitals of the American Medical Association, and fourteen members elected at large.

Statistics are herewith presented regarding the examinations of and the issuance of certificates by the National Board of Medical Examiners. Similar material has been presented in the State Board Number of THE JOURNAL for twenty-one years.

Up to Dec. 31, 1921, eleven examinations were held as shown in table 1.

Since 1922 the examination has been given in three parts, parts I and II being written examinations and part III a practical and clinical examination. The data included in the following paragraphs refer to the examination and the issuance of certificates to this group and

TABLE 1.—*Examinations—1916-1921*

Date of Examination	Total Examined	Passed	Failed	Percentage Failed
October 1916	10	5	5	50 0
June 1917	12	9	3	33 3
October 1917	28	22	6	21 5
January 1918	20	18	2	10 0
April 1918	23	18	5	26 1
December 1918	16	15	1	6 3
June 1919	52	51	1	1 9
February 1920	48	36	12	25 0
May 1920	60	46	14	23 3
February 1921	16	11	5	31 3
June 1921	40	37	3	7 5
Totals	325	268	57	14 3

include tables enumerating the results of examinations in parts I, II and III for each calendar year, excluding duplications by counting the last examination if more than one part is taken within the year, and also of those certified or failing of certification

Candidates are required to take all six subjects of part I at a regular examination period unless entitled to take an incomplete examination or electing to take a divided examination. An incomplete examination is

TABLE 2.—*Examinations in Part I in 1938 and 1922-1938*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February	163	101	34	28	21 7
May	16	15	0	1	6 3
June	965	650	230	76	10 5
September	509	219	235	55	20 1
Totals	1,653	985	508	160	14 0
1922	388	263	58	67	20 3
1923	507	349	77	81	18 8
1924	591	415	69	107	20 5
1925	608	400	50	158	28 3
1926	625	436	104	85	16 3
1927	702	452	159	91	16 8
1928	843	533	231	79	12 9
1929	1,096	675	331	90	11 8
1930	1,260	801	345	114	12 5
1931	1,277	755	425	97	11 4
1932	1,307	847	371	89	9 5
1933	1,234	782	316	136	14 8
1934	1,241	809	347	85	9 5
1935	1,204	785	410	69	8 1
1936	1,344	858	363	123	12 5
1937	1,435	871	415	149	14 6
1938	1,653	985	508	160	14 0
Totals	17,375	11,016	4,579	1,780	13 9

arranged for candidates taking part I at the end of their second medical year in schools in which the third year curriculums include courses in one or two subjects of this part. The subjects thus postponed may be taken at any examination period after the candidate has completed them in his medical school. Any candidate not entitled to take an incomplete examination in part I may, if he so elects, take a divided examination by writing any four subjects at one time and the remaining two within thirteen months, but after at least one semester of study. Incomplete examinations were not included when percentages were being computed, since they represent neither a candidate eligible for certification nor a failure.

A candidate who fails to make an average of 75 per cent but has received grades of at least 75 per cent in three or more main divisions is required to repeat those divisions, either in whole or in part, in which he received grades below 75 per cent. Grades below 60 per cent in any of the subdivisions are not acceptable if the grade for the corresponding main division is under 75 per cent. In such cases the candidate is "referred" in this subdivision and required after a three months interval to pass a reexamination. The privilege of a second reexamination is determined in each case by the board "Referred" candidates are likewise excluded from the statistics.

Four examinations in part I were held in 1938, as indicated in table 2 Altogether 1,653 examinations were given, 985 passed, 508 were given incomplete examinations and 160, or 14.0 per cent, failed.

TABLE 3.—*Examinations in Part II in 1938 and 1922-1938*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February	169	161	0	8	4 7
May	378	358	0	20	5 3
June	245	231	0	14	5 7
September	69	65	0	4	5 8
Totals	861	815	0	46	5 3
1922	109	90	0	19	17 4
1923	192	170	2	20	10 5
1924	267	227	0	40	15 0
1925	342	309	0	33	9 6
1926	381	334	1	46	12 1
1927	361	314	1	46	12 8
1928	410	371	1	38	9 3
1929	465	399	19	47	10 5
1930	620	543	7	70	11 4
1931	719	630	2	87	12 1
1932	732	674	0	58	7 9
1933	714	651	0	63	8 8
1934	633	583	0	50	7 9
1935	689	620	0	69	10 0
1936	768	716	2	50	6 5
1937	855	803	1	51	6 0
1938	861	815	0	46	5 3
Totals	9,118	8,249	36	833	9 2

Four examinations were also given in part II, figures for which appear in table 3 During 1938, 861 were so examined, of whom 815 passed and forty-six, 5 3 per cent, failed.

Since 1922 a total of 17,375 examinations have been given in part I and 9,118 in part II. From 1922 to 1938 inclusive, 11,016 individuals were successful in passing part I and 8,249 in passing part II. The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass parts I and II in the same year. Therefore they represent examinations conducted rather than individuals examined. In the seventeen year period since 1922 there have been 1,780 failures in part I, 13.9 per cent, and 833 in part II, 9.2 per cent.

TABLE 4.—*Examinations in Part III—1922-1938*

	Total Examinations*	Passed	Failed	Percentage Failed
1922	22	22	0	0 0
1923	82	81	1	1 2
1924	126	120	6	4 8
1925	219	206	13	5 9
1926	255	243	12	4 7
1927	293	272	21	7 2
1928	322	306	16	5 0
1929	352	337	15	4 3
1930	420	401	19	4 5
1931	437	419	18	4 1
1932	550	522	28	5 1
1933	551	526	25	4 5
1934	567	548	19	3 4
1935	595	578	20	3 3
1936	576	547	29	5 0
1937	668	630	38	5 7
1938	706	682	24	3 4
Totals	6,744	6,440	304	4 5

Between 1916 and 1921 a total of 325 were examined, of whom 268 passed and 57, 14 3 per cent, failed Total certificates awarded, 6 708

* Excluding "referred" examinations

The results of examinations in part III for the seventeen year period 1922 to 1938 inclusive are represented in table 4. In 1938, 706 were examined, as compared with only twenty-two in 1922. Of the number examined in 1938, twenty-four, or 3.4 per cent, failed. The highest percentage of failures was in 1927, when 293 were examined and twenty-one, 7.2 per cent, failed. In seventeen years 6,744 were examined, of whom 6,440 were granted certificates and 304, 4.5 per cent, failed. Here again a candidate having failed may subsequently receive a certificate.

From 1916 to 1921, when the examination was not given in three parts, 325 were examined, of whom 268 passed and fifty-seven, 14.3 per cent, failed.

Altogether from 1916 up to and including 1938, 6,708 certificates have been granted.

The number of persons examined during any one year is given in table 5. The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question. For example, if in 1938 a candidate passed part I but later failed part II, he is listed as having failed. Taking this into consideration, there were 2,990 who took at least one of the examinations of the National Board of Medical Examiners during 1938, as compared with 525 in 1922. A total of 30,759 were examined in one or more of the examinations in the seventeen years shown, of whom 23,817 passed, 2,561 failed, 4,381 took incomplete examinations and 9.7 per cent failed.

TABLE 5.—*Parts I, II and III, Excluding Duplications—1922-1938*

	Total Examined*	Passed	Incomplete	Failed	Percentage Failed
1922	525	381	58	86	18.4
1923	775	594	79	102	14.7
1924	978	756	69	153	16.8
1925	1,167	915	50	202	18.1
1926	1,161	930	105	126	11.9
1927	1,248	947	142	159	14.4
1928	1,430	1,101	211	118	9.7
1929	1,723	1,280	319	124	8.8
1930	2,044	1,547	322	175	10.2
1931	2,218	1,632	410	176	9.7
1932	2,342	1,850	355	137	6.9
1933	2,277	1,806	280	191	9.6
1934	2,261	1,801	330	130	6.7
1935	2,368	1,831	408	129	6.6
1936	2,517	1,989	353	175	8.1
1937	2,735	2,151	397	187	8.0
1938	2,990	2,306	493	191	7.7
Totals	30,759	23,817	4,381	2,561	9.7

* Excluding "referred" examinations.

Examinations in part III were held during 1938, at which 682 were successful. Graduates of fifty-nine approved schools in the United States and four in Canada were examined. Thirteen graduates of medical faculties abroad were also certified. Table 6 records the number of diplomates from each school certified in 1938 in part III. At the College of Medical Evangelists students are required to pass parts I and II as a prerequisite to receiving their diploma. The comprehensive qualifying examination, or part I of the examination of the National Board, is required of all medical students entering Yale University School of Medicine in the fall of 1937. Students at Georgetown University School of Medicine are urged to take the examinations of the National Board. Students admitted to Boston University School of Medicine subsequent to 1937 are required to pass part I in order to supplement the qualifications for promotion to the third year class. All students before entering the senior class at the New York Medical College must have taken part I of the examination of the National Board. While the certificate is not required by these schools, their graduates and, in addition, those of Harvard, Tufts and Duke University represented the majority of those certified.

Diplomates licensed on the basis of their credentials have increased from two in 1917 to 673 in 1938, 4,793 having been so licensed since the National Board was formed. However, 6,708 have received the certificate of the board. In 1938 diplomates were registered on the basis of credentials in thirty-eight states, the District of Columbia, Alaska, Hawaii and Puerto Rico.

TABLE 6.—*Diplomates from Individual Medical Schools—1938*

	Certificates Awarded		Certificates Awarded
Univ. of Arkansas	1	Albany Med. Coll.	10
Coll. of Med. Evan.	85	Columbia Univ.	7
Stanford Univ.	7	Cornell Univ.	19
Univ. of California	3	Long Island Coll. of Med.	8
Univ. of Southern Calif.	1	N. Y. Med. Coll.	55
Univ. of Colorado	9	New York Univ.	13
Yale Univ.	41	Syracuse Univ.	4
George Washington Univ.	11	Univ. of Buffalo	3
Georgetown Univ.	49	Univ. of Rochester	1
Howard Univ.	2	Duke Univ.	38
Emory Univ.	2	Univ. of Cincinnati	1
Univ. of Georgia	3	Western Reserve Univ.	1
Loyola Univ.	3	Univ. of Oklahoma	4
Northwestern Univ.	15	Univ. of Oregon	1
Rush Med. Coll.	12	Hahnemann, Phila.	1
Div. of Biological Sc., U. Chicago	7	Jefferson Med. Coll.	7
Univ. of Illinois	2	Temple Univ.	2
State Univ. of Iowa	4	Univ. of Pennsylvania	5
Univ. of Kansas	2	Woman's Med., Pa.	4
Univ. of Louisville	3	Med. Coll. of S. C.	2
Tulane Univ.	5	Meharry Med. Coll.	1
Johns Hopkins Univ.	10	Univ. of Tennessee	1
Boston Univ.	34	Baylor Univ.	1
Harvard Univ.	52	Univ. of Vermont	15
Tufts Coll. Med. Sch.	42	Med. Coll. of Virginia	3
Univ. of Michigan	7	Marquette Univ.	8
Wayne Univ.	2	Univ. of Wisconsin	1
Univ. of Minnesota	9	Dalhousie Univ.	2
St. Louis Univ.	5	McGill Univ.	10
	6	Univ. of Manitoba	2
	1	Univ. of Toronto	1
	3	Foreign	13
		Total	682

The certificate of the National Board of Medical Examiners is granted recognition by the licensing boards of forty-four states and Alaska, Canal Zone, Hawaii and Puerto Rico (table 7).

TABLE 7.—*States Endorsing Certificates of National Board of Medical Examiners*

Alabama	Illinois	Montana	Pennsylvania
Alaska	Indiana	Nebraska	Puerto Rico
Arizona	Iowa	Nevada	Rhode Island
Arkansas	Kansas	New Hampshire	South Carolina
California	Kentucky	New Jersey	South Dakota
Canal Zone	Maine	New Mexico	Tennessee
Colorado	Maryland	New York	Utah
Connecticut	Massachusetts	North Carolina	Vermont
Delaware	Michigan	North Dakota	Virginia
Dist. of Columbia	Minnesota	Ohio	Washington
Georgia	Mississippi	Oklahoma	West Virginia
Hawaii	Missouri	Oregon	Wyoming

Some of these boards have additional requirements.

Diplomates of the National Board of Medical Examiners are admitted to the final examination given by the Conjoint Examining Board of England and Ireland and the Triple Qualification Board of Scotland. The certificate is accepted by the United States Army for admission to its Medical Corps and also by the United States Public Health Service and is recognized also in Lebanon, South Africa, Spain and Turkey.

Examinations in parts I and II are held at class A medical schools where there are five or more candidates desiring to be examined, and part III is held in twenty-two established centers throughout the United States.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Eight dollars per annum in advance

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SATURDAY, APRIL 29, 1939

OBITUARIES OF PHYSICIANS PUBLISHED IN 1938

The number of obituaries of physicians published in THE JOURNAL during 1938 was 3,768, including 3,630 of the United States as compared with 3,277 in 1937, also 138 of Canadian physicians. Four died in the Philippine Islands, 3 each in Mexico and Puerto Rico, 2 each in Cuba and France, and 1 each in Africa, the Canal Zone, England, India and Korea. The obituaries of 108 women physicians were published, as compared with 113 in 1937. The number of graduates of medical schools in the United States for the fiscal year ended June 30, 1938, was 5,194. Deducting the number of physicians whose obituaries were published, there was a net addition to the profession for the year of 1,564, not including physicians coming to the United States from abroad.

Ages.—The average age at death of those classified as of the United States was 65.6, as compared with 65.4 in 1937. Thirty-two physicians died between the ages of 25 and 29, fifty-two between 30 and 34, seventy-three between 35 and 39, eighty-one between 40 and 44, 158 between 45 and 49, 250 between 50 and 54, 403 between 55 and 59, 524 between 60 and 64, 590 between 65 and 69, 535 between 70 and 74, 421 between 75 and 79, 312 between 80 and 84, 144 between 85 and 89, forty-three for 90 and eight for 95 and over. In four cases the age was not determined.

Causes of Death.—Heart disease was again the leading cause of death, as it has been for many years. Some contributory causes are also included in THE JOURNAL'S tabulation as they have been in former years. For example, when a report of the cause of death gave chronic nephritis and heart disease, it was published as such in THE JOURNAL and was reported on the statistical charts under both diseases. Thus heart disease was reported as a cause of death in 1,491 cases. Endocarditis or myocarditis was specified in 396 cases, coronary thrombosis in 337, coronary occlusion in 167 and angina pectoris in 84. Other diseases of the heart caused 507 deaths. Arteriosclerosis was the second most frequent cause, with 442. Cerebral hemorrhage was the third most frequent cause with 384 deaths; 28 additional deaths were reported as due to paralysis. Fourth on the list was pneumonia with 350 deaths, of which 111 were specified as bronchopneumonia. Of 334 deaths reported as due to cancer, the stomach and liver were reported affected in 66 cases, the prostate gland in 51, the intestine in 42, the female genital organs in 5; in 180 cases the part affected was not specified. Nephritis was reported as the cause of 204 deaths. The number of cases in which hypertension was reported was 125, embolism and thrombosis exclusive of coronary thrombosis 124, uremia 99, other diseases of the urinary system 73, diabetes 77, tuberculosis 70, other diseases of the respiratory system 5, diseases of the prostate other than cancer 54, cirrhosis of the liver 44, other diseases of the liver 11, senility 33, ulcer of the stomach and duodenum 29, other diseases of the digestive system 22, septicemia 28, peritonitis 24, influenza 23, leukemia and intestinal obstruction 22 each, appendicitis 18, pernicious anemia 17, cholecystitis 16, encephalitis and paralysis agitans 15 each, arthritis 14, biliary calculi and chronic bronchitis 13 each, hemorrhage 12, meningitis and gangrene 11 each, brain tumor 10, other tumors 4, hernia 9, abscesses 8, Hodgkin's disease, aplastic anemia and aneurysm 7 each, asthma 6, diseases of the veins and typhoid 5 each, cerebral sclerosis, empyema, osteomyelitis, shock and streptococcic infection 4 each, carbuncle, diverticulitis, malaria, obstructive jaundice, pleurisy and streptococcic infection of the throat 3 each, Addison's disease, Adams-Stokes syndrome, amyotrophic lateral sclerosis, bacillary dysentery, cerebral softening, diverticulosis, esophageal varix, granulocytopenia, dementia paralytica, heat prostration, multiple sclerosis, myelitis, sinusitis, pyloric stenosis, ruptured gallbladder, tonsillitis, undulant fever and secondary anemia 2 each. Other diseases causing one death each as reported were abscessed teeth, actinomycosis, alcoholism, amebic dysentery, asphyxiation caused by deformity of the spine, calcification of the pineal gland, cellulitis, cerebral anemia, diphtheria, disease of the adrenal glands, duodenal perforation, erysipelas, food poisoning, furunculosis, gas bacillus infection, ileitis, laryngospasm, Ludwig's angina, lymphoma, mastoiditis, mediastinitis, multiple myeloma, multiple neuritis, occlusion of the popliteal artery, otitis media, paraldehyde poisoning, paralytic ileus, parotitis, pellagra, persistent thymus, pulmonary fibrosis, purpura haemorrhagica, respiratory failure, rupture of the aorta, rupture of the heart, spinal sclerosis, splenitis, sponta-

neous pneumothorax, subarachnoid hemorrhage, teratoma, tetanus, thyroid disease, toxic purpura, tularemia, varicose ulcer and vesical calculi.

Accidental Deaths.—One hundred and fifty-five physicians died as the result of accidents in 1938, compared with 151 in the previous year. Automobile accidents accounted for 81 deaths, falls 30, drowning 9, burns 7, airplane accidents 4, carbon monoxide gas 3, illuminating gas 2, shooting 2, explosions, overdose of medicine, poison, street car and train accidents 1 each. In 8 cases unexplained fractures were given as causes of death. One physician died of injuries received when he was struck by a motorcycle, one of an accidental wound from a hypodermic needle and one from the bite of an insect.

Suicides and Homicides.—Suicide was the cause of eighty-one deaths of physicians in 1938. Bullet wounds accounted for 31 of these deaths, carbon monoxide poisoning 9, overdoses of medicine 7, jumping 6, incised wounds 6, gas and hanging 5 each, poison 4, stabbing 2, burns 1. One physician jumped in front of a train. In five cases the method was not reported; in addition four deaths from the following causes could not be classified because of insufficient information: falls from window 2, carbon monoxide poisoning 1, shooting 1. There were six homicides.

Civil Positions.—Among the decedents were 206 physicians who were or had been teachers in medical schools, 466 who had served in the World War, 13 veterans of the Civil War and 70 veterans of the Spanish-American War. One hundred and eighty-one were or had been health officers, 151 members of boards of education, 72 members of boards of health and 21 members of state boards of medical examiners. There were 75 who were or had been coroners, 51 mayors, 39 members of state legislatures, 32 authors, 26 bank presidents, 15 pharmacists, 15 members of city councils, 12 editors, 10 postmasters, 10 police surgeons, 8 dentists, 7 missionaries, 5 clergymen, 4 lawyers, 2 justices of the peace, 1 United States Senator, 1 Congressman and 1 judge. There were 21 members of the United States Army Medical Corps, 12 of the United States Navy Medical Corps, 13 of the United States Public Health Service, 13 of the Veterans' Administration and 5 of the Indian Medical Service.

Association Officers.—Among those who died who were or had been officers of the American Medical Association were 2 vice presidents and 6 section officers. Twenty members or former members of the House of Delegates died during the year. There were also 25 presidents or former presidents of state medical associations and 2 secretaries.

MEDICAL EDUCATION IN THE UNITED STATES AND ABROAD

Elsewhere in this issue are presented the figures reported by the medical examining boards of the United States. Since, for a variety of reasons, an unusually large number of applicants have come from other countries, an opportunity is afforded to compare the success before examining boards of those whose professional education has been received in approved schools in the United States with corresponding figures for those educated abroad. Reports to the Council do not distinguish between citizens of this country who, having gone elsewhere to study medicine, return here to practice, and natives of other countries who apply here for a medical license.

As a comparatively small number of physicians from some countries have taken the licensing examinations, only those countries are included from which more than twenty-five candidates were examined during 1938.

Since the number of failures among graduates of approved schools was only 3.0 per cent, it is obvious that candidates admitted to state board examinations on the basis of foreign credentials are not as well prepared for the licensing test as those who have been educated in our own schools. It may be objected that the poor record of graduates of foreign schools is due to the fact that they have not yet mastered the English language. This explanation, however, can account only partially for the discrepancy, since many of those educated abroad were born and raised in this country.

Failures of Candidates from Abroad

	Number Examined	Percentage of Failures
Austria	136	28.7
France	43	37.2
Germany	505	41.0
Italy	165	53.9
Scotland	76	17.1
Switzerland	172	32.6
	1,097	38.3

WHAT IS OSTEOPATHY?

Is it medicine or is it not? Do schools of osteopathy teach medicine or do they not? Last year 144 applicants whose training had been received in osteopathic schools were licensed by the boards of medical examiners in ten states to practice medicine, surgery or both; 101 were licensed after examination and forty-three without examination. The numbers licensed in each of these ten states are shown in chart 2, on page 1714.

In a number of states bills have been introduced which, if passed, would give to graduates of osteopathic schools the same privileges and responsibilities that are given to graduates of approved medical schools. Is such legislation compatible with public safety or in the interest of public welfare? Proponents of these measures claim that medicine is taught as completely and as thoroughly in schools of osteopathy as in schools of medicine.

Osteopathic schools have consistently refused to permit an inspection by the Council on Medical Education and Hospitals of the American Medical Association. Recently, however, a committee of the Kansas legislature visited one of these schools and found conditions which a recognized medical school would not tolerate. In the medical sciences, anatomy, biochemistry, physiology, bacteriology and pathology the faculty was utterly inadequate both in numbers and in scientific training. For teaching the various clinical branches of medicine the number of hospital patients available was about one twenty-fifth of the number to which students at the University of Kansas have access. This school of osteopathy, at least, does not even remotely approach the generally accepted standards of education for the practice of medicine.

Current Comment

PHENYLPYRUVICA OLIGOPHRENIA

A mental condition known as phenylpyruvica oligophrenia, or imbecillitas phenylpyruvica, has recently been described by investigators in Norway,[1] England[2] and the United States.[3] Mentally defective patients suffering from phenylpyruvica oligophrenia characteristically excrete phenylpyruvic acid in the urine, being apparently unable to oxidize and decarboxylate phenylpyruvic acid in a normal manner. The formation of phenylpyruvic acid in the body is thought to result from the oxidative deamination of the essential amino acid phenylalanine. When phenylalanine is fed to persons with this metabolic abnormality, the excretion of phenylpyruvic acid in the urine is increased. The disease is therefore characterized biochemically by the inhibition of the metabolism of phenylalanine at the stage of phenylpyruvic acid. In this connection it is noteworthy that Peters and his collaborators in England have found that the oxidation and decarboxylation of pyruvic acid in certain tissues require the presence of thiamin (vitamin B_1). Thiamin apparently serves as a precursor of cocarboxylase, the latter being thiamin pyrophosphate, and it has been reported that in many tissues a dynamic equilibrium exists between free thiamin and its pyrophosphoric acid ester. Several years ago it was established that cocarboxylase is a coenzyme necessary for the decarboxylation of pyruvic acid in certain enzyme systems. The observation of Closs and Folling that white rats on a vitamin B_1 deficient diet excrete phenylpyruvic acid when large amounts of phenylalanine are ingested and that control animals receiving thiamin chloride do not excrete phenylpyruvic acid under the same conditions is relevant. These clinical and experimental observations may be expected to stimulate further work designed to elucidate the possible relationship existing between thiamin and cocarboxylase on the one hand and the metabolic disturbance phenylpyruvica oligophrenia on the other.

1. Folling, Asbjörn: Ztschr. f. physiol. Chem. **227**:169, 1934.
2. Penrose, L. S.: Lancet **1**:23 (Jan. 5) 1935.
3. Jervis, G. A.: J. Biol. Chem. **126**:305 (Nov.) 1938.

A MEDICAL SOCIETY AND CONTAGIOUS DISEASE

While the interest of organized medicine in the public health is a matter of long record, recognition of that interest is rare. The part played by the Chicago Medical Society in the control of contagious disease is one of the principal aspects of a richly documented manuscript by Miss Webb[1] of the University of Chicago. Many entries in the minutes of the Chicago Medical Society from its formation in the fall of 1850 attest its activity both as a society and by many of its individual members in attempting to arouse the community to concerted and effective action in the control of contagious diseases. Although a city board of health existed for most of the period preceding the fire, Miss Webb obtained no evidence that it had even met in some years. The medical society demonstrated a constant interest in and activity for the best public health measures, as, for example, sound registration of vital statistics. In fact, Chicago's mortality records were apparently most inaccurate until 1868, the improvement at that time being the direct result of a petition of the Chicago Medical Society to the city council in 1866. "Through the years," Miss Webb states, "the only really sustained fight [for adequate protection against contagious disease] came from the medical profession, whose members realized the basic needs and urged reform." In commenting further on this matter she stated that while individual physicians had for a long time taken part in civic questions they naturally became more effective as members of an organized group.

INCREASING IMPORTATION OF PAPAIN

Papain is an enzyme of the proteolytic group, changing native proteins, proteoses and peptones to amino acids. The activity of papain is greatly increased by hydrocyanic acid, by hydrogen sulfide and by glutathione. It acts in an acid medium (p_H 4 to 7) and at temperatures of from 65 to 90 C. The papain of commerce is obtained from the melon tree (Carica papaya), which flourishes in tropical and subtropical regions and is obtained in the form of latex, the dried milky juice of the unripe papaya fruit. Of late, papain has been finding its greatest use in preparing "tenderized" meat. Import statistics[1] show a fourfold increase in recent years; 54,000 pounds valued at $50,000 was imported in 1932, whereas the amount in 1938 was 223,000 pounds of crude papain valued at $329,000. Ceylon is the largest exporter of papain to the United States, in 1938 sending 173,000 pounds; 36,000 pounds came from elsewhere in the United Kingdom with Japan, Siam and New Zealand contributing smaller quantities. Long recognized as a powerful proteolytic ferment, papain, which in several respects is an abnormal enzyme, seems now to be making a definite contribution to the enhancement of the esthetic side of our national dietary. Its usefulness as a therapeutic agent, however, is not recognized.

1. Webb, Constance B.: A History of Contagious Disease Care in Chicago Before the Great Fire, Dissertation to Faculty of School of Social Service Administration, University of Chicago.
1. Chemical Division, Department of Commerce, J. Indust. & Engin. Chem. News Edition **17**:134 (Feb.) 1939.

ORGANIZATION SECTION

"ECONOMICAL ADMINISTRATION OF HEALTH INSURANCE BENEFITS"

Nothing more illustrative of the dominance of financial considerations over medical science in the administration of sickness insurance has appeared than this report of the International Labour Office.[1] Like most of the publications of this office, it is the result of the work of several commissions of experts. The material has been finally arranged by Walter Pryll, social medical officer of the International Labour Office and for many years active in the administration of sickness insurance institutions in Germany. This domination of financial considerations and the economy which it enforces cannot well be criticized once the system of sickness insurance comes into existence, but its very necessity involves such restrictions on the development of medical science and its application to the large section of the population covered by insurance as to constitute in itself an indictment of the entire principle of sickness insurance.

"Social insurance institutions must base themselves on the principle of economy and, as far as possible, make it govern all their organization and working" (p. 10). "The funds are therefore compelled to strike the best balance they can between the special needs of those insured with them and the limited means at their disposal" (p. 13). Such a program must restrict the application of many types of medical care, although the funds are required to use "all the means and methods that have been approved by science and tested in practice, in so far as they are easily available at a reasonable cost" (p. 16).

We are told that "it was the principle of economy that led the insurance institutions to engage in preventive work" and that "prevention is not only easier but also cheaper than cure and than the cost of compensation" (p. 16). No illustrations are offered, however, of the extent of such preventive work under insurance or of the results it has produced, and just a little later it is admitted that the funds "must not use any of their resources for the individual or collective prevention of disease if this form of activity is not expressly prescribed or permitted by law" (p. 19).

In spite of many cleverly worded explanations intended to show that this economical administration does not injure the practice of medicine, any one accustomed to the professional attitude in a country free from insurance institutions who reads the multitude of restrictions cannot fail to be impressed with the fact that the one dominating thought that must constantly be in the physician's mind is not the welfare of the patient but the welfare of the insurance funds.

Advocates of sickness insurance in the United States who visualize great clinics of specialists using highly expensive equipment might read with profit the statement that "it is sheer extravagance to have a patient very thoroughly examined by a specialist, with the aid of the most expensive apparatus available, before considering whether such a step is necessary or likely to be fruitful, so that in the end such additional knowledge as may be obtained is bought at too great an expenditure of material, time, and money" (p. 35). In no country do insured patients customarily receive any such service.

There is an entire chapter on the application of the principle of economy to diagnosis, which alternates between emphasis on the necessity of careful diagnosis to detect incipient diseases and numerous instances of the economic obstacles which insurance must maintain that would prevent any such diagnosis. The ideal is set up not only of the diagnosis of the disease but of the "psychophysical state of the patient," of his relations to society, and of the "prognosis and plan of treatment and cure." The reader who knew nothing of insurance might think that such a diagnosis was common under insurance, but the compiler of this volume wisely does not attempt to give any examples.

When it comes to the application of the principle of economy to therapeutics, we are told that "the private practitioner may apply any methods of diagnosis and treatment which he considers necessary so far as his patient is prepared to pay the cost, whereas a practitioner who is treating insured persons must follow the principle of economy . . ." (p. 64). We are assured that "the patient must not be required to put up with second-rate methods of treatment or with cheap measures of inferior quality selected merely on grounds of economy" but that "the necessary treatment is that which alone of all the appropriate, adequate and reasonably priced methods guarantees success and is applied only so far as is necessary to achieve the purpose of the insurance scheme" (p. 72). The assumption that the "necessary treatment" which "guarantees success" can be determined would seem to require that the insurance physician have a knowledge that exceeds medical science. The point is repeatedly emphasized that in many cases rest, massage, baths or other treatment not requiring drugs or appliances may be used for reasons of economy. Perhaps this explains the renaissance of the "naturheiler" and other cults and quacks in Germany under Hitler. The physician is constantly warned against the overuse of drugs. No complaint could be made against such a warning if really based on therapeutic reasons, but the constant emphasis on economy suggests that wholly different reasons actually govern. This is true of the recommendation that only drugs included in the special formularies be used and that proprietaries be avoided. But on this point also the emphasis on the economy angle is far greater than on the scientific.

That politics even more than economy may guide the actions of the legislators is indicated by the following, which is perhaps the most significant statement in the entire report:

"Nor can the legislative authorities be guided solely by economic considerations when drawing up the regulations concerning benefits. Financial limits may be imposed, beyond which they cannot go. They may have to reject many ideas that are acceptable from the point of view of economy and agree to others that are economically unsound simply because of the relative strength of the various political parties in the government at the time" (p. 19).

There is an entire chapter on the application of the principle of economy to preventive measures, but no mention is made of immunization, and it would appear that most of these measures would consist of good advice and cooperation with health departments and special institutions for controlling such diseases as tuberculosis.

One large section is devoted to a discussion of the principle of economy in national laws and regulations. Once more it is difficult to raise a direct objection to most of these regulations, but when they are examined as a whole they give the picture of a legal cage within which the physician is compelled to practice. He is constantly warned to watch the quantity prescribed, to see that containers are returned and used again, that only certain types of prescriptions that require the least time to compound are used, and so on.

One source of economy is never mentioned. There is no discussion of the costs of administration, of the palatial offices of insurance carriers—always so much better equipped than the hospitals—or of the swarm of administrators whose expenses must be met out of the certainly inadequate income derived from poorly paid workers.

More than half the book is devoted to the national laws and regulations designed to enforce the principle of economy in Czechoslovakia, France, Germany, Great Britain, Hungary, Poland and Yugoslavia. These laws and regulations, with their provisions for the supervision of insurance practitioners and

1. Economical Administration of Health Insurance Benefits, Studies and Reports, Series M (Social Insurance) No. 15, International Labour Office, Geneva, 1938.

control of excessive treatment and prescribing, are a complete answer to those who say that there is no restriction by lay authorities of the practice of medicine under insurance. Nearly every country provides for elaborate pricing and statistical compilation of the cost of prescriptions to establish a median or average cost for each prescription. Any physician who exceeds this cost in any considerable manner is warned and, if he does not conform, is punished. Governments and insurance carriers maintain extensive and costly systems of supervising physicians and "sick visitors" to check the work of the insurance physician and to see that he does not spend too much in treatment. Everywhere the emphasis is on cost rather than on quality of medical care.

The effect of all this on a physician cannot but be to compel him to keep constantly in the forefront of his mind not the principles of the best medical diagnosis and treatment but the "principle of economy." He knows that his professional reputation and livelihood will be destroyed if he oversteps the economy principles much more quickly than if he violates the principles of proper diagnosis and adequate treatment.

OFFICIAL NOTES

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 2 p. m. eastern standard time (1 p. m. central standard time, 12 o'clock mountain time, 11 a. m. Pacific time).

Starting April 30, daylight saving time takes effect in Chicago. The program will therefore be broadcast at the same hour Chicago daylight saving time, which means one hour earlier central standard time, two hours earlier mountain time and three hours earlier Pacific time. In communities where daylight saving time is in effect there will be no change in the hour of the broadcast.

Owing to network conflicts the Chicago broadcast does not occur at 1 o'clock Wednesday but there is a rebroadcast from a recording over station WENR at 8 o'clock each Monday evening, on and after May 1 (8 o'clock Chicago daylight saving time, 7 o'clock central standard time). The program broadcast each Monday is identical with the network program of the preceding Wednesday.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

May 3. Healthier Mothers.
May 10. The Doctor's Workshop.
May 17. Healthier Babies.

THE ST. LOUIS SESSION

Dinner to Women Physicians

A Library Dinner will be given Monday, May 15, at 6:30 p. m. in the Tower Room at the Congress Hotel, St. Louis, at which the visiting women physicians will be the guests of the Committee on Women Physicians of the Local Committee on Arrangements, members of which will act as hostesses. Dr. Bertha Van Hoosen, Chicago, will be chairman.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 835 has passed the Senate, providing compensation for disability or death resulting from injury to employees of contractors on public buildings and public works. S. 1265 and S. 2203 have been reported to the Senate, proposing among other things to add a new title to the Social Security Act whereunder an appropriation of $125,000,000 is authorized for the fiscal year ending June 30, 1941, and thereafter for each fiscal year such sum as may be necessary to enable the states to furnish financial assistance to needy handicapped individuals, defined to mean individuals not eligible for assistance through state plans approved under the titles of the Social Security Act providing for old-age assistance, aid to dependent children and aid to the blind, and who, by reason of physical or mental disability other than disability arising out of impairment of vision, are unable to perform substantial gainful employment. S. 1540 has passed the Senate, proposing to adjust the compensation of the members of the National Advisory Health Council not in the regular employment of the government. S. 1899 has passed the Senate, providing for the detail of a commissioned medical officer of the United States Public Health Service to serve as Assistant to the Surgeon General. H. R. 1776 has passed the Senate, providing for the assignment of medical officers of the United States Public Health Service for duty on vessels of the Coast and Geodetic Survey. H. R. 2296 has passed the House, proposing to restore certain benefits to World War veterans suffering from paralysis, paresis or blindness, or who are helpless or bedridden. H. R. 2320 has passed the House, providing domiciliary care, medical and hospital treatment and burial benefits to certain veterans of the Spanish-American War, the Philippine Insurrection and the Boxer Rebellion. H. R. 2987 has been reported to the House, with recommendation that it pass, proposing to authorize the Veterans' Administration to make payments to nonmilitary employees who donate blood for transfusions for veterans hospitalized in veterans' hospital facilities. H. R. 3537 has passed the Senate, with amendments, to extend the facilities of the United States Public Health Service to active officers of the Foreign Service of the United States. H. R. 5379 was defeated in the House April 20 by a vote of 234 to 118, proposing to exempt Dr. Nathan Tucker's Asthma Specific from certain labeling requirements of the Federal Food, Drug and Cosmetic Act. H. R. 5762, introduced by Representative Lea, California, has passed the House, with amendment, proposing, among other things, to postpone from June 25, 1939, to Jan. 1, 1940, the effective date of certain of the provisions of the Federal Food, Drug and Cosmetic Act that have not already gone into effect, relating principally to labeling requirements for foods, drugs, devices and cosmetics and the use of coal-tar dyes in foods, drugs and cosmetics. The bill proposes also to authorize the Secretary of Agriculture to postpone, but not beyond July 1, 1940, the effective date of certain labeling requirements of the act so far as they may be applicable to labeling which was lithographed, etched, stamped, printed or otherwise manufactured prior to Feb. 1, 1939, and which would have complied with the Food and Drugs Act of 1906, as amended. The bill also proposes to amend section 502(d) of the Federal Food, Drug and Cosmetic Act so as to require the labels of drugs containing any narcotic or hypnotic substances to state only the "name and quantity or proportion" rather than the "name, quantity, and percentage" of such substances.

Bills Introduced.—H. R. 5691, introduced by Representative Sutphin, New Jersey, proposes to amend the Federal Emergency Relief Act of 1933 for continuation of the civil works program by eliminating the requirement that an injury sustained by an employee must be of traumatic origin to entitle the employee to compensation, including medical and hospital benefits. H. R. 5841, introduced by Representative Patrick, Alabama, proposes to amend the Social Security Act by adding a new title thereto under which an appropriation of $1,000,000 will be authorized for the fiscal year ending July 1, 1940, and thereafter such sum as may be necessary, to enable the states to aid in restoration of sight to the blind by furnishing hospitalization and medical and surgical aid. H. R. 5870, introduced by Representative Angell, Oregon, proposes to authorize such federal sums as

may be necessary to pay an annuity at a rate not to exceed $50 a month to blind persons whose annual income from sources other than annuities payable under the act is less than $1,200. *H. R. 5874*, introduced by Representative McKeough, Illinois, proposes to include the name of Gustaf E. Lambert among those honored by an act recognizing the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever. H. R. 5884, introduced by Representative Vinson, Georgia, proposes to authorize the President to appoint for temporary service in the Navy 100 acting assistant surgeons, who shall have the rank and compensation of assistant surgeons.

STATE MEDICAL LEGISLATION

California

Bill Introduced.—A. 2795 proposes to prohibit the distribution of serums, vaccines, bacterial cultures and viruses produced other than in a laboratory licensed either by the Department of Health, the United States Public Health Service or the Bureau of Animal Industry of the United States Department of Agriculture. The bill proposes to repeal the law approved June 1, 1935, regulating the production and distribution of serums, vaccines, bacterial cultures and viruses.

Florida

Bills Introduced.—S. 149 and H. 74 propose to authorize the formation of corporations to operate nonprofit service plans whereby hospital care may be provided by the corporations or by hospitals with whom they have contracted to persons subscribing to said plans under contracts which entitle each subscriber to stated hospital care. H. 384 proposes to enact a massage practice act and to establish a board of massage examiners to examine and license persons desiring to practice massage. The bill proposes to define massage as "the use and practice of psychological, Mechanical and Material Health Sciences, to aid in purifying, cleansing and normalizing human tissues, for the preservation of [or] restoration of Health, according to the fundamental principles of anatomy, physiology, and applied Psychology, as may be required. Massage practice employs, among other agencies, Phyto-therapy, Dietetics, Psycho-therapy, Suggesto-therapy, Hydro-therapy, Zone-therapy, Biochemistry, external applications, Electro-therapy, Mechanotherapy, Mechanical and Electrical Appliances, Hygiene, first aid, Sanitation, Heliotherapy, Spinal Manipulation and Manual Bodily Manipulation." S. 211 proposes to require osteopaths to renew their licenses annually with the board of osteopathic examiners and to pay annual renewal fees of $5. As a condition precedent to annual renewal of a license, the holder thereof must present satisfactory evidence of having attended in the previous year the two day educational program as conducted by the Florida osteopathic association.

Illinois

Bills Introduced.—S. 292 proposes to enact a separate osteopathic practice act and to establish an examining committee composed of five osteopaths to examine and license persons desiring to practice osteopathy. The bill proposes to define osteopathy as "a system of practice of the healing arts in all its branches with therapeutics majoring in manipulation." The bill specifically states, however, that a license to practice osteopathy shall not permit the holder thereof to practice major operative surgery but shall entitle the holder to use the necessary minor therapeutic agents in the conduct of his practice. H. 633 proposes a procedure whereby any two or more contiguous counties may be incorporated as a tuberculosis sanatorium district and may establish and maintain a tuberculosis sanatorium with branches, dispensaries and other auxiliary institutions connected with it. S. 371 proposes to grant to a hospital treating a person injured through the negligence of another a lien on all rights of action, claims, judgments or compromises accruing to the injured person by reason of his injury. The bill proposes, however, that the lien may not exceed one fourth of the sum paid or due to the injured person.

Massachusetts

Bill Introduced.—H. 2151 is a report of the Special Commission on Osteopathy, Chiropractic, Food, Drugs and Poisons, in which, among other things, the commission (1) recommends the adoption of a separate chiropractic practice act and the establishment of an independent board of chiropractic examiners to examine and license applicants for licenses to practice chiropractic and (2) submits legislation embodying those recommendations. The commission recommends that chiropractic be defined as "the science of palpating and adjusting the articulations of the human spinal column" and that licensed chiropractors shall not be permitted to practice obstetrics, or to administer or prescribe drugs or to perform surgical operations with the use of instruments.

Michigan

Bills Introduced.—S. 428 proposes that in the management of any hospital supported wholly or in part from taxes no discrimination shall be made against the practitioners of any school of medicine recognized by the laws of the state and that all such legal practitioners shall have equal privileges in treating patients in the hospital. H. 550 proposes a new workmen's compensation act, which will provide compensation for any injury or disease arising out of and in the course of employment of an employer subject to the act. The employer is required to provide for an injured employee such medical, surgical and other attendance or treatment, nurse and hospital service, medicine, crutches and apparatus for such period as the nature of the injury or the process of recovery may require. An injured workman is to be entitled to select his own physician from a list compiled by the Department of Labor on the recommendation of the medical societies of the various counties. S. 460 proposes to enact a law to regulate the manufacture, distribution and advertising of foods, drugs, devices and cosmetics.

New Jersey

Bill Introduced.—S. 205 proposes to enact a separate chiropractic practice act and to establish a board of chiropractic examiners to examine and license persons desiring to practice chiropractic. The bill proposes to define chiropractic as "the science, art and philosophy of things natural; a system of adjusting the vertebral column and of the tissues adjacent thereto by hand for the removal of nerve interference thereby to eliminate the cause of disease." Licentiates are also to have the right to prescribe or regulate the dietary, sanitary and hygienic habits of patients.

New York

Bills Introduced.—S. 1848 and A. 2077 propose to enact a law to regulate the manufacture, distribution, advertising and branding of foods and food products. S. 1892 proposes to prohibit the practice of roentgenology except by licensed physicians, dentists and chiropodists, subject, however, to the conditions and limitations of their respective licenses. The bill proposes to define roentgenology as "that method of medical practice in which examination and demonstration of the normal and abnormal structures and parts of the human body are made by the use of roentgen rays." S. 1893 proposes to authorize the board of supervisors in any county to regulate and license the installation and operation of any machinery, equipment or apparatus to be used for the examination or demonstration of any person or thing by means of fluoroscopic exhibition or shadow imagery registered with photographic materials and the use of roentgen rays. S. 1927 proposes that the medical, dental and nursing care or treatment required for relief clients may be given in whole or in part in cash or by order or in kind, under rules and regulations made by the state board of social welfare.

Oklahoma

Bill Introduced.—H. 638 proposes to require licensed osteopaths to register annually on or before July 1 with the secretary of the state board of osteopathic examiners, to pay annual licensing fees of $2 and to condition the renewal of licenses on the submission of proof that the licentiates have attended at least two days of the annual educational program conducted by the Oklahoma State Osteopathic Association in the year preceding applications for renewal.

Pennsylvania

Bills Introduced.—S. 503 proposes to require all physicians, clinics and hospitals to report to the secretary of health of the commonwealth the name, age, sex and address of a person in whom is found sex abnormality, sex perversion or sex criminal tendencies. H. 1038 proposes to establish a separate chiropody practice act and to establish a board of chiropody examiners to examine and license persons desiring to practice chiropody. The bill proposes to define chiropody as "the diagnosis of foot ailments and the practice of minor surgery upon the feet limited to those structures of the foot superficial to the inner layer of fascia of the foot, the palliative and mechanical treatment of deformities and functional disturbances of the feet and the making of models of the foot and toes or any one or more of such activities." Chiropody is not to include the right to treat communicable or constitutional diseases of the bones, ligaments or muscles of the feet or any other part of the body or to perform any operation on the bones, ligaments, muscles or tendons of the feet involving the use of any cutting instrument or the right to use any anesthetic other than local. H. 1098 proposes to authorize the organization of nonprofit healing arts service corporations to provide to subscribers healing art services, which the bill defines to mean the general and usual services rendered and the care administered by doctors of medicine, doctors of osteopathy, dentists, registered nurses and registered pharmacists.

Texas

Bill Introduced.—H. 489 proposes to enact a new workmen's compensation act requiring employers to pay stated percentages of their payroll into a monopolistic state compensation fund from which will be paid compensation to workmen suffering accidental injury arising out of and in the course of their employment or contracting any one or more of some twenty-six enumerated occupational diseases. Workmen injured or disabled are to be furnished reasonable medical aid, hospital service and medicine and other such treatment as may be necessary to effect a cure from their industrial injuries or disabilities. Apparently, however, workmen are not to be allowed to select physicians of their own choice. However, "if the physician, hospital services, medicines, as furnished by the Board [the administrative agency of the fund] shall not be acceptable to the injured workman, he shall have the right to employ or use such services of his own choice, provided that he submit to proper examination by the physician appointed by the Board, at the expense of the Board."

Wisconsin

Bill Introduced.—A. 692 proposes that the provisions of the medical practice act shall not apply "to a total number of fifty medical physicians who may have been engaged in the actual practice of medicine or surgery in Germany, Austria, Czechoslovakia, or Poland" to whom licenses are issued in the manner set forth in the bill. Briefly, the bill proposes that during the year commencing July 1, 1939, any physician residing in the state who within the last ten years may have been engaged in the continuous practice of medicine in the countries noted may have a license issued to him by the board of medical examiners if he files an affidavit concerning his moral and professional character and the extent and nature of his practice in Europe and also presents an affidavit signed by at least two licensed physicians in the state concerning their knowledge of the applicant. The bill proposes that the number of licenses issued shall not exceed fifty for the year indicated and that no more than five such licenses may be issued in any one calendar month.

WOMAN'S AUXILIARY

Arkansas

Mrs. J. B. Crawford, president, auxiliary to the state medical society, and Dr. George V. Lewis, president, Pulaski County Medical Society, spoke at the February meeting of the auxiliary to the Pulaski County Medical Society. Members of the federated clubs of Little Rock were guests.

At the January meeting of the auxiliary to the Bowie and Miller counties medical societies, Mrs. Kirk Mosley spoke on "Doctors' Wives of the Far East." A collection of Chinese articles was on exhibit.

At the February meeting of the auxiliary to the Sebastian County Medical Society Dr. F. G. Krock spoke on cancer control.

California

Mrs. Charles C. Tomlinson, president, auxiliary to the American Medical Association, spoke before the board of directors of the auxiliary to the California Medical Association in San Francisco February 17.

Dr. Walter H. Brown of Stanford University spoke on "Health Service in Scandinavia" at the January meeting of the auxiliary to the Alameda County Medical Association.

More than 300 doctors and their wives attended the social meeting of the auxiliary at the Athens Athletic Club February 15.

At the January meeting of the auxiliary to the Fresno County Medical Association it was reported that *Hygeia* had been placed in beauty parlors, barber shops, schools, public libraries and clubs. Drs. George W. Walker and A. E. Anderson spoke on "Socialized Medicine." At the February meeting, Mrs. Harold G. Trimble, state Hygeia chairman, spoke on "The Value and Purpose of *Hygeia* to the Public." Dr. Elliot Sorsky spoke on "Comparison of Health Conditions in India with Those in America."

The auxiliary to the Orange County Medical Association has voted to renew twelve subscriptions to *Hygeia* and the *Readers Digest* in Braille for blind persons in Orange County.

The auxiliary to the Riverside County Medical Association was addressed by Dr. Frances Keller Harding on "Medicine Down Under," showing a film of the Fiji Islands.

The auxiliary to the Los Angeles Medical Association met at the Orthopedic Hospital, Los Angeles, January 24. Dr. Robert L. Carroll spoke on "The Therapeutic Theatre," an educational activity provided for hospital patients. The guest speaker was Mme. Gosta Dohlman, wife of Professor Dohlman of Lund University of Sweden.

Illinois

Dr. John R. Neal, Springfield, spoke on "Current Legislative Problems" at a meeting of the auxiliary to the Chicago Medical Society February 1.

Pennsylvania

The auxiliary to the Philadelphia County Medical Society held its annual Christmas Bazaar at the County Medical Society Building December 2 for the benefit of its philanthropies. Dr. Rufus S. Reeves, president-elect of the county medical society, was the speaker at the meeting December 13.

Virginia

The auxiliary to the James City-Williamsburg Medical Society met at the home of the president, Mrs. Frederick R. Persons, January 10, when Dr. E. B. Kilby spoke on socialized medicine.

The auxiliary to the Petersburg Medical Society met at the home of the president, Mrs. Allan Barker, January 23, when Mrs. Wright Clarkson gave a book review on the "Life of Rosalie Slaughter Morton," woman surgeon. A linen shower for the Community Hospital was held February 28. The auxiliary is supporting a memorial bed at the Blue Ridge Sanatorium.

Wisconsin

The auxiliary to the Brown-Kewaunee-Door County Medical Society met December 1 in Green Bay. Mr. J. G. Crownhart, secretary of the State Medical Society of Wisconsin, spoke on "Sickness Care for Wisconsin." There were 125 women in attendance.

Mrs. Robert E. Fitzgerald, president of the auxiliary to the State Medical Society of Wisconsin, spoke at a meeting of the auxiliary to the Sheboygan Medical Society at the home of Mrs. Fred Nause Jr. January 11.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

Refresher Course.—The division of maternal and child hygiene of the state department of public health sponsored a refresher course in gynecology and obstetrics in Phoenix April 13-15. Dr. Norman F. Miller, professor of obstetrics and gynecology, University of Michigan Medical School, Ann Arbor, was the instructor.

CALIFORNIA

The Lane Lectures.—Dr. Thomas M. Rivers, director, Hospital of the Rockefeller Institute for Medical Research, New York, will deliver the twenty-seventh course of Lane Lectures of Stanford University School of Medicine, San Francisco, May 22-26. The general title for the lectures will be "Viruses and Virus Diseases."

COLORADO

Portrait of Dr. Edward Jackson.—Dr. Edward Jackson, Denver, observed his eighty-third birthday March 30. As a tribute from friends, a portrait is being painted by Alfred J. Wands, which will be exhibited at a special dedication ceremony but will be hung finally in the Wills Eye Hospital, Philadelphia, where Dr. Jackson received his early training. Born in West Goshen, Pa., Dr. Jackson graduated at the University of Pennsylvania School of Medicine in 1878. He practiced in West Chester and Philadelphia, becoming professor of diseases of the eye at the Philadelphia Polyclinic in 1888. He was surgeon to the Wills Eye Hospital from 1890 to 1894 and from 1896 to 1898. He practiced in Denver from 1894 to 1896 and has practiced there since 1898. He was professor of ophthalmology at the University of Colorado School of Medicine from 1905 to 1921; president of the American Board for Ophthalmic Examinations, 1916-1917; president of the Colorado Commission for the Blind, 1925, and editor of the *American Journal of Ophthalmology* from 1918 to 1928.

ILLINOIS

Pneumonia Control Program.—The state department of public health in cooperation with the U. S. Public Health Service recently launched a program to control pneumonia. Aside from the educational aspects of the plan, efforts are being made to standardize and approve existing laboratories. Antipneumococcus serum for the treatment of type-specific pneumonia has been made available to physicians regardless of the financial status of the patient. Therapeutic antipneumococcus horse serum for types I, II, V, VII, IV and VIII are available in certain areas throughout the state; as the program expands other areas will be added to include the whole state. The only requirements necessary for the physician to obtain serum are: That the bacteriologic diagnostic work for his cases of pneumonia be performed in laboratories which meet the minimum requirements of the state department of public health for typing of pneumonia, and that a treatable type of pneumococcic infection is found; that the duration of the disease has not been longer than ninety-six hours; that the proper report on the use of the serum be filled in, and that all unused vials of serum be returned immediately. The original grant from the federal government was $50,000, of which $38,000 was for serum. When this sum was expended, the state legislature made an emergency appropriation of $75,000 for serum.

Chicago

Society News.—The Chicago Gynecological Society was addressed April 21 by Drs. Paul H. Wosika and Chauncey C. Maher on "The Coexistence of Prolapse of the Uterus, Urologic Pathology and Hypertensive Vascular Disease" and Hilliard E. Miller and Edward Perry Thomas, New Orleans, "Strictures of the Cervix."——A symposium on skull fractures will be presented before the North Shore Branch of the Chicago Medical Society May 9 by Drs. Eric Oldberg, Adrien Verbrugghen and Harold C. Voris.

KANSAS

State Medical Meeting at Topeka.—The eightieth annual session of the Kansas Medical Society will be held at the Masonic Temple May 1-4 under the presidency of Dr. Noble E. Melencamp, Dodge City. The Shawnee County Medical Society is acting as host. Out of state speakers will include:

Dr. Claude D. Head Jr., Washington, D. C., Supportive Measures in the Treatment of Pneumonia.
Dr. John A. Borghoff, Omaha, Contact Dermatoses.
Dr. Waltman Walters, Rochester, Minn., Conservative Surgery of the Kidney.
Dr. James M. Martin, Dallas, Texas, Radiation Therapy in Malignant Diseases.
Dr. Julius Jensen, St. Louis, Treatment of Congestive Heart Failure.
Dr. Arnold S. Jackson, Madison, Wis., The Injection Treatment of Hernia.
Dr. Avery D. Prangen, Rochester, Minn., The Early Diagnosis and Management of the Cross-Eyed Child.
Dr. William S. Horn, Fort Worth, Texas, Chronic Undulant Fever as a Cause of Neurasthenia.
Dr. Jay A. Myers, Minneapolis, Early Diagnosis of Pulmonary Tuberculosis.
Dr. Joseph L. Baer, Chicago, Obstetrical Hemorrhages.
Dr. Mynie G. Peterman, Milwaukee, Epilepsy in Childhood.
Dr. Roy R. Grinker, Chicago, Newer Knowledge of the Central Vegetative Nervous System.
Dr. Louis J. Birsner, St. Louis, The Applied Surgical Anatomy of the Sinuses.

There will be round table luncheons in which the guest speakers will take part. Dr. Melencamp will deliver his presidential address Tuesday afternoon, following the address of welcome by Dr. William C. Menninger, Topeka, president, Shawnee County Medical Society. There will be a stag banquet Monday following the golf and trap shooting tournaments. A luncheon for county society secretaries will be held Wednesday at the Kansas Hotel and all alumni banquets have been planned for Tuesday evening. The annual banquet and dance will be held Wednesday evening when Mr. Robert L. Lund, St. Louis, the guest speaker, will discuss "The Doctor's Stake in Free Enterprise."

KENTUCKY

Lectures on Pediatrics.—A series of lectures on pediatrics will be offered at the Children's Free Hospital, Louisville, beginning April 26 and continuing on Wednesdays until July. The lectures will cover all the principal diseases of children and one hour a day will be given to presentation of interesting cases in the hospital. Dr. Philip F. Barbour is in charge of the course.

Society News.—The Henry County Medical Society was recently reorganized with the following officers: Drs. Walter W. Leslie, New Castle, president; Maurice Bell Jr., Eminence, vice president, and Owen M. Carroll, New Castle, secretary.——Physicians of Carroll, Gallatin and Trimble counties recently organized a tri-county medical society at a meeting in Carrollton with Dr. J. Samuel Brown, Ghent, as president, and Dr. Harold Carl Boylen, Carrollton, as secretary.——Dr. Richard Alexander Bate, Louisville, addressed the Boyd County Medical Association, Ashland, April 4 on "Newer Phases of Practical Endocrinology."

MARYLAND

Dean Lewis Resigns as Professor of Surgery.—Dr. Dean D. Lewis, professor of surgery at Johns Hopkins University School of Medicine, Baltimore, has resigned on account of ill health, it is reported, and will become professor emeritus. Dr. Lewis was born in Kewanee, Ill., in 1874 and graduated at Rush Medical College, Chicago, in 1899. He joined the staff of his alma mater the following year as assistant in anatomy and subsequently served as instructor in surgery, associate professor of surgery and from 1920 to 1924 as professor. He also served in this last capacity at the University of Illinois College of Medicine from January to July 1925, when he went to Johns Hopkins. Dr. Lewis's membership in medical societies includes the American Surgical Association, the American Association of Anatomists, the American Physiological Society, the American Society of Clinical Surgery, the Interurban Surgical Society and the Southern and Western surgical societies. He is an honorary member of the Wisconsin State Medical Society and a member of several foreign surgical societies. During the World War he served as lieutenant colonel and was awarded the Distinguished Service Medal. He is also a member of the Medical Council of the Veterans' Administration. He has been editor-in-chief of the *Archives of Surgery* since its establishment in 1920 and is also editor of a system of surgery. Dr. Lewis has been a member of the House of Delegates of the American Medical

Association, representing the Section on Surgery in 1915, 1916 and 1917. He was also secretary of the Section on Surgery, 1912-1913, and chairman, 1919-1920. In 1933 he was President of the American Medical Association and in 1931 a member of its Council on Medical Education and Hospitals.

MICHIGAN

Symposium on Medical Economics.—The Wayne County Medical Society, Detroit, devoted its meeting at the Detroit Art Institute April 10 to a discussion of medical economics. The speakers were:

Lent D. Upson, Ph.D., The Economic Causes of Social Unrest.
Dr. Henry A. Luce, Comments on the Wagner Bill.
Mr. William J. Burns, Lansing, Voluntary Medical Service Insurance.
Mr. John R. Mannix, Group Hospital Insurance.

Society News.—Dr. Richard M. Davison, Chicago, discussed "Surgical Treatment of Pulmonary Tuberculosis, with Special Reference to a Relatively New Procedure—Extrapleural Pneumothorax" before the Kalamazoo Academy of Medicine March 21.——Dr. Lawrence Reynolds, Detroit, discussed "Cystic Disease of the Lungs" before the Jackson County Medical Society March 21.——Dr. Harold M. Teel, Brookline, Mass., addressed the Calhoun County Medical Society, Battle Creek, March 7 on "Use and Abuse of Pituitrin in the Conduction of Labor."

MINNESOTA

The Bell Lecture on Tuberculosis.—Dr. Henry C. Sweany, Chicago, presented the John W. Bell Lecture on tuberculosis before the Hennepin County Medical Society April 3; his subject was "The Tuberculosis Problem Viewed in the Light of Recent Pathologic Studies." The lecture is sponsored by the Hennepin County Tuberculosis Association.

MISSOURI

The Terry Lecture.—Dr. Lewis Hill Weed, professor of anatomy, Johns Hopkins University School of Medicine, Baltimore, will give the first lecture under the Robert J. Terry Lectureship Foundation, Wednesday, May 17, at 4:30 p. m., in the auditorium of the Washington University School of Medicine, Scott and Euclid avenues, St. Louis. His subject will be "Anatomy in the Medical Curriculum." The lecture is open to the public without charge.

NEBRASKA

Society News.—Dr. Peter T. Bohan, Kansas City, Mo., addressed the Omaha-Douglas County Medical Society, Omaha, March 14 on coronary disease.——Drs. Paul M. Bancroft and Archibald R. McIntyre, Omaha, addressed the Lancaster County Medical Society, Lincoln, recently on "Relationship of the Pineal Gland to Sexual Precocity" and "Experimental Work with Vitamins" respectively.

NEW YORK

Society News.—Dr. Perrin H. Long, Baltimore, addressed the Medical Society of the County of Westchester, White Plains, April 18, on "Clinical Use of Sulfanilamide, Sulfapyridine and Allied Compounds."——Dr. John C. McClintock, Albany, addressed the Dutchess County Medical Society, Poughkeepsie, April 12 on "Some Thyroid Problems."——Drs. Paul V. Newland and Adrian S. Taylor, Clifton Springs, addressed the Ontario County Medical Society, Clifton Springs, April 11 on "Diabetic Coma" and "Common Diseases and Injuries of the Hip" respectively.——Dr. William H. Hobbs, Binghamton, addressed the Broome County Medical Society, Binghamton, April 11 on transurethral resection in the treatment of vesical neck interference.——Dr. Louis C. Kress, Buffalo, addressed the Onondaga County Medical Society, Syracuse, April 4 on "The Part of the General Practitioner in the Control of Cancer" and the proposed state plan for cancer control.——Robert Sealock, Ph.D., Rochester, addressed the Jefferson County Medical Society March 9 on "Vitamins from a Functional Viewpoint."

New York City

Society News.—Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, will address the Medical Society of the County of Kings, Brooklyn, May 23 on "Current Aspects of Medical Legislation."

Plans for the Twelfth Graduate Fortnight.—The New York Academy of Medicine announces that its twelfth Graduate Fortnight will be held from October 23 to November 3. The subject this year will be "The Endocrine Glands and Their Disorders." A complete program and registration blank may be secured by addressing Dr. Mahlon Ashford, The New York Academy of Medicine, 2 East One Hundred and Third Street, New York.

Obstetrics and Infantile Paralysis.—Drs. Samuel Kleinberg and Morris T. Horwitz are conducting at the Hospital for Joint Diseases an investigation of the obstetric difficulties in patients who have had infantile paralysis. The study is being conducted under a grant from the National Foundation for Infantile Paralysis. Physicians who may know of any such cases are asked to communicate with Dr. Kleinberg or Dr. Horwitz, care of the Research Department, Hospital for Joint Diseases, One Hundred Twenty-Third Street and Madison Avenue, New York.

Convalescent Measles Serum Available.—The New York Department of Health directs attention to its service for providing convalescent measles serum to hospitals and physicians. The serum is prepared in the Manhattan Convalescent Serum Laboratory in the health department's William Hallock Park Laboratory from blood obtained from persons recovered from measles. It is proved sterile and Wassermann negative before it is released, its distribution has been licensed and is under the supervision of the U. S. Public Health Service. Because the laboratory is a nonprofit organization, the serum is furnished to hospitals and physicians at cost of production. Further information may be obtained from Dr. William Thalhimer, director of the laboratory, Fifteenth Street and East River.

Health Precautions at World's Fair.—To safeguard the health of visitors at the New York World's Fair, the municipal department of health has established a branch of its activities on the exposition grounds to enforce the special rules of sanitation that have already been set up. A staff of twenty-four physicians, assisted by thirty nurses, will be in attendance at all times. There are seven first aid stations, each to provide a waiting room, surgery, nurses' and physicians' rooms, and wards for men and women. Serious cases will be temporarily hospitalized and transfer made later to outside hospitals by ambulance. The Fair Corporation operates five air-conditioned ambulances and a truck with portable x-ray equipment. The truck is also fitted up as a developing room, making possible immediate roentgenographic diagnosis. A section of pneumatology has been established at the fair, covering a wide range program in this field of the prevention of asphyxial death. Steps have been taken to enforce all regulations pertaining to the examination of food handlers and food establishments and to the disposal of garbage. Under the terms of these regulations, all glasses, cutlery and crockery used in food purveyance anywhere in the fair are required to be properly washed in a solution of soap, soda or other suitable cleansing powder and treated before each use with a final rinse of hot water at 175 F. for a period of one minute, the temperature to be registered by a thermometer. These installations must be equipped with a locking and timing device to guarantee the time required. Food handlers will be examined once a month and a card issued which must be produced on request by health inspectors. Every effort has been made to eliminate all breeding places of mosquitoes and other insects on the fair site.

NORTH CAROLINA

Society News.—Speakers at a meeting of the Catawba Valley Medical Society, Lenoir, March 14, were Drs. Frederick M. Dula, Lenoir, on "Intestinal Obstruction"; Yates S. Palmer, Valdese, "Diagnosis and Treatment of Anal Fissure" and Alfred A. Kent Jr., Granite Falls, "Epidemic of Acute Benign Lymphocytic Meningitis."——Dr. William B. Porter, Richmond, Va., addressed the Wake County Medical Society, Raleigh, March 9 on "Nutritional Deficiencies and Their Relation to the Clinical Course of Heart Disease."——Dr. Maurice Barnes Woodhall, Durham, addressed the Guilford County Medical Society, Greensboro, April 7 on "Intervertebral Disk Displacement: A Common and Remediable Cause for Sciatica and Back Pain."——Dr. Irving Graef, New York, addressed the Buncombe County Medical Society, Asheville, April 3 on "Advances in the Pathology of Renal Disease."

NORTH DAKOTA

State Medical Meeting at Fargo.—The annual meeting of the North Dakota State Medical Association will be held in Fargo at the city auditorium May 8-10. The guest speakers listed on a tentative program include:

Dr. Elmer M. Jones, St. Paul, Diagnosis and Management of the Surgical Gallbladder.
Dr. Henry E. Michelson, Minneapolis, Problems of Latent and Wassermann-Fast Syphilis; Dermatology for the General Practitioner.

Dr. Louis A. Buie, Rochester, Minn., Office and Hospital Management of Ano-Rectal Diseases.
Dr. Frank J. Hirschboeck, Duluth, Minn., Cardiac Emergencies; Diagnosis and Treatment of Gastrointestinal Hemorrhage.
Dr. Solon Marx White, Minneapolis, Hypertension.
Dr. Frederick C. Rodda, Minneapolis, An Approach to Some Common Behavior Problems.

Among the North Dakota physicians who will present papers are:

Dr. Leonard W. Larson, Bismarck, Medical Legislation.
Dr. Archibald D. McCannel, Minot, Diagnosis and Treatment of Eye, Ear, Nose and Throat Conditions Which Are of Particular Interest to the General Practitioner.
Dr. Harry J. Fortin, Fargo, Emergency Orthopedic Problems.
Dr. George A. Dodds, San Haven, Indication and Technic of Artificial Pneumothorax, Thoracoplasty and Extrapleural Pneumothorax in the Treatment of Pulmonary Tuberculosis.

OHIO

Another Society of Anesthetists.—The Ohio Society of Anesthetists will hold its organization meeting at the Hotel Waldorf, Toledo, May 4, in joint session with the American Society of Anesthetists. The meeting will open with clinics by the Toledo Society of Anesthetists, following which a constitution will be adopted by the state society and the election and installation of officers will take place. The speakers will include:

Dr. Maurice P. Cooper, Toledo, The Anesthetic Fire and Explosion Hazard.
Dr. Frederic Schreiber, Detroit, Cerebral Anoxia and Anesthesia.
Dr. John S. Lundy, Rochester, Minn., Intravenous Anesthesia.
Dr. Brant B. Sankey, East Cleveland, Combined Inhalation and Spinal Anesthesia.
Dr. Hubert R. Hathaway and M. Digby, Madison, Wis., A Free Air-Way Below the Larynx.

A business session of the American Society of Anesthetists will be held in the evening.

PENNSYLVANIA

Society News.—Dr. Richard A. Kern, Philadelphia, addressed the Lebanon County Medical Society, Lebanon, April 11 on clinical allergy.——Dr. Ralph M. Tyson, Philadelphia, was the speaker at a meeting of the Washington County Medical Society, Washington, April 12 on "Care of the Newborn Child."——At a meeting of the Cambria County Medical Society, Johnstown, April 13 Dr. Stanley P. Reimann, Philadelphia, gave an address on cancer.——Dr. Joseph H. Barach, Pittsburgh, addressed the Fayette County Medical Society, Uniontown, April 6, on "Simplified Treatment of Diabetes."

Philadelphia

University News.—Dr. Arthur D. Kurtz, who died January 21, left a bequest of $4,000 to Temple University to endow a scholarship in memory of his son, who died while a student at Temple University High School.

Personal.—Dr. Leopold S. Vaccaro has resigned as medical director of the state workmen's insurance fund, department of labor and industry, to return to private practice.——Friends and co-workers of Dr. John Claxton Gittings gave a dinner in honor of his sixty-fifth birthday March 13 at the Barclay Hotel. Dr. Albert Graeme Mitchell, Cincinnati, was toastmaster and presented to the University of Pennsylvania a portrait of Dr. Gittings, contributed by his friends. Dr. Gittings is William H. Bennett professor of pediatrics at the university, from which he graduated in 1895.——Dr. George W. Miller, Norristown, has been appointed professor of general anatomy in the Temple University School of Dentistry to succeed the late Dr. Addinell Hewson. Dr. Miller was formerly associate in anatomy at Jefferson Medical College and was at one time on the staff of the department of applied anatomy at Temple University School of Medicine.——At the recent Founder's day of Temple University, when awards were presented to alumni for conspicuous service, Dr. James Marsh Alesbury received the medical award.

SOUTH CAROLINA

Colonel Moncrief Appointed Superintendent of Sanatorium.—Col. William H. Moncrief, director of the Army and Navy General Hospital, Hot Springs National Park, Ark., has been appointed superintendent of the South Carolina Tuberculosis Sanatorium, State Park, to succeed Dr. Ernest Cooper, who is retiring after many years' service. Colonel Moncrief will assume the position about May 1, when he is eligible for retirement from the army, according to a newspaper account. A graduate of Southern Medical College, Atlanta, in 1897, Colonel Moncrief served in the Spanish-American War and after a period of private practice in Atlanta entered the army in 1902. He served overseas in the World War and since 1920 has commanded Fitzsimons, Sternberg, William Beaumont and Walter Reed general hospitals of the army previous to his service at the general hospital in Hot Springs National Park. Dr. Cooper was made the first superintendent of the sanatorium in 1915, when it had sixteen beds in an open pavilion. It now has a capacity of 500 patients. Dr. Cooper was born in North Carolina and graduated from Johns Hopkins University School of Medicine, Baltimore, in 1910.

TEXAS

State Medical Meeting at San Antonio.—The seventy-third annual session of the State Medical Association of Texas will be held at the Gunter Hotel, San Antonio, May 9-11, under the presidency of Dr. Ernst W. Bertner, Houston. Out of state speakers will include:

Dr. Irvin Abell, Louisville, President of the American Medical Association, Medicine in the Changing Social Order.
Dr. John Zahorsky, St. Louis, Psychology in Pediatrics.
Dr. Hubley R. Owen, Philadelphia, What Are the Duties and Responsibilities of the General Practitioner in the Treatment of Fractures? Unrecognized Fractures.
Dr. Eugene P. Pendergrass, Philadelphia, Irradiation Therapy of Infections.
Dr. Wiley R. Buffington, New Orleans, Medical Ophthalmology and the General Practitioner.
Dr. James N. Baker, Montgomery, Ala., A Plea for Greater Unity Between the Medical and Public Health Professions.
Dr. Charles F. Craig, San Antonio, Modern Treatment of Malaria Infections.
Dr. Chester S. Keefer, Boston, Diagnosis of the Causes of Obscure Fever.
Dr. Russell L. Haden, Cleveland, Use of Iron and Liver in the Treatment of Anemia.
Dr. Hugh H. Young, Baltimore, The Prostate: Medical and Surgical Aspects.
Dr. Henricus J. Stander, New York, General Considerations of the Toxemias of Pregnancy.

With the Bexar County Medical Society as host, an elaborate program of entertainment has been planned including golf, skeet and trap shoot, alumni banquets and luncheons. Other societies meeting during this time include the Texas Railway and Traumatic Surgical Association, Texas Neurological Society, Texas Association of Medical Anesthetists, Texas Society of Gastro-Enterologists and Proctologists and Texas Dermatological Society. The woman's auxiliary to the State Medical Association of Texas will hold its twenty-first annual session.

WASHINGTON

New Committees of State Society.—The board of trustees of the Washington State Medical Association at a meeting in January created two new committees, one on public relations and one on postgraduate medical education. Dr. Clark C. Goss, Seattle, is chairman of the committee on public relations and the members are Drs. Henry S. Atwood, Yakima; Jo B. Blair, Vancouver; John C. Lyman, Walla Walla; Sydney M. MacLean, Tacoma; Edwin A. Nixon, Seattle, and Otto M. Rott, Spokane. Dr. Homer D. Dudley, Seattle, is chairman of the committee on postgraduate medical education and members are Drs. Donald G. Evans, Richard J. O'Shea and Charles E. Watts, all of Seattle.

GENERAL

Meeting of Chest Physicians.—The American College of Chest Physicians will hold its annual meeting at the Chase Hotel, St. Louis, May 13-14, under the presidency of Dr. Champneys H. Holmes, Atlanta, Ga.

Nu Sigma Nu Luncheon.—The annual Nu Sigma Nu Fraternity alumni luncheon will be held at the Statler Hotel in St. Louis, Wednesday, May 17, during the period of the annual session of the American Medical Association. Additional information may be had from Dr. Drew Luten, 3720 Washington Boulevard, St. Louis.

Dr. Spies Awarded Phillips Medal.—Dr. Tom D. Spies, associate professor of medicine, University of Cincinnati College of Medicine, Cincinnati, was awarded the John Phillips Memorial Medal by the American College of Physicians at its annual meeting in New Orleans March 29. Dr. Spies was given the medal for "outstanding contributions to the science of nutrition and particularly for his studies on the nature and character of pellagra." Dr. Spies graduated at Harvard Medical School in 1928.

Advisory Committee to the Red Cross.—Dr. Livingston Farrand, Brewster, N. Y., has been made chairman of a medical advisory committee to the American Red Cross, it was announced March 15. Other members of the committee are

Drs Thomas Parran, surgeon general, U S Public Health Service, Washington, D C, Waller S Leathers, dean, Vanderbilt University School of Medicine, Nashville, Tenn, David P Barr, professor of medicine, Washington University School of Medicine, St Louis, Martha M Eliot, assistant chief of the Children's Bureau, Washington, D C, Ross T McIntire, surgeon general, U S Navy, Charles R Reynolds, surgeon general, U S Army, and Edwards A Park, pediatrician of Johns Hopkins Hospital, Baltimore

Research in Ophthalmology.—The Association for Research in Ophthalmology, Inc, will hold its tenth annual meeting in St Louis May 16 The following program will be presented

Dr Theodore E Sanders, St Louis, Experimental Ocular Hypersensitivity
Drs Theodore L Terry, Boston, Julian F Chisholm Jr, Savannah, Ga, and Albert L Schonberg Cleveland Studies on Surface Epithelium Invasion of the Anterior Segment of the Eye
Dr Maynard A Wood, Iowa City, A Study of Methemoglobin-Producing Organisms in Ocular Inflammations
George K Smelser, Ph D, New York Relation of Muller's Orbital Muscle to the Pathology of Retrobulbar Tissues Obtained in Experimentally Produced Exophthalmos
Dr Earl L Burky, Robert Redvers Thompson, Ph D, and Helen D Zepp, A B, Baltimore, Ocular Reactions of Horses and Rabbits Infected with Strains of Brucella Recovered from Horses with Periodic Ophthalmia
Dr James H Allen Iowa City Staphylococcus Conjunctivitis—Experimental Reproduction with Staphylococci
Louis Jubanelle Ph D, St Louis, An Immunological Study of Trachoma
Dr Arthur A Knapp, New York Vitamin D Complex in Myopia, Etiology, Pathology and Treatment

Dr. Stevenson Succeeds Dr. Hincks.—Dr George S Stevenson, New York, director of the division of community clinics of the National Committee for Mental Hygiene, has been appointed medical director to succeed Dr Clarence M Hincks Dr Hincks has been dividing his time since 1931 between the national committee and the National Committee on Mental Hygiene of Canada and now returns to the latter organization Dr Stevenson graduated from Johns Hopkins University School of Medicine, Baltimore, in 1919 After graduation he taught psychiatry at Cornell University Medical College, New York, and the University of Minnesota Medical School, Minneapolis, until he joined the National Committee for Mental Hygiene in 1926 as field consultant for the division on community clinics He became director of the division in 1927 He is active in various organizations for mental hygiene and has been secretary and president of the American Orthopsychiatric Association

Medical Women's Association Meeting.—The twenty-fourth annual convention of the American Medical Women's Association will be held at the Hotel Jefferson, St Louis, May 12-14 A banquet honoring past presidents of the association will open the session, at which Drs Harriet S Cory and Helen L B Gage, St Louis, will speak on "What Next for Social Hygiene?" and "The Influence of the Autonomic System upon Certain Diseases of the Upper Respiratory Tract," respectively Other speakers on the program will include

Dr Aphrodite M J Hofsommer, Webster Groves, Mo, Hard of Hearing in the Public Schools
Dr Lois C Wyatt, Kirkwood, Mo, Meningitis Complicating a Case of Chickenpox
Dr Ellen S Loeffel Webster Groves Mo Recent Developments in the Endocrine Therapy of Menstrual Disorders
Dr Mary Alice Townsend DeMotte Phillipsburg, Kan, Status of Medical Practice in Western Kansas
Dr Lillian R Smith, Lansing, Mich, Maternity and Child Welfare

At the inaugural banquet Saturday evening Dr Margaret G Smith, St Louis, will discuss "The St Louis Encephalitis" and Dr Nelle S Noble, Des Moines, will present the inaugural address on "Women in Medicine"

The Twenty-Fifth Annual Golf Tournament.—Fifty trophies and prizes will be awarded in the nine events of the twenty-fifth annual tournament of the American Medical Golfing Association at the banquet at Norwood Hills Country Club, St Louis, May 15 To reach the country club drive out Florissant Road to Lucas and Hunt Road, then north to the country club This is a thirty-six hole competition, beginning at 7 30 a m and 2 30 p m Only active fellows of the American Medical Golfing Association may compete for prizes Members should bring their membership cards to the tournament to facilitate registration The dinner, the green fees for both courses, tournament fee, refreshments, entertainment and prizes are all covered by the $6 fee New fellows of the golfing association pay an additional enrollment fee of $3 All members of the golfing association are cordially invited to attend this silver anniversary of the American Medical Golfing Association Additional information will be provided by Bill Burns, executive secretary, 2020 Olds Tower, Lansing, Mich

Association of the History of Medicine.—The fifteenth annual meeting of the American Association of the History of Medicine will be held at the Hotel Chalfonte, Atlantic City, N J, April 30-May 1, under the presidency of Dr Walter R Steiner, Hartford The speakers will include.

Morris C Leikind, Washington, D C, An Episode in the History of Smallpox Vaccination in New Hampshire
Walton B McDaniel, Ph D Philadelphia, The Place of the Amateur in the Writing of Medical History
Dr Howard Dittrick Cleveland Nursing Cans
Dr Franklin H Church, Salem, N J, Syphilis of the Center of the Face
John W Draper, Ph D, Morgantown, W Va, The Old Age of King Lear
Dr Savas T Nittis, Detroit, The Hippocratic Oath in Reference to Lithotomy A New Interpretation, with Historical Notes on Castration
Dr Iago Galdston New York, Ideological Basis of Discoveries
Dr David Riesman, Philadelphia Clinical Teaching in America with Some Remarks on Early Medical Schools
Dr Jabez H Elliott, Toronto John Gilchrist, 1792 1859, A New England Physician in Upper Canada
Dr George Rosen, Brooklyn, Occupational Diseases of English Seamen During the Seventeenth and Eighteenth Centuries
Albert Deutsch, New York, Provision for the Sick Poor in Colonial Times
Dr Robert S Drews, Detroit, The History of the Care of the Sick Poor in Detroit

Dr Steiner will deliver his presidential address Monday evening on "Some of Louis' Distinguished American Pupils" and Dr William G Leaman Jr, Philadelphia, will discuss "Medical History in Clinical Teaching"

Society for Investigative Dermatology.—The second annual meeting of the Society for Investigative Dermatology will be held at the De Soto Hotel, St Louis, May 16 Dr Joseph V. Klauder, Philadelphia, will deliver the presidential address, on "Clinical and Experimental Study of Interstitial Keratitis" Other speakers will include

Dr Cornelius P Rhoads, New York, The Physiological Disturbance Associated with Premalignant Changes of the Oral Cavity
Irvin H Blank, Ph D, Boston, *pH* Measurements on the Surface of Normal Skin
Dr Matthew Walzer, Brooklyn, Contact Reaction in Atopic Children
Dr Horton C Hinshaw and W H Feldman, D V M, Rochester, Minn, A Histopathologic Study of the Intracutaneous Tuberculin Reaction in the Human Being
Dr Carl W Laymon, Minneapolis, Histamine in the Treatment of Urticaria and Atopic Dermatitis
Dr Joseph Harkavy, New York Tobacco Skin Reactions and Their Clinical Significance
Dr Leon Goldman, Cincinnati, Effect of Fever Artificially Induced on the Skin Sensitivity of Guinea Pigs to Turpentine
Dr Stephen Rothman, Julius M Coon Ph D, and Mrs Harriet Stenn, Chicago, Studies on Acetylcholine in Patients with Skin Diseases
Drs George P Vryonis and Hugh J Morgan, Nashville, The Number of Treponema Pallidum in the Superficial Lesions of Human Syphilis
Dr Joseph M Thuringer, Oklahoma City, Mitotic Index of Palmar and Plantar Epidermis in Response to Stimulation
Drs Charles W Barnett and George V Kulchar, San Francisco, Experimental Studies on the Salivary Transmission of Syphilis
Dr P. Arthur Delaney, Chicago, Modern Technical Methods in Cutaneous Histopathology
Zola K Cooper, Ph D St Louis Mitotic Rhythm in Human Epidermis
Dr Lester W Kimberly, Iowa City, Blood Plasma Bromide Levels in Bromoderma
Dr Camille Kereszturi, New York, Primary Tuberculosis of the Skin

Eye, Ear, Nose and Throat Session.—The forty-fifth annual meeting of the American Laryngological, Rhinological and Otological Society will be held at the Drake Hotel, Chicago, May 9-11, under the presidency of Dr Harold I Lillie, Rochester, Minn A symposium on care of the patient following operations for sepsis of otitic origin will open the scientific session with Drs William E Grove, Milwaukee, Jacob Marion Sutherland, Detroit, and Thomas C Galloway, Evanston, Ill, as the speakers One session will be devoted to the care of mastoid wounds

Dr Marvin F Jones New York, Following the Complete Mastoid Operation Sinus Thrombosis and Operations on the Petrous Pyramid
Dr James Morrisset Smith, New York Following the Radical Mastoid Operation of the Modified and Standard Types
Dr Harold G Tobey, Boston, Following Operations on Abscess of the Brain

Speakers in a symposium on final results in operations for chronic suppurative paranasal sinusitis will include

Dr Bert E Hempstead, Rochester, Minn, End Results in Intranasal Operations for Maxillary Sinusitis
Dr Ebenezer Ross Faulkner New York, End Results of Intranasal Operations on the Ethmoid Frontal and Sphenoid Sinuses
Dr Samuel Salinger, Chicago End Results in External Operations on the Maxillary Sinus
Dr Millard F Arbuckle St Louis End Results in External Operations on the Frontal Ethmoid and Sphenoid Sinuses

A symposium on voice defects will include the following

Dr James S Greene New York, Vocal and Verbal Syndromes Their Rhinolaryngologic Significance
Dr Irving Wilson Voorhees, New York Voice Defects as Related to Hearing Defects
Dr Chevalier L Jackson, Philadelphia, The Voice After Direct Laryngoscopic Operations, Laryngofissure and Laryngectomy

Dr Lyman G Richards, Boston, will also address the meeting on 'Cuts and Captions' Five Editorial Years in Retrospect"

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 1, 1939.

A Complete War Time Plan of Hospital Organization

In the great war the principal hospitals of the country were extensively used for the treatment of wounded soldiers. If another European war occurs they will be put to a quite different use. The bombing from the air of crowded cities has made the position of these hospitals dangerous. They will be used as casualty clearing stations for the immediate treatment of numerous civilian casualties which are expected, and the seriously wounded who cannot be discharged will be removed to base hospitals in safer localities. Plans for this purpose have now been worked out in the greatest detail. Thus London has been divided into ten sectors. These contain the great teaching and large municipal hospitals which have the personnel and equipment for dealing with casualties on a large scale. Other hospitals and institutions have adequate accommodation and can be cleared of their normal patients and upgraded to the status of casualty hospitals in time of emergency. From these the injured would be transferred as soon as possible to affiliated casualty base hospitals in outer areas.

FIRST AID POSTS AND MOBILE UNITS

First aid posts are to be established wherever possible and supplemented by mobile units consisting of vehicles carrying equipment and medical personnel. Each unit is to consist of an automobile 8 feet 6 inches long, 5 feet wide and 6 feet high, fitted with cupboards packed with medical and surgical material. A physician and a nurse will travel in this and auxiliary personnel will follow in a car. One physician at least is to attend at every first aid post. An annual fee is to be paid in peace time to physicians in charge of first aid posts in consideration of their supervising the collective training of the auxiliary personnel assigned to the post. In London the land ambulance service will be supplemented by a river service on the Thames from its estuary up to Teddington.

Surgery in Diabetes

In a discussion at the Royal Society of Medicine Dr. H. P. Himsworth said that surgery in diabetes depended on whether the patient could be sent to the operating room with his diabetes balanced. If not, the surgical technic might have to be modified. Knowledge of the blood sugar level was of little value, for it was not correlated with the clinical state. All the necessary information could be obtained from a series of specimens of the urine. The most important chemical sign was ketonuria, for it showed that the diabetes was grossly out of control and the patient not fit for operation. When time was available the preparation of the patient with uncontrolled diabetes differed from the routine balancing in only one respect: he must receive an adequate amount of food from the onset—at least 1,800 calories and from 180 to 200 Gm. of carbohydrate. The dose of insulin should be raised until ketonuria was completely abolished and glycosuria reduced to a minimum. Protamine zinc insulin should not be used unless a long time was available for observation.

For minor operations under local anesthesia with evipal or with tribromethanol in amylene hydrate no special measures were necessary, but a major operation under a volatile anesthetic required special preparation. The meal and insulin next before the operation should be omitted, but two or three hours before 50 Gm. of sugar in lemonade should be given and, as the patient was put on the trolley, 35 units of insulin subcutaneously. If he was on protamine zinc insulin and the operation was fixed for the morning, the same preparation should be given without breakfast or protamine zinc insulin. If the operation was in the afternoon he should receive the usual dose of protamine zinc insulin and luncheon should be omitted, but three hours before operation 30 Gm. of sugar should be given and 10 units of insulin as he went to the operating room. Ether produced vomiting, which by interfering with the intake of food might complicate treatment, and chloroform was condemned by authorities. Postoperative dehydration must be avoided and diabetic ketosis averted, the former by administration of dextrose saline solution and water, the latter by administration of insulin. After the operation a patient who could take food by mouth was given sweet lemonade. Every specimen of urine was tested, if there were no ketones, by Benedict's solution; if the precipitate was red the patient should have 20 units of insulin; if yellow, 50; if green, 10. But if there was no precipitate, no insulin. If ketonuria was present, more carbohydrate should be given and 25 units of insulin for each 50 Gm. of sugar. If the patient could not take sugar by mouth during the first twelve hours he should have insulin according to the color schedule. Ketosis should be combated by intravenous dextrose and saline solution, one pint an hour for two or three hours, and, for every 50 Gm., of dextrose, from 30 to 50 units of insulin should be given according to the severity of the ketosis. If after twelve hours dextrose could still not be given by mouth, more dextrose and saline solution should be injected intravenously with 25 units of insulin.

The state of ketonuria determined whether an emergency operation could be undertaken at once. It was usually possible to wait six hours. If much ketosis was still present, 10 per cent dextrose solution could be infused during the operation and afterward until the ketosis disappeared. If during preparation severe glycosuria developed and ketonuria appeared, sepsis was probably present and operation must not be delayed.

James Risien Russell

The death at the age of 75 of James Risien Russell has removed a great neurologist and great teacher. He graduated at Edinburgh in 1886 and took the gold medal at his M.D. examination. He came to London for postgraduate study at St. Thomas's Hospital and after further study at Berlin and Paris became resident medical officer at the National Hospital, Queen Square, the home of British Neurology, then at its zenith. On its staff was a galaxy consisting of Hughlings Jackson, Ferrier, Gowers, Horsley, Beevor and Bastian. Russell was in turn appointed registrar, pathologist, assistant physician and physician. By a succession of original papers published from 1890 to 1900 and his skill as a clinician and teacher, he achieved a standing beside these great British neurologists. These papers included experimental studies on the functions of the cerebellum, its afferent and efferent pathways, the constitution of the brachial and lumbosacral plexuses and the effects of various lesions of the central nervous system on the knee jerk. With James Taylor he made a critical study of the suspension treatment of tabes dorsalis. In 1900 he published with Batten and Collier a classic paper on the disease they termed "subacute combined degeneration of the spinal cord." He pointed out that cerebellar ataxia is a feature of voluntary as opposed to reflex movements. His command of language and clinical acumen attracted crowds to his clinics. It was said of him by the students that he knew all that the other neurologists knew and had something of his own in addition. He was a president of the Neurological Section of the Royal Society of Medicine, corresponding member of the Société de neurologie of Paris and honorary member of the Canadian Medical Association. He contributed many papers to the medical journals and neurologic chapters to Allbutt's System of Medicine, the Encyclopaedia Medica, Quain's Dictionary of Medicine and Gibson's Textbook of Medicine.

PARIS

(From Our Regular Correspondent)

March 25, 1939.

Clinical Versus Biologic Cure of the Avitaminoses

At the February 28 meeting of the Académie de médecine of Paris, Drs. Georges Mouriquand and Jacques Rollet called attention to the necessity of making a distinction between relief of symptoms due to an A or C avitaminosis and cure of the underlying tissue changes which result from such avitaminoses. By the latter is meant the loss of sensibilization to a recurrence of the particular avitaminosis. Guinea pigs which have been subjected to a C avitaminosis diet present typical scorbutic lesions as early as the fifteenth day, which increase in severity from that period onward. If the animals are given a strong dose of ascorbic acid toward the twentieth day, all the clinical evidences of the avitaminosis recede rapidly in a few days. From ten to thirty days after apparent cure, no typical scorbutic lesions can be found at necropsy. If the surviving apparently cured animals are again placed on a C avitaminosis diet and other guinea pigs, to be used as controls, are given the same diet, the apparently cured animals show scorbutic lesions between the third and sixth days, whereas the controls present only the typical lesions from the fifteenth day onward. Only after a long period of treatment with ascorbic acid do the animals which show early evidence of recurrence appear to be cured again. This period varies from sixty to eighty days. This persistence of the lesions of C avitaminosis and sensitization in the animals subjected to a second C avitaminosis diet after apparent cure coincides with the persistence of a certain fibrillary condition of the medulla of the bones, and this disappears only when complete neutralization is obtained. Similar results were obtained in rats subjected to A avitaminosis. After use of an A avitaminosis diet, there appears a typical xerophthalmia, which recedes rapidly after carotene is given. If, however, the A avitaminosis diet is given again, the xerophthalmia reappears in ten or fifteen days, whereas in the control animals, which have been given the A avitaminosis diet for the first time, the xerophthalmia appears at about the thirtieth day.

These experimental observations indicate that the apparent clinical cure of patients suffering from A or C avitaminosis is not a real cure. Complete cure depends on the disappearance of sensibility on the part of the tissues. This necessitates a prolonged cure in order to prevent recurrence of symptoms and bring about a state of biologic "neutrality."

Serotherapy of Appendicitis and Perforative Peritonitis

Prof. M. Weinberg of the Pasteur Institute read a paper at the Nov. 29, 1938, meeting of the Académie de médecine in which he warmly recommended the use of an antigangrene and anticolibacillus serum in all cases of acute appendicitis, especially if complicated by peritonitis. This treatment has encountered strong opposition on the part of some of the leading surgeons in Paris because it might encourage the practitioner to await the outcome of the injection of the serum and consequently result in an increased mortality as compared with that of immediate operation in all cases of acute appendicitis. At the February 21, 1939, meeting of the same society, Professor Weinberg answered the criticisms of those who were opposed to such preoperative serotherapy. He stated that he wished to be understood as being in favor of operation in all cases at some period. For patients who were far away from hospitals, for example on islands, in the colonies or on ships at sea, serotherapy was distinctly indicated. In addition, many surgeons preferred to postpone operation, if possible, until an acute attack had subsided. Their patients would be distinctly benefited by preoperative serotherapy directed toward combating the bacteria most commonly found in appendicitis and appendicular peritonitis. In ten cases studied bacteriologically, the defensive powers of the patient were distinctly increased as a result of serotherapy. Even in cases of immediate operation, serotherapy is indicated in the interval preceding the operation.

In the discussion, Prof. H. Vincent stated that Bacillus perfringens was rarely found in cases of appendicitis and even when present did not appear to have any marked pathogenic properties as compared with Bacillus coli. If certain surgeons, as Dr. Weinberg claimed, had observed a lower mortality rate following the use of a polyvalent antigangrene and an anticolibacillus serum, the reason for this improvement was not the action of these specific serums. It must be remembered that ordinary horse serum contains a variable quantity of antibodies which act on a large number of bacteria, especially B. perfringens, B. coli and Streptococcus faecalis (enterococcus). But Dr. Vincent supported the contention of Dr. Weinberg that serums which had a specific action on these three groups of bacteria should be used because there were cases in which horse serum alone did not contain sufficient antibodies to combat the toxins of B. perfringens, B. coli and Streptococcus faecalis.

Fiftieth Anniversary of Pasteur Institute of Paris

The Academy of Science started a subscription in 1888 to erect suitable buildings to house the work of Pasteur and his associates. The Pasteur Institute was opened Nov. 14, 1888, and plans had been made to celebrate its fiftieth anniversary last fall. Owing, however, to the disturbed condition of international affairs, the celebration was postponed to March 15 of this year. In the presence of President Lebrun and of Minister of Public Health Rucart, papers were read by Prof. Louis Martin, director of the Pasteur Institute, by Prof. Gaston Ramon of the branch institute at Garches in one of the Paris suburbs, and by the grandson of Louis Pasteur, Prof. Pasteur Vallery-Radot.

Following the reading of these three papers, a gold medal was awarded Dr. Harry Plotz of New York, at present head of one of the laboratories of the Pasteur Institute, for his research work on the virus of various infectious diseases. A gold medal was also awarded Dr. A. Saenz, now of Uruguay, for his work on the bacteriology of tuberculosis. Prof. Louis Martin in his paper reviewed the life of Pasteur, in calling attention to the opposition which he encountered to his pioneer work in bacteriology. The first course in March 1889 was given at the institute by one of Pasteur's assistants, Professor Roux, whose research on diphtheria made his name almost as well known in the scientific world as that of Pasteur. During recent years the activities of the institute have been especially directed toward the study of the viruses of diseases affecting both animals and man.

Professor Ramon first reviewed the work of Roux and Yersin, who discovered the toxin of diphtheria in 1888 and then found a serum which would neutralize this toxin. In the effort to prevent diphtheria, a series of investigations was begun in 1923 by Professor Ramon at the branch Pasteur Institute in one of the suburbs of Paris. The results of fifteen years of application of this method of vaccination against diphtheria by the use of the toxoid was described in the January 21 Paris letter (THE JOURNAL, February 25, p. 758). In addition to vaccination against diphtheria, the branch Pasteur Institute under the direction of Professor Ramon has investigated the question of vaccination against tetanus. Both of these toxoids are now employed extensively in the French army.

Prof. Pasteur Vallery-Radot described the organization of branches of the Pasteur Institute in nearly all the French colonies. The first of these was erected in Tunis in 1893 and a little later one was opened in Algiers. Since then, branches

in Morocco, Madagascar, Indo-China and French West Africa have been organized. Important contributions to our knowledge of various tropical diseases have been published, so that the result of the work of these branch institutes has been a marked reduction in the incidence and mortality of tropical diseases in the French colonies.

BERLIN

(From Our Regular Correspondent)

March 13, 1939.

Infectious Diseases During 1938

Twenty-two infectious diseases are compulsorily reportable under the new law. The promptitude with which most cases are reported to the health officers has made possible the early release of rather complete statistics for the year 1938.

Diphtheria again occupied first place among infectious diseases, as it has done for many years; 149,424 cases were reported. Despite the intensive antidiphtheria campaign the disease has yet to lose its epidemic character. Since children are chiefly affected, diphtheria also ranks as the most prevalent of any disease of childhood. Second to diphtheria was scarlatina, with 114,423 cases. Unlike diphtheria, scarlatina had decreased by several thousand cases as compared with 1937. Fewer new cases of tuberculosis of the lungs were reported than in the previous year (60,420 cases in 1938, 63,570 in 1937). The authors of the report emphasized, however, that a general decline in tuberculosis should not be assumed.

In contrast to the foregoing three principal infectious diseases the others appear numerically insignificant, yet if the seriousness of these less common diseases is considered their importance becomes manifest. Lupus remained virtually unchanged, 1,039 cases against 1,042 in the year 1937. On the contrary, several hundred more cases of encephalitis were reported than in 1937, bringing the total to 1,826. New cases of other infectious diseases were reported as follows: meningitis 287, poliomyelitis 5,757, typhoid 2,945, paratyphoid 3,210, dysentery 5,265, puerperal fever 2,991, febrile abortion 2,862, bite wounds inflicted by rabid animals 112, anthrax eighty-four, psittacosis thirty-seven, trichinosis twenty, malaria 365 (malaria has been compulsorily reportable since January 1), leprosy one case, in the port of Hamburg. The 1938 report mentions no cases of cholera, typhus, yellow fever, plague, variola, relapsing fever or glanders. All the foregoing have to do only with new cases. No statistics from Austria and the Sudetenland are included.

The mortality from the various disorders reflects their relative severity. In 1938 tuberculosis of the lungs caused the greatest number of deaths, 30,623. This figure is equal to numerically more than half the number of newly reported cases of the same disease. One could scarcely adduce better statistical evidence of the peril of tuberculosis than these proportional figures. In 1937, 33,236 persons died of pulmonary tuberculosis. (The tuberculosis deaths occurring in 1938 do not, of course, represent cases newly reported in that year but cases from the aggregate of tuberculous persons.) Conversely, despite the high morbidity of diphtheria there were only 5,286 deaths from that disease. This figure is even smaller than that for the year 1937, although more cases were reported in 1938. This decline in fatalities was probably due to improved treatment and diminished severity of diphtheria. Even smaller was the scarlatina mortality, 759 deaths in 114,243 cases. Among 1,826 cases of lethargic encephalitis there were 842 deaths, most of the victims being children; among 287 cases of meningitis there were 160 deaths; among 5,757 cases of typhoid, 338 deaths. Other fatalities included paratyphoid 126 deaths, dysentery 161 deaths, puerperal fever 548 deaths, febrile abortion 344 deaths, bite wounds twelve deaths, psittacosis six deaths. In general, with the exception of encephalitis, poliomyelitis, typhoid, paratyphoid and anthrax a recession in the number of fatal cases of infectious disease took place during 1938.

The "House of Health"

The national chamber of physicians in collaboration with various other officials has established a hospital on the shores of the Starnberger See near Munich, which is considered a model for all German hospitals of the future. This institution has been equipped along the lines of "new German medicine" as practiced at the Rudolf Hess Hospital, Dresden. The layout includes common dining halls, a promenade adjoining the baths, bordered by outdoor bathing pools in the kneippist tradition, lounging halls for summer and winter treatment and a spacious gymnasium. The building is surrounded by a huge park in which are facilities for individual physical exercise and for games, including a sort of common recreation area for men and women. The *raison d'être* of all these innovations is, as officially stated, a physical and mental rehabilitation of the patients, to supplement the usual hospital care. The new system will above all be directed to prevention of "diseases of civilization." The following considerations motivated foundation of the new institution: Hospital routines have heretofore been based too exclusively on the care of the patient. This has tended to make a patient "soft" and easily susceptible to psychic disturbances. Accordingly, the new establishment attempts a comprehensive program of rehabilitation which looks beyond the mere curative goal and which is designed to awaken and strengthen against the future the natural forces of resistance both physical and mental. Hence for this institution "for the cure and prevention of sickness" the name "house of health" (gesundungshaus) has been selected as more appropriate than the usual term "hospital" (krankenhaus).

ITALY

(From Our Regular Correspondent)

Feb. 28, 1939.

National Congress of Pediatricians

The Società Italiana di Pediatria recently held its sixteenth national congress at the University of Genoa.

The first topic was "Meningitis with Clear Cerebrospinal Fluid in Children." Tuberculous meningitis was excluded. Professor Taccone said that meningitis with clear cerebrospinal fluid may be primary or secondary and of bacterial or nonbacterial origin. Meningitis from a neurotropic virus and of physical, chemical or unknown origin is primary nonbacterial meningitis. The forms which develop in the course of bacterial infections from the direct or indirect action of bacteria are secondary bacterial forms, whereas those which complicate nonbacterial infections (such as so-called sympathetic meningitis and those from exogenic intoxication, anaphylaxis and the like) are secondary nonbacterial forms. Primary serous meningitis with clear cerebrospinal fluid is benign. Clinical meningeal symptoms with more or less transient and extensive paralysis are frequently caused by poliomyelitis. Meningitis from epidemic encephalitis is rare. In latent tuberculous meningitis, meningeal symptoms do not develop. The cerebrospinal fluid shows neither chemical nor cytologic changes, but it contains tubercle bacilli. In the course of benign lymphocytic acute meningitis the cerebrospinal fluid is altered. The speaker disapproved of the tendency to diagnose benign lymphocytic meningitis in the case of meningeal reactions with cerebrospinal fluid changes from which the patient recovers. The condition may be a reaction to various diseases, especially in relation to seasonal influences. The existence of a virus for benign lymphocytic meningitis has not been proved, and the autonomy of the form is as yet hypothetic. In meningitis with clear cerebrospinal fluid there are albuminosis and lymphocytosis of the cerebrospinal fluid.

Professor De Simone, the second speaker, said that secondary meningitis, bacterial or nonbacterial, may develop in the course of or at the end of certain diseases. Probably this form represents special humoral reactions of the patient or a diminished virulence of bacteria in the given infection. There are several forms of meningococcic meningitis. In the fulminant form the cerebrospinal fluid may be slightly altered because of the rapidly fatal evolution. Some forms of meningitis, including benign lymphocytic meningitis, may be due to an attenuated meningococcic infection. Other forms of secondary bacterial meningitis are those from icterohemorrhagic spirochetosis and from syphilis. The latter may develop with secondary syphilis or after administration of insufficient treatment. The speaker discussed also meningitis from trauma, sun stroke, heat stroke, simple lumbar puncture, introduction of foreign substances into the spinal canal and local anaphylactic reactions. Frequently the symptoms are not proportional to the changes in the cerebrospinal fluid.

NUTRITIONAL DISEASES IN INFANTS

The second topic was "Acute Nutritional Diseases in Infants." Professor Barberi discussed the etiology and pathogenesis of diseases of the digestive tract in infants. Infection is an important factor. Constitution plays a part because of the individual needs and assimilation by infants of certain constituents of food. Exudative diatheses are predisposing factors in the development of gastrointestinal disturbances. The climatic and meteorologic changes of summer also have a role. The administration of colloids or of acidified milk, a diet without any milk, diminution of the intake of milk and administration of greens, fruits and vitamins are of value in preventing acute nutritional disturbances in infants. Milk used in the treatment of nutritional diseases in nurslings must contain a reduced amount of fat, modified casein and a sufficient amount of carbohydrates to compensate for the deficiency of fats and to control intestinal putrefaction.

Professor Moggi pointed out the importance of breast feeding in the prevention of nutritional diseases in nurslings and the advisability of establishing a nursery room in industrial centers in order that working mothers may feed their infants. Placing infants in the homes of nurses does not give satisfactory results. It is advisable to establish periodic consultations with nurses who conduct nurslings' homes and to have legal control of them. The education of mothers about the health of infants is important, especially in the care of nutritional diseases. The courses on puericulture for mothers given every year by the Opera Nazionale per la Maternità e Infanzia and the courses in specialized pediatrics for municipal physicians given by the ministry of internal affairs have given satisfactory results.

A special session of the congress was devoted to the care of illegitimate children. The next congress will meet in Rome.

Annual Congress on Urology

The Società italiana di Urologia recently held its seventeenth national congress in Rome.

Dr. Oberholtzer of Rome spoke on the first topic, "Hormones in the Treatment of Hypertrophy of the Prostate." Theoretically two different male hormones are formed by the testicular interstitial cells. Some authors say that the testicle contains cells which produce estrogen, which exists in the normal urine of man. These substances have an effect on the size and structure of the prostate. Those from Sertoli's cells prevent hypertrophy, whereas those from the interstitial cells stimulate it. Estrogen may induce fibro-adenomatous degeneration of the posterior lobes of the prostate. Variations in the volume and structure of the prostate begin when the equilibrium between these substances, especially between androgen and estrogen, is destroyed. In the literature are reports of more than 1,000 cases of endocrine treatment of hypertrophy of the prostate. The speaker reported results in a group of 150 patients, of whom 112 were treated with androgen. The remaining patients had either estrogen or a combined treatment of androgen and estrogen. The speaker believes that glandular disturbances are the most plausible cause of prostatic hypertrophy. The treatment with androgen gives satisfactory results in many cases. The general condition of the patient and the renal functions improve, and the vesical residue diminishes or disappears completely. The treatment is valuable after intra-urethral resection to prevent recurrence. It is harmless, has no contraindications and does not interfere with the results of prostatectomy if indicated. Prostatectomy is followed by rapid recovery in patients who have had the endocrine treatment and complications are rare. Such treatment may stop the evolution of prostatic hypertrophy but does not diminish the size of the adenoma.

TRANSPLANTATION OF URETERS

The second topic, "Transplantation of Ureters," was divided into two subtopics. Professor Chiandano discussed "Ureteral Anastomoses and Ureteral Transplantations." He reviewed the operations used in performing uretero-ureteral anastomoses and in transplanting the ureters to the bladder and intestine. The end to end circular suture (Schopf's technic) is the simplest method for ureteral anastomoses. Transplantation of a ureter to the other one has not met with general approval. Cystoneostomy, or transplanting to the bladder the distal end of the ureter, does not give satisfactory results. Anastomosing a ureteral end which is provided with flaps aims to prevent stenosis at the contacting area. The technic is ingenious and stenosis does not follow. However, the best results are obtained from invagination by traction of the bladder with special instruments introduced into the bladder. Implantation of the ureter to the intestine has many advocates. The operation imitates normal conditions more closely than other operations do.

Professor Chiatellino discussed the results of experimental transplantation of the ureters in structures of the urinary tract or in the intestine. He reviewed the literature and concluded that the immediate results of ureteral transplantation have been improved by the advances in technic. Many technical refinements have been resorted to, but the results of the operation depend not only on the technic but on other factors. In further work on the subject it is advisable to take into account the part taken by physiopathologic factors in the evolution of transplanted ureters. After the presentations by the speakers and after the discussions, several other articles were read and discussed.

Marriages

MARION B. O'KELLEY, Leesburg, Fla., to Miss Barbara Davis Hoffman of Washington, D. C., Nov. 4, 1938.

ROBERT BRUCE LOGUE, Atlanta, to Miss Carolyne Frances Clements of Buena Vista in November 1938.

EDWARD CAFFRON KLEIN JR., Newark, N. J., to Miss Regina Shanley of South Orange, February 11.

RAYMOND F. SHEETS, Carthage, Ill., to Mrs. Elva McCallister in Keokuk, Iowa, February 20.

RUSSELL I. WILLIAMS, Creston, Iowa to Miss Carleen Steckelberg of Lincoln, Neb., February 25.

HAROLD WILLIAM SCHOON, Sibley, Iowa, to Miss Viola Ross of Doon in Spirit Lake, February 11.

HERMAN FRANK OPPLEMAN to Miss Gwendolyn Ann Lewis, both of Richmond, Va., January 7.

DEAN WRIGHT SMITH to Miss Dorothy C. Clark, both of Jackson, Mich., February 18.

VIRGIL O. LA FLEUR, Lorain, Ohio, to Miss Gertrude Russell of Chicago, Nov. 10, 1938.

ROSS M. ZELLER to Miss Shirley Burroughs, both of Greenville, Ohio, in January.

Deaths

Henry Schmitz ⊕ Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1897; American College of Medicine and Surgery, Chicago, 1906; professor and head of the department of obstetrics and gynecology, Loyola University School of Medicine; past president of the Chicago Gynecological Society; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Central Association of Obstetricians and Gynecologists, Radiological Society of North America, American College of Radiology and the American Radium Society; fellow of the American College of Surgeons; in 1930 received the gold medal of the Radiological Society of North America for achievement in the science of radiology in its application to diseases of women; in 1938 delivered the Janeway Lecture at the annual meeting of the American Radium Society, at which time he was presented with the Janeway Medal; head of the radiation therapy department and attending gynecologist, Mercy Hospital; attending gynecologist to the Cook County Hospital; consulting gynecologist to the Misericordia and Holy Cross hospitals since 1925; director of Cancer Research Institute of Chicago since 1928; secretary, board of trustees, Lewis Memorial Maternity Hospital since 1931; author of "Manual of Diseases of Women," 1912; "Handbook of Gynecology," 1915; "The Physics and Biological Principles of Radiation Therapy," 1922; contributed a chapter on "Radiology" in Davis's Gynecology and Obstetrics, 1934; aged 67; died, April 17, of lobar pneumonia.

Allen Deming Lazenby ⊕ Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons, 1916; one of the original members of the Council on Industrial Health of the American Medical Association; was a captain in the M. C., U. S. Army, in 1917 and retired from active duty in 1919 for disability incident to the service; served during the World War; fellow of the American College of Surgeons and the Association of Industrial Physicians and Surgeons; chairman of the Industrial Health Committee of the Medical and Chirurgical Faculty of Maryland; a member of the Medical Committee of the New York World's Fair; a director of the Baltimore Chapter of the American Red Cross; vice president and medical director of the Maryland Casualty Company; aged 45; died, April 18, of cardiovascular renal disease.

Robert Alexander Peterson ⊕ Riverside, Calif.; State University of Iowa College of Medicine, Iowa City, 1918; an Associate Fellow of the American Medical Association; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; formerly a medical missionary under the Board of Missions of the Methodist Episcopal Church, stationed at Chengtu, Szechwan, China, where he was professor of otolaryngology and associate in ophthalmology, West China Union University; director of Chengtu Eye, Ear, Nose and Throat Hospital and consulting otolaryngologist to the Hospital for Men and Hospital for Women and Children; aged 46; died, January 27.

Angenette Parry ⊕ Huntington, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, 1891; past president of the Medical Women's National Association; member of the executive board of the American Women's Hospitals; was decorated by the Greek government in recognition of service rendered sick and destitute refugees at the American Women's Hospitals, Kokinia, Piraeus, Greece; fellow of the American College of Surgeons; aged 81; volunteer worker in the social service department, Massachusetts General Hospital, Boston, where she died, March 1, of cerebral hemorrhage.

James Morsell Gassaway ⊕ Senior Surgeon, U. S. Public Health Service, Cairo, Ill.; Columbian College Medical Department, Washington, D. C., 1872; Jefferson Medical College of Philadelphia, 1882; in 1876 was commissioned assistant surgeon in what was then known as the United States Marine Hospital Service; rose through the various positions to that of senior surgeon, which appointment he received in 1912; retired in 1917; past president of the Alexander County Medical Society; aged 91; died, March 5, of chronic myocarditis and cerebral arteriosclerosis.

Thomas Leo Houlton, Omaha; Creighton University School of Medicine, Omaha, 1920; assistant professor of neurology at his alma mater; member of the American Psychiatric Association; on the staffs of the Douglas County Hospital, St. Joseph's Hospital and St. Catherine's Hospital; aged 44; was found dead in his garage, February 1, of accidental carbon monoxide poisoning due to the exhaust from an automobile.

Charles Butterfield Rogers, Columbus, Ohio; Miami Medical College, Cincinnati, 1897; member of the American Psychiatric Association; formerly medical director of the Orchard Springs Sanatorium, Dayton; at one time chief, bureau of examination and classification, Ohio State Welfare Department; aged 65; died, January 27, in the White Cross Hospital of heart disease.

Alfred Frederick William Sferra ⊕ Bound Brook, N. J.; St. Louis University School of Medicine, 1929; past president and secretary of the Somerset County Medical Society; formerly county coroner; on the staffs of St. Peter's Hospital, New Brunswick, Somerset Hospital, Somerville, and Muhlenberg Hospital, Plainfield; aged 45; died, January 1, of coronary thrombosis.

Walden Evermont Muns, Birmingham, Ala.; University and Bellevue Hospital Medical College, New York, 1914; formerly assistant professor of clinical medicine, New York Post-Graduate Medical School, Columbia University, New York; aged 54; died, January 31, in the Veterans Administration Facility, Tuscaloosa, of arteriosclerosis, hypertension, nephritis and uremia.

Ernst Freund, Los Angeles; Medizinische Fakultät der Universität Wien, Austria, 1926; associate professor of orthopedics, College of Medical Evangelists; member of the American Academy of Orthopedic Surgeons; fellow of the American College of Surgeons; on the staffs of the Cedars of Lebanon Hospital and White Memorial Hospital; aged 36; died, Dec. 12, 1938.

Arthur Lemuel Kennedy, Denver; Harvard University Medical School, Boston, 1901; member of the Colorado State Medical Society; assistant professor of clinical medicine and therapeutics, University of Colorado School of Medicine, 1905-1907, and assistant professor of medicine, 1907-1910; aged 72; died, January 4, in La Jolla, Calif., of bronchopneumonia.

Harris Dana Newkirk ⊕ Anaheim, Calif.; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1903; fellow of American College of Surgeons; served during the World War; on the staffs of the Orange County Hospital and St. Joseph Hospital, Orange, and Fullerton (Calif.) Hospital; aged 60; died, Dec. 31, 1938.

James Otho Parramore, Crown Point, Ind.; Medical College of Virginia, Richmond, 1914; member of the Indiana State Medical Association; served during the World War; fellow of the American College of Physicians; medical director and superintendent of the Lake County Tuberculosis Sanatorium; aged 49; died, January 24, of brain tumor.

Lawrence Lloyd Purifoy ⊕ El Dorado, Ark.; Memphis (Tenn.) Hospital Medical College, 1903; Tulane University of Louisiana School of Medicine, New Orleans, 1913; fellow of the American College of Surgeons; chief of surgical staff, Henry C. Rosamond Hospital; aged 56; died, January 7, of injuries received in an automobile accident.

Washington Price Timmerman, Batesburg, S. C.; Medical College of the State of South Carolina, Charleston, 1891; member and past president of the South Carolina Medical Association; at one time mayor and member of the board of trustees of the schools of Batesburg; aged 69; died, Dec. 24, 1938, in a hospital at Columbia.

Alexander Scanlin Ross ⊕ Camden, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; fellow of the American College of Surgeons; surgeon to the Cooper Hospital and the Zurbrugg Memorial Hospital, Riverside; aged 62; died, January 11, of myocardial insufficiency and lobar pneumonia.

Stanley E. Bryant, Dowagiac, Mich.; Michigan College of Medicine and Surgery, Detroit, 1905; member of the Michigan State Medical Society; county coroner; at various times city health officer and member of the city board of health; aged 66; on the staff of the Lee Memorial Hospital, where he died, Dec. 28, 1938.

Archibald A. McLaurin, Pierre, S. D.; Rush Medical College, Chicago, 1911; member of the South Dakota State Medical Association and the Radiological Society of North America; on the staff of the Pierre Indian School Hospital; aged 62; died, January 5, of myxosarcoma testis with metastases.

William E. A. Forde, Nashville, Tenn.; Meharry Medical College, Nashville, Tenn., 1914; professor of otolaryngology at his alma mater; on the attending staff of the George W. Hubbard Hospital, where he was in charge of the otolaryngology service; aged 54; was shot and killed by a student in January.

William Alger Shaw ⊕ Reno, Nev.; Jefferson Medical College of Philadelphia, 1911; member of the American Academy of Pediatrics; served during the World War; on the staffs

of St. Mary's and Washoe General hospitals; aged 50; was found dead, January 20, of a self-inflicted bullet wound.

Daniel Louis Scanlan ⊕ Volga, S. D.; Minneapolis College of Physicians and Surgeons, 1899; past president of the South Dakota State Medical Association; medical superintendent of the Volga Hospital; fellow of the American College of Surgeons; aged 66; died in March of cerebral hemorrhage.

Russell Wesley Raynor ⊕ Pikeville, Ky.; University of Maryland School of Medicine, Baltimore, 1908; formerly acting assistant surgeon in the U. S. Public Health Service; on the staffs of the Beaver Valley Hospital, Martin, and the Methodist Hospital; aged 52; died, January 20, of pneumonia.

Peter Leo McKallagat, Lawrence, Mass.; Columbia University College of Physicians and Surgeons, 1906; member of the Massachusetts Medical Society; formerly city physician, and member of the board of health; aged 55; died, January 19, in Miami Beach, Fla., of coronary occlusion.

John Monroe McSparin, Carriers Mills, Ill.; Loyola University School of Medicine, Chicago, 1916; served during the World War; for many years member of the board of education; aged 49; died, January 7, of chronic myocarditis, nephritis, hypertension and pulmonary tuberculosis.

George C. Nix, Opp, Ala.; University of Texas School of Medicine, Galveston, 1904; member of the Medical Association of the State of Alabama; at one time member of the board of education; formerly county health officer and postmaster; aged 60; died in January of pneumonia.

Theophilus E. Hinshaw, Winfield, Kan.; Missouri Medical College, St. Louis, 1882; member of the Kansas Medical Society; on the staff of the State Training School; trustee of the Southwestern College for many years; aged 80; died, Dec. 23, 1938, in St. Mary's Hospital.

Claude Murphy Scarborough ⊕ Chicago Heights, Ill.; Northwestern University Medical School, Chicago, 1926; aged 39; on the staffs of St. James Hospital, Chicago Heights and Ingalls Memorial Hospital, Harvey, where he died, January 18, of coronary thrombosis.

Jacob E. K. Morris ⊕ Olean, N. Y.; University of Buffalo School of Medicine, 1879; fellow of the American College of Surgeons; aged 82; on the staff of the Olean General Hospital; died, January 23, of chronic nephritis, hypostatic pneumonia and streptococcic sore throat.

Edward Adams Romig, Newberg, Ore.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1877; veteran of the Spanish-American War; aged 86; died, January 26, in the Veterans Administration Facility, Portland, of cerebral hemorrhage.

William Harvey McLean ⊕ Lexington, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1920; fellow of the American College of Surgeons; on the staff of the Good Samaritan Hospital; aged 45; died, January 13, of arteriosclerotic heart disease.

Michael Joseph Purcell ⊕ Chicago; Chicago College of Medicine and Surgery, 1912; fellow of the American College of Surgeons; on the staffs of St. Joseph's Hospital and the John B. Murphy Hospital; aged 60; died, January 2, of arteriosclerotic heart disease.

Alvin Lebrun Nourse, Anniston, Ala.; Beach Medical Institute, Indianapolis, 1885; Gate City Medical College, Dallas, 1907; member of the Medical Association of the State of Alabama; died, January 12, of pneumonia following fracture of the hip received in a fall.

James Blaine Muncy ⊕ Pennington Gap, Va.; Medical College of Virginia, Richmond, 1918; past president and secretary of the Lee County Medical Society; served during the World War; aged 45; died suddenly, January 20, of a self-inflicted wound.

Claude Bernard Calbreath, Hastings, Neb.; Keokuk (Iowa) Medical College, 1898; member of the Nebraska State Medical Association; served during the World War; aged 60; died, January 9, at the Mary Lanning Hospital of carcinoma of the esophagus.

Robert A. Hudson, Islandton, S. C.; Medical College of the State of South Carolina, Charleston, 1909; member of the South Carolina Medical Association; postmaster; aged 52; died, January 21, in the Charles Es-Dorn Hospital, Walterboro, of coronary thrombosis.

George Gill Mulherin, Brownsville, Tenn. (licensed in Tennessee in 1904); member of the Tennessee State Medical Association; aged 60; on the staff of the Haywood County Memorial Hospital, where he died, January 9, of influenza and pneumonia.

Heinrich F. W. Petersen, Dundee, Ill.; College of Physicians and Surgeons of Chicago, 1888; member of the Illinois State Medical Society; aged 84; died, January 30, in a hospital at Elgin of cerebral arteriosclerosis, myocarditis and bronchopneumonia.

Thaddeus Kosciusko Jones, Henrietta, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1898; served during the World War; for many years mayor; county health officer; aged 62; died, January 24, of myocarditis and toxic goiter.

Charles Epley Patterson, Fayette, Ohio; Starling Medical College, Columbus, 1896; member of the Ohio State Medical Association; at various times member of the village council, and mayor; aged 65; died, January 3, of coronary thrombosis.

Henry Kruse, Chicago; Loyola University School of Medicine, Chicago, 1916; member of the Illinois State Medical Society; aged 53; died suddenly, January 7, in the Roseland Community Hospital of cerebral hemorrhage and hypertension.

George Thomas Magraw, Avondale, Pa.; Jefferson Medical College of Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 71; died, January 9, of cardiovascular renal disease.

William Porter Logue, Williamsport, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the Medical Society of the State of Pennsylvania; aged 75; died, January 5, of chronic myocardial fibrosis.

Matthew Joseph Shields, Scranton, Pa.; University of the City of New York Medical Department, 1888; founder of the American Red Cross first aid work; served during the World War; aged 76; died, January 23, of chronic myocarditis.

Theodore Anthony Kreuser, Hines, Ill.; Rush Medical College, Chicago, 1897; member of the Illinois State Medical Society; aged 73; died, January 8, at the Veterans Administration Facility of arteriosclerosis and cardiac hypertrophy.

Andrew Pleasant Bush, Columbia, Tenn.; Jenner Medical College, Chicago, 1913; Kansas City (Mo.) College of Medicine and Surgery, 1920; aged 57; died, January 9, in the Baptist Hospital, Memphis, of myocardial insufficiency.

Freeda May Piles Clark, Chambers, Neb.; Hahnemann Medical College and Hospital, Chicago, 1899; aged 65; died, January 27, in the Nicholas Senn Hospital, Omaha, of gastric ulcer, carcinoma and postoperative pneumonia.

Marcus Claude Roberts ⊕ Hutchinson, Kan.; Northwestern University Medical School, Chicago, 1906; on the staffs of the Grace Hospital and St. Elizabeth Mercy Hospital; aged 60; died, January 6, of coronary thrombosis.

John Adam Parker, Kansas City, Mo.; Hahnemann Medical College of the Kansas City University, Kansas City, Mo., 1902; Kansas City Hahnemann Medical College, 1906; aged 64; died, January 1, of heart disease.

Louis King, Chicago; St. Louis College of Physicians and Surgeons, 1900; member of the Illinois State Medical Society; aged 63; died, January 9, of hemopericardium, ruptured cardiac infarct and coronary sclerosis.

Raymond Erastus Gaston ⊕ Cincinnati; Miami Medical College, Cincinnati, 1905; served during the World War; on the staffs of the Christ and St. Francis hospitals; aged 62; died, January 3, of myocarditis.

Henry P. Kohberger, Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1902; aged 59; on the staff of St. Joseph's Hospital, where he died, January 3, of coronary thrombosis.

Richard Z. Query, Charlotte, N. C.; University College of Medicine, Richmond, 1907; aged 58; died, January 7, in the Presbyterian Hospital of cerebral hemorrhage and hypertensive cardiovascular disease.

Michael Ritter Miley, Beecher, Ill.; Rush Medical College, Chicago, 1896; member of the school board for many years; formerly mayor; aged 80; died in January of arteriosclerosis and heart disease.

Ernest Foucher, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1911; aged 52; died, January 11, of pneumonia.

Justus Sinexon, Philadelphia; Jefferson Medical College of Philadelphia, 1883; formerly on the staffs of the Charity, Jefferson and Presbyterian hospitals; aged 77; died, Dec. 27, 1938, of lobar pneumonia.

Frank Morris ⊕ Lima, Ohio; Starling Medical College, Columbus, 1892; on the staffs of St. Rita's and Memorial hospitals; aged 70; died, January 25, of myocarditis, coronary disease and uremia.

Robert E. Fivey, Chicago; Albany (N. Y.) Medical College, 1887; medical director of the Globe Insurance Company; aged 73; died, March 11, in the Evangelical Deaconess Hospital.

William Edgar Robertson, Milton, Ont., Canada; University of Toronto Faculty of Medicine, 1900; formerly a medical missionary; aged 59; died, January 15, of heart disease.

William K. Nisbet ⊕ Earlington, Ky.; University of Louisville (Ky.) Medical Department, 1888; served during the World War; aged 71; died, January 13, of carcinoma of the stomach.

George Ringel, Kansas City, Mo.; University Medical College of Kansas City, Mo., 1901; aged 58; died, January 3, in the Menorah Hospital, of coronary occlusion and arteriosclerosis.

James F. Lewis, Dupont, Ind.; Medical College of Ohio, Cincinnati, 1875; aged 82; died, January 4, of hypostatic pneumonia, hypertrophy of the prostate and epithelioma of the face.

Michael D. Kiely, Archer, Iowa; University of Edinburgh Faculty of Medicine, Scotland, 1885; formerly mayor; aged 78; died, January 9, in Sioux City of coronary disease.

Mark Edward Johnson, Corning, Iowa; Jefferson Medical College of Philadelphia, 1895; member of the Iowa State Medical Society; aged 77; died, January 9, of coronary occlusion.

Robert C. Hutcheson, Elk Falls, Kan.; Kansas City Medical College, 1885; member of the Kansas Medical Society; aged 80; died, January 5, of carcinoma of the stomach and liver.

Margaret Packer Forcee Kuyk ⊕ Richmond, Va.; Woman's Medical College of Pennsylvania, Philadelphia, 1891; aged 78; died, January 16, of cardiovascular renal disease.

Richard Homer Fitch, Sturgis, S. D.; Washington University School of Medicine, St. Louis, 1937; aged 35; died, January 7, in Sioux City, Iowa, of coronary occlusion.

Charles Andrew Kenner, Omaha; Rush Medical College, Chicago, 1883; aged 77; died, January 23, of bronchopneumonia following an injury received in a fall down the stairs.

Otto James Schwer, St. Louis; Barnes Medical College, St. Louis, 1907; member of the Missouri State Medical Association; aged 68; died, January 9, of diabetes mellitus.

Helen Kirshbaum, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1893; aged 66; died, January 22, in the Mount Sinai Hospital of coronary thrombosis.

Charles Clinton Parker Jr., ⊕ Boston; Tufts College Medical School, Boston, 1918; served during the World War; aged 45; died in January of illuminating gas poisoning.

Stuart M. Mann, Moyock, N. C.; College of Physicians and Surgeons, Baltimore, 1895; aged 64; died, January 25, in a hospital at Norfolk, Va., of coronary occlusion.

Henry Williams Hall, Winston-Salem, N. C.; Meharry Medical College, Nashville, Tenn., 1918; aged 43; died, January 7, of an incised wound of the throat, self inflicted.

Charles E. Pugh ⊕ Chicago; Rush Medical College, Chicago, 1891; aged 73; died, January 18, in the Berwyn (Ill.) Hospital of a skull fracture received in a fall.

Seaborn Wesley Owens, Ashland, Ala. (licensed in Alabama in 1887); aged 85; died, January 4, in St. Luke's Hospital at Jacksonville, Fla., of cerebral hemorrhage.

Burtis W. McLean ⊕ Jenks, Okla.; College of Physicians and Surgeons, Baltimore, 1906; aged 63; died, January 23, of injuries received in an automobile accident.

Charles Mellies, St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1884; aged 79; died, January 31, of arteriosclerosis and coronary thrombosis.

Irvine Leland Nowlan, South Amherst, Mass.; Dartmouth Medical School, Hanover, N. H., 1894; aged 68; died, January 14, in Northampton of arteriosclerosis.

Lee Anderson Richmond, Hamilton, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1909; aged 54; died, January 16, of heart disease.

George F. Roby, Minneapolis; Hahnemann Medical College of Philadelphia, 1881; aged 79; died, January 4, in St. Barnabas Hospital of arteriosclerosis.

Walter Preston Perkins, Girvin, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1888; aged 84; died, January 26, of pneumonia.

Paul John Love, Greensboro, N. C.; Eclectic Medical College, Cincinnati, 1922; aged 41; died, January 5, of chronic myocarditis and coronary occlusion.

Willis H. Haviland, Butte, Mont.; New York Homeopathic Medical College and Hospital, New York, 1888; aged 74; died, January 15, of chronic endocarditis.

John M. C. McAllister, Rochelle, Ga.; University of Georgia Medical Department, Augusta, 1902; aged 59; died, January 25, of coronary occlusion.

Benjamin F. Moreland, Shults, Okla.; University of Arkansas School of Medicine, Little Rock, 1912; aged 69; died, January 16, of Hodgkin's disease.

Samuel Marcus Oppenheim, Denver; Denver and Gross College of Medicine, 1904; aged 55; was found dead, January 4, of an overdose of narcotics.

Barney Ellsworth Crosby, Palo Alto, Calif.; University of Oregon Medical School, Portland, 1893; aged 77; died, January 2, of Parkinson's disease.

Louis Hamilton Seth ⊕ Wittman, Md.; University of Maryland School of Medicine, Baltimore, 1908; aged 55; died, Dec. 25, 1938, of heart disease.

Monroe Hinson Tunnell ⊕ Bryn Mawr, Pa.; Jefferson Medical College of Philadelphia, 1912; aged 52; died, Dec. 12, 1938, of chronic heart disease.

Thomas John Allen, Tacoma, Wash.; American Medical Missionary College, 1899; aged 69; died, January 1, of coronary occlusion and arteriosclerosis.

Samuel Purdy [illegible] Francisco; California Eclectic Medical [illegible] 1900; aged 72; died, Dec. 9, 1938, of heart disease.

George R. Mitchell, Madison, Wis.; Detroit Homeopathic Medical College, 1872; Civil War veteran; aged 90; died, Dec. 31, 1938, of general debility.

Fred Ferdinand Fair, Chicago; Northwestern University Medical School, Chicago, 1905; aged 55; died, Dec. 30, 1938, of cardiovascular renal disease.

Abram Ashley Wilson ⊕ Davis, Ill.; Northwestern University Medical School, Chicago, 1894; aged 68; died, Dec. 11, 1938, of coronary occlusion.

Gordon Edgar Mordoff, Wilmette, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1907; aged 56; was shot and killed, January 11.

Harry Lyman Grazier, Aliquippa, Pa.; University of Pittsburgh School of Medicine, 1912; aged 54; died, Dec. 23, 1938, of myocarditis and influenza.

Andrew Gilbert Belsheim, Guler, Wash.; State University of Iowa College of Medicine, Iowa City, 1901; aged 64; died, Dec. 21, 1938, of pleurisy.

Harmon L. Pippin, Bristol, Va.; University College of Medicine, Richmond, 1902; aged 60; was killed, January 8, when struck by a train.

Daniel W. Mears, Scranton, Pa.; Jefferson Medical College of Philadelphia, 1885; on the staff of the State Hospital; aged 79; died, Nov. 12, 1938.

Joseph N. Daniels, Milwaukee; Hahnemann Medical College and Hospital, Chicago, 1886; aged 88; died, Dec. 5, 1938, of cerebral hemorrhage.

Eugene G. Lester, Madisonville, Ky.; Meharry Medical College, Nashville, Tenn., 1915; aged 58; died, Dec. 26, 1938, of cardiorenal disease.

Henry Burr Cogswell, New York; Bellevue Hospital Medical College, New York, 1886; aged 77; died, January 5, of coronary thrombosis.

Jerome C. McNees, Ardmore, Okla.; Missouri Medical College, St. Louis, 1885; aged 76; died, Dec. 14, 1938, of carcinoma of the liver.

Henry Joseph Bell, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1892; aged 76; died, Nov. 16, 1938, of angina pectoris.

Frederick Poppe, Pulcifer, Wis. (licensed in Wisconsin in 1899); for many years postmaster; aged 88; died, Dec. 30, 1938, of senility.

James R. Steele, Danville, Ky.; St. Louis College of Physicians and Surgeons, 1893; aged 70; died, Dec. 13, 1938, of heart disease.

Winston Decatur Coates, San Jose, Calif.; California Medical College, San Francisco, 1896; aged 80; died, January 4, of pneumonia.

Willis Henry Faulkner, Garrison, Texas; Maryland Medical College, Baltimore, 1905; aged 67; died in January of pneumonia.

James M. Elliott, Ogden, Utah; Missouri Medical College, St. Louis, 1886; aged 83; died, Dec. 27, 1938, of chronic myocarditis.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE—The abstracts that follow are given in the briefest possible form. (1) the name of the product, (2) the name of the manufacturer, shipper or consigner, (3) the composition; (4) the type of nostrum, (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration]

Akalyn—Medical Products Co, and Akalyn Co, New Orleans Composition Essentially acetophenetidin (3 2 grains per tablet), sodium salicylate (2 grains per tablet), magnesium oxide, starch, talc and red coloring Misbranded because quantity or proportion of acetophenetidin present was not declared, as required by law, misbranded, further, because fraudulently represented as a remedy for all forms of pain arising from headaches, neuralgia, rheumatism, menstrual troubles, etc—[*N J 27503, January 1938*]

Anbesol—Anbesol Co, Newark, N J Composition Essentially alcohol, glycerin, water, benzocaine, menthol, camphor and small amounts of free and combined iodine and a substance resembling carbolic acid Fraudulently represented as producing immediate local anesthesia, killing germs, and promptly relieving pain, abscesses, inflammation, fever, sores, etc—[*N J 27898, April 1938*]

Anti-Pain Liniment—Strong, Cobb & Co, Inc, Cleveland Composition Essentially oils of wintergreen eucalyptus and turpentine, in a petrolatum base Fraudulently represented as a remedy for neuralgic pains, rheumatism, sore throat, etc—[*N J 27717, April 1938*]

Athlo Ointment and Athlo Tablets—Athlophoros Co, Pomfret Center, Conn Composition Ointment essentially menthol, thymol, camphor, wintergreen, and oils of mustard and turpentine, in an ointment base, tablets, essentially aloin, strychnine and compounds of iron, arsenic, mercury and iodine Ointment fraudulently represented as a remedy for inflammations, croup, etc, the tablets as effective in treating indigestion, liver disorders, general debility, gout, stomach trouble and chronic diseases—[*N J 27923, April 1938*]

Bull's (W H) Quick Pile Relief—W H Bull Medicine Co, Inc, St Louis Composition Essentially pine tar and small amounts of carbolic and tannic acids in a petrolatum base Not antiseptic, as represented Fraudulent therapeutic claims—[*N J 27546, January 1938*]

Cas-Tro-Ma—Dixie Medicine Co, McMinnville, Tenn Composition Essentially water, glycerin, sodium salicylate, and extracts of laxative plant drugs For stomach troubles, sick headache, cramps, colic, etc Fraudulent therapeutic claims—[*N J 27887, April 1938*]

Cereal Lactic—Cereal Lactic Co, Woodward, Iowa Examination of different specimens showed they contained viable lactic acid producing bacteria ranging from 370,000 to 2,000,000 per gram of dry material, thus falling far below the professed standard under which the product was sold. Fraudulently represented as an effective treatment of stomach and intestinal disorders, high blood pressure, nervous symptoms, arthritis, neuritis, eczema, etc—[*N J 27548, January 1938*]

Clydesdale Ointment—George W Bicknell Co, Pittsburgh Composition Essentially petrolatum, with a small amount of volatile oils including turpentine and a safrol containing oil Fraudulently represented as a cure for hemorrhoids, skin trouble, rheumatism, corns, sore throat, etc—[*N J 27921, April 1938*]

Corona Wool Fat Compound—Corona Mfg Co, Kenton, Ohio Composition Essentially hydrous wool fat containing a small amount of common salt, and perfumed with oil of wintergreen Fraudulently represented as a remedy for sores, boils, wounds, etc—[*N J 27720, April 1938*]

Count's Kill Germ—Count's Chemical Co, Nashville, Tenn Composition Essentially mineral oil, with small amounts of pine needle oil and water Not an antiseptic or germicide, as represented For rheumatism, asthma, indigestion, bad blood, erysipelas, "piles," etc. Fraudulent therapeutic claims—[*N J 27727, April 1938*]

Dodds (Dr) Purgolax Tablets—Southwestern Chemical Co, Jonesboro, Ark Composition Essentially phenolphthalein, calomel and laxative plant drugs, such as aloe, coated with chalk, sugar and a pink coloring material Fraudulently represented as a remedy for autointoxication, constipation, and certain forms of biliousness—[*N J 27568, January 1938*]

Duray—Duray Laboratories, Inc, Seattle Composition Essentially borax, with small amounts of boric and carbolic acids, menthol and a blue pigment Fraudulently represented as a remedy for female disorders, an aid to the menopause, and a germicide—[*N J 27558, January 1938*]

Effervescent Seltzer.—Honoroff Laboratories, Inc, Chicago Composition Essentially baking soda, citric and tartaric acids with 1 2 per cent of acetanilid (5 grains per ounce), 2 8 per cent of sodium bromide, and caffeine For stomach disorders and after-effects of excessive eating or drinking Fraudulent therapeutic claims—[*N J 27567, January 1938*]

Elder Flower Eye Lotion—George B Evans Laboratories, Inc, Philadelphia Composition Essentially a dilute solution of boric acid and common salt, with a small amount of alcohol and lesser quantities of plant extractives including camphor, peppermint, cherry laurel and elder flowers Falsely represented as being essentially elder flower, peppermint, witch hazel, cherry laurel and camphor, fraudulent therapeutic claims—[*N J. 27884, April 1938*]

Elixir Tussinol—Medicinal Research Laboratories, Philadelphia Composition Essentially a solution of gold bromide Fraudulently represented as a remedy for whooping cough and other spasmodic coughs—[*N J 27563, January 1938*]

Eupraxine Eczema Salve and Eupraxine Wound Salve—Eupraxine Co, Detroit Composition The first named was essentially zinc stearate and boric acid, in petrolatum, and the second was essentially ichthammol and petrolatum Fraudulent therapeutic claims—[*N J 27907, April 1938*]

Fairey Oil—Fairey Wholesale Drug Co, Inc, Orangeburg S C Composition Essentially oils of wintergreen and turpentine, and a green coloring material Fraudulently represented as a remedy for neuralgia, rheumatism, cramps, insect bites, etc—[*N J 27551 January 1938*]

Filkins' (J L) Wonderful Wintergreen—J L Filkins & Co, Yonkers, N Y Composition Essentially potassium iodide (2 5 per cent), alcohol and water, with extracts of plant drugs including colchicum, flavored with wintergreen Fraudulently represented as a remedy for various forms of rheumatism—[*N J 27922, April 1938*]

Flame Liniment—G F Foster Products Co, St Paul, Minn Composition Essentially a petroleum oil, with small amounts of volatile oils including mustard, wintergreen and cinnamon, colored with a red dye Fraudulently represented to kill pain and relieve rheumatism, stiff neck, lame back and aching joints—[*N J 27890, April 1938*]

Goody's Headache Powder—Goody's, Inc, Winston Salem, N C Composition Chiefly acetanilid, though each tablet contained less than the 4 grains claimed, hence adulterated Misbranded because falsely represented as safe and reliable, and as containing no narcotics—[*N J 27925 April 1938*]

Grandma's Dia-Col—Park Laboratory Co, Inc, San Antonio, Texas Composition Essentially extracts of plant drugs, with small amounts of camphor, menthol and red peper, alcohol (28 per cent by volume), glycerin and water Fraudulently represented as a remedy for colic, diarrhea, cramps, etc—[*N J 27731, April 1938*]

Heinrich's Dermo Carbo Salve—Heinrich Chemical Co, Minneapolis Composition Essentially a small amount of carbolic acid in a petrolatum base Fraudulently represented as an effective treatment for sores, cuts and wounds—[*N J 27746, April 1938*]

Heinrich's Pain-A-Way—Heinrich Chemical Co, Minneapolis Composition Chiefly water, alcohol and oils of mustard and cinnamon Fraudulently represented as a cure for cramp pains, colic, diarrhea, rheumatic pains and aching joints—[*N J 27747, April 1938*]

Heinrich's Medicated Ointment—Heinrich Chemical Co, Minneapolis Composition Camphor, oil of eucalyptus, and a very small amount of zinc oxide Fraudulently represented as a healing and penetrative treatment for all skin affections and injuries—[*N. J 27747, April 1938*]

Heinrich's Rheumatism Remedy—Heinrich Chemical Co, Minneapolis Composition Essentially a watery alcoholic solution of sodium salicylate, sugar, and a small amount of plant extractives Fraudulent therapeutic claims—[*N. J 27747, April 1938*]

Heinrich's San-I-Cide—Heinrich Co, Minneapolis Composition Alcohol, water, zinc chloride menthol aromatics and traces of formaldehyde Misbranded because alcohol content was not over 2 6 per cent by volume, whereas labels represented it to be approximately 12 per cent Fraudulently represented as a cure for bleeding gums, sore throat, tonsilitis, wounds, etc—[*N J 27747, April 1938*]

Helm's Jen-A-Rub—Helm Co, Benton Harbor, Mich Composition Essentially oil of wintergreen and menthol, in a petrolatum base For chest colds, sinus trouble, sore throat, influenza, pneumonia neuritis, etc Fraudulent therapeutic claims—[*N J 27566 January 1938*]

Hessel's Oil de Vita Salve—Vita Laboratories, Philadelphia Composition About 20 per cent of peppermint oil in an oily base, apparently petrolatum Fraudulently represented to relieve eczema and other skin eruptions, and rheumatism—[*N J 27702, April 1938*]

Histosan—Histosan Inc, New York Composition Essentially sugar, water, alcohol and small amounts of guaiacol, ammonium chloride, common salt, Glauber's salt and protein material Fraudulently represented as a remedy for colds and kindred disorders—[*N J 27723, April 1938*]

Isaac's (Dr) Big Jim—Tampa Drug Co, Tampa, Fla Composition Essentially potassium iodide (52 grains per fluidounce), alcohol, water and plant drug extracts Fraudulently represented to cure impure blood, boils, sores, rheumatism, etc—[*N J 27725, April 1938*]

Isaac's (Dr) Big Jim Healing Fluid (or Liquid)—Tampa Drug Co, Tampa, Fla Composition A watery solution containing about 6 per cent of mercuric chloride Fraudulently represented as an efficacious sore wash—[*N J 27725 April 1938*]

La-Vim—Lewis Laboratories, Inc, Atlanta Composition Essentially plant drugs including a laxative, and nux vomica, a phosphorus compound sugar alcohol and water, with cinnamon flavor Fraudulently represented as a "tonic" to correct malnutrition languor and frailty in persons of all ages—[*N J 27573, January 1938*]

Little Wonder Page's Inhalers (Cigarets)—Consolidated Chemical Co, Grand Rapids, Mich Composition Essentially plant material chiefly stramonium leaves For asthma, hay fever, catarrh bronchitis and hoarseness Fraudulent therapeutic claims—[*N J 27715, April 1938*]

Lund's Magic of the Grape—Lund's Grape Juice Co, Erie, Pa Not pure grape juice, as represented, as it was diluted and contained added grape sugar Fraudulently represented as a cure for colds, stomach, liver, kidney, lung and bladder troubles, rheumatism, etc—[*N J 27569, January 1938*]

M F C Chill and Malaria Tonic—Southwestern Chemical Co, Jonesboro, Ark Composition Essentially sugar, water, cinchonine, phenol phthalein, an iron compound, benzoic acid and extracts of plant materials Adulterated and misbranded in that it did not contain either quinine or quinidine as presented "Tonic" Fraudulent therapeutic claims—[*N J 27568, January 1938*]

Migro-Powder—C J Czarnecki, Detroit Composition Essentially baking soda and milk sugar, with 4 3 grains of acetanilid in each powder Misleadingly labeled as containing 6 grains of acetanilid per powder, fraudulently represented as a remedy for neuralgia and la grippe—[*N J 27713, April 1938*]

Miller's (Dr) Tonic Prescription—International Research Laboratory, Chicago Composition Essentially water, sugar, alcohol and extracts of plant drugs, including a laxative one Fraudulently represented as a system cleanser and a remedy for sick headache, insomnia stomach ulcers, high blood pressure, rheumatism, anemia, etc—[*N J 27714, April 1938*]

Mimeln Laxative-Aspirin—Miller Medicals Inc, Indianapolis Composition Essentially, in each tablet, 1 grain of acetanilid, 1/10 grain of aspirin, with plant drugs including caffeine, cascara sagrada and aloin Misbranded in falsely intimating that the product was chiefly aspirin, and in failing to declare the amount of acetanilid present Fraudulently represented to possess the efficacy of aspirin—[*N J 27719, April 1938*]

Monitol Bath Treatment—H A Montgomery Co, Detroit Composition Essentially water and an ichthammol like material Fraudulently represented to relieve pains of arthritis, rheumatism, sciatica and lumbago—[*N J 27722, April 1938*]

Needham's Red Clover Extract—D Needham's Sons, Chicago Composition Essentially plant materials whose ash was chiefly calcium, magnesium, potassium, sodium and iron phosphates chlorides and sulfates Fraudulently represented as effective for constipation abnormal tissue changes, carbuncles stomach troubles, mouth and throat disorders, etc—[*N J 27743, April 1938*]

Odo-Go—National Products Co, Fort Worth, Texas Composition Essentially sodium carbonate, with a small amount of potassium permanganate Misbranded because not a disinfectant, antiseptic or germicide, when used as directed Fraudulently represented as a cure for skin eruptions dandruff, sore throat, ulcers, etc—[*N J 27878, April 1938*]

Orlax Compound Tablets—G Knewitz, East St Louis, Ill Composition Essentially phenolphthalein (about 3/4 grain per tablet) and extracts of plant material including aloe, strychnine and croton oil Fraudulently represented as a tonic and preventive of constipation—[*N J 27572, January 1938*]

Phillips' Croup and Pneumonia Salve—Phillips Products Co, Watertown, Tenn Composition Essentially oils of eucalyptus and pine, in petrolatum Fraudulently represented as a cure for chest troubles—[*N J 27885 April 1938*]

Prieto Tonic—Indian Laboratory Co, Laredo Texas Composition Essentially water, glycerin alcohol, potassium iodide (about 9 grains per fluidounce) sodium benzoate, and extracts of plant drugs including cinchona Fraudulently represented as an effective general alterative tonic, aperitif, nerve sedative, blood purifier and remedy for skin diseases, anemia, etc—[*N J 27740, April 1938*]

Q E D Mineral Water—Q E D Mineral Water Co, Shakopee, Minn Composition Essentially water containing sulfur dioxide Falsely represented as a mineral water or mineral water synthetic, and a new discovery For use on open wounds, burns cuts, and as a nose and throat spray for colds and catarrh Fraudulent therapeutic claims—[*N J 27894 April 1938*]

Rel-Ka-Sol—Rel Ka Sol Chemical Co, Philadelphia Composition Essentially water, alcohol, borax and a small amount of carbolic acid For cuts burns abscesses, boils tonsilitis, blood poison, etc Fraudulent therapeutic claims—[*N J 27892, April 1938*]

Reliable Perio Pills—Rex Drug Co and Reliable Medical Co, Chicago Composition Brown tablets, essentially compounds of sodium and iron, sulfates carbonates and aloe, coated with chalk, pink tablets, essentially phenolphthalein and ginger, with sugar and chalk For menstrual irregularities Fraudulent therapeutic claims—[*N J 27912 April 1938*]

Rex Improved Hygienic Powder—Rex Drug Co, and Reliable Medical Co, Chicago Composition Essentially boric acid (99 2 per cent) and a small amount of thymol For leucorrhea, gonorrhea, etc Fraudulent therapeutic claims—[*N J 27912, April 1938*]

Rex Pep-Tone Pills—Rex Drug Co, and Reliable Medical Co, Chicago Composition Essentially iron and sodium, sulfates, carbonates and zinc phosphide, coated with chalk Fraudulently represented as a 'tonic and blood and nerve builder—[*N J 27912 April 1938*]

Ru-Ma—Dr Leonhardt Co, Buffalo Composition Essentially an aqueous solution of iodides, salicylates, acetates and a laxative plant drug For rheumatoid conditions, gouty diathesis, etc Fraudulent therapeutic claims—[*N J 27739, April 1938*]

Sal-I-Can—Dr J L Davis, Irvine, Ky Composition Essentially salicylic acid, alcohol, acetone and water *Fraudulently represented as an* effective treatment for ringworm, infected wounds, tumors, eczema, etc—[*N J 27738, April 1938*]

Sharpsteen's (Dr) Hindoo Salve No 16—Drs H & V Sharpsteen Marshall, Mich Composition Essentially small amounts of chloroform and volatile oils including sassafras and cloves, in a fatty base Misbranded because not labeled as to quantity or proportion of chloroform present, fraudulently represented as a remedy for pneumonia, piles constipation, kidney and liver disorders, eczema, etc—[*N J 27712, April 1938*]

Sharpsteen's (Dr) Vegetable Hindoo Oil No 5—Drs H & V Sharpsteen, Marshall, Mich Composition Essentially saponifiable and volatile oils including those of sassafras, cloves, menthol and camphor, with chloroform (15 per cent by volume) Falsely represented as being wholly a vegetable oil, which it was not, recommended for dyspepsia, gallstones dropsy, appendicitis, rheumatism, tuberculosis, etc Fraudulent therapeutic claims—[*N J 27712, April 1938*]

Sharpsteen's (Dr) Vegetable Tablets Nos 1, 2, 3 and 4—Drs H & V Sharpsteen, Marshall, Mich Composition "No 1," calcium and ferrous (iron) carbonates, potassium and sodium sulfates, and plant drugs including a strychnine bearing drug and a laxative one, 'No 2,' magnesium and calcium carbonates and plant drugs, including a strychnine bearing drug and a laxative one, "No 3," ferrous (iron), magnesium and calcium carbonates, and plant drugs, including quinine and a laxative one, "No 4," calcium carbonate and plant drugs, including a laxative one All fraudulently represented as remedies for stomach liver and blood diseases, different forms of rheumatism, tonsillitis, catarrh, pneumonia, erysipelas, etc—[*N J 27712, April 1938*]

Shiloh—S C Wells & Co, LeRoy, N Y Composition Essentially *terpin hydrate, tar oil, and volatile oils including peppermint, with chloroform*, glycerin and water Fraudulently represented as a remedy for coughs, angina, croup, and all pulmonary diseases including tuberculosis—[*N J 27539, January 1938*]

Simba—G F Foster Products Co, St Paul Composition A dark turbid, watery alcoholic solution of plant material, epsom salt, sodium salicylate, and an emodin bearing drug Fraudulently represented as a cure for stomach, liver, kidney and blood disorders caused by constipation autointoxication and improper digestion Further misbranded in being represented as consisting wholly of roots and herbs—[*N J 27749, April 1938*]

Si-Noze—Si Noze Products Chicago Composition Essentially benzocaine, ephedrine, camphor and menthol, dissolved in a mixture of mineral matter and fatty oil For sinus troubles, hay fever, catarrh, etc Fraudulent therapeutic claims—[*N J 27718, April 1938*]

Sitroux-Aids—Sterilak Co, Inc, Utica, N Y Composition Tissue paper containing small amounts of menthol and essential oils, such as cedar and eucalyptus For hay fever, sinus disorders, etc Fraudulent therapeutic claims—[*N J 27734, April 1938*]

Skoot—Skoot Co, Hamilton, Ohio Composition Essentially wintergreen, menthol, water and a gum For pains of rheumatism, lumbago pleurisy, headache, congestion, etc Fraudulent therapeutic claims—[*N J 27886, April 1938*]

Snipes' Japicura Skin Remedy—*Snipes Medicine Co*, Little Rock Ark Composition Essentially carbolic acid (17 per cent by weight), glycerin, sassafras oil menthol and salicylic acid Not a germicide, as represented Claims for its curative effects were fraudulent—[*N J 27395 December 1937*]

Snuffly—Vita Laboratories, Philadelphia Composition Eucalyptus oil For sinus trouble asthma hay fever, etc Fraudulent therapeutic claims—[*N J 27702, April 1938*]

Sun-Ray Vita-Lax—Vita Lax Products Co, Birmingham Ala Composition Essentially bran, agar agar, psyllium seed yeast and phenolphthalein (about 0 3 grain per average level teaspoonful) *Misbranded* because represented as a vitamin laxative, whereas it was essentially a phenolphthalein laxative Fraudulently represented as a remedy for acid indigestion deficiency diseases, rheumatism, obesity, etc—[*N J 27750, April 1938*]

Ter-O-Sul—National Hygienic Corporation, Brooklyn *Composition* Essentially starch, sodium bisulfate, baking soda, noncolloidal sulfur (7 4 per cent), and a trace of other inorganic compounds Misbranded because it contained not more than a trace of colloidal sulfur, if any and because fraudulently represented as a treatment for arthritis, sciatica, neuritis gout, skin eruptions impure blood, etc—[*N J 27742, April 1938*]

Trask's Treatment for Constipation—Western Laboratories Inc Chicago Composition Essentially plant drugs, phenolphthalein and strychnine, coated with chalk and an iron compound Fraudulent therapeutic claims—[*N J 27910, April 1938*]

Trents Eucalyptol Compound—John J Samuels, Chicago Composition Essentially water, sugar, gum and small amounts of eucalyptol and menthol Fraudulently represented as a cure for throat and lung affections—[*N J 27732, April 1938*]

Van Ogden Wonderful Liniment—Van Ogden, Inc, Chicago Composition Essentially small amounts of wintergreen menthol, red pepper, camphor, chloroform (7 minims per fluid ounce), and mineral oil Fraudulent therapeutic claims—[*N J 27910, April 1938*]

Van's Magic Oil—Guy S Venderlinde, Muskegon Mich Composition Essentially volatile oils (10 per cent) including those of camphor and eucalyptol, in a base of linseed oil Fraudulently represented as a remedy for inflammatory diseases, rheumatism, hemorrhoids, toothache, etc—[*N J 27915 April 1938*]

Vapor Balm (Anti-Pain Ointment)—Specialized Laboratory, Buffalo *Composition Essentially oil of wintergreen*, menthol and petrolatum. Fraudulently represented as a remedy for colds and other congestions, rheumatism, neuralgia, etc—[*N J 27708, April 1938*]

Whitmarsh Blood Elixir.—Whitmarsh Laboratories, Adrian, Mich. Composition: Essentially water, alcohol (10 per cent by volume), a small amount of benzoic acid, and extracts of plant drugs including anise and an alkaloid-bearing drug. For skin poisonings (such as from ivy, oak or sumac), eczema, psoriasis, etc. Fraudulent therapeutic claims.—[*N. J. 27741; April 1938.*]

World's Wonder Massage.—World's Wonder Medicine Co., Inc., Detroit. Composition: Essentially small amounts of ammonia water, quinine, volatile oils including wintergreen and camphor, with turpentine, alcohol and water. Fraudulently represented as a cure for rheumatism, swollen feet, stiff joints, pneumonia, etc.—[*N. J. 27540; January 1938.*]

Zomogo Oil.—L. Zomogo Hood, Hot Springs, Ark. Composition: Essentially a mixture of oils, including those of petroleum, eucalyptus, mustard, clove and cinnamon. "Cure-all." Fraudulent therapeutic claims.—[*N. J. 27920; April 1938.*]

Correspondence

TREATMENT OF DELIRIUM TREMENS

To the Editor:—"The Treatment of Delirium Tremens," a contribution of Bowman, Wortis and Keiser in the April 1 issue of THE JOURNAL, is of especial interest to physicians who are meeting patients suffering with delirium tremens. It cannot be doubted that this complication of chronic alcoholism is one of the most difficult conditions met by physicians practicing in both general and psychopathic hospitals. The average physician or nurse is not trained in a large municipal and state institution where any considerable number of alcoholic patients are admitted for treatment. Hence many of these patients, being poorly understood, are improperly treated and the death rate therefore is inordinately high.

A study which I made some years ago revealed that the mortality from delirium tremens varied from 15 to 50 per cent in various hospitals throughout the country. The article to which reference has been made might well have referred to the fact that delirium tremens is a complication of high tolerance alcoholism and that the periodic drinker, unless he persists in maintaining a high saturation of bodily fluids over a period of many days or weeks, is not likely to have this complication. The Saturday night drinker, even though he receives some trauma to the body or head, is not likely to become delirious. The reason for this complication being confined to high tolerance drinkers is ill understood and probably is explained by the various vitamin and hepatic deficiencies described by Bowman, Wortis and Keiser. It would have been highly helpful if these writers had stressed the fact that alcoholic delirium is a condition which under the best of treatment is likely to continue from three to five days and that the surest way to raise the mortality is to endeavor to produce, by means of depressant drugs, a critical sleep from which the patient will awake with a clear mentality. It is probable that a lack of understanding of that fact accounts for the great variance in mortality rates just mentioned, since morphine, chloral and bromides in large doses, and even the barbiturates, are likely to do much harm. Physical therapy with treatment of the acidosis present and with the understanding that the patient will not do well under physical restraint and will continue to be delirious for several days should materially lower the mortality of delirium tremens. A decade and a half spent in a large municipal institution, admitting from 3,000 to 4,000 alcoholic patients annually, has still left some doubt in my mind as to whether rapid withdrawal of alcohol, because of a nonretentive stomach, a loss of ability to purchase a drink or trauma incurred on the street, which hospitalizes the patient, does not play some part in the precipitation of the delirium. During the prodromal period of delirium tremens, i. e. before hallucinosis develops, it will at least do no harm to administer alcohol. After hallucinosis is actually manifest, alcohol certainly should be interdicted.

JOSEPH C. DOANE, M.D., Philadelphia.

REGARDING A HYPOGLYCEMIC FACTOR IN THE DUODENUM

To the Editor:—The correspondence of Dr. Garfield G. Duncan on "The Clinical Application of Duodenal Extract in the Treatment of Diabetes" in THE JOURNAL, March 18, commands interest. Since Duncan and his associates (Duncan, G. G.; Shumway, N. P.; Williams, T. L., and Fetter, Ferdinand: *Am. J. M. Sc.* **189**:403 [March] 1935) administered their extract by mouth, it is not surprising that interest should attach to their therapy.

The presence of a hypoglycemic factor in crude secretin was recognized almost from the very discovery of secretin by Bayliss and Starling (Bayliss, W. M., and Starling, E. H.: *J. Physiol.* **25**:325, 1902). As early as 1906, Moore, Eadie and Abrams reported seemingly good results with the use of hydrochloric acid extracts of the duodenum and upper part of the jejunum in clinical diabetes. Since then a great deal of experimental effort has been spent in isolating this hypoglycemic factor from crude secretin.

Because boiling the duodenal extracts with dilute acids destroys the hypoglycemic effect but leaves the secretin action intact, Dixon and Wadia (Dixon, W. E., and Wadia, J. H.: *Brit. M. J.* **1**:820 [May 8-15] 1926) believe that the blood sugar reducing agent is separate from the secretory agent. This view is supported by Lalou (Lalou, S.: *J. de physiol. et de path. gén.* **14**:465, 1912), Mellanby (Mellanby, J.: *J. Physiol.* **66**:1 [Sept.] 1928) and Heller (Heller, H.: *Arch. f. exper. Path. u. Pharmakol.* **145**:343, 1929) because of the rapid destruction of secretin by pepsin and trypsin, which do not affect the hypoglycemic agent. Finally, methods were devised (La Barre, Jean, and Still, E. U.: *Am. J. Physiol.* **91**:649 [Jan.] 1930) by which crude secretin could be separated into two fractions: one possessing but little secretagogic but highly hypoglycemic action, the other actively secretagogic and not at all hypoglycemic.

The question then raised was whether the hypoglycemic agent might represent insulin extracted from the duodenum. Heller in 1929, using insulin-extracting methods on beef intestine, found no insulin in mucosa of the upper part of the small intestine. About the same time La Barre and Still, utilizing the fact that insulin is inactivated by pepsin-hydrochloric acid, failed by this method to destroy the hypoglycemic action of crude secretin. On the same basis, the effectiveness of the oral administration of duodenal extracts to lower the blood sugar in diabetic dogs reported by La Barre (*Bull. Acad. roy. de méd. de Belgique* **14**:469, 1934) and in diabetic patients by Duncan and his associates speaks against its being merely insulin. Finally, using the method of pancreatico-jugular anastomosis between adrenal-decapsulated dogs, Zunz and La Barre (Zunz, E., and La Barre, Jean: *Comp. rend. Soc. de biol.* **99**: 335 [June 29] 1928) observed a lowering of blood sugar after the intravenous injection of nonhypotensive secretin in the donor which was much less marked than that in the recipient. This, of course, would not be the expected result if the extract were insulin.

Since crude secretin contained an agent other than insulin, investigators attempted to determine whether this agent acted by stimulating the pancreas or was capable, by itself, of lowering the blood sugar. In animals there are numerous experimental results which support one or the other action, but those of Zunz and La Barre (*Bull Acad. roy. de méd. de Belgique* 8:801, 1928) appear to support a dual mechanism. Using adrenalectomized dogs with pancreaticojugular anastomoses, they found that purified secretin injected into the donor dog caused a drop in blood sugar in both the donor and the recipient, with the fall more marked in the latter. Since in this experiment the donor is physiologically depancreatized, the results given may be interpreted as a double action of the hypoglycemic agent. This concept is fortified by their results

with jugulojugular anastomoses: the injection of secretin into the donor produced only a slight decline in the recipient, and this was less marked than that which occurred in the donor.

In human subjects both in normal persons and in patients with mild diabetes, we (*Ann. Int. Med.* **11**:1563 [March] 1938) have repeatedly been able to prevent alimentary hyperglycemia following the absorption of amounts of dextrose ordinarily adequate to produce a sharp rise in blood sugar. We accomplished this by duodenal mucosal stimulation during the time of absorption of dextrose. In one instance we were fortunate in having available for study a patient with very severe diabetes who had either a diffusely calcified pancreas or intrapancreatic ducts which contained stones in many of its branches. By roentgenograms we were able to visualize many small diffusely calcified areas in the region of the pancreas. In this patient duodenal stimulation under the conditions described failed to prevent the rise in blood sugar that occurred after the absorption of a similar amount of dextrose when duodenal stimulation was omitted. These results lead us to believe that in man the hypoglycemic duodenal agent acts essentially through islet stimulation. Further, that, if true, little can be expected from the use of duodenal extracts in the treatment of diabetes in man; in mild cases of diabetes some effect may be seen from islet stimulation; in severe diabetes there will probably be no effect or even an injurious one by stimulation of already severely damaged islets.

HARRY SHAY, M.D.
JACOB GERSHON-COHEN, M.D., D.Sc.(MED.)
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MANAGEMENT OF TETANY

To the Editor:—The article by Margolis and Krause (THE JOURNAL, March 25, p. 1131) raises an important point that is not generally accorded sufficient recognition. Despite the frequent demonstration of the importance of phosphorus in tetany, little attention is paid to this element in the dietary management of clinical parathyroid tetany. Shelling and Goodman (THE JOURNAL, March 3, 1934, p. 669) pointed out that neglect of this factor may account for the occasional refractoriness of such patients to treatment with calcium and solution of parathyroid. There are several observations supporting the view that a relatively high phosphorus intake tends to exaggerate the metabolic defect characteristic of the hypoparathyroid state (Albright, Bauer, Claflin and Cockrill: *J. Clin. Investigation* **11**:411 [March] 1932. Robbins and Kydd, *ibid.* **14**:220 [March] 1935. Allardyce: *Am. J. Physiol.* **98**:417 [Oct.] 1931). The fact is too frequently overlooked that milk, which is usually administered in large amounts in such cases, provides an excess of phosphorus as well as calcium and may actually exert a deleterious effect in parathyroprivic tetany. Objections to the use of vitamin D in this condition have been emphasized by Shelling (*Bull. Johns Hopkins Hosp.* **50**:318 [May] 1932; THE JOURNAL, March 3, 1934, p. 669; *Am. J. Dis. Child.* **47**:61 [Jan.] 1934) and Cantarow (*Internat. Clin.* **1**:230 [March] 1936; *Endocrinology* **21**:368 [May] 1937). This matter is discussed in the report in *Endocrinology* (**24**:556 [Feb.] 1939) of a case of chronic idiopathic hypoparathyroidism which did not respond to vitamin D therapy and was effectively controlled by solution of parathyroid and a high calcium, relatively low phosphorus intake over a period of five and a half years. This regimen became ineffective on two occasions when the only change consisted in an increased intake of phosphorus (and calcium) (milk) and vitamin D and again became effective when the latter were omitted.

In the article by Margolis and Krause, no statement is made regarding the phosphorus content of the diet during the period of uncontrolled tetany (seven months). It is specified that a low phosphorus diet was given for about ten days prior to the administration of dihydrotachysterol, but apparently solution of parathyroid was not given during this period.

This comment is in no sense a criticism of the use of dihydrotachysterol in parathyroprivic tetany; there can be little question of the effectiveness of this agent in this condition. I feel, however, that the fact should be emphasized that the phosphorus content of the diet must be maintained at a relatively low level during administration of solution of parathyroid before the conclusion is reached that the latter agent is ineffective. If this is done, I believe that there will be fewer instances of apparent refractoriness to solution of parathyroid in parathyroprivic tetany.

ABRAHAM CANTAROW, M.D., Philadelphia.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

OPTIMUM AIR CONDITIONS IN HOUSES

To the Editor:—Please advise me of the present opinions of the hygiene of living room temperatures. Few families have instruments for measuring humidity and many old persons complain of chilliness unless the thermometer registers from 76 to 80 F. Is this harmful? If so, what reason can be given them why it is worse than the same temperatures in summer? At what distance from the floor should the thermometer be hung?

M.D., California.

ANSWER.—Room temperatures much above 70 F. are generally considered undesirable in cold weather because they aggravate the effects of temperature contrasts when persons pass from overheated rooms to cold outside air. Because of a reduced metabolic rate and lack of resilience of the vasomotor system many elderly persons require temperatures in the upper seventies, but an attempt should be made to reduce the comfortable temperature level by suitably insulating exposed walls and by the employment of tight fitting storm sashes when such measures are justified.

Measurements of temperature are usually made at a level 36 inches above the floor and at least 3 feet away from the exposed walls. In rooms for the aged it is preferable to record the temperature at knee-height level, 18 inches above the floor.

In warm summer weather an indoor temperature of 80 F., or even 85 F., with low humidity is comfortable and desirable, from the standpoint of health, because the human organism becomes adapted to heat and cannot stand sudden drops in temperature, especially when the body surfaces are wet with perspiration. The practice of cooling public buildings to 80 F. or less in hot weather appears to be a distinct menace to the health of susceptible persons who expose themselves to such contrasts in temperature.

LIVER EXTRACT FOR HYPERTENSION

To the Editor:—In the first edition of Beckman's "Treatment in General Practice" I find reference to a liver extract used in essential hypertension. Will you inform me of the form of liver extract used in this condition and its probable value in such a condition of some three years' standing in a woman "passing through" the menopause?

M.D., Arizona.

ANSWER.—Hypodermic administration of liver extracts in the treatment of hypertension was enthusiastically advocated some ten or twelve years ago. That a vascular relaxation and transient fall in the arterial tension occur after such injections has been thoroughly demonstrated. The hepatic extracts were said to abolish the pressor effects of guanidine on smooth muscle (Major, R. H.: *J. Kansas M. Soc.* **25**:177 [June] 1925) but the evidence that guanidine is a significant etiologic factor has never been convincing.

Since then, tissue extracts other than that of liver have been given extensive clinical and experimental trial. Active preparations of muscle, brain, spleen, myocardium and pancreas (insulin-free extract) have been studied. They are all antagonistic to the action of epinephrine. It is claimed that their vasodilator activity is not due either to histamine or to choline. The active principles appear to be closely related to adenosine or adenylic acid. Knowledge, however, concerning the active

fractions of these extracts is still incomplete and their clinical application tentative and experimental.

All these tissue extracts must be given by injection, either subcutaneously or intramuscularly. The injections must be repeated two or three times a week at least. It thus becomes increasingly difficult to retain the patient's cooperation, particularly since the great majority of hypertensive persons feel well. The clinical results have proved most disappointing.

On the meager data available it is impossible to suggest the proper therapeutic approach for the patient mentioned. Hypertensive arterial disease is a highly individualized disorder, especially regarding its provocative etiology. Thus the therapy of individual cases should depend on the etiologic factors involved.

DERMATITIS FROM RED LEAD

To the Editor:—A man was first seen by me in the fall of 1937 because of a generalized erythematous and intensely pruritic dermatitis involving the whole body more or less uniformly. He was a tall blond, middle aged Scandinavian and for eight months had been employed on a dredge. His work was painting metal on the dredge with red lead, which he did for about six months. After this time an irritative erythematous dermatitis developed in both popliteal regions and over both hip areas. He quit work immediately and consulted a physician, who treated him symptomatically without improvement. Because of the gradual spread of the dermatitis he consulted a skin specialist, who hospitalized him, and he remained in various hospitals under the care of various specialists about seven months. On the basis that this was a contact dermatitis or a cutaneous manifestation of a systemic poisoning, conservative management consisted of calamine in oil with 1 per cent phenol packs, boric acid packs, Rowe's elimination diet, numerous antipruritic ointments and sedation. This therapy was carried out in the hospitals and all orders were meticulously followed. For the next several months the patient experienced remissions and exacerbations, but in the last analysis the condition remained stationary. The elimination diet revealed nothing significant, and sodium thiosulfate intravenously was given daily and fractional doses of superficial roentgen therapy were given over the entire body, small areas at a time. Patch tests could not be done because of the extremely irritated condition of the skin. There were removed from his bed one or two cupfuls of branny, desquamated skin. His condition remained about the same, so he was sent to the university hospital for further care, only to return in about the same condition. Finally about ten months after the onset there was a gradual but definite improvement, and after a siege of about twelve months his skin again became normal. Search was then instituted for a probable offending agent in his residential and occupational environment, and by patch tests he was found definitely sensitive to some of the red lead that he had previously used. Could this have been a generalized dermatitis due to lead or lead oxide or to systemic lead poisoning? Have there been like cases reported in the literature? What further therapy could have been used? What is the value of x-rays or ultraviolet rays in the treatment of this condition? Is the use of sodium thiosulfate logical? Please enumerate references to be found in the literature about this type of dermatitis.

M.D., Minnesota.

ANSWER.—The case described brings out many factors to be considered in a diagnosis of dermatitis due to paints.

First, "red lead" or minimum (Pb_3O_4) is not often used today in red paints or, if it is, only in small quantities. Even white lead is sparingly used because of the hazard of lead poisoning.

There are many substitutes for red and white lead, and these substitutes are the ones extensively used as paint pigments. The red pigments most frequently used are made from synthetic dyestuffs, the principal red ones being paranitraniline red, No. 44 in the Colour Index, lithol red 2G, No. 166, toluidine red, No. 69, alizarin, No. 1036, and eosin, No. 771 in the Colour Index. The coal tar pigments are used in the form of lakes, which are made by precipitating organic dyes on inorganic bases, the lake thus formed being similar to a dyed fabric. Other red pigments used are mercuric sulfide, red oxide of iron, cadmium sulfide, selenium sulfide, red oxide of mercury and chrome red or basic lead chromate. A few of the natural dyes such as madder and cochineal are also occasionally used as lakes in paints. The principal bases used for lakes are precipitated barium sulfate, known as blanc fixé, barite, and sometimes white lead (basic lead carbonate) and lead sulfate. From this it is evident that the patient's actual exposure to lead may have been none at all or very little. In order to make sure of this, it would be necessary to make a chemical analysis of the paint that the patient used.

Paints, in addition to the pigment, contain a medium of drying oil and a thinner. The drying oils may be tung oil, linseed oil, castor oil, perilla oil, soybean oil, cottonseed oil, pine oil and fish oil.

The thinners are turpentine or turpentine substitutes such as petroleum distillates. In addition to this, paints also contain driers which may be organic or inorganic, such as the linoleates of metals and the oxides of metals.

The most likely substances in paints from which a contact dermatitis may be developed are the thinners. Hypersensitivity may also be present toward some of the drying oils and toward some of the pigments, especially the synthetic dye lakes.

Lead has not been reported to have caused dermatitis. It would have been interesting to examine the patient for the symptoms of lead poisoning or lead absorption such as colic, blue line on the gums, anemia, weakness of the extensors of the wrists, albuminuria and punctate basophilia ("stippling") and to examine the urine and feces for the presence of lead, especially after the administration of sodium thiosulfate.

Since dermatitis is not one of the symptoms of lead poisoning, the dermatitis was not from that cause. If it was a contact dermatitis, it would be natural to suppose that it would have started first on the parts exposed to the paint, i. e. the hands and the face. Also if the patient had a contact dermatitis from any of the ingredients in the paint he should ordinarily have recovered more rapidly than he did when exposure was eliminated, and he should not have had remissions and exacerbations while he was not working and was under treatment. So far as the patch tests are concerned, it is not stated whether a patch test was done with dry pure red lead (Pb_3O_4) or with the paint that the patient called "red lead" or whether the patch test was performed with the dry paint or the wet paint. Wet paint containing a considerable amount of turpentine or turpentine substitute will cause a positive reaction on most persons if left on the skin as a patch test for twenty-four hours; the thinner in most cases is a primary irritant. If the patch test was done with dry paint and a positive reaction was obtained, the pigments, oils and driers must be considered as possible causes of the dermatitis.

It is not believed that the case was one of dermatitis due to systemic lead poisoning, nor is it believed that it was a contact dermatitis due to lead, unless red chromate of lead was the pigment used, and then the dermatitis may have been due to the chrome radical in the compound rather than to the lead radical. Although there have been many cases of dermatitis reported in the literature as due to paint, there have been none attributed to lead poisoning.

No further treatment than that already given can be suggested.

In view of the doubtful diagnosis, no comment can be made as to the value of x-ray, ultraviolet or sodium thiosulfate therapy.

Has a diagnosis of dermatitis exfoliativa (Hebra's disease) been considered?

References on lead poisoning:

Occupation and Health: Part II, Geneva, International Labour Office, 1934.

Morrell, R. S., and de Waele, A.: Industrial Chemistry Series, New York, D. Van Nostrand Company, Inc., 1921.

Hamilton, Alice: Industrial Toxicology, New York, Harper & Brothers, 1934.

Mayers, May R., and McMahon, Minnie M.: Lead Poisoning in Industry and Its Prevention, special bulletin 195, New York State Department of Labor, Division of Industrial Hygiene, 1938.

SO-CALLED BLACK DERMOGRAPHISM FROM GOLD JEWELRY

To the Editor:—I would appreciate information regarding the chemical reaction that causes the precipitation of a black scum whenever a gold wrist band or other jewelry, for example, a neck piece, comes in contact with skin. What can be done to prevent it?

SIDNEY F. LEBAUER, M.D., Greensboro, N. C.

ANSWER.—Endin and Kismenko discussed this phenomenon in 1925, noting that it occurred most often on dry skin smeared with fat and powder. In spite of this pertinent observation, they favored the idea that the phenomenon was another sign of hysteria. Breitman in 1928 thought it dependent on the character of the natural cutaneous lipoids. Jurjew in 1928 reported a case of adiposogenital dystrophy in which stroking the skin with a metal instrument resulted in back stripes. Soon afterward, Hauck and Dietal and Hosp (Hosp, E.: Untersuchungen über die "Schwarze Hautschrift," *Dermat. Wchnschr.* **91**:1895 [Dec. 27] 1930) reported investigations demonstrating that soft metals make more distinct marks than hard ones and that the tendency to respond with black marks is not increased by sweat (actually decreases it), fat or alkalinity or acidity of the skin or by mechanical, chemical, photochemical or thermal changes in the skin. On the other hand, they found that zinc oxide ointment made this black writing with a metal instrument possible on any skin and that the marks consist of fine particles of the metal which have been rubbed off by friction on the zinc oxide and have been quickly oxidized by contact with the air.

After an ordinary bath, enough power still adheres to the skin to produce the phenomenon; but after thorough scrubbing or cleansing with benzine the black marks cannot be produced. Parts below the powdered area, or parts in contact with clothing that has rubbed on the powdered area, are also susceptible to marking because of the transfer of powder. The skin of one who

is not susceptible can be made so by rubbing it with a cloth which has rubbed the skin of a susceptible person. After the application of zinc oxide ointment any skin will show the phenomenon. On live skin the ability to respond with black marks is only temporary, disappearing in a few hours. On the skin of a corpse it remains for a long time, until removed by rubbing or washing. Many substances besides zinc oxide will produce this condition: calcium or barium sulfate, calcium carbonate, white lead, fine salt or fine sand. Coarse powders, such as coarse sand, will not produce it, nor will the various starch powders or talcum powder.

Lead and metals softer than lead will write on clean dry skin. Silver and harder metals require the presence of a fine powder.

The phenomenon has been called black dermographism. Technically correct, it seems advisable to reserve the name dermographism for the ability possessed by some skins to respond with wheal formation to pressure or stroking.

If patients use only talcum or starch powders they will not be annoyed by black marks from the contact of jewelry with the skin. The possibility of face powder containing harder components sifting down onto the chest must not be forgotten, however.

EMPYEMA OF GALLBLADDER

To the Editor:—What are the probabilities for a postoperative hernia following cholecystostomy for empyema of the gallbladder in terms of percentage? Does chronic alcoholism have any influence? If so, what is it? Just how much of a factor is diabetes mellitus, if any, in connection with such a postoperative hernia? What is the incidence of unabsorbed sutures in connection with the operation mentioned? In case of an infected wound from the empyema would an unabsorbed suture cut any figure in the event of a postoperative hernia? M.D., California.

ANSWER.—No figures have been found on the incidence of postoperative hernia following cholecystostomy for empyema of the gallbladder. It is doubtful that chronic alcoholism or diabetes would be a factor in such a case, although infections prosper in the presence of diabetes. An unabsorbed suture would be unlikely to play a part.

The principal difficulty is the virulent infection usually present in an empyema of the gallbladder. The fascia should be sutured with interrupted chromic catgut and not too tightly and ample drainage of the gallbladder should be carried out, every effort being made to prevent infection, at least widespread infection, of the fascia. Despite these measures, postoperative hernia will inevitably occur in a small percentage of cases.

COMPLEX ALKALI VAGINAL DOUCHE

To the Editor:—I would appreciate your opinion of the following formula: sodium bicarbonate 16 ounces, sodium borate 16 ounces, sodium chloride 5 ounces, sodium benzoate 1 ounce, menthol 1 drachm, bordeaux red 8 grains, oil of thuja 1 drachm. I have been using this formula for my gynecologic patients as a general douche for the past three months. Results are satisfactory and patients seem to like it, stating that they feel clean and refreshed after douching. Some patients use it two or three times daily. I should like to know whether prolonged use of this formula can cause any temporary or permanent local or systemic damage. Are the drugs in the formula used in proper proportion? If not please recommend the proper concentrations. In addition, please suggest whether the efficiency of the formula can be improved by omitting or adding different drugs. M.D., New Jersey.

ANSWER.—There is no need for such a complicated douche, particularly because it is no better than most simpler and cheaper douches. In fact this douche may in some cases do harm. Practically all the ingredients in this douche have an alkaline reaction and, as Roblee and Karnaky have shown, alkaline douches may have a bad effect on the cervix and the vagina. In fact Roblee maintains that an alkaline medium in the vagina may result in the formation of "erosions" on the cervix. A simple way to cure such erosions is to maintain an acid medium in the vagina.

Nearly all pathogenic organisms in the vagina, especially the gonococcus and the trichomonas, disappear if the vagina is kept strongly acid. In gonorrheal vulvovaginitis in children, for example, cures can be obtained in nearly all cases by using acid tablets in the vagina. In the cases of vulvovaginitis in which estrogenic substance is used, cures are obtained only in the cases in which the vaginal reaction is acid.

From the foregoing remarks one may conclude that alkaline douches are not only useless except as mechanical cleansers but may actually do harm. Only acid douches should be used. The best substances for douching are lactic acid and vinegar (5 per cent acetic acid). Vinegar is cheaper and somewhat better. If lactic acid is used, one teaspoonful of it should be added to two quarts of warm water. When vinegar is used, four tablespoonfuls should be added to two quarts of warm water.

SULFANILAMIDE AND CONVULSIONS

To the Editor:—A boy aged 19 months and weighing 30 pounds (13.6 Kg.) was given an initial dose of 20 grains (1.3 Gm.) of sulfanilamide (orally) for acute follicular tonsillitis. This condition was present for two days before the administration of the drug, and the temperature varied from 100 to 105.8 F. With the high temperature the child was delirious. On the third day of illness there was no fever. A consultant pediatrician found the tonsils enlarged and reddened. He advised that sulfanilamide be given in the quantity stated. About twenty to thirty minutes after this was done the child uttered a peculiar cry and turned blue, and his extremities became rigid. He immediately became agitated and kept on throwing himself around on a couch. There was no loss of sphincteric control and no biting of the tongue, although the child did grind his teeth and almost presented risus sardonicus. At times he would assume the position of opisthotonos and right after that would throw himself around on the couch. He was given one-eighth grain (0.008 Gm.) of morphine sulfate by hypodermic injection. This helped after about twenty minutes. He was then taken to a hospital, where a spinal tap was performed, because it was thought that cerebrospinal meningitis should be ruled out. The cerebrospinal fluid was under increased pressure, sugar was present, globulin was not increased and there were 6 lymphocytes present. No further tests were done on this fluid. Examination of some catheterized urine was negative. A blood count showed the hemoglobin and red cells to be normal. There were 4,400 white cells, and the differential showed 61 per cent polymorphonuclears, 39 per cent lymphocytes and a shift to the left. The temperature on admission to the hospital was 101 F. The convulsive movements lasted about two hours. After this spinal tap a second pediatrician was called in. At this time the child was asleep or, rather, comatose. The reflexes were all diminished but present. The consultant believed that the convulsions might have been due to the tonsillitis but did mention the possibility of an influenzal meningitis with good prognosis. He also stated that there was a good possibility of this being a case of acute encephalitis. I might add that during the convulsive state the child's eyes would roll backward toward his head and his tongue would be pushed out of his mouth and even deviated to either side. A third pediatrician was then called in and he stated that the convulsions were due to the sulfanilamide. The father of the child suffers from hay fever and bronchial asthma. This consultant admitted never having seen any convulsions due to the administration of the drug. He explained that there was most likely a condition of acidosis present which was brought on by the sulfanilamide. The urine, however, was distinctly alkaline. The infant was given 30 grains (2 Gm.) of sodium bromide rectally and 1/250 grain (0.0003 Gm.) of atropine sulfate. During the night he was restless and cried often, and his hands would assume athetoid positions while the rest of his extremities were at times rigid. The next day he was a little improved and no longer comatose. He sat up in his crib, asked for water and drank it alone. He had a peculiar facial expression which was dull and vacant. He seemed to be puzzled by everything around him and his eyes had a far away look. It seemed as if he was not in contact with reality. Then again he would become quite normal for a minute or two, speaking distinctly and quite lucidly. During the day while he was no longer comatose the child would still keep on posturing with his hands but to a lesser degree than he had the night before. Forty-eight hours after admission a second tap was performed and now the cerebrospinal fluid was not under increased pressure. There were only 2 cells, sugar was present and the amount of globulin was normal. The fluid was crystal clear in each tap and only about 5 cc. was removed each time. The third day of hospitalization he was still improving mentally and a second blood count showed it to be entirely normal. Sixty hours after the onset of the convulsions a maculopapular eruption developed behind the ears and on the scalp line. It was also present on the thorax. There was no fever and the cutaneous lesions did not appear pruritic. During the day the rash would become quite faint and then reappear. It lasted about twenty-four hours. The tonsils were improved. All told, the child remained in the hospital about four and one-half days and made a complete recovery. The mother states that a similar rash developed at home a few days after this but I was not called to see it. Do you think that the sulfanilamide was the cause of the convulsions? What facts in the history as presented would make you agree or disagree with this as the cause? What is the most likely explanation of the rash? Do you know of any cases in which sulfanilamide per se caused convulsions in human beings?

M.D., New York.

ANSWER.—It does not seem probable that the convulsions were caused by the sulfanilamide in view of the fact that the dosage was small. It would seem more likely that the relationship between the convulsions and the ingestion of sulfanilamide was coincidental, in view of the fact that such a relationship has not been reported despite the widespread use of the drug in recent years, and that the convulsions were associated with the infection in view of the not infrequent occurrence of convulsions with acute infectious diseases in childhood. Furthermore, the eruption can be explained as an accompaniment of the infection, also in view of their frequent occurrence in various febrile states.

The toxic manifestations from the use of sulfanilamide have in most instances resulted from fairly large doses. Among such are dizziness, headaches and mental confusion. The maculopapular eruptions have been noted particularly after exposure to light and it has been suggested that the cutaneous reaction is due to a vasculotoxic effect of porphyrin; some observers have reported abnormally high values in the urine of patients taking sulfanilamide. In the present case no determination was made of the amount of sulfanilamide in the blood, but it must have been at a low level and could probably not account for any of the toxic symptoms that have been associated with the taking

of sulfanilamide. Such laboratory data as the carbon dioxide combining power of the blood, the oxygen saturation and the amount of sulfanilamide would be necessary in order to say whether or not the convulsions were due to an associated acidosis and whether or not the cyanosis was due to the sulfanilamide. So far as is known, there are no reports of convulsions in human beings caused by sulfanilamide.

INCIDENCE OF TRICHINOSIS

To the Editor:—In the January 26 issue of the *Fränkische Tageszeitung* in Germany, I find the amazing statement that 17 millions of Americans are suffering from trichinosis, with a mortality of several thousand in the past year. This was declared by Dr. Nelson, a professor at Rutgers University—according to the German paper—in an address delivered to the health department of New York City. He is also quoted as having said that trichinosis in the United States is one of the most prevalent diseases and that no meat inspection is made in more than 30 per cent of the samples submitted for examination. He is further quoted as having closed his speech with the sentence: "Nothing is done to protect the people, but, nevertheless, they build skyscrapers." In view of the tendency of the German press to spread false news about conditions in the United States, I would appreciate an informative reply to my inquiry. Is there a reliable statistical estimation as to the prevalence of trichinosis?

LEO F. BLEYER, M.D., Elmira, N. Y.

ANSWER.—The information from the German press cited was based on an address given by Thurlow C. Nelson, Ph.D., professor of zoology, Rutgers University, New Brunswick, N. J. The title of the paper given by Professor Nelson was "The Trichina: Public Enemy Number One Among Parasites of the Metropolitan Area." It was presented before a conference of health officers of the New York metropolitan area January 24.

The statement that 17 millions of Americans are suffering from trichinosis was based on extensive postmortem studies that have been carried out in recent years. Because of more refined methods, a large proportion of postmortem material now reveals the presence of Trichinella. Most investigators have used the method of digesting the diaphragms removed at necropsy in artificial gastric juice and of then examining the sediment for larvae. Others have combined with this procedure a microscopic examination of the muscle. The incidence of the disease in terms of percentage of necropsy material containing larvae in various parts of the country is as follows: Rochester, N. Y., 17.15 per cent; Boston, 27.6 per cent; Minneapolis, 17.09 per cent; New Orleans, 3.5 per cent; San Francisco, 24 per cent; Washington, D. C., and Baltimore, 13.67 per cent; Chicago, 14 per cent; St. Louis, 15.37 per cent. A more refined technic used in Cleveland brought the incidence up to 36 per cent. It should be pointed out that in practically all the material examined death was ascribed to some other cause. It is difficult to determine the death rate of trichinosis. If it is based on cases recognized during life, the rate is low. On the basis of the foregoing postmortem observations, it is obvious that many cases of trichinosis are not recognized or properly diagnosed. It is well known to most clinicians that the disease may be easily confused with many other conditions. Furthermore, not all cases present the classic laboratory evidence of eosinophilia. An advance in the diagnosis of trichinosis has been made recently through the utilization of cutaneous and serologic tests. While a study of postmortem material will not give an accurate estimate of the incidence of trichinosis in the population at present, it nevertheless indicates a definite trend and that the disease is much more common than the experience of the average physician would indicate.

The late Dr. M. C. Hall, chief of the division of zoology of the National Institute of Health in Washington, D. C., stated in 1938 that the federal government inspects only about 70 per cent of the meat in this country. It is recognized that the remainder is inadequately inspected. The federal government inspects only the meat of packers who engage in interstate commerce. Even the federal inspection is inadequate, since no practicable provision is made for pork sold which is intended to be cooked; inadequately cooked pork appears to be the source of most cases of trichinosis.

It is of interest that toward the end of the last century Germany prohibited the importation of pork produced in America, because it was the belief that the high incidence of trichinosis in Germany was due to infected meat imported from the United States. The Germans contended that German meat sold in Germany was free from Trichinella because of an elaborate system of microscopic inspection of all pork for larvae. This examination would prevent the sale of trichinous meat; therefore the source of human cases of trichinosis must be due to imported American pork products. The United States instructed Dr. C. W. Stiles in 1898 to determine the value of the German system of pork inspection. His conclusions, after two years' observation, showed that out of 6,329 cases of trichinosis occurring in Germany between 1881 and 1898, 3,388 cases with 132 deaths appeared to have been due to faults of the method of German inspection. There are no reliable statistics on the incidence of trichinosis in Germany at present.

There is no doubt that trichinosis constitutes one of the major public health problems of today. The United States Public Health Service has recognized this, and a number of excellent surveys and recommendations for the control of the disease have been published in the last two years. For further information concerning this subject, the following publications of the United States Public Health Service are recommended:

Hall, M. C., and Collins, B. J.: Studies on Trichinosis: I. The Incidence of Trichinosis as Indicated by Postmortem Examination of 300 Diaphragms, *Pub. Health Rep.* **52**: 468 (April 16) 1937.

Hall, M. C.: III. The Complex Clinical Picture of Trichinosis and the Diagnosis of the Disease, *ibid.* **52**:539 (April 30) 1937.

Hall, M. C.: VII. The Past and Present Status of Trichinosis in the United States, and the Indicated Control Measures, *ibid.* **53**: 1472 (Aug. 19) 1938.

Hall, M. C.: The Role of the Garbage-Fed Hog in the Production of Human Trichinosis, *ibid.* **52**: 873 (July 2) 1937.

TOE NAILS

To the Editor:—A girl aged 17, active, well nourished, healthy, vigorous and athletic, now in her third year at high school, bruised her right big toe in a basketball contest three weeks previous to my seeing her. Some two or three weeks following this the nail in this toe has become lifeless looking in appearance—a light grayish nail in good position, not distorted in growth (of dark egg shell appearance), which can be cut from above down or probed without pain. The tissue surrounding both toes is healthy and normal in appearance. There is no apparent inflammation or pus. The big toe on the other foot is likewise involved. The egg shell nail, which is associated with hyperhidrosis, has been thought of and certain debilitating diseases, but the patient evidences no such history. All the other toes are perfectly normal in appearance and growth.

M.D., New York.

ANSWER.—The egg shell nail, described first by J. N. Hyde (The Egg Shell Nail, *J. Cutan. Dis.* **24**:145, 1906) is a thin nail, white with a purplish tinge, uptilted at the free border. It is part of the picture of erythrocyanosis of the extremities associated with hyperhidrosis, the whole dependent, in all probability, on some disturbance of the endocrine glands. It is seen most frequently in young girls.

The case under discussion lacks all these criteria except change of color. Injury is untenable as a cause, for there has been no evidence of subungual hemorrhage and the symmetry of the change of color requires the assumption of an unlikely coincidence of injury also to the other big toe.

Primary discoloration of the nails is rare, resulting, according to Heller, the leading authority on diseases of the nails (*Handb. d. Haut- u. Geschlechtskrankh.*, Berlin, Julius Springer **13**:131 [part 2] 1927), from icterus, hemorrhages due to general causes, racial pigmentary peculiarities, pigmented nevi, psoriasis or endocrine disorders. Only the last two can be considered in the present case.

Addison's disease and hyperthyroidism cause change of color of the nails and it is possible that slighter endocrine disturbances may be found sufficient. Rarely psoriasis makes its initial appearance as a discoloration of the nails with thickening, followed by the thimble-like pitting, cross furrows, irregular depressions or partial separation of the nails at the free border or the sides seen so often in psoriasis. None of these changes in the nail are diagnostic, however, and only after the appearance of ordinary cutaneous lesions can the diagnosis be settled.

Loss of translucence of the nails can be secondary to anemia, particularly chlorosis, angiospasms, polycythemia, icterus and pigmentary diseases, all of which can be ruled out easily in the present case. Thickening of the nail plate or increase of the subungual horny layer may destroy the translucence. A growth of monilia or other fungus could produce the same result. Here again the difficulty is in explaining how the two big toes and no others became infected simultaneously. Scrapings from under the free border of the nail, examined in solution of potassium hydroxide, or cultures on Sabouraud's maltose agar, are indicated.

If a dressing of mercury solution was applied to the toe after the injury, the change of color of that nail can be explained; this leaves the same difficulty of explaining the corresponding alteration in the nail on the left big toe. Such a discoloration has been discussed by J. L. Callaway (Transient Discoloration of the Nails Due to Mercury Bichloride, *Arch. Dermat. & Syph.* **36**:62 [July] 1937). It is seen frequently after treatment of infections about the nails with mercury solutions or white precipitate ointment and is due to an impregnation of the nail with mercuric sulfate, which seems to be precipitated by light.

Slight changes in the nails seldom furnish much help in diagnosis. They must be considered in the light of other signs and symptoms.

POSSIBLE EPILEPTIC EQUIVALENT

To the Editor:—A white unmarried woman aged about 26, whose general physical examination is negative except for a rather low systolic blood pressure and chronic deafness, complains of "spells" which have been present for the past ten years and are gradually growing more severe, especially during the past few months. The "spells" consist of a clouding of consciousness, at which times she is unable to concentrate mentally and is not aware of what she is doing. In general they are much like conditions found in diabetic patients with hypoglycemia, the chief difference being that the spells are of short duration (from a few minutes to a half hour) and end spontaneously without treatment. She has never had a complete loss of consciousness, anything resembling a convulsive seizure, and the spells are not followed by headache or other symptoms. There has been no epilepsy or other nervous disorders in the patient's family. The following blood sugar tests have been made: Nov. 2, 1938, 87 mg. of sugar per hundred cubic centimeters of whole blood, shortly after an attack; November 14, 83 mg. also shortly following an attack; November 16, 97 mg. taken before breakfast while she was on her usual diet and on a day when she did not have a spell. She was hospitalized December 16, at which time the fasting blood sugar was 75.5 mg. One hour after her usual breakfast it was 66.3 mg. Two hours after breakfast it was 106.4 mg. One hour after her noon meal it was 97.6. Two hours after her noon meal it was 97.0. Three hours after it was 96.1. She was then placed on a low carbohydrate diet and the following morning one hour after breakfast the blood sugar was 115 mg. One hour after the noon meal it was 129 mg. The following morning she was given 90 Gm. of dextrose, with considerable water before breakfast. One-half hour later the blood sugar was 70.2 mg., one hour later 65.6 mg. and one and one-half hours later 69.4 mg. That day she had her regular noon meal and about three hours later had one of her "spells." The blood sugar test taken just as she was recovering from it showed 96.6 mg. Because she is alone most of the time it has been impossible to obtain a blood specimen at the beginning of or during an attack. The attacks are becoming more and more frequent and interfere with her work. This brings up the question as to what would be the most advisable course to follow in her case. I notice in the recent literature that some small doses of insulin frequently are a great deal of help in simple chronic hypoglycemia. I am wondering, however, if in this case the trouble might be associated with a tumor of the islands of Langerhans and if an exploratory laparotomy might be advisable. There was no sugar in the urine following the 90 Gm. of dextrose by mouth.

M.D., Wisconsin.

ANSWER.—The patient has been well studied as regards blood sugar and sugar tolerance but these laboratory data all seem to indicate that there is no remarkable disturbance in this sphere. It is unusual to see convulsive seizures due to hypoglycemia unless the blood sugar level falls below 40 or 50 mg. per hundred cubic centimeters. The attacks described might well be epileptic equivalents with clouding of consciousness. It might be helpful to test the patient for carotid sinus hypersensitivity. If this proves to be normal, studies of the cerebrospinal fluid should be made with measurement of the cerebrospinal fluid pressure. In addition roentgenograms of the skull would be helpful and finally electro-encephalographic or air encephalographic studies might be done. All these tests would help rule out some intracranial causes of epileptic seizures. It would not seem advisable to recommend exploratory laparotomy in view of the available blood sugar studies, which do not definitely indicate that there is hyperinsulinism present. A simple therapeutic test would be the administration of large amounts of dextrose daily. Also sedative medication with from 0.016 to 0.03 Gm. (one-fourth to one-half grain) of phenobarbital twice or three times a day should be tried alone or together with small doses of ephedrine sulfate 0.024 Gm. (three-eighths grain) twice a day.

PETIT MAL, PYKNOLEPSY OR FRÖHLICH SYNDROME

To the Editor:—A boy aged 14, in the fifth grade, has been having attacks which apparently are petit mal. He is rather obese, being about 6 inches shorter than is normal at his age. His external genitalia are those of a 6 year old. Evidently this is a case of pyknolepsy. What is the differential diagnosis? What further studies would you suggest? What treatment would you advise? I am planning to make a sugar tolerance test and have x-ray studies done of the head, thinking of course that there might be some disturbance of the pituitary gland. Is any type of glandular therapy indicated?

M.D., Connecticut.

ANSWER.—If this patient has petit mal epilepsy, it is doubtful that there is any relationship between the petit mal and the glandular deficiency. The brief description of the physical characteristics suggests a possible Fröhlich's syndrome. However, one would need much more information to make a diagnosis. If the condition proves to be a pituitary gland deficiency, treatment might be attempted with one of the new preparations obtained from the anterior lobe of the pituitary gland. However, before beginning treatment it is advisable to explain to the parents that the treatment is a long and fairly expensive procedure which will require two or three injections a week for six months or a year before results may be obtained. It is possible even then that there will be no results from treatment. If there are, these results will be revealed in a change in the physical characteristics of the child.

Pyknolepsy, as described by Stahrgardt, is a form of epilepsy characterized by petit mal seizures which begin some time between 8 and 10 years of age and disappear spontaneously at puberty. This condition is not affected by any treatment whatever. The diagnosis is confirmed only when the seizures stop at puberty. There are only two forms of treatment which affect the petit mal of idiopathic epilepsy. Those treatments are fasting and the ketogenic diet. Petit mal epilepsy does not respond to any drug treatment.

It would be advisable to take roentgenograms of the wrists and compare the bone age or development with the Todd standards. This will give information as to the state of metabolism of the child. Apparently there is need for an anterior pituitary male sex hormone. A dextrose tolerance test will show an increased tolerance in pituitary deficiency. More complete information would allow a more intelligent diagnosis and schedule of treatment.

"FEBRILE ANTIGENS" FOR DIAGNOSIS

To the Editor:—Lately my associates and I have been using a product of the Lederle Laboratories, New York, for our Widal tests, known as the Typhoid Group Antigens. A number of physicians on our staff have questioned the reliability of the test and I would appreciate any information that you would send me concerning this product.

M.D., Pennsylvania.

ANSWER.—The preparations formerly called "Typhoid Group Antigens," now called "Febrile Antigens, Lederle," consist of suspensions of members of the typhoid (O and H elements) paratyphoid A and B group, for the performance of the agglutination test for infections of the ordinary enteric types to be utilized in a slide test. They should give results approximately equivalent to those obtained by other methods, probably somewhat less accurate so far as concerns exact titrations.

The "Febrile Antigens" package now also contains Proteus antigen for the test for typhus fever and other members of the typhus group and Brucella antigen for the test for undulant fever (brucellosis).

Of course all such tests must be interpreted in the light of other factors and must not be depended on, of themselves, to establish a diagnosis.

SOAPS FOR WASHING DIAPERS—MEASLES WITHOUT EXANTHEM

To the Editor:—1. Will you give me a list of some of the more popular soaps which, if used to wash diapers, are not so strong as to cause a diaper rash in most babies, and also a list of the soaps which may cause irritation when so used? 2. Can a diagnosis of measles be made without the appearance of a rash? I recently saw a 17 months old baby who had been feverish and irritable and vomited repeatedly for twenty-four hours. The buccal membranes were full of Koplik spots, and, since his sister had broken out with the measles only two days previously, I thought he was also getting the measles. However, he became afebrile and was well in two days, and no rash appeared. Could it have been atypical measles?

M.D., California.

ANSWER.—1. If the diapers are properly washed, no soap should remain in them to irritate the baby's skin and cause a diaper rash, no matter what soap is used. The diapers should be washed first in soapy water, rinsed thoroughly in clean warm water, boiled in clear water for ten minutes and then again rinsed thoroughly in clean warm water. To differentiate between nonirritating and irritating soaps, any soap that can be used to bathe the baby without irritating the skin could certainly be used to wash diapers.

2. If the physician is certain that the buccal membranes were full of Koplik spots, the case undoubtedly was one of measles. Especially during epidemics, attenuated or atypical cases of measles occur in which the rash is so slight and transient that it may be undetected at the particular time of the examination.

TREATMENT OF PARKINSON'S DISEASE

To the Editor:—Please describe the latest treatment for Parkinson's disease.

S. H. RAYMOND, M.D., Cazenovia, N. Y.

ANSWER.—There have been no noteworthy recent advances in the treatment of Parkinson's disease. The most valuable agents seem to be those of the atropine group. Treatment with scopolamine seems to be as efficient as anything that has been used. Good results have been reported both with the tincture of stramonium and with a well assayed product of Datura leaves. It has also been found that atropine sulfate itself, given in increasing doses of from 1/250 to 1/50 grain (0.25 to 1.3 mg.) three times a day, has had a beneficial influence, especially in the encephalitic forms. More recently cobra venom has been used (Gayle, R. F., Jr., and Williams, J. N.: *South. M. J.* **31**:188 [Feb.] 1938).

DIGITALIS IN HEART FAILURE

To the Editor:—The use of one of the most used drugs, digitalis, at times puzzles me greatly. 1. Some lecturers in postgraduate institutions say that digitalis should be used to its full therapeutic effect at the first signs of heart failure, i. e., shortness of breath on exertion with or without cardiac irregularity, and with or without demonstrable edema either pulmonary or swelling of the ankles. In cases such as this, if the examiner feels definitely that the shortness of breath is cardiac, should digitalis be used to its full therapeutic effect? 2. Cases such as the following are not infrequently seen. An individual in middle life has had a coronary thrombosis or some other acute cardiac episode. Within several months there is gain in weight, shortness of breath, pulmonary edema, a heart rate from 90 to 100 usually regular, and there may or may not be enlargement of the heart. The use of aminophylline and mercurial diuretics is necessary. A particular case I have in mind is a person who with the use of mercurial diuretics puts out between 136 and 172 ounces of urine following each injection. Should digitalis be used in its full therapeutic effect in a case such as this?

M.D., New York.

ANSWER.—1. Digitalis should be administered to get full therapeutic dosage, slowly or rapidly as the need indicates, at the first sign of heart failure, whether the evidence is pulmonary or systemic. It sometimes can be used as a therapeutic diagnostic test.

2. With respect to the example cited of the middle-aged patient with left ventricular failure and normal rhythm, digitalis is just as much indicated as in any other case of heart failure. It may not be quite so effective as when there is auricular fibrillation, but nevertheless it should be used in full, even before diuretics. It may often, together with rest, be so effective that diuretics are not needed.

TREATMENT OF PAINFUL VACCINATION SCAR

To the Editor:—A white girl aged 16 years consulted me about a smallpox vaccination scar, one year old. The scar is one-half inch in diameter and raised one-eighth inch above the surrounding skin. She plays basketball and when the scar is bumped it becomes painfully itchy. Would there likely be a return of scar tissue if this scar was excised about one-eighth inch beyond its borders? What would be the simplest and best treatment? Would quick, brief freezing with "dry ice" be feasible?

M.D., Washington.

ANSWER.—The simplest and best treatment of this old vaccination scar would be a delicate excision with a minimum of trauma and close coaptation of the skin edges with a subcuticular stitch and follow up with roentgen therapy to the incision to prevent the recurrence of keloid. "Quick, brief freezing with dry ice" is not a satisfactory procedure in the treatment of old thick keloids. In view of the fact that the scar is painful and itchy at times it would be well to examine it microscopically, after excision, to rule out the existence of a cutaneous neuroma.

ARTIFICIAL APPENDAGE FOR LOSS OF FINGERS

To the Editor:—A right handed farmer, aged 50, has lost the digits, save the thumb, of the right hand. The line of cleavage is diagonally from the first metacarpophalangeal joint across to the middle of the fifth metacarpal. What type of artificial appendage would be the most useful to this man in his work? Appearance is decidedly secondary.

BENJAMIN CARLSON, M.D., Lorain, Ohio.

ANSWER.—The most useful type of artificial aid to function would consist essentially of a prosthesis of firm leather which could be strapped or laced to the hand and wrist and to which is attached a broad, semiflexed metal finger, in the position of the middle and ring fingers, to the tip of which the patient could firmly approximate the thumb.

A simple apparatus is far more likely to prove useful than a complicated one; and what this patient needs most is something that will permit him to grasp objects with the help of the prosthesis and the remaining thumb.

ACID-ASH DIET

To the Editor:—A question with regard to the "acid-ash diet": Why is salt contraindicated? Send me, or refer me to, an acceptable acid-ash diet list.

M.D., Texas.

ANSWER.—Diets providing an acid ash are sometimes used in the dietary treatment of renal diseases, particularly when the condition is associated with edema. As a rule, dietary treatment is not sufficient but is supplemented by the administration of acidifying salts such as ammonium chloride. Foods which provide an acid ash are cereals, including bread and other cereal products, meats, eggs and fish.

Discussions of acid-ash diets with information about foods can be obtained from almost any standard textbook on nutrition. Salt is contraindicated. It may be easily retained and thus lead to an accumulation of edema fluid, for the elemination of which the acid-ash diet usually is given. It is customary to substitute salt-free butter for ordinary butter and otherwise to avoid excessive ingestion of table salt.

SPONTANEOUS RUPTURE OF MEMBRANES NEAR TERM

To the Editor:—If the membranes rupture, allowing the amniotic fluid to escape during the last month of pregnancy, is it always advisable to induce labor promptly?

M.D., California.

ANSWER.—Labor should usually be induced in patients in whom the membranes rupture near term. A latent interval usually follows the rupture of the membranes until contractions commence. It is therefore best to wait as long as twelve hours before an induction is undertaken, if indicated, in order to allow a possible spontaneous onset of labor to take place and to assure the best response to the induction. It may be difficult to determine definitely that the membranes have actually ruptured. If this is questionable, nothing should be done. The danger of prolonged rupture of the membranes is infection. Although intra-uterine infection occurs but rarely in such cases, it is always a serious complication.

FIBRIN IN AMNIOTIC CAVITY

To the Editor:—During 1937 I delivered a 21 year old primipara by low forceps and episiotomy and she had a normal puerperium. In May 1938 she returned with amenorrhea, vaginal pruritus and an enlarged uterine fundus. June 4 she had severe abdominal cramps and profuse vaginal bleeding with clots, which continued off and on for two and one-half weeks. A miscarriage was agreed on but no tissue was passed. June 28, reexamination revealed a white flaky discharge and she was started on silver picrate insufflation and suppositories and two weeks later the fundus was still enlarging. She continued a normal pregnancy and delivered a normal male infant November 22, weighing 6 pounds 5 ounces (2,863 Gm.). There were no lacerations and the membranes were ruptured just before the delivery of the head with the escape of a moderate amount of crystal clear water. The placenta was delivered after the baby and was inverted as it presented with two thirds of the inner surface of the membranes covered with a layer of fibrin from one-eighth to one-fourth inch in thickness. There was no laceration of the placenta, cord or baby. The maternal surface of the placenta was apparently normal. My impression is that there was bleeding into the amniotic cavity in June, which resulted in the deposit of fibrin. Is this a frequent occurrence?

M.D., Kentucky.

ANSWER.—It is difficult to explain a deposit of fibrin within the amniotic cavity. This would have to result from bleeding from the cord or the fetus. Fibrin deposits such as the one described are often found extra-amniotically, so that the amnion in this area is considerably thickened. These represent hemorrhage and organization of the blood clots. The hemorrhage may occur early in pregnancy in association with a threatened abortion or late in pregnancy as the result of changes incident to placenta praevia. Microscopic examination of such an area will reveal the organized blood clot.

CONTRALATERAL PHLEBITIS YEARS AFTER INJURY

To the Editor:—A patient was shot with shrapnel in the right leg during the World War and has since suffered with atrophy and severe pain in this member. Since he is forced to favor his right leg in walking or working, a phlebitis has developed in his left leg. In 1916, about two years before his entry into the service, he suffered an attack of typhoid. The phlebitis that now exists in the left leg began only five or six years ago. Now the question is whether or not the phlebitis was produced by the attack of typhoid over fifteen years previous to its onset or could be caused by the gunshot wound in the right leg, which has forced him to use the injured leg a great deal more than he would normally. I have talked this matter over with the rating board of the Veterans Administration and was informed that this particular combination had never been submitted before. If possible I wish that you would let me know if it is possible for a gunshot wound which produced a compound fracture in the right leg to cause a phlebitis in the opposite leg.

STANLEY M. GATES, M.D., Monticello, Ark.

ANSWER.—More data are necessary to form an opinion. One would have to know whether there were any clinical symptoms and signs of venous obstruction during or immediately after the attack of typhoid. It is not likely that the patient had a residual phlebitis on entering military service, as this would have disqualified the patient for service at the front. Another question that arises is whether or not a phlebitis followed the leg injury within a few weeks. In the absence of such evidence, a phlebitis occurring sixteen years after typhoid or fourteen years after a gunshot wound, without any "bridging symptoms," cannot be admitted as having any causal relationship either to the infection or to the injury.

The term "bridging symptoms" is meant to indicate that a phlebitis can be due and can appear in the form of recurrences

as long as twenty-five years after an injury, but the initial attack must be demonstrable and also the recurrences at intervals. The idea that favoring the right leg can bring about a phlebitis in the left leg, again, cannot be substantiated, unless there is good evidence that a femoral or pelvic phlebitis existed at the time of the injury. Otherwise every major amputation would be followed by phlebitis in the other limb, and this certainly is not the case.

In deciding on the merits of such a case, much would depend on the ability to demonstrate the existence of a phlebitis within a few weeks after the infection or injury.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 20-22. Sec., Dr. J. N. Baker, 517 Dexter Ave., Montgomery.

ARKANSAS: *Medical (Regular).* Little Rock, June 8-9. Sec., State Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, 317 State Line, Texarkana. *Medical (Eclectic).* Little Rock, June 8-9. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock. *Basic Science.* Little Rock, May 22. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock.

CALIFORNIA: *Written examinations.* San Francisco, July 10-13, and Sacramento, Oct. 16-19. *Oral examinations* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, August 7, and San Francisco, Nov. 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Basic Science.* New Haven, June 10. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven.

DELAWARE: Dover, July 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 26-27. *Medical.* Washington, July 10-11. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 19-20. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

ILLINOIS: Chicago, June 20-22, and Oct. 17-19. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 20-22. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

KANSAS: Kansas City, June 13-14. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, June 7-9. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MARYLAND: *Medical (Regular).* Baltimore, June 20-23. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, June 20-21. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 14-16. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, June 1-3. Sec., State Board of Health, Dr. Harry F. Parker, State Capitol Bldg., Jefferson City.

NEBRASKA: *Basic Science.* Omaha, May 2-3. *Medical.* Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, May 1-3. Sec., Dr. John E. Worden, Capitol Bldg., Carson City.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York, and Syracuse, June. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, State Education Department, Albany.

NORTH CAROLINA: Raleigh, June 19. Sec., Dr. William D. James, The Hamlet Hospital, Hamlet.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: Columbus, June 6-9. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: *Basic Science.* Oklahoma City, May 15. Sec. of State, Hon. C. C. Childress, State Capitol, Oklahoma City. *Medical.* Oklahoma City, June 14. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Medical.* Portland, June 20-22. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science.* Corvallis, July 8, and Portland, Oct. 28. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, 400 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 27. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 18-19. Director, Medical Licensure, Dr. G. J. Van Heuvelen, State Board of Health, Pierre.

TEXAS: Austin, June 21-23. Sec., Dr. T. J. Crowe, 918 Mercantile Bldg., Dallas.

VERMONT: Burlington, June 14-16. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 21-23. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WISCONSIN: *Basic Science.* Milwaukee, June 3. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Milwaukee, June 27-30. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, April 22, page 1627.

Book Notices

Spinal Anesthesia. By Louis H. Maxson, A.B., M.D., Practicing Specialist in Anesthetics. Foreword by W. Wayne Babcock, M.D., LL.D., F.A.C.S., Professor of Surgery, Temple University School of Medicine, Philadelphia. Cloth. Price, $6.50. Pp. 409, with 70 illustrations. Philadelphia, New York, Montreal & London: J. B. Lippincott Company, 1938.

"The writer, being large, middle aged and bald, can hardly qualify as an 'auburn-haired vamp,' but he feels that the spinal anesthetic patient should preferably be watched by a well trained medical man who is qualified personally to administer any treatment or restorative measures that may be called for." One has the impression on reading Dr. Maxson's book that he is indeed reading the words of a well trained medical man who is qualified and who, moreover, has his feet on the ground in a controversy that has waxed warm during the past ten years. The book is definitely on the side of spinal anesthesia. The protagonist is an anesthetist but the book is not controversial. Dr. Maxson goes out of his way to meet all comers but not for the purpose of blasting them into an admission of their errors. He introduces the reader to them in their own words and if he disagrees with them he says so; yet the background of his reasoning has been so painstakingly set forth that the reader understands why he disagrees and is likely to concur. He has correlated the results of present and past clinical and experimental work intelligently, accurately and impartially, thus fulfilling a long felt need. It is this painstaking and thoughtful consideration of the known facts regarding the basis of spinal anesthesia that makes the book worth reading and keeping as a reference work.

Following a foreword by Dr. W. Wayne Babcock, "to whom spinal anesthesia in this country owes a great debt of gratitude," there is a sane preface by the author, in which it is stated that "the entire purpose of this presentation of the subject is to help the reader understand the 'why' of each procedure, and with such understanding to enable him to evolve a technic of his own, properly grounded on scientific principles." This he proceeds to do successfully. The book is not a compilation of the author's cases. First there are an explanation of the definitions and synonyms used and a brief and accurate history of the method. A chapter of careful and practical discussion of anatomic considerations follows. There is in this chapter a detailed account of the spinal and autonomic nervous systems which is of paramount importance and is referred to again and again in the text because the bulk of clinical and experimental evidence adduced indicates that fall in blood pressure, respiratory embarrassment or failure and cardiac insufficiency are truly the effects of the anesthetic drug on cord structures and their autonomic counterparts. The selectivity of most anesthetic agents is on sensory components predominantly in the concentrations ordinarily used. Most of the untoward events therefore are the results of gravitation of the anesthetic to nerve roots controlling the muscles of respiration, the sympathetic acceleration of the heart and the peripheral nervous vasomotor control. The physical factors in the administration of spinal anesthetics are reviewed, as are the actions of drugs that have been or are being employed as anesthetic agents for premedication and stimulation during anesthesia. A discussion of technical considerations is followed by the recording of specimen technics. These include all the well known methods. The author has no particular ax to grind and does not give the impression that he has any interest in wanting to persuade the reader to adopt his technic (which in fact is similar to that used by many other operators).

The effects of anesthesia are dealt with, and here the earlier experimental and clinical groundwork is repeatedly referred to in the explanation of the phenomena observed during and after anesthesia. The cause of failures is (again) shown to be failure to deposit the anesthetic in the subarachnoid space in the vast majority of cases, although hyposensitivity to ordinary concentrations is thought to be a rare cause. Difficulties of administration and dangers to be watched for are described and the causes of death analyzed. Maxson is certain that, when handled by a well qualified anesthetist, spinal anesthesia is "as safe as any method can be." One believes him when he states that it would be his own choice had he to undergo an abdominal operation.

There is obvious sincerity about the book, and one gathers that the same might be said about the author. He records his own deaths in detail and gives all the mortality statistics which have been reported since 1915, making the point that most deaths have occurred early in the given series. Complications and sequelae, advantages and disadvantages, indications and contraindications are thoroughly considered, so that one may find almost any specific condition discussed from the standpoint of risk. The author considers spinal anesthesia to be of value at times as an aid in diagnosis (although not all surgeons will be willing to agree that it should be used to differentiate mechanical from paralytic ileus), as a therapeutic agent in certain conditions and as an anesthetic agent in some special situations, such as childbirth. The application of the method in the surgical treatment of children and infants is discussed, the author's point of view being that it may have a use with older children but probably not under any ordinary circumstances with infants. In the same chapter preoperative and postoperative care of patients who have had a spinal anesthetic is presented. Total spinal anesthesia is discussed, chiefly for the purpose of warning against its dangers and by way of illustrating the selectivity of the drugs used for sensory nerves. Segmental spinal anesthesia is thought to have promising possibilities. The book closes with a brief chapter of conclusions, the first part of which might fittingly have introduced the treatise. In it the spirit in which the book was written is indicated by the statement that "the writer of this book is not an extremist in his attitude toward spinal anesthesia. He cannot share the high enthusiasm of a Pitken, a Koster or a Vehrs. . . . No; the writer is an anesthetist, and as such he recognizes that no single method of anesthesia can properly claim precedence and be used to the exclusion of the others."

There are an extensive bibliography and a name and cross reference subject index. The contents are made easily available by outlines under the headings of each chapter. There is considerable repetitious presentation of material in the book, but this is not objectionable, since each chapter is dealt with as a unit. It should be pointed out that if all those who administer spinal anesthetics had the knowledge contained in this book and understood how to apply it, spinal anesthesia would never fall into disrepute but would have an honored place in the practice of surgery until the advent of the perfect anesthetic.

Der Beginn der Lungentuberkulose beim Erwachsenen. Untersuchungen an 86 Reihen von Röntgenphotographien vom Gesunden bis zum Krankhaften uber Ursache, Gestalt, Entwicklungstempo, therapeutische Beeinflussbarkeit und Prognose der Erkrankung. Von Dr. H. Braeuning, Chefarzt der Fursorgestelle fur Lungenkranke in Stettin. Paper. Price, 22 marks. Pp. 222, with 177 illustrations and graphs. Leipzig: Georg Thieme, 1938.

This excellent monograph is printed on the best glazed paper and is well illustrated with roentgenograms and charts. There are a few minor typographic errors: some of the tables (for example, table 3) have duplication, figures do not total, and reference figures in the text are not exact. On page 180 for table 17 undoubtedly table 18 is meant. The use of flat plates also has the disadvantage of not locating lesions by third dimension and requires a careful regulation of the relationship of position of the x-ray tube to the position of each patient.

The work is the result of a study of 100,000 persons, of whom there were 80,000 roentgenograms from the various tuberculosis institutions of Stettin. Of this number only eighty-six cases were included in the report in which roentgenograms were taken in series of apparently well persons and the disease was observed from the inception as determined by the least possible changes on the roentgenograms. The periods from the last normal to the first one showing pathologic change varied from one month to one year. The important features of the course of the disease of each of these eighty-six patients is briefly recorded, accompanied by an excellent course chart of each and punctuated by well chosen roentgenograms of total or important lung regions. There are eighty-five of such reproductions. In this series the author's dictum of "anything can happen" is well shown, for there are many degrees of acuity and chronicity. Some cases presenting open infiltrates or other serious appearance heal spontaneously, others like them or of even better appearance may go on to a fatal issue even with treatment. The first appearance, therefore, is not always a good criterion of prognosis.

Fifteen per cent of the cases became open within the first year, 5 per cent more after the second year, 4 per cent more after the third, and 8 per cent more after the fourth. After twelve years 40 per cent were open. Three and five tenths per cent of the patients were dead after one year and 15 per cent after twelve years. Both of these figures are established on an average time of observation of about four years. Sixty per cent therefore became severely damaged for years, 40 per cent infectious and 15 per cent died. If they had been followed longer the results would perhaps be much higher. Judging by the author's earlier work, about 80 per cent of patients with open tuberculosis ultimately die of the disease, although this is subject to rigid interpretation of what constitutes an open lesion and also the kind and time of treatment. Truly, as the author states, tuberculosis in adults, for those who know its course, has not yet lost its terror. The blood picture is indefinite, as is the red cell sedimentation. Neither is specific. Practically all acute forms show changes of both, some chronic forms show changes of neither.

The high point of this work lies in the report on the early lesion from a roentgenologic standpoint with the collateral clinical observations.

The preponderance of lesions were infiltrates: twenty-six typical, thirty-four atypical or modified in some way, twelve having mixed flecks in cloudy infiltrates and others having fine flecks with or without linear fibrosis. They were located largely above the second rib: eighteen in the apex, six behind the clavicle, twenty in the first, five in the second intercostal space and one in the third. The others were widespread or irregular in position.

Other diseases could not be connected as causative factors in the beginning of tuberculosis. Grip and the acute onset of tuberculosis are quite similar and may be simultaneous or independent of each other. A differential diagnosis is suggested in the high sedimentation of grip in contrast to tuberculosis.

The author doubts whether pregnancy has any unfavorable effect on the course of beginning tuberculosis, but the figures are too few to justify conclusions. Most figures of pregnancy and tuberculosis are compiled on cases in which the disease is actually in progress.

In puberty there is a slight increase of unfavorable results in the group from 10 to 20 years of age over the adults (50 per cent to 34 per cent respectively), but most puberty cases show a youthful glow even in advanced disease.

The origin of the disease is assumed to be largely from exogenous reinfection. Only three cases were definitely proved to be from a primary focus of thirty-six definite primary lesions. Three others were from the hematogenous scattering of the primary, but the author prudently admits that many such cases may have been overlooked and grants that pathologic studies similar to those of Wurm may change the figures. Important argument in favor of exogenous reinfection, however, is that seven times as many nurses in tuberculous cases develop the disease as those working in welfare stations. This is of more significance since all their nurses reacted positively to tuberculin at the beginning of service.

This work comes near to the ideal "experiment" in the epidemiology of tuberculosis.

The 1938 Year Book of Physical Therapy. Edited by Richard Kovács, M D, Clinical Professor and Director of Physical Therapy, New York Polyclinic Medical School and Hospital, New York. Cloth. Price, $2.50. Pp. 486, with 131 illustrations. Chicago: Year Book Publishers, Inc., 1938.

This is the initial yearbook of physical therapy, aimed to serve the large body of medical men and their assistants in the use of physical energies in almost every field of medical practice. The editor states that he was attempting to meet "the constantly increasing, and in many respects spectacular, development of physical energies in the treatment of disease and injury during recent years." He says further that he wished to cover three main fields in physical therapy, namely (1) new developments in basic research and practical application, (2) the present status of clinical usage and (3) the types of treatments largely unknown in this country, in order to stimulate interest and

research along such lines as health resorts and spas, the use of natural therapeutic resources and climatotherapy, and physical education in the practice of medicine.

The book has two parts, one on the methods and apparatus of physical therapy, including some rather detailed accounts of the work of various investigators on the effects of physical methods, with some of the physiology and physics involved, and another on applied physical therapy in the treatment of a wide variety of physical conditions. The editor stressed the necessity of using physical therapy in conjunction with general medicine and surgery. In covering these fields, the literature referred to was limited to that of the preceding year, as is customary in yearbooks. In selecting articles from the foreign literature, the editor said that difficulty arose because of the lack of internationally accepted nomenclature, involving a problem which should be considered in future international congresses on physical therapy.

Dr. Kovács is the editor, yet it is sometimes uncertain which statements are his and which those of the investigators cited. Such objective comments are made as "the experiments proved that" and "the discussion is theoretical" and that certain experiments "have demonstrated." Yet comments signed by the editor are often placed in parenthesis and small print in the text, causing confusion as to which statements in the rest of the text are his and which those of the investigators cited.

On the whole the book represents a good start for a yearbook on physical therapy, and it will be valuable for its abstracts of recent literature.

Cardiovascular Disease in General Practice. By Terence East, M.A., D.M., F.R.C.P., Physician and Physician-in-Charge of Cardiological Department, King's College Hospital, London. Cloth. Price, 10s. 6d. Pp. 206, with 43 illustrations. London: H. K. Lewis & Co., Ltd., 1938.

This book it intended to expound to the general practitioner those principles and practices which are of immediate utility to him in his everyday handling of cardiac patients. In this the author succeeds admirably. Function and etiology are emphasized in preference to morphology; this is in line with the modern trend in the field of cardiovascular diseases. The scope of the book can be appreciated by a glance at the chapter headings: interpretation of symptoms, physical examination, heart failure and its treatment, coronary circulatory failure, peripheral circulatory failure, rheumatic and syphilitic cardiovascular disease, chronic valvular diseases, subacute endocarditis, pericarditis, hypertension, arrhythmias, circulation in anemia, in lung and kidney disease, in anesthesia, in pregnancy and in athletes, congenital heart disease, diseases of the arteries and veins, the heart in older persons, and aberrations of the normal heart. The book avoids the undue emphasis on chronic valvular disease which has been so common in the past by covering the subject in three pages. The style approaches that used in compends in a tendency to outline the subject and to employ a staccato rhetoric. Proprietary drugs are stressed unduly and many of these are unfamiliar to the American reader. The insertion of brief bare outlines of case reports could well have been omitted. These are, however, minor criticisms, and the book is admirably suited for the audience intended, the general practitioner of some experience seeking to be brought in easy lessons abreast of progress in this field.

Essentials of Psychiatry. By George W. Henry, Associate Professor of Psychiatry, Cornell University Medical College, New York. Third edition. Cloth. Price, $5. Pp. 465. Baltimore: Williams & Wilkins Company, 1938.

Dr. Henry's excellent textbook has been considerably enlarged since its original appearance. Naturally the chapters dealing with the psychoses constitute the largest part. Borderline conditions cannot be dealt with in a book of this size. Perhaps more space is given to the topic of organic psychoses than is usually the case, but the matter is properly treated. The psychoneuroses are given a good deal of discussion. There is an excellent chapter on the method and purpose of mental examination, and a short but fairly good one on principles of treatment. Chapters on psychiatric nursing and psychopathology of the normal are included; those dealing with mental hygiene and disorders of childhood are perhaps too brief. Psychiatric social service work and the medicolegal aspects of psychiatry are touched on, and the final chapter deals with psychiatric history, a subject which perhaps is too sketchily dealt with here but is unfortunately almost entirely neglected in other textbooks. There is a brief bibliography. This is a good, simple textbook and is accurate enough for use in the earlier parts of a curriculum in psychiatry. It could be used as a basic text in a psychiatric course in a medical college provided it was supplemented in the later years by intensive reading in the literature of psychiatry. The work of Rosanoff is perhaps better suited to advanced students of psychiatry. No textbook of course can be entirely satisfactory, but this volume is subject to a minimum of criticism if one bears in mind that an attempt is made to cover a great deal of material in a limited space.

Outline of Roentgen Diagnosis: An Orientation in the Basic Principles of Diagnosis by the Roentgen Method. By Leo G. Rigler, B.S., M.B., M.D., Professor of Radiology, University of Minnesota, Minneapolis. Atlas edition. Cloth. Price, $6.50. Pp. 212, with 254 illustrations shown in 227 figures, presented in drawings and reproductions of roentgenograms. Figures 6 to 51 and 55 to 72 are drawings in an original technic by Jean E. Hirsch. Student's edition (exclusive of atlas). Paper. Price, $3. Pp. 212. Philadelphia, New York, Montreal & London: J. B. Lippincott Company, 1938.

This work appears in two editions: one with illustrations, and the other, a cheaper work, minus the plates but containing the same text. Essentially this is an outline of a teaching course in radiologic diagnosis and represents the considerable experience of the author. The book is divided into eleven sections, fairly well running the gamut of diseases to which the human body is subjected and in which the x-rays are used for diagnosis. The first section is devoted to an outline of general principles with brief descriptions of technics employed in roentgenology. Actual practical technic has been completely eliminated; only a solid residue of diagnostic facts is presented. Nevertheless a surprising amount of discussion is present. An interesting feature is the paragraph in the various sections which evaluates the particular usefulness of the roentgenogram in the locale or disorder involved. The plates in the complete edition are excellent and it is easy for the reader to grasp the salient points portrayed. There are a few line drawings of the more difficult portions of osteology and of the development of the ossification centers of the bones. For those physicians and students who seek guidance to methodical and clearcut interpretation of fluoroscopic and roentgenographic appearances, this small volume cannot be too highly recommended.

The Medical Dictator and Other Biographical Studies. By Major Greenwood, F.R.S., D.Sc., F.R.C.P. Cloth. Price, 7s. 6d. Pp. 213, with 6 illustrations. London: Williams & Norgate, Ltd., 1936.

The author of this book is listed as former statistician to the Lister Institute, chairman of the statistical committee of the Medical Research Council, president of the Royal Statistical Society and professor of epidemiology and vital statistics at the London School of Hygiene and Tropical Medicine. Naturally he has made the acquaintance of "men long dead and largely forgotten whose work has influenced the studies" he pursues, and he has inquired into what sort of people some of these dead investigators were. The subjects of his present inquiry are Galen, John Freind, "Heart" Latham, William Farr, Pierre Charles Alexandre Louis, Osler, and Arthur William Bacot. "Medical dictator" is an appellation which he may rightly bestow on Galen but which seems inappropriate to some, if not all, of the other personalities. Thirty-four pages of biography and criticism of an ancient whose system was based on the doctrine that all diseases depend on the balance or lack of balance of the four primary humors—blood, yellow bile, black bile and phlegm —seem too much.

Of Pierre Charles Alexandre Louis, the author says that his principal writings are unreadable. They are just sums. Louis apparently endeavored to establish a numerical system of diagnosis and prognosis, to the exposition of which he devoted a special memoir of sixty-five pages. When Osler in 1905 wished to lay a wreath on the tomb of Louis, no physician could be found in France who knew where he was buried.

Farr was a statistician and discovered a law to which his name has been attached and which "was the simplest possible

relation between the three ratios deducible from the four available figures which one could assume." He was able to foretell when the cattle plague which invaded England in 1865 would reach its maximum. After Farr retired, the British Medical Association officially expressed appreciation of his labor in behalf of statistical and sanitary science, of the light he had thrown on physiologic and pathologic problems and of the extraordinary services he had rendered in advancing the national health.

Latham had been a member of the staff of old St. Bartholomew's and a successful practitioner in London. He was also a critic of medical education. He believed that all knowledge was valuable but that, for a physician, the study of sick people was much more valuable than anything else.

John Freind is one of the heroes of the London College of Physicians. He became physician to the queen after the accession of George II. His "History of Physic" was his most important work and yet he made no important contribution to the art or science of physic. He had no use for ancient medical philosophy or modern medical systems, but he searched the literature for plain, practical remedies with no mystical nonsense about them. He died in 1728. The reason why Freind was beloved can be expressed in one word, character.

Cancer with Special Reference to Cancer of the Breast. By R. J. Behan, M.D., Dr. Med., F.A.C.S. Cloth. Price, $10. Pp. 844, with 168 illustrations. St. Louis: C. V. Mosby Company, 1938.

The author was formerly director of the cancer department of the Pittsburgh Skin and Cancer Foundation. Since he was unable to find in an abstracted form in a single monograph a description of the complex changes associated with the different phases of cancer, he began to collect, abstract, study and compile the principal facts and theories concerned with the etiology, diagnosis and treatment of cancer. The result was the present volume, which originally was written as a treatise on cancer of the breast. He reviews the advances in the study of cancer which seem to have substantial and positive foundations. He believes that our knowledge of the physiology and morphology of the cancer cell has about reached its limit of usefulness as a means of solving the cancer problem, that surgical intervention and irradiation have also reached the limits of their effectiveness, and that it is necessary for new methods of treatment to be developed from a study of the alterations in the biologic activity of the individual cancer cell. After a general consideration of the incidence and mortality of cancer in different countries and the relation of cancer to age and sex, he takes up the etiology, especially of cancer of the breast. Chapters followed on the pathology, symptomatology, diagnosis (including many so-called cancer tests), biopsy (including the technic), metastases and prognosis. Almost half of the book is given over to a consideration of the various forms of treatment. The author believes that the best results at present are obtained with a combination of surgical intervention and irradiation. In the treatment of cancer detailed consideration must always be given to the patient whose general state of health must be subjected to a critical investigation. The chapter on treatment is subdivided into sections on operative treatment, constitutional treatment and irradiation and includes a special section on the dosage of radioactive agents.

Air Conditioning: A Practical, Modern and Fundamental Treatise on the Subject of Air Conditioning, Air Distribution, Refrigeration, Comfort Cooling, Humidification and Air Purification. By Charles A. Fuller, M.E., Consulting Engineer on Air Conditioning, Heating and Ventilating, Electrical and Sanitary Equipment. With the collaboration of David Snow, Air Conditioning Engineer. Cloth. Price, $4. Pp. 577, with 300 illustrations. New York: Norman W. Henley Publishing Compnay, 1938.

This is a practical and fairly complete treatise on the mechanics of air conditioning. Written primarily for students, contractors and practical engineers, it contains much fundamental information to meet the needs of beginners in the art. There is little on physiologic and health aspects of air conditioning that would interest the physician. Whatever is said about the need of humidification, ionization or deodorization appears to have been based on manufacturers' literature. The print is large and readable and the illustrations are good. The index is fair and there is no bibliography despite the liberal use of basic sources of information.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Ethmoidal Sinusitis Attributed to Trauma.—The claimant, in the course of his employment, was struck on the forehead with a piece of metal pipe. A lacerated wound resulted, about 1½ inches long and extending down to the skull. A physician sutured the wound and treated it "in the usual way" for about six days. The published report does not show whether roentgenograms were made. According to the physician who treated the claimant at the time, the wound healed readily and there was no apparent reason why it should give trouble. Except for six days immediately following the accident, the injured workman lost no time from work until September 1936. In the interval, however, he had suffered from headaches of increasing intensity, which had become so severe as to prevent his working full time. The record shows that he was treated for "ethmoid sinus infection," but it does not show when that condition was first recognized or present any direct evidence concerning it. When the injured workman realized that he could no longer work full time—that is, two years after the accident—he filed a claim for compensation under the workmen's compensation act of Texas against his employer's insurance carrier.

The industrial accident board denied him compensation because he had not shown "good cause" for not filing his claim within six months after the injury. The claimant thereupon instituted suit in the district court, Wichita County, to set aside the order of the industrial accident board. Judgment was entered in his favor, and the insurer thereupon appealed to the court of civil appeals of Texas, Forth Worth.

The insurer contended that the claimant, as a matter of law, had not shown "good cause," as required by law, for his failure to file his claim within six months after he was injured. The appellate court pointed out, however, that the courts of Texas had often held that the question as to whether or not there was good cause for a claimant having failed to file his claim for compensation was a question of fact to be determined by a jury if one was demanded, and that the test was whether or not the claimant prosecuted his claim with such diligence as would have been exercised by a person of ordinary care under the same or similar circumstances. Quoting from *Texas Employers' Insurance Association* v. *Clark*, 23 S. W. (2d) 405, 408, the court said:

> That the employee did not believe his injuries to be serious would clearly afford a good cause for not giving notice and filing claim until it was learned they were serious. Compensation is not provided for pain and suffering, but for loss of wages, and there would arise no necessity for giving notice or filing a claim so long as the employee lost no time from his work, but believed his injuries were trivial.

The court could not properly have submitted to the jury an issue inquiring whether or not the claimant had shown good cause for not having sooner filed his claim; to have done so would have infringed the prerogative of the court. The court, however, submitted to the jury issues of fact on which the court might base its findings. The jury found that the claimant believed until about the time he filed his claim that the injuries would not disable him; that this belief prevented his filing his claim prior to the time when it was filed, and that a reasonably prudent person, situated as the claimant was, would have delayed the filing of his claim for a period as long as the claimant delayed in the present instance. The appellate court, therefore, refused to disturb the findings of the jury and of the trial court that good cause had been shown.

The insurer complained of the inadequacy of the testimony to support the finding of the jury that the claimant was totally and permanently incapacitated for work. The question, said the court, had to be determined from the opinions of experts among the medical profession, and it appeared to be as natural for them to disagree as it was for members of the legal profession. They seldom commit themselves to a positive statement that this or that injury to a part of the human anatomy will have a definite effect on the individual; they explain, and rightly so, said the court, that this is because of so many elements which

may enter into each case, such as infection, the physical condition of the person at the time of the injury, and many other like conditions The medical witnesses had testified, in effect, from hypothetical questions put to them that the claimant could not pass the physical examination necessary to enable him to accept employment in the oil fields such as he had formerly engaged in The physician treating the claimant for ethmoid sinus infection said that the blow on the claimant's head would probably produce such an infection, that in his opinion the claimant was incapacitated to do oil field work and that his incapacity was permanent To constitute total incapacity, it is not necessary to establish as a fact that the claimant cannot do any kind of labor, it is sufficient if he is disqualified from performing the usual tasks of a workman in such a way as to enable him to procure and retain employment There was ample evidence to support the finding of the jury favorable to the claimant

The appellate court accordingly affirmed the judgment of the trial court in favor of the claimant—*Texas Employers Ins Ass'n v Roberts (Texas), 116 S W (2d) 417*

Medical Practice Acts: Treatment of Physical Deformity by Cosmetologist Constitutes Practice of Medicine.—Three prosecutions were brought against Gardner, charging that he practiced medicine without having been licensed so to do From three judgments of conviction, he appealed to the court of criminal appeals of Texas Gardner admittedly had treated one Lato, the muscles about one of whose eyes had become stretched from the prolonged use of a loupe (a type of magnifying glass which fits over the eye), "causing the skin and flesh to sag down" Lato testified that he consulted Gardner concerning this condition Gardner put some "stuff" that smelled like chloroform around Lato's eye to kill the pain and then placed "a strong acid" around the eye, which burned the patient and caused such severe swelling as almost to close the eye Gardner continued to treat Lato for about four weeks and Lato paid him $75 for his services Gardner claimed that what he had done was not the practice of medicine but had been done pursuant to the practice of cosmetology, which he was licensed to practice He had used no chloroform nor acid, he said, but had applied only a "beauty peel," purchased by him in a drug-store

In the judgment of the court, Gardner's acts constituted the practice of medicine within the meaning of the medical practice act of Texas, which declares, among other things, that any person shall be regarded as practicing medicine who treats or offers to treat any physical deformity or injury, by any system or method, or offers to effect cures thereof and charges therefor The court affirmed the three judgments of conviction—*Gardner v State (Texas), 116 S W (2d) 402, Same, 116 S W (2d) 403, Same, 116 S W (2d) 403*

Society Proceedings

COMING MEETINGS

American Medical Association, St Louis, May 15 19 Dr Olin West, 535 North Dearborn St, Chicago Secretary

American Academy of Tuberculosis Physicians, St Louis, May 13 14 Dr Arnold Minnig, 638 Metropolitan Bldg, Denver, Secretary

American Association for the Study of Goiter, Cincinnati, May 22 24 Dr W Blair Mosser, 133 Biddle St, Kane, Pa, Secretary

American Association for Traumatic Surgery, Hot Springs, Va, May 8 9 Dr Ralph G Carothers, 409 Broadway, Cincinnati, Secretary

American Association of Genito Urinary Surgeons, Williamsburg, Va, May 24 26 Dr Charles C Higgins, 2050 East 93d St, Cleveland, Secretary

American Association of Industrial Physicians and Surgeons, Cleveland, June 5 8 Dr V S Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary

American Association of the History of Medicine, Atlantic City, N J, April 30 May 1 Dr Henry E Sigerist, 1900 Monument St, Baltimore, Secretary

American Association on Mental Deficiency, Chicago, May 3 6 Dr E Arthur Whitney, Washington Road Elwyn, Pa, Secretary

American Bronchoscopic Society, Rye, N Y, May 26 Dr Lyman Richards, 319 Longwood Ave, Boston, Secretary

American College of Chest Physicians, St Louis, May 13 14 Dr Robert B Homan Jr, 109 North Oregon St, El Paso, Texas, Secretary

American Dermatological Association Montebello, Canada, May 31 June 3 Dr Fred D Weidman, University of Pennsylvania Medical Laboratories, Philadelphia, Secretary

American Gastro Enterological Association, Atlantic City, N J, May 12 Dr Russell S Boles, 1901 Walnut St, Philadelphia, Secretary

American Gynecological Society, White Sulphur Springs, W Va, May 22 24 Dr Richard W. TeLinde, 11 East Chase St, Baltimore Secretary

American Heart Association, St Louis, May 12 13 Dr Howard B Sprague, 50 West 50th St, New York, Secretary

American Laryngological Association, Rye, N Y, May 24 26 Dr James A Babbitt, 1912 Spruce St, Philadelphia, Secretary

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American Neurological Association, Atlantic City, N J, June 5 7 Dr Henry A Riley, 117 East 72d St, New York, Secretary

American Ophthalmological Society, Hot Springs, Va, June 5 7 Dr Eugene M Blake, 303 Whitney Ave, New Haven, Conn, Secretary

American Orthopedic Association, Buffalo, N Y, June 5 8 Dr Ralph K. Ghormley, 110 Second Ave S W, Rochester, Minn, Secretary

American Otological Society, New York, May 22 23 Dr Thomas J Harris, 104 East 40th St, New York, Secretary

American Psychiatric Association, Chicago, May 8 12 Dr Arthur H Ruggles, Butler Hospital, Providence, R I, Secretary

American Radium Society, St Louis, May 15 16 Dr Frederick W O'Brien, 465 Beacon St, Boston, Secretary

American Rheumatism Association, St Louis, May 15 Dr Loring T Swaim, 372 Marlborough St, Boston, Secretary

American Society for Clinical Investigation Atlantic City N J, May 1 Dr Isaac Starr, University of Pennsylvania Hospital, Philadelphia Secretary

American Society for the Study of Allergy, St Louis, May 15 16 Dr J Harvey Black, 1405 Medical Arts Bldg, Dallas, Texas, Secretary

American Society of Clinical Pathologists, St Louis, May 12 14 Dr Alfred S Giordano, 531 N Main St, South Bend, Ind, Secretary

American Surgical Association, Hot Springs, Va, May 11 13 Dr Charles G Mixter, 319 Longwood Ave, Boston, Secretary

American Therapeutic Society, St Louis, May 12 13 Dr Joseph F Elward, 1726 Eye St N W, Washington, D C, Secretary

American Urological Association, White Sulphur Springs, W Va May 29 June 1 Dr Clyde L Deming, 789 Howard Ave, New Haven Conn, Secretary

Arkansas Medical Society, Hot Springs National Park, May 8 10 Dr W R Brooksher, 602 Garrison Ave, Fort Smith, Secretary

Associated Anesthetists of the United States and Canada, St Louis, May 15 Dr F H McMechan, 318 Hotel Westlake, Rocky River, Ohio Secretary General

Association for the Study of Internal Secretions, St Louis, May 13 14 Dr E Kost Shelton, 921 Westwood Blvd, Los Angeles, Secretary

Association of American Physicians, Atlantic City, N J May 2 3 Dr Hugh J Morgan, Vanderbilt University Hospital, Nashville, Tenn Secretary

Association of Military Surgeons of the United States, Washington D C May 8 10 Dr H L Gilchrist, Army Medical Museum, Washington D C, Secretary.

California Medical Association, Del Monte, May 1 4 Dr George H Kress, 450 Sutter St, San Francisco, Secretary

Connecticut State Medical Society, New Haven, May 25 26 Dr Creighton Barker, 258 Church St, New Haven, Secretary

Florida Medical Association, Daytona Beach, May 1 3 Dr Shaler Richardson, 111 W Adams St, Jacksonville, Secretary

Illinois State Medical Society, Rockford, May 2 4 Dr H M Camp 224 S Main St, Monmouth Secretary

Kansas Medical Society, Topeka, May 1 4 Mr C G Munns, 112 W 6th St, Topeka, Executive Secretary

Massachusetts Medical Society, Worcester, June 6 8 Dr Alexander S Begg, 8 Fenway, Boston, Secretary

Minnesota State Medical Association, Minneapolis May 31 June 2 Dr B B Souster, 11 West Summit Ave, St Paul, Secretary

Mississippi State Medical Association, Gulfport, May 9 11 Dr T M Dye, McWilliams Bldg, Clarksdale, Secretary

National Gastroenterological Association, New York, June 1 2 Dr G Randolph Manning, 1819 Broadway, New York, Secretary

Nebraska State Medical Association, Grand Island, May 2 4 Dr R B Adams, 414 Federal Securities Bldg, Lincoln, Secretary

New Hampshire Medical Society, Manchester, June 8 9 Dr Carleton R. Metcalf, 5 South State St, Concord, Secretary

New Jersey, Medical Society of, Atlantic City, June 6 8 Dr Alfred Stahl, 55 Lincoln Park, Newark, Secretary

New Mexico Medical Society, Gallup, May 11-13 Dr L B Cohenour, 219 W Central Ave, Albuquerque, Secretary

New York State Association of Public Health Laboratories Valhalla, May 8 Miss Mary B Kirkbride, New Scotland Ave, Albany, Secretary

North Carolina, Medical Society of the State of, Cruise to Bermuda May 9 14. Dr T W M Long, Roanoke Rapids, Secretary

North Dakota State Medical Association, Fargo, May 8 10 Dr Albert W Skelsey, 20½ North Broadway, Fargo, Secretary

Ohio State Medical Association, Toledo, May 3 4 Mr C S Nelson 79 E State St, Columbus, Executive Secretary

Oklahoma State Medical Association, Oklahoma City, May 1 3 Dr L S Willour, Third and Seminole, McAlester, Secretary

Pacific Coast Oto Ophthalmological Society, San Francisco June 19 22 Dr C Allen Dickey, 450 Sutter St, San Francisco, Secretary

Rhode Island Medical Society, Providence, June 7 8 Dr Guy W Well 124 Waterman St, Providence, Secretary

Society of Surgeons of New Jersey, Elizabeth, May 25 Dr Walter B Mount, 21 Plymouth St, Montclair, Secretary

Texas, State Medical Association of, San Antonio, May 8 11 Dr Holman Taylor, 1404 West El Paso St, Fort Worth, Secretary

Vancouver Medical Association Summer School, Vancouver, B C June 6 9 Dr W W. Simpson, 203 Medical Dental Bldg, Vancouver, B C Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Huntington, Ind.

5:777-850 (Feb.) 1939

Effect of Anterior Pituitary-like Hormone on Gastric Acidity in Man. H. Felson and L. Schiff, with technical assistance of Ellen S. Garber, Cincinnati.—p. 777.
*Observations on Incidence and Cause of Fever in Patients with Bleeding Peptic Ulcers. L. V. Dill and C. E. Isenhour, Nashville, Tenn.—p. 779.
Effect of Pyloric Obstruction on Filling and Emptying of the Gallbladder in Cholecystography. M. Feldman, Baltimore.—p. 785.
History and Development of Gastric Analysis Procedure (Second Instalment). F. Hollander and A. Penner, New York.—p. 786.
Disposable Nonbreakable Hard Enema Tip. M. Kraemer, Newark, N. J.—p. 791.
Attempt to Prevent Postoperative Jejunal Ulcer by Aluminum Hydroxide Therapy: Experimental Study in Mann-Williamson Dogs. G. B. Fauley, A. C. Ivy, L. Terry and W. B. Bradley, Chicago.—p. 792.
*Chronic Localized Gastric Purpura. R. Schindler, Chicago.—p. 796.
Review of Some Foreign Literature. R. Schindler, Chicago.—p. 799.
Problems of Maintaining Nutrition in the Highly Food-Sensitive Person. W. C. Alvarez, Rochester, Minn.—p. 801.
Peritonitis Due to Ruptured Acute Appendicitis in Children: Influence of Delay on Operative Mortality. R. Elman, St. Louis.—p. 804.
Pellagra Treated with Nicotinic Acid: Report of Ten Cases. V. H. Musick, Oklahoma City.—p. 807.
Studies on Water and Soap Enemas. R. D. Templeton and E. L. Borkon, Chicago.—p. 809.
Anorexia and Gastric Motility. Dorothy P. Gulliksen, Alma Fogelberg and L. Kardos, Chicago.—p. 814.

Fever in Peptic Ulcer.—Dill and Isenhour determined the incidence of fever (any rise in temperature above 99 F. which was sustained for more than two days, any rise to 99.2 F. or above for two days or any single rise exceeding 100 F.) in 199 male patients with proved peptic ulcers. Each patient had been observed in the hospital for more than three days and was known, within the limits of error, to have no intercurrent infection. The authors state that the incidence of fever in their patients (53 per cent) is identical with the series published by Bang but greatly exceeds those of Kroner (18 per cent) and Lorenz (24 per cent). They found that 80 per cent of their patients with bleeding ulcers were febrile. These figures do not differ greatly from those of Purjesz (73 per cent) or Bang (91 per cent) but are well above those quoted by Kroner (58 per cent). Their percentage of febrile, nonbleeding ulcer cases (46 per cent) is much higher than that of Kroner (16 per cent) or of Bang (7 per cent). Patients without demonstrable organic lesions had fever, according to the authors' definition, in a significantly high percentage (37.1). Their study shows that patients with ulcers have fever more frequently than patients with no demonstrable organic lesion and that bleeding increases this tendency. The presence of anemia also increases the febrile tendency in patients with both bleeding and nonbleeding ulcers. Massive and moderately severe hemorrhages are more frequently associated with fever than are small hemorrhages. The occurrence of fever could not be correlated with either the age of the patient or the duration of ulcer symptoms. The absence of leukocytosis in the patients led the authors to assume that infection of the base of the ulcer or an associated gastritis or duodenitis is not important in the production of fever. Experimental evidence seems to indicate that little part is played in the production of fever by either blood in the intestinal tract or absorption of blood degradation products. There was relatively high incidence of fever in patients with gastric neuroses.

Chronic Localized Gastric Purpura.—Schindler believes that chronic localized purpura of the stomach is not only a new but also an important disease. Gastroscopically, besides the more or less numerous mucosal hemorrhages, dark brown round or star-shaped spots may be found. They are usually from 2 to 5 mm. in diameter but occasionally much larger. They apparently develop from the mucosal hemorrhages; the transition may be observed if the patient is examined with the gastroscope at frequent intervals. Hemorrhages and pigment spots may be found along the anterior and posterior wall but are most frequently in rows along the lesser curvature. The common site of their location is a point about 3 cm. above the angulus. The pigment spots disappear slowly, probably by absorption. However, some hemorrhages, instead of being absorbed, become ulcerated and develop into a hemorrhagic erosion, red, grayish red or brownish red. Gastroscopy has verified the observation that true hemorrhagic erosions do exist. By the fact that they may become ulcerated, the eruptions of the localized purpura of the stomach are definitely different from the cutaneous eruptions in generalized purpura. This difference is easily explained. In the stomach the acid gastric juice developing peptic power is present, in which case the gastric wall may lose its autoprotective power against autodigestion if it is damaged for a long time by some disturbance of the circulation. The frequent coincidence of such isolated gastric purpura with true gastroduodenal ulcer does not prove that hemorrhagic erosion is the acute stage of chronic gastroduodenal ulcer. Chronic inflammation in stomachs containing true gastroduodenal ulcer is apparently secondary to the ulcer. However, the presence of noninflammatory gastric hemorrhages is not easily explained by assuming that they are effected by the ulcer, it would be difficult to explain why they are so often found at the place of predilection of ulcers (the angulus), and finally the author believes that he has observed the transition of mucosal gastric hemorrhages into true gastric ulcer. Therefore his opinion is that (1) there is a definite relationship between chronic localized gastric purpura and chronic gastroduodenal ulcer, (2) chronic isolated gastric purpura may precede or follow chronic gastroduodenal ulcer or they may be found together and (3) the hemorrhagic erosion, having its origin from the chronic localized gastric purpura by the peptic quality of the gastric contents, may be the acute stage of chronic gastroduodenal ulcer.

American Journal of Hygiene, Baltimore

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Cobalt Content of Some Food Materials from Different Parts of the United States. B. Ahmad and E. V. McCollum, Baltimore.—p. 24.
Importance of Field Studies of Leprosy, with Especial Reference to the Risk of Household Exposure. J. A. Doull, Cleveland.—p. 27.
*Cancer in the United States Navy. S. Peller, Baltimore, and C. S. Stephenson, Washington, D. C.—p. 34.

Section B

Further Studies on Biochemical and Serologic Varieties of Salmonella Typhi-Murium. P. R. Edwards and D. W. Bruner, Lexington, Ky.—p. 24.
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Section C

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Section D

Investigation Concerning the Status of Hookworm in Florida. W. S. Leathers, A. E. Keller, Nashville, Tenn., and W. A. McPhaul, Jacksonville, Fla.—p. 1.
Studies on Oxyuriasis: XII. Epidemiologic Findings in Washington, D. C. Eloise B. Cram and Lucy Reardon, Washington, D. C.—p. 17.
Immunization of Dogs Against Hookworm, Ancylostoma Caninum, by Subcutaneous Injection of Graded Doses of Living Larvae. G. F. Otto and K. B. Kerr, Baltimore.—p. 25.

Cancer in the Navy.—Peller and Stephenson deal with a study of the cancers that occurred in the United States Navy during the years 1929 to December 1936. During this period there were 320 deaths from cancer. Of these, ninety-eight men were in active duty status, in seventeen additional persons the onset of the malignant condition was during active service but they died following discharge from the navy and 205 of these cases occurred in men in an inactive duty status. Compared to civil populations there are many more surface cancers in the navy personnel and fewer internal cancers. Since the former are easily cured, the average case fatality of all cancers (about 50 per cent) is low. Owing to the greater frequency of cuta-

neous cancers and lesser frequency of internal ones, the mortality between the ages from 25 to 64 is about 50 per cent lower than would be expected from age, sex and color-specific cancer rates of New York for 1930. The cutaneous and lip cancer morbidity among active navy personnel is several times as high as in the civil population. This is explained by greater exposure to cutaneous irritants, especially sun, salt water and wind. Since total morbidity in the active personnel and total mortality in the ages above 65 are not higher than in the civil population, the conclusion seems to be justified that increased exposure to the sun is beneficial rather than detrimental.

American Journal of Medical Sciences, Philadelphia

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The Alleged Dulness Over the Apex of the Normal Right Lung. W. Coleman, New York.—p. 141.
Role of Vibration Sense in Percussion. W. Coleman, New York.—p. 145.
*Specific Treatment of Pneumococcus Type I Pneumonia, Including Use of Horse and Rabbit Antipneumococcus Serums and Sulfanilamide. M. Finland, Boston, and J. W. Brown, San Francisco.—p. 151.
Sulfanilamide in Treatment of Gonococcic Arthritis. C. S. Keefer and L. A. Rantz, Boston.—p. 168.
Clinical Studies in Circulatory Adjustments: V. Clinical Evaluation of Cardiodynamic Studies. A. A. Goldbloom and A. Lieberson, New York.—p. 182.
Movements of Roentgen-Opaque Deposits in Heart Valve Areas: II. Excursion of Apex and Base of Left Ventricle Compared with That of Left Border. C. C. Wolferth and A. Margolies, Philadelphia.—p. 197.
Histologic Investigation into the Pyloric Gland Organ in Pernicious Anemia. E. Meulengracht, Copenhagen, Denmark.—p. 201.
Erythremia, Gout and Subleukemic Myelosis: Case. G. H. Reifenstein, Boston.—p. 215.
Mechanism of Compensatory Changes in Anemia, Especially as Regards Blood Carbon Dioxide and Hydrogen Ion Concentration. F. L. Apperly and M. K. Cary, Richmond, Va.—p. 219.
*Blood Plasma Ascorbic Acid in Patients with Achlorhydria (Pernicious and Iron Deficiency Anemia). H. L. Alt, H. Chinn and C. J. Farmer, Chicago.—p. 229.
Fatal Bacterial Endocarditis Due to Salmonella Suipestifer. D. E. Forster, Portland, Ore.—p. 234.
Use of Electrocardiographic Changes Caused by Induced Anoxemia as Test for Coronary Insufficiency. R. L. Levy, H. G. Bruenn and N. G. Russell Jr., New York.—p. 241.
Serologic and Immunologic Studies Relative to the Viruses of Human and Swine Influenza. Dorothy R. Shaw, A. S. Kenney, New Orleans, and J. Stokes Jr., Philadelphia.—p. 247.
*Complement Fixation Studies on the Serums of Individuals Vaccinated with Active Virus of Human Influenza. A. P. Morrison, Dorothy R. Shaw, A. S. Kenney, New Orleans, and J. Stokes Jr., Philadelphia.—p. 253.

Specific Treatment of Type I Pneumonia.—Finland and Brown state that the death rate among cases of type I pneumococcus pneumonia treated with concentrated type specific antibody at the Boston City Hospital has been regularly one half or less that of similar contemporaneous cases not treated with serum. This has remained true in recent years in spite of the fact that the proportion of cases treated with serum has increased from 43 to 89 per cent. In the cases treated with serum before the end of the fourth day of illness the death rate is less than one third of that which occurs in cases not treated with serum. Bacteremic and nonbacteremic cases are equally influenced. The greatest reduction in the death rate occurs in patients less than 50 years of age, but those of other age groups are probably also beneficially affected by serum treatment. Empyema occurred after serum treatment chiefly in bacteremic patients, and its frequency was proportional to the delay in beginning treatment. Type I antipneumococcus serums produced in both horses and rabbits were potent and effective. There are insufficient data to indicate any superiority of the one over the other. Sulfanilamide in the small number of cases in which it was used alone or with serum influenced the course of type I pneumonia only slightly if at all.

Ascorbic Acid in Plasma in Achlorhydria.—In order to obtain further information on the concentration of ascorbic acid in the blood of patients with achlorhydria, Alt and his co-workers determined the ascorbic acid of the blood plasma in forty-four cases of achlorhydria associated with pernicious or iron deficiency anemia. The results in general seem to confirm the hypothesis that a relationship exists between achlorhydria and vitamin C deficiency. With diets adequate in vitamin C, the mean blood ascorbic acid was significantly decreased from the normal in the cases of pernicious anemia but not in the iron deficiency anemia group. With diets inadequate in vitamin C the plasma ascorbic acid was significantly decreased from that observed in twenty-four controls, in both the pernicious and the iron deficiency anemia groups. The plasma ascorbic acid values showed no correlation with the erythrocyte counts and hemoglobins. Experiments were performed in an attempt to explain why there might be an association between vitamin C deficiency and achlorhydria, but none established an explanation for such an association. Possibly a combination of such factors as lack of an acid gastric juice, bacterial growth and malabsorption might be sufficient to interfere with the assimilation of ascorbic acid in such cases.

Active Virus of Human Influenza.—Morrison and his associates studied the effect of active human influenza virus on the complement fixing antibodies of the serums of patients vaccinated with it. They compared this with a similar and simultaneous study of the serums of a group of nonvaccinated controls. The serums of the same individuals were studied over a period of from one to two years under similar environmental conditions but in the presence of a variety of intercurrent respiratory infections. Constantly low titers of complement fixing antibodies were found in the same individual over a long period if no infection with influenza virus had occurred and even though they had suffered from other types of respiratory infection. Such low titers persisted among the hospital personnel in a large urban center as well as in the more isolated sections studied. Repeated vaccination with chick embryo tissue culture vaccine as prepared in large batches for injection did not affect the complement fixing antibodies. If the complement fixing antigen is a soluble substance liberated during multiplication of the virus in the tissues it is also possible that the use of infected mouse lung rather than chick embryo tissue culture vaccine might result in an increase in the complement fixing antibodies. Vaccine derived from chick embryo tissue cultures following parenteral injection produced characteristic increases in the neutralizing properties of serums. By the same route, in mice, it also produced immunity to the virus injected as well as cross immunity to other strains of human influenza virus. In a few instances marked elevation in titer of complement fixing antibodies studied in the serums of individuals following hospitalization established the cause of their respiratory infections as epidemic influenza. Such increases were absent following other types of respiratory infection. By such studies future epidemics of respiratory disease may be more satisfactorily classified as to etiology.

American Journal of Psychiatry, New York

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Pharmacologic Shock Treatment of Schizophrenia: Statistical Study of Results in the New York State Hospitals. J. R. Ross, Wingdale, N. Y.—p. 769.
Use of Metrazol in the Functional Psychoses. C. F. Read, D. L. Steinberg, E. Liebert, Elgin, Ill., and I. Finkelman, Chicago.—p. 781.
Results to Date with Pharmacologic Shock Treatment of Schizophrenia. K. M. Bowman, J. Wortis, H. Fingert and Julia Kagan, New York.—p. 787.
Insulin Treatment in Schizophrenic Patients: Clinical and Biochemical Studies. S. Katzenelbogen, Baltimore; H. E. Harms, Catonsville, Md.; Ruth Willmans, S. Barkoff, M. W. Brody and M. Hayman, Sykesville, Md.—p. 793.
Correlation of Insulin Shock and Convulsive States Relative to Symptoms and Site of Greatest Disturbance in the Central Nervous System. S. D. Ingham, J. M. Nielsen and K. O. von Hagen, Los Angeles.—p. 819.
Analogies and Opposites in Schizophrenia and Epilepsy: Electro-Encephalographic and Clinical Studies. H. H. Jasper, C. P. Fitzpatrick, Providence, R. I., and P. Solomon, Boston.—p. 835.
*Paucity of Arthritis Among Psychotic Cases. D. Gregg, Wellesley, Mass.—p. 853.
*Constitutional Differences Between Deteriorated and Nondeteriorated Patients with Epilepsy: II. Anthropometric Measurements. H. A. Paskind and M. Brown, Chicago.—p. 901.
Results of Eighteen Months of Benzedrine Sulfate Therapy in Psychiatry. E. Davidoff and E. C. Reifenstein Jr., Syracuse, N. Y.—p. 945.
Fatal Cases of Acute Manic-Depressive Psychosis. C. P. Larson, Tacoma, Wash.—p. 971.

Paucity of Arthritis in Psychosis.—Gregg presents the morbidity rates of arthritis in Massachusetts and among psychotic persons in the Massachusetts state hospitals. It has been stated that approximately 145,000 individuals in Massachusetts suffer from rheumatism. A similar prevalence among psychotic persons does not coincide with the author's experience or with the opinions of other hospital superintendents whom he consulted. To obtain more definite information, he sent a ques-

tionnaire to hospital superintendents, and from the first eight state hospitals and from one United States Veterans' hospital in Massachusetts the reports gave four bedridden and sixteen seriously handicapped patients with arthritis among more than 15,000 patients in these nine hospitals Two of these twenty patients were less than 40 years of age and in eight of the remaining eighteen arthritis developed before entrance to the hospital Whether this means that the arthritis antedated the psychosis is unknown Assuming that the data are comparable, the incidence of disabling arthritis is seventeen times greater in the community than among psychotic patients in Massachusetts state hospitals Evidence obtained by other investigators that confirms the discrepancy of the incidence of arthritis in the two groups is presented Among psychotic patients without a prolonged stimulus-reaction span, because of impaired imagination and memory, there is little prolonged muscle tension or drag on the joints, little setting of the stage for prolonged ischemia, malnutrition or infection of the joints and therefore seldom chronic arthritis

Body Build Differences in Epilepsy.—In order to determine whether differences exist in body habitus of deteriorated and nondeteriorated epileptic patients, Paskind and Brown took anthropometric measurements of fifty deteriorated and thirty-nine nondeteriorated epileptic patients Eighty measurements were recorded for each patient according to the technic described by Martin, Saller and Draper Fifty-seven indexes were also calculated for each patient to show the relation in size existing between a given part of the body and other parts With few exceptions the mean values for the various measurements are greater in the deteriorated patients Significant differences also exist in the mean values of the indexes All indexes relating weight to height indicate that the deteriorated patients are heavier per unit of height and that their trunks are wider and deeper per unit of height than are those of the nondeteriorated patients The deteriorated patients have narrower faces per unit of face height than do the nondeteriorated ones Trunk and entire body measurements and indexes of exceptional size (large or small) occur more frequently in the nondeteriorated patients, whereas values of unusual size in head, hand and foot measurements and indexes occur more often in the deteriorated patients

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

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Visualization of the Chambers of the Heart the Pulmonary Circulation and the Great Blood Vessels in Man Practical Method G P Robb and I Steinberg, New York —p 1
Ventriculography of the Fourth Ventricle E Lysholm, Stockholm, Sweden —p 18
Roentgen Diagnosis and Treatment of Angioma of Tympanic Cavity A O Hampton and D A Sampson, Boston —p 25
Ventricular Aneurysm Roentgenographic and Postmortem Surveys J B Schwedel and H Gross, New York —p 32
Respiratory Motion of Lung During Artificial Pneumoperitoneum Treatment Roentgenologic Study A L Banyai, Wauwatosa, Wis —p 37
Pancreatic Lithiasis Report of Case C L Gillies, Iowa City —p 42
Skeletal Metastasis in Teratoma of Testicle Report of Two Cases S K Livingston, Hines Ill —p 47
Gross Morphology of Cervical Cancer in Relation to Its Curability T R Hofmann, San Francisco —p 51
*Survey of 293 Cases of Cancer of the Cervix Uteri 223 of Which Were Treated from 1916 to 1933 by Radiation Therapy at Grace Hospital Detroit R H Stevens and A K Payne, Detroit —p 55
Significance of Urologic Surveys in Cervical Carcinoma W E Howes and H Strauss, Brooklyn —p 63
Management of Major Complications During Radium Therapy of Carcinoma of Cervix H H Bowing and R E Fricke, Rochester, Minn —p 69
Aids to Irradiation in Management of Carcinoma of the Cervix Uteri L A Pomeroy, Cleveland —p 73
Treatment of Injuries Produced by Roentgen Rays and Radioactive Substances E Uhlmann, Istanbul, Turkey —p 80
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Scheme of Protection Which Has Proved Satisfactory in a Large Radium Therapy Center J R Nuttall, Manchester, England —p 98
Standardized Radium Tube—Related Dosage Problems Preliminary Note J Murdoch, Brussels Belgium, R Coliez Paris, France, and E Stahel Brussels, Belgium —p 110
Some Studies on the Dielectric Strength of Insulating Fluids E E Charlton and F S Cooper, Schenectady, N Y —p 114

End Results in Radiation Therapy of Cancer of Cervix—Stevens and Payne present statistics on 293 cases of carcinoma of the cervix, 223 of which were treated by radiation therapy prior to 1933 In the 223 cases there were nine of carcinoma of the cervical stump after supracervical amputation for fibroid tumor Five of these were proved by biopsy to be squamous cell carcinomas All patients as they came were accepted for treatment In about 75 per cent the cancers were far advanced Of the 223 cases, 137 were proved by biopsy and 20 4 per cent of these were cured for five years or more Of the 177 traced cases comprising both those histologically proved and those only clinically diagnosed, the number of five year cures is identical with that of the cases proved by biopsy. The cancers of eleven patients were cauterized by the Percy soldering iron or by electrocautery previous to irradiation They did not live through the five year period Panhysterectomies on fourteen patients with early operable cancers were performed at varying intervals before radiation treatment Three of these, microscopically proved, lived beyond the five year period, two for nine years and one for sixteen years Two patients with squamous cell carcinoma, each 28 years of age, who had radiation treatment alone survived the five year period, one for seven years Twenty-three patients whose cancers were proved by biopsy recently traced are alive, well and clinically cured after from five to sixteen years Of the total number of cases in this survey, 52 4 per cent had roentgen and radium therapy, 42 2 per cent had roentgen therapy without radium and 4 4 per cent had radium without roentgen therapy None of the ten patients treated with radium alone survived the five year period Nearly all the cases in this series should, the authors say, be classed as stage 3, and efficient roentgen irradiation throughout the entire pelvis should have been administered in all of them Radium irradiation was inadequate

American Journal of Surgery, New York

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Practical Uses of the Tubed Pedicle Flap H Gillies, London, England —p 201
New Method of Tube Pedicle Skin Grafting M Maltz, New York —p 216
Reconstructions About the Nasal Tip C L Straith, Detroit —p 223
Repair of Postoperative Defects of Lips G B New and J B Erich, Rochester, Minn —p 237
The Traumatic Shoulder, with Special Reference to Rupture of the Supraspinatus Tendon H V Spaulding, New York —p 298
Elbow Injuries of Childhood Resulting from Median Epicondylar Separations J Dunlop, Pasadena, Calif —p 310
*Treatment and Results of 870 Severed Tendons and Fifty Seven Severed Nerves of the Hand and Forearm (in 362 Patients) M C O Shea, New York —p 346
Shelf Operation for Congenital Dislocation of Hip E L Compere, Chicago —p 404
Reconstruction of Top of Femur (Lever) or Its Elongation in Paralytic Conditions F H Albee, New York —p 416
Treatment of Ulcer of Leg B Douglas, Nashville, Tenn —p 429
Cruciate Ligaments Resume of Operative Attacks and Results Obtained W R Cubbins, J J Callahan and C S Scuderi, Chicago —p 481
Restoration of Motion in Fibrous Ankylosis of the Knee with Description of a New Apparatus R L Preston, New York —p 519
Operation for Cure of Achilloburšitis I Zadek, New York —p 542
Amputations and Prosthesis H H Kessler, Newark, N J —p 560
Surgical Fusion of Unstable Joints Due to Neuropathic Disturbance M Cleveland, New York —p 580
Biochemical Investigation of Arthritis Preliminary Report on Uric Acid Glutathione and Sulfur in Blood and Sulfur in the Urine T F Wheeldon, Richmond, Va, and L H Bosher Jr, Boston —p 598
Significance of Cystine Content of Fingernails in Arthritis M X Sullivan, Washington, D C —p 620

Treatment of Severed Tendons and Nerves of Lower Arm—O'Shea presents the data on the 870 severed tendons and fifty-seven severed nerves of the hand, wrist and forearm that were treated by the surgeons of St Vincent's Hospital during the last fifteen years He states in conclusion that primary repair of tendons should be performed whenever possible The interval between injury and operation should be short The simple mattress stitch (black silk) will approximate the tendon ends and destroy fewer lymph channels Only the long flexor tendon—the profundus—should be repaired Repaired wounds should never be drained If drainage is necessary, primary repair should not be performed Infection occurred in 40 per cent of drained wounds Infection occurred almost twice as frequently at the wrist as on any surface of any digit It occurred in 15 per cent of all operations but in less than 3 per cent of 101 wounds that were not drained but repaired with black silk sutures, as compared to 18 per cent of 130 nondrained wounds repaired with chromic catgut "Full thickness" skin

grafting should be performed as soon as possible when the skin over tendons or nerves is evulsed. The use of black silk permits early motion because of its increased tensile strength and fewer edematous reactions. A patient should be hospitalized for at least two weeks and in bed for the first week giving maximal rest to the hand. The hand should be elevated for several days. The "end results" of tendon repair were impaired and retarded by fractures (ninety-five) and severed nerves which necessitated prolonged immobilization in splints. The end result is greatly dependent on the surgeon's personal management during the first three or four weeks of postoperative care. A follow-up of 40 per cent of the repaired tendon cases shows satisfactory functional results in 80.5 per cent of the cases. All extensor tendons showed 94 per cent satisfactory results, the flexor tendons of the wrist 81 per cent and the digital flexor tendons only 65 per cent. A partially severed nerve should be repaired in order to prevent the formation of scar tissue, which hinders regeneration of the nerve fibers. A follow-up of 40 per cent of the repaired severed nerves showed satisfactory functional results in 77 per cent of the cases. Satisfactory regeneration was obtained in 70 per cent of the ulnar, 78 per cent of the median and 100 per cent of the superficial branch of the radial nerve injuries. Motor function is difficult of restoration in lacerations of the ulnar nerve above the wrist. No deaths occurred in any of the 311 operative cases of tendon or nerve injuries.

American Review of Tuberculosis, New York

39: 145-274 (Feb.) 1939

Late Results of Thoracoplasty: Evaluation of Results from Fourteen American Clinics in 1,636 Cases. F. S. Dolley, J. C. Jones, Los Angeles, and J. R. Paxton, Olive View, Calif.—p. 145.

Intrapleural Pneumonolysis by the Closed Method: Impressions After Fifteen Years' Experience with 350 Cases. R. C. Matson, Portland, Ore.—p. 162.

Asynchrony of the Movement of the Lower Ribs Following Paralysis of the Hemidiaphragm: Test for Diaphragmatic Paralysis After Operations on the Phrenic Nerve. J. R. Head, Chicago.—p. 169.

Chlorine for the Induction of Artificial Pneumothorax: Preliminary Report. K. S. Ray, N. N. Sen and H. N. Das Gupta, Calcutta, India.—p. 172.

Precordial Friction Rub in Spontaneous Pneumothorax. M. R. Louria, Brooklyn.—p. 176.

*Protamine Insulin and Collapse Therapy in Diabetes Complicated by Pulmonary Tuberculosis. B. J. Elwood, Secaucus, N. J.—p. 181.

Noncaseating Tuberculosis: Case Reports. R. Horton, N. S. Lincoln and M. Pinner, New York.—p. 186.

Sectional Roentgenography of the Chest. C. J. Zintheo Jr., Richmond Highlands, Wash.—p. 204.

*Extrapulmonary Complications of Pulmonary Tuberculosis: Analysis of 1,116 Autopsies. D. Perla and S. B. Biller, New York.—p. 215.

Proteinase and Peptidase Activity of Polymorphonuclear Leukocytes, Monocytes and Epithelioid Cells of Inflammatory Exudates. C. Weiss, San Francisco.—p. 228.

Primary Infection in Adults: Its Clinical and Epidemiologic Aspects. J. A. Myers, P. T. Y. Ch'iu and T. L. Streukens Jr., Minneapolis.—p. 232.

Pathology of Primary Tuberculous Infection in the Adult. H. C. Sweany, Chicago.—p. 236.

Case Finding: Evaluation of Various Technics. R. E. Plunkett, Albany, N. Y.—p. 256.

Coccidioides Infection: Case of Primary Infection in the Lung with Cavity Formation and Healing. O. J. Farness and C. W. Mills, Tucson, Ariz.—p. 266.

Insulin and Collapse Therapy in Diabetes Complicated by Tuberculosis.—Elwood gives the results of collapse therapy for pulmonary tuberculosis and the use of the newer insulins for the control of concomitant diabetes in twenty-one cases. Despite the limitations imposed on the successful continuance of artificial pneumothorax, the employment of this type of therapy restored more than three times as many to health as did elected or enforced rest. The percentage of effective pneumothorax obtained parallels the results observed in nondiabetic persons. Protamine zinc insulin utilized in all stages of both diseases was as applicable as insulin. It revealed limited advantages over insulin in the progressive phases of tuberculosis, greater adaptability and better management in tuberculosis therapeutically controlled or regressing. It is of greatest use in diabetes and arrested pulmonary tuberculosis and its advantages in these cases over insulin are comparable to those noted in otherwise uncomplicated diabetes. In terminal pulmonary disease it has little or no advantage over insulin in the control of the diabetic derangement.

Extrapulmonary Tuberculous Complications.—In an analysis of 1,116 postmortem examinations of patients dying of pulmonary tuberculosis, Perla and Biller found that laryngeal involvement occurred in about one third of the cases. Tuberculous enteritis complicated pulmonary tuberculosis in more than half of the cases. In cases of tuberculosis of the larynx, tuberculosis of the intestine generally develops. The epididymis was practically never involved without the presence of a tuberculous focus in the prostate. Tuberculosis of the genital tract is a ready source for further hematogenous dissemination. Gross renal tuberculosis was absent in more than 90 per cent of the 1,116 cases. In general, involvement of the larynx and intestine occurs in active progressive diseases of the lungs, but renal and genital tuberculosis are associated with fibrotic pulmonary lesions or hematogenous pulmonary tuberculosis. Amyloid disease is particularly prone to develop in tuberculous patients with extensive extrapulmonary complications.

Archives of Dermatology and Syphilology, Chicago

39: 195-386 (Feb.) 1939

Studies of Sex Hormones in Acne: I. Preliminary Report on Urinary Excretion of Estrogen. U. J. Wile, B. F. Barney and J. T. Bradbury, Ann Arbor, Mich.—p. 195.

Id.: II. Urinary Excretion of Androgenic and Estrogenic Substances. U. J. Wile, J. S. Snow and J. T. Bradbury, Ann Arbor, Mich.—p. 200.

Lymphogranuloma Venereum: Serum Lipids and Proteins. I. Rosen, H. Rosenfeld, D. Bloom and Frances Krasnow, New York.—p. 211.

*Toxic Manifestations in the Skin Following Sulfanilamide Therapy. J. W. Tedder, New Orleans.—p. 217.

Tumor-like Keratoses: Report of Case. D. O. Poth, San Antonio, Texas.—p. 228.

Xanthelasma and Leprosy. R. Hopkins, S. H. Black and H. Ross, New Orleans.—p. 239.

Cutaneous Reaction, with Reference to the Surface pH, the Reaction to Ointments and Solutions of Different pH and the Effect of the Skin in Modifying the pH of Applied Solutions. D. M. Pillsbury and B. Shaffer, Philadelphia.—p. 253.

Cholesterol Balance and Low Fat Diet in Psoriasis. J. F. Madden, St. Paul.—p. 268.

*Jaundice Occurring During Treatment of Syphilis. C. G. Lane, Boston.—p. 278.

Quantitative Investigation of Porphyrin Metabolism in Diseases of the Skin. L. A. Brunsting, J. T. Brugsch and P. A. O'Leary, Rochester, Minn.—p. 294.

Neurosyphilis in the Negro. S. Goldblatt, with collaboration of Eleanor Vandoren, Cincinnati.—p. 308.

Circumcision in Treatment of Chancroidal Lesions of Male Genitalia: Further Observations. J. E. Rauschkolb, Cleveland.—p. 319.

Uveoparotitis: Sarcoid Reaction. H. E. Michelson, Minneapolis, with collaboration of F. T. Becker, Duluth, Minn.—p. 329.

Local Arterial Embolism Following an Intramuscular Injection. A. G. Franks, New York.—p. 345.

Dermatitis After Sulfanilamide Therapy.—During the last fifteen months Tedder encountered fourteen cases of sulfanilamide dermatitis. Six patients were cooperative enough to permit thorough study. The individual cutaneous lesions due to sulfanilamide were of three general types: (1) the maculopapular or morbilliform eruptions of rather limited distribution, precipitated or aggravated by exposure to sunlight, (2) widely distributed lesions ranging from macules and papules to edema and urticaria-like wheal formations, with occasional coalescence of the individual lesions, and (3) purpuric eruptions. Purpuric eruptions followed prolonged medication in one case; they did not appear until the third week of treatment. The history did not definitely reveal whether dermatitis had preceded the purpura; however, examination showed many fine macular lesions associated with multiple purpuric lesions. These were chiefly on the dependent portions of the body. There was no evidence of similar lesions of the internal organs. There were several cases of a maculopapular eruption with multiple small unruptured vesicles, limited to the areas exposed to sunlight. This disappeared when the drug was stopped. Three patients agreed to resume modified sulfanilamide therapy after ten days. There was no recurrence of the eruption. The patients were advised to avoid exposure to sunlight. After five days, suberythema doses of ultraviolet radiation were given to previously uninvolved areas of two patients. The dermatitis did not recur. The same amount of ultraviolet radiation precipitated a generalized eruption in the third case. This eruption again responded to elimination of the sulfanilamide, probably indicating that the patient became sensitized to the drug.

Jaundice and Syphilis.—Lane points out that from 1929 to 1935 there have been 100 (among 3,186 new cases of syphilis) cases of jaundice at the dermatosyphilologic clinic of the Massachusetts General Hospital. Arsphenamine was injected 51,241 times at the hospital, showing that jaundice occurred in 3.2 per cent of the cases of syphilis and after 0.2 per cent of the injections. Eleven of the cases of the disease were of congenital origin, nine primary, twenty-five secondary and fifty-five late. The central nervous system was involved in fourteen cases. In only eleven cases was jaundice present longer than eight weeks. In three cases jaundice occurred twice during treatment and in four it lasted for fifteen or sixteen weeks. The latter group comprised cases of late disease treated with a bismuth preparation interrupted by the jaundice. In none were more than ten injections of neoarsphenamine and twenty-two of the bismuth preparation given. The large number of cases of jaundice in which comparatively few injections of arsphenamine are given, as well as the large number of cases of syphilis in which much more arsphenamine produces no jaundice, would argue against arsphenamine as the main factor. It does not seem probable that arsphenamine is the only cause or even the chief cause. The occurrence of jaundice in so many cases of the present series in which bismuth compounds were used brings up the question of bismuth as a partial cause. If the bismuth is activated by liver extract and some slight damage is done by arsphenamine or by syphilis or by both, the bismuth may be the precipitating factor in breaking down certain of the hepatic functions and producing jaundice. The effect of multiple factors is difficult to estimate, but it seems clear that more than one causal agent is at work. Neither arsenic nor syphilis can account for the jaundice in all cases or even in a large majority. In general, in the treatment of this form of jaundice the administration of saline laxatives, forcing of liquids, bed rest and a high carbohydrate and low fat diet have been prescribed. Intravenous use of calcium preparations may be of help. With regard to the continuation of antisyphilitic treatment, it is the author's opinion that in the early stages of syphilis or in the presence of active syphilitic lesions the use of arsphenamine, perhaps in slightly reduced doses, of a bismuth preparation and perhaps of potassium iodide is justified. The clinical picture in the individual case must be the guide. In late and inactive congenital disease active treatment should be omitted until the jaundice has disappeared for several weeks and then resumed, perhaps with a bismuth compound at first. In the cases in which jaundice appears some time after treatment has been stopped, hepatorecurrence should be suspected and the patient given a bismuth compound or mercury and iodide rather than arsenic at this time.

Archives of Pathology, Chicago

27: 201-398 (Feb.) 1939

Pathologic Aspects of Posterior Protrusions of the Intervertebral Disks. W. G. Deucher and J. G. Love, Rochester, Minn.—p. 201.
Phagocytosis of Trypan Blue in Rats of Different Age Groups. J. T. Culbertson, New York.—p. 212.
Endamoeba Histolytica: Experimental Infection of Stomachs of Dogs and Cats. Y. Joranson and J. Simons, Chicago.—p. 218.
Intestinal Lesions in Congenital Syphilis: Histologic Study, with Report of Three Additional Cases, in All of Which Spirochetes Were Identified. R. D'Aunoy and B. Pearson, New Orleans.—p. 239.
*Pathologic Changes in Nervous System in Yellow Fever. L. D. Stevenson, New York.—p. 249.
Primary Systemic Amyloidosis: Involvement of Cardiac Valves, Joints and Bones, with Pathologic Fracture of the Femur. S. Koletsky and R. M. Stecher, Cleveland.—p. 267.
Sensitization, Antibody Formation and Lesions Produced by Tubercle Bacilli in the Albino Rat. E. Hehre and J. Freund, New York.—p. 289.
Histology of Cutaneous Reaction to Brucella Melitensis Antigen. I. Gersh and W. C. Black, Denver.—p. 307.
Elastic Tissue. G. M. Hass, Boston.—p. 334.

Changes in Nervous System in Yellow Fever.—In a study of pieces of cerebral tissue from fourteen persons who died of yellow fever, Stevenson observed marked perivascular hemorrhage in various parts of the brain. He studied the whole brain in twenty cases of yellow fever. The chief lesion found in all the brains was perivascular hemorrhage. These hemorrhages were most frequent in the subthalamic and periventricular region at the level of the mamillary bodies. The temporal pole was the next most frequently involved area and the cerebellum only slightly less so. Perivascular lymphocytic exudate was present in nine cases and with the exception of a single case this was slight. Changes in the nerve cells were insignificant and no inclusion bodies were seen. Reactive changes in the microglia and astrocytes were slight. It is concluded that there is no definite evidence of neurotropism on the part of the virus of yellow fever.

Bulletin New York Academy of Medicine, New York

15: 61-128 (Feb.) 1939

Significance of Albumin Fraction of Serum. A. A. Weech, New York.—p. 63.
General Pathology of Lymphosarcoma. J. Ewing, New York.—p. 92.
Present Status of Serum Therapy in Pneumonia. R. L. Cecil, New York.—p. 104.
*Treatment of Pneumonia with Antipneumococcus Rabbit Serum. C. M. MacLeod, New York.—p. 116.

Antipneumococcus Rabbit Serum for Pneumonia.—The intravenous injection of a small amount of rabbit serum in the treatment of pneumonia, MacLeod states, is not to be recommended without first knowing the results of intradermal and intraconjunctival tests, since anaphylactic shock may occasionally occur in extremely hypersensitive individuals following the intravenous injection of as little as 0.1 cc. of well diluted serum. As a further precaution after the results of the tests are known, it has been the author's practice slowly to inject intravenously 0.1 cc. of the therapeutic serum diluted in 5 cc. of physiologic solution of sodium chloride. If a fall in blood pressure and an elevation of the pulse rate do not occur, it is considered safe to proceed with the therapeutic dose of serum. The reactions which may occur correspond to those following the use of horse serum. A total of 100 patients with conditions including infections due to pneumococci of nine different types have been treated. Eleven patients have died. Of the eleven who died, seven suffered from type III pneumonia. The final judgment on the efficacy of type III antipneumococcus rabbit serum has not been made, but in a certain group of patients a beneficial effect has occurred, particularly in persons before the sixth decade. In such patients a dramatic response may occur, similar to that which is seen so frequently in the serum treatment of type I pneumonia. Of the patients with type III pneumonia who died, only three could be considered as having received an adequate dosage of serum; but the fact that these patients died despite intensive treatment makes it imperative to pursue further the investigation of the therapy of type III infections. If the twenty-six cases of type III pneumonia are excluded from the series, the mortality rate is only 5.4 per cent. The patients who died, other than those in the type III group, illustrate the advantage of early treatment with antipneumococcus serum. All but one of these patients were treated late in the disease; in two, empyema was present associated with severe bacteremia; one patient had meningitis at the time of admission, and the fourth patient was an elderly man with type II pneumonia, who had consolidation of four pulmonary lobes when admitted to the hospital. Defervescence in twenty-five cases of type I pneumonia, treated with concentrated horse serum by the divided dose method, occurred in an average of 22.6 hours from the beginning of treatment. In twenty-six cases treated with unconcentrated rabbit serum, defervescence occurred in an average of 13.8 hours. However, in sixteen of these twenty-six cases the full therapeutic amount of serum was administered in less than two hours, and in this group defervescence occurred on the average in 9.3 hours. The same method of intensive therapy has been applied to the treatment of forty-eight cases of pneumonia due to other types as well. In many instances the full therapeutic dose of serum was given at one injection shortly after the patient was admitted to the hospital. In the remainder, treatment was completed within eight hours. The average time required for defervescence was only 9.75 hours. In practically all these cases the intradermal test with the specific polysaccharide was employed to determine when sufficient serum had been given. The author thinks that in the adult patient with uncomplicated type I pneumonia of not more than three days' duration a dose of 125,000 units should be given as soon as possible. After the third day a somewhat larger initial dose should be given, particularly if the consolidation involves more than one pulmonary lobe or if complications such as bacteremia are known to be present.

Canadian Medical Association Journal, Montreal

40: 105-212 (Feb.) 1939

Influence of a Specific Hormone of the Pituitary on Basal Metabolism in Man. I. M. Rabinowitch, Marjorie Mountford, D. K. O'Donovan and J. B. Collip, Montreal.—p. 105.
Streptococcic Throat Infections: Epidemiology. A. L. McLean, Halifax, N. S.—p. 108.
Clinical Aspects, Complications and Treatment of Streptococcic Sore Throat. P. B. Macfarlane, Hamilton, Ont.—p. 109.
Bacteriologic Aspect of Streptococcic Sore Throat. W. J. Deadman, Hamilton, Ont.—p. 113.
Human Sterility. W. P. Tew, London, Ont.—p. 116.
Empyema. W. G. Carscadden, Toronto.—p. 120.
Lipiodobronchography. J. Gosselin and J. E. Perron, Quebec City, Que.—p. 123.
Studies on Solubility of Quartz and Silicates. C. C. Lucas and Margery E. Dolan, Toronto.—p. 126.
*Incidence of Anemia in Women of the Low Income Class. W. R. Kennedy, Montreal.—p. 134.
Study of 500 Consecutive Cases of Preeclampsia. F. C. Irving, Boston. —p. 137.
*Rheumatic Infection in Childhood: Effect of Surgical Operations on Blood Sedimentation Rate. H. L. Bacal and R. R. Struthers, Montreal. —p. 140.
Comparison of Ether, Spinal and Cyclopropane Anesthesia. J. C. Houston, Charlottetown, Prince Edward Island.—p. 143.
Otitis Media from the Pediatrician's Point of View. G. A. Campbell, Ottawa, Ont.—p. 146.
Use of Urea and Caroid in Chronic Otitis Media. G. E. Tremble, Montreal.—p. 149.
Treatment and Later Management of Coronary Thrombosis. R. M. Lymburner, Hamilton, Ont.—p. 153.
Diverticulitis of the Sigmoid Colon. J. H. Geddes, London, Ont.—p. 157.
The Surgeon's Responsibility in Ontario Accident Compensation Cases. C. H. Hair, Toronto.—p. 160.

Anemia in Women with Low Incomes.—Kennedy states that 1,451 parous women of the child-bearing age, representing the poorer classes of the Montreal population, have been examined at the Child Welfare Association with special reference to the incidence of anemia. On no occasion did any of these volunteer women present themselves because of any symptoms of ill health. They were members of families in which the wage earners were unemployed or the monthly incomes were less than $100. Of the 1,451 cases 824 showed normal hemoglobin levels and 627 various degrees of anemia with hemoglobin levels less than 80 per cent. There were 377 persons with hemoglobin levels of 74 per cent or less. Moderate anemia (hemoglobin from 60 to 69 per cent) was present in 124 cases and severe anemia (less than 60 per cent) in sixty-four cases. The anemia was of the hypochromic type in all instances excepting twenty-one, in which the anemia was of the hyperchromic form. One hundred and nineteen women were seen during early pregnancy and sixty-seven of these had hemoglobin levels of less than 75 per cent. However, the majority of these women were retested one year after the termination of the pregnancy and the same degree of anemia existed. The study of 1,000 records in this series showed there was no conclusive evidence of any definite correlation between the presence of anemia and the number of pregnancies. There was also an absence of any significant correlation between the incidence of anemia and the history of hemorrhage, profuse menstruation or the interval between pregnancies. The approximate protein diet in fifty cases in which hemoglobin levels were between 75 and 100 per cent was compared with fifty cases in which hemoglobin levels were between 25 and 65 per cent. It was found that less protein in the form of beef, pork, liver, chicken and eggs was consumed by the anemic women. Approximately the same amounts of fish and milk were used by the two groups. Under ideal circumstances women require for health up to the age of the menopause about four times as much iron as men. Routine hemoglobin estimation in private and group health examinations will reveal many instances of adults supposedly in good health but actually suffering from varying degrees of idiopathic hypochromic anemia.

Rheumatic Infection in Childhood.—Bacal and Struthers compared the effect of surgical operations to eradicate foci of infection on the blood sedimentation rate of children suffering from rheumatic fever and normal children presenting themselves to the outpatient department for tonsillectomy. In none of the control children was a history of rheumatic fever elicited; likewise none of them gave a family history of rheumatic infection. The sedimentation rates were made immediately before operation, two days after operation, at the end of one week and at the end of two weeks. There were apparently three types of response in the normal children: 1. Some showed no alteration in sedimentation rate or loss of weight after operation. 2. Some showed a sharp rise and sudden fall of the sedimentation rate after operation, with an average loss of 2 pounds (1 Kg.). 3. The sedimentation rate fell to normal within the week following operation in a few children in whom it was elevated before tonsillectomy and continued at a normal rate for the period of observation. The children suffering from rheumatic fever or its manifestations showed reactions comparable on the whole to those of normal children. 1. The sedimentation rates were not affected by operation in some children with acute rheumatic fever who had no evidence of activity as shown by a normal sedimentation rate. 2. Some children who had no evidence of activity as shown by the sedimentation rate showed a sharp rise after operation. This rise in the sedimentation rate apparently may follow any surgical procedure, tonsillectomy, removal of carious teeth or surgical drainage of the paranasal sinuses. 3. In some children in whom the elevated sedimentation rate was the only evidence of activity, the authors concluded after prolonged observation that the elevated rate was probably due to foci of infection rather than to rheumatic fever. These children showed a sudden and sharp drop to normal and the sedimentation rate remained within normal levels during the period of observation. Weight loss in rheumatic children following surgical intervention is greater than in normal children. The surgical removal of foci of infection in a child with rheumatic disease is a definitely more serious undertaking than in the nonrheumatic child.

Endocrinology, Los Angeles

24: 137-296 (Feb.) 1939

Maintenance of the Corpus Luteum and Inhibition of Parturition in the Rabbit by Injection of Estrogenic Hormone. G. P. Heckel and W. M. Allen, Rochester, N. Y.—p. 137.
Induction of Mating in the Dog with Pregnancy Urine Extract. J. H. Leathem and J. A. Morrell, Princeton and New Brunswick, N. J.—p. 149.
Biologic Assay of the Mammogenic Duct Growth Factor of the Anterior Pituitary. A. A. Lewis, C. W. Turner and E. T. Gomez, with technical assistance of W. T. Carroll, Columbia, Mo.—p. 157.
Copulatory Activity in Adult Male Rats Following Castration and Injections of Testosterone Propionate. C. P. Stone, Stanford University, Calif.—p. 165.
Effect of Prolonged Testosterone Propionate Administration on the Immature and Adult Female Rat. M. Mazer and C. Mazer, Philadelphia.—p. 175.
Human Serum Response to Gonadotropic Hormone (Pregnancy Urine Extract). W. Saphir, Katharine M. Howell and R. H. Kunstadter, Chicago.—p. 182.
Further Studies of Male Sex-Stimulating, Female Sex-Repressive Fractions of the Adrenal Glands of Cows, Steers and Bulls. F. M. Pottenger Jr. and D. G. Simonsen, Monrovia, Calif.—p. 187.
Comparison of the Resistance of Male and Female Rats to Cortin. D. J. Ingle, Rochester, Minn.—p. 194.
Refractory State Produced by Adrenal Extract. F. A. Hartman, Lena A. Lewis and K. P. McConnell, Columbus, Ohio.—p. 197.
*Relationship of Hematopoietic Phenomena to Endocrine Disorders in Women. E. A. Sharp and H. C. Mack, Detroit.—p. 202.
New and Improved Method for Preparation of Pineal Extract. A. Steinberg, Philadelphia.—p. 219.
Experimental Phases of the Pineal Problem. N. H. Einhorn and L. G. Rowntree, Philadelphia.—p. 221.
Surgical Treatment of Experimental Insulin Poisoning. F. M. Allen and C. A. Vicens, New York.—p. 230.
Diabetes of Bearded Women (Suprarenal Tumor, Diabetes and Hirsutism): Clinical Correlation of the Function of the Suprarenal Cortex in Carbohydrate Metabolism. H. C. Shepardson and E. Shapiro, San Francisco.—p. 237.
Effect of Salts on Diabetes Insipidus Following Posthypophysectomy in the Rat. H. G. Swann and B. J. Penner, Chicago.—p. 253.
*Build in Relation to Menstrual Disorders and Obesity. Leona M. Bayer, San Francisco.—p. 260.

The Blood and Endocrine Disorders in Women.—During the last several years approximately 450 anemic women have been observed. An analysis of this group by Sharp and Mack revealed that 110 patients, or 25 per cent, had concomitant anemia and endocrine disorders. Complete diagnostic and therapeutic observations were obtained from sixty-eight of these women. A similarity in the symptomatology of the entire group of 110 patients permits classification into three groups: (1) from the menarche to 24 years, primary pituitary-thyroid deficiency, (2) from 25 to 39 years, secondary thyro-ovarian failure,

and (3) from 40 years to the menopause, premenopausal stage. Twenty-four patients were between the ages of 13 and 24 years. Six of the twenty-four had moderate erythrocytopenia on admission, while the remaining eighteen had severe anemia. Purpura was elicited in about half of this group. In the other two groups the average erythrocyte and hemoglobin levels were appreciably lower on admission than were the average levels for group 1. Group 2 resembled group one in that the predominant blood pattern in both was normochromic and normocytic in contrast to the predominance of microcytosis and hypochromemia in the older patients in group 3. Collectively, the average blood and hemoglobin levels showed a greater depletion in the two older groups. The authors believe that there is a definite anemia-endocrine syndrome in women. Definite signs of hypothyroidism, pituitary failure and hypogonadism are common to the syndrome. The anemia is usually normocytic in the adolescent and early adult age groups. Microcytosis and hypochromia appear to be expressions of chronicity of the anemic state, since they occur with greater frequency in middle-aged patients. Achlorhydria was frequent in all three groups, as were low basal metabolic rates, purpura, uterine bleeding, gastrointestinal disturbances and psychoneuroses. The authors believe that simultaneous treatment of the hematopoietic and endocrine disturbances by appropriate medicaments insures a favorable prognosis in a majority of cases. Gonadotropic substance in doses of from 200 to 1,000 rat units should be given daily until the uterine bleeding of immaturity is controlled. Thyroid extract to tolerance when indicated and iron salts are essential elements of the therapeutic plan for all three groups, when signs and symptoms indicate an appreciable degree of thyroid deficiency and mineral imbalance. The bleeding of maturity as well as the amenorrheic state encountered at any age is an indication for theelin in conjunction with gonadotropic substance. Curettement may be indicated at the outset and particularly when endometrial polyposis is present. Bed rest is desirable for patients having the severe periodic or continuous types of bleeding, but the majority of patients can be treated successfully without bed rest.

Build, Menstrual Disorders and Obesity.—In searching for the relationships between configuration and disease Bayer has made, since 1930, anthropometric and clinical studies of 110 women and girls whose complaints were thought possibly to be associated with their build. Those with obesity or menstrual disorders or both have been omitted and ninety cases are finally considered. The dominating symptom was menstrual disorder in forty-six, obesity in thirty-six, thyroid disorder in six and ectodermal dystrophy in two. In an attempt to sort patients into groups according to build, various measurements, indexes and dividing limits were tried until criteria were set up in which the photographs, the anthropometric measurements and the clinical diagnoses were in reasonable agreement. Eventually four groups were defined: feminine, hypofeminine, hyperfeminine and virile. The clinical testimony tends to corroborate the classification both in its lines of demarcation and in its developmental thesis. It has been possible to define each group not only as to build but also as to typical anatomic and physiologic corollaries. 1. In the normal feminine women the build is distinguished by normal body hair and breast development and average proportions, especially with regard to sitting height-stature and trunk-breadth indexes. Clinically these patients are usually normal except that there may be menstrual disturbances of flow and rhythm. 2. The build of the hypofeminine women is distinguished by scanty body hair, small breasts, long legs and a narrow pelvis. Underweight, primary amenorrhea, incomplete genital development, delayed bone age and increased sugar tolerance constitute the associated syndrome. 3. The hyperfeminine subject is distinguished by increased body hair, large breasts, short legs and a broad pelvis. Overweight, advanced bone age and decreased sugar tolerance constitute the clinical syndrome. Menstrual disturbances consist in irregularities of rhythm and flow. 4. The build of the virile type of woman presents excessive body hair, small breasts, short legs, broad shoulders and a narrow pelvis. Overweight, muscularity, secondary amenorrhea and masculinization of the genitals constitute the extreme clinical syndrome.

Johns Hopkins Hospital Bulletin, Baltimore

64: 83-154 (Feb.) 1939

Occurrence and Significance of Myocardial Failure in Acute Hemorrhagic Nephritis. M. R. Whitehill, W. T. Longcope and R. Williams, Baltimore.—p. 83.
Significance of Fibrillation, Fasciculation and Other Muscular Twitchings, with Special Reference to Recent Physiologic Investigations. F. R. Ford, Baltimore.—p. 114.
*Does Ether Narcosis Protect from Anaphylactic Shock? A. R. Koontz and R. T. Shackelford, Baltimore.—p. 125.
Preliminary Report on an Operation for the Cure of Meralgia Paraesthetica. F. C. Lee, Baltimore.—p. 147.

Ether Narcosis as Protection from Anaphylactic Shock.—Koontz and Shackelford gave shock-provoking doses of foreign protein to sixty-nine unanesthetized guinea pigs sensitive to it. Thirty-six of them lived and thirty-three died. Sixty-five guinea pigs sensitive to foreign protein were given shock-provoking doses while under ether anesthesia; fifty of these lived and fifteen died. Of the fifteen that died, one had pneumonia when it received the injections and another a completely atelectatic lung, shown at necropsy. A third died because the anesthesia was forced too far. A fourth death was probably due to the anesthesia. Two animals had pneumonia and atelectasis, *respectively, when the protein was injected; these conditions* were undoubtedly important contributing factors in their deaths. If these two animals and the one in which the anesthetic definitely caused the death are eliminated, there would be only twelve guinea pigs that died when injected during anesthesia. This would reduce the deaths to 18.5 per cent under anesthesia, as opposed to 47.8 per cent without anesthesia. In none of the animals dying without anesthesia was any underlying pathologic condition of the lungs revealed at necropsy: All of the unanesthetized group that survived showed marked symptoms of anaphylaxis. This was not the case in any of the anesthetized group. Of course, the anesthetic may have masked some of the clinical signs of anaphylaxis. The authors believe that there is a mechanical factor which produces effects entirely aside from the effects of the injected serum. If they are correct, they think that the percentage of deaths in the animals injected while under anesthesia would be further reduced. If these results are to be applied to man, the percentage of deaths is too high to indicate that it is safe to inject foreign serums into human beings under the assumption that anesthesia will afford complete protection against anaphylaxis. However, guinea pigs are more susceptible to anaphylactic shock; hence it is possible that any relative protection afforded by anesthesia may be more effective in man.

Journal of Allergy, St. Louis

10: 105-208 (Jan.) 1939

Food Allergens: II. Atopic Reagins and the Botanic Classification of Foods. O. R. Withers, Kansas City, Mo.—p. 105.
Chemistry of Allergens: I. Isolation of an Active Fraction from Cottonseed. J. R. Spies, H. S. Bernton and H. Stevens, Washington, D. C.—p. 113.
Further Studies on the Allergenic Activity of Protein and Nonprotein Nitrogen Fractions of Ragweed Pollen Extract. A. Stull and W. B. Sherman, New York.—p. 130.
*Roentgen Treatment of Asthma. C. K. Maytum and E. T. Leddy, Rochester, Minn.—p. 135.
Some Observations on the Blood Eosinophil Count in Asthmatics. H. B. Hunt, Birmingham, England.—p. 146.
Oral Administration of Ragweed Pollen. J. H. Black, Dallas, Texas.—p 156.
Skin Reactions: V. Contour Gage for Measurement of Height and Breadth of Allergic Wheals. H. A. Abramson and M. H. Gorin, New York.—p. 159.
Asthma and Allergic Rhinitis Due to Sensitization to Phthalic Anhydride: Report of Case. R. A. Kern, Philadelphia.—p. 164.
Sulfur Dioxide Poisoning as a Cause of Asthma. A. Romanoff, New York.—p. 166.

Roentgen Treatment of Asthma.—Maytum and Leddy used roentgen rays in the treatment of 215 cases of asthma. *These patients represent about 6 per cent of the total with* asthma who were treated at the clinic during 1935 and 1936. Twenty of the 215 cases are not included in the present report because treatment was incomplete or the diagnosis of asthma was questionable and another thirty-four cases are not reported because the patients were not followed closely enough. Of the remaining 161 patients, thirty-eight obtained more than 75 per cent relief, which lasted from one month to many months. *Twenty-three patients obtained as much relief but are not*

included, since other treatment given at about the same time may have been a factor in relieving the symptoms. Twenty-six patients had from 50 to 75 per cent relief for periods of one month or longer. The remaining seventy-four patients experienced less than 50 per cent relief, or more than 50 per cent relief for only short periods of time, and the results are accordingly classed as failures. Two of the patients in this group were completely relieved of asthma but died within a month, one from coronary occlusion and the other from postoperative infection. Five patients felt that their asthma was definitely worse after treatment. Even though at present the authors favor treatment through paravertebral fields, they do not advocate this method to the exclusion of all others. The beneficial effects from roentgen therapy are only temporary, and cures of asthma are not to be expected. They believe that the results obtained justify its use in cases of severe asthma in which relief has not been obtained with other measures.

Journal Industrial Hygiene & Toxicology, Baltimore

21: 29-56 (Feb.) 1939

*Systemic Effects Resulting from Exposure to Certain Chlorinated Hydrocarbons. L. Greenburg, May R. Mayers and Adelaide Ross Smith, New York.—p. 29.
Effect of Certain Impingement Dust Sampling Instruments on Dust Particles. E. L. Anderson, Hartford, Conn.—p. 39.
Toxicologic Studies of N-Isobutyl Amides of Aliphatic Acids. W. Deichmann-Gruebler, Wilmington, Del.—p. 48.
Report of the Use of Biophotometer and Vitamin A Therapy in Industry. O. H. Schettler, R. F. Bisbee and B. H. Goodenough, East Pittsburgh, Pa.—p. 53.

Systemic Effects of Exposure to Chlorinated Hydrocarbons.—Chlorinated naphthalenes and diphenyls are used extensively for insulating wire and in the manufacture of electrical condensers. Because of the obvious need for more clinical data with regard to the effects of exposure to chlorinated naphthalene, Greenburg and his associates report three cases in persons who, after exposure in the course of their work to these known hepatoxic substances, died of acute yellow atrophy of the liver and in whose cases no other etiologic factors could be discovered after careful postmortem and clinical study. The plant conditions under which the patients had worked were carefully investigated. Two of the patients had suffered from at least one previous attack of hepatitis followed by a certain degree of improvement before the onset of the fatal attack. A papulopustular eruption was present in two cases. In one it antedated the systemic symptoms. This type of eruption is characteristic of the dermatitis caused by chlorinated naphthalenes and until recently was the only disturbance attributed to them. In the first case the cutaneous eruption apparently antedated all evidences of systemic disease. Had the girl been promptly removed from further exposure it is possible that her life would have been saved; or had the physicians first called on to treat the jaundice (of whatever origin) in her case or in the second case recognized the danger of continued exposure to the chlorinated naphthalenes these deaths might possibly have been averted. In order to prevent the condition the authors recommend that physicians should report all illnesses occurring among workers exposed to the chlorinated naphthalenes and diphenyls. Persons suffering from the typical acneform eruptions should be removed from further exposure. Employees who have had any liver disease—even a mild catarrhal jaundice—should not work with these substances; neither should those with a history of typhoid, malaria, gallstones or other diseases known to affect the liver adversely. Individuals receiving arsphenamine treatment for syphilis or those susceptible persons who are taking drugs believed to be injurious to the liver should not be further exposed to potential hepatic poisons. Persons working with the chlorinated naphthalenes and diphenyls, if requiring a general anesthetic for an operation, should not be given chloroform or tribromethanol in amylene hydrate and, vice versa, individuals who have recently received such anesthetics should not go back to their former work or to work with other substances believed to be potentially toxic to the liver. Pregnant women should not be exposed because the liver, in pregnancy, appears to be peculiarly susceptible to injury. With proper attention to ventilation and medical supervision of workers the chlorinated naphthalenes and diphenyls can be used in industry with safety.

Journal of Infectious Diseases, Chicago

64: 1-96 (Jan.-Feb.) 1939

Serologic Types of Salmonella Isolated from Paratyphoid in Chicks. E. Jungherr and C. F. Clancy, Storrs, Conn.—p. 1.
Effect of Sulfanilamide on Pneumococcic Infections in Mice. J. M. Ruegsegger and M. Hamburger, Cincinnati.—p. 18.
Studies on Chemical Nature of Factors Producing the Shwartzman Phenomenon. D. Glick and W. Antopol, Newark, N. J.—p. 22.
Effect of Sulfanilamide Therapy on Bovine Mastitis as Indicated by Laboratory Tests. W. G. Hoge, W. V. Halversen and V. A. Cherrington, Moscow, Idaho.—p. 27.
*Chemotherapy in Virus Diseases. E. B. McKinley, Jean Sinclair Meck and Ellen Gray Acree, Washington, D. C.—p. 36.
Effect of Sulfanilamide on Experimental Infections with Bacterium Necrophorum in Rabbits. Elizabeth S. Hemmens and G. M. Dack, Chicago—p. 43.
Microscopic Agglutination Test for Diagnosis of Swine Erysipelas. A. G. Karlson and S. H. McNutt, Ames, Iowa.—p. 49.
Effect of Normal and Raw Apple Diet on Flora of Duodenum, Ileum and Cecum of Monkeys. G. M. Dack, R. Johnson and L. R. Dragstedt, Chicago.—p. 52.
Action of Prontosil Soluble and Sulfanilamide on Phagocytic Activity of Leukocytes and on Dissociation of Streptococci. Ruth Tunnicliff, Chicago.—p. 59.
*Lymphocytic Choriomeningitis: Discussion of Its Diagnosis in Man Marion E. Howard, New Haven, Conn.—p. 66.
Use of Sulfanilamide in Experimental Brucellosis. B. D. Chinn, Chicago—p. 78.
Bacteriophage Absorption by Blood Cells and Bacteria. Martha Applebaum Congress, New York.—p. 83.
Washing of Haemophilus Pertussis Vaccines. J. A. Toomey and W. S. Takacs, Cleveland.—p. 89.
Bacteriology and Immunology of Chronic Staphylococcic Osteomyelitis: II. Effect of Inflammatory Tissue on Antigens and Antibodies. Katherine E. Hite, Chicago.—p. 93.

Chemotherapy in Virus Diseases.—McKinley and his associates treated several experimental virus diseases (rabbit myxoma, rabbit fibroma, herpetic encephalitis, choriomeningitis and St. Louis encephalitis) with sulfanilamide, prontosil and sodium sulfanilyl sulfanilate. None of the compounds were of any therapeutic value in the diseases treated.

Lymphocytic Choriomeningitis.—Howard isolated a strain of the virus of benign lymphocytic choriomeningitis from the spinal fluid of a patient early in the course (sixth and seventh days) of the infection and when the cellular response in the spinal fluid was at its height. Abnormalities were slow in disappearing from the spinal fluid. Neutralizing antibodies in the patient's serum were demonstrated in low titer late in convalescence when mice as the test animals and the virus isolated from the patient were used. The patient's serum did not protect guinea pigs against Rivers' W. E. strain of the virus. Reinoculation experiments and the protection afforded by serum from Rivers' patient W. E. gave proof of the immunologic identity of this strain with others already described. The virus isolated lost its virulence for guinea pigs during constant passage through mice.

Journal of Pediatrics, St. Louis

14: 137-276 (Feb.) 1939

*Neurogenic Tumors of Sympathetic Nervous System in Children: Report of Three Cases Surviving for a Year or Longer. F. H. Wright and B. H. Paige, New York.—p. 137.
Blood Pressure Determination in Children: Effect of the Width of the Cuff. R. Day, New York.—p. 148.
Consideration of Race and Sex in Relation to Growth and Development of Infants. Ethel C. Dunham, Rachel M. Jenss, Washington, D. C., and A. U. Christie, San Francisco.—p. 156.
*Studies in Use of Crystalline Vitamin C (Ascorbic Acid) in Prophylaxis and Treatment of Infantile Scurvy and Some Other Disorders of Infancy and Childhood. A. S. Kenney, New Orleans, and M. Rapoport, Philadelphia.—p. 161.
Epidemic Diarrhea of the Newborn: Report of Three Outbreaks. C. J. Baker, New York.—p. 183.
Factors Influencing Relation of Convulsions and Hyperthermia. M. E. Wegman, Baltimore.—p. 190.
Hypergenitalism in Children. I. P. Bronstein, Chicago.—p. 203.
Acute Infectious Duodenitis (Infectious Jaundice): Report of Seventy-Six Cases. H. A. Slesinger and I. Zeligman, Windber, Pa.—p 213.
Congenital Syphilis: Ten Year Study of Forty-Five Children. P. J. Howard, Detroit.—p. 220.
Mold Spore Content of Air in Boston, with Reference to Atopic Sensitivity. H. N. Pratt, Boston.—p. 234.

Neurogenic Tumors of Sympathetic System.—Wright and Paige report that three children who had neurogenic tumors of the sympathetic nervous system are alive with no evidence of recurrence or metastasis a year or more after the discovery of the tumors and their consequent removal. One patient is living

six years after removal of a sympathicoblastoma but retains her original signs and symptoms of compression of the spinal cord. One patient is well one year after the removal of a large pelvic ganglioneuroma. One patient is well one year after the discovery of a thoracic ganglioneuroma which has not been excised completely. Surgical removal of sympathicoblastomas followed by radiation therapy may occasionally be effective in preventing recurrence or metastasis.

Ascorbic Acid in Prophylaxis and Treatment of Scurvy.—Kenney and Rapoport gave nineteen infants crystalline vitamin C, 1.83 mg. per kilogram of weight daily, for five months as a prophylactic against scurvy. No clinical or x-ray evidence of scurvy was apparent during the period of observation. Crystalline vitamin C was used in the treatment of twenty-one cases of infantile scurvy and satisfactory healing was obtained. The presence and significance of fever in the scorbutic infant are analyzed, and the lack of temperature elevation following the administration of vitamin C is pointed out. There was no constant effect produced on the capillary resistance (capillary fragility test) in the scorbutic infants following the administration of vitamin C. Crystalline vitamin C seemed to stimulate wound healing in the incision of an infant operated on for pyloric stenosis in whom there was no evidence of healing prior to its administration. Intravenous administration of vitamin C seemed to have no effect on the hematuria in a case of subacute hemorrhagic nephritis.

Maine Medical Association Journal, Portland

30: 21-44 (Feb.) 1939

The Doctor, Family Friend or Public Servant. A. Craig, Bangor.—p. 21.
Gastroscopic Observations on Chronic Gastritis. C. W. McClure and I. R. Jankelson, Boston.—p. 24.
Nonprofit Hospital Service Plans as Presented to the Annual Meeting of the Maine Hospital Association, Lakewood, Maine, Aug. 31, 1938. E. H. Young, Portland.—p. 27.

Medical Bull. of Veterans' Adm., Washington, D. C.

15: 217-332 (Jan.) 1939

Arthroplasty of Hip with Use of Vitallium Cup. H. H. Hopkins and F. N. Zuck.—p. 217.
Cancer of the Rectum. P. E. Johnson.—p. 218.
Transnasal Instillation of Lipiodol into Bronchial Tree. J. R. Boswell. —p. 224.
Associated Pulmonary Tuberculosis and Diabetes Mellitus. W. R. Leverton.—p. 227.
Intestinal Tuberculosis: Report of 3,693 Cases Studied by X-Rays and at Autopsy. H. B Williams.—p. 236.
Burbot-Liver Oil in Tuberculosis. J. E. Gaines.—p. 240.
Clinical and Roentgenologic Analysis of 150 Cases of Chronic Nonspecific Arthritis. M. L. Weber.—p. 243.
Cevitamic Acid in Treatment of Duodenal and Gastric Hemorrhage. W. S. Anderson.—p. 261.
Syringobulbia. J. F. Casey.—p. 264.
Chronic Polymorphous Light Dermatitis: Report of Case. W. J. Turner. —p. 270.
Folie à Deux. M. K. Amdur and S. T. Ginsberg.—p. 277.
Aplastic Anemia. H. Kessler.—p. 280.
Intravenous Urography. W. M. Caffee.—p. 288.
Pilonidal Sinus. H. B. Cupp.—p. 291.
Bacteriologic Examination of Eating Utensils. C. L. Carlisle and A. O. Hartinger.—p. 294.

Northwest Medicine, Seattle

38: 37-76 (Feb.) 1939

*Acromioclavicular Dislocation. Conservative Method of Treatment. R. Anderson and E. Burgess, Seattle.—p. 40.
Fracture of the Jaw. A. B. Murphy, Everett, Wash.—p. 44.
Fractures of the Hip Joint: Extra-Articular Fixation with a Single Screw. G. W. Freeman, Seattle.—p. 46.
Painful Shoulders. C. E. Carlson, Portland, Ore.—p. 52.
Use of Therapeutic Iodized Oil in Treatment of Bronchial Asthma. M. W. Moore, Portland, Ore.—p. 55.
Hypoglycemia Following Delivery of a Diabetic with Edema. L. J. Palmer and G. D. Capaccio, Seattle.—p. 58.
Differential Diagnosis and Treatment of Diseases Associated with Enlargement of Spleen or Lymph Nodes. E. E. Osgood, Portland, Ore. —p. 59.

Acromioclavicular Dislocation.—Anderson and Burgess state that acromioclavicular dislocations, easily and quickly reduced in most cases, prove exceedingly difficult if not impossible to hold reduced by the unsatisfactory dressings in current use. Regardless of the degree of dislocation, a reduction can usually be effected in fresh cases by elevating the shoulder upward and forcing the outer end of the clavicle downward, *thus opposing the joint surfaces. Uninterrupted maintenance* in this position for a period of several weeks will allow the ligaments to heal. The authors believe that a dependable and physiologic means whereby acromioclavicular dislocations may be reduced and held is provided by use of Anderson's suspension-hammock clavicle splint. To this splint one addition is made, a single strap over the injured shoulder. This strap attaches to the frame of the splint, front and back, and furnishes a means whereby the clavicle is firmly held down in normal position. With this method reduction cannot be lost, yet there is no undue compression on axillary or shoulder structures and the patient is permitted comparatively free use of the arm. The splint allows elevation of the shoulder by suspension along correct anatomic lines, since adjustable points of motion lie over both the sternoclavicular and shoulder joints. The hammock is molded to conform to the normal axilla and is constructed of resilient rubber, avoiding compression of the axilla. Since the weight of the shoulder is transmitted first to the sternoclavicular area and then to the base of the splint, there is no tendency for dragging or instability. The acromioclavicular strap which passes over the injured shoulder furnishes a means of counterpressure which is mechanically secure, since it is attached to the front and back of the same frame that supports the hammock. By this method patients are ambulatory and can wear their regular clothing. They are unusually comfortable with the splint in place. General anesthesia is unnecessary in reducing the dislocation and applying the splint; in fact, application is facilitated by having the patient sitting or standing. An injection of morphine will usually suffice. The splint is left continuously in place throughout healing. When only the capsular ligaments are torn and the conoid and trapezoid ligaments are intact, splinting for from two to three weeks is sufficient. In complete dislocations the fixation should remain in place for at least six weeks; frequently twelve weeks is necessary for complete healing. Care should be taken not to use the arm for lifting or any other heavy work. The strap across the injured shoulder should be kept tight. Regular x-ray inspection should be made to see that reduction is firmly maintained. Following removal of the splint, graduated active restoration of the function of the shoulder is carried out. The conservative method outlined will not be applicable in all cases. Old dislocations which have gone untreated and the occasional fresh one which is difficult to hold reduced because of the interposition of soft tissues in the joint will need an open reduction. Postoperative splint fixation for six weeks or more should be regularly carried out as supplementary support to internal fixation.

Public Health Reports, Washington, D. C.

54: 149-204 (Feb. 3) 1939

Protein Tyrosine Reaction: Biochemical Diagnostic Test for Malaria. H. O. Proske and R. B. Watson.—p. 158.
Chronic Ulcerative Cecitis in the Rat. B. F. Jones and H. L. Stewart. —p. 172.

Rocky Mountain Medical Journal, Denver

36: 73-144 (Feb.) 1939

Oral Lesions as Sources of Infection: Their Diagnosis and Treatment. W. W. Cogswell, Colorado Springs, Colo.—p. 90.
Nutshells and Kernels in the Bronchus. F. L. Stauffer, Salt Lake City. —p. 93.
Treatment of Asthma. T. D. Cunningham and J. C. Mendenhall, Denver.—p. 97.
A Layman Looks at Hospitals. P. H. Holme, Denver.—p. 100.
Choice of Anesthetic Agent. C. W. Metz, Denver.—p. 102.
*Gastrointestinal Symptoms in Anorectal Disease. H. Gauss, Denver. —p. 106.

Gastrointestinal Symptoms in Anorectal Disease.—In discussing the digestive disturbances referred by anorectal disease Gauss cites in detail a case, among fourteen others, in which the digestive syndrome suggested peptic ulcer and irritable colon but examination revealed hemorrhoids, the removal of which was followed by rapid improvement. Apparently in this case the hemorrhoids were responsible for the digestive distress. The mechanism of the production of digestive symptoms of anorectal origin is generally considered as taking place through the sympathetic and parasympathetic nervous system. It is believed that a constant irritation at the anorectal region may give rise to the irritable colon syndrome and that this may be followed by the gastric irritation syndrome. There *are no digestive symptoms which are pathognomonic of ano*rectal origin. In thirteen cases the successful treatment of

the anorectal disease was followed by prompt relief of the digestive distress. The author did not encounter gallbladder, appendical or true peptic ulcer syndromes as reported by other investigators. Practically all his patients complained of the irritable colon syndrome. The symptoms complained of were chronic constipation, unsatisfactory infrequent stools, incomplete stools, tenesmus, cathartic or enema habits, occasional attacks of diarrhea, abdominal distress under the left and right hypochondria and in the left iliac region, flatulence and belching. In some cases the gastric irritation syndrome was present. Heartburn in the epigastrium and sometimes under the left costal margin, which occurred several hours after eating, was relieved by sodium bicarbonate. While the gastric distress in anorectal disease resembles the peptic ulcer syndrome, it can be easily differentiated from true peptic ulcer by the diffuse area it involves, by its lack of definite periodicity and by x-ray study which does not reveal organic changes in the stomach or duodenum. The gastrointestinal symptoms are purely functional in character and clear up when the offending lesion at the anorectal region is corrected.

South Carolina Medical Assn. Journal, Greenville

35: 27-56 (Feb.) 1939

My Experience with Transurethral Surgery of the Prostate Gland. W. R. Barron, Columbia.—p. 27.
Urethral Stricture in the Female. I. A. Phifer and R. A. Way, Spartanburg.—p. 31.
Practical Uses of the Levin Tube. J. A. Bradley, Florence.—p. 34.
Gynecologic Endocrinology. J. D. Parker, Greenville.—p. 37.

Surgery, St. Louis

5: 161-326 (Feb.) 1939

Polypoid Disease of the Colon: Proposed Surgical Procedure in Selected Cases. R. F. Hedin, Chicago.—p. 161.
Gradual Complete Occlusion of the Celiac Axis, Superior and Inferior Mesenteric Arteries, with Survival of Animals: Effects of Ischemia on Blood Pressure. A. Blalock and S. E. Levy, Nashville, Tenn.—p. 175.
*Effect of Partial Gastrectomy on Acidity and Peptic Activity of Gastric Juice. F. B. St. John, C. A. Flood and J. A. Gius, New York.—p. 179.
Tuberculosis of the Stomach. L. Chaffin, Los Angeles.—p. 186.
Critical Survey of Peritoneoscopy. E. T. Thieme, Ann Arbor, Mich.—p. 191.
Technic of Injection Treatment for Inguinal Hernia. H. I. Biegeleisen, New York, and I. J. Tartakow, New Rochelle, N. Y.—p. 202.
*Gynecomastia. H. O. Wernicke, Chicago.—p. 217.
Removal of Benign Tumors of Breast Without Visible Scars. W. W. Babcock, Philadelphia.—p. 226.
Nonfatal Rupture of the Left Main Bronchus from External Trauma: Report of Case. F. W. Jones and P. P. Vinson, Richmond, Va.—p. 228.
Acetylation of Sulfanilamide. J. D. Stewart, G. Margaret Rourke and J. G. Allen, Boston.—p. 232.
Organization and Technic of the Blood Bank at the Philadelphia General Hospital: Experiences with 1,000 Transfusions. C. S. Cameron and L. K. Ferguson, Philadelphia.—p. 237.
Operation for Dislocated Semilunar Bone of the Wrist. H. R. Mahorner and W. H. Meade, New Orleans.—p. 249.
Effect of Experimental Hyperthyroidism and Hypothyroidism on Concentration of Cholesterol in Hepatic Bile. J. Johnson and Cecilia Riegel, Philadelphia.—p. 260.
Etiologic Factors in Acute Appendicitis: Based on Study of 3,400 Cases. D. C. Collins, Los Angeles.—p. 267.
Circumcision. E. L. Brodie, Buffalo.—p. 271.

Effect of Gastrectomy on Gastric Juice.—St. John and his colleagues analyzed the gastric secretion of twenty-six patients after partial gastrectomy for peptic ulcer. Eleven patients had originally suffered from gastric ulcer, thirteen from duodenal ulcer and two from combined ulcers. The interval which had elapsed between the operation and the time of examination varied from one month to nineteen years. Free hydrochloric acid was absent in twenty-two cases, diminished in three and within normal limits in one. Combined acidity exceeded 10 degrees in sixteen of the twenty-six cases and was as high as 24 degrees in a case of achlorhydria. The *pH* of the gastric contents not containing free hydrochloric acid varied between 4.2 and 6.4 and was in the neighborhood of 5 in the majority of instances. The *pH* of the specimens containing free acid was approximately from 1.2 to 1.4. No explanation could be found for the failure of anacidity to develop in four of the cases. Achlorhydria was usually manifested in patients recently operated on and in those operated on from five to fifteen years previously. There was no tendency for free acidity to persist in patients who had originally suffered from ulcer of the duodenum. Two of the four patients whose gastric secretion still contained free hydrochloric acid had extensive gastric resections. It was impossible to determine in retrospect the amount of stomach which had been removed in many instances. The impression was gained, however, that the antral portion of the stomach had not been completely removed in some of the patients with anacidity. Determinations of pepsin were carried out in twenty-four cases. The results show a marked diminution in the peptic activity of gastric juice after partial gastrectomy in almost all instances. In all but three cases the amount of pepsin was found to be below the range found in patients with peptic ulcer who were not operated on. In two instances no peptic activity was demonstrable. The specimens which contained free hydrochloric acid showed relatively large amounts of peptic activity. Twenty-two patients of the group, twelve of whom have been followed for more than three years, have been completely free of symptoms of ulcer during the entire follow-up period. The remaining four patients have suffered from recurrent abdominal pain or melena, attributed in each instance to jejunal ulcer. In one of these patients the presence of jejunal ulcer was proved at exploration. The gastric juice of this patient contained free hydrochloric acid. The other three patients who had had recurrent symptoms showed anacidity. The studies offer no explanation for therapeutic failure in these cases. In most instances, however, the occurrence of achlorhydria after partial gastrectomy for peptic ulcer offers a satisfactory explanation for the successful results.

Gynecomastia.—Wernicke reports four cases of gynecomastia with similar characteristics. All but case 4 were unilateral. All gave a history of trauma. All occurred while the patients were in their teens. Not one of them showed any glandular evidence of disturbance except of the testicles and all but patient 2 had an atrophied left testicle. The Aschheim-Zondek test was negative in the three that were given treatment (testosterone propionate). The other, patient 3, was not examined as he did not return. Libido was increased in two of the three cases treated and was very much present in case 3. If case 2 were merely one of testicular hypofunction, for the testicles were equal in size, it might have been expected that testosterone would stimulate them enough to cause at least some change in the breast; but it had no apparent effect. Nor has anterior pituitary substance had any effect in this patient after two months of treatment. Favorable results were obtained in cases 1 and 4, as opposed to the unfavorable result in case 2, in spite of the fact that in all practically the same treatment was administered. This may be due to two factors. In cases 1 and 4 there was marked atrophy of the left testicle, while in case 2 the testicles were equal in size and apparently normal. In cases 1 and 4 the breast enlargement occurred earlier after puberty (at 16 and 14 years respectively) than in case 2, in which the breast enlarged when the patient was 19 years of age. Patient 4, whose breasts enlarged at 14 and whose treatment was given at 16, responded more quickly than patient 1, whose breast enlarged at 16 and received treatment at 20. Age, therefore, may be an important factor. The favorable outcome in two of the three cases of gynecomastia treated with testosterone propionate suggests that endocrine therapy should be given a thorough trial before surgical removal of the breast is advised. In case 1 enlargement of the breast recurred spontaneously, associated with recurring atrophy of the left testicle. The resumption of treatment with testosterone has produced no change in three weeks (after 165 mg. of the substance). This suggests that probably replacement therapy with testis hormone preparations at regular intervals will be found necessary to maintain a cure once it has been effected.

Wisconsin Medical Journal, Madison

38: 85-168 (Feb.) 1939

Preparation of the Jaundiced Patient for Surgery. R. W. McNealy, Chicago.—p. 101.
Prevention of Behavior Problems in Children Through Adequate Prenatal Care. R. A. Jefferson, Milwaukee.—p. 107.
Sternal Marrow Aspiration. M. Hardgrove and L. J. Van Hecke, Milwaukee.—p. 111.
Thoracoplasty: Analysis of Seventy-Seven Cases. E. R. Daniels and L. H. Kingsbury, Wales.—p. 114.
Styes. A. G. Dunn, Stevens Point.—p. 117.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anaesthesia, Manchester

16: 41-80 (Jan.) 1939

Premedication: Physiologic and Other Considerations. J. D. Stewart.—p. 41.
Ether Convulsions: Case. W. D. Steel.—p. 64.
The Teaching of Anesthetics. J. V. Human.—p. 67.

British Journal of Tuberculosis, London

33: 1-72 (Jan.) 1939

Clinical Aspects of Pneumothorax Therapy as Illustrated by Results Obtained in 191 Cases of Completed Treatment. O. Hjaltested and K. Törning.—p. 4.
Some Observations on Alpine Climate. B. Hudson.—p. 16.
Tuberculous Tracheobronchitis. F. C. Ormerod.—p. 29.
Etiology and Pathology of Tuberculous Empyema. A. H. Penington.—p. 36.
*Role of Arthrodesis in Tuberculosis of the Hip Joint. E. H. A. Pask.—p. 42.
Asbestosis of the Lungs: Case. P. Arnold, J. R. Beal and H. A. Cookson.—p. 45.
The Spero Industries.—p. 48.

Arthrodesis in Tuberculosis of Hip Joints.—Pask states that over a period of four and a half years 131 patients (seventy-six adults and fifty-five children) have been admitted to Wrightington Hospital with tuberculosis of the hip. Arthrodesis was performed on eleven of these patients (nine adults and two children). It is the author's practice to operate only when the disease may be said to be reasonably quiescent. In very young children such an extensive operation is never justifiable. Arthrodesis of the hip is not a life-saving measure; its purpose is the conversion of a weak, yielding ankylosis into a sound, immobile, painless fixation which will not yield to weight bearing and will not alter its angle at a later date. The combined operation of intra-articular and extra-articular arthrodesis has been done whenever possible. The combined procedure has the advantage of removing all the diseased tissue at the time of the operation, and if for any reason the extra-articular fixation is unsuccessful there is a possibility of a firm ankylosis following the approximation of the denuded femur and acetabulum. The graft in every case was taken from the anterior part of the ilium. The lower part of the graft was not detached from the ilium before it was turned down; this is important, as the chances of the graft taking are considerably increased by adopting this method. In eight of the eleven patients operated on healing occurred by first intention, in three the wound broke down and of these one ultimately died with multiple sinuses. A firm bony ankylosis in good position was obtained in nine cases; in one case the ankylosis was not absolutely firm, but the patient was working and suffered no disability; the patient who died also showed a bony ankylosis in spite of severe suppuration. Five of the patients are working at their normal occupation, three are fit for work but are unemployed, one is doing domestic duties at home and only one is unfit for work.

British Medical Journal, London

1: 147-198 (Jan. 28) 1939

Special Field of Neurosurgery. G. Jefferson.—p. 147.
Unusual Case of Lead Poisoning. G. E. Beaumont and R. Wyburn-Mason.—p. 150.
Plea for the Freer Use of Blood Transfusion in Obstetrics. J. Stallworthy.—p. 153.
*Nature of Growing Pains and Their Relation to Rheumatism in Children and Adolescents. J. C. Hawksley.—p. 155.
Congenital Occlusion of Posterior Nasal Choanae. D. B. Kelly.—p. 157.
*Erythema Nodosum Associated with Acute Tuberculous Cervical Lymphadenitis. B. C. Thompson.—p. 159.

Relation of Growing Pains to Rheumatism.—After a lapse of four years Hawksley reexamined sixty-four unselected cases from the 115 cases of growing pains seen in 1934. None showed any evidence of cardiac involvement. Adding these cases to Sheldon's, it is seen that of 253 children followed up for four years at the Hospital for Sick Children evidence of rheumatic heart disease developed in only two, or less than 0.8 per cent. The incidence of cardiac rheumatism in 301,392 school children examined in 1936 was 0.8 per cent. Growing pains and rheumatism resemble each other only to the extent that both produce pain in the limbs. A correct differential diagnosis is imperative, for, while rheumatic cases with potential carditis should be treated by rest, it is bad to make invalids out of children with growing pains by treating them for rheumatism. The following clinical features serve to distinguish the two conditions: 1. Rheumatism affects joints and is usually accompanied by tenderness on pressure and movement. There may be redness, swelling or effusion. In growing pains, muscles, ligaments and tendons are usually the site of the pain; tenderness is rare and there is no swelling, effusion or redness. The pain is more nagging and more likely to cause crying in the nonrheumatic case. 2. In growing pains a cause of the pain is often found in postural or orthopedic defect. Tiredness and vague ill health are common to the two diseases, but patients with growing pains are usually sulky and unsociable; this, in the author's experience, is uncommon in rheumatism. 3. Nodules do not occur except in rheumatism. 4. There is no significant change in the temperature in cases of growing pains. There is also no tachycardia. 5. Cases of growing pains as a rule show no anemia; rheumatic cases frequently do. 6. In cases of growing pains there is no antecedent sore throat. 7. There is no lengthening of the PR interval on electrocardiography in cases of growing pains.

Erythema Nodosum and Tuberculous Lymphadenitis.—Thompson describes six cases of erythema nodosum associated with acute tuberculosis of the cervical lymph nodes. The tuberculous infection is believed to be recent and to have gained entrance by way of the tonsil in three, septic follicular tonsillitis having been a contributory cause of this port of entry and possibly also of the subsequent softening and suppuration of the tuberculous lymphadenitis. In the other three cases, tuberculosis was known to have been present for a number of years. The exacerbation in the cervical lymph nodes concurrent with the onset of erythema nodosum is attributed to reactivation of tubercle bacilli latent in the lymph nodes in two cases and in the pulmonary parenchyma in the third case. However, the possibility of exogenous superinfection must be admitted. The pathogenesis of the cutaneous lesions is discussed and their identity as hematogenous tuberculous foci is suggested by the concomitant phlyctenular keratoconjunctivitis in two cases. These lesions underwent exacerbation and remission more or less coincidentally. This occurrence suggests that erythema nodosum may signalize the development of resistance by the host in addition to cutaneous hypersensitiveness, or in other words the accompaniment of allergy by immunity. The paradox of an effect at once beneficial to the lymphadenitis and deleterious to the phlyctenular disease accords with Rich's theory of immunity and allergy as separate, even antagonistic, entities, the latter causing caseation and destruction in defensive tubercles built up by the former.

Indian Medical Gazette, Calcutta

74: 1-64 (Jan.) 1939

Etiology of Tropical Macrocytic Anemia. L. E. Napier.—p. 1.
Pathogenesis of the Commoner Types of Splenomegaly Met with in India. M. N. De and B. P. Tribedi.—p. 9.
Study of Treatment of Tetanus Based on a Review of Thirty-Eight Cases from the Year 1932-1937. M. G. Kini and S. Venkateswara.—p. 14
Mapharside in Treatment of Syphilis: Clinical Study. R. V. Rajam and N. Vasudeva Rao.—p. 24.
*Probable Cause of the Difficulty of Treating Chronic Amebic Infection in This Country. H. Ghosh.—p. 27.
Intra-Uterine Infection of the Fetus with Leptospira Icterohaemorrhagiae. B. M. Das Gupta.—p. 28.
New Method for Determination of Small Quantities of Cocaine in Presence of Novocaine. K. N. Bagchi, H. D. Ganguli, P. N. Mukerjee and J. N. Banerjee.—p. 29.
Further Observations on Leptospiral Infections in Calcutta. B. M. Das Gupta.—p. 31.

Cause of the Difficulty of Treating Amebiasis.—It is generally known that acid reaction of stools favors the life and growth of Endamoeba histolytica. On this hypothesis Ghosh treated three patients with chronic amebiasis, whose stools were highly acid to litmus, with one course of six injections of 1 grain (0.065 Gm.) of emetine followed by the oral administration of freshly prepared liquid extract of kurchi for twelve consecutive days while the patients were kept mainly on a protein diet with a restricted amount of carbohydrate. The stool turned alkaline after forty-eight hours. The restricted diet was enforced in each

instance for four weeks and the patient was advised to test the reaction of the stool daily with litmus paper. The restriction of diet was lifted after four weeks but the patients were instructed to avoid rice and sweets as much as possible. During the period of observation several examinations of the stools of each were made; up to the time of writing all three patients were free from amebas. The patients had been following instructions regarding diet, though they said that it was hard to avoid rice and sweets. The general health of these patients has greatly improved. The author draws no conclusion but does suggest that in treating cases of chronic amebiasis strict attention should be paid to the adjustment of the diet in such a way as to keep the reaction of the stool alkaline. Alkali by mouth can change the reaction of the urine but has little influence on the reaction of stools. A change to atta from rice changes the reaction of the stool from acid to alkaline.

Irish Journal of Medical Science, Dublin

No. 157: 1-48 (Jan.) 1939

Medicine: Yesterday, Today and Tomorrow. W. Langdon-Brown.—p. 1.
Hospitals and Public Health. C. J. McSweeney.—p. 15.
Crime and the Doctor. J. Shiel.—p. 26.
Some Aspects of Ancient Medicine. M. E. Tapissier.—p. 36.

Lancet, London

1: 129-188 (Jan. 21) 1939

Rehabilitation of the Injured Workman, with Special Reference to the Workmen's Compensation Act. D. Stewart.—p. 129.
*Placental Blood for Transfusion. J. Howkins and H. F. Brewer.—p. 132.
*Prophylaxis of Tuberculous Empyema. L. Roberts.—p. 134.
*Renal Changes in Malignant Hypertension: Experimental Evidence. C. Wilson and F. B. Byrom.—p. 136.
Interruption of Coma in Insulin Shock Therapy. R. Fraser and D. A. Stanley.—p. 140.
Gastric Secretions During Pathologic Hypochloremia. B. M. Nicol and A. Lyall.—p. 144.
Surgical Procedure for Ulcerative Colitis. J. F. Gaha.—p. 146.
*Miners' Dyspnea. J. N. Peterson, J. M. Peterson and C. W. Startup. —p. 147.

Placental Blood for Transfusion.—The average quantity of placental blood that Howkins and Brewer collected from fifty consecutive women at term is small, 47 cc., which compares unfavorably with Goodall's and Grodberg's figures of 125 and 105 cc. respectively. This small yield would necessitate the mixture of from ten to twelve samples to supply the bulk of blood usually employed in an adult transfusion and it is questionable whether this extensive pooling of several bloods, although of the same group, is entirely devoid of the risk of the minor subgroup reactions of agglutination. With regard to sterility, 22 per cent of the samples were contaminated with airborne or genital tract organisms (Bacillus subtilis, Bacillus coli, Bacillus pyocyaneus and Streptococcus albus) after a reasonably aseptic technic. The authors can agree neither with Goodall in his assertion that culture of the collected blood is unnecessary nor with Grodberg in his statement that any stray organisms present are usually killed by the leukocytes—a statement which they have proved to be incorrect, in that their second culture always tallied with the first, and organisms if present on the seventh day of storage always survived up to the time of subsequent culture. This source of blood for transfusion, however carefully perfected the technic of its collection, sterilization and storage may become, is unlikely to rival seriously that available through the voluntary donor system.

Prophylaxis of Tuberculous Empyema.—The incidence of tuberculous empyema in patients with artificial pneumothorax is about 10 per cent and its fatality rate, in published reports, about 50 per cent. Therefore it seems to Roberts that prevention seems especially important. He suggests that persistent or recurrent pleural pain over the lesion indicates severe tuberculosis of the pleura, which contraindicates artificial pneumothorax. The risk of empyema is sufficiently great to make some other form of collapse therapy advisable. The object of artificial pneumothorax is relaxation, not compression, of the lung. High positive pressures to "stretch the adhesions" are not justifiable. After adhesions have been cauterized and collapse has been instituted, a pneumothorax which remains ineffective should be promptly abandoned and other collapse therapy substituted. Oleothorax and extrapleural pneumothorax are valuable in certain cases.

Renal Changes in Malignant Hypertension.—Wilson and Byrom present evidence that chronic interstitial nephritis may be caused by hypertension alone. Compression of one renal artery of 157 rats gave rise to hypertension in 101 (65 per cent). The blood pressure may be elevated as early as eighteen hours after the first operation or may begin to rise at any time during the first four weeks. The course of the hypertension varies considerably, but in general two types were recognized: 1. That in which the blood pressure rises gradually over a period of several weeks to reach a steady high level, which has been maintained for nine months in animals still under observation and appears to be consistent with normal health. 2. That in which the hypertension runs a more irregular course and often leads to a state of great weakness, wasting, coma and occasionally convulsions. The close resemblance between the renal lesions produced in the rat by experimental hypertension and those found in cases of malignant hypertension in man bespeaks a common pathogenesis. It provides experimental support for the clinical evidence that malignant hypertension is a form of essential hypertension of which renal disease is but a terminal manifestation. Since a similar picture occurs in the hypertensive rat under conditions which apparently exclude the influence of "toxic" agents, the authors infer that inflammatory changes can result from a hypertension severe enough to produce arterial necrosis. The demonstration that arterial lesions can be produced in the kidney by experimental hypertension also throws light on the clinically malignant course of the human disease; for when vascular lesions occur in malignant hypertension as a result of the high blood pressure they will presumably give rise to a reduction in renal blood flow. This may be expected to aggravate the hypertension, and so a vicious circle will be established in which a rising blood pressure is associated with progressive renal destruction. It appears that not only "essential" hypertension but also hypertension secondary to renal disease can set in motion the vicious circle. This "malignant termination" has therefore no specific character derived from the original disease but is an attribute of the high blood pressure which is common to all. The clinical symptoms in the hypertensive rat are closely related to the human disease. In animals moribund from this condition immediate and lasting improvement, with return of the blood pressure to normal, has been produced by excision of the ischemic kidney. The syndrome appears to be a close counterpart to hypertensive encephalopathy in man (the pseudo-uremia of Volhard).

Miners' Dyspnea.—The Petersons and Startup examined thirty-six coal miners whose respiratory disability (dyspnea) was such that they have had to give up their occupation. From this they conclude that the vital capacity per unit of body surface gives, in these instances, a more reliable estimate of the degree of respiratory incapacity than do the roentgenograms.

Medical Journal of Australia, Sydney

1: 49-92 (Jan. 14) 1939

Sulfanilamide and Other Compounds. R. Beard.—p. 52.
Experiences in Treatment of Urethritis by Sulfanilamide. G. Jose—p. 54.
Clinical Application of Some of the More Recent Pharmacologic Preparations. K. S. Hetzel.—p. 56.
Orthoptic Treatment of Concomitant Convergent Strabismus. J. R. Anderson and Diana S. Mann.—p. 59.
Further Experiences in Insulin Treatment of Schizophrenia. P. G Reynolds.—p. 65.
Diverticulosis and Diverticulitis: Autopsy Results. J. B. Cleland—p. 70.

South African Medical Journal, Cape Town

13: 1-36 (Jan. 14) 1939

Study of 100 Cases of Head Injury. K. Sartorius.—p. 1.
Provisional Stable Standard for Cobra Antivenene and Its Practical Application. M. H. Finlayson and J. M. Grobler.—p. 9.
Leuko-Erythroblastic Anemia: Report of Three Cases. J. Gear and L. H. Becker.—p. 13.
Clinical Studies of the Bactericidal Power of Blood. E. Matthijssen—p. 15.
Energy Requirements of Normal Adults. E. E. Buttner.—p. 25.
Respiratory Properties of Lymphocytes and the Lymphatic Spread of Cancer. E. E. Faerber.—p. 27.
Three Cases of Unusual Tendon Injuries. J. J. Levin.—p. 29.
Notes on the Distribution of the "Knoopiespinnekop" (Latrodectus Indistinctus). R. H. N. Smithers.—p. 33.
Complications in Tick-Bite Fever: A Survey of Fifty Cases. J. Gear. —p. 35.

Archives des Maladies de l'Appareil Digestif, Paris

29: 1-120 (Jan.) 1939

Secretion Test in Disorders of Pancreas. M. Chiray and M. Bolgert.—p. 5.
Studies on Metabolism of Vitamin C. M. Vauthey.—p. 33.
*Investigations on Hypoglycemia. F. Turyn.—p. 41.
Latent Chronic Pancreatitis. J.-V. Grott.—p. 57.

Investigations on Hypoglycemia.—Turyn says that, since the introduction of insulin in the therapy of diabetes mellitus, hypoglycemia has become more and more frequent and now the symptoms of hypoglycemia are well known. In severe cases they are general weakness, asthenia, abulia, sweats, hunger, tremor, shock, headache, vertigo, diplopia, convulsions, delirium and hypoglycemic coma. In the mild cases the symptoms recall excitation of the sympathetic. There are many theories about the pathogenesis of the symptoms of hypoglycemia but the majority of authors explain their appearance by epinephrine counterregulation. The author says that signs of hypoglycemia concur with widely differing blood sugar levels. Nevertheless, in the majority of cases subjective signs appear with values of from 80 to 70 mg. per hundred cubic centimeters and objective symptoms are generally noticeable with values of from 70 to 50 mg. per hundred cubic centimeters. The simultaneous determination of the sugar content of the venous and of the capillary blood gives variable results. In this report the author is concerned chiefly with this difference in the capillary and venous glycemia and with its relation to the signs of hypoglycemia. He made a series of investigations to determine whether the diverse signs of hypoglycemia are connected with the augmentation or diminution of the difference between capillary and venous glycemia. He determined the sugar content, according to the method of Hagedorn and Jensen, of blood specimens that were obtained from the finger and from the ulnar vein of the same member. From 20 to 30 units of insulin was injected while the persons were still fasting and then observations were made on the pulse rate and the arterial tension; moreover, the persons were carefully watched for signs such as flushing, pallor, dryness of the mouth, generalized tremor and hunger. Studies were made in sixteen cases. On the basis of these observations the author arrived at the conclusion that the symptoms of hypoglycemia appear in relation to the variations of assimilation of sugar in the peripheral tissues, that is to say with the augmentation or the diminution of the difference of the capillary-venous glycemia. The augmentation of this difference manifests itself as a hypoglycemia of great intensity, in which the symptoms of excitation of the vagus nerve dominate. This is then an insulin intoxication. The diminution of the aforementioned difference is accompanied by the symptoms of epinephrine shock. The absence of signs of hypoglycemia, in spite of a low glycemia, can be explained by the absence of variations of assimilation of sugar in the periphery. Epinephrine shock appears when the hyperepinephrinemia succeeds in mobilizing the glycogen of the liver.

Journal de Radiologie et d'Electrologie, Paris

23: 1-48 (Jan.) 1939

Roentgenologic Discoveries in Exploration of Biliary Passages. J. A. Saralegui.—p. 1.
Difficulties in Execution and Interpretation of Electrodiagnosis in Nurslings. Piffault.—p. 15.
*Roentgen Therapy of Furuncles. G. Ronneaux, H. Desgrez and F. Degand.—p. 17.
Tubes for Roentgen Therapy with High Intensity: New Model; Exterior Anticathode. J. Belot.—p. 19.

Roentgen Therapy of Furuncles.—Ronneaux and his associates point out that roentgen therapy of furuncles produces such favorable results that this treatment is being rapidly adopted in France. In this paper they report observations on twenty-six patients who had either grave furuncles (of the face) or carbuncles. A table listing the twenty-six cases indicates the localization of the furuncles or carbuncles, the type of irradiation, the number of treatments, the number of roentgens administered at each session, the total dose and the outcome of the treatment. The first five patients were irradiated with soft rays, the tension being 120 kilovolts and the filter consisting of 1 mm. of aluminum. Another group of six patients was treated with harder rays; the tension was 150 kilovolts and the filter consisted of 0.2 mm. of copper and 2 mm. of aluminum. In the last group of patients the authors employed 180 kilovolts filtered through 0.5 mm. of copper and 2 mm. of aluminum. They gained the impression that the harder type of rays effected a more rapid improvement. In the majority of cases, 50 roentgens each was given in the first two sessions and 100 roentgens in a third session. The treatments were given every other day, so that five days was required. To be sure, in some of the cases the total dosage was greater and a longer period was required. The majority of the patients had furuncles of the face, and the authors observed no grave complications in the course of the evolution. Some had generalized furunculosis. It is difficult to render an opinion on the effect of irradiation of a furuncle on the evolution of furunculosis. The authors gained the impression that the treatment of a furuncle modified the evolution of furunculosis favorably, but they learned that several of the patients had relapses after temporary remissions.

Presse Médicale, Paris

47: 217-240 (Feb. 11) 1939

Studies on Motivity of Bronchi. L. Binet and M. Burstein.—p. 217.
After Twenty Years of Gastric Surgery for Ulcer of Stomach. J. Abadie.—p. 219.
*Tuberculosis and Anal Fistula. R. Kaufmann.—p. 221.

Tuberculosis and Anal Fistula.—Kaufmann says that anal fistulas are in many instances tuberculous. Observations in 101 cases led him to think that it is extremely difficult or even impossible to furnish the proof that a fistula is tuberculous. He shows that the frequency of tuberculous anal fistulas has been exaggerated, because numerous reports in France as well as elsewhere have been based on insufficient evidence. He thinks that some want to justify the belief in the habitual concurrence of tuberculosis and anal fistulas, because this conjecture has the advantage of excusing therapeutic failures. Discussing the histologic aspects and particularly the appearance of giant cells he says that, although it is well known that giant cells are not specific for tuberculosis, reports on tuberculous anal fistulas frequently have no other basis than the microscopic demonstration of giant cells. In the course of fifty-four operations for anal fistulas the author found giant cells in six patients. In three of these the local and general evolution indicated a tuberculous process. But the author does not believe that this was the case in the other three, for the latter patients did not have tuberculosis and they were completely cured. After reporting the clinical histories of these patients the author discusses anal fistulas in patients with pulmonary tuberculosis and relates the histories of fourteen. In the evaluation of his entire material of 101 cases, he first repeats that in the aforementioned fifty-four cases of anal fistulas he detected three that were of a tuberculous nature. In a group of thirty-two patients with anal fistulas he failed to detect a single tuberculous case. Thus in a total of eighty-six cases of anal fistula only three were found that were of a tuberculous nature. Even if the fifteen cases from a department for pulmonary tuberculosis are added, it can be said that in 101 operations for anal fistula the tuberculous nature of the fistula was detected ten times at the most. Returning to the difficulty that is involved in deciding whether an anal fistula is tuberculous or not, the author says that, if the presence of giant cells does not have absolute diagnostic value and if the aspect of the fistula, the presence of pulmonary tuberculosis or the weak condition of the patient are not sufficient proof, all the same the morbid entity of tuberculous fistula does exist and it is necessary to affirm it in the presence of the concordance of the three factors which, when isolated, are not convincing. These factors are poor aspects of the fistula, giant cells and pulmonary tuberculosis.

47: 241-256 (Feb. 15) 1939

*Late Results of Treatment of Bronchial Asthma by Stellectomy. R. Leriche and R. Fontaine.—p. 241.
*Treatment of Staphylococcic Infections by Crude and Purified Specific Anatoxin. A. Bocage, P. Mercier and R. Richou.—p. 243.

Stellectomy in Bronchial Asthma.—Leriche and Fontaine review the late results of stellectomy in bronchial asthma, pointing out that thus far they have employed this surgical therapy in fourteen cases of bronchial asthma. Two of the cases were lost sight of and so the authors were able to determine the late results in only twelve. After giving brief histories of

these cases, they summarize the results in a table. The fifth patient underwent three interventions: chondrectomy, which failed, stellectomy, which seemed to aggravate the condition, and vagotomy, which ameliorated the disorder for about a year, after which time the patient was lost sight of. This case is also excluded from the estimation of the late results and so only eleven cases remain, in all of which either unilateral (left side) or bilateral stellectomy was done. In six of these eleven cases, that is, in approximately 55 per cent, the results were favorable. Complete cessation of the asthmatic attacks was observed in two of these cases for periods of thirteen and seven and one half years respectively. In another case there was complete cessation of the attacks for seven years and then there was a partial relapse. In three other cases great improvements were observed, which still persisted after four, five and one half and two and one half years. In five cases, that is in about 45 per cent, the stellectomy failed to produce lasting improvement of the bronchial asthma. The authors think that, among the different surgical methods which have been recommended for bronchial asthma, stellectomy is the method of choice, because the technic is simple and outside of Bernard-Horner's syndrome it causes no neuroparalytic sequels. Infiltration of the stellate ganglion is regarded as a surgical adjuvant; it suppresses the severe asthmatic attacks and thus time is gained; moreover, to a certain extent it may be helpful in selecting the cases that will respond favorably to an operation. The authors conclude from their studies that, when all other treatments have failed, an operation on the sympathetic can be tried to improve the lamentable condition of patients with asthma.

Specific Anatoxin in Staphylococcic Infections.—Bocage and his associates point out that in 1929 Burnet obtained for the first time a true staphylococcic toxin. This prepared the way for the production of a staphylococcic anatoxin (toxoid) analogous to the diphtheric anatoxin (toxoid) of Ramon. The authors have treated staphylococcic infections with a specific toxoid since 1934. In an earlier report (*Presse méd.* **43**:1137 [July 17] 1935; abstr. THE JOURNAL, Sept. 28, 1935, p. 1080) they described the results which they obtained in approximately 100 cases. In the course of the ensuing years they followed as much as possible the fate of their first patients and treated hundreds of new ones and they always found the therapeutic activity of toxoid superior to all the other treatments. In the present report they examine the results that were obtained since June 1937. Following a discussion of toxicogenesis in staphylococci they give their attention to the clinical study of cutaneous staphylococcias. Regarding the mode of application of the toxoid, they say that it is necessary first to test the allergic susceptibility of the subject by subcutaneous injection of 0.1 cc. of the toxoid. If this first injection produces neither fever nor local reactions, treatment is continued with 0.25, 0.5, 1 and 2 cc. The injections are given hypodermically into the supraspinous fossa or into the flank at average intervals of four days. It should not be neglected to precede the treatment by an albumin test of the urine; if this test is positive, it is advisable to defer the toxoid treatment. In subjects who are sensitive to vaccines, the treatment should be begun with 0.05 cc. This dose should be repeated two or three times at two day intervals and, if reactions are absent, the treatment can be continued with the usual doses. In children the toxoid therapy should likewise be begun with 0.05 cc. and this dose should be followed by 0.1, 0.25 and 0.5 cc. The clinical results which the authors obtained with the toxoid are indicated in tables and several case histories are reported. In the conclusion they state that, on the basis of more than 2,000 observations, the efficacy of specific toxoid in the treatment of staphylococcic infections, particularly those of the cutaneous type, appears incontestable. They hope that in the near future they will be able to proceed with more success against the grave forms of staphylococcic infections, especially the septicemias and osteomyelitis. This will be possible when they have at their disposal a purified toxoid of an antigenic power that is still higher than is available at present. Numerous observations made by the authors and by other clinicians and experimental studies confirm their opinion that the antitoxin plays the essential part in the mechanism of antistaphylococcic immunity.

Annales Pædiatrici, Basel

152: 253-308 (Feb.) 1939

*Problem of Etiology of Infantile Acrodynia. R. Debré and A. Névot. —p. 253.
Induced Premature Birth and the Triad Grave Familial Icterus, Congenital Anemia and Universal Congenital Hydrops. Cornelia de Lange. —p. 277.
Vitamin C Metabolism of Healthy and Diseased Children. L. F. Meyer and P. Robinson.—p. 283.
Sulfur and Protein Metabolism of Breast Fed and Artificially Fed Nurslings. S. Blazsó.—p. 302.

Etiology of Infantile Acrodynia.—Debré and Névot call attention to the fact that one of them (Debré) suggested in 1927 that ergotism, ustilaginism, infantile acrodynia (pink disease or erythredema) and pellagra belong to the same nosologic group. Recent reports by Mayerhofer and Dragisic confirm this view. In ergotism and ustilaginism the toxic-alimentary origin has been definitely established and the authors think that the same etiologic factor plays a part in acrodynia and pellagra, although for the latter two disorders the exact cause of the alimentary intoxication has not been demonstrated as yet. In their experiments on animals (mice and monkeys) they show that symptoms similar to those of the aforementioned diseases (vasomotor, trophic and paralytic symptoms) or even death can be produced by feeding the animals with extracts of ergot, of Ustilago segetum, of brown rust of wheat (*Tilletia tritici*) or of the seeds of corncockles. The animal experiments demonstrated particularly the toxicity of brown rust of wheat, contained so frequently in human foods, but also of blight of wheat and of the seeds of corncockles, which are more rarely ingested. Numerous epidemiologic investigations undertaken by the authors in different parts of France failed to establish that in the regions where infantile acrodynia was prevalent the food taken by the children or the fodder of the cows contained the aforementioned toxic substances. Nevertheless the etiologic problem remains and in order to ascertain the etiology of acrodynia and to see whether the theory of a toxic-alimentary origin is right it is necessary to study carefully the dietary regimen of the little patient and the possible parasitic infestation of his food, including the milk, which may contain toxic substances of a vegetable origin.

Schweizerische medizinische Wochenschrift, Basel

69:141-164 (Feb. 18) 1939. Partial Index

Late and Early Diagnosis of Intraspinal Tumors. W. P. Van Wagenen and J. Rossier.—p. 141.
Acute Myeloblastic Leukemia (Leukemia and Pregnancy). W. Tschopp. —p. 146.
*Aspects of Erythroblastoses of the Newborn. A. Albrecht.—p. 146.
Hemolytic Icterus (Hemolytic Constitution) and Gastric Changes. S. Brandli.—p. 149.
*Nontropical Sprue and Pregnancy. A. Spreng.—p. 150.

Erythroblastoses of the Newborn.—Albrecht says that the collective term of erythroblastosis of the newborn was applied at first to hydrops foetus universalis, icterus gravis familiaris and congenital anemia. Later the term erythroblastosis was extended to include several disorders of nurslings and young children such as Cooley's anemia, the erythremia of Italian authors and Jaksch-Hayem's anemia (anemia infantum pseudoleukemia). About the nature of the erythroblastoses, the opinions are divided. On the one hand they are regarded as a nonspecific reaction of the hemopoietic organs to a previous noxa, on the other hand as systemic diseases. The author shows that the various forms of erythroblastoses differ in severity but have several symptoms in common. The first of these is the erythroblastosis, to which is added a more or less severe flooding out of myeloid cells; the second symptom which they have in common is the swelling of liver and spleen and the third one is anemia. Another factor which indicates that the diseases belong together is their frequent familial concurrence; it has been observed that two or three forms occur in the same family. After reviewing the clinical aspects of hydrops foetus universalis, of icterus gravis and of congenital anemia, the author describes four cases that were observed at the children's clinic in Basel. In the summary he emphasizes that erythroblastosis cannot be regarded as a primary disease of the blood but as a reaction of the fetal hemopoietic organs to a previous noxa. The hematologic symptom is nearly

always present but often only for a brief time; however, it permits the early diagnosis and a suitable treatment. In the reported cases the treatment consisted of injections of a liver preparation and of parental blood and in some cases of blood transfusions.

Nontropical Sprue and Pregnancy.—Spreng says that a review of the recent literature on anemia in pregnancy discloses little about nontropical sprue in pregnant women. He gives a detailed report of a case observed at his hospital concerning a woman who had nontropical sprue, bronchiectasis and pulmonary tuberculosis. In the course of a triplet pregnancy the conditions became greatly exacerbated. The spontaneous, premature delivery of the triplets was followed by grave complications that threatened the life of the patient. The recovery was slow. The author cites another case of megalocytic anemia in a pregnant woman who was hospitalized only at the end of her pregnancy, when she was in a poor and cachectic condition. She died shortly after the delivery as the result of circulatory weakness. In both of these cases the pregnancy severely complicated the nontropical sprue, and the author concludes that it is advisable to interrupt the pregnancy in such cases. Regarding the therapy, he says that in the first case treatment with yeast was the only measure which was really effective. Cases of sprue which develop during pregnancy and perhaps as a result of it are unknown to the author. However, he thinks that the megalocytic anemias, which are so frequently observed in the tropics in pregnant women who have a B_2 insufficiency, might perhaps be considered in this connection.

Archivio Italiano di Anatomia, Bologna

9: 259-376 (Jan.) 1939

*Arteriosclerosis of Brain and Spinal Cord, Especially in Relation to Arteriosclerosis in Other Parenchymal Vessels and to Cerebral Hemorrhage and Softening. G. Lanza.—p. 259.

Total Inversion of Viscera: Case. S. Mondolfo.—p. 338

Pseudocystic Cavities of Pellucid Septum: Pathologic Significance. F. Cottoni.—p. 349.

Arteriosclerosis of the Central Nervous System.—Lanza made an anatomic and microscopic study of the brain and spinal cord and of other structures in the bodies of seventy-five patients who died between the ages of 54 and 96 years from arteriosclerosis, vascular diseases and diseases other than vascular. The author found that arteriosclerosis of the cerebral vessels is frequent in persons over 60. The disease is more acute in the intraparenchymal than in the extraparenchymal vessels and in the nuclei of the base, especially the lenticular nucleus, than in the cerebral cortex and the spinal cord. In the cerebral cortex the lesions of the gray matter predominate over those of the white matter. Cerebral arteriosclerosis frequently exists in association with arteriosclerosis of the renal-splenic and cardiac gastrointestinal territories. The microscopic aspect of cerebral arteriosclerosis is different from that of arteriosclerosis in the parenchymal vessels of other organs. The hyperplasic delamination of the internal elastic coat of the arteries is moderate. Hyalinosis of a special type, calcification (at the globus pallidus) and arterionecrosis (at the putamen) are frequent. Arteriosclerosis of the spinal cord is more rare and less acute than that of the brain. The former frequently develops in association with the latter. Acute lesions of the wall of the vessels (arterionecrosis) exist at the nuclei of the base of the cerebral territory opposite that in which cerebral hemorrhage took place. The lesions of the nonhemorrhagic area are different from those at the hemorrhagic foci. They tend to break and to form miliary aneurysm of the Charcot-Bouchar type. The lesions of the vessels in cerebral softening follow a chronic evolution which frequently shows the most common aspect of cerebral arteriosclerosis. They tend to diminish the lumen of the vessels and to form a mechanical obstacle to circulation. The author believes that there are two different forms of cerebral arteriosclerosis. The benign form follows a chronic evolution, induces the most common aspects of cerebral arteriosclerosis in the cerebral arteries and ends in formation of cerebral softening. The malignant form follows an acute evolution, induces necrosis of the arteries and ends in cerebral hemorrhage.

Gazzetta degli Ospedali e delle Cliniche, Milan

60: 1-24 (Jan. 1) 1939

*Tumors of Male Breast. G. Bragagnolo.—p. 3.

Tumors of Male Breast.—Bragagnolo reports the occurrence of cancer and of fibro-adenoma of the breast in two men aged 63 and 56 respectively. The conditions are rare. An early diagnosis from the clinical examination of the patient only is difficult. Cancer of the breast develops as a rule in men over the age of 50. The clinical diagnosis is made by exclusion of several other diseases of the breast, especially tuberculosis, syphilitic gumma, chronic mastitis, fibro-adenoma and sarcoma. The tumor cannot be delimited by palpation of the breast. It is continued at some points with the surrounding tissues and joins the skin at other points by means of adhesions. It has lateral lobular nodules which can be felt by palpation of the breast. The condition may follow either a long or an acute evolution. Recurrences may or may not occur. The prognosis depends on the type of the tumor and the opportunity of an early operation, which consists in amputation of the breast and emptying of the axillary cavity. Fibro-adenoma can be delimited by palpation of the breast. The tumor forms neither adhesions to the skin nor lobular lateral nodules. The condition generally follows a benign evolution but may evolute to cancer. Therefore amputation of the breast with removal of the fascia of the large pectoral muscle is indicated. In the case of the cancer reported by the author there was no history of local trauma and of heredity and the patient did not suffer from tuberculosis or syphilis. In the case of fibro-adenoma there was a history of local trauma and of heredity. The clinical diagnosis was confirmed in both cases by the results of the microscopic study of the tumors that were removed by operation. Both patients are in good health and without recurrences (or metastases in cancer) up to now (more than three years in the case of cancer and more than one year in that of fibro-adenoma). The operation in both cases consisted in amputation of the breast followed by either emptying of the axillary cavity (cancer) or removal of the fascia of the large pectoral muscle (fibro-adenoma).

Archiv für Kinderheilkunde, Stuttgart

116: 1-80 (Jan. 24) 1939. Partial Index

Results of Follow-Up Examinations of Forty-Five Rachitic Children Who Had Been Treated with Concentrated Vitamin D_2. R. Schirmer.—p. 1.

*Vitamin C Consumption in Nurslings and Young Children. Erika Mager.—p. 12.

Primary Tuberculosis of Skin in Nurslings and Young Children: Secondary Formation of Lupus; Four Cases. G. Schachenmann.—p. 33.

Different Development of Paratyphoid in Siblings Contracting Disease Simultaneously. H. Wulf.—p. 53.

Frequent Development of Pneumococcic Diseases in Home for Nurslings. W. Goeters.—p. 60.

Rare Deformity of Vascular System as Cause of Attacks of Suffocation. W. Koch.—p. 63.

Bronchial Asthma in Children. J. Cirlea and L. Bogdan.—p. 65.

Vitamin C Consumption in Infants.—In the introduction to this report, Mager directs attention to the fact that C avitaminosis, scurvy, is relatively rare but that C hypovitaminosis has a high incidence. Further she discusses the vitamin C requirements of the human organism and mentions the different methods that have been recommended for the determination of this vitamin in the fluids of the body. In her own tolerance tests with vitamin C she employed the titration method by means of dichlorphenolindophenol and the litmus paper method of Scheer. All urine specimens were examined with both methods, and the comparison of the results disclosed that in most instances the results were practically identical. The tolerance tests were made on eleven nurslings and on eleven young children; a smaller or larger vitamin C deficit was detected in all of them. In nurslings the deficit was nearly always greater than in the young children. The vitamin consumption of nurslings was found to be relatively high in comparison to that of adults and it was also greater than that of young children. The vitamin C requirements of breast-fed nurslings were found to be lower than those of the bottle-fed nurslings. It was observed also that nurslings are incapable of storing vitamin C and that young children have this capacity to a limited extent. All of the children who were examined had more or less pronounced

C hypovitaminoses. The author concludes that, to prevent such conditions, care must be taken that either the food contains enough natural vitamin C or that synthetic vitamin C is administered.

Klinische Wochenschrift, Berlin

18: 73-112 (Jan. 21) 1939. Partial Index

New Orally Active Preparation of Corpus Luteum Hormone. W. Hohlweg and H. H. Inhoffen.—p. 77.
Ascorbic Acid, a Preliminary Stage of Vitamin C. H. Lund, E. Trier, M. Ottsen and A. Elmby.—p. 79.
*Disintegration of Glycogen During Starvation and During Poisoning with Phlorhizin, Curable by Insulin-Dextrose. C. Brentano.—p. 82.
Practicability of Rapid Method of Gander and Niederberger for Determination of Deficit of Saturation with Vitamin C. H. Burmeister and K. Wachholder.—p. 85.
Two Procedures for Determination of Changes in Serum Protein. K. Dirr.—p. 91.
*Cause of Elimination of Vitamin A in Urine. W. Thiele and K. Nemitz.—p. 95.
Hemorrhagic Diathesis in Gastric Carcinoma. O. Schildknecht.—p. 97.

Disintegration of Glycogen.—Brentano describes studies on rabbits which he carried out to determine the capacity for glycogen formation in the musculature and liver during creatinuria. In one group of animals creatinuria was induced by starvation lasting three or four days; in another group creatinuria was induced by poisoning with phlorhizin. Then the animals were given a 50 per cent solution of dextrose in a quantity that provided 10 Gm. of dextrose for each kilogram of body weight; the whole quantity was given in two equal portions rather than at once. In the second experiment the same procedure was employed except that insulin was given in addition to the dextrose. Summarizing his observations in the course of these experiments the author says that hunger and poisoning with phlorhizin produce disintegration of glycogen. Two important manifestations of this metabolic disorder are creatinuria and the impairment of the capacity to form glycogen from administered dextrose in the skeletal musculature. Insulin counteracts the creatinuria that develops during starvation and during poisoning with phlorhizin and at the same time restores the capacity of the muscle to form glycogen. Thus the disintegration of glycogen which takes place during starvation or during poisoning with phlorhizin is curable by insulin. The quantity of glycogen which is stored in the liver is reduced by the insulin because insulin apparently increases greatly the sugar requirement of the muscle. Consequently there remains less sugar for glycogen formation in the liver than is the case when sugar alone, without insulin, is administered.

Elimination of Vitamin A in Urine.—Having gained the impression that the reticulo-endothelial system is important for the storage of vitamin A and its impairment for the urinary elimination of vitamin A, Thiele and Nemitz investigated the appearance of vitamin A in the urine during diseases and during therapeutic measures in which an impairment of the reticulo-endothelial system is to be expected. They examined the urines of syphilitic patients undergoing malaria therapy and of syphilitic patients who were treated with bismuth compounds. They found that vitamin A appears in the urine during malaria as well as during the administration of bismuth compounds. Thus the assumption of a causal significance of the reticulo-endothelial system for the urinary elimination of vitamin A seems to be supported by their observations. They suggest that it might be possible to utilize the urinary elimination of vitamin A in the estimation of the function of the reticulo-endothelial system.

Medizinische Klinik, Berlin

35: 169-200 (Feb. 10) 1939. Partial Index

Sweating Cures in Internal Diseases. E. Kestermann.—p. 169.
Circulatory Weakness in Acute Infectious Diseases and Their Treatment. G. Joachim.—p. 171.
Endocrine Therapy in Hypertrophy of Prostate. Nestmann.—p. 178.
Tuberculosis of Mesenterial Glands and Tuberculous Peritonitis. Frey.—p. 180.
Symptomatology and Treatment of Allergoses. E. Bumm.—p. 182.
*Change of Specific Hypersensitivity in Hay Fever. W. Schmidt.—p. 183.

Change of Specific Hypersensitivity in Hay Fever.—Schmidt first cites reports from the literature which indicate that a change may take place in the specific hypersensitivity in patients with allergic disturbances. For instance, in persons who have changed their occupation on account of hypersensitivity to a certain substance it has been observed that, whereas the sensitivity to the substance that was the offensive agent originally has greatly subsided or entirely disappeared, a new hypersensitivity has developed to a substance with which they come in contact in their new occupation. To be sure, a period of several years generally elapses between this change in hypersensitivity. However, since such cases are rare it is generally accepted in everyday practice that allergy tests need not be repeated. In hay fever particularly it is generally accepted that the same pollen is responsible for the annually recurring attacks. The author too accepted this opinion and repeated desensitization treatments with the same allergens every year. However, some of his patients (seven in all) he tested anew for sensitivity to different pollen extracts. The results were so surprising that in spite of the small number of cases he feels justified in reporting them. On the basis of his results he differentiates four groups of patients. To the first group belong those in whom, although the specific desensitization had succeeded, a new sensitization had developed to types of pollen which formerly had given negative results. In the second group the specific desensitization was accomplished only partially. Sensitivity toward other types of pollens, which originally had produced only slight or negative reactions, had either been added to the original sensitivity or had replaced it. In the third group the attempted desensitization had failed and the sensitivity now included types of pollen which formerly had exerted no specific influence on the organism. In the fourth group the specific desensitization failed and the sensitivity toward the pathogenic types of pollens had further increased but no change had taken place in the allergen. Observations on one patient, who had received no treatment, indicated that the allergens may change spontaneously. Evaluating the practical significance of these observations, the author says that in cases of hay fever in which desensitization is not effective new tests should be made in order to detect hitherto unobserved allergens. Moreover, the annual desensitization treatment should always be preceded by new allergy tests.

Zeitschrift für klinische Medizin, Berlin

135: 363-650 (Jan. 20) 1939. Partial Index

Action of Vitamins on Morphology of Blood. A. H. Müller.—p. 363.
Nature and Significance of Thoracic Leads and Their Relation to Electrical Axis of Different Electrocardiographic Deflections. L. von Unghváry.—p. 388.
Laurence-Moon-Biedl Syndrome. W. Menzel.—p. 423.
Lactic Acid and Circulatory Insufficiency. A. Gambigliani-Zoccoli, R. Giacchero, E. Zambelli and C. Reschia.—p. 457.
How Electrocardiographic Changes May Be Elicited from *Hiatus Oesophageus*. H. Kalk and K. Koelsch.—p. 537.
Differentiation of Dyskinesias of Biliary Tract. W. Schöndube.—p. 542.
Active Internistic Therapy of Acute Pancreatitis. G. Katsch.—p. 554.
*Roentgenologic Examination of Liver: Gas in Bile Passages and a New Procedure of Hepatolienography. H. H. Berg.—p. 562.
Recognition of Atypical Cases of Pernicious Anemia by Sternal Puncture. S. Thaddea and D. Bakalos.—p. 629.

Roentgenologic Examination of Liver.—Berg points out that signs of accumulation of gas in the hepatic region, particularly in the bile passages, are often detected when in the course of the roentgenologic examination of the region of the gallbladder attention is given also to the liver. He says that gas in the liver is caused by the following changes: (1) internal biliary fistulas, (2) insufficiency (gaping) of the duodenal papilla, for instance after the passage of calculi, and (3) infections of the biliary passages (cholangitis with and without abscess formation) with gas-forming micro-organisms. The author maintains that the conditions mentioned under points 1 and 3 are more frequent than has been assumed heretofore but that it is necessary to search for them. He thinks that roentgenoscopy of the liver is especially advisable in obscure hepatobiliary disorders, for instance if chronic indisposition appears after colics due to calculi, if cholangitis is followed by chills or if postoperative biliary disturbances develop. The symptom of gas in the biliary passages is of special importance in the differential diagnosis of acute abdominal symptoms, because it makes possible the early diagnosis of biliary perforation into the gastrointestinal tract. Following further discussion of these problems, the author emphasizes that roentgenologic examination of the liver, without any contrast medium whatever, may be of great value in some clinical conditions, because the symptom "gas in the bile passages" may prove to be of great diagnostic and therapeutic

value. In the second part of his paper, Berg discusses a new method of hepatolienography. He says that thorium dioxide sol has been largely abandoned as a contrast medium because it is not readily eliminated and may cause hepatic impairment. However, hepatolienography has regained its importance since a new, less harmful contrast medium has been discovered. The author describes how the new contrast medium was discovered and developed and how it is employed. The medium is an iodine sol. It is administered slowly by intravenous injection and in quantities that are computed on the basis of the body weight. Roentgenograms are made fifteen, forty-five and seventy-five minutes after the injection. At the end of twenty-four hours the contrast shadow has usually disappeared. The contrast medium is eliminated mostly in the urine in the form of an organic salt, only a small portion of it appearing in the feces. Since the iodine content of the medium may cause complications, the patient must first be tested for hypersensitivity to iodine. In about one third of the cases slight increases in temperature are observed (about 1 degree C.). Fever, chills, cyanosis or decrease in blood pressure are only rarely observed. Control examinations of patients who received injections of this contrast medium one year ago disclosed no signs of late impairment. The author thinks that some of the secondary effects of the contrast medium must be ascribed to the serious disorders (cancer, hepatic abscess, hepatic cirrhosis and so on) that exist in the examined patients. He discusses some of the most noteworthy observations that were made in the more than 100 cases that were examined with this new method of hepatolienography.

Vestnik Khirurgii, Leningrad

56: 309-652 (Sept.-Oct.) 1938. Partial Index

Pathogenesis of Acute Ileus. N. N. Samarin.—p. 317.
Diagnosis of Acute Ileus. Ya. Ya. Dzhanelidze.—p. 333.
Blood Chlorides in Acute Ileus. V. A. Golovinchits.—p. 353.
*Blood Picture in Acute Ileus. P. N. Demidova.—p. 356.
Roentgenologic Examination in Acute Ileus. E. A. Pchelina.—p. 363.
Basic Principles in Treatment of Acute Mechanical Ileus. M. V. Krasnoselskiy.—p. 377.
Continuous Drainage of Stomach with Thin Tube in Acute Ileus. M. G. Kamenchik.—p. 393.
*Acute Ileus During the Years 1928 to 1938 at the Sklifasovsky Hospital. S. S. Yudin.—p. 410.

Blood Picture in Acute Ileus.—Demidova states that the blood picture in 100 cases of incarcerated hernia showed during the first few hours, before the possibility of the development of dehydration, a moderate increase of the erythrocytes and hemoglobin. The author considers this erythrocytosis to be the result of reflex stimulation of the vegetative nervous system and the outflow of red cells from the reserve depots. This was accompanied by a mild leukocytosis with a moderate shift of the neutrophils to the left. She examined the blood picture in 158 cases of acute intestinal obstruction. The blood picture here presented a marked increase in erythrocytes up to 6,000,000 and a correspondingly high hemoglobin, up to 120 per cent, a leukocytosis of from 12,000 to 30,000, a neutrophil shift to the left, hypoeosinophilia and, in a number of cases, monocytosis. A more detailed analysis showed certain differences in different types of obstructions. Obstruction of the sigmoid in twenty-five cases presented a mild erythrocytosis with a mild leukocytosis (from 9,000 to 15,000), with a moderate shift of the neutrophils to the left, a picture resembling that of the early incarcerated hernia and suggesting absence of toxemia. Ileus of the small intestine in twenty-five cases presented a blood picture with a marked increase of the erythrocytes up to 6,000,000, a leukocyte count up to 23,000 and a marked shift to the left of the neutrophils with the appearance in some cases of immature cells and of myelocytes. The leukocytosis in these toxic cases is soon replaced by leukopenia. The author concludes that the blood picture in ileus has a diagnostic value in reflecting the three stages—that of initial pain and irritation of the vegetative nervous system, that of intoxication, dehydration and thickening of the blood and that of intoxication and beginning infection (peritonitis).

Acute Ileus.—Acute ileus occupied, according to Yudin, the fifth place among the acute abdominal infections treated at the Sklifasovsky Emergency Hospital. Thus during the period from 1928 to 1938 there were treated 6,000 cases of acute appendicitis, 3,500 of extra-uterine pregnancies, 1,400 perforations of the gastroduodenal ulceration, 1,500 of incarcerated hernia and 700 of acute intestinal obstruction. While the mortality rate was markedly lowered during this period for the first four forms of acute conditions within the abdomen, that of acute ileus still presented a mortality of 35 per cent as compared with the former figure of 50 per cent. The author emphasizes the diagnostic significance of the diminution of chlorides, while pointing out that its therapeutic value is somewhat limited. The postoperative prognostic value of the chloride curve is quite definite. Cases in which the chlorides continue to fall despite all measures invariably are fatal. If, however, the chlorides increase as the result of intravenous and subcutaneous introduction of salt solution, the chances for recovery in the gravest cases are much improved. All the author's patients received 2,000 cc. of physiologic solution of sodium chloride before the operation and the same amount immediately after. An additional 3 or 4 liters is administered during the first twenty-four hours by means of the intravenous drip. The author advocates blood transfusion of from 600 to 750 cc. before the operation in order to combat shock, and another of similar amount after the operation in order to diminish the postoperative shock and to neutralize toxemia. While opposed to a universal method of anesthesia, he is partial to the spinal method, which, with proper selection of the cases and perfected technic, presents a number of advantages. He was impressed by the superiority of the radical resection of the involved intestine over the more conservative methods.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

83: 265-376 (Jan. 21) 1939. Partial Index

*Mental Changes in Pernicious Anemia. J. van Baalen and M. M. P. Vroon.—p. 270.
Paratyphoid A (Hepatic Form): Case. A. W. Pot and H. Verhagen.—p. 276.
*Significance of "Peculiar Appendicular Residue" in Roentgenogram. H. E. A. Fermin and G. A. Lindeboom.—p. 283.
Prophylaxis of Traumatic Neuroses. W. G. Sillevis Smitt.—p. 287.

Mental Changes in Pernicious Anemia.—Van Baalen and Vroon show that psychic disturbances may occur when changes take place in the quantity of blood as well as in diseases of the blood. Excessive loss of blood, for instance, may be followed by periods of somnolence, confusion, anxiety and headaches. Giving their attention to the mental changes in the diseases of the blood, the authors show that in polyglobulism, for instance, psychasthenic symptoms, depressive moods or even a syndrome resembling Korsakoff's psychosis may be observed. In polycythaemia rubra nervous symptoms in the form of headaches, dizziness, tinnitus aurium and paresthesias have been noted, but disturbances of a psychotic character have also been observed. Reviewing the literature on mental changes in pernicious anemia, the authors cite several investigators who have made reports about this problem and point out that Roger and Olmer differentiate three stages in the psychic disturbances of pernicious anemia. During the initial stage, mild character changes appear, such as quarrelsomeness, jealousy and peevishness. Sometimes the mental energy decreases. During the second stage there may appear various psychic changes from simple psychic asthenia to a demented condition and even delirious phases with delusions of persecution. The terminal stage is characterized by demented conditions, confusions and hallucinations. Under the influence of modern liver therapy, these disturbances are less frequent. After calling attention to some reports about psychoses in so-called funicular myelitis, the authors report their observations on three patients with pernicious anemia who had symptoms of mental disturbances. The first patient presented paranoid reactions, depressive disturbances, delirious phases and suicidal inclinations. In the two other patients, the changes in the character and in the moods predominated. As the blood picture improved under the influence of liver therapy the psychic disturbances likewise subsided.

Appendicular Residue in Roentgenogram.—Fermin and Lindeboom report that among 100 patients for whom internists had requested roentgenologic examination of the alimentary tract, twenty-seven showed an "isolated" appendicular residue (shadow in the appendix and not in the cecum) after forty-eight hours. None of these patients were later found to have chronic appendicitis. Many of them had symptoms of ulcer. In two of the cases the anamnesis or the examination disclosed signs indicative of chronic appendicitis and the authors think

that these were the only cases in which appendectomy was indicated. Later the authors examined twenty-four persons in whom an x-ray examination of the alimentary tract had not been requested and who were free from abdominal symptoms. They found that four of this group showed an isolated appendicular residue after forty-eight hours. They conclude from these observations that the isolated appendicular residue is of no great value in determining the advisability of an appendectomy. In this regard the phenomenon probably acquires greater importance if it is observed after a longer period; that is, after four days.

Acta Medica Scandinavica, Stockholm

98: 141-288 (Jan. 12) 1939

Composition of the Alveolar Air Investigated by Fractional Sampling: Comparative Investigations on Normal Persons and Patients with Bronchial Asthma and Pulmonary Emphysema. E. Roelsen.—p. 141.
Hyperthyroidism and Iodine Treatment. J. Tillgren and N. Sundgren. —p. 172.
*Mastic Test in Acute Anterior Poliomyelitis. K. G. Kaijser.—p. 209.
*Serotherapeutic Studies on Lobar Pneumonia, Especially Treatment with Rabbit Antipneumococcus Serum. N. I. Nissen.—p. 231.
Clinical Aspects and Occurrence of Icterus and of Its Different Forms. W. Kerppola.—p. 262.
Appearance and Frequency of Desquamation in Scarlet Fever. L.-G. Sterner.—p. 280.

Mastic Test in Acute Anterior Poliomyelitis.—Kaijser says that little attention has been given to the mastic reaction in acute anterior poliomyelitis. Nevertheless, several observers have shown that a type of mastic reaction can be evolved which is characteristic for poliomyelitis. The mastic test has been employed in experimental poliomyelitis in monkeys as well as for the early diagnosis of poliomyelitis in human subjects. The author himself studied the value of the test first in fourteen cases of acute anterior poliomyelitis accompanied by paralysis. He reports the clinical histories of these cases and the outcome of the mastic reaction. It was found that in certain cases of poliomyelitis in which paralysis exists at the time of the examination of the cerebrospinal fluid there is a typical mastic reaction. In the majority of these cases only a moderate flocculation was observed in the tube that contains the strongest concentration and the maximum of flocculation appeared in the second, third and fourth tubes. In the succeeding tubes it subsided and it usually disappeared completely in the sixth or seventh tube. The average curve of the mastic reaction in these cases is represented by the figures 123321000. Having determined that poliomyelitis with paralysis possesses a typical curve, the author studied the mastic reaction in two other types of disorders, namely in ten cases of acute anterior poliomyelitis without paralysis and in five cases in which poliomyelitis was suspected. In the ten abortive cases of poliomyelitis the curve of the mastic reaction was not as uniform or as characteristic as in the cases of poliomyelitis that were accompanied by paralysis. In the abortive cases the maximum flocculation was usually observed in tubes 2, 3 and 4. In the five cases in which poliomyelitis was only suspected, the mastic reaction was as it is under normal conditions. The impression was gained that in these five cases there existed a disorder other than poliomyelitis.

Serotherapy of Lobar Pneumonia.—Nissen gives an account of the serum treatment of lobar pneumonia in the Sundby Hospital in Copenhagen and presents statistical data on cases treated with or without serum in the municipal hospitals of Copenhagen in the period from October 1935 to May 1938. Until the autumn of 1937 the serum treatment was given almost exclusively with horse serum, but since November of that year rabbit serum has been generally used. It was found that when adequate serum treatment is given within the first four days of illness a case mortality of more than 40 per cent can be lowered to less than 10 per cent; when treatment with large doses of serum is instituted on the fifth and sixth day, the mortality may probably be reduced to less than 20 per cent. Even on the seventh day the treatment ought to be tried in severe cases. Treatment with serum not specific for the type gave a lower mortality than treatment without serum, but a typical reduction of temperature was rare after administration of such serum. The therapeutic efficacy of nonconcentrated rabbit antipneumococcus serum is just as great as that of concentrated horse serum; whether it is superior cannot be decided on the basis of the present material. The failure of type specific serum treatment may be due to (1) too late institution of treatment owing to belated clinical or bacteriologic diagnosis, (2) infection with more than one pneumococcus or mixed infection with other bacteria, (3) insufficient dosage, (4) poor quality of serum, (5) bacteremia, (6) preexisting complications, especially cardiac and pulmonary lesions, pregnancy, cirrhosis of the liver, and syphilis and (7) pneumonic complications in the lungs, heart, meninges and peritoneum. Finally, cases will occur in which the infection is so violent from the start that all specific therapy is ineffective. Serum shock was seen in only 5 to 7 per cent of the cases, collapse after one of 222 primary serum injections. Serum shock was not more frequent or more severe, but rather less frequent, after the nonconcentrated rabbit serum preparations than after concentrated horse serum. Serum sickness was far less frequent after the use of concentrated horse serum than after nonconcentrated rabbit serum, occurring respectively in 21 per cent and 47 per cent of the patients, and it was more severe in the patients treated with rabbit serum. Most likely, concentration of the rabbit serum will lower the incidence and intensity of serum sickness. Purulent lung complications were not more frequent in patients treated with serum than in those treated without serum, rather less frequent. The absolute numbers are bound to be somewhat uncertain, because necropsy was not permitted in many of the fatal cases.

Finska Läkaresällskapets Handlingar, Helsingfors

81: 503-606 (June) 1938

*Observations on Action of Aminopyrine on Living Neutrophile Granulocytes in Normal Persons and in Persons Hypersensitive to Aminopyrine. I. Wallgren.—p. 560.
Approximate Determination of Fat Content in Feces. R. Ehrström.—p. 577.
Blood Picture in Intracutaneous Vaccination. Birgitta Knape.—p. 579.

Action of Aminopyrine on Granulocytes.—Examining neutrophil granulocytes in a milieu with successively increased aminopyrine content, Wallgren established a threshold at which most of the cells still performed their ameboid movements and a higher threshold at which most of the cells no longer moved. In cells from normal persons the upper threshold was at an aminopyrine concentration of from 0.2 to 0.24 per cent in cells from two persons hypersensitive to aminopyrine at a concentration of 0.14 and 0.18 per cent respectively. He says that in hypersensitive persons, after the intake of aminopyrine, there is in addition to other symptoms a decrease in the number of neutrophil granulocytes in the peripheral blood. Since the neutrophil granulocytes in vitro withstand an aminopyrine content many times higher than that which appears in the blood plasma after the usual therapeutic dose of aminopyrine, it is not likely that this dose causes a disturbance of the cells in the circulating blood. The occurrence of neutrophil granulocytes in the circulating blood is variable. Leukopenia may occur in the peripheral blood simultaneously with a leukocytosis in the internal organs, and vice versa. In conditions of shock there may be a sudden transport of neutrophil granulocytes from the skin to the internal blood vessels. It does not seem unlikely that the sudden leukopenia which appears in hypersensitive persons after aminopyrine medication takes place in the same way. This presupposes an abnormal sensitivity in the mechanism which regulates the apportionment of the neutrophil granulocytes in the blood vessel system. The fact that the cells from persons hypersensitive to aminopyrine cease their ameboid movements at a lower threshold than do the cells from the control cases may be the expression of such a hypersensitivity in the apportionment mechanism of the neutrophil granulocytes.

81: 607-698 (July) 1938

*Iron Content in Liver in Pernicious Anemia After Some Improvement Following Short Treatment with Liver. C. A. Hernberg.—p. 647.
Two Cases of Unilateral, Partial Aplasia of Adnexa. N. Riska.—p. 651.
Some Cases of Tetany Treated with Dihydrotachysterol. S. Söderlund. —p. 659.

Iron Content of Liver in Pernicious Anemia.—Hernberg states that in a woman aged 60, who died from bronchopneumonia on the tenth day after the start of energetic liver treatment, the hemoglobin content had risen from 23 to 36 per cent, the number of red blood corpuscles had risen from 824,000 to 1,640,000, and the color index had dropped from 1.64 to 1.1. The liver showed a definite siderosis. The total iron in the liver was 637.5 mg., more than six times as much as that previously found by the author in two cases of pernicious anemia in full remission.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, No. 18

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CHICAGO, ILLINOIS

MAY 6, 1939

MODERN METHODS OF TREATMENT OF DISEASES OF THE NERVOUS SYSTEM

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BOSTON

It has not been many years since neurology was widely considered a purely diagnostic specialty—a *meditatio morbis*. One can look through the pages devoted to nervous diseases in almost any textbook of medicine written before the war and find scarcely a single suggestion of treatment beyond arsenic, strychnine, bromides and electricity, aside from the more obvious indications for surgery.

Yet there are specific and effective forms of treatment for neurologic diseases, and their number has shown an astonishing growth during recent years. Since so few of them have found their way into the common body of medicine, I have thought it might be of interest to review them. In assembling such a summary, I find that as a matter of fact there is so much ground to cover that certain important territories will have to be omitted entirely.

Three large and significant fields about which I shall say little are surgical. They are the territories of the treatment of injuries of the nervous system, of the surgery of tumors and of operations on the sympathetic system. Any brief summary would fail to do them justice; moreover, the story of their successes has often been brought before the medical public, and recent authoritative books are available on each.[1]

I shall leave psychiatry and psychotherapy entirely out of account as being outside my own sphere of competence. In passing, however, I should like to pay tribute to the rising standard of psychologic understanding and interest among practitioners and students of today. Though startling innovations have been rare, there is far less quarreling over doctrinal differences and far more devotion to an unprejudiced appraisal of the patient's needs of various kinds than was the case twenty years ago.[2]

In addition to these intentional omissions there are, I am sure, unintentional ones. This list of methods of treatment makes no pretensions to completeness. It consists of those which seem thoroughly established or with which I have had personal successful experience. An attempt has been made to give credit only for broad innovations, but I am quite aware that the story might have been written with an entirely different set of heroes. It is the theme that I particularly wish to bring to attention.

THE TREATMENT OF PAIN

To return to more strictly neurologic subjects: It is perhaps natural that pain should be the symptom of disease of nerve tissue which earliest demanded and first received specific relief. The use of opium dates back to prehistoric days and no real substitute for it has ever been found. According to Létiévant [3] the first recorded nerve section for neuralgia was performed by Maréchal, the court surgeon of Louis XIV. I have not been able to find any particulars. Létiévant himself, writing in 1872, was familiar with section of branches of the trigeminal, the intercostals, the occipitals and the sciatic nerves. Peripheral neurectomies have, however, largely fallen out of use except in the treatment of supra-orbital neuralgia, of thrombo-angiitis obliterans [4] and of tuberculosis of the larynx.

A more refined procedure is intraspinal section of spinal posterior roots, first suggested by Charles Dana and carried out by Robert Abbe [5] of New York in 1888. This obviously has the advantage that motor power is preserved. It paved the way for that triumph of surgery, the radical cure of trigeminal neuralgia. Rose [6] was the pioneer in removal of the gasserian ganglion, but his approach has been abandoned. Horsley [7] cut the posterior root by a method resembling the modern one in 1891 but his patient died. Successful results from a practical procedure were announced by Krause [8] in 1893.

A bold step forward in neurologic treatment was suggested by Schüller in 1910 [9] and carried out by Spiller and Martin [10] in 1911, the section of the pathways for pain in the spinal cord. Aside from the prac-

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Read before the American College of Physicians, Atlantic City, N. J., in May 1938.

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1. (*a*) Munro, Donald: Treatment of Head Injuries, Oxford Medical Publications, to be published. (*b*) Cushing, Harvey: Intracranial Tumors, Baltimore, Charles C. Thomas, Publisher, 1932. (*c*) White, J. C.: The Autonomic Nervous System, New York, Macmillan Company, 1935.

2. Ross, T. A.: An Enquiry into Prognosis in the Neuroses, London, Cambridge University Press, 1936.

3. Létiévant, J. J. E.: Traité des sections nerveuses, Paris, J. B. Baillière et fils, 1873.

4. Smithwick, R. H., and White, J. C.: Peripheral Nerve Block in Obliterative Vascular Disease of the Lower Extremity, Surg., Gynec. & Obst. **60**: 1106-1114 (June) 1935.

5. Abbe, Robert: A Contribution to Surgery of the Spine, M. Rec. **35**: 149-152, 1889.

6. Rose, W.: Removal of the Gasserian Ganglion for Severe Neuralgia, read before the Medical Society of London, Oct. 27, 1890.

7. Horsley, Victor; Taylor, J., and Coleman, W. S.: Remarks on the Various Surgical Procedures Devised for the Cure of Trigeminal Neuralgia, Brit. M. J. **2**: 1139 (Nov. 28), 1191 (Dec. 5), 1249 (Dec. 12) 1891.

8. Krause, Fedor: Entfernung des Ganglions Gasseri und des central davon gelegenen Trigeminusstammes, Deutsche med. Wchnschr. **19**: 341, 1893.

9. Schüller, Arthur: Ueber operative Durchtrennung des Rückenmarksstränge (Chordotomie), Wien. med. Wchnschr. **40**: 2292-2296, 1910.

10. Spiller, W. G., and Martin, Edward: The Treatment of Persistent Pain of Organic Origin in the Lower Part of the Body by Division of the Anterolateral Column of the Spinal Cord, J. A. M. A. **58**: 1489 (May 18) 1912.

tical value of the operation, which has now become a common and standard one, this step opened what promises to be an important epoch in neurology, that of operative intervention on structures of the central nervous system for the purpose of altering its physiology.

Except for operations on the sympathetic nervous system, which will be mentioned briefly later, the only new procedure for the relief of pain which has found wide acceptance is that introduced by Dogliotti [11] in 1931, namely the subarachnoid injection of absolute alcohol. The method was first used in this country at the Neurological Unit, as far as I am aware, and the staff has convinced itself that the method has definite though restricted value. It is a conservative method of treating mild chronic pain; for severer conditions chordotomy saves time, pain, uncertainty and the patient's motor power. A field of usefulness for the procedure of Dogliotti which deserves further study is in the treatment of certain forms of spasticity.

SURGICAL TREATMENT OF TUMORS OF THE NERVOUS SYSTEM

The first successful operation for tumor of the brain (by Godlee) was recorded in 1884.[12] A tumor of the spinal cord was removed in 1888 by Horsley.[13] Annandale [14] reported recovery after operation on an acoustic neuroma in 1893. Successful radiotherapy of a pituitary adenoma was reported by Béclère [15] in 1901. Nordentoft [16] announced successful treatment of gliomas in 1917. From these hesitating beginnings the surgery of tumors of the brain and spinal cord has made enormous strides, perhaps most strikingly signalized by Cushing's [1] review of his 2,000 verified tumors in 1932. I shall make no attempt to trace the steps of the progress, but I should like to point out that it was due largely to the successes of tumor surgery that hopes of successful forms of treatment in other departments of neurology were aroused.

THE TREATMENT OF CONVULSIONS

Epilepsy was recognized as a disease and treated in prehistoric times. While scattered "cures" have followed the use of any one of a thousand different remedies, only a few measures have come to be accepted in modern practice. One of these is the use of bromides. This was apparently first recommended by Sir Charles Locock [17] in 1857 in the course of a discussion of a paper by Sieveling. Locock's reasoning was simple: An unnamed German had tried potassium bromide on himself and found it an anaphrodisiac; it was well known that many cases of epilepsy were caused by onanism; he tried it in fourteen cases and it worked in all but one. It is still recognized as a moderately successful anticonvulsant.

A rational operative treatment for focal epilepsy was reported by Horsley.[18] in 1887, namely excision of an irritable focus of the cortex. The procedure could scarcely be termed an accepted one until after the careful studies of Foerster and Penfield.[19] It appears probable that the more precise information which can now be obtained by electro-encephalography will be of particular value in selecting cases for this treatment.[20]

On the whole, the most successful treatment for the majority of patients suffering from convulsions of unknown origin is the use of phenobarbital, which was recommended for this purpose by Hauptmann [21] in 1912. It is applicable to a far larger proportion of cases than is surgery, and it has a greater anticonvulsant effect in proportion to its soporific effect than bromides or than any of the other barbiturates.

The treatment of epilepsy by ketosis was reported by Wilder [22] in 1921. It is a measure which still finds employment in some cases, particularly for petit mal in children.

The drugs at present in use for the treatment of convulsions were all primarily introduced as hypnotics, and the discovery of their anticonvulsant effect has been rather accidental. A systematic search for anticonvulsants by an experimental method was begun at the Neurological Unit in 1937 [23] and is still being continued It has already yielded one compound, diphenylhydantoin, which appears to be more effective than phenobarbital and without appreciable soporific effect. The study of convulsions by means of electro-encephalography [20] suggests that there are several types, each due to a distinct physiologic mechanism, and possibly each will require individual study and treatment.

TREATMENT OF NEUROSYPHILIS

The recognition of syphilis of the nervous system is a relatively modern feat. It was doubtless treated with mercury even before it was recognized. According to Garrison,[24] the identity of the man who first introduced mercury into therapeutics is unknown. It is probable that, as far as neurosyphilis at least is concerned, its reign is almost over.

The story of the introduction of arsphenamine by Ehrlich [25] in 1910 is familiar to all. It is unique in history—a new conception systematically and patiently pursued by a great genius over many years, and finally a magnificent success—to be compared only with vaccination in its significance to the human race. As a treatment for parenchymatous neurosyphilis it has largely been replaced by a modification—tryparsamide,

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prepared by Jacobs and Heidelberger [26] of the Rockefeller Institute in 1917. The use of fever in the treatment of neurosyphilis has a long history in the life of one man. Wagner von Jauregg [28] apparently first noticed its effect in dementia paralytica in 1887 but he dropped the subject and returned to it only during the war. His first brief paper specifically recommending the use of malaria was published in 1918.[29] Since then the method has become a standard one.

A few years later the use of bismuth was proposed by Sazerac and Levaditi.[30] The salts of this metal have largely taken the place of those of mercury.

At the turn of the century there was no known method of treatment of syphilis that would prevent infection of the nervous system. Up to the close of the war, once neurosyphilis was established, there was little hope of arresting its course. At present the majority of early cases can be cured.

THE TREATMENT OF OTHER INFECTIONS

Among infections of the nervous system, abscess of the brain presents a problem of which the solution is obvious but difficult to attain. Successful operation on an abscess was reported by Morand [31] in 1768. The principles governing operative treatment are gaining slow recognition and there has been a gradual decline in the average operative mortality.

The next progress in controlling infections came with the rapid growth of bacteriology and immunology in the last quarter of the last century. The Pasteur prophylaxis against rabies [32] in 1885 and the antitoxin against tetanus developed by von Behring [33] in 1892 are now so successful that one can scarcely reconstruct for oneself the days when those terrible diseases were common.

Meningitis, next to syphilis the most common form of infection of the nervous system, still retains a high rate of mortality. The value of lumbar puncture in its treatment [34] is not yet fully recognized. A specific antiserum against infections with the meningococcus was introduced by Jochmann [35] in 1906. Although widely used, its value is still in some doubt. In the last two years, synthetic drugs of the type of sulfanilamide [36] have become a standard treatment, which is amazingly effective not only against infections by the meningococcus but against other pyogenic infections.

There is no accepted treatment for, or prophylaxis against, poliomyelitis, encephalitis and herpes. It has been shown that many types of "encephalitis" are in reality not infections of the brain.[37] Severe chorea of the Sydenham type, and also that occurring in pregnancy, may be effectively treated by induced fever.[38] The severe neuralgia that sometimes follows herpes usually yields to roentgen treatment.[39]

TREATMENT OF DEFICIENCY DISEASES

An increasing number of diseases of the nervous system are now being recognized as due to vitamin deficiency. The first of these was pellagra,[40] the treatment of which has now been placed on a sound basis.[41] Modern vitaminology may be said to have begun with Eijkman's [42] experiments on beriberi. He would have been surprised, perhaps, to see most polyneuritides regarded as subvarieties of beriberi,[43] including the type described by Landry.[44]

Owing to the recognition that combined systemic disease of the spinal cord is related to pernicious anemia, it is obvious that Minot and Murphy's discovery of the liver diet for the treatment of the latter should be applied to the former also. There have been disappointing results with liver treatment in some hands, but convincing evidence has been offered that arrest of progress of degeneration of the cord is the rule, and improvement is common if large enough doses are used—far larger than are needed to control the blood picture.[45]

Not only "alcoholic" polyneuritis [46] but also the characteristic confabulatory psychosis often associated with it appears to be due in part to a vitamin deficiency.[47] It is likely that the same is true of Wernicke's alcoholic poliencephalitis.[48] How effective treatment of these conditions will be remains to be seen.

TREATMENT OF DISEASES OF THE SYMPATHETIC SYSTEM

Surgery of the sympathetic nervous system had its beginnings in the last century, but its real successes have come only since the war. It is of definite value in the treatment of Raynaud's disease [49] and of Hirschsprung's disease.[50]

There have been many disappointments in the treatment of angina pectoris, but alcohol injection of the intercostal nerves as carried out by Mandl [51] appears to be a reliable method of cure of the pain. Certain obscure painful conditions of the extremities are some-

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times benefited by sympathectomy.[52] Further information should be sought in one of the recent treatises on the subject.[1c]

A recent accession to the list of conditions amenable to surgery is the carotid sinus syndrome. The clinical importance of the condition has been pointed out by Weiss[53] and the possibility of its surgical relief has been demonstrated at the Boston City Hospital.

Whether or not migraine should be included among surgical diseases is open to question. Cervical sympathectomy,[54] injection of alcohol into the gasserian ganglion,[55] section of the temporal artery and of the meningeal artery[56] have all been followed by success in some instances and failure in others. A remarkable medical treatment for individual attacks of migraine is the use of ergotamine tartrate.[57]

THE TREATMENT OF PARALYSIS AGITANS AND ATHETOSIS

One of the most familiar diseases of the nervous system is paralysis agitans. The only accepted treatment for this often distressing condition is the use of drugs of the atropine series, apparently first suggested by Charcot.[58] Enormous doses are sometimes tolerated but are often ineffective. Recently the use of a fresh hot decoction in white wine has found wide and apparently successful use in Italy. Some of my patients have told me that moderate doses of alcohol, alone or with scopolamine, are valuable. The asthenia that often accompanies the disease may sometimes be relieved in the postencephalitic types of paralysis agitans by administration of amphetamine (benzedrine) sulfate,[59] which is also a fairly reliable remedy for the oculogyric crises which accompany it.

In extremely severe unilateral cases the resort to surgery may be justified. Bucy[60] has recently demonstrated that the tremor may be abolished by an extensive resection of the motor cortex—a possibility vaguely foreshadowed by Parkinson himself.[61] At the Neurological Unit a similar result has been obtained by section of the pyramidal tract in the spinal cord, which impairs the function of the corresponding limbs to an astonishingly slight extent.[62]

The somewhat rarer but often far more distressing condition of athetosis has received less attention than it deserves. The first successful attempt at its relief, excision of the corresponding motor cortex, was reported in 1909 by Horsley,[63] and his method has been further developed by Bucy and his associates.[64] The method first used at the Neurological Unit in 1931 accomplishes the same object by section of the extrapyramidal tracts in the spinal cord.[65] It can be used in bilateral cases (best in two stages) and does not destroy the use of the extremities.

A promising start in the medical treatment of athetosis has been made by West.[66] He has shown that the intravenous administration of curare will depress abnormal movements for several days, and this has been confirmed by Burman[67] and at the Neurological Unit. Obviously, the method is not suitable for general use at present, but a search for more practical drugs is under way.

The most successful treatment for spasmodic torticollis is the operation devised by Dandy:[68] section of the first four cervical roots and the spinal accessories.

THE TREATMENT OF HYDROCEPHALUS

The importance of hydrocephalus as a disease has been underestimated. According to Murphy[69] it occurs in the proportion of more than one and one-half times in every thousand "white" births; that is, there are probably two or three thousand hydrocephalic infants born every year in this country. Most hydrocephalic infants are mentally defective from the outset, and these are doomed in any case. Many of them, however, —perhaps a fourth—are apparently capable of growing up normally if the pressure can be relieved. There have been isolated successes from various types of operations (reviewed by Davidoff[70]), but only recently have technical improvements permitted a series large enough for statistical purposes to be accumulated.[71] In selected cases the operative mortality may be as low as 10 per cent after bipolar coagulation of the choroid plexuses. When hydrocephalus and spina bifida coexist, an alternative method of relief has been successful in a few instances, namely resection of the abnormal mass of tissue which apparently blocks the circulation of fluid.[72]

TREATMENT OF SYRINGOMYELIA

Syringomyelia is a hereditary malformation which often exists without giving rise to symptoms. About 60 per cent of cases are improved by persistent treatment with x-rays.[73] In cases resistant to irradiation

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and especially those in which there is pain or a subarachnoid block, operative drainage of the syrinx may afford some relief. This operation was first recorded by Elsberg [74] and was applied in a systematic fashion and recommended by Puussepp [75] of Estonia, where the condition is apparently far more common than in this country.

TREATMENT OF MÉNIÈRE'S SYNDROME

A method of treatment of recurrent attacks of vertigo, by destruction of the labyrinths, was suggested by Lake [76] in 1904. The operation of section of the auditory nerve was first carried out by Frazier [77] in 1910. Both types of procedure were long neglected and have only recently come into their rightful places.[78] In addition to the modern operations, medical treatment, which is often effective, has been proposed by Furstenberg.[79]

NEW MEDICAL REMEDIES FOR MISCELLANEOUS DISEASES

Narcolepsy is a disease which is often overlooked or untreated. The overpowering drowsiness which characterizes it is satisfactorily combated by amphetamine sulfate, for which the patients often have a high tolerance.[80] Since the introduction of the drug for this purpose it has been widely used in the treatment of asthenia, fatigue and debility of many types [81] perhaps too widely, for it is not a drug for indiscriminate use.

An effective treatment for myasthenia gravis was found by Mary Walker [82] in 1935, namely prostigmine, a synthetic substitute for physostigmine.[83] Myotonia, a disease which is in many ways the opposite of myasthenia (both are apparently disorders of the chemical transmission of the nerve impulse), was relieved by the use of quinine by Kennedy and Wolf [84] in 1936.

TWO MECHANICAL SUBSTITUTES FOR NERVOUS FUNCTIONS

There are many disease states which produce a temporary cessation of respiration but are not necessarily fatal otherwise. A respirator was designed by Drinker [85] in 1929 primarily for use in resuscitation from asphyxia and electric shock. It is, however, finding a larger and constantly expanding use in the treatment of poliomyelitis, polyneuritis and injuries to the spinal cord. A respirator should be part of the equipment of every neurologic service.

Many deaths have resulted from infection of the bladder and kidneys following disease of the spinal cord. A practical device for preventing cystitis was devised by Laver and perfected by Munro in 1934,[86] namely a tidal drainage apparatus on the principle of a Tantalus siphon. The importance of the apparatus extends far beyond the comfort of the patient and the saving in bed linen. The prevention of infection permits a degree of recovery of damaged nerve tissue which would never be possible otherwise. It is simple and inexpensive and should be available in every hospital.

THE PROSPECT OF FURTHER ADVANCES

Since the war, and especially during the past ten years, something of a revolution has taken place in the field of clinical neurology. From a static branch of medicine, with the ideal of predicting irreversible structural changes from rigidly classified syndromes, it has become more dynamic by advancing in two directions. One is toward interpretation of the activities of an injured nervous system in terms of neurophysiology and thence toward remedying the defect. Examples of this type of analysis and systematic attempts at applications of physiologic knowledge are the recent steps forward in the treatment of epilepsy, paralysis agitans and athetosis, and longer strides in the same directions are unquestionably in prospect.

Another type of dynamic concept which is relatively new in neurology is an analysis of the mechanism and pathogenesis of diseases of the nervous system. The gross and microscopic appearances of the brain and cord in practically all diseases known today were described before the turn of the century. The stages in breakdown of various tissue elements have been thoroughly studied. Attention is now centered on the steps preceding irreparable damage. Arteriosclerosis and neurosyphilis were probably the first diseases in which attempts at dynamic interpretation were made and are still being continued. The mechanism and pathogenesis of multiple sclerosis, next to neurosyphilis and epilepsy the most important disease of the nervous system, are now fairly clear.[87] Similar advances in the pathology of the deficiency diseases,[88] progressive muscular atrophy [88] and amyotrophic lateral sclerosis [88] are in progress and in the course of time will certainly bear fruit.

The practical understanding and treatment of nervous and mental diseases are still in an expanding stage. The subject grows more complicated with each year that passes, and while there is a proper tendency for diseases formerly considered to lie within the jurisdiction of the neurologist to pass into the hands of internists and general surgeons—for example tetany and hyperthyroidism—the specialized knowledge and interest of trained neurologists, provided with adequate and independent facilities for research, is essential for real progress in the comprehension of many obscure and intricate problems. To reduce clinical neurology to a subdepartment is to subordinate the welfare of patients suffering from diseases of the nervous system.

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EFFECT OF ALCOHOL ON NORMAL KIDNEY AND KIDNEY OF BRIGHT'S DISEASE

AN EXPERIMENTAL STUDY

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THE EXCRETION OF ALCOHOL BY THE KIDNEY

Alcohol is assumed frequently to be a renal irritant, although the amount eliminated by the kidney after its ingestion is relatively small. Miles [1] has shown that after a single dose of alcohol (about 0.5 cc. per kilogram of body weight) in a human being only 1.2 to 1.6 per cent of the amount ingested is excreted within the first two hours. In the next six hours approximately 0.3 per cent is excreted; the urine is practically alcohol free in eight hours. Haggard and Greenberg [2] have shown that in dogs the percentage of the total amount of alcohol lost through the kidneys depends on the quantity of urine passed and that in sixteen hours varies from 2.4 to 4.3 per cent of the alcohol ingested. These values confirm the earlier work of Binz,[3] Heubach [4] and others.[5] In a fatal case of alcohol poisoning, Juckenack [6] found the concentration of alcohol in the kidney to be 0.37 per cent and in the urine 0.65 per cent.

ALCOHOL AND BRIGHT'S DISEASE

In 1932 Langmead and Hunt [7] said "The drinker undoubtedly shows some increasing susceptibility to inflammation of the kidney (Bright's disease). . . . Whatever the causal mechanism, there is abundant clinical experience that alcohol may promote chronic nephritis." The treatise in which this statement occurred carried an editorial footnote to the effect that this opinion is not held in this country and that it is not known that alcohol causes chronic nephritis, although its use may aggravate the symptoms of the disease. In 1924 Vogelius [8] wrote that "very few authors deny the importance of alcohol intoxication in the occurrence of renal disease." Of the forty-two patients with chronic alcoholism studied by Vogelius, tests of renal function revealed the presence of renal disease in twenty. Scheel [9] stated that alcoholism in conjunction with other factors may contribute to the development of true contracted kidney. Zundell, Volhard and Strauss [9] maintained that alcohol exerted a definite influence on the kidney; its use in acute nephritis was absolutely forbidden, whereas in the chronic forms the restriction was less severe. Von Noorden [9] prescribed alcohol for nephritic patients only when the appetite had to be increased or the heart stimulated. In 1926 MacNider [10] studied the effect of alcohol and of alcoholic beverages on the kidneys of normal and of naturally nephropathic dogs. He found that in normal dogs alcohol was only slightly nephrotoxic whereas naturally nephropathic dogs were more susceptible to the toxic effect of the same amount of alcohol; moreover, both the normal dogs and the dogs with renal disease showed an increased toxicity to alcoholic distillates. Moschini [11] reported a case of nephrosis in a nursing infant of 4 months in whom the renal lesion, according to this writer, was due to alcoholism of the mother.

However, a number of authors have published data indicating that alcohol does not initiate or aggravate renal disease. Friedenwald [12] fed a large series of rabbits somewhat excessive doses of either alcohol or whisky daily to the point of intoxication. Although a small number of these animals began to show albumin and casts in the urine after two months of such treatment, the pathologic changes thus produced in the kidney were unlike those seen in chronic nephritis. In 1910 Hultgen [13] investigated 460 patients with chronic alcoholism and showed that only 9.1 per cent of these manifested any evidence of nephritis. Moreover, only 5.2 per cent of the 460 drinkers showed any permanent albuminuria. He concluded that alcohol taken daily, as it is by the chronic inebriate, is not an irritant to the kidneys. Wegelin [14] reported definite changes in the kidney in only seven of 106 chronic alcoholic addicts Ziegler and Horner,[15] in a recent pathologic study of twenty chronic alcoholic addicts, found only slight glomerular lesions in 20 per cent. Mosenthal [16] maintained that alcohol does not damage the renal parenchyma and that it may be prescribed without hesitation in renal disorders, even when patients are seriously ill. Masci [17] reported an interesting case of acute nephritis in a 41 year old man, who, tired of his restricted regimen, imbibed 2,500 cc. of white wine in three hours Anuria developed, lasting for twenty-four hours; this was followed by the excretion of markedly hemorrhagic urine. The patient, however, began to improve readily and within ten days after the ingestion of the wine was pronounced cured. The urine was protein free and con-

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Read by title before the American Society for Clinical Investigation, Atlantic City, N. J., in May 1938, abstr. J. Clin Investigation (Proc.) 17: 516 (July) 1938.

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tained no red blood cells or casts. The permanence of the cure was proved by a recheck several months later.

In view of the somewhat conflicting evidence as to the effect of alcohol and of alcoholic beverages on the normal and the diseased kidney, it seemed worth while to reinvestigate this problem, since accurate methods are available today for studying the degree of irritation and functional capacity of the kidneys.

MATERIAL AND METHODS

Twenty-one subjects have been studied, of whom five were free from renal disease, five had acute diffuse glomerular nephritis, seven had chronic diffuse glomerular nephritis and five had arteriosclerotic nephritis (nephrosclerosis). All subjects were kept at complete bed rest. The diet was kept constant throughout the course of study. Addis counts [18] were carried out on twelve hour specimens of urine voided from 7 p. m. to 7 a. m. It was impossible to precede this period by a twelve hour dry diet, as suggested by Addis, since in many cases the restriction of fluid was contraindicated and at other times alcohol was given. For this reason patients were placed on a dry diet three hours prior to the twelve hour collection of urine. Addis counts were carried out daily for from three to five or more days, until the number of formed elements in the urinary sediment exhibited some degree of consistency. Urinary volume was carefully measured, the protein excretion determined [19] and the reaction of the urine noted. After control Addis counts showed satisfactory agreement, an experimental day was set aside in which two determinations of urea clearance [20] covering two hours each were carried out before and immediately after the ingestion of alcohol. The amount of alcohol given varied from 50 to 200 cc. of a 25 per cent solution by volume of pure ethyl alcohol or of distilled bonded whisky in amounts equivalent to 100 or 200 cc. of 25 per cent pure ethyl alcohol. After the larger doses, signs of intoxication were invariably present, though only to a mild degree. Specimens of blood were analyzed for urea nitrogen [21] and nonprotein nitrogen,[22] and the urea ratio [23] was calculated. The alcohol content of the blood was also determined.[24] On the day on which the alcohol was given the dry diet, starting at 4 p. m., was resumed and the urine collected from 7 p. m. to 7 a. m. the following day. On the following day, if alcohol was again taken, the urea clearance was determined before and after. However, if no alcohol was given on this particular day, the urea clearance was again determined in the afternoon. In most cases Addis counts were carried out for several days after the ingestion of one or more doses of alcohol.

TABLE 1.—*The Immediate Effect of Alcohol and of Alcoholic Liquors on the Normal Kidney and on the Kidney of Bright's Disease*

Case	Age	Sex	Alcohol Ingested: Type	Alcohol Ingested: Quantity	Positive Results
				Normal Group	
3	26	♂	Alcohol	200 cc 25% solution	Diuresis, urine red blood cells and white blood cells increased but not above normal; blood urea nitrogen slightly increased
6	42	♀	Alcohol	200 cc 25% solution	Diuresis; urine red blood cells increased but not above normal, white blood cells and casts increased above normal; blood: urea nitrogen and urea ratio slightly increased; urea clearance increased
9	20	♀	Alcohol	200 cc 25% solution	No significant effects
10	35	♂	Alcohol	200 cc 25% solution	Urea clearance increased
11	16	♂	Alcohol	50 cc. and 100 cc 25% solution in 48 hours	Diuresis, Urine: red blood cells, white blood cells and casts increased but not above normal
				Group with Acute Diffuse Glomerular Nephritis	
2	44	♂	Alcohol	2 doses of 200 cc. 25% solution in 24 hours	Diuresis; proteinuria increased; urine: red blood cells, white blood cells and casts increased; blood. urea nitrogen and nonprotein nitrogen increased
16	30	♂	Scotch whisky	57 5 and 115 cc in 24 hours, equivalent to 100 cc and 200 cc 25% solution of alcohol	Slight diuresis, blood. urea nitrogen and nonprotein nitrogen increased
19	29	♂	Rye whisky	50 and 100 cc in 24 hours, equivalent to 100 cc and 200 cc 25% solution of alcohol	Diuresis; blood: urea nitrogen increased slightly after first dose of alcohol but decreased after second; urea clearance decreased after first dose of alcohol but increased after second
21	30	♂	Rye whisky	50 and 100 cc in 24 hours, equivalent to 100 cc. and 200 cc 25% solution of alcohol	Urine consistent decrease in red blood cells, white blood cells and casts not impaired by ingestion of whisky, blood: urea nitrogen and nonprotein nitrogen decreased
				Group with Chronic Diffuse Glomerular Nephritis	
7	23	♂	Alcohol	200 cc 25% solution	No significant effects
8	33	♀	Alcohol	200 cc 25% solution	Blood urea nitrogen decreased; urea clearance increased
12	25	♂	Alcohol	50 cc and 100 cc 25% solution in 24 hours	Diuresis; blood. urea nitrogen and urea ratio decreased, urea clearance increased
13	42	♀	Alcohol	50 cc 25% solution	Diuresis; urea clearance slightly decreased
14	17	♂	Alcohol	50 cc and 100 cc 25% solution in 24 hours	Diuresis; blood urea nitrogen increased; urea clearance decreased
15	15	♀	Scotch whisky	2 doses of 57 5 cc in 24 hours, equivalent to 100 cc 25% solution of alcohol each	Urine red blood cells and casts decreased, urea clearance temporarily decreased
17	50	♂	Rye whisky	50 cc and 100 cc in 24 hours, equivalent to 100 cc and 200 cc 25% solution of alcohol	Diuresis after second dose only; proteinuria increased
				Group with Arteriosclerotic Nephritis	
1	62	♂	Alcohol	2 doses of 200 cc 25% solution in 24 hours	Diuresis, proteinuria increased; urine red blood cells and white blood cells increased; urea clearance decreased
4	41	♀	Alcohol	200 cc 25% solution	Urine casts increased; urea clearance decreased
5	52	♀	Alcohol	200 cc 25% solution	Blood urea nitrogen increased; urea clearance decreased
18	50	♂	Rye whisky	50 cc and 100 cc in 24 hours, equivalent to 100 cc and 200 cc 25% solution of alcohol	Urine red blood cells and casts increased
20	44	♂	Rye whisky	50 cc and 100 cc in 24 hours, equivalent to 100 cc and 200 cc 25% solution of alcohol	Diuresis; urine: red blood cells, white blood cells and casts increased; urea clearance decreased

RESULTS

The pertinent data and positive observations in all cases are given in table 1. The results may be summarized briefly as follows: 1. In subjects with normal

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kidneys the ingestion of alcohol was occasionally followed by an increase in the excretion of red blood cells, white blood cells and casts in the urine, but the values were rarely elevated above the average normal range. Proteinuria was not induced, nor did any measurable impairment of renal function occur. 2. Alcohol rarely augmented the proteinuria in patients with Bright's disease. 3. Moderate diuresis was frequently induced (this occurred even in patients with marked impairment of renal function). 4. Alcohol did not increase the number of red blood cells and casts in the urine of persons with acute diffuse glomerular nephritis (with the exception of patient 2) or of patients with chronic diffuse glomerular nephritis. The ingestion of alcohol or whisky by patients with arteriosclerotic nephritis (nephrosclerosis) produced a transient increase in the Addis count (with the exception of patient 5). 5. The renal function remained unchanged after the ingestion of alcohol by persons with acute and chronic diffuse glomerular nephritis. It did not delay the recovery of patients with acute diffuse glomerular nephritis, who showed a gradual improvement in renal efficiency.

Impairment of renal function was increased temporarily by the ingestion of alcohol by patients with arteriosclerotic nephritis (nephrosclerosis).

Typical detailed studies of cases of acute diffuse glomerular nephritis, chronic diffuse glomerular nephritis and arteriosclerotic nephritis are given in tables 2, 3 and 4. Table 2 demonstrates that the ingestion of 150 cc. of rye whisky (equivalent to 300 cc. of a 25 per cent solution of pure ethyl alcohol) does not impair the gradual improvement in the Addis count of a patient

TABLE 2 (CASE 21).—*Observations on a Man Aged 30 with Acute Diffuse Glomerular Nephritis*

Date	Time	Volume, Cc.	Specific Gravity	Reaction	Albumin: Gm per 100 Cc.	Albumin: Total, Gm	Addis Count: R.B.C. × 10⁶	Addis Count: W.B.C. × 10⁶	Addis Count: Casts × 10³	Urea Nitrogen, Mg. per 100 Cc.	Nonprotein Nitrogen, Mg. per 100 Cc.	Urea Ratio, %	Urea Clearance, % of Normal	Blood Alcohol, Mg per Cc
19 20	12 hr	720	19	Acid			34 92	17 28	2.400					
23-24	12 hr.	620	19	Acid	1 63	10 1	62 00	23 54	3 440					
24-25	12 hr	470	20	Acid	1 50	7.1	85 00	28 43	3.150					
31-1	12 hr.	780	16	Acid	0 62	4 8	24 57	11.44	3 250					
1-2	12 hr.	620	15	Acid	0 75	4 7	12 40	10 54	2.720					
2 3	12 hr.	860	14	Acid	0 58	4 5	26 60	17.53	3.490					
3 4	12 hr	730	15	Acid	0 82	5 9	25 55	18 99	1 070					
4-5	12 hr	830	16	Acid	0 57	4 7	10 70	7 05	1 820					
6-7	12 hr	740	18	Acid	0 87	6 5	33 30	10 60	1.256					
7 8	12 hr	1,900	8	Acid	0 15	2 8	11.72	9 50	0 739					
8	12 2									21.7	42 2	51	70 3	0
	2	Ingested 50 cc of rye whisky												
	2 4									21.8	40 8	53	66 2	0.50
8-9	12 hr	1,430	7	Acid	0 13	1 9	10 25	5 24	0 352					
9	12 2									18 6			74 4	0
	2	Ingested 100 cc. of rye whisky												
	2 4									18.7	38.0	49	70 5	0 90
9 10	12 hr.	1,250	10	Acid	0 23	2 9	7.91	4 58	0 486					
10	12 2									16 1	30 0	53	72 3	0
10 11	12 hr.	790	16	Acid	0 50	4 0	6 84	11 32	0 556					
11-12	12 hr.	550	15	Acid			3 66	5 86	0 520					
13 14	12 hr.	440	17	Acid	1 25	5 5	3 37	5 28	0 970					
14 15	12 hr	930	15	Acid	0 83	7 7	2 35	3 72	0.782					

TABLE 3 (CASE 12).—*Observations on a Man Aged 25 with Chronic Diffuse Glomerular Nephritis*

Date	Time	Volume, Cc	Specific Gravity	Reaction	Albumin: Gm. per 100 Cc.	Albumin: Total, Gm	Addis Count: R.B.C. × 10⁶	Addis Count: W.B.C. × 10⁶	Addis Count: Casts × 10³	Urea Nitrogen, Mg per 100 Cc.	Nonprotein Nitrogen, Mg per 100 Cc.	Urea Ratio, %	Urea Clearance, % of Normal	Blood Alcohol, Mg per Cc
26 27	12 hr	770	8	Acid	0 68	5 2	15 4	19	118 6					
27-28	12 hr.	1,100	6	Acid	0 57	6 3	46 0	24	285 0					
28 29	12 hr	730	6	Acid	0 74	5 4	54 0	36	890 0					
31 1	12 hr.	450	8	Acid	1 00	4 5	25 0	20	479 0					
1	12 2									43 4	53 1	82	12 3	0
	2	Ingested 50 cc of 25% alcohol												
	2 4									36 9	48 8	75	16 2	0.20
1 2	12 hr.	615	8	Acid	0 98	6 0	42 0	25	284 0					
2	12 2									32 2	51 3	63	15 7	0
	2	Ingested 100 cc. of 25% alcohol												
	2 4									32 6	51.3	64	18 5	0 60
2 3	12 hr.	1,270	2	Neutral	0 40	5 1	23 0	5	0*					
3	12 2									33 0	47.3	69	16 2	0
3 4	12 hr	710	6	Acid	0 69	4 9	63 0	14	477.0					

* The absence of casts in this specimen was probably accounted for by the neutral reaction of the urine.

TABLE 4 (CASE 20).—*Observations on a Man Aged 44 with Arteriosclerotic Nephritis*

Date	Time	Volume, Cc.	Specific Gravity	Reaction	Albumin: Gm per 100 Cc.	Albumin: Total, Gm	Addis Count: R.B.C. × 10⁶	Addis Count: W.B.C. × 10⁶	Addis Count: Casts × 10³	Urea Nitrogen, Mg per 100 Cc.	Nonprotein Nitrogen, Mg per 100 Cc.	Urea Ratio, %	Urea Clearance, % of Normal	Blood Alcohol, Mg per Cc
8-9	12 hr	850	16	Acid	0 83	7.1	3 95	3 28	440 9					
9 10	12 hr.	550	21	Acid	0 92	5 0	3 30	3 12	427 7					
13 14	12 hr.	730	17	Acid	1 70	12 4	2 19	4 26	608 0					
14 15	12 hr	820	15	Acid	0 99	8 1	1 64	2 05	533 0					
15 16	12 hr	720	17	Acid	0 72	5 2	1 80	2 64	333 0					
16	12 2									22 2	40 5	54	57.9	0
	2	Ingested 50 cc. of rye whisky												
	2-4									21 0	36 6	57	64 2	0 60
16 17	12 hr	1,320	16	Acid	0.47	6 2	2 62	4 62	831 0					
17	12 2									18 6	40 0	47	58 3	
	2	Ingested 100 cc. of rye whisky												
	2 4									17.3	39 5	44	30 7	1 10
17-18	12 hr.	1,395	15	Acid	0 27	3.7	18 07	4 40	430 0					
18	12 2									21 6	36 6	59	41.3	0
21 22	12 hr.	1,000	14	Acid	0 77	7 7	5 17	4 00	240 0					

with acute diffuse glomerular nephritis. Table 3 shows that the ingestion of 150 cc. of a 25 per cent solution of alcohol by a patient with chronic diffuse glomerular nephritis is not followed by any deleterious effect on renal function; in fact, the functional capacity of the kidneys shows some improvement, as indicated by a decrease in the urea nitrogen content of the blood, by a diminution in the urea ratio and by an increase in the urea clearance. Table 4 demonstrates a marked increase in the number of red blood cells in the urine and a decrease in the urea clearance for a patient with arteriosclerotic nephritis after the ingestion of 100 cc. of rye whisky (equivalent to 200 cc. of a 25 per cent solution of alcohol). No significant effect was observed after the first and smaller dose, 50 cc. of rye whisky.

COMMENT

These studies do not answer the question as to the part played by alcohol in the causation of Bright's disease. However, it is significant that acute and chronic diffuse glomerular nephritis are not aggravated by alcohol and whisky in the doses given, whereas a transient deleterious effect is observed frequently on arteriosclerotic nephritis.

The following hypothetic considerations are offered in an attempt to explain these observations: Since the taking of alcohol in moderate doses is followed by a peripheral vasodilatation (as indicated by the feeling of warmth and flushing of the skin), a redistribution of blood after its ingestion may diminish the flow of blood through the kidneys. In cases of arteriosclerotic nephritis, diverting blood from the kidney to the skin may aggravate the renal lesion, since in such cases the flow of blood is already impaired by vascular sclerosis. With glomerular lesions, however, particularly acute diffuse glomerular nephritis, such a redistribution of blood would tend to reduce congestion in the glomeruli and the taking of alcohol in moderate doses may even be desirable or at least not be followed by undesirable effects.

The diuresis frequently noted after the ingestion of alcohol or of alcoholic beverages is of clinical importance. The diuretic effect is considered to be due to the large amount of fluid usually imbibed with it or to the presence of other substances (as in the distillates), especially volatile oils, and not to a specific action of the alcohol. In 1910 Mendel and Hilditch [25] gave two young men 96 cc. of 95 per cent alcohol daily in six doses of 16 cc. each and obtained no diuretic response. Their work has been quoted widely, even in modern textbooks,[26] to indicate that alcohol per se is not a diuretic agent. This contention, however, has been refuted by an appreciable amount of work carried out since 1910.[27] The present studies show that alcohol increases the output of urine, even in the presence of decreased functional capacity of the kidneys.

CONCLUSIONS

Alcohol or whisky in moderate doses rarely augments the proteinuria of patients with Bright's disease. Moderate diuresis may be induced even in the presence of marked impairment of renal function. Alcohol or whisky has no deleterious effect on the kidneys of normal subjects, nor does it aggravate the renal lesion in patients with acute or chronic diffuse glomerular nephritis. In patients with arteriosclerotic nephritis (nephrosclerosis) the ingestion of alcohol or of whisky is followed frequently by a transient increase in the number of red and white blood cells and casts excreted in the urine and by a temporary diminution in renal function.

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APPENDICITIS IN ADULTS

REVIEW OF 2,000 CONSECUTIVE CASES, WITH COMMENTS ON THE RISING MORTALITY OF THE ACUTE SUPPURATIVE TYPE

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In 1931 one of us [1] reviewed the records of 1,000 consecutive cases of acute suppurative, acute simple and chronic appendicitis in adults as they occurred in the files of Woman's Hospital. This nomenclature was used in accordance with the pathologic reports on the appendixes sent to the hospital laboratory.

In this paper we present a review of the next thousand cases in adults and compare this series with the former one. We were anxious to learn whether there were wide variations in the statistics and to try to explain them if possible (table 1).

It may be seen that there are no great variations in the data for the two series except for the marked increase in the death rate of acute suppurative appendicitis; this rate has increased from 9 per cent in the first series to 23 per cent in the second. Quain and Waldschmidt [2] reported a mortality rate of 10 per cent in a series of 1,000 cases between 1919 and 1927 and found, as we did, that there was a sharp increase in the mortality to 18.8 per cent in their second series of 1,000 cases during the depression years.

Forty-five of 193 patients in the second group with acute suppurative appendicitis died; the causes are shown in table 2.

In the earlier series the proportions were about the same. These data agree with those of McKenna [3] and Davis and his associates.[4] Davis found among fifty-five deaths forty-one due to immediate and fourteen to remote causes. In McKenna's series fifty-nine were due to immediate and nineteen to remote causes.

From the Woman's Hospital.

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WHY HAS THIS MORTALITY INCREASED?

The increase in mortality can be explained in three words: delay in operation. We have in mind three causes for this delay:

A. *Changed Economic Conditions.*—The first thousand cases occurred from about 1925 to 1930, when the nation was in a prosperous state economically. The second series of 1,000 occurred from 1931 to 1936, when conditions were entirely different. The records show that in the early series the patients were ill for 3.8 days before operation and in the later series for 4.9 days. This means that during these depression years patients delayed operation 29 per cent longer than in better times. This surely increased the mortality rate. Quain and Waldschmidt [2] found that the average time between onset of illness and operation was more than twenty-four hours longer in the second series than in the first and attributed their increase in mortality in part to this delay.

B. *Home Treatment, Especially with Laxatives.*—This subject may be a corollary of the previous one, because the increase of the use of home measures probably is a mirror of the economic state During the delay in reaching surgical aid the patient is using various medicines suggested by those about him, and among them, unfortunately, are laxatives. We have gleaned from the records the facts that in the 1925-1930 series 24 per cent of the patients reported the taking of laxatives for their attack, whereas during the later series 42 per cent reported having done so. We feel that the increase of laxative taking has been partly responsible for the increase in mortality. Of the patients who died of what we term immediate causes twenty-one, or 67 per cent, reported taking laxatives.

We believe that credit should go to Bower [5] of Philadelphia for actively campaigning for education of the public in this regard. He compiled the results obtained in several hospitals and found that of 306 patients who died of acute suppurative appendicitis 147, nearly half, had taken laxatives. In another series he reported that 91.6 per cent of 214 patients who died of acute diffuse peritonitis had taken them. Blackburn [6] reported a series of cases in which one of sixteen patients who used a purgative died, whereas of those who had not used laxatives only one of 109 died

In our series we tried to estimate from the history the length of time from the rupture of the appendix until the operation.

Twenty-eight of our 190 patients with acute suppurative appendicitis in the second series were operated on less than twenty-four hours after the rupture; only 3.5 per cent died. Of eighty-six who were operated on forty-eight or more hours after rupture, 32 per cent died.

Giertz [7] of Stockholm found about the same proportions. His figures are 3.5 per cent mortality if the operation was done within forty-eight hours of the onset of peritonitis and 23 per cent if more than forty-eight hours had intervened.

C. *Delay in Operation Because of Urinary Abnormality.*—In going over the records we were not surprised to find the usual variations in leukocyte counts, temperature and pulse readings, but we did not expect to find so many laboratory reports of red blood cells in the urine. In the first series only those cases in which a considerable number of red blood cells were reported by the laboratory were noted in the statistics, whereas in the second series any mention of red blood cells, even though of only an occasional cell, was noted, which may account in part for the great variance

Hematuria Associated with Acute Appendicitis: It has often been said jocularly that every patient with chronic genito-urinary symptoms has a McBurney scar. Genito-urinary symptoms and signs may often obscure the picture of acute appendicitis and thereby delay operation and increase the mortality rate Hematuria is the most important offender among the urinary abnormalities and deserves discussion.

Collins [8] reported 1,402 consecutive cases of emergency appendectomy. Hematuria was found in 88 per cent of these. He stated that exclusion of other causes of the hematuria delayed operation an average of four hours and increased mortality from 4.7 to 6.2 per cent In our series, with acute and suppurative appendicitis

TABLE 1.—*Composite Statistics (in Percentages)**

	Acute		Chronic		Suppurative		Total	
Male	41	49	27	47	60	60	37 6	50 0
Female	59	51	73	53	40.	40	62 4	50 0
Pain	99	92	98	93	99 5	98	98 5	76 7
Nausea	66	66	47	30	78	78	58 7	58 2
Vomiting	52	48	28	17	66	63	42 4	42 3
Constipation	38	39	40	21	32	35	38 1.	33 0
Rigidity	51	59	20	4 8	77	79	40 7	41.5
Distention	7 5	22	5 0	2 4	18.	34	8 5	18 8
Tenderness at McBurney's point	56	69	50	34	43	64	44 5	58 6
Tenderness in right lower quadrant	38	74	50	50	53	73	45 9	67 1
Complications	4 0	4 0	6 0	6 8	7.7.	14	5 8	6 8
Results (deaths)	2 7	1 2	1 4	1 0	9 3.	23 0	3 3	5 4
Urinary data	WBC 20 RBC 10 Casts 00	14 6 5.6 0 8	WBC 30. RBC 10 Casts 08	15 2 3 9 2 1	WBC 50 RBC 20 Casts 12	24 2 12 1 0 6	WBC 33 RBC. 13 Casts 06	18 0 7 2 1 6
Average values								
Temperature	99 9	100 7	98 7	99 1	100 4	101 1	99 7	100 2
Pulse rate	95 5	98 0	86 2	84 0	101 0	104 0	94 2	94 5
White blood cell count	14,340	15,480	10,660	7,940	17,320	14,600	14,100	12 325

* The figures for the first series are in regular type; for the second, in boldface

5 Bower, J O The Mortality of Acute Appendicitis, J. A M A. 99: 1765-1768 (Nov 19) 1932

6 Blackburn, J H The Factors that Maintain the High Death Rate in Acute Appendicitis, South. M J. 28: 141 144 (Feb) 1935

7 Giertz, K N · Twenty Five Years' Experience in the Treatment of Peritonitis, Ann Surg 104: 712-735 (Oct) 1936

8 Collins, D C · Hematuria Associated with Acute Appendicitis Urol & Cutan Rev. 42: 22 (Jan) 1938

hematuria occurred in 7.9 per cent, a not infrequent occurrence. The incidence of hematuria with acute retrocecal appendicitis is great. Collins found it present in 83.9 per cent of his cases and we found it in 62 per cent of ours. This high incidence is due to the close proximity of the acutely inflamed organ to the ureter, causing secondary ureteritis.

TABLE 2.—*Causes of Death in Forty-Five Cases of Acute Suppurative Appendicitis*

Immediate Causes of Death—	
General peritonitis	18
General peritonitis with paralytic ileus	11
Septicemia	1
General peritonitis with gas gangrene	1
Remote Causes of Death—	
Postoperative pneumonia	13
Pulmonary embolus	1

When the surgeon is confronted with such a condition in a patient suspected of having acute appendicitis, what is he to do? Delay may be dangerous, yet he does not wish to remove a normal appendix. Certainly a quick and reasonably thorough investigation of the urinary tract should be made before any operative procedure is undertaken. Catheterized specimens should be examined to exclude any possible extraneous sources of contamination. If erythrocytes are still present, a plain roentgenogram of the urinary tract is the next step. If this reveals no calculi, he should then take stock of the situation. Often this amount of information, admittedly not thorough, but with the other laboratory data and the clinical picture, is enough to warrant an exploratory laparotomy. There are occasions, however, when the clinical picture is still indefinite, despite this additional information, and the next step is intravenous pyelographic study, to visualize the urinary tract and further to rule out any calculi, ureteral strictures, torsion or tumors. A final step, if time and conditions permit, is cystoscopic study and catheterization of the ureters.

Let us again call attention to the frequency of hematuria in cases of acute appendicitis, particularly if the appendix is retrocecal. We do not believe that a surgeon should relax his vigil when faced with hematuria and allow time to supply the answer. Appendicitis is exacting too high a mortality already. It is the surgeon's duty to conduct a prompt investigation of the urinary tract as thorough as the condition of the patient allows.

Experience of Others.—We do not feel proud of our mortality statistics, but we are not so chagrined when we compare them with others (table 3).

TREATMENT OF DIFFUSE APPENDICAL PERITONITIS

We do not feel it necessary or suitable in this paper to discuss all the details of treatment of appendicitis in general; instead we wish to convey the ideas of ourselves and others with regard to two features of the treatment of diffuse or general peritonitis secondary to acute suppurative appendicitis with rupture. No one form of treatment of this condition is practiced by all surgeons. From the literature we have found that a number of representative surgeons favor deferring any operation in a certain type of diffuse appendical peritonitis. Only a few cases fit into this category, but they are plentiful enough so that the matter should be presented.

A. *Deferred Operation.*—Coller and Potter [9] have expressed the belief that operation should be postponed until a propitious time in all cases in which the appendix has ruptured and peritonitis has developed to the extent of being generalized. If they first see the patient two or three days after peritonitis has begun and it has become diffuse, they are inclined, if the patient's condition will allow, to wait from six to eight weeks and to secure as great localization as possible before operating. Guerry [10] has stated the opinion that this plan applies more to late than to early diffuse peritonitis.

If this plan is followed, the well known 1892 Ochsner[11] method of treatment is employed. This is directed toward allowing the entire gastrointestinal tract as near complete rest as possible, plus the use of fluids parenterally administered, liberal amounts of opiates, Fowler's position and dry heat to the abdomen.

Again let us emphasize that comparatively few cases arise in which the question of deferred operation occurs.

Reid and his associates [12] have recommended and practiced the Ochsner treatment in certain cases, in the hope of lowering the mortality rate in this small group.

Guerry [10] compared two series. In the first, with immediate operation, the mortality rate was 10 per cent; in the second, in which operation was postponed, the rate was 1.4 per cent.

Coller and Potter [9] reported a series in which operation was deferred with a death rate of 9.4 per cent.

B. *Immediate Operation.*—Operation should not be deferred in cases of (1) acute simple appendicitis, (2) early suppurative appendicitis before generalized peritonitis has developed, (3) suppurative appendicitis with localized abscess, (4) general peritonitis associated with pregnancy and (5) doubtful diagnosis.

C. *Drainage vs. Nondrainage in Appendical Peritonitis.*—We recognize the fact that the policy of deferring operation applies to only a few cases of suppurative appendicitis and that the large majority of

TABLE 3.—*Mortality of Appendicitis*

Source	Type of Appendicitis	Mortality Rate, %
Reid and his associates [12]	Rupture with localized abscess	11.4
	Rupture with general peritonitis	33.9
Davis and his associates [4]	Acute gangrenous	8.02
	Acute, with rupture	25.5
McKenna [3]	Gangrenous with peritonitis	19.0
	Gangrenous with rupture	46.1
Hur, D. K.: Illinois M. J. 69: 447 (May) 1936	Rupture with local peritonitis	10.0
	Rupture with diffuse peritonitis	18.5
Nuzum, T. W.: Wisconsin M. J. 35: 109 (Feb.) 1936	Suppurative	7.5
Our Series		
First 1,000	Acute suppurative	9.5
Second 1,000	Acute suppurative	23.3
2,000 averaged	Acute suppurative	16.4

patients should be operated on without delay. The subject we wish to discuss here is when drainage should be used and when not used.

Drainage should be used in all cases of walled-off abscess formation. If the appendix is readily accessible it should be removed; if not, it should be left alone to avoid manipulation with resultant breaking of pro-

9. Coller, F. A., and Potter, E. B.: The Treatment of Peritonitis Associated with Appendicitis, J. A. M. A. **103**: 1753-1760 (Dec. 8) 1934.
10. Guerry, LeGrand: Mortality from Appendicitis, J. A. M. A. **107**: 1910 (Dec. 5) 1936.
11. Ochsner, A. J.: The Cause of Diffuse Peritonitis Complicating Appendicitis and Its Prevention, J. A. M. A. **36**: 1747 (June 22) 1901; abstr., Am. J. Surg. & Gynec. **15**: 84, 1902.
12. Reid, M. R.; Poer, D. H., and Merrell, Paul: Statistical Study of 2,921 Cases of Appendicitis, J. A. M. A. **106**: 665-669 (Feb. 19) 1936.

tective adhesions and spreading of infection; also, if the appendix is not removed, drainage should be used even though general peritonitis is present. However, if the appendix is removed, and even though general peritonitis is present with free fluid throughout the abdomen, and that fluid frank pus, drainage should not be employed. The objections to drainage in this condition are:

1. It is impossible to drain the entire abdominal cavity.
2. The material forming the drains stimulates the formation of additional adhesions between the abdominal organs and the peritoneal surfaces and increases the danger of intestinal obstruction and mechanical ileus.
3. A wide and weakened incision with its accompanying direct hernia is a frequent complication.
4. These developments prolong hospital stay and expense.
5. These factors definitely increase the mortality rate according to most surgeons.

In this connection Cafritz[13] quoted Marchini as reporting 285 cases in which drainage was used and 158 in which it was not. In the former group the death rate was 14 per cent and in the latter 5.6 per cent. Krasnoselskiy[14] reported 1,944 cases, with 17 per cent mortality in the drainage group and 1.5 per cent in the nondrainage group. In our own group only nineteen patients were treated by closure without drainage; there was but one death, and that from postoperative pneumonia. The other 171 patients had drainage, and forty-four died, a rate of 25.7 per cent. These figures seem significant, even though our series is small and not divided according to the presence or absence of localized abscess.

REMEDIES

A. *Education of the Public.*—It is probably too soon to estimate the results of the Philadelphia campaign, but it seems to us to be the one most efficient means of getting the public to cooperate by seeking early medical attention for abdominal pain. If economic conditions improve, this delay on the patient's part will be lessened, but in the meantime persons should be told to pocket their pride and seek medical aid regardless of their circumstances if they have pain in the abdomen. For this educational measure the great publicity mediums of newspapers, magazines, radios, public speeches and placards can well be used, as they are being employed now in the campaigns against cancer and syphilis. Especial attention must be placed on the danger of taking purgatives in the presence of abdominal pain.

B. *Education of the Physician.*—It seems trite to state that the physician should be told that with few exceptions appendicitis is a surgical disease. Rarely the patient has another disease that precludes operation, but modern surgery and modern methods of anesthesia make the operation in cases of early involvement so simple that a patient with advanced degenerative disease or serious infection can tolerate it with reasonable safety.

Early operation is another important factor. The mortality rate of chronic and uncomplicated acute appendicitis is so low that it is well worthwhile to remove the organ promptly and avoid the dangers of delay.

13. Cafritz, E. A.: Nondrainage of the Peritoneal Cavity in Appendical Peritonitis, J. A. M. A. **108**: 1315-1317 (April 17) 1937.
14. Krasnoselskiy, M. V.: Treatment of Appendical Peritonitis Without Drainage, Vestnik khir. **40**: 193, 1935; abstr., J. A. M. A. **105**: 2120 (Dec 21) 1935

SUMMARY

We have analyzed another thousand cases of chronic, acute simple and acute suppurative appendicitis in order of occurrence at Woman's Hospital and have found no great variations from the first thousand cases except a sharp increase in the mortality rate (9 per cent to 23 per cent) for the acute suppurative type.

We believe the increased mortality to be due to delay in operation and that in turn to (*a*) economic causes, (*b*) the tendency to use home remedies, including purgatives, for a protracted time and (*c*) complicating factors in diagnosis causing delay in operation.

In a few cases of suppurative appendicitis the operation should be deferred. In the greater number, however, surgical measures should be taken at once. A decrease in the mortality rate can be obtained by education of the public to avoid delay in seeking medical attention and by education of the physician to take prompt action when indicated.

BOWEL ANTIGEN

IV. THE CLINICAL USE OF A NEW METHOD TO DETERMINE THE PRESENCE OF THE VIRUS OF LYMPHOGRANULOMA VENEREUM IN THE DIFFERENTIAL DIAGNOSIS OF INTESTINAL INVOLVEMENTS

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I. EXPERIMENTAL AND CLINICAL BACKGROUND FOR THE CLINICAL USE OF BOWEL ANTIGEN[1]

Involvements of the intestine of known cause are those due to neoplasms, bacterial and parasitic infections, bacterial toxins associated with food poisoning, vitamin deficiencies and the excretion of poisonous chemicals A decade ago lymphogranuloma venereum, now generally regarded as due to a virus, was associated with rectal stricture because of the frequent concomitant occurrence of the latter condition with a positive Frei reaction. More recently some authors have assumed that a positive Frei reaction associated with intestinal diseases indistinguishable pathologically and clinically from bowel disorders of diverse or unknown origin is indicative that this virus is the cause. This is true in many instances, but given a specific case it is not possible merely by means of the Frei reaction to establish such a connection. Even the clinical aspects and the pathologic picture of lymphogranuloma venereum are not pathognomonic.

The most that can be said is that a positive Frei reaction in association with a bowel disorder can suggest the possibility of viral origin. A positive Frei reaction is an allergic intracutaneous response to inactivated bubo pus containing the virus of lymphogranuloma venereum. It merely establishes the fact that the

From the Gastro-Enterological Section and Laboratories of the Medical Clinic of the Johns Hopkins University and Hospital

Read at the third annual convention of the National Society for the Advancement of Gastroenterology, New York, June 2, 1938

1. The term antigen strictly speaking is limited to substances known to engender antibodies when injected into the animal organism "Bowel antigens" may or may not produce them; their composition is not completely known, but this term has been used because all bowel antigens are manipulated in much the same manner as other true antigens. Bowel antigen and associated terms have also been employed to avoid confusion by readily distinguishing the bowel antigen and its response from the Frei antigen and its reaction.

reacting subject is or has been infected at some time in his life with this virus. The Frei reaction will be positive even though this viral infection has ended as a simple bubo. The viral infection, active, inactive or terminated, resulting in a positive Frei reaction, may bear no relation to the intestinal involvement. A positive Frei reaction does not establish the presence of the virus in any involved tissue except in the bubo. Any other deduction is simply inferential attended by all the limitations of such reasoning. Indeed, not all patients infected with the virus of lymphogranuloma venereum, with or without concomitant intestinal disturbances, give positive Frei reactions.

Bowel antigen—a new, practical diagnostic aid—appears to offer a more direct and specific method of determining the presence of the virus in intestinal tissue and discharge, both *ante* and *post mortem*. Inactivated blood, mucus, pus and intestinal contents grossly free from feces compose what is known as a bowel *discharge antigen*. *Bowel tissue free from fecal contamination*, preferably fresh and unfixed, macerated and inactivated, makes up bowel tissue antigen. The preparation of the patient and the technic for the securing of material for use as bowel antigens, the preparation of the antigens, their intracutaneous inoculations into a minimum of three subjects known to have a positive reaction to the Frei antigen and into at least three controls, neither group manifesting any systemic disorder or organic gastrointestinal disease, and the interpretations of the reactions have been discussed in detail elsewhere.[2]

A positive reaction to bowel antigen parallels the positive response to Frei antigen inoculated simultaneously for purposes of comparison.

A positive bowel antigen (one producing positive reactions) indicates the presence of the virus in the tissue or in the discharge of the patient from whom the material was secured. A negative bowel tissue antigen prepared from actively involved tissue is more significant than a negative bowel discharge antigen, because in the latter the antigenic material may be too greatly diluted or lost as a result of dysentery. Neither type of negative antigen determines the absence of the virus as conclusively as a positive antigen indicates its presence.

The conclusion that a positive bowel antigen indicates the presence of the virus in the tissue or discharge of the patient from whom it was secured is based on analogy and experimental evidence, which also indicates its pathogenic significance.

A. *Analogy.*—A positive bowel antigen like the Frei antigen will produce positive responses in persons known to have been infected with the virus of lymphogranuloma venereum. The type of intradermal reaction, unlike any produced by known bacteria, toxins, foreign proteins or other allergens, and their interpretations are identical. Strains of both Frei and bowel antigens vary similarly in their antigenic qualities. Control subjects, free from systemic or organic gastrointestinal disease, give negative reactions to both types of antigens. Bowel antigens produce a negligible number of false positive reactions. This is striking when one considers their present crudity.

The only reference encountered to work of a similar nature is that of Nicolas, Favre, Lebeuf and Charpy,[3] who secured an antigen from the pus exuding from a fistula of a person with anorectal elephantiasis and a positive Frei reaction. In three persons with positive Frei reactions this antigen produced a positive response. No control work of any nature or details of technic and of interpretations are reported. A similar effort with material from a similar source was reported by Wien and Perlstein. The same criticism can be offered of their work.

B. *Experimental Evidence.*—1. Findlay[4] summarized the data to 1936 as follows:

> Ravaut, Levaditi, Lambling and Cachera (1932), and Laederich, Levaditi, Mamou and Beauchesne (1932), by an ingenious technic, isolated from inflamed rectal tissue [vegetation secured by biopsy] a virus which agreed in every way with the viruses isolated from cases of lymphogranuloma inguinale by Hellerström and Wassén (1930), Levaditi et al. (1931) and Findlay (1932). A similar virus isolated by Mocquot, Levaditi and Reinié (1935), from an inflammatory condition [vegetation secured by biopsy] of the colon, proved of considerable interest, for with this strain Levaditi, Mollaret and Reinié (1935) produced the histological changes characteristic of lymphogranuloma inguinale in the rectum of chimpanzees by direct inoculation into the mucosa, while in human volunteers they reproduced the primary penile sore with involvement of the inguinal glands—the lesions typical of lymphogranuloma inguinale. [The human subjects were negative to the Frei antigen prior to the inoculation and positive to it subsequently.] A green monkey Cercopithecus calli thrix was inoculated (Findlay, 1935) immediately anterior to the rectum, with a virus isolated in this country from the enlarged inguinal glands of a patient with genital lymphogranuloma inguinale and passed through mouse brains. Ten days after inoculation the monkey was killed and a swelling about the size of a hazelnut was found at the site of injection, while the mesenteric glands were swollen. From the inflamed tissues involving the rectal wall—which histologically were characteristic of lymphogranuloma inguinale—and from the mesenteric lymph nodes there was recovered a virus that produced meningitis in mice and resembled in all respects the virus of lymphogranuloma inguinale. There is thus little doubt that the same virus is responsible both for the genital lesions of lymphogranuloma inguinale and for the rectal lesions associated with certain cases of stricture.

2. A male dog was parenterally inoculated by me[5] with uninactivated bowel discharge from a patient from whom a positive bowel discharge antigen had been obtained. The dog's intradermal reactions to two active human Frei antigens were positive at fourteen days. Prior to administration of bowel discharge the animal gave a negative reaction to three active Frei antigens, one of which produced one of the two positive reactions referred to. A control antigen consisting of inactivated bubo pus of nonspecific origin from several human sources produced no reaction. This, it is believed, tends to establish further that the virus is present in material from which a positive bowel antigen is made, and the intradermal response is brought about by the virus or an associated product.

A stricture or vegetations with or without colitis have not been produced with this virus experimentally. The evidence to date seems to establish that the virus is present in vegetations and strictures associated with

with Positive Frei Tests, Am. J. Digest. Dis. & Nutrition **3**: 662-673 (Nov.) 1936; A New Diagnostic Intradermal Reaction with Bowel Antigen Indicating the Presence of the Virus of Venereal Lymphogranuloma in the Intestine and *Differentiating Colitis Associated with that Virus*, J. A. M. A. **109**: 1880-1886 (Dec. 4) 1937; footnote 5.

3. Nicolas, J.; Favre, M.; Lebeuf, F., and Charpy, J.: Intradermoréactions positives dans la maladie de Nicolas-Favre (trois cas) avec une antigène tiré d'une forme ancrectale éléphantiasique de la maladie, Bull. Soc. franç. de dermat. et syph. **39**: 24 (Jan.) 1932.

4. Findlay, G. M., in Discussion on the Etiology and Treatment of Fibrous Stricture of the Rectum (Including Lymphogranuloma Inguinale), Proc. Roy. Soc. Med. **29**: 1449 (Sept.) 1936.

5. Paulson, Moses: III. The Diagnosis of Colitis Associated with the Virus of Lymphogranuloma Venereum by Bowel Antigen, Am. J. Digest. Dis. & Nutrition **5**: 554-562 (Nov.) 1938.

rectal involvements in many persons with positive Frei reactions. It also shows that it is present in the bowel discharge as well as in bowel tissue, with or without stricture, elephantiasis or fistula. The evidence points out that this agent is identical with the virus encountered in the genital phase of lymphogranuloma venereum. The ability of the virus obtained from rectal vegetations to reproduce genital lymphogranuloma venereum in man, and inguinal adenopathy and meningoencephalitis in lower animals establishes its pathogenic propensities. In view of this and much striking clinical evidence, it seems reasonably safe to assume at this time that the presence of the virus in the intestine as indicated by a positive bowel antigen is of pathogenic significance. Bowel antigen seems now to have made possible the practical clinical application of the experimental data adduced heretofore.

II. THE APPLICATION AND SIGNIFICANCE OF BOWEL ANTIGEN IN CLINICAL PRACTICE

A. *Rectal Stricture.*—The colonic involvement commonly recognized as due to the virus of lymphogranuloma venereum is the advanced stage of the disease. It appears as a rectal stricture in a person with a positive Frei reaction, frequently with fistulas and anal and genital elephantiasis, often associated with ulceration and polyposis. This relatively easily recognized clinical picture is now no longer a diagnostic problem. The use of bowel antigen here would not seem essential; however, its use may be desirable for confirmation.

This clinical state, even in the absence of a positive Frei reaction, has been considered as due to this virus. The discrepancy is explained on the basis of anergy. It has been estimated by Frei that about 10 per cent of such cases manifest anergy. The actual extent of this phenomenon is not known, since not all rectal strictures and not all the so-called typical clinical states referred to are due to the virus of lymphogranuloma venereum. Also, the extent of anergy in the absence of this advanced stage or in states indistinguishable from those brought about by other agents has yet to be determined. At this writing the only direct method of establishing anergy in either of these typical or less typical conditions rests on the procuring of a positive bowel antigen.

The following cases of the typical or advanced bowel states usually associated with lymphogranuloma venereum but with negative Frei reactions are illustrative of the use and significance of bowel antigen:

CASE 1.—A white man, an American, aged 59, seen in 1937 because of rectal stricture and ulcerative colitis, in 1922 had had inguinal adenopathy on the right which was drained. In 1927 a stricture of the lower part of the rectum was discovered. In 1937, when the Frei antigen was first used on him, he gave a negative reaction to five active human strains.

Was the bubo due to the virus of lymphogranuloma venereum? Were the colitis and stricture, occurring five years after his bubo, due to this virus? Were they unrelated? Was this case one of anergy?

His bowel discharge antigen produced eight positive and five negative responses in thirteen patients with positive Frei reactions and twenty-three negative reactions in twenty-three patients with negative Frei reactions. Here bowel antigen indicated clearly that the problem—one of anergy—was associated with the virus of lymphogranuloma venereum.

CASE 2.—A white woman aged 48, seen in consultation by me in the diagnostic clinic of the Johns Hopkins Hospital for rectal pain and bleeding, five years previously had undergone excision of the left kidney presumably for relief of lithiasis. A sinus exuding pus persisted in the postoperative wound. The perineum and labia majora were "indurated and stony hard"; the vagina did not permit the insertion of a finger. The anus, through which only the tip of the small finger could be inserted, was strictured and fissured and discharged pus; a rectoscope with a two-eighths inch diameter could not be passed for more than 2 or 3 cm. The anogenital tissues were hypertrophied.

Both the gynecologist and I at first thought the problem to be one of lymphogranuloma venereum, for the clinical picture was highly suggestive. When the patient failed to react to five different strains of active human Frei antigen, the following questions arose: Was the case one of anergy? The sinus persisting after nephrectomy suggested tuberculosis. The Wassermann reaction of the blood was negative, and the patient had had no antisyphilitic therapy. Was the condition malignant? A biopsy specimen of anal tissue and a bowel discharge antigen were obtained. Injection into guinea-pigs of material from the nephrectomy wound produced no sign of tuberculosis. The bowel antigen gave negative results and the pathologist reported squamous cell carcinoma.

This case teaches that even the advanced clinical state said to be typical of lymphogranuloma venereum may be a manifestation of other conditions. As lymphogranuloma venereum is increasingly emphasized, there is danger of overlooking or forgetting other etiologic factors in clinically similar situations. Lymphogranuloma venereum, which in this instance at first seemed unmistakable, could not be established. While it is still possible that the virus may have borne some relation to this problem, experience with bowel antigen appears to make this possibility more remote.

Further Comment: The significance of bowel antigen is emphasized when these two illustrative cases and their implications are considered together. Both patients were white, one a man and the other a woman; both presented strictures; the man also had ulcerative colitis above the stricture; both failed to respond to multiple active human Frei antigens; both had the typical clinical picture of lymphogranuloma venereum, the man giving a history of the genital phase, the woman —as is often the case—having no knowledge of the earlier phases. Only by inference, by virtue of the so-called typical clinical picture, could it be assumed that the infection in each case was due to the virus of lymphogranuloma venereum. Even this inference was not particularly strong when the patients failed to respond to the Frei antigen. In the man, the presence of the virus was determined by obtaining a positive bowel antigen, not an inferential but a direct diagnostic procedure. The woman's antigen was negative and the problem was solved by the finding of squamous cell carcinoma. Bowel antigen provides a direct indication of the presence of intestinal venereal lymphogranuloma. It reduces the necessity for inference. What inference may lead to is exemplified specifically by the fact that for years every stricture of the rectum was regarded as due to syphilis because some persons with strictures had positive Wassermann reactions.

B. *Other Intestinal Conditions.*—Bowel antigen is of import in the differential diagnosis of intestinal disorders, particularly when the clinical manifestations appear to be at variance with the so-called typical clinical distal state of intestinal lymphogranuloma venereum already referred to. It is with such problems, now not generally recognized as possibly associated

with this virus, that bowel antigen should find its greatest usefulness, as indicated by the following cases:

1. Dysentery:

CASE 3.—*Ulcerative colitis with a negative Frei reaction.* A Negress aged 24, examined Dec. 22, 1937, because of rectal pain and bleeding on defecation, had noted a "lump in the right groin" on November 18. Gynecologic examination revealed bilateral inguinal adenopathy. There was no rectovaginal fistula or anogenital elephantiasis. Vaginal smears showed no gonococci. She failed to react to chancroidal vaccine and to multiple human Frei antigens as late as May 1938, and numerous attempts to aspirate pus from the buboes were unsuccessful. Rectosigmoidoscopic study revealed progressively severe colitis without mass or stricture, exuding blood and mucopus and extending from the anorectal margin 12 or 15 cm., the brunt of the involvement being within the first 5 cm. Bacteriologic, parasitologic, serologic and roentgenologic study gave no significant information.

My inability to ascribe this patient's inguinal adenopathy to lymphogranuloma venereum, her consistent failure to react to multiple human Frei antigens, the absence of an intestinal or genital picture suggestive of lymphogranuloma venereum and the lack of evidence suggesting any other etiologic agent resulted in the condition being designated nonspecific ulcerative colitis.

However, the bowel antigen obtained in this case gave six positive reactions in eleven patients with positive Frei reactions and no reactions in ten patients with negative Frei reactions. A positive discharge antigen from the generative tract was also secured. This will be the subject of a forthcoming publication.

Thus it was demonstrated with bowel antigen that this apparent nonspecific ulcerative colitis was actually associated with the virus of lymphogranuloma venereum. Anergy, in this case not clinically typical of lymphogranuloma venereum, could have been discovered only by this procedure.

Anergy, together with the failure to recognize the possible association of this virus with intestinal conditions different in appearance from those described as "typical," results in a reported frequency of viral infection lower than the probable true incidence. Bowel antigen should aid in such determination.

CASE 4.—*Ulcerative colitis with a positive Frei reaction.* A Negro aged 19 with a positive Frei reaction had typical, apparently indeterminate ulcerative colitis without stricture three years after a bubo involvement. Was the intestinal disorder unrelated to his venereal disease? The answer rests on the fact that ten of eleven patients with positive Frei reactions gave positive reactions to his bowel discharge antigen; eighteen with negative Frei reactions gave negative reactions to it; there were no false positive reactions.

Further Comment: What might be expected from the use of bowel antigen is again emphasized when the two foregoing cases are considered together. Both patients had had buboes; the man gave positive Frei reactions; the woman failed repeatedly to respond to multiple active strains of human Frei antigen. Both had apparent typical nonspecific ulcerative colitis. If inference were to establish the virus of lymphogranuloma venereum as the cause of ulcerative colitis because of a positive Frei reaction and a previous bubo in the case of the man, was inference also to result in the contrary conclusion for the woman when there was a bubo which might have been due to any one of several agents and no response to the Frei antigen? A positive bowel antigen from each solved the problem not by inference but by directly indicating the presence of the virus of lymphogranuloma venereum in the involved intestine. Clinically such a result might well be regarded as of etiologic significance.

Bowel antigen makes possible the detection of intestinal venereal lymphogranuloma before the clinical picture becomes advanced and typical, thus facilitating early therapy in the hope of avoiding the later, frequently incurable manifestations. The incidence of venereal lymphogranuloma in cases of so-called typical ulcerative colitis is as yet not known. Bowel antigen offers the only practical available means for its determination.

2. Inflammation of the Terminal Portion of the Ileum, Cecum and Ascending Colon with Positive Frei Reaction:

CASE 5.—A Negro aged 27 came to the hospital Oct. 28, 1937, because of a painful lump to the right of the umbilicus, which he had noted for the first time two days prior to admission. Two weeks earlier he experienced a generalized dull ache in the right upper part of the abdomen, which apparently had come on during the course of an evening and persisted until admission. There was daily defecation. No change in the consistency of the stools, no mucus, pus or bright red blood in the feces and no melena, nausea, vomiting, chills or urinary symptoms were encountered. The temperature was 100.2 F., the pulse rate 78, the respiratory rate 18, and the blood pressure 112/80. A movable tender mass, not attached to the liver, 2 inches to the right of the umbilicus was noted. Rectal examination including examination of the prostate gave negative results. The urine was normal, and the white blood cell count was 12,000. The tentative diagnosis was of "inflamed appendix causing inflammation and matting of a loop of the intestine, or a cecal mass either tuberculous or malignant."

In 1934 he was seen during intense abdominal pain and in mild shock. A perforated duodenal ulcer was closed. In 1930 he had had gonorrhea.

At operation it was difficult to decide whether the condition of the resected cecum, ascending colon and terminal portion of the ileum was inflammatory or malignant. The impression of the pathologist, who found a foreign body ("a piece of wood or a piece of peach or prune pit") embedded in the mass, was that the process was active nonspecific inflammation. It appeared not unlike that described for either regional ileitis or lymphogranuloma venereum. The results of subsequent efforts to clarify its causation with respect to tuberculosis and infection by the typhoid-paratyphoid-dysentery group of organisms were negative. The patient did not respond to Ducrey bacillus antigen. He gave a positive Frei reaction, but he stated that he had had no bubo involvement and there was no inguinal scarring.

The clinical manifestations and gross and microscopic study of tissue and other investigations offered no aid in ascertaining the cause. The positive Frei reaction merely suggested a possible association between the virus of lymphogranuloma venereum and the lesion. The bowel tissue antigen was negative in six cases of positive and in six of negative Frei reactions.

If the virus was the cause of such an active process, it was reasonable to expect its presence in the involved tissue and hence its manifestation by this method because of the relative ease with which I have secured positive tissue antigens from the rectum and sigmoid flexure. At any rate, this negative antigen casts further doubt on the inference that because the Frei test gave a positive result the virus of lymphogranuloma venereum was the causative agent.

Bowel tissue antigen and bowel discharge antigen should be employed in all cases of obscure intestinal disorders. When there is a positive Frei reaction, bowel antigen offers the only practical method to determine the connection between such a reaction and the cause of the lesion. Even when the Frei test is negative, the virus may be present in the lesion (anergy). Bowel antigen is the only available practical means by which the cause in these cases can be discovered.

III. SUMMARY

The evidence to date—experimental and clinical—supports the view that the virus of lymphogranuloma venereum in intestinal discharge or tissue is of pathogenic significance. The only direct clinical method now available to determine the presence of the virus in such sources is in the use of bowel antigen. When bowel antigen is positive it indicates the virus of lymphogranuloma venereum in the bowel tissue or discharge from which it is obtained.

Bowel antigen is important because:

1. The clinical picture is not pathognomonic. The so-called typical state of intestinal lymphogranuloma venereum is not always caused by this virus.

2. Some cases clinically indistinguishable from nonspecific ulcerative proctitis or colitis are found associated with the virus of lymphogranuloma venereum by means of bowel antigen.

3. The pathologic picture—grossly and histologically—is not pathognomonic. Bowel antigen may aid in differential diagnosis ante and post mortem.

4. The Frei antigen alone in differential diagnosis is inadequate because:

(*a*) The patient may give no reaction to Frei antigen, and bowel antigen may indicate virus presence (anergy).

(*b*) A positive Frei reaction may be produced by an antedated or healed virus infection or one unrelated to the bowel disturbance.

Medical Arts Building.

ALLERGIC MANIFESTATIONS WITH INJECTION TREATMENT OF VARICOSE VEINS

DEATH FOLLOWING AN INJECTION OF MONOETHANOLAMINE OLEATE (MONOLATE)

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Deaths resulting from injections given in the treatment of varicose veins fortunately have been very rare. Reports of death due to emboli have practically disappeared from the medical literature since the use of coagulant solutions has been given up and since the realization has become general that the patients during the course of their treatment must be kept ambulatory.

However, the hazard from the phenomena of allergy has not been eliminated and remains a real danger which must be borne in mind continuously by surgeons using injections in the treatment of varicose veins.

REACTIONS ACCORDING TO THE SOLUTION USED

The various sodium chloride or sugar solutions are not entirely free from this danger, as nitrogenous impurities may be contained in them. The resultant reactions of course should occur but rarely and be minor. That they do occur is borne out by Probestein's [1] report of a nitritoid reaction after the injection of a solution of invert sugar. In 1938 a case [2] was described in which dermatitis of the involved leg with a slight dermatitis on both arms and the sacral regi developed after the second injection of the solution.

In addition to the typical evidences of salicylis which frequently follow the use of sodium salicyla for injecting varicose veins, Meisen [3] has noted urticar following its use.

Quinine, when used as a solution of quinine ar urethane, not infrequently causes urticaria or derm titis, which may even develop into severe weepir eczema. Immediately after the injection of this sol tion into a patient sensitive to quinine a generaliz urticaria may develop, associated with asthma so seve that the patient is unable to breathe until given a lar dose of epinephrine hydrochloride. I know of no ca in which this has been fatal but have never seen a ca in which epinephrine was not given immediately.

Sodium morrhuate causes a variety of allergic rea tions. This fact is not surprising, in that in the prep ration of this solution it is impossible to remove a nitrogenous materials contained in the cod liver oi In 1932 Ritchie [4] called attention to these reactions an described the following three types:

1. Erythematous or urticarial manifestations of th skin.

2. Gastrointestinal disturbances with abdominal pai and diarrhea appearing shortly after injection.

3. Collapse with cyanosis, pallor, low blood pressur and temporary loss of consciousness.

To cases of the first type I would add those in whic in the course of treatment by injections of the sodium morrhuate solution an itching, thickened, red are appears in the skin over the veins injected some tim previously. If the injections of this solution are stoppe this rash disappears, but if the treatment is continue the condition spreads, soon becoming a fairly well gen eralized weeping eczema.

The second type described by Ritchie [4] is probably only a mild form of the third, which is of course a severe nitritoid reaction and, when sufficiently severe, may cause death. Levi [5] in 1938 called attention to the fact that deaths have followed the injection of sodium morrhuate. That death occurs oftener than the medical literature would indicate is evidenced by the fact that one physician from the medical examiner's office in New York City, as he has advised me, has seen three such deaths in the course of his duties, none of which have been reported in any medical magazine. These reactions, as is typical of the greater number of the severe reactions following the injection of sodium morrhuate, occurred with the first or second injection following at an interval after a previous series of injections of the same solution. Lewis [6] and Zimmermann [7] have described this type of sensitization phenomenon, but in patients who recovered from the resulting reactions.

On a number of occasions I have seen a similar but milder reaction following the patient's first injection of sodium morrhuate solution. It is impossible, of course, to prove that these less severe manifestations may not have been psychic.

1. Probestein, J. S.: Major Complications of Intravenous Therapy, J. Missouri M. A. **33**: 349-352 (Sept.) 1936.
2. Dermatitis from Invert Sugar for Varicose Vein Injections, Queries and Minor Notes, J. A. M. A. **110**: 1774 (May 21) 1938.
3. Meisen, Valdemar: Varicose Veins and Haemorrhoids and Their Treatment, New York, Oxford University Press, 1932.
4. Ritchie, Alison: Treatment of Varicose Veins During Pregnancy, abstr. Edinburgh M. J., November, 1933, pp. 157-164.
5. Levi, David: The Injection Treatment of Varicose Veins, in Rolleston, Humphry, and Moncrieff, A. A.: Practical Procedures, London, Eyre and Spottiswoode, 1938; reviewed in M. World, London **48**: 294 (April 22) 1938.
6. Lewis, K. M.: Anaphylaxis Due to Sodium Morrhuate, J. A. M. A. **107**: 1298 (Oct. 17) 1936.
7. Zimmermann, L. M.: Allergic-like Reactions from Sodium Morrhuate in Obliteration of Varicose Veins, J. A. M. A. **102**: 1216-1217 (April 14) 1934.

That cessation of treatment for a period is not necessary to the development of this allergic state is testified to by the case reported by Dale,[8] in which a severe nitritoid reaction followed the thirteenth in a series of injections spaced at regular intervals. Hatcher and Long[9] reported a case in which a reaction occurred in the course of the first series of injections and another when the treatment was resumed at a later date. The second reaction developed before the tourniquet was removed from the patient's leg. Both reactions were very severe but complete recovery ensued in about four hours.

For nearly two years monoethanolamine oleate (monolate) has been my solution of choice for varicose veins. This solution is made of a synthesized chemical and for this reason the possibility of its containing nitrogenous materials has theoretically been eliminated. Until the time of treatment in the case to be reported I had used this solution in the treatment of more than 200 patients and had seen no reactions of any kind following its use. I have continued to use it since and have observed no other reaction of any kind. The manufacturers have received no reports of reactions, with the exception of a few of a very mild nature. Meyer[10] observed no allergic manifestations following the use of monoethanolamine oleate in a small series of cases.

REPORT OF CASE

Miss A. S., a well developed and slightly obese white English woman aged 57, referred for treatment of varicose veins Jan. 17, 1936, had extensive varicosities of the great and small saphenous systems in both legs. She had had no previous treatment. Injections of from 3 to 5 cc. of 5 per cent solution of sodium morrhuate were given at intervals until August 10, thirteen injections having been given up to that time. There was no evidence of any type of reaction to these injections.

The condition of the legs was greatly improved, although a fair number of varicosities remained which had not been injected. However, she felt so greatly improved at that time that she did not return to the office until May 2, 1938.

A week previous to this time a superficial varicosity over the left tibia had ruptured, but the resulting hemorrhage had been readily controlled by pressure. Examination revealed a considerable number of new varicosities in addition to those which had not been treated in 1936. Many of the veins which had been previously injected could still be felt as firm fibrous cords.

Because of the interval since the use of sodium morrhuate, its use was considered to be contraindicated. May 2, 1938, 2 cc. of monoethanolamine oleate was injected into a vein in the left leg. There was no reaction and a satisfactory closure of the varicosity was obtained. May 9, 4 cc. was injected into another vein in the left leg, again with no reaction and an excellent closure.

May 16, 4 cc. was again injected into a vein in the left leg. There was no immediate reaction of any kind. As had been done after each previous injection, the leg was elevated to permit the solution to empty from the vein. The patient sat quietly for about ten minutes and then dressed. She walked about 50 feet to the front door of the office, when she felt somewhat faint. She walked back into the office and sat down in a chair, where she had a generalized convulsion, to all appearances typical of that seen in epilepsy. With it she lost consciousness. Her pulse and color were excellent. In about forty-five seconds the convulsion ceased; she became conscious and was able to talk. To all appearances she was completely recovered.

After about two minutes she said that she could not breathe and lost consciousness again, but without any convulsion or muscular spasm. She ceased breathing and within two or three minutes became pulseless. Epinephrine hydrochloride was given intravenously and then into the heart, without effect. Artificial respiration was maintained from the onset of the second episode in the reaction for about thirty minutes.

An autopsy performed by Dr. Philip Goldstein, acting assistant medical examiner, revealed nothing but visceral congestion. If the death was due to any cause other than the injected monoethanolamine oleate solution, no evidence of such circumstance could be found.

COMMENT

Apparently death in this case was due to an allergic reaction, although the clinical picture was not typical. The interval of about fifteen minutes before the onset of the convulsion, the convulsion without marked change in the pulse or the patient's color and the apparently complete recovery followed by failure of respiration and cardiac action without any appreciable response to intravenous and intracardiac injections of epinephrine, were certainly not the manifestations expected with a nitritoid reaction.

Of course, rarely an allergic reaction may be evidenced in the form of a convulsion. I have a patient now nearly 40 years of age who since childhood has had a convulsion with loss of consciousness whenever she eats cod fish and at no other time. Another patient, now 25 years of age, since childhood has had a typical grand mal convulsion with loss of consciousness whenever she eats chocolate, and at no other time.

In the present case sensitivity must have developed from the two previous injections of monoethanolamine oleate, although the previous injections of sodium morrhuate may have had some bearing on the development of the allergy, in that chemicals similar to those in monoethanolamine oleate are contained in the sodium morrhuate. Meyer[10] mentioned two patients, treated first with sodium morrhuate and then with monoethanolamine oleate without any allergic reaction, who had typical allergic reactions when injections of sodium morrhuate were resumed.

PREVENTION OR AVOIDANCE OF REACTIONS

The question of the prevention or avoidance of the reactions encountered in the course of treating varicose veins by injections is most difficult and no satisfactory answer is available at the present time.

Small test doses of the solution used may reveal a sensitivity present before treatment is started but do not point out what patients will become sensitive in the course of treatment.

Mild reactions of various types will in most cases serve to warn the surgeon that a different solution should be used. Watching for these minor reactions and using them as a danger signal will aid greatly in avoiding the development of the major reactions.

After an interval in a course of treatment, various surgeons have suggested the use of intradermal tests for sensitivity before the resumption of injections with the previously used solution. This procedure cannot be counted on to rule out all patients who will later have a severe reaction, as a full dose of the material given intravenously may cause no reaction whatever for one or more injections in the new series and then be followed by a severe reaction. I start with small amounts, from 0.25 to 0.5 cc., and gradually increase the amount until the desired dose is reached, but I do not feel that this will prevent or foretell a reaction later in the series of treatments.

The commonest time for severe reactions is on the resumption of treatment after a temporary cessation of

8. Dale, M. L.: Reaction Due to the Injection of Sodium Morrhuate, J. A. M. A. **108**: 718-719 (Feb. 27) 1937.
9. Hatcher, M. B., and Long, H. W.: Unfavorable Reaction from Sodium Morrhuate, J. M. A. Georgia **26**: 427-428 (Aug.) 1937.
10. Meyer, N. E.: Monoethanolamine Oleate: A New Chemical for the Obliteration of Varicose Veins, Am. J. Surg. **40**: 628-629 (June) 1938.

treatment with sodium morrhuate. Rather than to rely on the intradermal or intravenous tests for sensitization, it might be better in this circumstance always to use some other solution.

TREATMENT OF THE ALLERGIC REACTIONS TO SOLUTIONS USED FOR THE TREATMENT OF VARICOSE VEINS

For the milder types of reactions, whether they are cutaneous manifestations or minor generalized nitritoid reactions, cessation of the use of the causative drug is the only treatment required.

For the severe urticarial and asthmatic type of reaction, administration of 7, 15 or if necessary 30 minims (0.4, 1 or 2 cc.) of 1:1,000 solution of epinephrine hydrochloride will give prompt and complete relief.

For the severe generalized nitritoid reactions, epinephrine, dextrose and saline solutions given intravenously, caffeine, sodium benzoate and coramine with the application of external heat and, when necessary, artificial respiration will prevent death in nearly every case.

After any type of reaction the solution which caused that reaction should not be used for the same patient at any later time.

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IS NUTRITIONAL DEFICIENCY THE BASIS OF WERNICKE'S DISEASE?

REPORT OF CASE

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In 1881 Wernicke [1] described under the formidable title "encephalitis haemorrhagica superior" a disease affecting the nuclei of the nerves to the eye muscles which leads to death in a few days. The clinical signs consist of paralysis of the eye muscles, a reeling gait and disturbances of consciousness—a terminal somnolence which may or may not be preceded by a period of excitement. This syndrome has been found occasionally in association with Korsakoff's psychosis (Bonhoeffer [1]) and with polyneuritis. Tachycardia (unassociated with fever) is common, and disturbances of breathing are sometimes observed. There is an occasional report of recovery.

Perhaps the most typical anatomic feature of the disease [2] is the distribution of the lesions, which are largely limited to the gray structures near the third and fourth ventricles and the aqueduct. Sections of the brain reveal, even macroscopically, the presence of hemorrhagic areas in the mammillary bodies, posterior corpora quadrigemina and thalami. The chief histologic changes are intimal proliferation of the small blood vessels, necroses, which may be accompanied with hemorrhage, and marked glial proliferation. Because there is no true inflammation, Spatz [1] expressed preference for the designation pseudo-encephalitis.

From the Section on Neurology, the Mayo Clinic

1. Cited by Bumke, Oswald, and Kant, F.: Rausch- und Genussgifte: Giftsuchten, in Bumke, Oswald, and Foerster, O.: Handbuch der Neurologie, Berlin, Julius Springer, 1936, vol. 13, pp. 828-915.
2. Wertham, Frederic, and Wertham, Florence: The Brain as an Organ, New York, The Macmillan Company, 1934.

Two of Wernicke's original three patients were alcoholic addicts who were admitted in delirium. The subsequent patients with this syndrome whose cases were to be reported (Jacobäus) were all alcoholic addicts Indeed, chronic alcoholism has come to be considered the basis of the condition.[2]

It is therefore interesting to recall that in Wernicke's first case (cited by Jacobäus [3]) there was no associated alcoholism:

> The patient was a 20 year old seamstress who was dismissed from the Charité Jan. 6, 1877, after recovering from poisoning with sulfuric acid. Soon after she left the institution she started to vomit but otherwise remained well. However, from February 3 she was bedridden and strikingly sleepy; she yawned a great deal and reeled in walking. Her vision became impaired, and she suffered from dizziness and headache. February 11 there were some ptosis, impairment of external ocular movements and diminution of the pupillary light reflex. Moderate swelling of the optic disks and many retinal hemorrhages were observed. She became more sleepy and disoriented, sank into coma and died February 15. Necropsy revealed punctate hemorrhages in the vessel sheaths of the tissue lining the third ventricle, in the corpora quadrigemina and in the retinas.

In 1924 Tanaka [4] observed the same histologic picture in association with an unusual condition which has been interpreted in Japan as "intoxication from mother's milk." That Wernicke's disease is found associated not only with misuse of alcohol and other exogenous intoxications but also with so-called endogenous intoxications was shown by Neubürger,[5] who reported fourteen cases of the disease without alcoholism. He included ten cases of cancer, in seven of which the malignant growth was in the stomach. In most of Neubürger's cases vomiting and loss of weight were prominent signs.

Környey [6] reported two cases in which the clinical and the histologic pictures were of Wernicke's disease but there was again no associated alcoholism. In his first case a Korsakoff psychosis started twenty days after gastric resection for cancer. In the second instance persistent vomiting occurred with recurrent carcinoma of the cervix.

In 1937 Neubürger [7] reported three cases of chronic gastritis in elderly women with preterminal disturbance of consciousness and paralysis of the eye muscles. In these cases the anatomic lesions of Wernicke's disease were observed. It is noteworthy that in each instance the entire course of the disease was marked by striking and persistent vomiting. Neubürger considered intestinal autointoxication and nutritional deficiency in the etiology.

REPORT OF CASE

A white American woman, married, was examined in 1923. At that time fractional analysis after a test meal revealed 8 units of free hydrochloric acid in each of three specimens of gastric content. In 1929 there was no free hydrochloric acid in any of four specimens of gastric content after a test meal and x-ray examination of the stomach gave normal results At this time cholecystectomy was performed.

She returned to the hospital at the age of 50, July 12, 1937, and said that for two years she had had indefinite irregular

3. Jacobäus, H.: Ueber einen Fall von Polioencephalitis haemorrhagica superior (Wernicke), Deutsche Ztschr. f. Nervenh. 5: 334-350 (July 19) 1894.
4. Tanaka, Toshiwo, cited by the Werthams.[2]
5. Neuburger, Karl: Ueber die nichtalkoholische Wernickesche Krankheit, insbesondere über ihr Vorkommen beim Krebsleiden, Virchows Arch. f. path. Anat. 298: 68-86 (Nov.) 1936.
6. Környey, S.: Wernicke-Korsakow-Prozess als Komplikation bösartiger extraneuraler Geschwülste, Deutsche Ztschr. f. Nervenh. 144: 241-260 (Oct. 25) 1937.
7. Neubürger, Karl: Wernickesche Krankheit bei chronischer Gastritis. Ein Beitrag zu den Beziehungen zwischen Magen und Gehirn, Ztschr. f. d. ges. Neurol. u. Psychiat. 160: 208-225 (Oct.) 1937.

distress and pain in the upper right quadrant of the abdomen, together with eructations. Three months before registration, at the time of an automobile accident, she had been unconscious for a short period but had suffered neither fracture nor gross trauma. Since then she had been very nervous and the attacks of severe abdominal pain had occurred more frequently. Headache had been present for six weeks and daily vomiting for five weeks before registration.

Except for some tenderness in the right side of the abdomen and a pulse rate of 120 beats a minute, general physical examination, including ophthalmoscopic examination, gave negative results. The temperature was 98.4 F. The urinalysis and routine examinations of the blood gave essentially normal results (the hemoglobin content was 12.6 Gm. per hundred cubic centimeters, the erythrocytes numbered 4,160,000 and the leukocytes varied from 5,300 to 17,500 per cubic millimeter). There was no free hydrochloric acid in the gastric content. X-ray examinations of the chest, head and abdomen showed no abnormality. Examination of the blood for bromides gave negative results. The basal metabolic rate was +12 per cent. The blood urea content was 18 mg. per hundred cubic centimeters, the carbon dioxide combining power was 46.7 volumes per cent, and the serum sulfates amounted to 3.3 mg. and the serum bilirubin to 1.1 mg. per hundred cubic centimeters. The bromsulphalein liver function test showed maximal retention of the dye. The sedimentation rate was 62 mm. an hour. A careful examination of the central nervous system gave negative results objectively. However, the history suggested an anxiety state of several years' standing.

The patient's course in the hospital was marked by continual vomiting of the regurgitant type, which required the parenteral administration of salt solution and dextrose almost daily. Her pulse rate continued to vary between 110 and 120 beats a minute, even though her temperature remained normal and there was no evidence of hyperthyroidism. Although there was some tenderness in the right side of the abdomen, the leukocyte count was repeatedly normal. The determination of serum bilirubin was repeated and the content found to be 1.2 mg. per hundred cubic centimeters; the serum yielded an indirect van den Bergh reaction. Occasionally the patient became restless, slightly agitated and depressed because of her failure to improve. The ophthalmoscopic examination was repeated by Dr. H. P. Wagener and again reported as giving negative results. Some observers felt a mass in the right side of the abdomen.

July 24 exploratory laparotomy, performed under regional anesthesia, revealed a loop of ileum which had become adherent to the site of the former right rectus incision. The pylorus and the first portion of the duodenum were adherent to the liver at the bed of the gallbladder. The rest of the exploration showed no abnormality and the adhesions were freed.

The first five days of the postoperative course were marked by much less vomiting than had occurred previously. The patient took about 2 liters of fluid a day by mouth. However, the afebrile tachycardia persisted.

July 29 the vomiting recurred and minimal fever (temperature, 99 F.) appeared. The fever recurred daily in the late afternoon and gradually increased. The pulse rate varied between 110 and 140 beats a minute. August 6 mental confusion and restlessness with continual movements of the lower limbs were observed. There was some loss of visual acuity. External ocular movements were limited in all directions, and the deep tendon reflexes were generally diminished to a slight degree. No other abnormality was found on neurologic examination, but the patient could not cooperate for a sensory examination. Dr. H. P. Wagener repeated the examination of the fundus and found a number of large hemorrhages in each retina around the margins of the optic disk and toward the macula. He found no definite edema of the optic disks. He considered the recent reduction of vision retrobulbar in origin and the entire picture suggestive of a deficiency of vitamins B and C. The blood urea amounted to 26 mg. and the blood chloride to 627 mg. per hundred cubic centimeters, the carbon dioxide combining power was 68 volumes per cent and the calcium content was 9.4 mg. per hundred cubic centimeters. Preparations of vitamin B, vitamin C and liver extract were administered intramuscularly, and parenteral injection of a solution of salt and dextrose was continued.

August 7 the spinal fluid was found to be clear and colorless. The pressure was 8 cm. of water and the protein content 45 mg. per hundred cubic centimeters. The Kolmer, Kline and colloidal gold tests were negative. There were 2 small lymphocytes per cubic millimeter. The patient's temperature ascended to 105 F. and the pulse rate to 170 beats a minute. Although the patient was comatose and breathing irregularly, her pupils reacted normally. The calves were tender. The tendon reflexes were diminished in the arms and absent in the legs. These observations were considered evidence of multiple peripheral neuritis. The parenteral administration of vitamins was continued, and a transfusion of 500 cc. of blood was given. August 8 the patient was moribund in coma. There was twitching of the facial muscles. Tenderness of the nerve trunks and of the calves was still present. The temperature remained high until death occurred August 9.

Necropsy was performed two hours after death. The brain weighed 1,080 Gm. and there was minimal atrophy of the cerebral convolutions. Petechial hemorrhages were present in the mammillary bodies (*a* in the illustration) and in the posterior corpora quadrigemina (*b*). Otherwise the brain, spinal cord and brachial and lumbosacral plexuses were normal macroscopically. There were also petechial hemorrhages in the skin over the arms and chest and in the lungs, as well as atrophy of the liver (which weighed 1,085 Gm.) and of the gastric and intestinal mucous membranes.



a, Frontal section at the level of the mammillary bodies, showing minute hemorrhages; *b*, transverse section of the inferior corpora quadrigemina, showing minute hemorrhages in the roof of the midbrain. (The lesions in the nuclei of the trochlear nerves are microscopic and are found below the aqueduct.)

Microscopic study of many areas of the brain and spinal cord revealed definite changes only in the mammillary bodies, posterior corpora quadrigemina and infundibulum. In these areas there were proliferative changes of the endothelial cells of the small vessels (marked by mitotic figures), considerable interstitial edema and small round hemorrhages, usually perivascular. The nerve cells were well preserved except in the nuclei of the nerves to the eye muscles, where there was advanced chromatolysis, and in the thalamus, where chromatolysis with satellitosis was present. In an occasional peripheral nerve (for example, from the brachial plexus) there was an area of demyelination, which contained scavenger cells. These areas represented noninflammatory degeneration.

The microscopic sections of the stomach, duodenum, jejunum and ileum revealed the mucosa to be only from a third to a half as thick as normal; thus the macroscopic impression of atrophy of the gastrointestinal mucosa was confirmed. There were moderate fatty change and slight passive congestion but no central necrosis in the liver. The microscopic picture was confirmed by Dr. J. W. Kernohan.

COMMENT

As a result of loss of essential secretions or of food, this patient undoubtedly suffered from a deficiency state which was exacerbated by the chronic atrophy of the gastrointestinal mucous membrane.[8] It is likely

8. Wilbur, D. L., and Snell, A. M.: Deficiency States Associated with Gastro-Intestinal Disease, Am. J. Digest. Dis. & Nutrition 4: 720-728 (Jan.) 1938.

that the retention of dye and the fatty change in the liver resulted from a vitamin deficiency.[9] The persistently rapid heart rate in the absence of fever or hyperthyroidism is common in cases of vitamin B deficiency.[10] The relation of the retinal hemorrhages to a deficiency in nutrition and particularly to a deficiency in vitamins has been amply demonstrated.[11] Furthermore, the patient presented all the clinical and anatomic characteristics of Wernicke's disease. Finally, the lesions of Wernicke's disease are said to have been produced experimentally by the administration of a diet deficient in vitamins.[12] It is suggested that a deficiency of nutrition, probably of vitamins, underlies Wernicke's disease in all cases. Large doses of vitamins B and C have effected a cure of this condition in some of our cases.

SYPHILIS

WITH SPECIAL REFERENCE TO THE INCIDENCE IN RELATIONSHIP TO AGE GROUPS AND STATUS OF THERAPY AT THE DATE OF INFECTION

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The recent prevalence of syphilis as claimed by the propaganda arising from the United States Public Health Service was outright astounding to me. During twenty-four years of endeavor as a medical student and worker in laboratory medicine, in the course of which time thousands of postmortem examinations, examinations of surgical specimens and serum tests for syphilis were both accomplished personally and personally directed, I have witnessed syphilis in four sections of the country dwindle from a common experience with full blown active lesions to an occasional positive serologic test, a few scars of the aorta, a rare scarred liver presumably syphilitic, a slightly more frequent syphilis scarred central nervous system, and about twice a year an actual case of congenital syphilis.

I had not insisted on a routine serologic test for syphilis because syphilis rarely was evident at postmortem and surgical specimen examinations, in the run of clinical cases, in serologic tests on prospective donors for blood transfusions, in cases in which a test happened to be made on available excess serum obtained for other purposes, and in tests done on actual syphilis suspects. The fear naturally arose that even though I thought that I had given due consideration to syphilis I may not have been thorough enough and that many cases had escaped notice because routine tests were not made.

I have therefore felt obligated to find a way to check more accurately the standard of medical practice in Milwaukee with particular reference to syphilis, in the interest of establishing a base line so that a determination might be made of what really has been accomplished in the quiet, inexpensive, determined, unobtrusive way characteristic of the dignity of the best medical practice, and what has been left for the more vigorous programs recently inaugurated to accomplish.

The objective of fair sampling requires cognizance and avoidance of pitfalls commonly inherent in statistics. Swivel chair statistics, in which the percentage of syphilis was based on the number of positive serologic tests without possession of information as to the number of individuals and consequences of the lesions represented, were eliminated. The subjects were observed in a manner which did not overemphasize the prevalence of syphilis. The figures should represent recent transmission of syphilis and not be burdened by cases in which infection may have been acquired even before the discovery of the spirochete, the advent of arsenical and bismuth treatments, and the application of serologic tests for syphilis. I believe that the plan adopted has adequately eliminated all such sources of error.

I was fortunate in having the Milwaukee Children's Hospital patients as the source of the serums. Children up to 12 years of age are cared for at the institution. Mothers with recently acquired, not adequately treated, syphilis should transfer the disease to their offspring in a high percentage of cases. The study, therefore, should be not only an index of congenital syphilis but an index of syphilis sufficiently active to be hazardous to the public in the parents of the group represented. All samples of blood were taken and tested by the laboratory personnel. All records were maintained within the laboratory. A rapid exclusion test, too delicate for diagnosis, was used to exclude negative cases. All serums of positive nature, regardless of degree, were subjected to two or more additional serologic tests at Columbia Hospital and the serologic laboratory of the Wisconsin Psychiatric Institute at Madison. All patients entering the outdoor department or hospital with the exception of a few private patients were tested. In the advent of a positive serologic test for syphilis, the entire family was investigated as far as this was possible. The cases of syphilis encountered in a family study could not rightfully be included in the statistical figure of current incidence of syphilis, since they were not seen in the regular run of cases. Only the initial case in the family was included in the statistics. The rigidly controlled plan has eliminated all possibility of the rather common practice of sending in a number of serums on the same patient under various names after obtaining a positive test. The hospital has no syphilis clinic to distort the figures of incidence. The hospital is a charitable institution and cares primarily for the children of the poor and low income families of Milwaukee. As far as there is anything to the fact that the low income group obtains inadequate medical care, the figures are probably too high. Facilities were not available to compensate for this error.

The incidence of syphilis in persons under 12 years of age indicated in table 1 would place the number of children who most likely have syphilis at 369 of Milwaukee's 123,000 children. Of these, forty have the untoward anatomic stigmas of syphilis, eighty have skeletal changes which may be determined radiologically, while 289 have only a positive serologic test to support the diagnosis of syphilis.

There were two instances in which both parents were negative to the serologic tests. The parents of one of the children had a history of syphilis, the mother

9. Snell, A. M.: Personal communication to the authors.
10. Weiss, Soma, and Wilkins, R. W.: The Nature of the Cardiovascular Disturbances in Vitamin Deficiency States, Tr. A. Am. Physicians **51**: 341-373, 1936.
11. Wagener, H. P., and Weir, J. F.: Ocular Lesions Associated with Postoperative and Gestational Nutritional Deficiency, Am. J. Ophth. **20**: 253-259 (March) 1937.
12. Alexander, Leo; Myerson, Abraham, and Pijoan, Michel: Beri-Beri and Scurvy: An Experimental Study, Tr. Am. Neurol. A., Program of the Sixty-Fourth Annual Meeting, May 2-4, 1938, pp. 25-26.

From the Milwaukee Children's and Columbia hospitals.

received antisyphilitic treatment during the final months of the gestation, and arsenic determinations on the hair indicated that the hair of the infant contained slightly more arsenic than that of the mother. At the time of the study, both parents and child had negative serums, but the child had x-ray evidence of skeletal syphilis. The parents in the second case had no history of syphilis, and the four other children had negative serums. It is not my purpose here to discuss the requirements for an accurate diagnosis of syphilis. Whether one likes it or detests it, a positive serologic test for syphilis is usually taken as a signal to turn on the spigots of antisyphilitic therapy. When one views the marked divergence between positive tests and morphologic evidences of syphilis as studied clinically, radiologically and at the postmortem table, thorough medical men must often wonder whether we do not have too implicit faith in a positive serologic test for syphilis. Certainly a child with only a positive test, with parents and four other children negative in all particulars, should raise the question of the requirements of an accurate diagnosis and proper therapeutic regimen.

If the expenditure of getting in touch with the patient, obtaining the blood, performing the test, recording the information and disseminating the information to proper authorities is fixed at $1.50 per test, it costs $712.50 in Milwaukee to make a positive serologic diagnosis of syphilis in children by the routine test method.

Assuming that the mothers who transmitted syphilis to their offspring represent the clinically active cases of syphilis and that the usual spread of three positive serologic tests to one clinically active case prevails, the incidence of probable syphilis in this 35 year age group would be 1.2 per cent. As donors for blood transfusions for their children, 210 mothers presented themselves in a routine manner. Three of these had positive Kline

TABLE 1.—*Clinical, Serologic and Radiologic Data on Children and Parents Studied*

Number of serologic tests	3,800
Number of children studied	3,018
Children with positive tests	8
Number recognized clinically	1
Number diagnosed by x-ray examination	2
Percentage indicated serologically	0 27
Percentage indicated clinically	0 03
Percentage indicated radiologically	0 06
Percentage indicated by one or more methods	0 3
Number of parent suspects available for test	13
Number of parent suspects positive serologically	8
Percentage of available parents positive	61
One or other parent positive	5
Percentage of one or other parent positive	70
Both parents negative	2
Number of other children in suspected families available for test	9
Number positive	2
Percentage of mothers with syphilitic activity sufficient to transmit syphilis during a full period of gestation	0 7

tests, an incidence of 1.4 per cent. The average incidence from the two sources of information would be 1.3 per cent. This would represent the adequacy of medical practice of about ten years ago if we put the average age at 25 for acquired syphilis.

The clinical information on the doubtful case in table 2 was that of an anemic, very ill child with a positive Kline test. Neither parent had a history of syphilis or a history of treatment, and both had negative serums. Postmortem examination added a chronic pancreatitis, but the spirochete could not be demonstrated in the pancreas, liver or adrenals by the various staining methods. Consequently, this case remains very much in doubt.

The ages of the patients in table 3 who showed evidences of syphilis varied between 46 and 76. The average age was 60. If the likelihood is assumed that

TABLE 2.—*Postmortem and Surgical Specimen Examinations for Syphilis on Children Under Twelve from Sept. 1, 1935, to Jan. 1, 1939*

Surgical specimens examined	383	Syphilis diagnosed	none
Postmortem examinations made	221	Syphilis diagnosed	1 doubtful case

TABLE 3.—*Postmortem and Surgical Specimen Examinations for Syphilis on Adult Patients Between Jan. 1, 1936, and Jan. 1, 1939*

Surgical specimens examined	4,012	Syphilis diagnosed	1
Postmortem examinations made	178	Syphilis diagnosed	8

these patients acquired their syphilis at the average age of 25, the management of their disease will represent the medical practice of 1903, a date which antedates the discovery of the spirochete, the Wassermann reaction or important antisyphilitic treatment other than mercury.

Even here in only one of the eight cases did syphilis operate as the major cause of death. In fact, this patient was the only one who presented a progressive syphilitic lesion: a meningovascular syphilis with occlusion of a vessel in the pons. Two patients were somewhat disabled by aneurysms of moderate size. Two patients had evidence of old quiescent tabes, one of whom was included in the aforementioned aneurysms. Another disabling scar was a syphilitic periostitis. The final patient had quiescent gummatous scars of the liver and a syphilitic cirrhosis. In two bodies, small aortic scars were found at postmortem examination. In one body, even though forewarned of a positive serologic reaction, I was unable to find a lesion of syphilis at postmortem examination. Fortunately for the patients and with no hazard to the public, six of the patients were not under active treatment. The lesions of syphilis in these cases were at an irreducible residuum. The patient with the syphilitic periostitis may still receive some benefit from treatment. One patient was inadvertently injured seriously by the treatment. Active treatment of the patient with the meningovascular syphilis most likely would have averted death. Six of the nine would have benefited by treatment before the disabling lesions developed. It seems self evident that when these elderly persons who contracted their syphilis from thirty to forty years ago drop out of the picture there will be an appreciable spontaneous drop in the incidence of syphilis.

Eight patients of the 178 in the 60 year average age group had either scars of syphilis or a positive Wassermann reaction. Five of these had clinically recognized syphilis. This would indicate that, in 3 per cent of the population of Milwaukee in this age group, evidence of active or latent syphilis could be identified on careful physical examinations. If we calculate those who have demonstrable syphilis and those who have only positive serologic tests on the basis of the usual spread of a

recognizable clinical case to three with positive serologic tests, the incidence in this age group would be 12 per cent.

The protean manifestations of syphilis are summed up well in the old dictum "To know syphilis is to know medicine." We must bear in mind that this dictum has inherent the proposition that a person who has a positive serologic test may be actually or concurrently suffering from any of the other diseases which may be interpreted as syphilis because of a positive serologic test. Experience at postmortem examination has taught me that, if the brain, cardiovascular system, liver, hematopoietic organs or kidney are vulnerable or actually diseased, the consequences of antisyphilitic treatment are too often grave. Antisyphilitic treatment is therefore not to be undertaken lightly. It should be an individual problem undertaken only under the most intimate medical supervision. The social consequences of the patient's disease, how much the patient is likely to benefit from the treatment, and actual disease and functional status of the organs named should all be taken into consideration. Close observation for inadvertent consequences is also imperative. An accurate diagnosis of syphilis is here assumed.

This actual study of syphilis was made at Iowa City, Boston, Iowa City, Washington, D. C., and Milwaukee in order of service. The study represents the period between 1916 and the present. In order of decreasing incidence of syphilis, the arrangement is Washington, Iowa City, Boston and Milwaukee. The factors responsible for the situation in a given locality seemed to be the alertness of the profession, the adequacy of consideration for care of the indigent, and the cooperation of the patient. The importance of the alertness of the medical profession, which is always coupled with willingness to serve, has been outstanding. It should be pointed out that the District of Columbia is largely dependent on the federal government for appropriations for the care of the indigent. Curiously enough, here is also the home of the United States Public Health Service.

SUMMARY AND CONCLUSIONS

1. Syphilis was studied in the various age groups in Milwaukee with special reference to incidence and the consequences of the disease as well as the relationship of the incidence to the development of means for recognition and treatment of the condition.

2. Dependence was placed on routine admissions, presentation of parents for blood transfusions, and postmortem examinations for reliable sampling of the public in the study.

3. The high incidence of syphilis which prevails in the age group who acquired their syphilis before the advent of the discovery of the spirochete, the development of important arsenic and bismuth preparations and the knowledge of the serologic tests indicates that the groundwork has been laid for an imminent spontaneous fall in the incidence of syphilis.

4. The incidence of syphilis varies from one locality to another, depending on the alertness of the profession, the cooperation of the patient and provisions for the care of the indigent named in the order of their importance.

5. There can be no intelligent discussion of syphilis on the basis of the number of serologic tests per thousand of population. The least information for an intelligent discussion would appear to be the number of individuals represented by the tests per given area, the personal and the economic consequences of the disease, what the therapy has to offer the individual, and the functional and anatomic integrity of the body resulting from causes other than syphilis and the inadvertent serious consequences of the treatment.

6. In the postmortem examinations made, in all but one the morbid anatomy of syphilis was at an irreducible residuum.

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PAROVARIAN CYSTS COMPLICATING PREGNANCY

REPORT OF CASE CAUSING DYSTOCIA: REVIEW OF LITERATURE

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Dystocia caused by a parovarian cyst is of rare occurrence. A review of the literature since 1873 shows only sixty-two [1] reports of parovarian cysts complicating all stages of pregnancy and in only seven cases did the cyst produce dystocia. This paper includes a summary of all the cases complicating pregnancy that have been reported since 1873. No such analysis has been made previously. The study was prompted by a recent case in which a parovarian cyst produced a pelvic block and required aspiration of the cyst to permit delivery of the fetus.

Ovarian cysts and solid tumors, such as myomas, may also cause pelvic block and dystocia. The solid tumors can usually be differentiated from cysts, but the differential diagnosis of ovarian from parovarian cysts is often impossible during pregnancy and labor. Vozza [2] in a review from his own clinic of 108 cases of cysts complicating pregnancy found that twenty-seven cases (24 per cent) were of parovarian origin, twenty-nine cases (26 per cent) were dermoids and in fifty-two cases the cyst originated in one or the other ovary, being bilateral in 4.5 per cent.

EMBRYOLOGY

The parovarium represents a remanent of the sexual portion of the wolffian body in the female and is a homologue of the epididymis in the male. It lies in the connective tissue of the broad ligament near the fallopian tube and consists of a main collecting channel, running close and parallel with the tube, together with from ten to eighteen small perpendicular ducts projecting toward the hilus of the ovary. Cystic dilatations of the blind end of the main channel are frequent and produce the hydatids of Morgagni, which have no clinical significance. Parovarian cysts, which

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From the Le Mars Clinic.

Dr. Jeannette D. Throckmorton of the Iowa State Medical Library prepared our bibliography and aided in securing the case reports from her own and the Surgeon General's Library, and Drs. Poble and Carnazzo of Le Mars translated the French and Italian reports

1. After this paper had been prepared, Dr. Throckmorton accidentally found the following report of a case which is not listed in any of the indexes: A tertipara in premature (?) labor presented a mass the size of a fist in the culdesac; torsion and gangrene were present Cesarean section was performed and a cyst was removed from the broad ligament on the left side. The mother recovered, but no mention was made of the fetus. The patient had complained of constipation during pregnancy and severe pain in the left iliac quadrant after the fifth month (Johnstone: Broad Ligament Cyst with Twisted Pedicle Which Obstructed Labor. Specimen, Tr. Edinburgh Obst. Soc. 55: 25, 1925-1926; Edinburgh M. J. 33: 25-26 [Feb.] 1926).

2. Vozza, F.: Evolution of Ovarian and Parovarian Tumors During Different Periods of Pregnancy: Brief Report of 109 Clinical Cases, Ann. di ostet. e ginec. 54: 889-1073 (July 31) 1932

TABLE 1.—*Summary of Twenty-Six Cases of Parovarian Cysts Complicating Pregnancy Reported by Vozza* [2]

Case	Previous Pregnancies	Month of Pregnancy	Condition Found	Complications	Intervention	Maternal Results	Progress of Pregnancy	Observations
1	None	4th	Left cyst; 8 liters	None	Cyst emptied and removed	Cure	Normal course	Rapid growth of cyst with onset of pregnancy
2	One	2d	Left cyst, size large orange	Torsion of pedicle; intracystic hemorrhage	Removal	Cure	Normal course	No symptoms; accidental finding of tumor by patient; rapid growth during pregnancy
3	Four, three abortions	3d	Pedunculated right cyst size of fetal head at term	None	Removal	Cure	Normal course	Uterus retroverted; pernicious vomiting ceased after removal of cyst
4	None	3d	Right cyst; 3 liters sero purulent fluid	Suppuration; few pericystic adhesions	Removal	Cure	Aborted 5th postoperative day	Acute onset of fever; pain; diagnosis of cyst with torsion
5	Two	2d	Right cyst; 2 liters fluid	Torsion of pedicle, intracystic hemorrhage	Removal of cyst with adenoma	Cure	Normal course	Asymptomatic torsion, cyst anterior to uterus; displaced posteriorly
6	None	4th	Left cyst size of 7 month fetal head	None	Removal of cyst deep in pelvis posterior to uterus	Cure	Normal course	Severe constipation
7	None	8th	Right cyst, suppurating, size of fetal head at term	Suppuration of cyst in puerperium	Sac emptied and marsupialized	Cure	Spontaneous delivery of infant; died 2 days later	Pregnancy normal save for premature labor in 8th month
8	Three	Puerperium	Multiple cysts *size of 8 month* pregnancy	None	Removal 7th *day of* puerperium	Cure	Spontaneous premature labor	No disturbance in spite of size of abdomen; labor 8th month; forceps
9	Two	3d	Left cyst; 7 liters watery fluid	None	Removal following aspiration	Cure	Normal course	Cyst present prior to pregnancy; rapid growth with pregnancy
10	One abortion	2d	Right cyst; very thin wall	Torsion of pedicle, adhesions	Removal	Cure	Normal course	Torsion probable before pregnancy; tumor *in left lower quadrant*
11	None	Puerperium	Right cyst; 3 liters, hemorrhage and necrosis of wall	Torsion	Aspiration followed by removal	Cure	Operation in puerperium	Normal delivery; returned because of large abdomen
12	None	3d	Right cyst size of 8 month fetal head	None	Removal	Cure	Normal course	No developments
13	None	3d	Cyst size of orange	None	Removal	Cure	Normal course	Accidental finding of tumor by patient
14	None	2d	Cyst with two compartments	None	Removal, correction of retroflexion	Cure	Abortion 6th postoperative day	Preexisting threatened abortion
15	None	2d	Left cyst size of orange	None	Removal	Cure	Normal course	No disturbance
16	None	4th	Left cyst size of 7 month fetal head	None	Removal	Cure	Normal course	Some abdominal pain
17	Two, one abortion	3d	Size of fetal head at term	None	Removal	Cure	Normal	No subjective symptoms
18	One, one abortion	1st	Left cyst size of full term pregnancy	None	Removal	Cure	Normal	Spotting of blood after missing one menstruation
19	One, one abortion	2d	Left cyst; 7 liters of fluid	None	Removal after aspiration	Cure	Normal	Rapid growth during pregnancy
20	One	Term	Left cyst size of fetal head at term	None	Cesarean removal of cyst	Cure	Living baby	No important symptoms
21	One	3d	Left cyst size of 7 month pregnancy	None	Aspiration and removal of cyst	Cure	Normal	Rapid growth during pregnancy
22	None	Term	Left cyst size of fetal head at term	None	Cesarean removal of cyst	Cure	Live baby	Symptoms of abdominal pain
23	Three	2d	Left cyst size of adult head, cyst of right ovary	None	Removal of cyst and ovary, correct retro flexion	Cure	Abortion 8th day	Cyst accidentally found on examination
24	Two	2d	Right cyst size of fist	None	Removal	Cure	Normal	Cyst found on routine examination
25	One	2d	Left cyst size of fetal head	Torsion	Removal	Cure	Normal	Obstinate vomiting
26	None	3d	Right cyst size of orange	None	Removal	Cure	Normal	Rapid growth during pregnancy

were first mentioned by Velpeau in 1825, are regarded as resulting from retention of abnormal secretions of the epithelial lining of the parovarium.

PATHOLOGY

Parovarian cysts are usually single and unilocular and may be of any size. Rutherford [3] reports one case in which there were three cysts ranging in size from that of a pigeon egg to that of a duck egg. The cysts are always extraperitoneal or intraligamentary, and the tube lies stretched out over the superior surface of the cyst. A pedicle is not common but one may develop if the cyst grows intra-abdominally; the peritoneal layers of the broad ligament, the tube, the utero-ovarian ligament and even the ovary may be contained in the pedicle. A pedicle was present in seventeen of the sixty-two cases studied in this report.

3. Rutherford, R. Abortion with Broad Ligament Cysts and Bacillus Welchii Infection, Brit. M. J. 1: 173 (Jan. 22) 1938.

The cysts are usually pearly gray or pink with thin walls, with the peritoneal layers of the broad ligament freely movable over them owing to their subserous location. The inner surface of the cyst is smooth and glistening, but low papillae may be seen. The fluid is clear and serous and faintly alkaline and contains practically no mucin or pseudomucin. The fluid may be turbid, owing to degeneration and the presence of blood; it is innocuous and suppuration is rare. Dermoid cysts may be found in the broad ligament.[4] Ehrenberg [5] has recently reported an extraperitoneal epidermoid cyst containing sebaceous material producing dystocia at term.

4. Cases 1 to 14 inclusive in table 1.
5. Ehrenberg, C. J.: Epidermoid Cyst Causing Dystocia: Case, Journal-Lancet **58**: 149 (March) 1938.

Microscopically the cyst wall is made up of connective tissue with some smooth muscle and elastic tissue and is lined with a single layer of ciliated epithelium. Malignant change is very rare. Surrounding the cyst is the connective tissue of the broad ligament and within it are the blood vessels of the cyst, which are separate from those of the peritoneum.

CLINICAL

The clinical signs and symptoms depend on the location and size of the cyst. They grow slowly and are usually incarcerated in the broad ligament, thus displacing the uterus and causing more pressure on the blood vessels, nerves and ureters than ovarian cysts. They are rarely a factor in sterility, since the ovaries are normal. During pregnancy the enlarging uterus is

TABLE 2.—*Summary of Cases of Parovarian Cysts Complicating Pregnancy Reported by Other Authors*

Case	Author	Previous Pregnancies	Month of Pregnancy	Condition Found	Complications	Intervention	Maternal Results	Progress of Pregnancy	Observations
27	Trillat, P.: Broad Ligament, Parovarian Cyst as Cause of Dystocia in 3 Consecutive Pregnancies: Case, Bull. Soc. d'obst. et de gynéc. **22**: 429-430 (May) 1933	None	Term	Cyst in culdesac	None	Vagina aspirated	Cure	Normal	Three successive pregnancies aspirated at term; operation refused
		One	Term	Cyst in culdesac	None	Vagina aspirated	Cure	Normal	
		Two	Term	Cyst in culdesac	None	Vagina aspirated	Cure	Normal	
28	Michel, G., and Vermelin, H.: Parovarian Cyst with Torsion of Fallopian Tube in Ninth Month of Pregnancy: Case, Bull. Soc. d'obst. et de gynéc. **17**: 159 (Feb.) 1928	None	9th	Right cyst size of orange	Acute torsion	Removal of cyst	Cure	Normal	No symptoms previous to torsion
29	Davidson [7]	Five	In labor at term	Cyst in culdesac size of grapefruit	None	Cesarean, cyst not removed	Cure	Normal	Head displaced out of pelvis
30	Hammond, L. J.: Broad Ligament Cyst of Large Size Occurring During the Course of Pregnancy: Its Removal Five Weeks After Delivery, Am. M. **10**, 1903	One	Entire pregnancy	Right cyst out of pelvis	None	Removal during puerperium	Cure	Normal	Cyst grew to large size during pregnancy
31	Kahn, M.: Removal of Ovarian Cyst, Broad Ligament Cyst and Appendix at the Second Month of Pregnancy; Delivery at Term, Am. M. **2**: 108, 1901	No data	2d	Small cysts	None	Removal	Cure	Normal	No symptoms
32	Wilson, K. M.: Ovarian and Parovarian Cysts in Pregnancy, Am. J. Obst. & Gynec. **34**: 977 (Dec.) 1937	No data	7th	No data	None	Removal	Cure	Normal	
33		No data	3d	No data	Torsion	Removal	Cure	Normal	
34		No data	2d	No data	Torsion	Removal	Cure	Normal	
35		No data	7 wks.	No data	Torsion	Removal	Cure	Normal	
36		No data	No data	Cyst in abdomen	None	Removal	Cure	Normal	
37	Zimmerman, B. F.: Large Intraligamentous Cyst Complicating Pregnancy: Operation, Recovery, Internat. Clin. **30**: 202-204, 1920	2d	During pregnancy	Abdominal location	None	Aspirated 10 days post partum; 14 liters	Cure	Normal	Cyst removed 1 month after delivery
38	Spencer, Herbert: Tumors Complicating Pregnancy, Labor and the Puerperium, Lancet **1**: 411-418 (Feb. 21), 475-481 (Feb. 28), 529-535 (March 6) 1920	One	Diagnosis before pregnancy	Left cyst	None	Removal postpartum, 4 liters	Cure	Normal	Slow growth during pregnancy
39		One	3d	Right cyst 9 by 6 cm.	None	Removal	Cure	Normal	No symptoms
40		Two	3d	Right cyst size of emu's egg	Torsion	Removal	Cure	Aborted	
41		No data	No data	Right cyst 6 by 5 cm.	None	Removal 4 mo. after labor	Cure	Normal	Difficult forceps
42		No data	No data	Right cyst size of two fists	None	Removal after delivery	Cure	Normal	Forceps, version
43	Grosse, A.: Voluminex kyste du ligament large et grossesse; ablation du kyste; continuation de la grossesse, Gaz. méd. de Nantes, **31**: 948-950, 1913	None	6th	Left above uterus	Acute torsion	Removal 6th month, 8 liters	Cure	Normal	
44	Vanverts, M. J.: Torsion of Cyst of Broad Ligament During Pregnancy, Bull. Soc. d'obst. et de gynéc. **15**: 580 (Nov.) 1926	Five	6 wks.	Right cyst size of pea	Torsion	Removal of cyst, tube and ovary	Cure	Normal	Cyst in right ovary
45	Michel, G., and Guibal, J.: Broad Ligament-Torsion of Parovarian Cyst During Postpartum Period; Operation, recovery, Bull. Soc. d'obst. et de gynéc. **17**: 159 (Feb.) 1928	No data	No data	Left cyst size of orange	Acute torsion	Removal of cyst and tube 15 days post partum	Cure	Normal	Torsion 15 days post partum
46	Fruhinsholz, A., and Hamant, A.: A propos de quelques kystes ovariqnes de la gestation, Bull. Soc. d'obst. et de gynéc. **17**: 160-163 (Feb.) 1928	None	3d	Culdesac displacing uterus	None	Aspiration of liter	Cure	Normal	
47	Nash, W. G.: Torsion of Parovarian Cyst During Pregnancy, Proc. Roy. Soc. Med., London, 1908-1909; II. Obst. and Gynec. Sect. 224	None	3d	Left and posterior to uterus	Torsion	Removal, size of cocoanut	Cure	Normal	
48	Kreutzmann, H. J.: A Case of Extraperitoneal Intraligamentous Dermoid Cyst and Pregnancy, California State J. Med. **12**: 194 (May) 1914	One	4th	Left and posterior to dermoid cyst	None	Removal	Cure	Normal	

TABLE 2.—*Summary of Cases of Parovarian Cysts Complicating Pregnancy Reported by Other Authors—Continued*

Case	Author	Previous Pregnancies	Month of Pregnancy	Condition Found	Complications	Intervention	Maternal Results	Progress of Pregnancy	Observations
49	Lund, F. B.: A Case of Parovarian Cyst with a Twist of the Pedicle Occurring During the Fourth Month of Pregnancy Operation, Recovery, Normal Delivery at Term, Boston M. & S. J., 1900, pp 143-208	Two	4th	Right cyst in culdesac	None	Removal, size of 3 month pregnancy	Cure	Normal	
50	Toogood, F. S.: Case of Pregnancy Complicated with a Parovarian Cyst Simulating Extra Uterine Gestation, Brit. M. J. **1**: 1144, 1896, Lancet **1**: 1351, 1896	None	4th	Culdesac displacing uterus	None	Removal, size of cocoanut	Cure	Normal	
51	Bohm, I.: Unusually Large Parovarian Cyst Complicating Pregnancy, Gyógyászat **70**: 223-224 (March 23) 1930	No data	4th	Abdomen enlarged, ascites	None	Removal	Cure	Aborted	Offensive vaginal discharge
52	Ehrenberg[6]	None	9th	Retrorectal mass displacing head	None	Aspiration of sebaceous material	Cure	Normal	Epidermoid cyst; low forceps
53	Manzi, L.: Cisti ovarica interligamentosa incuneata nel bacino, ostacolante il parto: Minaccia di rottura di inserta, taglio cesareo demolitore, guarigione, Rassegna d'ostet. e ginec. **37**: 434-442 (July 21) 1928	None	9th in labor	Mass in culdesac displacing head, uterine rupture impending	None	Cesarean, hysterectomy, removal of cyst	Cure	Normal	Premature separation of placenta
54	Qui, M.: Grossesses compliquees, l'une de kyste du parov. l'autre de kyste de l'ovaire, Rev. prat. d'obst. et de pediat. 289-295, 1911	Three	5th	Abdominal and pelvic tumor, 10 liters	None	Removal after aspiration	Cure	Normal	
55	Hartman, H.: Kyste du ligament large a pedicule tordu et grossesse, operation a 2 mois, guerison accouchment à terme, Ann. de gynec. et d'obst. Paris **60**: 453-456, 1903	None	2d	Right cyst in culdesac	None	Removal, 1 liter of fluid	Cure	Normal	
56	Lantuejoul and Reglade: Rupture spontanee d'un kyste du parovaire pendant la grossesse, Gynecologie **23**: 540, 1924	Three	6th	Right cyst	None	Removal 5 months post partum	Cure	Normal	Cyst disappeared during pregnancy; no symptoms; spontaneous rupture
57	Begouin and Lafargue Kyste du parovaire et grossesse, opération, Bull. Soc. d'obst. et de gynec. **12**: 88, 1923	Two	4th	Pedunculated mass near navel, uterus retroflexed and fixed	None	Removal, size of two fists, uterus replaced	Cure	Aborted	
58	Pery and Mamge Kyste du parovaire et retroflexion de l'utérus gravide, Bull. Soc. d'obst. et de gynec. **12**: 231, 1923	None	Before pregnancy	Large cyst in abdomen and pelvis	None	Removal 3d month of pregnancy	Cure	Normal	
59	Rutherford[6]	Three	2d	Sepsis, vaginal bleeding, tender in left lower quadrant	Torsion	Removal of 3 cysts, pigeon to duck egg size	Cure	Aborted	Mother developed B. welchii peritonitis and pelvic abscess
60	Huter, F.: Grossesse et tumor kystique intraligamentaire, Bull. Soc. d'obst. et de gynec. **10**: 369-371, 1921	One	Before pregnancy and again in 6th month	Cyst on right above uterus size of man's head	None	Removal of pedunculated cyst at 7th month	Cure	Normal	
61	Reeb, M.: Dystocia provoque par un de l'ut Soc. d'obst. et de gynec. **10**: 444, 1921	None	Term, in labor	Cyst on left and in culdesac size of fetal head	Dystocia	Cesarean, suppurating cyst, ruptured in removal, hysterectomy	Cure		Viable child, no symptoms during pregnancy
62	Downing and O'Toole	Three	Term, in labor	Mass in culdesac displacing head, uterine rupture impending	None	Aspiration per vagina, 350 cc.; spontaneous delivery	Cure		No disturbance of pregnancy; cyst removed 10 days post partum, 500 cc.

usually forced up and out of the pelvis to the side opposite that of the cyst. Pain in the back or sides and bladder symptoms are common. At term the cyst may cause dystocia first by causing an abnormal presentation, second by acting as an insuperable obstacle to the passage of the fetus through the pelvis, and third by producing a rupture of the uterus. A pedunculated cyst may be located in any position in the abdomen and not cause symptoms, being only accidentally discovered by the patient or her physician.

COMPLICATIONS

Torsion and gangrene of parovarian cysts are common in pregnancy when the cyst has a pedicle, and several such cases[6] have been reported. Gangrene may also result from prolonged pressure during labor. Torsion may develop at any period, but it is most common in the early months of pregnancy and in the puerperium. Torsion was a complication necessitating operation in fifteen of the sixty-two cases reported. Rupture of the cyst may occur as a result of compression by the uterus and fetal head or of degenerative changes in the cyst wall. Intracystic hemorrhage and suppuration are other less common complications. Premature separation of the normally implanted placenta has been reported in a case of parovarian cyst.

6 Cases 2, 9, and 11 in table 1.

DIAGNOSIS

The differential diagnosis of parovarian from ovarian cysts during pregnancy is usually not possible, and the treatment is in general the same. Occasionally the parovarian cyst and the ovary can be felt separately and thus differentiated. Parovarian cysts are usually lower in the pelvis and are more fixed than those of ovarian nature. A tense cyst and a fibroid softened by pregnancy may at times be difficult to differentiate.

THERAPY

The indications for treatment of cysts encountered during pregnancy vary with the period of pregnancy and the size and location of the cyst. If a diagnosis of parovarian cyst is made in a patient seen during the first half of pregnancy, the cyst should be removed as early as possible if it is large, particularly if it is situated low in the pelvis and is not movable. If it is small, the patient may be kept under close observation and if it does not enlarge its removal may be postponed until after the termination of the pregnancy. Torsion of the cyst, however, may occur at any stage of pregnancy and necessitate an immediate operation.

During the second half of pregnancy the cyst, if large and fixed in the pelvis, should be removed at once; if small and not incarcerated, the patient may be watched closely and operation may be delayed at least until the fetus becomes viable. A study of the sixty-two cases in this report indicates that in the majority of patients the cyst enlarges, often rapidly, during pregnancy.

If a parovarian cyst is not diagnosed until labor is imminent or in progress, several procedures are possible: First, an attempt should not be made to do a forceful delivery alongside the cyst if it is large and prevents the fetal head from entering the pelvis. Second, reposition of the cyst under anesthesia with the patient in the Trendelenburg position may be attempted. If the cyst originates in the broad ligament with no pedicle this will rarely be possible, but it may be successful if it is of ovarian origin. Third, if the cyst is incarcerated in the pelvis it may be aspirated through the posterior vaginal wall, a blunt needle being introduced close to the posterior edge of the cervix in the median line. Davidson [7] reports a case in which he was able to palpate the uterine vessels on the vaginal aspect of the cyst. During the puerperium the cyst should be removed by laparotomy, since the flabby cyst is apt to undergo torsion if it has a pedicle. In suitable cases in which aspiration is not advisable because of the danger of injuring the vessels or ureter or because of the inaccessibility of the cyst, a cesarean section should be performed, followed by extirpation of the cyst when the condition of the patient permits. A few authors advise against treatment by aspiration, but that procedure is much safer than section in most hands and it seems to us that it is the method of choice when the cyst is incarcerated below the uterus. The removal of the cyst following cesarean section is often difficult if it is deep in the broad ligament or if an inflammatory reaction is present. In an occasional case in which infection of the cyst or uterus is present, a total hysterectomy is indicated following the cesarean section.

Judging from the results obtained in the cases reported, abortion or premature labor rarely results from laparotomy and removal of the parovarian cyst, even when torsion necessitates an immediate operation. The most favorable period during pregnancy for intervention seems to be the fourth month. Complications, such as torsion, hemorrhage, suppuration or rupture, developing in cysts during pregnancy call for immediate operation, no matter what the period of pregnancy or puerperium.

7. Davidson, A.: A Case of Dystocia Due to Cyst of Broad Ligament, J. Obst. & Gynaec. Brit Emp. 42: 569-571 (June) 1935.

REPORT OF CASE

Mrs. G. M. aged 28, a quartipara, was referred to the Sacred Heart Hospital Dec. 2, 1937, by her physician, Dr. Charles Ihle of Cleghorn. Her past history revealed no serious illnesses and no operations. Her menses began at 13 years and were normal. The patient's first labor occurred in 1930; the labor was long and difficult and a stillbirth resulted. Her second labor in 1932 was normal. During her third pregnancy her blood pressure was elevated, being 170 systolic and 90 diastolic, but no toxemia developed. Her third labor, in December 1934, was normal. Following the third labor her blood pressure remained elevated and a valvular heart disease was first noted.

Her last menses before her fourth pregnancy occurred Feb. 23, 1937. During the pregnancy she felt weak and tired and had frequent headaches. There was no albuminuria or edema, but her blood pressure was 180 systolic, 100 diastolic. She had no unusual abdominal or pelvic symptoms. December 1 the patient complained of a severe headache with vertigo and blurred vision, and the following day she consulted her physician, who found that her blood pressure was 210 systolic, 110 diastolic, the urine containing four plus albumin. She was sent to the hospital at once.

On admission her temperature was normal and her pulse 120; she complained of severe headache and blurred vision. No edema was present. The heart was moderately enlarged and a double murmur was present. The urine was loaded with albumin and the hemoglobin content was 56 per cent. She was given magnesium sulfate by mouth and hypodermically; pentobarbital was given at frequent intervals and fluids were forced. Free evacuation resulted. The following day there was no improvement and her blood pressure was 220 systolic, 120 diastolic. One ounce (30 cc.) of castor oil was given and was followed by 16 grains (1 Gm.) of quinine in divided doses. Labor began in a few hours and the membranes ruptured at 7 o'clock the following morning.

Examination one hour later showed the fetal head high and to the right above the symphysis. Strong uterine contractions were felt. The cervix was very high up beneath the bladder and one had to displace the posterior vaginal wall to locate the cervix, which was partially dilated and effaced. The posterior vaginal wall was pushed anteriorly by a firm fluctuant mass which compressed the rectum and displaced the fetal head high to the right and out of the pelvis. On rectal examination a cystic mass was felt in the culdesac between the rectal and vaginal walls. The patient's pains were regular and strong but the labor progressed slowly. The blood pressure was 220 systolic, 140 diastolic. She was kept drowsy by pentobarbital sodium and at 11:30 occurred her first and only convulsion, which was quite severe. Magnesium sulfate and morphine were given hypodermically. By 1 p. m. dilatation and effacement were complete. The head was felt above the symphysis through the thinned out lower uterine segment and at each contraction it felt as if the lower uterine segment would rupture.

Dr. Roy Crowder, an obstetrician of Sioux City, then saw the patient in consultation. Under light ether anesthesia a large needle on a syringe was introduced into the cystic mass through the posterior vaginal wall near the cervix in the median line. Two hundred and fifty cc. of clear fluid under pressure was removed. The head rapidly engaged and the needle had to be withdrawn to permit delivery, which was abrupt and spontaneous. The baby was a male and weighed 8 pounds (3,630 Gm.). It was in good condition but had an incomplete harelip. The third stage of labor was normal.

The patient's postpartum period was normal. She had no convulsions or headache, her pulse was 80 and her blood pressure came down to 170 systolic, 100 diastolic. There was no abdominal pain or tenderness. On the ninth day the hemoglobin

was 65 per cent and the red cells numbered 3,400,000. No mass was felt on abdominal or rectal examination. A laparotomy was performed on the tenth day through a left paramedian incision. A small blood clot was lying free over the dome of the bladder and a few soft fibrinous adhesions were present between the left broad ligament and the culdesac. A soft flabby cyst 8 cm. in diameter was present in the left broad ligament, the peritoneal layers of the broad ligament being freely movable over the cyst. The left tube was elongated and stretched out over the superior surface of the cyst. The ovaries and right tube were normal. The left tube and cyst were removed by splitting the peritoneal layers of the broad ligament. The cyst had no pedicle and but little blood supply. The appendix, which was grossly normal, was removed. When the cyst was filled to capacity it held 500 cc. and was 12 cm. in diameter. The wall of the cyst was thick and the inner surface smooth.

After the operation there was no vomiting or distention and little pain, and convalescence was uneventful. The patient was dismissed from the hospital on the eleventh postoperative day. Two months later when the baby's lip was repaired she was *feeling well. Her blood pressure was 180 systolic, 90 diastolic,* the hemoglobin content was 80 per cent, red cells numbered 4,000,000, and the urine was free of albumin.

SUMMARY

Among the sixty-two cases of parovarian cysts complicating pregnancy that are analyzed from the literature, complications necessitating emergency operations occurred in sixteen cases. A cyst incarcerated in the pelvis caused dystocia in seven cases.

Parovarian cysts usually grow rapidly during pregnancy. They may be incarcerated in the pelvis or (as in seventeen cases) have a pedicle and be movable and be in any position in relation to the uterus. The fourth month of pregnancy is the most favorable period for intervention. Torsion is a common complication of pregnancy. Postoperative abortion after laparotomy is not common.

Parovarian cysts diagnosed in the first half of pregnancy should as a rule be removed because of their tendency to enlarge rapidly and of the possibility of complications such as torsion. In the latter half of pregnancy, early removal is indicated unless the cyst is abdominal. When dystocia results from an incarcerated cyst, aspiration of the cyst by way of the vagina when possible and delivery of the fetus by the vaginal route is the procedure of choice. When aspiration is not feasible, cesarean section and removal of the cyst then or later is indicated. No maternal deaths occurred in the sixty-two cases reported.

The Power to Think Consecutively.—In his daily work a practicing physician has little or no control over the questions presented to his mind; mainly diagnostic, they are brought to him for solution one after another in great profusion. His solutions are reached in by far the greater number of instances by no process of logical reasoning, but on the basis of previous experience or on the basis of what we call intuition, a faculty often remarkably developed. Inevitably his mental activities are chiefly of this kind. The questions are not only profuse, but diverse; the mind is jerked forcibly from one question to another. When problems relating to the mechanism of disease present themselves, as they inevitably do to the more active minds and in the earlier years, then, before a clear line of thought can be established or followed to a satisfactory conclusion, the mind is torn from its problem to be confronted with others. The practice of medicine from its very nature is destructive to consecutive thought; its continued practice weakens the very power to think consecutively, and therefore clearly, on problems relating to the nature of disease, a matter very vital to progress.—Lewis, Sir Thomas: Research in Medicine and other Addresses, London, *H. K. Lewis & Co., Ltd., 1939.*

THE AFTER-TREATMENT OF COLLES FRACTURE

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Functional recovery is the yardstick by which success in the treatment of any injury to a bone or a joint is measured. In fractures of the shafts of long bones a moderate deviation of bony alinement may be compatible with a good functional result. A fracture of the shaft of the humerus which has united solidly may be consistent with a good functional recovery even in the presence both of shortening and of loss of alinement. As a general rule, however, the closer the fracture line approaches the articulating end of the bone, the more important it becomes to secure good reduction of the deformity. In certain fractures, complete restoration of function cannot be obtained unless a nearly anatomic *reduction of the fragments has been achieved. Colles* fracture belongs to the latter group.

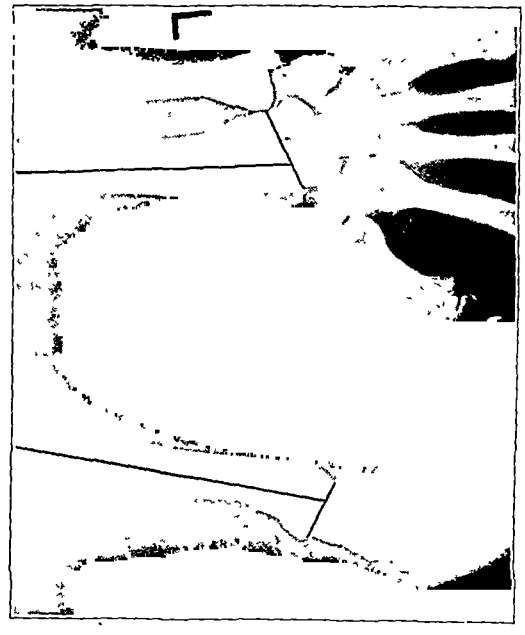


Fig. 1.—Normal wrist joint marked to indicate the forward and inward inclination of the articular surface of the radius.

Examination of a roentgenogram of a normal wrist joint (fig. 1) will reveal, among other things, that (1) in the anteroposterior view the concave articular surface of the radius faces inward at an angle of about 25 degrees; (2) in the lateral view the articular surface of the radius faces downward toward the palm at an angle of about 15 degrees, and (3) the styloid process of the radius extends distally beyond that of the ulna.

Unless reduction of a fracture satisfactorily restores these normal relationships there will be only a partial functional recovery with some persistent limitation of flexion or extension at the wrist, a persistent radial deviation of the hand and perhaps even a limited and painful rotation at the radio-ulnar joint.

A satisfactory result following Colles fracture means a complete restoration, within a reasonable time, of muscle power and motion in the hand, wrist, forearm and elbow and in the upper arm and shoulder as well.

Read before the Surgical Section of the New York Academy of Medicine, May 6, 1938.

It means free, coordinated movements of the fingers and thumb, activated by strong and supple muscles in the forearm, but it also includes a flexible elbow and shoulder which permit easy elevation of the extended arm above the head. What is meant by a reasonable time? The period naturally varies with the type of fracture and the age and condition of the patient, but in the average adult, with a fracture of average severity,

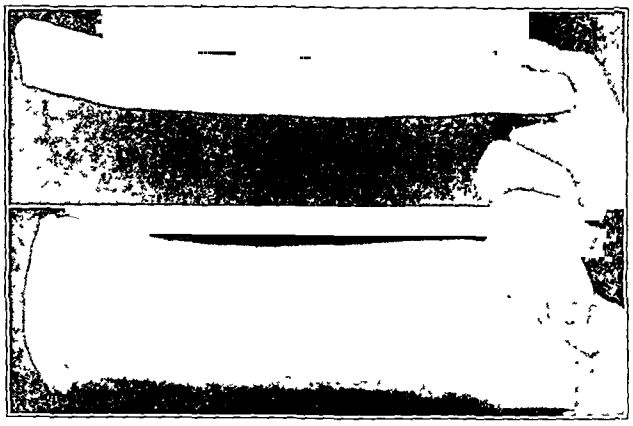


Fig. 2.—Dorsal plaster splint as seen from the side and from above.

it should not exceed seven or eight weeks. If one assumes that the fracture has been satisfactorily reduced, then the rehabilitation of the patient within the specified time depends entirely on the method of fixation of the fracture and on the after-care.

Colles fracture has been the subject of a great deal of experimentation in the matter of fixation and after-care. The invention of the plaster of paris bandage almost a hundred years ago was followed by a period during which massive heavy casts were applied to limbs. A fracture about the wrist meant the encasement of the whole arm, from the fingertips to the shoulder, in a cast which sometimes immobilized the patient as well as the wrist. On removal of the cast some months later it was the general rule to find a rigid hand, a withered arm and a deformity of a fracture which had not been reduced in the first place.

About fifty years ago, in an effort to prevent the horrible atrophy of bone and soft tissues that followed prolonged immobilization in heavy casts, Lucas-Championnière introduced early massage and early motion in the treatment of all fractures. His results were so superior to those obtained by previous methods that his practices received considerably wide acceptance within a few years. He deserves more credit perhaps than any one else for having emphasized the importance of functional recovery after injury to the bone.

The widespread use of physical therapy during and since the World War has been directly in line with the recognition of the importance of early restoration of function. The hand, wrist and forearm, because of their economic importance, have naturally become favored sites for the use of all physical therapeutic agents. These have included radiant heat, diathermy, early passive movement, early massage, electrical stimulation and ultraviolet irradiation.

Our experience at the Roosevelt Hospital with most of these agents has not been satisfactory and we have discarded all measures except active exercise in most cases of Colles fracture. We have found that other forms of physical therapy are usually unnecessary and, in some instances, may be harmful.

For many years we have followed a routine which I believe still has many advocates. Our patients were instructed to return to the fracture clinic for treatment the day following reduction of the fracture and on alternate days thereafter. These treatments consisted of radiant heat, light massage and cautious attempts at passive motion of the fingers and wrist, the fracture site being carefully supported on the anterior plaster splint and by the fingers of the operator. Active motion was encouraged as much as possible. Diathermy was begun at the discretion of the physical therapist, usually at the end of four or five days. Splints were discarded during the third week except in badly comminuted fractures, which were supported for one week longer. Heat, massage and diathermy were continued until the patient was discharged.

As time went on many practical objections to that method of after-care became apparent. The following are a few of the observations that we made:

1. Many patients were frightened at the very thought of having a splint removed for inspection so soon after the fracture had been set. Protective muscular spasm was so exaggerated that relaxed passive motion of the fingers was almost impossible in spite of gentle stroking massage and other forms of reassurance. In many patients this fear of pain on motion persisted and obviously retarded active use of the fingers in the later stages of treatment.

2. While some patients objected to any form of passive motion at the wrist, others who were less sensitive or less complaining permitted more passive motion than was good for them.

3. In a large percentage of the cases, swelling and pain in the fingers and wrist persisted for ten or twelve days after the injury. This we attributed entirely to two causes: lack of rest at the site of fracture and fear of active use of the fingers.

4. We found that simple transverse fractures almost invariably gave a good result. On the contrary, in

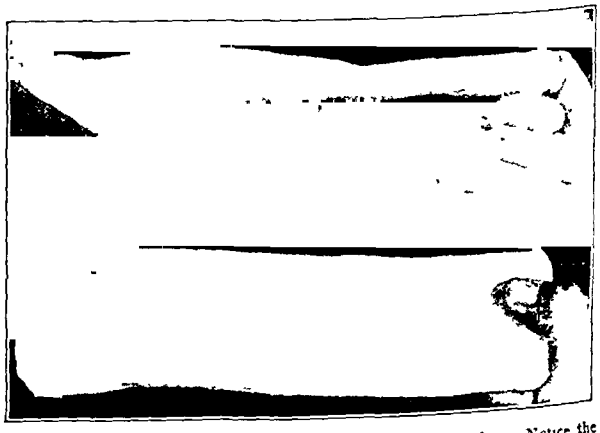


Fig. 3.—Volar splint as seen from the side and from below. Notice the portion cut away to accommodate the thenar eminence.

oblique and comminuted fractures the good position that had been obtained at the original reduction was often lost following early passive motion, in spite of every precaution. Recurrence of displacement, even when noticed early and corrected, prolonged recovery indefinitely. We saw many cases in which secondary displacement occurred during the third week of treatment.

5. Recovery of strength in the muscles of the hand and forearm was slow and was not affected appreciably by massage.

6. Diathermy did not hasten the healing of the fracture, nor did it increase the comfort of the patient.

7. We began to realize that the after-care of a Colles fracture entailed a tremendous expenditure of time on the part of the patient, the physician and the physical therapist.

About four years ago we began to abandon the use of passive motion and early massage and prolonged

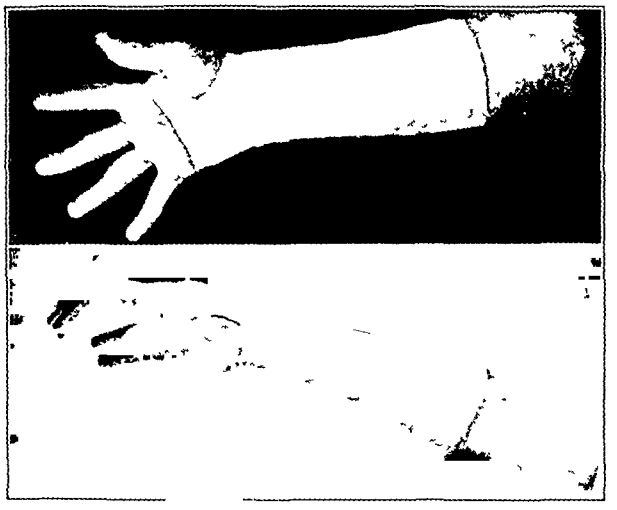


Fig. 4.—Completed splint. The thumb is entirely free and the fingers may be fully abducted. Notice in the palmar view that the plaster does not extend beyond the proximal flexion crease

the period of fixation. Today I am quite convinced that a better recovery will be obtained in a Colles fracture if one provides, first, uninterrupted fixation of the fragments until union of the bone is secured, and, second, a splint which allows complete function of every muscle and joint that does not have to be immobilized.

Our procedure at present is a simple one. If roentgenograms show a satisfactory reduction, anterior and posterior plaster splints are applied with the wrist out straight or in slight extension and with the forearm midway between pronation and supination. The posterior splint (fig. 2) extends from the upper third of the forearm to the middle of the dorsum of the hand. The anterior splint (fig. 3) extends down to the proximal flexion crease of the palm. The portion of this splint which overlaps the thenar eminence is cut away so that the thumb can be brought over to touch the base of the little finger. Both splints are lined with a very thin layer of cotton padding, and they are securely fixed with gauze bandage. The patient is instructed to start immediate active motion of the fingers. He is permitted to discard the sling at home for several hours at a time to permit elevation of the arm and flexion and extension of the elbow.

These splints are not disturbed for about five days. By that time most of the swelling will have disappeared and the splints will be ready for final adjustment. Without disturbing the splints, we remove several layers of the outer gauze bandage. A very light circular bandage of plaster is then applied over the splints and gauze. This circular bandage must be snug enough to prevent any movement at the wrist and it must be applied so that it does not interfere in any way with complete motion of the fingers and thumb (figs. 4 and 5). The patient should be able to clench the fist completely and to pick up and use a pencil or a fork without difficulty. The splint should be light enough so that the sling may be discarded completely after a few days. There is very seldom any need for further adjustment of the splints, and they are worn until the fracture is solidly healed and all danger of recurrence of displacement has passed. In children and young adults with simple transverse fractures, fixation for three or four weeks may be sufficient. Very oblique or badly comminuted fractures should be immobilized for four or five weeks, and occasionally for six. When the splints are finally discarded, no supporting bandage is necessary. The patient is instructed to begin active motion at the wrist and he is seen once a week until he is discharged.

I have found that at the end of four or five weeks bony union is firm and that the muscles of the hand and forearm, having been actively used throughout the period of fixation, are supple and strong. Not only is the wrist joint free from pain and tenderness but, in the great majority of cases, about 50 per cent of the normal excursion of the joint is present at the time the cast is discarded. I am firmly of the opinion that a great deal of the limitation of motion of the joint usually attributed to intra-articular stiffness is due to muscular shortening. There is some limitation of motion due to contraction of the joint capsule and ligaments. This, however, usually yields readily to the pull of the actively contracting muscles of the forearm. Functional recovery in the average case is complete in six or seven weeks.

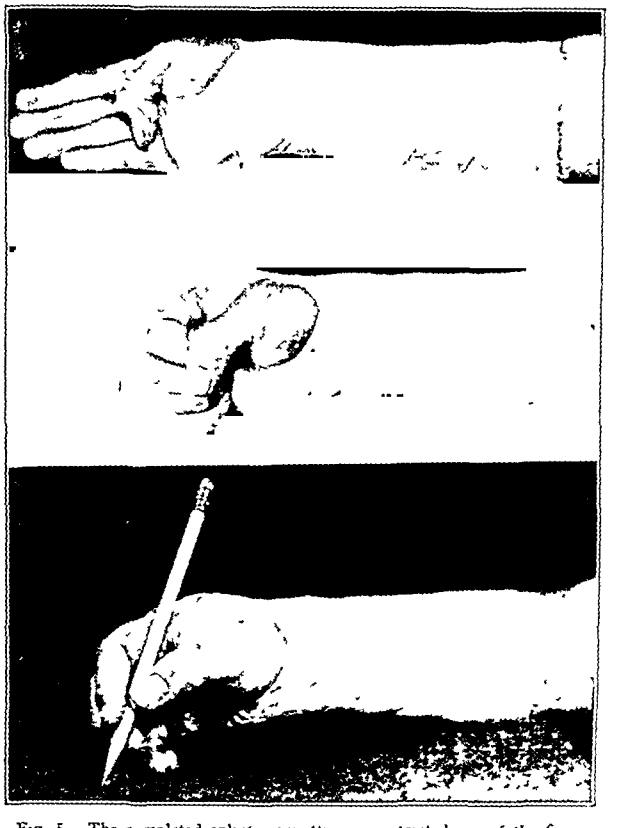


Fig. 5.—The completed splint, permitting unrestricted use of the fingers. The patient should be able to touch the base of the little finger with the thumb, clench the fist and hold a pencil without difficulty

Fractures in adults which have never been satisfactorily reduced will never have complete functional return. Severely comminuted fractures are not only difficult to reduce but difficult to maintain in good position without some form of continued traction. I have had recurrence of deformity in many cases of this

type in spite of uninterrupted and prolonged splinting. In these cases, some limitation of motion due to bony deformity at the wrist joint is common and usually permanent. It is important to note in this connection that, whereas a functional deficiency due to muscular or ligamentous shortening will be overcome almost invariably, a functional loss due to imperfect reduction will seldom disappear.

Our experience with this method of fixation of Colles fracture covers a period of approximately four years. I have found it physiologically sound. I believe that it has spared the patient a great deal of pain and that, in addition, it has permitted him greater use of the injured limb during the period of treatment. I am convinced that it has provided functional recovery within the prescribed period with less effort, with less inconvenience and discomfort and certainly with less risk than the methods hitherto employed.

CONCLUSIONS

I wish to emphasize the following points once more:

1. A good reduction is imperative; without it no method can promise satisfactory recovery.
2. The position of the fragments must be rigidly maintained by uninterrupted fixation until bony union has occurred.
3. The plaster splint should completely immobilize the wrist joint and the site of fracture, but it must permit full and unrestricted use of the fingers and thumb.

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UNUSUAL LOCATION OF GLOMUS TUMOR

REPORT OF TWO CASES

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AND
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Our knowledge concerning the structure, distribution and function of the normal glomus has been greatly expanded since the original description by Masson [1] in 1924 of a tumor which resembled the glomus coccygeum of Luschka. Masson's description of the glomus tumor and Popoff's [2] subsequent studies concerning the distribution and alterations of the normal cutaneous glomus in conditions involving the peripheral vascular bed have stimulated interest in this subject.

It was suggested that the glomus tumor should not be regarded as a neoplasm but as an exaggerated development of a normal structure. This conception would simplify our understanding of the tumor and aid us in explaining its physiologic manifestations. Regarding its development and distribution, it is of practical importance as well as of academic interest that the normal glomus, which represents a cutaneous arteriovenous anastomosis, is not present before birth and does not begin to develop in the infant until after one month of postnatal life. Thus, the difficulty of maintaining an even, warm surface temperature in the newborn infant can now be explained on the knowledge that the inability of the infant's skin to adjust itself to sudden changes in temperature is due to the absence or paucity of these cutaneous thermoregulators. Only after the glomus bodies are fully developed does the individual appear to become accustomed to sudden changes in atmospheric temperature. On the other hand, the glomus undergoes atrophy in persons beyond the age of 60, and it is then less efficient in its thermoregulatory control of the skin. This would help to explain the difficulties that are encountered by aged persons during sudden changes of atmospheric temperature. The number of normal glomus bodies varies in different locations, and the increased number in the extremities probably speaks for a necessary accessory mechanism which helps to maintain the cutaneous temperature in those parts of the body which are most subject to sensory stimuli. These cutaneous pressure and thermoregulators have been found to occur chiefly on the palmar and plantar aspects of the hands and feet, the subungual regions of the extremities and, in lesser numbers, over the body in general. A close anatomic association of the glomus bodies with the pacinian corpuscles has been observed, and Maximow [3] suggested an accompanying functional association of these bodies with cutaneous pressure control.

Tumors of the glomus bodies have directed our attention to their physiologic activities, to their abnormal behavior and to the pathologic changes that occur in the previously normal glomus structures of the extremities in diabetic gangrene, thrombo-angiitis obliterans and arteriosclerotic gangrene.

Up to the present time about ninety tumors have been described,[4] located chiefly on the extremities and generally beneath the nails of the fingers and toes. It is of interest that no report has appeared of the occurrence of these tumors on the genitalia of either sex. Because the glomus tumor in both of our cases occurred on the penis, one in a child and the other in an adult, we consider it sufficiently important to call attention to their presence in a hitherto undescribed location.

GENERAL CHARACTERISTICS OF GLOMUS TUMORS

In from 40 to 50 per cent of the tumors recorded there was a previous history of trauma and they occurred chiefly on the hands and feet. The average duration of their presence, from the time of their appearance to the development of symptoms, was nine years. The tumors vary in size from one-eighth inch to three-fourths inch (0.3 to 2 cm.) in diameter, or slightly larger. The small tumors are usually subungual, while the larger ones are present in easily distensible tissue. The variation in size often depends on whether or not the tumor is under pressure. Pressure on the tumors not only influences their size but determines also the degree of associated pain. Most of the recorded cases presented a history of excruciatingly painful crises with radiation of the pain. All the subungual tumors were extremely painful and the mere brushing of the affected finger by the clothes or by some other light pressure would be sufficient to initiate a painful crisis. Scraping the nail to great thinness was found to reduce the amount of pressure and thus relieve the patient considerably.[5] Tumors that were located in the soft tissues, such as

1. Masson, Paul: Le glomus neuromyo-arteriel des regions tactiles et les tumeurs, Lyon chir. 21: 257 (May-June) 1924.
2. Popoff, N. W.: The Digital Vascular System with Reference to the State of the Arteriosclerotic Gangrene, Diabetic Gangrene, and Supernumerary Digits in Man, Arch. Path. 1[illegible]
3. Maximow, A. A., and Bloom, William: A Text Book of Histology, Philadelphia, W. B. Saunders Company, 1930, pp. 284 and 355.
4. Radasch, H. E.: Glomal Tumors, Arch. Path. 23: 615-633 (May) 1937.
5. Raisman, Victor, and Mayer, Leo: Tumor of the Neuromyo-Arterial Glomus: Report of Cases, Arch. Surg. 30: 911 (June) 1935.

on the arms or legs, and in our cases on the genitals, were usually painless. Numerous explanations have been offered for the occurrence of painful crisis, but the obvious reason is one of pressure, causing pain as a result of constriction of the nerve end organs. Though the suggested association of a disturbance of sympathetic nerves may be a factor, it has been shown in one case that periarterial sympathectomy does not give relief.[6] Complete surgical excision of the tumor produces complete relief, and recurrences have not been observed. Stout[7] records a case in which a tumor recurred after nine years, but this is the only recorded case of a recurrence and consequently one may justifiably raise the question whether excision of the tumor was complete.



Fig. 1 (case 1).—Persistent, varix-like lesion on ventral surface of child's penis.

Systematic attempts to determine whether vasomotor reactions are associated with glomus tumors were made by Stabins and his associates.[8] They made local temperature studies before and after operation on two female patients who had subungual glomus tumors of the hand. Normally there is a synchronous drop in surface temperature in the hands on being immersed in cold water. However, after patients immersed their hands in water at 15 C. it was found that recovery to their previous temperatures was more rapid on the involved side than on the uninvolved side; also that during immersion the temperature on the affected side did not drop as low as on the unaffected side. There was a difference of between 6 and 8 degrees C. on the two sides. After operation the temperature changes in the two hands were found to be synchronous. There was a vasodilatation in the skin of the affected member, which disappeared after the surgical removal of the tumor. However, the disappearance of the vasodilatation did not occur until about eight weeks after surgical excision. Owing to the persistence of some pain at the site of operation, associated with vasodilatation, the authors considered the vasodilatation of the tumors as being caused by the painful sensory stimuli. This belief was strengthened by the fact that the vasodilatation disappeared when the pain ceased. Mason and Weil[9] cited a case of Paulian and his associates in which there was an increased feeling of warmth and perspiration over the whole right side of the body in which the increase in temperature of from 0.5 to 2 degrees C. was observed on the affected side. These changes disappeared following operation. Theis[10] studied a person aged 69 who complained of intermittent claudication as a result of peripheral vascular disease associated with senile arteriosclerosis. Following treatments of alternating positive and negative pressure the circulation improved and the thermocouple temperature became normal. Six weeks after treatment for the claudication a glomus tumor appeared on the leg. This was associated with sharp, agonizing pain and was followed by a peripheral drop in temperature, probably owing to an arterial spasm caused by the tumor. Excision of the tumor brought prompt relief and a return of the peripheral temperature to normal. The observations emphasize the physiologic effects produced by these tumors and indicate the association of the glomus with the maintenance of the temperature of the skin, whether through dilatation or constriction of the vessels. Theis suggested that under pathologic conditions congestion causes swelling with pressure on the nerves and consequent paroxysms of pain, while cold causes contraction of the muscular walls of the vessels, with compression of the nerve fibers between the glomus cells and resulting pain. In either event, pressure is the important precipitating factor and whether or not the disturbance is a central one with involvement of the sympathetic system is still a moot question.



... showing the proximity of ... the cutaneous surface.

The glomus tumor can be removed only by complete surgical excision. Adair[11] attempted to apply radiation in one case, using one square radium plaque of 700 millicurie hours at 1 cm. distance and a 3 mm. brass filter. This treatment was repeated but caused no change in the tumor. Lewis and Geschickter[12] applied

6. Burman, M. S., and Gold, A. M.: Glomus Tumor, New York State J. Med. **35**: 618 (June 15) 1935.
7. Stout, A. P.: Tumors of the Neuromyo-Arterial Glomus, Am. J. Cancer **24**: 255 (June) 1935.
8. Stabins, S. J.; Thornton, J. J., and Scott, W. J. M.: Changes in Vasomotor Reaction Associated with Glomus Tumors, J. Clin. Investigation **16**: 685-693 (Sept.) 1937.
9. Mason, M. L., and Weil, Arthur: Tumor of a Subcutaneous Glomus, Surg., Gynec. & Obst. **58**: 807 (May) 1934.
10. Theis, F. V.: Subungual Neuromyo-Arterial Glomus Tumor of Toe, Effect of Increased Peripheral Temperature, Arch. Surg. **34**: 1-11 (Jan.) 1937.
11. Adair, F. E.: Glomus Tumor: A Clinical Study with Report of Ten Cases, Am. J. Surg. **25**: 1 (July) 1934.
12. Lewis, Dean, and Geschickter, C. F.: Glomus Tumors (Arterial Angioneuromyoma of Masson), J. A. M. A. **105**: 775 (Sept. 7) 1935.

four courses of x-rays to a glomus tumor which had previously been diagnosed as Ewing's tumor, with no satisfactory results. One of the cases of Stabins and his co-workers failed to respond to 50 mg. hours of radium unfiltered. Stabins considered this as a therapeutic test verifying the diagnosis of glomus tumor. In one of our cases, which we at first considered



Fig. 3 (case 2).—Section of tumor under low power

hemangio-endothelioma, four courses of roentgen treatment were given without any change in the size or character of the tumor. Two months after this treatment the true nature of the tumor occurred to us. The stubborn resistance of the glomus tumor to all means of irradiation would tend to strengthen the objection to the so-called epithelioid cells being cells of embryonic character, particularly angioblasts, since all such cells are radiosensitive. Differential stains did not enlighten us as to the possible origin or nature of the glomus cells.

Although the majority of the tumors occur singly, Weidman,[13] Bergstrand,[14] Stout and others [15] reported cases of multiple tumors. The second case reported by Bergstrand offers the additional observation that there was a diminished density of the bones of the foot in which the multiple tumors occurred, which resembled multiple cysts. The tumors in his case occupied an intra-osseous position. This occurrence had not been reported previously, though others had observed rarefaction of the phalanges, as observed by x-rays, at the site of the tumors. The pressure exerted by the expansile tumor is probably the cause of the demineralization of the contiguous bone. This appears to be a form of pressure atrophy rather than an atrophy of disuse, as was suggested by Stabins.

13. Weidman, F. D., and Wise, Fred.: Multiple Glomus Tumor of Order of Telangiectases, Arch. Dermat. & Syph. 35: 414-426 (March) 1937.
14. Bergstrand, Hilding: Multiple Glomic Tumors, Am. J. Cancer 29: 470-476 (March) 1937.
15. Hval, Einar, and Melsom, Reidar: Multiple Glomus Tumors, Med. Rev., Bergen 53: 545-558 (Dec.) 1936.

REPORT OF TWO CASES

CASE 1.—A boy aged 6, seen by us July 15, 1936, had a redundant prepuce with a grapelike varicosity on the inner surface of the foreskin, which became evident when the foreskin was retracted. This was about the size of a marble and had the appearance of a small cluster of veins which extended back to the ventral surface of the shaft. The nodule was a bluish purple and caused the patient no discomfort except for some pain on urination. The history obtained from the child's mother was that a bluish discoloration, similar to that observed when the child was admitted to the hospital, was first noticed when the patient was 1 year old. The redundant prepuce and the small grapelike nodule were always present, but the varix-like group of veins on the ventral surface of the penis had not been noticed. The mother stated that the child had been playing with a wagon and was hit in the region of the penis with the tongue of the wagon; it was following this that her attention was called to the varix-like enlargement. The child's past medical history and family history were irrelevant. A circumcision was performed and the foreskin and the accompanying cluster of veins were sent to the laboratory for examination.

The gross specimen consisted of two sections of prepuce, the larger section of which showed a blue discoloration on the



Fig. 4.—Section under high power showing intimate relationship of the glomus cells to the lining, endothelial cells of the Sucquet-Hoyer canal

distal portion. When cut, it was observed that numerous dilated vascular channels were filled with blood.

Microscopic examination revealed that the sections were covered by skin and contained numerous angiomatous units, which extended into the subcutaneous tissue from an area immediately beneath the cutaneous surface. In one of the larger sections there were twelve units placed close together. They consisted of circumscribed, angiomatous nodules that were

surrounded by collagen. The unit itself was characteristic of an enlarged glomus body. It contained a Sucquet-Hoyer canal, which was lined by a single layer of endothelium. The wall was made up of large polyhedral cells that contained pale acidophilic cytoplasm and deeply stained nuclei. The cells were characteristic of those which had been referred to as epithelioid cells and were several layers in thickness. Silver stains (Wilder) showed the presence both of reticulum and



Fig. 5.—Section under high power showing the nature of the glomus cells, which are several cell layers in thickness

of what appeared to be myelinated nerve fibers. There were small arterioles and venules in the capsular areas, which apparently represented the nutrient vessels of the glomus. In some areas the glomus cells were in intimate contact with the endothelial lining of the vascular spaces, while in others they were separated by smooth muscle and collagen. The outstanding microscopic picture was the nature and arrangement of the glomus cells which surrounded the vascular channels and blood vessels. The cells resembled small nests of epithelioid cells, although the origin could not be determined. No mitotic figures were seen in any sections.

The diagnosis was glomus tumor of the penis.

CASE 2.—A man aged 25 presented himself in the surgical outpatient department with an angiomatous-like lesion on the penis. The patient stated that early in infancy a small red "pimple" appeared on the penis. When the patient was 14 he was hit with a baseball bat in the region of the genitals and the previously nonpainful nodule became swollen to the size of a walnut. It subsided shortly after this and assumed the size observed when he presented himself for treatment. Whereas the tumor was nonpainful previous to the injury, it became painful on pressure subsequent to it. The tumor was situated on the left dorsolateral surface of the penis about 3 cm. from the corona and measured 1.5 by 1 cm. The appearance in situ was that of a solitary varix. It was silghtly raised above the skin, was ovoid and did not pulsate. Pressure on the lesion did not cause blanching. On dissection the nodule was found to be composed of numerous vascular channels and did not have a proximal and peripheral blood supply like a varix but was fed and drained by numerous vascular channels that extended in several directions.

The specimen received in the laboratory consisted of two small pieces of cutaneous tissue which showed the presence of several dilated veins within their substance. On section these were found to be filled with blood and closely resembled varicose veins.

Microscopically the section showed a cluster of vascular channels which were lined by a single layer of endothelium. Immediately around the endothelial lining were cells that were two and three cell layers in thickness. They were polyhedral and contained acidophilic cytoplasm. The supportive tissue about the vascular spaces was collagenous. The cells had the appearance of glomus cells, and silver stain (Wilder) showed the presence of neuroreticular material.

The diagnosis was glomus tumor of the penis.

COMMENT

Popoff made an exhaustive study of the glomus units of the body in normal and pathologic conditions. He described the normal glomus as consisting of an arteriovenous anastomotic unit which was made up of an afferent artery; the tortuous Sucquet-Hoyer canal, which consists of a narrow lumen lined with endothelium and surrounded by a thick mantle of so-called epithelioid cells (of doubtful nature); the argentophilic fibers about the Sucquet-Hoyer canal; the primary collecting veins, and, finally, an outer lamellated encircling layer of collagen. He found that the distance from the inner surface of the epithelium of the skin to the glomus in the fingers and toes is about 0.5 to 1 mm.



Fig. 6.—Silver stain (Wilder) revealing the argentophilic fibers among the glomus cells

He further observed the pertinent fact that there was no particular relation of the glomus body to the pacinian corpuscles. In his discussion of the quantitative distribution of the Sucquet-Hoyer canals he made no mention of their distribution in the male genitalia, nor were we able to find any other reference to them in this location. Because of the complex vascularity of the penis,

the finding of two tumors in this location would indicate that both normal glomus structures and possibly glomus tumors are more common here than is generally considered.

There is sufficient evidence to support the fact that the glomus is a factor in changes in cutaneous temperature. The implied alterations of cutaneous pressure have less evidence to support them. The studies of Popoff which showed the state of the glomus in arteriosclerotic and diabetic gangrene, as well as in thrombo-angiitis obliterans, may well raise the question of their association with blood pressure changes of known and unknown etiology. Cole and Sroub [16] reported the presence of a painful glomus tumor on the finger of a woman aged 33 who had a blood pressure of 200 systolic, 110 diastolic. This may have been a mere coincidence, although it possibly suggests a sympathetic nervous disturbance which had expressed itself through the development of a glomus tumor. This may seem a bit far fetched but should be borne in mind in cases of so-called essential hypertension. Stout emphasized the predominance of glomus tumors among members of the Jewish race and suggests that the predominance of disturbances of the sympathetic nervous system in this group may be a factor in explaining the comparatively high incidence of glomus tumors among the Jews.

Popoff's studies failed to show that there was a primary specific change in the glomus system associated with thrombo-angiitis obliterans. The changes that occur in the arteries, veins and skin of the digits in this condition are attributed by him to an unknown vascular anomaly rather than to a disturbance in the glomus bodies.

We call attention to the fact that true thrombo-angiitis obliterans, which occurs independently of increased vascular tension, shows no pathologic changes in the glomus, while sclerotic gangrene and diabetic gangrene, both of which are commonly associated with an increased blood pressure, do reveal definite demonstrable pathologic changes. There is a difference in predilection of the pathologic changes in the various units of the glomus body in the two conditions. In the case of diabetic gangrene, hyaline degeneration appears in the intima of the Sucquet-Hoyer canal and in the preglomus arterioles, while the intima of the afferent artery remains intact. In sclerotic gangrene the hyaline degeneration is limited to the afferent artery of the glomus. Consequently, in those conditions in which increased blood pressure becomes a fixed state, comparable sclerotic changes can be observed in the glomus bodies of the digits, whereas in a condition such as in thrombo-angiitis obliterans, in which there is an absence of increased vascular tension, the glomus bodies are uninvolved. Cases of thrombo-angiitis obliterans represent a much younger age group than do those exhibiting diabetic and sclerotic gangrene, and it may be that the hyaline changes are an expression of degeneration associated with advanced years and may have no bearing on the general condition of hypertension. But the importance of the peripheral vascular bed in explaining vascular tone and the hypertensive state is so generally conceded that any additional facts which may elucidate this problem are worthy of serious consideration.

The high incidence of associated trauma (50 per cent) with these tumors raises the question of whether there might not be a congenital weakness in the glomus bodies in the affected persons which manifests itself in an overdevelopment following injury, producing what is recognized as a glomus tumor. In both of our cases the tumors appeared on the prepuce when the patients were at least 1 year old. Whether the varix-like condition on the under surface of the shaft was always present in our first case and attention was drawn to it by the injury or whether it followed the injury could not be determined. The history of trauma precipitating a preexisting abnormality was more definite in the second case. We were unable to find any reports of the tumors appearing in patients at the age of 1 year though Adair reported one case in a child of 6 years. The implication in this case is that glomus bodies make their appearance on the male genitals as early as 1 year of age, if not earlier.

We reviewed the sections of 122 tumors of blood vessels that had been examined in this laboratory and were unable to find any other glomus tumor of the penis.

In our microscopic studies we were able to demonstrate the various elements that are necessary for the diagnosis of a glomus tumor, including the demonstration of the argentophilic fibers about and among the glomus cells of the Sucquet-Hoyer canals. In this connection we are inclined to agree with Slepyan [17] that the argentophilic fibers resemble reticulum more than they do nerve fibers.

320 East North Avenue.

16. Cole, H. N., and Sroub, W. E.: Glomus Tumor: Arterial Angioneuromyoma of Masson, J. A. M. A. **107**: 428 (Aug. 8) 1936.

17. Slepyan, A. H.: Glomus Tumor: Report of Two Cases with Histologic Observations, Arch. Dermat. & Syph. **36**: 77-84 (July) 1937.

BERIBERI SECONDARY TO HERNIA OF THE MESENTERY

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AND
REGINA STOLZ GREENEBAUM, M.D.
CHICAGO

Cases of beriberi resulting from inadequate absorption of vitamin B_1 as a consequence of prolonged vomiting in such conditions as pyloric obstruction or pregnancy, prolonged diarrhea, or short circuiting of the bowel have been reported, but in none was the disease as severe as in ours, nor, as far as we know, have all three etiologic factors previously occurred in the same case.

REPORT OF CASE

History.—E. G., a white man aged 39, who had been confined to bed for about two months because of paralysis of the lower extremities, was first seen by us Feb. 21, 1938. His nervous symptoms began early in December 1937, with numbness in the epigastrium. The numbness gradually spread downward over the lower part of the abdomen and the medial surfaces of the thighs and ultimately involved the entire lower extremities. Pain in the legs, insteps and arches began at about the same time. Weakness of both lower limbs followed shortly, so that by December 20 the gait was unsteady. December 28 the patient fell to the floor, unable to support his weight, and since that time had not been able to walk. Atrophy of the muscles of the lower extremities appeared rather suddenly toward the end of December, when the patient lost 10 pounds (4.5 Kg.) in a single week. About a month later numbness, then weakness and finally atrophy of the upper extremities appeared, but the paresthesias and weakness were not as severe in the upper as in the lower limbs. The sphincters functioned normally. The voice was reduced to a whisper during the first two weeks of January 1938 but recovered spontaneously. No other history of cranial nerve involvement was obtained. The only mental symptom was occasional disorientation in time and space. The temperature

was not elevated at any time. The spinal fluid, obtained January 25, was clear and under normal pressure and was normal cytologically, chemically and serologically. The Wassermann test of the blood was negative. The spine appeared normal roentgenographically. Prostigmine was administered during January but the muscular strength diminished steadily. The patient had been a machinist but had never worked with heavy metals, nor was he addicted to alcohol.

The first cardiovascular symptom was edema of the eyelids, appearing late in November 1937, before the onset of the nervous symptoms. It lasted only a few days at that time but reappeared in January 1938 and became much more extensive, involving the back and the distal portions of all four extremities. The urine was consistently normal. Orthopnea and constant dyspnea at bed rest, with frequent paroxysmal exacerbations, began about February 1 and were growing more severe.

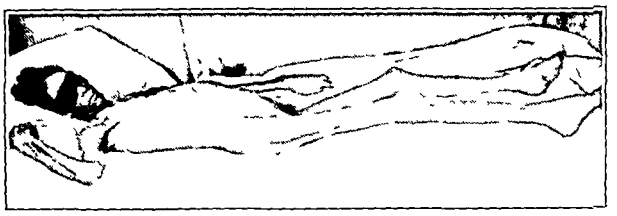


Fig. 1.—Appearance of patient March 15, 1938, showing extreme generalized muscular atrophy. The edema had disappeared everywhere except from the feet.

The patient had had intermittent postprandial epigastric distress relieved by food, alkalis or vomiting since he was 10 years old. At the age of 18 an appendectomy and inguinal herniotomy on the left were performed in the hope of ameliorating his gastrointestinal symptoms, but recurrences were as frequent after the operations as before. In May 1925, when the patient was 27 years old, frequent vomiting occurred. A posterior gastro-enterostomy was supposed to have been performed at this time to relieve obstruction produced by a cicatrizing duodenal ulcer. For the next three and a half years he was entirely free from symptoms and subsequently had only mild recurrences until January 1937, when persistent vomiting again occurred. January 30 the abdomen was explored; no previous artificial connection between the stomach and any other abdominal organ was found, and a posterior gastrojejunostomy was done. The emesis stopped postoperatively, but diarrhea began during February and became so severe that the patient had from four to eleven stools a day. No blood, pus, ova, parasites or pathogenic bacteria were found in the stools, nor did the patient have fever. From May to September he worked in spite of the diarrhea, but toward the end of this period vomiting recurred and he became so thin and weak that he went to a hospital for observation.

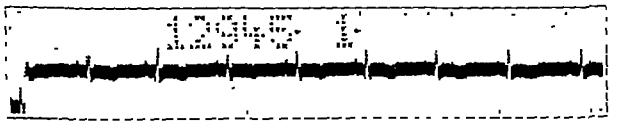


Fig. 2.—Lead 1 of an electrocardiogram taken March 8, 1938, after two weeks of thiamin therapy. Note inversion of the T wave.

He did not improve with bed rest, and insulin and dextrose administered parenterally. On the basis of roentgenologic studies it was decided that the vomiting occurred because food went through the pylorus and returned to the stomach through the gastrojejunostomy opening, thus forming a vicious circle. In the hope of breaking it a jejunojenostomy was performed in October. The diarrhea immediately ceased but emesis became worse. The patient vomited as much as 2,000 cc. at a time about once in thirty-six hours during November and December. In January 1938, about one month after the onset of the nervous symptoms, the vomiting spontaneously subsided. The patient's appetite remained good during most of his illness, but he lost about 50 pounds (23 Kg.) from his maximum weight. He had been eating a full diet since May 1937 except during the immediate postoperative period in October and had been free from epigastric distress during this time. Toward the end of January 1938 several teeth which had hitherto been in good condition broke during mastication.

Physical Examination.—When we first examined the patient, Feb. 21, 1938, he appeared almost moribund. He was dyspneic, orthopneic, pale and very emaciated, with extreme atrophy and flaccidity of all the muscles of the extremities and trunk and marked pitting edema of the face, back, hands, legs and feet. The alae nasi dilated with each inspiration, and the accessory muscles of respiration were used. The veins in the neck pulsated forcibly.

The oral mucosa was pale. Portions of several teeth were missing. The tongue was deeply furrowed and bright purplish red The gums were firm and pale.

The cardiac pulsations were diffuse, forceful and plainly visible in the second, third and fourth left interspaces, indicating enlargement especially of the right side of the heart The apex was in the fourth interspace 5 cm. to the left of the nipple line and the right border 1 cm. to the right of the sternum. No murmurs were heard. The rate was moderately rapid and the rhythm regular. The blood pressure was 130 systolic and 70 diastolic. The systolic sound over the partially compressed brachial artery was extraordinarily loud and booming. The skin was everywhere warm and smooth, and the palms of the hands were unusually pink in spite of the paralysis, edema, anemia and absence of fever. The back was so edematous that satisfactory examination of the lungs was impossible posteriorly. Anteriorly they were clear.

The abdomen was tensely distended and tympanitic, with borborygmus continuously audible even at a distance from the patient. Peristalsis was constantly visible in all parts of the abdomen and was especially noticeable in an incisional hernia in the epigastrium at the site of the last three operations.

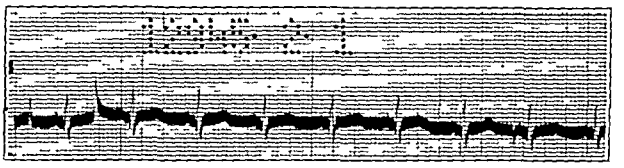


Fig. 3.—Lead 1 of an electrocardiogram taken March 24, 1938, after four weeks of thiamin therapy. The T wave is now erect.

The patient could not move his toes, ankles or wrists; motions in the knees and fingers were minimal, and in the hips, elbows and shoulders only a little stronger. He was unable to turn from side to side in bed. The extreme degree of atrophy is indicated both by the photograph taken after the edema had almost disappeared (fig. 1) and by the following measurements: maximum circumference of calf 8¼ inches (21 cm.) right, 8⅛ inches (20.6 cm.) left; circumference of thigh 8 inches (20.3 cm.) above the patella 9¼ inches (23.5 cm) right, 9¼ inches (23.5 cm.) left; circumference of forearm 1 inch (2.5 cm) below the internal condyle 7⅞ inches (20 cm.) right, 8 inches (20 3 cm.) left, and circumference of arm 1½ inches (3.8 cm.) above the internal condyle 6¼ inches (15.9 cm.) right, 6⅜ inches (16.2 cm.) left. The biceps, triceps, patellar, achilles tendon, abdominal, cremasteric, and plantar reflexes were absent. Tenderness of the gastrocnemii was exquisite. Perception of pain and touch was impaired on the lower part of the abdomen and all four extremities, more extensively in the lower than in the upper, and more severely in the distal than in the proximal portions. Proprioception was absent in the knees, ankles and toes. The cranial nerves were all normal.

The patient's hemoglobin content was 62 per cent by the Dare method, the red blood cell count 3,160,000 and the white cell count 3,150, with 79 per cent neutrophils, 1 per cent eosinophils, 10 per cent lymphocytes and 10 per cent monocytes. Anisocytosis, poikilocytosis, polychromatophilia, occasional macrocytosis and the presence of rare nucleated red cells were revealed by the smear.

Diagnosis.—On the basis of the multiple neuropathy in the absence of alcoholism or contact with heavy metals, the edema, the enlargement of the right side of the heart and the peripheral vasodilatation, one of us (L. M. L.) made a diagnosis of

beriberi resulting from lack of absorption of vitamin B_1 as a consequence of the vomiting, diarrhea and short circuiting of the bowel.

Thiamin Therapy and Its Results.—Treatment with intramuscular injections of thiamin chloride (crystalline vitamin B_1) was begun February 23 with 25 mg., and the dose was repeated February 26. Beginning March 1, daily injections of 10 mg. were given for five days, then 25 mg. daily for

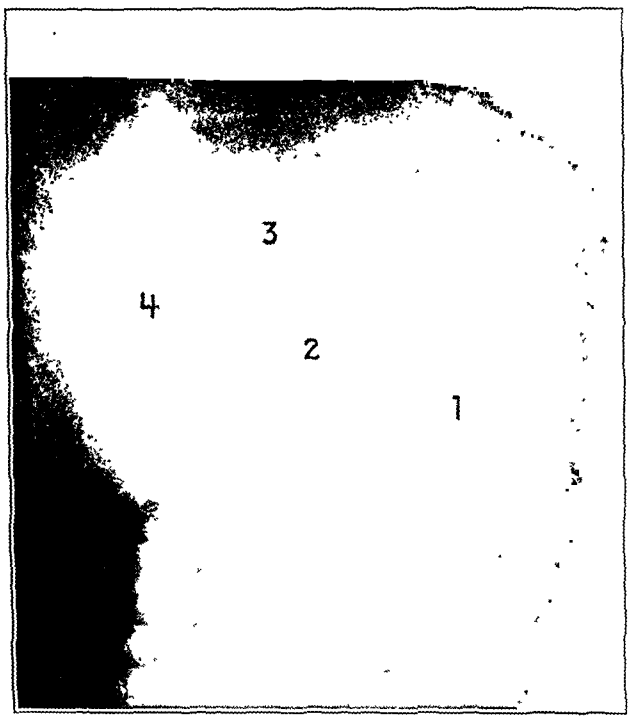


Fig. 4.—X-ray appearance Jan. 22, 1937: 1, greatly dilated pylorus; 2, duodenal cap; 3, duodenal ulcer scar, and 4, enormous dilatation of the duodenum distal to the ulcer.

fifty days and thereafter 10 mg. daily. The parenteral route was chosen both because of the severity of the deficiency and because the disease originated from faulty intestinal absorption. The day after the first injection the edema of the hands had diminished appreciably. By the time the patient entered Michael Reese Hospital in the service of Dr. Sidney Strauss nine days later the edema of the back was gone and that of the extremities greatly diminished. Within a month it had entirely disappeared. The dyspnea and orthopnea were relieved at about the same time. The pulse rate, which had been about 80 during the various periods of hospitalization in 1937 and had ranged between 100 and 130 during the last two weeks of January 1938, dropped to 50 three days after the first injection and then gradually rose to between 80 and 100. The size of the heart, as determined by percussion, also decreased, and the visible pulsations in the second, third and fourth interspaces became less conspicuous. In the electrocardiogram taken March 8 (fig. 2) the T wave in lead 1 was inverted, a change occurring frequently in beriberi. By March 24 it had become upright (fig. 3). March 8 the circulation time, determined by the calcium gluconate method, was fifteen seconds, a normal rate. The circulation time is usually decreased in patients whose decompensation results from subvitaminosis B_1 or thyrotoxicosis, in contrast to its increase in all other forms of decompensation. However, its return to normal is one of the first evidences of improvement in beriberi heart disease, and since the patient had been under treatment for two weeks when the determination was made, this result is consistent with the diagnosis.

Improvement in the nervous system was less prompt and less complete than in the circulatory system but was nevertheless progressive. About ten days after therapy was instituted, the patient lifted a handkerchief from the bed, an act he had been unable to perform for more than a month previously. At the end of two weeks he was able to grasp and lift a heavy pen knife. After three weeks he turned his body enough so that he fell out of bed as he was going to sleep. He could extend his wrist against gravity after six weeks, and at the end of ten weeks he had sufficient control to pick up a nickel from the bed. Sensory disturbances undoubtedly interfered with his ability to perform skilled acts. The strength of the muscles in the lower extremities improved correspondingly except that no recovery was observed in the muscles moving the ankles and toes. Tonus gradually returned in the various muscle groups. Although nothing had been done to prevent contractures prior to the time we first saw the patient, none had appeared. However, as the tonus improved, contractures began to develop in the gastrocnemii and hamstrings. Treatment with plaster splints and passive exercise were instituted. The right cremasteric, right upper abdominal, both biceps and both triceps reflexes returned.

The patient's response to tests of sensation varied from day to day and was always better in the morning than in the evening. Improvement was therefore rather difficult to evaluate, but over a period of weeks it was evident that sensory perception was returning. At the initial examination, perception of pinprick was lost on the dorsal surfaces of both hands and on the volar surfaces of the digits and was impaired on the anterior surface of the right upper extremity almost as high as the axilla. By May 10 pinprick produced a sharp and burning sensation in all distal phalanges and was perceived on the remainder of the hands as only slightly dull instead of entirely absent. No impairment in sensation was noticeable above the wrists at this time. In the lower extremities, as in the upper, more improvement occurred in the proximal portions. Pain perception had been impaired throughout the lower limbs and lower part of the abdomen at first. May 10 it was normal down to several inches below the inguinal folds. In the right foot, which had formerly been totally anesthetic, pinprick was perceived as a burning sensation. As early as April 1, perception of cold had returned to the right foot. As sensory perception improved, he complained more of pain and paresthesias. He stated, for example, that his hands felt "swollen and heavy" after the edema had disappeared, although when it was present he had not mentioned this sensation. Allochiria was observed in the thighs April 6. Tenderness of the gastrocnemii diminished progressively. Proprioception returned in all the joints except those of the toes but remained incomplete in the ankles. Disorientation became retrograde only.

Course.—Although the nervous and cardiovascular systems improved under thiamin therapy, the patient, who was 5 feet 10 inches (178 cm.) tall and weighed only 94 pounds (42.6 Kg.) after the edema had disappeared, failed to gain weight and had persistent symptoms of gastric retention. His appetite, ravenous in the morning, was nil toward evening, when he felt too full to eat even when he did not vomit. April 8 emesis began again, and it recurred every few days, always late in the afternoon. This, together with the persistent loud borborygmus and visible peristalsis in both the stomach and the bowel, indicated that partial intestinal obstruction was present. A careful inspection of the roentgenograms taken in January, April and October 1937 and on April 27, 1938, revealed that in each of them the entire duodenum as well as the stomach was enormously dilated (fig. 4). It was therefore evident that the obstruction did not arise from the ulcer in the duodenal cap but was distal to it, perhaps in the region of the ligament of Treitz, and that it had not been relieved by any of the previous

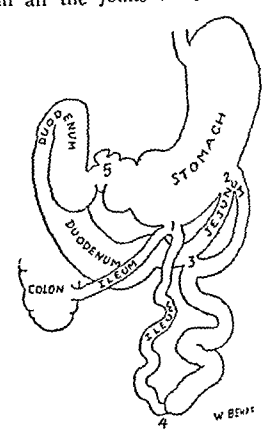


Fig. 5.—Diagram of the gastrointestinal tract as it was found at operation May 16, 1938: 1, gastroileostomy, May 1925; 2, gastrojejunostomy, January 1937; 3, jejunojejunostomy, October 1937; 4, site of hernia in mesentery, and 5, duodenal ulcer scar.

operations. Because it was thought that the patient could never become entirely well unless his assimilation of food could be improved, it was decided to explore the abdomen again.

Operation.—May 16, after two preoperative blood transfusions, an exploratory laparotomy was performed by Dr. Alfred Strauss with the patient under cyclopropane anesthesia. The stomach was enormously hypertrophied and dilated, and the duodenum was about the size of a normal large bowel.

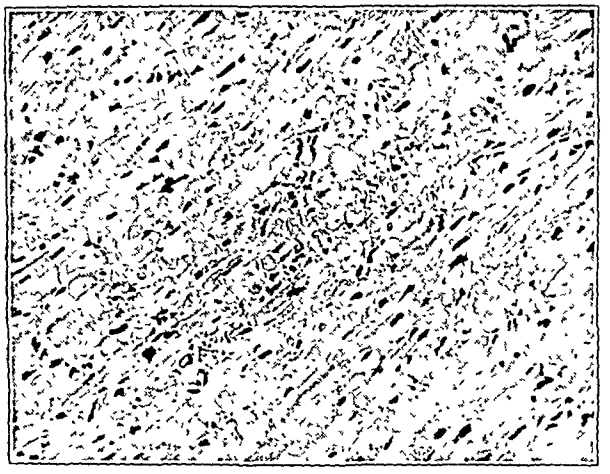


Fig. 6.—Section of myocardium, showing edema and disruption of muscle fibers and increased amount of loose areolar tissue.

The entire small intestine was brought outside the abdomen for examination. It was distended, but no vascular strangulation was observed. Three different anastomoses were found, one between the stomach and the terminal part of the ileum at a point about 1 foot from the cecum, presumably done in May 1925; another between the stomach and the proximal part of the jejunum, and a third between two loops of jejunum, one proximal to the gastrojejunostomy and the other distal to it (fig. 5). The obstruction was distal to the jejunojejunostomy passage and was produced by a congenital defect in the mesentery through which about 15 feet of small bowel had herniated. It was located midway between the ligament of Treitz and the cecum. Moderate constriction of the bowel by the hernial ring was responsible for the partial obstruction. The hernia was reduced, the defect in the mesentery was repaired, the three anastomoses were cut apart, and the six stomas thus produced were closed, restoring the gastrointestinal route to normal.

Although the operation lasted for three hours and the patient appeared to be a poor operative risk because of his long illness and extreme emaciation, the postoperative course for the next few days was remarkably uneventful. The temperature remained normal, the pulse rate did not rise above 80 and almost no abdominal pain was experienced. Borborygmus was no longer audible. Wangensteen drainage was discontinued May 19, when the patient began to eat well. May 20, however, mild diarrhea developed, followed by slight fever the next day. The abdomen, which had not been distended after the operation, again became tense, abdominal pain followed and the temperature and pulse rate rose. In spite of the reinstitution of Wangensteen drainage, numerous blood transfusions and the parenteral administration of adequate amounts of fluid, the patient grew steadily worse, and he died May 27, eleven days after the operation.

Autopsy.—The essential pathologic changes found at necropsy by Dr. Otto Saphir were a perforation of the recently closed stoma in the terminal part of the ileum with generalized fibrinopurulent peritonitis, severe edema of the myocardium, severe intraneural connective tissue edema and myelin sheath degeneration of the peripheral nerves, and caseous tuberculosis of the periaortic and peritracheal lymph nodes with encroachment on the tracheal wall.

The stomach, which had been enormously distended at the operation eleven days earlier, had contracted to normal size. The rugae were elevated, coarse and hyperemic, indicating that chronic hypertrophic gastritis was present. A recent ulcer was found in the stomach immediately adjacent to the more distal freshly closed stoma, but this had not perforated. The duodenum just beyond the pylorus contained two diverticula with intervening scar tissue, evidently the site of the old duodenal ulcer. In the region of the three recently closed ostia in the proximal part of the jejunum, a puckering of the mucosa constricted the lumen to some extent. The ostium in the ileum, through which intestinal contents had escaped, contained some loose and some broken sutures.

The heart weighed 250 Gm. and its shape was normal. In microscopic sections in some areas the muscle fibers were disrupted and more or less replaced by loose areolar connective tissue in which were numerous small empty spaces, while in other areas the cross striations were obscure and the muscle fibers granular and atrophic (fig. 6).

The brain and spinal cord were normal. In sections of peripheral nerves (fig. 7) marked edema was seen between the individual nerve fibers. Between the nerve bundles, edema and an increased amount of loose areolar connective tissue were present. Vacuolization and fragmentation of some of the nerve fibers and the presence of many large mononuclear cells were noted. In Weil myelin sheath stains, swelling and fragmentation of some of the myelin sheaths, with much replacement of the nerve fibers by connective tissue, were observed.

All the voluntary muscles were severely atrophied, and cloudy swelling was present in some of the fibers.

Tubercles were found in the peritracheal and periaortic lymph nodes and in those surrounding the right common carotid artery as it ascends into the neck. A solitary tubercle was seen in the spleen. In a microscopic section of the trachea, the encroachment of the caseous tubercles on the lumen was confirmed by the complete absence of cartilage and the presence of necrotic material immediately beneath the mucosa.

COMMENT

Nutritional Deficiencies.—In view of the cause of the subvitaminosis B_1 it was reasonable to suppose that other dietary deficiencies might be present. No means for testing the adequacy of vitamin A nutrition were available other than observation of the skin and conjunctivas, which were normal. Pellagra was not present, since the patient did not have dermatitis or stomatitis, and neither the gastrointestinal nor nervous symptoms were characteristic of this disease.

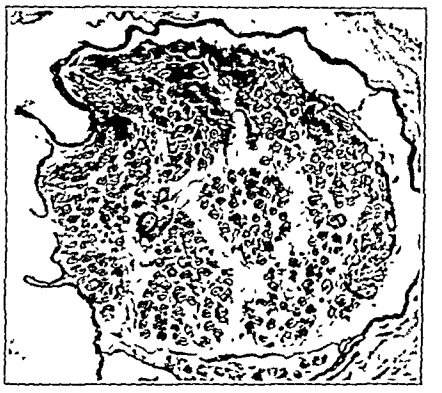


Fig. 7.—Section of peroneal nerve. Note the edema between the nerve fibers and nerve bundles and the increased amount of areolar tissue between bundles.

Furthermore, the gastric juice contained 18 units of free and 84 of total acid. Yeast cells were seen in the gastric contents, confirming the presence of free hydrochloric acid. No clinical evidence of scurvy was observed. Adequate tissue saturation with vitamin C was confirmed by the excretion of 65 mg. of ascorbic acid in the urine in twenty-four hours with the patient

on his usual diet, the normal daily urinary excretion being from 30 to 45 mg. The presence of vitamin D in adequate quantity is indicated by levels for blood calcium of 9.3 mg., for blood phosphorus of 2.6 mg. and for serum phosphatase of 3.4 units, all within normal limits for adults.

Although no other vitamin deficiency was found, other types of deficiency were present. The total blood protein content March 7 was only 5.4 Gm. per hundred cubic centimeters, with 3.4 Gm. of serum albumin and 2.0 Gm. of serum globulin. Possibly the edema was to some extent a result of hypoproteinemia, although its rapid disappearance with thiamin therapy without change in the diet indicates that it was more likely cardiovascular in origin. Another evidence of some type of deficiency was the persistence of hypochromic, macrocytic anemia in spite of daily parenteral doses of liver extract for several weeks and iron given both by mouth and parenterally. Only 0.5 per cent of reticulocytes were present March 15 even with the stimulus of liver therapy. This is less than the percentage found in normal blood. The red cell count and hemoglobin content remained essentially unchanged until a blood transfusion was given April 22, when they rose slightly. A more marked rise to 4,740,000 with a hemoglobin content of 80 per cent occurred after a second transfusion May 12. The breaking of the teeth was probably also a result of some type of nutritional deficiency, the nature of which we do not know.

The most striking evidence of insufficient absorption of food was the failure of the patient to gain weight. In spite of a high caloric, high protein, high vitamin diet his weight remained about 94 pounds (42.6 Kg.) during more than two months in the hospital. Yet food stayed in the gastrointestinal tract long enough for absorption to take place, for bowel movements, though copious, ordinarily did not occur oftener than once a day. At first we thought that some of the gastrointestinal symptoms might be a result of the subvitaminosis B_1, but the longer we observed the patient the more apparent it became that partial obstruction must be present.

Dosage of Thiamin.—At first a daily dose of 25 mg. was given to make sure that the patient was receiving an adequate amount of the vitamin. This was later reduced to 10 mg. daily, and progress was just as rapid with the smaller as with the larger dose.

Hernia of the Mesentery.—The type of mesenteric hernia found in this patient, involving the upper portion of the jejunum, is exceedingly rare. In 1932, only thirty-two cases had been reported in the literature.[1] Although it may have been a congenital defect, presumably it produced no symptoms until January 1937. All the preceding gastrointestinal symptoms can be accounted for on the basis of the old duodenal ulcer, but during and subsequent to January 1937 the symptoms were probably a result of low grade obstruction produced by the unrecognized hernia, complicated by the various anastomoses. The enormous size of the stomach was probably a consequence of the intestinal obstruction rather than of the old ulcer, since the stomach had returned to its normal size within eleven days after the relief of obstruction, though the ulcer had not been touched.

1. Edwards, C. R.: Acute Intestinal Obstruction Due to Mesenteric Defects Requiring Massive Resection, J. A. M. A. **99**: 278 (July 23) 1932.

Cardiac Changes at Autopsy.—The microscopic cardiac and nervous changes are typical of both experimental and clinical vitamin B_1 deficiency. Those in the nerves were to be expected, for function was still greatly impaired in spite of the prolonged treatment. Those in the heart, however, were not anticipated, for the heart had been clinically normal since the end of the first month of thiamin therapy and no enlargement of its right side was found on gross examination.

Tuberculosis.—The caseous tuberculosis was an entirely unexpected observation. The patient's temperature had risen to 100 F. and the pulse rate to from 90 to 100 a minute a number of times during his period of hospitalization, but this was attributed to a reaction to the injections of liver extract or to cachexia. It is probable, however, that it was actually a manifestation of tuberculosis and that the tuberculosis was a consequence of the severe and prolonged undernutrition.

SUMMARY

Wet beriberi was a result of impaired absorption of vitamin B_1 as a consequence of a partial intestinal obstruction caused by a hernia in the mesentery, compli[illegible], a gastrojejunostomy and a[illegible]iagnosis was confirmed by the improvement of the patient under thiamin therapy and by autopsy.

30 North Michigan Avenue.

TULAREMIC INGUINAL BUBOES FOLLOWING TICK BITES

REPORT OF TWO CASES

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NEW ORLEANS

A bubo in one or both groins associated with fever is common. It is usually presumed to be of venereal origin. Frequently it occurs with pyogenic infections of the lower extremities, scrotum, perineum or pubis. The local lesion may be so small as to be overlooked or so slight as to be disregarded as the cause of the lymphadenitis. In certain localities bubonic plague must always be kept in mind.

Six cases of tularemic inguinal lymphadenitis following tick bite have appeared in the literature.[1] The two cases reported here illustrate that clinically the disease may be readily mistaken for any of the types of bubo mentioned.

CASE 1.—*History.*—A white man aged 23 was sent to the hospital May 8, 1937, from the CCC Camp at Bogalusa, La., because of fever and bilateral inguinal lymphadenitis. On admission his temperature was 39.7 C. (103.4 F.) and the pulse rate 120. He had some pain in both groins, which was augmented by walking. The distal superficial subinguinal nodes on the right side were enlarged and beginning to fuse. The mass measured 4 cm. in diameter. It was freely movable and tender

The Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, furnished the photographs of the ticks.

1. These were reported by:
Magath, T. B., and Yater, Wallace M.: Three Cases of Tularemia, M. Clin. North America **10**: 745 (Nov.) 1926.
Kerlin, W. S.: Tularemia: Review of Literature with Report of Case, New Orleans M. & S. J. **81**: 723 (April) 1929.
Hanson, E. C., and Green, R. G.: Tularemia in Minnesota, J. A. M. A. **92**: 1920 (June 8) 1929.
Schultze, V. E., and Marr, W. L.: Tularemia in Texas, Texas State J. Med. **29**: 643 (Feb.) 1934.
Miller, J. W.: Tularemia: Report of a Case, Proc. Staff Meet., Mayo Clin. **13**: 494 (Aug. 3) 1938.

on pressure. The skin was not changed. The corresponding nodes on the left side were enlarged, discrete and tender. The largest measured 1.5 cm. in diameter.

For the past five days the patient's appetite had been poor and he was nauseated. He had vomited once. May 6 he had some pain in the right groin and found a tender "kernel." Later that day his left groin became painful. The venereal history



Fig. 1.—Tularemia: bilateral primary lesion.

was irrelevant. May 10 the patient was given the Frei test and reexamined. At this time a superficial ulcer 5 mm. in diameter covered by a thin black scab was found on the anteromedial aspect of the right leg just below the knee. A similar but apparently more recent ulcer was present on the lateral surface of the lower third of the thigh. Numerous scratches, excoriations and pinpoint pink papules were present on both legs. Inquiry about these lesions disclosed that the patient worked in underbrush where ticks were plentiful. At night he often removed as many as thirty ticks from his body. He first noticed the sore on his right leg when his groin became painful. He attributed this to scratching. When his attention was called to the ulcer on the thigh, he stated that it was "just a pimple several days ago."

Laboratory Data.—The leukocyte count was 8,500 per cubic millimeter, with a differential count of 69 per cent polymorphonuclears, 23 per cent lymphocytes, 6 per cent monocytes and 2 per cent eosinophils. The Wassermann, Kahn and Frei tests were negative. Smears and cultures of material from the ulcers and of the pus aspirated from the bubo in the right inguinal region showed no micro-organisms. Three guinea pigs inoculated subcutaneously with pus and brought to autopsy after nine, eighteen and twenty-seven days, respectively, showed no lesions.

The macroscopic tube agglutination test for Bacterium tularense with the patient's serum May 20 with a titer of 1:320 showed complete agglutination, June 3 with a titer of 1:640 complete agglutination, June 18 with a titer of 1:1,280 complete agglutination and with a titer of 1:2,560 partial agglutination, and June 26 with a titer of 1:2,560 complete agglutination and with a titer of 1:5,120 partial agglutination.

After I obtained this high and progressively rising agglutination titer, more pigs were inoculated with pus from the right bubo, again with negative results. When I spoke with Dr. Edward Francis about this case, he informed me that pus from suppurating lymph nodes infected with Bacterium tularense rarely yields the micro-organism on culture or produces infection in guinea pigs after the first month of illness.

Course.—The patient was decidedly ill. The fever continued for twenty-five days with morning remissions and evening rises in temperature to 38 or 39 C. (100.4 or 102.2 F.). The whole group of superficial inguinal nodes on both sides became involved and very painful. They formed huge doughy and fluctuant buboes. The skin was intensely red, edematous and adherent. Later it showed hemorrhagic and purplish discoloration and was very thin over the dome of the buboes. After three weeks of progressive suppuration the right bubo burst, discharging blood-streaked yellow creamy pus and sloughs of necrotic tissue. The bubo on the left side was aspirated and incised. Ugly, indolent wounds resulted. These healed after a number of weeks of energetic and varied treatment.

CASE 2.—*History.*—A white man aged 22 was sent to the hospital May 28, 1937, from the CCC camp at Springville, La., because of fever, chills, and inguinal lymphadenitis on the right side. On admission the temperature was 38.8 C. (101.8 F.) and the pulse rate 96. A subinguinal bubo 5 by 7 cm. in diameter was present on the right side. It was painful, tender on pressure and fluctuant in areas. The skin over the bubo was freely movable and not altered. The bubo had been developing for two weeks. In the past few days it had become painful, and the patient had chills, fever and a cough and ached all over. His head ached severely.

Long-standing dermatitis venenata due to poison oak was present over both legs. Small faint papules and excoriations were present over the legs, thighs and lower part of the abdomen. The patient stated that these were due to ticks, which he removed from his body daily after working in the woods

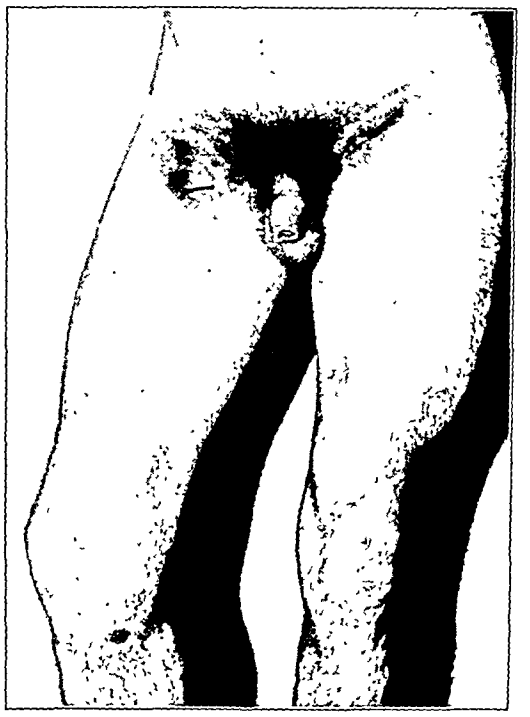


Fig. 2.—Bubonic tularemia, showing hemorrhagic discolorations of the skin over the buboes.

Three days previously he had removed a tick that was deeply embedded in the right scrotal fold, and he found one on the back of the scrotum after entering the hospital. The venereal history was irrelevant.

Laboratory Data.—The leukocyte count was 7,600 per cubic millimeter, with a differential count of 68 per cent polymorphonuclears, 27 per cent lymphocytes and 5 per cent monocytes. The Wassermann, Kahn and Frei tests were negative. The macroscopic tube agglutination test for Bacterium tularense

with the patient's serum May 29 with a titer of 1:640 showed complete agglutination, June 12 with a titer of 1:640 complete agglutination and with a titer of 1:1,280 partial agglutination, and June 29 with a titer of 1:1,280 complete agglutination.

Pathologic Study of the Excised Bubo.—The gross specimen consisted of six lymph nodes, of which the smaller were discrete and the larger partly matted together. The largest node measured 2.7 cm. in diameter. The nodes were soft and the

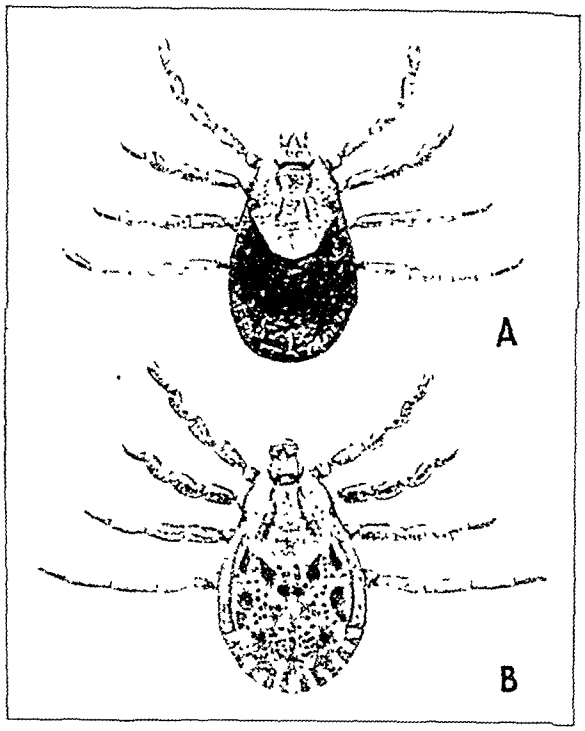


Fig. 3.—Dermacentor andersoni, *A*, female, *B*, male.

periadenoid tissue was hemorrhagic. On section the parenchyma was pink and mottled with miliary gray and red flecks.

Microscopically the lymphadenoid architecture was largely suppressed or obliterated. Large and small foci of early and advanced caseation containing aggregates of intact and degenerated polymorphonuclears were present in the large nodes. These were marginated by mantles of palisaded epithelioid cells. Occasional epithelioid granulomas and areas of diffuse epithelioid cell proliferation were present. Some of these showed beginning coagulation necrosis.

Infiltrations of polymorphonuclears and small numbers of monocytes and plasma cells were present throughout the parenchyma in all nodes. The sinuses were dilated and filled with serous exudate containing polymorphonuclears, lymphocytes and macrophages. Capillary vascularization of the parenchyma, irregular fibroblastic overgrowth, intense congestion and foci of hemorrhagic extravasation were present. An occasional focus of reticulum cell hyperplasia was seen. Fibrin was demonstrable in the margins of an occasional focus of beginning caseation.

The capsules and periadenoid tissue were overgrown by hemorrhagic vascular granulation tissue that showed focal abscessing and diffuse suppuration, dense lymphocyte infiltration and small numbers of monocytes and plasma cells. Fibrin was demonstrable in areas.

Many Langhans giant cells were present throughout the parenchyma, associated with and apart from the granulomas. Some were also present in the periadenoid granulation tissue.

The small and medium sized arteries showed diffuse edema and lymphocyte infiltration of their entire wall, various degrees of adventitial fibroblastic overgrowth and intimal proliferation with stenosis of the lumen.

Micro-organisms were not demonstrable in sections stained by the Gram, Gram-Weigert, buffered Romanowsky or Ziehl-Neelsen method or the Nile blue sulfate method advocated by Foshay.

Course.—The fever continued with morning remissions and evening elevations in temperature to 37.8 or 38.6 C. (100 or 101.4 F.) for over three weeks, until it was decided to excise the bubo. During this period it enlarged only slightly, but it became considerably softer and in areas markedly fluctuant. The skin was purplish and thin over the areas of fluctuation.

Within a week after the bubo was excised the patient became afebrile and began to improve. The wound healed slowly.

COMMENT

Francis [2] has pointed out that certain ticks are important agents in the transmission of tularemia. Wood ticks, Dermacentor andersoni, have caused the disease in fifty-three cases in Montana and the surrounding states. The dog tick, Dermacentor variabilis, has caused it in more than sixty-five cases in the Southern states, and in several cases it has been attributed to the Pacific Coast tick, Dermacentor occidentalis Neum.[3] Probably a number of other species of ticks play a part.

These ticks are biologic hosts for Bacterium tularense; that is, the infection acquired in one tick stage is passed on to the next, thus insuring perpetuation and spreading the disease among lower animals and thereby increasing the danger to man.

Ticks bite under the clothing or in the hairy areas of the body, where they may escape notice for long periods. The perineum and genitalia are favorite sites of tick bite. Francis [4] stated that he had had a dozen

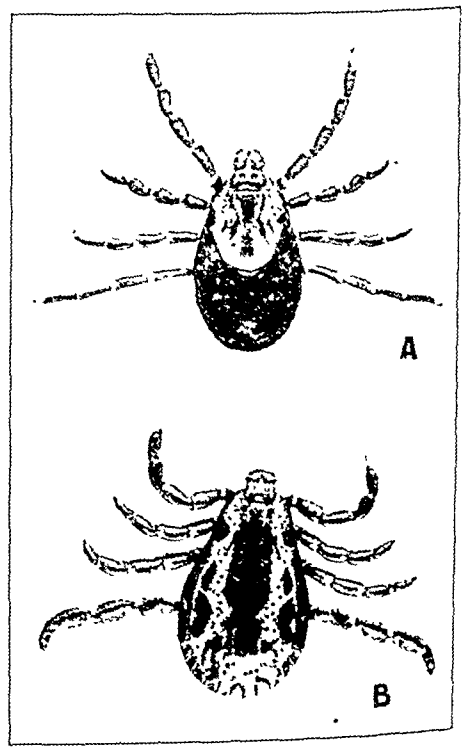


Fig. 4.—Dermacentor variabilis, *A*, female, *B*, male.

reports by letter of inguinal lymphadenitis that followed the bite of infected ticks in these areas. In several cases the adenitis was bilateral. In one of these the ulcer was present at the midline over the coccyx and in one over the pubis, in one there were multiple

2. Francis, Edward: Sources of Infection and Seasonal Incidence of *Tularemia in Man*, Pub. Health Rep. 52:103 (Jan.) 1937.
3. Bishopp, F. C.: Ticks and the Role They Play in the Transmission of Diseases, Washington, D. C., Smithsonian Institution, Annual Report, 1935, pp. 389-406.
4. Francis, Edward: Personal communication to the author.

perineal ulcers and in one there was an ulcer on each leg, from which sites seed ticks had been removed several days previously.

The buboes in the two cases here reported occurred in May within three weeks of each other. The infection is seasonal, owing to the periodic prevalence and activity of the ticks and probably also to game laws.

From March to August are the months recorded for the onset in fifty-three cases of tularemia due to the wood tick, Dermacentor andersoni. These months correspond with the season of greatest activity of this species. This tick becomes infected in the larval or nymphal stage by feeding on infected rodents, and as an adult it infects man when it feeds on him. It has been found to feed in its various stages on a large variety of animals, the most important hosts of the immature stages being mice, ground squirrels and pine squirrels, while the adults feed mainly on larger wild and domestic animals.

From January to October are the months recorded for the onset in fifty-three cases of tularemia due to the dog tick, Dermacentor variabilis. The disease is widely distributed over the eastern two thirds of the United States and also occurs in California. In distribution therefore it almost occupies the portions of the United States not covered by the wood tick, Dermacentor andersoni. It is especially abundant along the coast from Cape Cod to the extreme southern part of Texas. It is troublesome as a parasite of dogs, horses, cattle, rabbits and man.

The wood tick, Dermacentor andersoni, and the American dog tick, Dermacentor variabilis, are related species. They resemble each other in general appearance, and their habits are similar. These ticks are especially abundant in wooded areas which are heavily overgrown with vines and underbrush. This condition not only gives the ticks protection but also protects the small wild rodents on which the young ticks feed. This at once suggests the desirability of cleaning out undergrowth and destroying small wild rodents in the vicinity of habitations and camps. In areas where hawks, owls and other predatory birds abound, removing the brush exposes the rodents to the attack of these birds.

It is stated that tick bites can be avoided by wearing proper clothing to exclude the ticks. Too much dependence, however, should not be placed on the exclusion of ticks, and the body should be thoroughly examined at frequent intervals when one is walking or working in tick-infested areas. Special attention should be given to the examination of the scalp and other hirsute areas of the body.

The number of ticks in a given area can be distinctly reduced by dipping infested dogs [3] and other livestock in a suitable tick-destroying solution or, in the case of pet dogs, by systematically picking the ticks from the animals to prevent the dropping of any engorged females. In removing ticks from dogs it should be borne in mind that the mere handling of an infected tick may cause infection, because Bacterium tularense can penetrate the unbroken skin. Hence the ticks should be picked off with forceps and the hands well washed with antiseptic solution.

Ticks removed from boys at the CCC camps in southern Louisiana from time to time were identified as the dog tick, Dermacentor variabilis, and the lone star tick, Amblyomma americana. A number of times ticks of both species were ground up and inoculated into guinea pigs. After weeks of observation the animals were well and showed no lesions at autopsy.

Diagnosis.—A bubo in the groin or regional lymphadenitis anywhere, when associated with fever, an ulcer of the skin or excoriations and scratches resulting from insect bites and coupled with a history of tick bite or fly bite (Chrysops discalis) should suggest tularemia. The agglutination of Bacterium tularense by the patient's serum in a dilution of 1 : 80 or higher is considered diagnostic of tularemia, provided there is no cross agglutination with Brucella abortus and Brucella melitensis.

SUMMARY

Bubonic tularemia of the groin is clinically similar to other types of inguinal bubo. The pus of suppurating tularemic buboes will rarely yield Bacterium tularense on culture or produce lesions in guinea pigs. Regional lymphadenitis associated with fever, an ulcer of the skin or excoriations and scratches resulting from insect bites, coupled with a history of tick bite or fly bite, is suggestive of tularemia. The agglutination of Bacterium tularense by the patient's serum in a dilution of 1 : 80 or higher is considered diagnostic.

STERILE MOTILE SPERMATOZOA, PROVED BY CLINICAL EXPERIMENTATION

FRANCES I. SEYMOUR, M.D.

NEW YORK

In May 1935 Mr. and Mrs. K. presented themselves with the problem of sterility. Both patients had been examined several times during their eleven years of married life. Neither husband nor wife had ever been operated on, nor had they at any time been ill other than with slight colds, and Mrs. K. with sinus trouble, which was a chronic condition, not severe enough to warrant operation. The last examination that they had undergone in an endeavor to determine the reason for their sterility occurred eight months before they presented themselves to me for reexamination.

Mr. K. was examined first and found to be in excellent health. A specimen of seminal fluid was obtained by withdrawal, the material being collected in a sterile pyrex beaker. The count revealed 94,000,000 spermatozoa per cubic centimeter of fluid, abnormal forms 3 per cent, motility index eighteen hours, fertility index (?) and pus absent. The spermatozoa were very active with markedly active use of the tail, movements of which were exceedingly rapid. With interference of viscid mucus obtained from the wife's cervical mucous plug, the spermatozoa, after becoming entangled, persisted for as much as an hour and a half to penetrate the obstruction. This, by the ordinary criterion that has been used to date, would have exonerated Mr. K. of any part in the sterility.

Mrs. K. was then examined. Her organs were freely movable on bimanual examination. There was no history of any pelvic abnormality; the menstrual cycle was normal; her weight and height were normal for her age, 38. Her mother did not cease menstruating until she was 49. The siblings in her family, two brothers and one sister, all had one or more children.

First reported at a sectional meeting of the Department of Urology, Brady Foundation, Cornell Medical Center.

A uterosalpingogram showed tubal patency and normal conformation of the uterus. The basal metabolic rate was plus 7. Wassermann reactions of the blood were negative in both husband and wife and the other blood work, including tests with follicle stimulating and luteinizing factors, gave negative results. Urinalysis showed no evidence of disorder; hemoglobin was 95 per cent in the Sahli test, the red blood cell count 4,750,000 and the white blood cell count 6,700. The differential count was normal. A series of sedimentation rates taken over a period of several weeks showed no marked vacillation. Mrs. K. was normal in every way. The Huhner test showed viable spermatozoa in the cervical canal.

Mr. K. is a professor in a nearby university and is constantly subjected to the grueling effects of university routine. He had been constantly in harness during the eleven years of his married life. Mrs. K. herself is a college graduate, highly trained, and assists her husband in his research work. Their life is principally taken up with intellectual matters, although they play some tennis.

Having found nothing that would lead one to suspect it as the cause of the sterility, neither of them showing any manifestation of endocrine dysfunction, both being of normal weight and normal habits, there was only one factor for consideration—the question of devitalization with a resultant lowered fertility index to such a degree that fertilization could not occur; that is, if such a condition actually exists. With this in mind, the patients were subjected by their local physician to biweekly and then weekly ultraviolet irradiations between November 1935 and May 1936. The diet was also drastically altered, with incorporation of a great deal of raw vegetables, such as salads and grated carrots and beets, all sorts of raw fruits, raw onions sliced and boiled onions. Meats and salads were spiced with an unusual amount of condiments and garlic. In addition, fish was eaten three times a week and considerable crustacea. Both the husband and the wife retired at an early hour, and afternoon rests became a habit. In addition there was a large daily dose of irradiated ergosterol, and, for Mr. K., weekly doses of testicular extract administered intragluteally, in increasing doses. However, with all this rest and therapy, by May nothing had happened. The patients then consented to a change of environment. Forthwith they went for their three months summer vacation to England, spending it in a rural suburb of London, relaxing completely and enjoying their vacation. However, October 1936 showed no improvement. There was only one significant deviation from the original examination in that the motility index had increased from eighteen hours to twenty-one hours.

It was decided at this time that, with the wife's consent, if a sufficient number of volunteers could be found, to cross inseminate them with Mr. K's spermatozoa to determine definitely whether the spermatozoa were fertile or not. Children by Mr. K. would have been highly desirable, since he has an intelligence quotient of 140, which throws him into the genius group. During the next year and a half we were able, with the consent of the women and their husbands, who were sterile, to start these inseminations on sixteen women. It was with their consent and knowledge that the spermatozoa of Mr. K. were used, although in many instances his nationality, religion and aptitude differed markedly from those of the sterile husband. In the next six months period spermatozoa were obtained from Mr. K. and the patients were artificially inseminated monthly. No pregnancies ensued.

At the end of this time it was decided, and consent was received from the participants in the experiment, that I should now use a donor whose fertility index was known. A man with an intelligence quotient of 120 was chosen—a man who was already the father of two children and whose wife practiced birth control. He was an eminent figure in his profession. His wife was also a college graduate, a highly intelligent person. They both realized the importance of the experiment and gave their full hearted cooperation. The viability index of the donor's sperm was thirty-one hours. Because of the uncertainty of the exact time of ovulation, it was thought best to have four inseminations each month on the sixth, tenth, twelfth and fourteenth day of each intermenstrual period, the first day of the period being considered as one. The frequency of these inseminations and the thirty-one hour viability index of the donor's spermatozoa gave reasonable assurance that the sperm would overlap the periods between inseminations. Another factor that came up later was that subjects 8, 13 and 15 would not take between these periods. After eleven months it was decided in these three cases to alter the days, which may be seen in the accompanying table.

The sixteen volunteers and the wife of Mr. K. were artificially inseminated over the next fourteen months,

Results of Artificial Insemination

Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Years married	11½	2	4	9	10	5	5	4	7	1½	5	18	6	6	8½	5	3	
Age	38	23	30	40	39	32	35	28	38	22	35	40	34	39	36	31	27	
Crossed with Mr. K's sperm on sixth, tenth, twelfth and fourteenth days of period, from October 1936 to March 1937																		
Pregnancies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
April 1937, second donor used	..	P.	..	..	..	..	..	..	..	..	P	..	..	..	..	..	P.	Inseminated 6th, 10th, 12th and 14th days
May 1937	..	..	P	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
June 1937	..	..	..	..	..	..	..	..	..	P.	..	..	..	..	..	..	..	
September 1937	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	P.	..	
October 1937	P.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
November 1937	..	..	..	P.	..	..	..	..	..	..	..	..	..	..	..	..	..	
December 1937	..	..	..	..	..	..	..	..	P	..	..	..	..	..	..	..	..	
January 1938	..	..	..	..	..	P.	..	..	..	..	..	..	..	..	..	..	..	
February 1938	..	..	..	..	..	..	..	..	..	..	..	..	..	P.	..	..	..	
March 1938	..	..	..	..	..	..	P.	..	..	..	..	..	..	..	..	..	..	
April 1938	..	..	..	..	P.	..	..	..	..	..	..	P.	..	..	..	..	..	
May 1938	..	..	..	..	..	..	..	..	..	..	..	..	P.	..	..	..	..	Inseminated 2d, 4th and 5th days
September 1938	..	..	..	..	..	..	..	..	..	..	..	..	..	..	P.	..	..	
October 1938	..	..	..	..	..	..	..	P.	..	..	..	..	..	..	..	..	..	
Sex of child born	♂	♂	♂	♂	♀	♂	♂	..	♂	♂	♀	..	..	♂	..	♂	♂	

when the rest of the volunteers, including Mrs. K., had become pregnant. The table shows the exact time at which each of the seventeen women became pregnant, the pregnancy being verified after the missing of the next monthly period and a positive Friedman reaction being obtained. The importance of this series is principally that motility of spermatozoa does not necessarily indicate fertility and that the retrieving of viable spermatozoa after coitus from the cervical canal does not exonerate the man as a cause of sterility.

The fertility index of spermatozoa may not be judged by conformity of the count per cubic centimeter, by ascertainable motility or by any of the other physical factors, diagnosable by ordinary microscopic examinations.

53 East Ninety-Sixth Street

Clinical Notes, Suggestions and New Instruments

ROCKY MOUNTAIN SPOTTED FEVER WITH UNUSUAL FEATURES

E. HERBERT BAUERSFELD, M.D., WASHINGTON, D. C.

This is the report of a case of Rocky Mountain spotted fever, with observations made at autopsy, which is of unusual interest with regard to (1) mode of infection, (2) character and distribution of the rash, (3) lateness of appearance of the rash and (4) jaundice.

REPORT OF CASE

History.—M. F., aged 23, a white, married, unemployed American woman, admitted to Emergency Hospital June 7, 1938, complained of headache, chills and fever of four days' duration. She had been perfectly well until the afternoon of June 4, when she was taken with severe frontal headache and burning of the eyes. Shortly thereafter aching in her chest and legs and a slight cough developed. During the night she had a shaking chill followed by a rise in temperature and a drenching sweat. These symptoms continued, and the day before admission a decrease in auditory acuity, without earache, developed. The morning of admission she became nauseated and vomited and could not retain water. She stated that she had not been out of the city recently, had been drinking only city water and pasteurized milk and had eaten the usual cooked foods.

Her past and family histories were noncontributory.

It was later learned from the family that the patient had removed a tick from her husband about ten days prior to her illness. The husband, who was in good health, had recently hitch-hiked north from Florida.

Examination.—On physical examination the patient was well developed and fairly well nourished and was lying quietly in bed, alert and cooperative. The skin was hot and moist, and there was a suggestion of mottling over the abdomen (heat had been applied). Marked anterior flexion of the head elicited a slight pain down the back of the neck. There was moderate tenderness over the orbital rims; the scleras were clear; the nasal mucosa was injected; the lips were parched. The knee jerks were moderately hyperactive and there was an abortive ankle clonus. The Babinski and the Kernig sign were not present. The temperature was 103 F., respiratory rate 20, pulse rate 104 and blood pressure 115 systolic, 70 diastolic. The rest of the physical examination revealed no abnormalities.

Subsequent Course.—The patient continued to have a high fever, to have severe sweats and to grow progressively weaker. June 12, the ninth day of her illness, there were several petechiae in the conjunctivas and on the buttocks. June 13 there was a mottled maculopapular rash over the trunk, shoulders and upper parts of the thighs. By June 14 these areas had become petechial and were present on the upper arms. There was never any rash on the face, hands or feet. The lesions were discrete pinpoint to pinhead sized petechiae which did not fade on pressure. They were most numerous over the back and buttocks. On the day the petechiae were first seen, the patient showed decreased mental alertness, which progressed slowly to a stupor. On the morning of June 14 the scleras were icteric, and during the course of the day the skin became icteric. About 4 a. m., June 15, the patient became restless and anxious and went into coma, death following shortly thereafter.

The temperature ranged from 102 to 104 F. with occasional sudden drops to subnormal following severe sweats.

Examinations of the blood revealed: June 7: hemoglobin 90 per cent, erythrocytes 5,000,000 per cubic millimeter, leukocytes 7,550 per cubic millimeter with 98 per cent polymorphonuclears. June 13: hemoglobin 90 per cent, erythrocytes 4,470,000 per cubic millimeter, leukocytes 14,300 per cubic millimeter with 88 per cent polymorphonuclears. Agglutination of Bacillus proteus X 19 was positive in 1:80 concentration; of B. abortus, negative; of B. typhosus, negative and of B. paratyphosus A and B, negative. June 14: agglutination of B. proteus X 19 was reported negative by the United States Public Health Service. Spinal fluid June 7 and 12 showed 5 and 7 cells per cubic millimeter respectively. Blood culture, the Wassermann reaction, examination of the urine and x-ray examination of the chest were negative. June 14 guinea pigs were injected with the patient's whole blood and from them was isolated the virus of Rocky Mountain spotted fever. The virus conformed to the strain isolated from patients with the Eastern form of Rocky Mounain spotted fever.[1]

Autopsy.—This was performed by Drs. R. D. Lillie and T. L. Perrin of the United States Public Health Service.

Gross Appearance: The body was well developed. There was a general icterus of the skin, and numerous small petechial hemorrhages were present over the trunk, upper arms and thighs. The breasts appeared normal. On section there was a large hemorrhage in the left rectus muscle. The peritoneum was smooth and glistening. On the surface of the intestine were pinpoint sized hemorrhages. The visceral pleura was studded with pinhead sized hemorrhages over the left lower and right middle lobes of the lungs. There was a small amount of bloody fluid in the right pleural cavity. The visceral pericardium also showed numerous petechial hemorrhages.

The right ventricle of the heart was soft and distended with blood. The left ventricle was contracted. The valves were normal. There was marked congestion of both lower lobes of the lungs. The hilus nodes showed mild anthracosis. The spleen weighed 425 Gm. and was dark red and moist on section. The stomach contained some dark brown thin fluid, probably altered blood. The mucosa showed many pinpoint sized hemorrhages. The pancreas was normal. The liver was about normal in size. On section there was a slight yellow and brown lobular mottling. The gallbladder was moderately distended with very dark bile that could not be expressed into the duodenum. A probe could not be passed without making a false passage. No stones were found. The adrenals were normal. The size of the kidneys was normal. Many petechial hemorrhages were present in the pelvic mucosa. There was a small amount of blood in the uterine cavity. Several small hard white nodular tumors from 3 to 5 mm. in diameter were found in the ovaries. The bladder was distended with urine, which gave a yellow foam on shaking. The mucosa was studded with petechial hemorrhages. The mucosa of the intestine showed many petechial hemorrhages. The fecal material in the colon was clay colored.

Gross examination revealed: (1) petechial eruptions in the skin, in the serous membranes including the visceral pleura, pericardium and peritoneum and in the mucosa of the gastrointestinal tract, renal pelves and bladder; (2) icterus; (3) splenomegaly, and (4) congestion and edema of the lungs.

Microscopic Appearance: In the epicardium and myocardium and beneath the endocardium there were many small focal hemorrhages; also areas of vascular endothelial swelling, adventitial proliferation of fibroblasts and moderate perivascular

1. Performed by Dr. R. E. Dyer of the United States Public Health Service.

A BEDSIDE METHOD FOR DETECTING DEXTROSE IN THE URINE

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Benedict's test for dextrose in the urine can be simplified for practical bedside purposes by using the solution dried on a wad of asbestos and applied to the end of a wooden applicator.

Asbestos paper soaked in Benedict's solution is molded onto the end of a wooden applicator, again thoroughly moistened with the solution and then allowed to dry in air. The test is then carried out by dipping the end of the applicator into the urine or by merely allowing two drops of urine to fall on the end of the asbestos and then gently heating the urine-moistened asbestos over a noncharring flame (Bunsen, stove range, alcohol lamp). A yellow color develops, the intensity of which depends on the concentration of dextrose in the specimen.

A rapid method using asbestos paper and bismuth salts and requiring heat for completion has been devised by Mr. Harold Wright [1] of Forest Hills, N. Y., but this has the disadvantage of being rather cumbersome to make up. Recently the Denver Chemical Manufacturing Company has put out its "galatest" for rapid detection of dextrose in urine with the salts of bismuth. The latter test seems to be rapid and accurate and has the advantage of not requiring heat for its completion but the disadvantage of using caustic materials.[2]

In the manufacture of my asbestos applicators I have used standard Johns-Manville asbestos paper one thirty-second inch thick. The paper is cut into strips and soaked in Benedict's solution for twenty-four hours. At the end of this time pieces of the soaked paper about the size of an almond are molded on the end of wooden applicators, again moistened in the Benedict's solution and allowed to dry in air. Applicators thus made may be stored at least three or four months without loss of their sensitivity. In carrying out the test it is necessary to dip the asbestos tip of the applicator into the specimen of urine or apply two drops of urine, so that on the completion of the test a yellow line of demarcation is noted between the moistened and the unmoistened portions of the applicator if the test is positive.

Any source of heat that does not deposit soot on the surface of the asbestos may be used to carry out the test. It is important to avoid the direct heat of the flame to prevent charring.

The applicability and sensitivity of the method were tested by examining graded concentrations of dextrose in normal urine

Association of Color Gradations with Concentrations of Dextrose

Concentration	Color
3 per cent or more	Orange
From 1 to 3 per cent	Canary yellow
From 0.5 to 1 per cent	Greenish yellow
From 0.1 to 0.5 per cent	Faint yellow on a green background
0.07 per cent	No change

ranging from 0.6 to 5 per cent. In these experiments definite color gradations were associated with the concentrations of the dextrose given in the accompanying table.

The cost of the materials required for the test is minimal. The asbestos paper costs 10 cents a pound and the wooden applicators 10 cents a hundred. I have calculated the cost of a single asbestos applicator to be 0.4 cent.

Tests of diabetic urine of known dextrose concentration, determined by more elaborate quantitative methods, showed an agreement with the results obtained with the asbestos applicators close enough for ordinary clinical purposes.

At no time did various specimens of normal urine give a yellow color with the asbestos test. Approximately 100 samples of normal urine were tested, and none gave a false positive reaction. No other pathologic constituents of the urine, viz., blood and bile, interfere with the results of the test.

The applicators are as convenient to carry about as are tongue depressors, and both the physician and the patient are able by this rapid, inexpensive test to determine the approximate concentration of sugar in the urine within one minute.

Cooperation was given the author by Dr. Eugene F. Du Bois and Dr. Gustave I. Steffen.

From the New York Hospital and Department of Medicine, Cornell University Medical College.

1. Wright, Harold: Personal communication to the author.
2. Dr. Albert Seaton of Indianapolis has devised a test using copper salts and heat, but the manufacture of his device is rather costly.

Council on Physical Therapy

THE FOLLOWING ARTICLE HAS BEEN ADOPTED BY THE COUNCIL FOR PUBLICATION. THE COUNCIL EXPRESSES ITS APPRECIATION TO THE CONSULTANTS APPOINTED TO AID THE COUNCIL IN THIS INVESTIGATION FOR THEIR VALUABLE ASSISTANCE, TO THE NATIONAL BUREAU OF STANDARDS FOR ITS COOPERATION, AND TO THE AUTHORS FOR THE PREPARATION OF THIS REPORT.

HOWARD A. CARTER, Secretary.

RADON SEEDS

PHYSICAL CONSIDERATIONS: DO THEY LEAK AND DO THEY IRRITATE TISSUES?

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PHYSICAL CONSIDERATIONS

A short time after radium was discovered, it was found that objects in the neighborhood of open radium preparations acquired a radioactivity of their own. This activity was very short lived if the object was removed from the vicinity of the radium but could be renewed at will by bringing it back.

This mysterious phenomenon is readily explained when the sequence of radioactive changes is known. Radium itself is a metal, belonging to the same chemical group as barium and calcium. The nucleus of the atom is, however, unstable, and at some (entirely unpredictable) time it suddenly ejects a portion of itself. This portion, which is called an alpha ray or alpha particle, is exactly like the nucleus of a helium atom. In any given quantity of radium, every instant a certain percentage of all the atoms present undergo this transformation, the rest remaining completely unchanged. The apparent result of this is that the quantity of radium present gradually decreases. But it must be remembered that this gradual decrease is the result of a series of sudden transformations.

When a radium atom has ejected an alpha particle, what is left behind is no longer radium but a new element, radon. This element is a gas, belonging to the same chemical family as helium. Being a gas, it need not remain with the radium atoms but can float away, remain for some time in the air or settle on some object. Radon is itself unstable. At some (also unpredictable) time after its formation, the radon atom expels an alpha particle. The residual atom is known as radium A and is another metal, belonging to the chemical group of selenium and tellurium. These metallic atoms settle on any nearby object, forming a film so thin as to be invisible. They, in turn, eject alpha particles, and this alpha radiation naturally appears to come from the object on which the radium A has settled; this is the "acquired radioactivity" mentioned in the first paragraph. When radium A disintegrates, its product is

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Special report prepared for the Council on Physical Therapy of the American Medical Association partly as a result of a special investigation to determine the question of leakage.

another solid, as are all the subsequent ones. This element, called radium B, belongs to the same chemical family as lead.

Radium B disintegrates in a different manner from the preceding elements; it ejects an electron, known as a beta ray, or beta particle. Accompanying this particle are rays of the same sort as roentgen rays; these are called gamma rays. The next substance, radium C, emits all three types of rays in its disintegration.

It is evident that these radioactive substances are arranged in a family, or series. As a matter of fact, three such series are known, but only this one is of much practical importance in radiation therapy. This is called the uranium series, since its first member is uranium. Radium is the seventh member; for the present purpose its ancestors are of little significance. The part of the series which has been discussed, and which is all that is of interest in radiotherapy, may be condensed in a diagram as in figure 1.

Each member of the series is a true chemical element. It enters into combinations with other elements in accordance with the chemical group to which it belongs. Every one has its own characteristic manner and rate of disintegration, which for any given substance is always the same and is not influenced either by the chemical combination in which it exists or by the action of physical agents (such as heat and cold).[1]

The three types of rays differ greatly in their penetrating powers. The alpha rays, which are helium nuclei traveling at high speeds, cannot penetrate to any appreciable distance in solid matter; in fact, they are all stopped by an ordinary sheet of paper. Evidently they may be ignored in radiation therapy. The beta rays, electrons traveling at considerably greater speeds than the alpha rays, are more penetrating. Many of them will pass through several millimeters of tissue; they are all stopped by 2 mm. of brass or 0.5 mm. of platinum or gold. They are of use in therapy only for extremely superficial conditions. The gamma rays are, like roentgen rays, electromagnetic radiations traveling with the speed of light, and they are very penetrating. Some of them can pass through several inches of lead. They are the ones which must be used to affect cells at distances of more than a few millimeters in tissue.

The problem of radiation therapy is to deliver a sufficient quantity of radiation to the cells it is desired to affect, without at the same time producing undesirable effects on other tissues. In radium therapy this implies an adequate amount of gamma radiation.

As stated, no gamma radiation is produced by radium itself or by its immediate descendants; the gamma rays come from radium B and radium C. If, however, the radium is in a sealed container, its decomposition products will accumulate there with it and their radiation can be attributed to it. If, on the other hand, the arrangement is such that the radon atoms can drift away (or be pulled away) as fast as they are formed, the radium would be seen to emit only alpha rays. Similarly, if radon is sealed into a tube so that its descendants must also remain there, their radiation can be attributed to it. It is evident that, as far as the available radiation is concerned, it makes no difference which is used; in either case it is the later members of the series which actually produce the useful rays.

Radium loses its activity very slowly. Of any given amount, half will have disintegrated in 1,590 years, or only a small fraction of 1 per cent a year. Of radon, however, half will have disintegrated in 3.82 days (16.6 per cent in one day). Of the half remaining, one half will disintegrate in another 3.82 days; of the amount now remaining (one fourth of the original amount) half will be lost in another equal period, and so on. It is evident that, whereas a supply of radium would be practically constant during one man's lifetime, a supply of radon would vanish very rapidly unless it was replenished. If, however, the radium could be put in a safe and allowed to remain there, and the radon drawn off every day, a continuous supply of active material would be assured. The radium would not be in danger of loss or theft; the loss of some radon would not be serious because the next day a fresh supply would be available.

There are other advantages in using radon. An amount of radium is specified in terms of grams (or milligrams) of radium element present in any given preparation. The amount of radon having the same gamma ray activity (actually whose descendants are the same) as 1 Gm. of radium is called 1 curie; the amount corresponding to 1 mg. of radium is 1 millicurie. One millicurie of radon can be compressed into much less space than 1 mg. of radium, so that radon sources can be made much smaller than radium ones of the same strength. Moreover, if the radon is removed each day

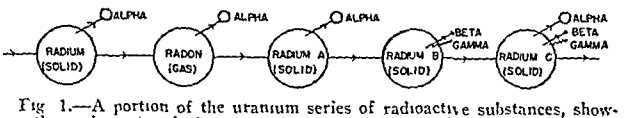


Fig. 1.—A portion of the uranium series of radioactive substances, showing those elements which are important in radiation therapy.

from the radium source it can be put into tubes or containers of various sizes and shapes, so that a variety is always on hand.

As soon as a radon source is separated from its parent radium it begins to deteriorate, as already stated, at the rate of 16.6 per cent daily. The day a source is prepared, its strength is measured by comparing its gamma ray activity with that of a known amount of radium sealed in a permanent tube.[2] Thereafter its strength can be calculated at any time, since its hourly and daily rate of loss is known. Practical tables have been developed for this purpose. The effective lifetime of a source depends on its initial strength and on the purposes for which it is used.

In practice, the actual separation of radon from radium requires the use of complicated physical apparatus and the services of a trained technician. The appearance of such an apparatus is shown in figure 2. The radium, in the form of a solution of radium chloride, is kept in the safe. Glass tubes connect the flasks containing the solution with the apparatus; a vacuum is maintained in the whole system. At the time of the collection of the radon, by manipulating the vacuum pumps and the mercury in the various flasks the operator forces the radon gas which has accumulated above and in the radium solution into the part of the apparatus marked *A*, where it is purified. The impurities consist mainly of water vapor, hydrogen and oxygen, all of which have come from the solution. When they have been removed, the radon remaining occupies an extremely small volume. It is then pumped

1 For a detailed discussion of radioactivity, radioactive series and radioactive constants the reader is referred to standard works on the subject. Among these are
Rutherford, Ernest. Radioactive Substances and Their Radiations, Cambridge University Press, 1912.
Rutherford, Ernest, Chadwick, James, and Ellis, C. D. Radiations from Radioactive Substances, New York, Macmillan Company, 1930.
Glasser, Otto, editor. The Science of Radiology, Springfield, Ill., Charles C. Thomas, Publisher, 1933.

2 A description of such measurements would be out of place in the present report. They are carried out by means of special electrical instruments developed for the purpose, which must be available in any institution where radon sources are prepared.

to the region above the stopcock marked *B*. At this point the metal or glass containers to be used will have been previously sealed on, and the radon can be forced into them. The filled containers can then be removed, measured and prepared for therapeutic use.

When the radon is enclosed in the usual type of thin glass tube, the rays emitted from the tube consist of about 96.5 per cent beta and 3.5 per cent gamma. If this tube is embedded in tissue, 97 per cent of the total radiation emitted is absorbed in the centimeter of tissue immediately surrounding it. Only 3 per cent of the initial radiation penetrates 1 cm. of tissue; this is mainly gamma radiation.

If the glass tube is enclosed in 0.5 mm. of platinum, all of the beta and some of the gamma rays will be absorbed in this metal; the radiation emitted from the surface of the platinum tube will be only 2.77 per cent of that from the glass tube, but it is all gamma radiation.

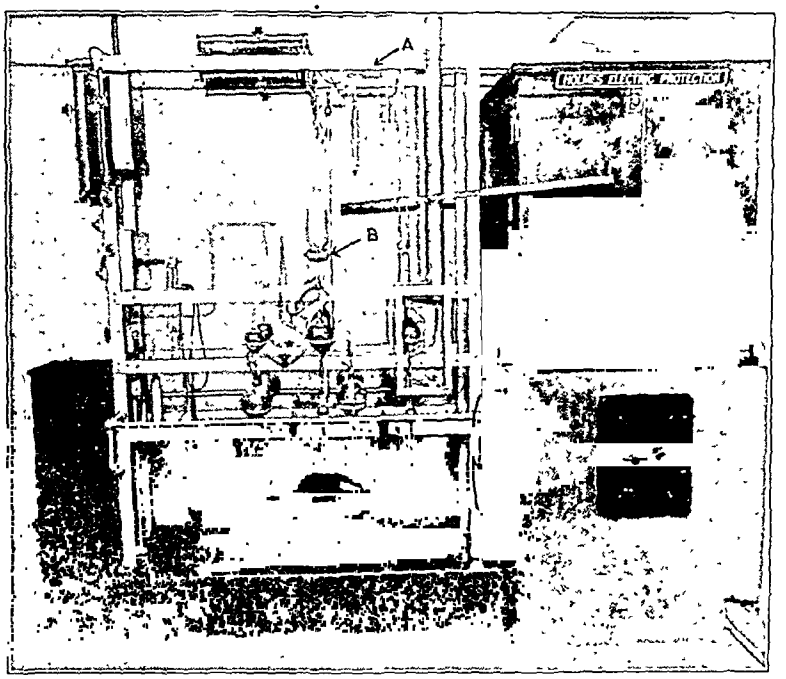


Fig. 2.—Apparatus used at Memorial Hospital for the separation of radon from radium.

Of this, 6 per cent is absorbed in the centimeter of tissue immediately surrounding the tube; 94 per cent penetrates to more distant cells (in contrast to only 3 per cent for the glass tube). Ninety-four per cent of 2.77 is 2.62. In other words, when the half millimeter platinum tube is used, 2.62 per cent of the initial radiation reaches cells at more than a centimeter distance, as compared with 3 per cent for the glass tube alone. But in the latter case (glass) the tissue surrounding the tube has to absorb the other 97 per cent, whereas in the former (platinum) they were absorbed largely in the tube itself.

Evidently with the glass tube, in order to deliver an adequate dose at a distance of a centimeter in tissue, an excessive dose must be administered to the region close about the tube. When the metal is employed it absorbs the oversupply of beta rays, and the nearby tissues do not suffer so greatly. This process of removing undesirable radiation by the use of metal covers for radium (or radon) sources is called filtration. It is a factor deserving of great consideration when radioactive sources are implanted directly into the tissues (interstitial irradiation).

A factor of even greater importance is the distance from the source.[3] The intensity of radiation falls off very sharply at a short distance from the tube because of the spreading of the rays, the well known inverse square law. The extreme effectiveness of this law in interstitial irradiation may readily be illustrated. Consider an implant[3] so small as to be practically a point source of radiation; the rays are emitted from it in all directions. All of them except those absorbed in the first 5 mm. of tissue pass through the surface of a sphere at this distance (5 mm.) from the source. The area of this sphere is 3.14 sq. cm. ($4 \pi r^2$). All the rays which pass through this sphere, except those absorbed in the next 5 mm. of tissue, must also pass through a spherical surface at 1 cm. from the source. The area of this outer sphere is 12.56 sq. cm., which is just four times that of the inner one. The same amount of radiation must hence be spread out over four times the area, so that any particular cell or group of cells at the larger distance receives only one fourth as much radiation as it would at the smaller.[4] At 1.5 cm. it would receive only one ninth as much. It is apparent that cells at any great distance from an implant will receive a very much smaller dose of radiation than those close to it.

This decrease in intensity by virtue of the inverse square law is completely independent of the absorption of radiation by the tissue referred to. The statement that 94 per cent of the radiation from a half millimeter platinum tube penetrates to a distance of a centimeter in tissue must not be interpreted as meaning that the intensity at 1 cm. distance is 94 per cent of that at the surface of the implant. This 94 per cent is spread out so that it covers an area many times the area covered by the total radiation at the tube surface, so that the actual intensity (radiation per unit area) at 1 cm. is an extremely small fraction of that at the surface of the tube. It is evident that for filtered radiation the effect of distance on the intensity is much more important than that of absorption in the tissue. These effects of filtration and distance will be referred to later, in connection with the practical application of radon in interstitial therapy.

The first actual treatment of a tumor by the insertion of radium directly into it appears to have been done by Dr. Robert Abbé in New York in 1905. He made a surgical incision into an exophthalmic goiter, placed the tube in it, and left it for twenty-four hours. Following his report of this case, others used the method for some time. Their applicators were all bulky; little effort had been made to limit their size. Stevenson and Joly took a great step forward when they utilized radon (at that time called radium emanation). This they could introduce into very fine glass tubes, which could in turn be placed in fine hollow steel needles. These were inserted into the mass to be treated and

3. The "source" of radiation is its point of origin; in the case of radioactive substances it is the actual radium or radon. It is sometimes customary to refer to the tube containing this material as the source. When this is done, it must be remembered that only the portion of the tube or needle which actually contains radioactive material (the "active portion" or "active length") can thus be considered. An "implant," as considered in this article, is any tube, needle, cell or other container of radium or radon inserted directly into the tissues. The method of inserting the gold seeds considered in the present report is outlined later.

4. Actually they receive less than one fourth, because of the decrease due to absorption in the intervening tissue.

were removed after a suitable time. The advantages of these needles were so apparent that efforts were immediately directed toward reducing the size of the radium containers, and shortly radium needles were available which were quite small.

Meantime, Duane had suggested that small amounts of radon might be put into tiny glass tubes, and these inserted directly into the tissues by means of a trocar and cannula and left there permanently. Since the radon would disintegrate at the rate of about 16 per cent of the amount present every day, at the end of a month less than 1 per cent of the initial amount would remain. The glass tubes would be sterile and harmless and need no further attention. This idea appealed to Janeway, who wished to test it at the Memorial Hospital. Failla accordingly developed a method for making the glass capillaries very fine and small. Janeway called these tiny implants "bare tubes" and used them successfully over a period of several years.

The method had many advantages over the use of the clumsier removable implants, but it had one great disadvantage. An intense necrosis developed around each implant. This was sometimes responsible for great pain and for the breakdown and slough of the tissues. The foregoing discussion of filtration makes it evident that this was mainly due to the effect of the beta rays and that if they could be removed the situation should be improved.

As a matter of fact, Regaud and his associates, using small platinum needles thick enough to remove the beta rays, and with small radium content, so that prolonged irradiation was necessary, were obtaining good final results with little or no necrosis. It was apparent that, if a filter could be used with the permanent implants, much of the difficulty due to the necrosis could be eliminated.

Various schemes were tried to accomplish this purpose. Heublein attempted to surround each tube, as it was implanted, with a suitable thickness of bismuth paste, using the same needle for the radon and the paste. Preliminary results were unsatisfactory because the distribution of the paste was irregular. The work was abandoned because of the development of more satisfactory methods.

Failla had tried making bare tubes of lead glass, which would absorb more of the beta rays than ordinary glass. However, the thickness of the material required to remove most of the beta rays was so great as to make the tubes unsatisfactory for interstitial use. He accordingly turned his attention to the problem of a metallic tube. The metal should be one with a very high absorbing power, so that the tube walls could be thin. Practically this limited the choice to platinum, gold and iridium. Of these, gold is the least expensive and it has an additional advantage which actually makes its use practical. Pure gold is quite soft, so that if a tube of fine bore is pinched together with a blunt pair of pliers a gas-tight seal will be formed. The problem of sealing gold tubing to the glass radon collecting apparatus had to be solved, but a simple means for doing this was developed.

Implants of this type should be as small as possible. As already stated, a wall thickness of 0.5 mm. of gold is required to remove all the beta rays. To use this would result in an implant having about three times the diameter of the glass seeds. It was felt that a compromise would be desirable whereby the diameter could be kept smaller but a favorable percentage of the beta rays removed. A filter of 0.2 mm. of gold transmits 3.72 per cent of the bare tube radiation; of this about a fourth is beta radiation. One of 0.3 mm. gold transmits 3.16 per cent of the original; of this less than one tenth is beta. As stated previously, one of 0.5 mm. gold transmits 2.77 per cent of the original radiation, all gamma. After traversing 1 cm. of tissue, in this last beam there will be 2.62 per cent of the original radiation; in those filtered by 0.2 and 0.3 mm. of gold there will remain 2.80 and 2.73 per cent respectively. This means that, in the case of the radiation filtered by 0.2 mm. of gold, 25 per cent has been absorbed in the first centimeter of tissue, of that filtered by 0.3 mm. 14 per cent, and of that filtered by 0.5 mm. 6 per cent. These data are presented in table 1. From the point of view of these figures, the 0.3 mm. gold filter seemed a reasonable and satisfactory compromise. However, various physical, chemical and biologic experiments were performed with gold tubes having walls of 0.2 and 0.3 mm. in order to ascertain which gave the better combination of small size and reasonable filtration.

The first pure gold tubing used had a bore of 0.2 mm., but this was found to be larger than necessary. A bore of 0.1 mm. was practical, but in general a bore of 0.15 mm. seems most satisfactory. Hence tubes of 0.3 mm. wall and 0.15 mm. bore, making a total outside diameter of 0.75 mm., were finally adopted.

TABLE 1.—*Data Regarding Gold Filters*

Mm. Gold Filter	Percentage of Total Radiation	Percentage Beta	Percentage Gamma	Percentage of Total Radiation Passing Through 1 Cm.	Percentage of Total Radiation Absorbed in First Centimeter
0	100	96.5	3.5	3.14	97
0.2	3.72	22.5	77.5	2.80	25
0.3	3.16	8.8	91.2	2.73	14
0.5	2.77	0	100	2.62	6

A detailed discussion of the extensive experimental work would be out of place here; the interested reader is referred to Failla's original paper.[5]

The "gold seeds" as actually used are about 4 mm. long and contain from 0.5 to 3.0 millicuries of radon. They can be sterilized by boiling. In no case has any significant leakage of radon been detected after boiling for one hour. The possibility of a seal's opening under pressure from the needle as the seed was inserted was tested by injecting a number of them into pieces of tough meat and later recovering them. During this process they were deliberately handled much more roughly than they would be in therapeutic practice. When they were remeasured after recovery, and subsequently, no evidence of a seal's opening was obtained in any case.

It seemed possible that the chisel-like ends of the seeds might be objectionable. Various schemes have been tried for rounding the ends, not one of which has proved entirely satisfactory. Meantime, repeated roentgenograms of some patients, made over periods of years, have demonstrated that the seeds remain in place. At the Memorial Hospital, where the method has been used for more than twelve years, there has been no complaint of trauma from these edges.

The question of the disposition of the implants, permanent or removable, seeds or needles, in the tissues is extremely important. The variations in intensity of radiation due to the inverse square law have already

5. Failla, Gioacchino: The Development of Filtered Radon Implants, Am. J. Roentgenol. 16: 507-525 (Dec.) 1926.

been explained. Because of these variations, the distribution of radiation throughout an implanted mass of tissue must evidently be very uneven. It seems advisable to present some numerical data on this point. In table 2 are shown intensities of radiation at different distances from a point source in percentages of the intensity at a distance of 2 mm. from it. In table 3 are shown the variations in intensity at a point half way between two implants as the distance between

TABLE 2.—*Effect of Distance on Intensity of Radiation*

Distance from Point Source, Mm.	Percentage of Intensity of Radiation*	Distance from Point Source, Mm.	Percentage of Intensity of Radiation*
2	100	8	6
3	44	10	4
4	25	12	3
5	16	15	2
6	11	20	1

* Neglecting absorption in tissue.

them is increased. In both of these tables the absorption of the radiation in tissue is neglected; it would act to make all the values somewhat less. Gold seeds are so small that point source data apply fairly closely. For longer implants, the inverse square law is not strictly applicable; the variations with distance are not so great, although still large. Data for making the proper allowances for the effect of length are available in the literature.[6]

From the data of tables 2 and 3 it is evident that, if the implants are too widely spread, either regions between them will be underirradiated or regions close around them will be overtreated. At best, the distribution of radiation is bound to be uneven. It must be considered that the reaction of cells which receive the least dose is the most important. If these react satisfactorily, others receiving greater doses should also. Hence, in planning treatment of a tumor, the amount of radiation required to deliver at least a certain minimum dose throughout should be ascertained. In order to implant a lesion properly, its dimensions must be known as accurately as possible and an adequate number of seeds or needles prepared so that the desired minimum dose can be delivered as uniformly as possible. Certain rules must be followed in placing the radioactive sources within the lesion.

TABLE 3.—*Effect of Spacing of Implants on Dosage in Intervening Tissue*

Distance Between Implants, Mm.	Radiation Halfway Between*	Distance Between Implants, Mm.	Radiation Halfway Between*
4	200	12	22
6	88	16	12
8	50	20	8
10	32	25	6

* Assuming 100 per cent as the amount delivered at 2 mm. from a single point source, as in table 2.

A great deal of work has been done on proper methods of delivering desired doses in interstitial therapy (implantation of radon). It is not felt that data of this kind should be incorporated in a report such as the present one. The reader who wishes such information is referred to the original papers.[6] However, it cannot be too strongly emphasized that a knowledge of the size of the mass and the amount of radon (or radium) required is only the beginning of adequate treatment. Proper training in the technic of implantation is essential, as well as experience in the method. Most important of all is sound clinical judgment in determining the method of choice in any given instance.

These points may be illustrated by the diagram of figure 3. In both parts the heavy black line represents the outlines of a lesion 2 cm. in diameter; it has been ascertained that it can be correctly treated with four seeds placed 1 cm. apart as shown in the left hand figure. (The entire diagram is drawn to the same scale.) A margin of safety all around the lesion receives adequate dosage. In the right hand figure, three of the seeds have been displaced, each by less than 0.25 cm. Now a part of the actual lesion is outside the 100 per cent zone, and the margin of safety is meaningless. It is obvious that neither the size of the mass nor the positions of the implants can be determined with any such degree of accuracy as is supposed in the first diagram. Accordingly, it is necessary for the clinician to decide how much leeway he must leave in deciding his dose, and how much irregularity he may permit himself in implanting his sources, and then to be sure that he does not overstep the limits he has set.

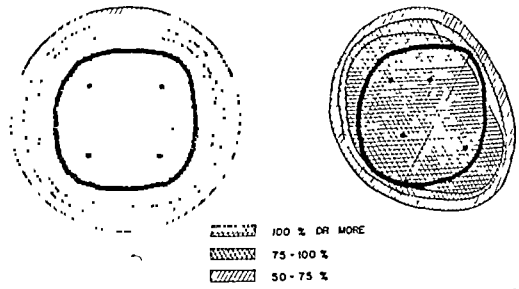


Fig. 3.—Diagram to illustrate the importance of accurate placing of sources in interstitial radiation therapy.

REPORT OF INVESTIGATION ON LEAKAGE

For many years, as far as supervision by any of the councils of the American Medical Association is concerned, all matters pertaining to and all advertising of radium and preparations of radium in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION came within the purview of the Council on Pharmacy and Chemistry. The Council on Physical Therapy had not then been organized. It was during this period that therapeutic radiologists became aware that the use, by implantation into tumors or tissues, of sealed segments of capillary glass tubing containing varying amounts of radon had the serious disadvantage of causing a zone of tissue in the immediate vicinity of these glass-radon implants[7] to undergo necrosis and, as a consequence, of inducing more or less severe pain in any region treated by this method. The necrosis and the resulting pain were due to the insufficient filtration, which allowed all the gamma rays and a considerable proportion of the beta rays as well to escape from the glass containers. As the beta rays are readily absorbed, they exerted their effect indiscriminately on all the cells surrounding the glass seeds to a depth of several millimeters and thus accounted for the necrosis and the pain. In order to obviate this difficulty it was essential to filter the radon sufficiently to eliminate all the beta rays and perhaps also the least penetrating fraction of the gamma

6. Quimby, Edith H., and Martin, H. E.: A Basis for Dosage Determination in Interstitial Irradiation, Am. J. Roentgenol. **21**: 240-249 (March) 1929. Quimby, Edith H.: Physical Factors in Interstitial Radium Therapy, ibid. **33**: 306 (March) 1935. Paterson, Ralston, and Parker, H. M.: A Dosage System for Interstitial Radium Therapy, Brit. J. Radiol. **11**: 252-266 (April), and 313-340 (May) 1938.

7. Because of their small size, these sealed segments of capillary glass tubing containing radon had long been generally known as "radon seeds."

rays. Experiments carried out by Lacassagne [8] in 1921 showed that, when plain glass seeds containing radon were embedded in a mass of tissue, the effect was to cause all the tissues surrounding each seed to undergo necrosis for a distance of from 1 to 8 mm. from the seeds. Moreover, for seeds containing from 0.7 to 26 millicuries or more of radon the final diameter of this zone of necrosis was proportional to the amount (or strength) of radon in each seed. When, instead of glass, the seeds were made of segments of fine platinum tubing with a wall 0.15, 0.30, 0.40 or 1 mm. thick and contained the same quantity (or strength) of radon, the thickness of the resulting zone of necrosis diminished as the thickness (and therefore the filtering value) of the platinum increased. Thus platinum seeds with a wall thickness of 1 mm. and containing 10 millicuries of radon did not cause necrosis, while with similar seeds containing 20 millicuries of radon the resulting zone of necrosis was 2 mm. thick, and with seeds containing 34 millicuries of radon the zone of necrosis was 5 mm thick. The results subsequently obtained by Cutler [9] and by Quimby and Stewart [10] corroborated those of Lacassagne on the whole, although they showed slight variations in detail which related mainly to reparative changes occurring later in the zone of tissue affected by irradiation under the conditions of the experiments. According to these workers the diameter of the necrotic zone produced by radon seeds embedded in tissue is not proportional to the quantity of radon in the seeds.

The idea of making radon seeds of metal such as platinum in order to filter out the beta rays and some of the gamma rays had occurred to Regaud at least as early as May 1919, because at that time he applied for and obtained from the French government a patent to cover and protect a method of making radon seeds by pinching off and clipping short segments of fine platinum capillary tubing into which a certain quantity of radon had been pumped. With two exceptions, this is essentially the method which has been employed almost universally ever since. One exception refers to a method devised and patented by an American company, whereby sealed glass seeds are inserted into a small capsule of platinum with smoothly rounded ends. The advantages claimed for this method of preparing metal seeds are that the possibility of leakage is obviated and that the smooth ends of the seeds avoid possible mechanical irritation to tissues which, theoretically at least, might be caused by seeds with ends of metal. The other exception is that, in this and certain other countries, gold tubing has generally been used instead of platinum tubing.

At about this time and as a result of competition between two commercial concerns in this field, a considerable advertising controversy arose and was waged for some time. The company which had devised and patented a method of preparing radon seeds by first sealing the radon in segments of capillary glass tubing which were then placed in small platinum capsules with smoothly rounded ends naturally made the most of the theoretical rather than practical advantages of this method. The implications were that (1) radon seeds prepared by pinching off and clipping segments of metal tubing could never be free from the possibility of leakage and that their use, therefore, must be fraught with uncertainty as to dosage unless repeated physical measurements of their radon content should be made, and that (2) the pinching off method must necessarily result in ragged ends, which must irritate tissues into which seeds thus prepared should be implanted, whereas the smoothly rounded ends of radon seeds prepared by the patented method employed by this company could not possibly irritate the tissues. The first argument will not be considered now but will be dealt with later. As for the second contention, that the "pinching off" method leaves jagged ends which must irritate the tissues, this can be easily shown to be at least an exaggeration which could mislead only persons who are not familiar with the details and methods of radium therapy.

TABLE 4.—*Results of Measurements of "Pinched Off" Gold Seeds from One Company*

Number of Seeds	Claimed Value	Measured Value	Percentage of Claimed Value
3	3 0	2 96	98 7
5	5 10	4 96	97.3
5	5 0	4 87	97 4
5	5 10	4 97	95 5
5	5 30	5 25	99 1
3	3 09	2 94	95.2
4	4 0	3 73	93 2 Leaked
4	6 0	5 89	98 2 Leaked
3	4 5	4 58	101.7
5	10 4	10 09	97 0
5	10 0	9 64	96 4 Leaked
5	10 2	10 02	98 2
5	10 10	10 06	99 6
5	10 30	9 61	93 3
3	9 15	9 28	101 4
	Platinum Seeds from Another Company		
3	3 12	2 43	78 0
5	5 25	4 45	94 8
5	6 85	6 07	88 6
5	5 95	4 79	78 8
5	5 10	4 41	86 5
3	3 93	5 13	130 6
4	4 48	3 47	79 7
4	6 38	4 87	76 4
3	4 59	4 54	98 9
5	10 5	9 97	95 0
5	10 12	10 36	102 0
5	10 45	10 17	97 3
5	10 55	8 25	78 2
3	10 10	12 37	122 3
3	9 0	8 48	94 2

* Of the total number of seeds from one company, the following show leakage as indicated:

	Leakage in Percentage of Total Content	
	Before Boiling	After Boiling
Lots of 4 seeds of 1 mc each ..	0 01	0 02
	0 02	1 0 approx
	0 01	0 02
	1 0 + approx.	6 0 approx
Lots of 4 seeds of 1.5 mc. each. . .	0 014	0 009
	0 016	0 010
	0 023	0 012
	0 016	0 009
Lots of 5 seeds of 2 0 mc each. .	0 017	0 018
	.....	.....
	0 035	0 032
	0 036	0 035
	0 021	0 50

There was no marked leakage from the seeds from the other company

When radon, either in bare glass "seeds" or in metal "seeds," is embedded in the living tissues of a patient, the first step usually is to inject a local anesthetic if the lesion to be treated is small, or to put the patient under the influence of a general anesthetic if the lesion is large. Then, after the physical pattern according to which the units of radon ("seeds") are to be distributed and arranged within and around the lesion has been decided on, a number of small slit incisions are made in the skin or, such incisions being dispensed with, a

8 Lacassagne, Antoine Recherches experimentales sur l'action des rayonnements B et r du radium agissant dans les tissus par radiopuncture, J de radiol et d'electrol 5: 160 173 (April) 1921.

9. Cutler, Max. Comparison of the Effects of Unfiltered and Filtered Radon Tubes Buried in Rabbit Muscle, Am J. Roentgenol. 16: 535 543 (Dec) 1926

10 Quimby, Edith H , and Stewart, F. W. Comparison of Various Sources of Interstitial Radiation, Radiology 17: 449 470 (Sept) 1931.

long hollow needle of large bore, similar to a lumbar puncture needle, or a fine trocar, is inserted into one of the planes of the lesion. A glass or metal seed containing a certain quantity of radon is then placed in the outer end of the lumen of the needle and is allowed to slide down the lumen until it reaches the far end of the needle lying within the lesion. Then a fine metal rod with a diameter corresponding to the bore of the needle or trocar is pushed down the lumen until it comes in contact with the seed. The next move is the crucial step as far as mechanical irritation of tissue by the seed is concerned. If from this point the seed were forced out of the needle by pressure on the mandrel, as is somtimes done, this maneuver might give a semblance of justice to the argument that seeds prepared by the "pinching and clipping" method irritate the tissues in which they are embedded. Even then, however, the small size of the seeds could hardly cause sufficient irritation of tissues to be of any consequence. Proper technic, however, does not countenance such a procedure. Sound technic requires that, once the

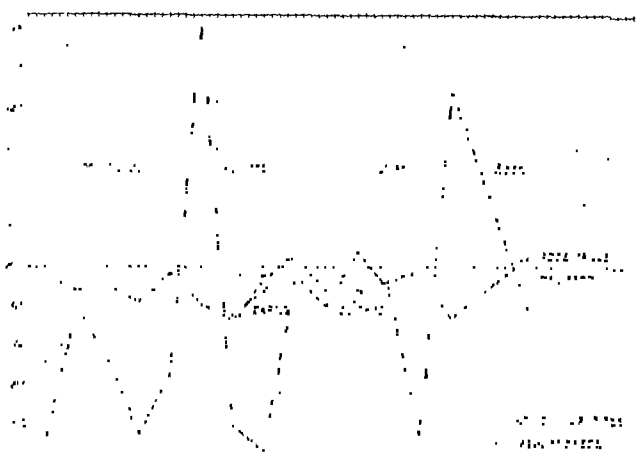


Fig. 4.—Relation of claimed value to measured value.

mandrel comes in contact with the seed, it should not be pushed any farther but should be merely held at this point while the needle is withdrawn with the other hand until it is clear of the opening in the skin, when the mandrel itself is withdrawn. Any irritation produced under these circumstances, therefore, must be produced by the empty needle when first introduced. The only other possible source of tissue irritation comes from the presence within the tissues of the seed acting as a foreign body; this has nothing to do with the smooth or jagged ends of the seed but is solely related to the size of the seed.

In 1934, as far as the American Medical Association is concerned, the control of all matters pertaining to radium and radon was transferred by the Council on Pharmacy and Chemistry to the Council on Physical Therapy. With this control the latter council naturally fell heir to the controversy over the questions of leakage of radon from "seeds" and of tissue irritation arising from any method of preparing the seeds. The Council on Physical Therapy realized at once that, since it was expected by the medical profession to have accurate and reliable information on any subject within the scope of its activities, it was essential that these questions should be thoroughly investigated by those most competent to carry out such investigations. Moreover, the investigators must be specially qualified physicians who had not had any direct or indirect connection with the controversy already mentioned.

The first step was to select a group of consultants who would cooperate with the Council. After thorough consideration by these consultants, by the Radiation Committee of the Council and by the Council as a whole, the following procedure was finally agreed on with reference to the question of leakage:

The different firms who sell or rent radium or radon to the medical profession were to be asked to select an impartial laboratory and submit to it for investigation and report 100 millicuries of radon to be divided as follows:

Twenty-five per cent, thirty seeds each containing 1 millicurie.
Fifteen per cent, ten seeds each containing 1.5 millicuries.
Fifty per cent, twenty-five seeds each containing 2.0 millicuries.
Ten per cent, three seeds each containing 3.0 millicuries.

The seeds were to be furnished in lots of 10 millicuries at intervals of two weeks. The expenses of this investigation were to be met entirely by the firms. The results of the tests were to be submitted by the laboratory chosen to make the investigation directly to the Council on Physical Therapy, which in turn was to refer the report or reports to the special committee of the Council for review; a copy of the report of results was to be sent to each of the firms whose seeds were being investigated. The report of the laboratory was to include a full description of the testing methods which had been employed. Only one firm submitted this evidence.

Besides the foregoing and in order that the Council might have independent information, the Council purchased on the open market 100 millicuries of radon in the following proportions from two firms:

Twenty-five per cent, thirty seeds each containing 1 millicurie.
Fifteen per cent, ten seeds each containing 1.5 millicuries.
Fifty per cent, fifty seeds each containing 2.0 millicuries.
Ten per cent, three seeds each containing 3.0 millicuries.

These were to be supplied in lots as designated by the investigators. The radon was to be made available as follows:

The committee appointed reputable physicians who were willing to cooperate in this venture and who telegraphed or telephoned to the firms an order in the regular way. When the radon arrived, the physicians noted on the carton the date and time of arrival and sent the radon immediately to the National Bureau of Standards in Washington, for testing. The dates of the placing of the orders was controlled by the bureau, which notified the cooperating physician that it was ready for radon at a certain time, so that there was no lost motion.

After the tests had been completed, the seeds were referred to the other members for investigation. The Council paid for the seeds.

The National Bureau of Standards determined the contents of the radon seeds, whether the proper number of millicuries was present at the time of arrival, and whether or not the seeds leaked before sterilization and after sterilization. The method of making these determinations was left to the bureau.

The Committee, cooperating with the physician who was to place the order, examined the advertising

matter and special directions, if any were sent with the radon. The physicians on the committee offered their services free of charge to the Council. They were reimbursed for incidental expenses.

The report of the National Bureau of Standards follows:

We have completed tests for leakage and for millicurie content of 130 seeds which were purchased by Dr. ——— for this purpose. The purchases were distributed as follows as regards nominal content in millicuries: sixty seeds of 1 millicurie each, fourteen seeds of 1.5 millicuries each, 50 seeds of 2 millicuries each and six seeds of 3 millicuries each.

The procedure adopted for test was to measure each seed with a gamma ray electroscope at the hour named for its use on the certificate furnished by the manufacturer. The seed was then enclosed in a sealed glass container and allowed to stand over night. The air was withdrawn from this container into an emanation electroscope the following morning and a determination of the radon content made. The seed was then boiled twenty minutes, again enclosed in a sealed glass container and the emanation measurements repeated as before.

The results of these measurements are shown in the accompanying tables and graph (table 4 and figure 4) where the values, uncorrected for absorption, obtained for the content in millicuries are shown opposite the claimed value and also the amount of leakage in those cases where leakage occurred. The twelve seeds which showed appreciable leakage were all of the "pinched off" gold type. Even in these cases the amount of leakage was less than 1 per cent of the millicurie content, so that from a practical point of view this leakage could be considered as of no consequence.

More important than leakage is the apparent inability of the firms to fill these seeds to radon content claimed on their certificate with the accuracy which they claim. This is plus or minus 1 per cent for any individual shipment. A column of the tables shows the actual percentage of the claimed radon content which we found by gamma ray measurements. These values are also shown in the accompanying chart. The horizontal line represents 100 per cent of claimed value and the plotted points show the actual percentage found for each shipment. The horizontal dotted lines show the tolerance limit of plus or minus 1 per cent as claimed by the firms. Although values of one firm come fairly near to the tolerance, they often exceed it by a factor of 4 or 5. The values of the other firm are much more widely scattered, sometimes being off by as much as 30 per cent.

We are not informed regarding the effect of such inaccuracies upon the medical use of these preparations, but it is apparent that either these seeds should be filled more accurately or the claims of the companies regarding accuracy of filling should be modified to conform with their ability to hold the amount of radon within given limits.

We would appreciate your comments on this report and will be very glad to explain any points we have not made clear. It is our impression that this concludes this investigation, for the present at least, so we are making no further requests for seeds until we hear from you.

L. J. BRIGGS, Director.

This report of the National Bureau of Standards is so explicit that little comment is necessary. One point, however, might be emphasized. The tests have shown that the question of leakage per se is less important than the accuracy of the physical measurements of radon content made by the companies before the seeds are shipped to physicians. And this irrespective of the method of preparing the seeds. If, as shown by the measurements of the National Bureau of Standards, the measurements of radon content made by the companies supplying radon to physicians are so inaccurate (sometimes as much as 30 per cent), it is idle to quibble about occasional leakage of less than 1 per cent.

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

NATIONAL AIR UNIT NOT ACCEPTABLE

Manufacturer: National Mercantile Company, 80 West Washington Street, Chicago.

The National Air Unit is designed to remove pollen, dust and other solid particles from the incoming air for relief of diseases resulting from the inhalation of such particles. It is enclosed in a metal rectangular box 16 inches wide by 10 inches high by 7½ inches deep with intake projection, and the whole is fitted under the ordinary window sash. There are four sets of fixed louvers on the front of the unit. A shutter may be fitted into the intake to permit recirculation of the room air. Rubber weather stripping is provided. The motor is of the induction type for 110 volts alternating current, consuming approximately 45 watts per hour. A Universal motor is available for direct current. The shipping weight is approximately 25 pounds.

The unit is equipped with a four bladed fan which draws the air through the inlet and through two filters, which are composed of oil-soaked spun glass of approximately 1 inch thickness fixed in a loose wire frame. The filters are set at an angle to the intake, so that approximately 50 per cent of the air passes through each filter. There is a small pan in front of the fan which may be filled with water for humidification.

It is claimed by the manufacturer in data submitted from an engineering firm that the filter will remove 99.47 per cent of pollen, dirt and dust from the air. In order to substantiate these claims the Council appointed a competent physician to investigate the unit. It was installed in an ordinary bedroom window.

Greased slides were hung in front of the filters and also in front of the fixed louvers. One tenth Gm. of ragweed pollen was spread on a sheet of paper and laid under the intake opening. The unit was then started and run for an hour, slides being removed at different intervals and examined for pollen. Large numbers of pollen grains were observed, one count reaching 143 pollen grains in ⅛ sq. cm. of area counted on the slide exposed in front of the louvers. Slides exposed on the filter pads themselves showed a much higher count.

The unit was then operated for two weeks during each night until it was fairly well covered with dirt and dust. A new set of slides was then exposed in the same manner as before. No pollen grains were observed, indicating that either the pollen was well adhered to dust particles and the oiled fibers of the filters or had entirely passed through them. A new set of slides was then prepared and placed as described and another 0.1 Gm. of pollen was introduced as on the previous occasion. The slides were removed at varying intervals. Those removed in fifteen minutes averaged 103 pollen grains in ⅛ sq. cm. of area counted, the count dropping somewhat at the end of an hour. Apparently the unit is inadequate for the removal of pollen. Large dust particles were observed on all slides exposed, the particles running as high as approximately 50 microns.

The amount of air delivered roughly averaged 150 cubic feet per minute, as measured by the anemometer. The room was exceedingly stuffy and there was an inadequate intake of air to keep the atmosphere comfortable during hot weather. At first the unit was comparatively noiseless but toward the end of the experiment created considerable noise and disturbance in its operation.

Two pieces of advertising matter were submitted with the unit. A pamphlet, "The National Air Unit," makes claims out of proportion to the Council's findings. Objectionable points were observed such as "relieves hay fever and other respiratory diseases." A filter cannot conceivably relieve a respiratory disease. Another misleading statement is "balanced humidity the year around." Although air conditioning equipment might do this, it is not believed that there is a filter unit at the present time that can substantiate this claim.

The second piece of advertising matter, "Plenty of Clean, Fresh Air For Your Health and Comfort," contains many

exaggerated, unwarranted or misleading claims. According to the Council's findings the air volume claim is in excess of the actual amount of air circulated; the efficiency of the filters is nowhere near the value claimed; there is insufficient provision for proper humidification, and the unit becomes noisy after prolonged use.

In view of the foregoing report, the Council on Physical Therapy voted not to accept the National Air Unit for inclusion in its list of accepted devices because the unit is mechanically unsatisfactory and advertising claims made for it are exaggerated, unwarranted or misleading.

Council on Pharmacy and Chemistry

SPECIAL REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING SUMMARY OF REPORTS SENT TO THE JOURNAL BY PHYSICIANS WHO HAVE USED THE DRUG. IT IS NOT TO BE CONSIDERED AS THE STUDIED OPINION OF THE COUNCIL BUT AS A CONSENSUS OF THE INVESTIGATORS' REPORTS.

PAUL NICHOLAS LEECH, Secretary.

SULFAPYRIDINE

During the past year the drug sulfapyridine (2[para-aminobenzene-sulfonamido] pyridine) has been used experimentally and clinically in this country in the treatment of various types of pneumonia. After careful study, the United States Food and Drug Administration granted the right to manufacturers to distribute the drug in interstate commerce under the stipulations of the act dealing with new drugs. In connection with this study the advice of the Council was sought and received by the Food and Drug Administration. During the period when the drug was under consideration, THE JOURNAL and the Council made every effort to obtain essential information concerning its usefulness and, in so doing, has consulted approximately 100 physicians who have replied to inquiry giving the details of their experiences with the drug. The following statements form a summary of opinion based on the replies which these physicians submitted. In the absence of clinical reports giving detailed information on the drug in the treatment of pneumonia, and because of its importance in present day therapy in pneumonia, the Council submits this summary for the consideration of the medical profession, in addition to the Preliminary Report of the Council which was published in the February 11 issue of THE JOURNAL.

Physicians who were consulted employed this drug in the treatment of approximately 1,800 cases of pneumonia in adults and 650 in children. In some of the cases the drug was employed concurrently with serum; some employed it before and others after the administration of serum, and in many cases the drug was employed alone, without the use of serum.

The replies received lead the Council to believe that it is exceedingly important to discuss typing of pneumonia in connection with the use of this drug before giving further consideration to its use in a given case. It is essential wherever possible to type each case of pneumonia before this drug is administered, because it has been reported by a number of investigators that there are cases of pneumonia which do not respond to this drug and have subsequently responded to the specific antiserums. This cannot be too strongly urged, for at present the reports deal only with the treatment of one year's series of pneumonia cases. The relative virulence of pneumonia during this particular period cannot be established beyond any question of doubt and therefore it is essential to employ this chemical agent over a period of years before the extent of its usefulness both alone and as compared with specific antiserum can be definitely determined. For these two reasons, typing should be continued wherever possible.

One principal finding of those who have employed this drug during the past year is that it is particularly efficacious in the pneumonia of children. It will be recalled, however, that many clinics are not in the habit of employing specific antiserums in the treatment of most of their cases of pneumonia in children. The reason for this is the relatively low mortality of pneumonia in this age group. Therefore the effect of sulfapyridine on the mortality of pneumonia in this age group is of less significance than the fact that the severity of the illness is lessened and its course shortened by the use of sulfapyridine. Because of these facts it seems unjustifiable to compare the usefulness of sulfapyridine with specific antiserum in the treatment of pneumonia in this age group on the basis of mortality rate; at the same time it is acknowledged that it appears to be a useful therapeutic measure in the treatment of children suffering from pneumonia.

Its use in adults presents a different problem. Some clinics have found that many cases of pneumonia are particularly susceptible to the combined use of specific antiserum and sulfapyridine. Certain investigators enthusiastically prefer sulfapyridine to antiserum in the treatment of pneumonia in adults. Others advocate it more particularly in pneumonias for which there is no available antiserum. Still others find that the comparative effectiveness of sulfapyridine (both alone and combined with specific antiserum) differs in the various types (I, II, III and so on) of pneumococcic pneumonias. There is not, however, at present sufficient evidence on which to base recommendations for the preference of either in the thirty-two types or even in the most common of the types of pneumonia.

Of primary consideration in the clinical evaluation of any new drug is the toxicity which is encountered in its clinical use. A most common and consistent toxic manifestation of sulfapyridine is nausea and vomiting. Strangely enough this is less frequent in children, but occasionally in adults it reaches the point that necessitates discontinuance of the drug. Occasionally toxic manifestations have been encountered suggesting what might be expected, that the toxicity of sulfapyridine is similar to that of sulfanilamide. To the extent that this drug has been used in pneumonia, the incidence of such complications seems to be as low as, if not lower than, with sulfanilamide. Occasional cases of granulocytopenia, hemolytic anemia and various sensitizations with cutaneous manifestations have been encountered. There also seem to be occasional cases of azotemia and very rarely cases in which there is temporary hematuria, which in some cases has been quite severe. Cyanosis has also been encountered and there has been some leukopenia but its relationship to the lessening of the infection has not been clearly demonstrated.

The manner in which this drug acts has not been definitely established. The drug, for the most part, does not produce all of the changes seen at the crisis in pneumonia, whether a normal crisis or one induced by specific antiserum, but produces results more similar to a short course of bronchopneumonia. The temperature falls in several days, as a rule, following administration of sulfapyridine but there is a considerable tendency for lethargy to remain. In fact, there have been occasional cases in which the lethargy has seemed to increase somewhat to the point of mild mental disturbances which are of short duration.

All of these observations lead to the suggestion that, while there is much to be learned about the exact place of sulfapyridine in the treatment of pneumonia, it appears to be a very useful measure in many cases when properly employed. The facts also suggest considerable caution in its use until such time as more evidence is available of its usefulness and safety. Details of and cautions for administering this drug are discussed further in the description (see page 1831 of this issue of THE JOURNAL).

In summary, it may be stated that at present there is every indication that this drug is a useful remedy, and that it remains to be determined just how effective it is and just how well it will compare with antiserum in various epidemics or over a course of years in various types of pneumococcic infections.

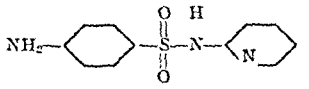
An informal report was presented to the Council at its annual meeting in March of this year and the Council voted at that time to accept sulfapyridine for inclusion in New and Nonofficial Remedies and to proceed with the consideration of the submitted brands of the drug.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, *Secretary.*

SULFAPYRIDINE. — 2-sulfanilamidopyridine. — 2-para-amino-benzene-sulfonamido-pyridine $NH_2C_6H_4SO_2NHC_5H_4N$.— N^2-sulfanilyl-2-aminopyridine.—N^1(2-pyridyl) sulfanilamide.



Actions and Uses.—It has been reported that sulfapyridine is an effective chemotherapeutic agent in the treatment of experimental pneumococcic, streptococcic, meningococcic, staphylococcic, Friedländer's bacillary and Welch bacillary infections in mice. Clinically, therapeutic successes have been reported in pneumococcic lobar and bronchial pneumonia, gonococcic, staphylococcic and meningococcic infections. However, the evidence of its effectiveness is convincing only in respect to its use in pneumococcic infections, in which it is apparently about equally effective against all the known types of the pneumococci. Its use in other types of infection must be considered experimental at the present time. In comparison with sulfanilamide, sulfapyridine is irregularly and often poorly absorbed when the drug is given by mouth. The differences in absorption seem to be due to an individual response on the part of the patient. This factor makes rational therapy with the drug more difficult than is the case with sulfanilamide. It also makes it more desirable than ever that the concentrations of sulfapyridine be determined in the blood of patients who are receiving this drug. The drug is, as a rule, conjugated to the acetylated form in the blood and tissues to a higher degree than is sulfanilamide. As the conjugated fraction is inactive from the therapeutic point of view, this again makes therapy at times difficult. As far as is known, the fraction of the drug which is absorbed is excreted mainly by the kidneys in the free and conjugated forms. Excretion is slower than is that of sulfanilamide, and it may be four or five days after the drug has been stopped before it is entirely eliminated from the body.

No patient should be treated with sulfapyridine unless arrangements have been made for daily attention by a physician. This is because of the possibility of serious toxic effects, which, while not frequent, are somewhat unpredictable in their occurrence and presumably have as their basis a peculiar idiosyncrasy. Nausea and vomiting, sometimes very severe, are much more frequent in the course of sulfapyridine therapy than in that of sulfanilamide. Cyanosis, on the other hand, is less marked, as a rule. Acidosis has not been noted, and for this reason it is unnecessary to prescribe sodium bicarbonate when sulfapyridine is being administered. Instances of gross hematuria with and without signs of renal failure have been noted in patients receiving the drug. The mechanism of the production of the hematuria is unknown at the present time. If hematuria occurs, the drug should be stopped. The hematuria may be associated with the formation of acetyl sulfapyridine stones in the pelves of the kidneys. Drug fever, dermatitis, acute hemolytic anemia, toxic hepatitis and agranulocytosis have been noted in the course of sulfapyridine therapy. The toxic manifestations are very similar to those produced by sulfanilamide and occur at the same periods in the course of therapy as do those produced by sulfanilamide. If toxic conditions arise, plenty of water should be given to wash out the drug.

Dosage.—Adequate standards of dosage have not as yet been agreed on by investigators who have used this drug in the treatment of pneumococcic infections. However, the evidence points to the fact that it is important to establish adequate blood levels of the drug within the first day of treatment. Hence in adults suffering from lobar pneumonia large initial doses are given, such as 4 Gm. in a single dose followed by 1 Gm. of the drug every four hours by mouth, this to be continued until the temperature has been normal for at least forty-eight hours; then the dose may be cut to 1 Gm. every six hours and continued until the resolution of the pneumonic process is well under way. At this point the dose of the drug should be reduced to 0.5 Gm. four times a day and should be continued until the lungs are clear. It has been noted that, if treatment with the drug is stopped too soon, recurrence of the pneumonic process may occur. Concentrations of 4 mg. per hundred cubic centimeters or more of free sulfapyridine in the blood seem to be necessary for prompt therapeutic responses to the drug.

In children, the initial dose should be from 1 to 2 Gm., depending on the weight of the child, and then from 0.5 to 1 Gm. every four or six hours until the temperature has been normal for forty-eight hours. Following this, the dose of the drug may be gradually reduced until the lungs are clear.

Adequate standards of dosage have not been worked out for the drug in other types of infections.

For determination of sulfapyridine in body fluids a method developed by E. K. Marshall Jr. and A. C. Bratton (to be published in the near future) is to be recommended.

Sulfapyridine occurs as a white, odorless, practically tasteless, crystalline substance. The melting point is 192 ± 1 degree C. (micro melting point apparatus, rate of heating 4 degrees per minute). It is soluble to the extent of approximately 1 per cent in boiling water and about 0.03 per cent at 20 C.; soluble to the extent of about 0.25 per cent in 95 per cent alcohol; soluble in acetone. It forms water-soluble salts with strong bases or mineral acids.

Place approximately 0.01 Gm. of sulfapyridine in a small test tube and heat cautiously over an open flame until the material melts; a brown color develops and an odor of sulfur dioxide is evolved if heating is prolonged (*distinction from sulfanilamide, which yields a blue-violet color and the odor of ammonia*).

Digest about 1.5 Gm. of sulfapyridine with 75 cc. of boiling water, cool and filter: the saturated aqueous solution of sulfapyridine is neutral to litmus. To 25 cc. of the filtrate add 5 drops of nitric acid and 1 cc. of silver nitrate test solution: the turbidity produced corresponds to not more than 0.01 mg. of chloride. Evaporate another 25 cc. to approximately 10 cc.; add 1 cc. of normal hydrochloric acid and 1 cc. of barium chloride test solution: any turbidity produced corresponds to not more than 0.1 mg. of sulfate ion. Incinerate 1 Gm., accurately weighed, of sulfapyridine: the residue is not more than 0.05 per cent. Add to the residue remaining in the test for ash 0.1 cc. of hydrochloric acid and 0.05 cc. of nitric acid and evaporate on the steam bath. Take up the residue with 0.5 cc. of normal hydrochloric acid and 20 cc. of water; add 10 cc. of hydrogen sulfide water: any darkening produced is not greater than that produced in a control made with 0.01 mg. of lead. Approximately 0.1 Gm. of sulfapyridine shall pass the test for arsenic (U. S. P. XI, p. 436). Dry about 0.1 Gm. of sulfapyridine, accurately weighed, to constant weight at 80 C. under vacuum not exceeding 15 mm. of mercury for approximately five hours: the loss does not exceed 0.5 per cent.

Dissolve approximately 0.2 Gm., accurately weighed, of sulfapyridine, previously dried, in 2 cc. of concentrated hydrochloric acid and 20 cc. of water. Cool and add 15 Gm. of ice. Agitate the solution and titrate with 0.1 molar sodium nitrite solution. Streak the solution on freshly prepared starch iodide paper until an immediate blue streak is obtained. Each cubic centimeter of 0.1 molar sodium nitrite solution corresponds to 0.02493 Gm. of sulfapyridine. The assay is not less than 99.0 per cent nor more than 100.5 per cent. Tablets are assayed by titrating with 0.1 molar sodium nitrite.

SODIUM MORRHUATE (See New and Nonofficial Remedies, 1938, p. 448).

Ampoule Solution Sodium Morrhuate 5% with Benzyl Alcohol 2%, 2 cc.: Each cubic centimeter contains sodium morrhuate 0.05 Gm. (¾ grain) and benzyl alcohol 0.02 Gm. (⅓ grain) in aqueous solution.

Prepared by The Upjohn Company, Kalamazoo, Michigan. No U. S. patent or trademark.

Solution Sodium Morrhuate 5% with Benzyl Alcohol 2%, 30 cc. Vials: Each cubic centimeter contains sodium morrhuate 0.05 Gm. (¾ grain) and benzyl alcohol 0.02 Gm. (⅓ grain) in aqueous solution.

Prepared by The Upjohn Company, Kalamazoo, Michigan. No U. S. patent or trademark.

Ampoule Solution Sodium Morrhuate 10% with Benzyl Alcohol 2%, 2 cc.: Each cubic centimeter contains sodium morrhuate 0.1 Gm. (1½ grains) and benzyl alcohol 0.02 Gm. (⅓ grain) in aqueous solution.

Prepared by The Upjohn Company, Kalamazoo, Michigan. No U. S. patent or trademark.

Solution Sodium Morrhuate 10% with Benzyl Alcohol 2%, 30 cc. Vials: Each cubic centimeter contains sodium morrhuate 0.1 Gm. (1½ grains) and benzyl alcohol 0.02 Gm. (⅓ grain) in aqueous solution.

Prepared by The Upjohn Company, Kalamazoo, Michigan. No U. S. patent or trademark.

RABIES VACCINE (See New and Nonofficial Remedies, 1938, p. 402).

National Drug Company, Philadelphia.

Rabies Vaccine-Human (Phenol-Killed).—Antirabic vaccine prepared according to the general method of Sir David Semple. The brain and spinal cord of rabbits killed on the sixth or seventh day after inoculation with fixed rabies virus are ground in a ball mill for forty-eight hours with physiological solution of sodium chloride containing 1 per cent phenol. The emulsion is incubated at 37.5 C. for twenty-four hours and finally sufficient physiologic solution is added to bring the phenol content to 0.5 per cent. It is kept in the refrigerator for thirty days. Sterility tests are made in fermentation tubes, toxicity tests are made on guinea pigs and safety tests are made on rabbits by intracerebral injections of 0.2 cc. each, the animals being kept under observation for four weeks. Marketed in packages of seven 0.5 cc. ampule-vials (without syringe) and in fourteen 0.5 cc. ampule-vials (with syringe). All doses are of the same potency; one dose is to be given daily over a period of fourteen days.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Eight dollars per annum in advance

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SATURDAY, MAY 6, 1939

HUMAN RHEUMATIC VIRUS

The cultivation of a barely visible filtrable pleuropneumonia-like virus [1] from human rheumatic exudates and proof of its pathogenicity for laboratory animals has been reported recently by Swift and Brown [2] of the Rockefeller Institute. The chorio-allantoic membranes of chicken embryos were inoculated with joint exudates. Characteristic pearl-like lesions developed on the egg membranes, "globular structures surrounded with flattened epithelium but containing in their center condensed eosinophil material." As many as twenty-four serial passages of the nodule-producing virus were made. During this process an occasional egg became contaminated with ordinary bacteria. Contaminated egg membranes emulsified in 10 per cent human serum were readily freed from all ordinary bacteria by Berkefeld filtration. The resulting filtrates showed little or no reduction in nodule-producing virus titer.

By the Sabin method of "blind passages" [3] in beef-serum-dextrose-broth the investigators eventually succeeded in growing a minute, barely visible, pleomorphic micro-organism from such filtrates and directly from bacteriologically sterile human rheumatic exudates. Typical chorio-allantoic lesions were produced with these presumably pure virus cultures.

Mice inoculated intranasally with virus cultures developed pneumonia. The inciting agent has thus been transmitted serially in mice by using as the second inoculum ground pneumonic mouse lungs suspended in broth. Ordinary bacteria have been absent from these lungs as determined by both microscopic and culture technics. Further it was found that 0.1 cc. of a pure virus culture will cause iritis and diarrhea [sic] if injected into the vitreous humor of rabbit eyes. Mice inoculated intracerebrally, intravenously or intraperitoneally, however, failed to develop characteristic lesions, even though some of them were obviously sick. The human rheumatic virus, therefore, differs from the mouse arthritis virus recently described by Sabin,[4] which is infectious if injected either intravenously or intraperitoneally in mice.

Thus far no study of serologic specificity has been reported with the human rheumatic agent. Whether or not the Swift-Brown virus is to be considered as a filtrable phase of the streptococcus, therefore, is still an open question. Cultivation of this virus-like micro-organism from joint fluids, pleural exudates and erythema nodosum nodules, however, suggests a new epidemiologic theory of rheumatic disease.

1. Whether the minute filtrable agent causing bovine pleuropneumonia should be classified as a virus or as a midget bacterium is still a controversial question.
2. Swift, Homer F., and Brown, T. M.: Science 89: 271 (March 24) 1939.
3. Sabin, A. B.: Science 88: 575 (Dec. 16) 1938.
4. Sabin, A. B.: Science 89: 228 (March 10) 1939.

ARTIFICIAL INSEMINATION AND ILLEGITIMACY

Whether a child begotten from artificial insemination is legitimate or illegitimate according to the law is an important question. If the child is illegitimate and if the husband of its mother fails to adopt it legally, the child does not acquire inheritable rights from the husband. A child is legitimate if its parents are intermarried when it is begotten or born. Statutes generally legitimatize also the issue of illicit intercourse if the parents intermarry, even though the intermarriage occurs after birth. The fact that conception is effected not by adultery or fornication but by a method not involving sexual intercourse does not in principle seem to alter the concept of legitimacy. This concept seems to demand that the child be the actual offspring of the husband of the mother of the child.

The presumption of law that a child born during wedlock is legitimate is not absolute and conclusive under all circumstances. Even at early common law the presumption was overcome by proof of the husband's sterility.[1] Today the presumption as to legitimacy is more easily controverted than it was in earlier times. Now it is generally recognized by the courts that a child is illegitimate, though born or begotten during marriage, when it is impossible that its mother's husband could have been its father. Every species of legal evidence tending to this conclusion is admissible on the trial of the issue as to its legitimacy.[2]

Artificial insemination can be effected from only two sources: from the semen of the husband of the prospective mother and from the semen of some other male. If the semen of the husband is used, the child obviously is as legitimate as if it were the result of normal and usual intercourse between husband and wife. If the semen of some other male is utilized, the resulting child would seem to be illegitimate. The fact that the husband has freely consented to the artificial insemination does not have a bearing on the question of the child's legitimacy. If it did, by similar reasoning

1. See cases cited in Annotations to 36 L. R. A. (N. S.) 255 and 125 A. S. R. 261.
2. See cases cited in Annotation to 31 A. L. R. 1119.

it might be urged that the fact that a husband had consented to the commission of adultery by his wife would legitimatize the issue resulting from the adulterous connection.

Some advise that all question as to the legitimacy of a child produced from the semen of a male other than the husband of the mother be ignored, apparently relying on the secrecy attendant on artificial insemination and on the presumption of law that a child born during wedlock is legitimate. Such reliance, however, disregards the apparent intent of the husband to confer on the child the rights incident to legitimacy. Those rights, if illegitimacy or even doubt as to legitimacy is frankly recognized, can be assured by adoption proceedings, which ordinarily are comparatively simple.

In many instances of artificial insemination, perhaps in a great majority, the facts may never be known to any one other than husband and wife and the physician involved. There is the possibility, however, that interested relatives may learn of the circumstances and may procure the evidence necessary to overcome the presumption of legitimacy and may thus deprive the child of a share of intestate property. It is the just due of the child that false pride or considerations of delicacy be put aside and that it be given, through adoption proceedings, the protection intended by the husband of the mother when he consents to the artificial insemination of his wife.

SULFAPYRIDINE

In THE JOURNAL, February 11, appeared five communications on sulfapyridine. One was a report of the Council on Pharmacy and Chemistry in which the Council recommended that the preparation be not licensed for sale in interstate commerce at that time. Under the new food and drug act we have advanced greatly in the commercial introduction of new products. For the first time a preliminary survey of the potentiality for good and for harm preceded the exploitation of a drug. The medical profession had opportunity of being informed and its representatives consulted about the drug before any preparation was placed on the open market.

After the Council had published its preliminary report, much evidence was assembled. March 2 THE JOURNAL sent inquiries to all investigators who had clinical experience with the product during the period between its availability for experimental use and its introduction on the market. Replies were received from about 100 investigators; the summation of their replies appears elsewhere in this issue, in a report of the Council on Pharmacy and Chemistry. The results of these investigations yield two significant observations: first, sulfapyridine is a drug of exceedingly great value in certain cases of pneumonia; second, like sulfanilamide it is a drug that needs careful supervision. Its use may probably give rise to as many side reactions as sulfanilamide, if not more—for instance, hematuria. (See article and editorial comment on kidney complications in this issue.)

Sulfapyridine was licensed for sale in interstate commerce on or about March 10. The Council and THE JOURNAL approve the action taken by the government in releasing the drug at that time. The final survey by the Food and Drug Administration was carefully conducted and warranted the release. At present THE JOURNAL is overwhelmed with papers that have been sent in by various investigators. THE JOURNAL is grateful for these contributions. Since, however, most of the original articles are merely confirmatory of work already published, it has been necessary for THE JOURNAL to accept only a few articles. Manuscripts dealing with unusual side reactions or unusual toxic effects or papers reporting extended studies will of course be given special consideration.

Several physicians and organizations have sent inquiries to the headquarters of the American Medical Association asking for an explanation of the relatively high cost of sulfapyridine—approximately 10 cents for a 5 grain tablet in lots of 1,000. A number of factors probably enter into the situation. The drug is patented and therefore not available to free competition. May & Baker, the English concern, assigned its patent rights to Merck & Company of New York. The Calco Chemical Company, it is also understood, claims that it is entitled to a patent and has filed interference claims. One of the ingredients for making the drug, pyridine, has skyrocketed in price from about 35 cents a gallon to approximately $1.75 a gallon. Of course the introduction of any new drug entails tremendous expense, because of the high cost of investigation; in addition, much of the drug must be given free to investigators. For this outlay the firms must be repaid. That the drug might be available and not withheld because of legal complications due to the patent situation, the Calco Chemical Company—a member of the American Cyanamid Corporation—and Merck & Company apparently entered into an agreement whereby the Lederle Laboratories of New York—also a member of the American Cyanamid Corporation—would be the outlet for the pharmaceutic and medical distribution of the drug. The Lederle Laboratories, it will be recalled, have contributed greatly to the development of serums for the treatment of pneumonia, thus being concerned simultaneously with biologic and chemotherapeutic agents. Even with the high price of sulfapyridine, the cost of treatment is considerably less than with the use of antipneumococcus serum. No doubt the commercial investments will soon be equalized, and there is reason to hope that the price of sulfapyridine may be materially reduced in the near future.

Current Comment

BOARD OF TRUSTEES MEETS WITH REGENTS OF COLLEGE OF PHYSICIANS

On April 29, pursuant to its established policy, the Board of Trustees and officers of the American Medical Association conferred with the regents of the American College of Physicians concerning problems of mutual interest, particularly graduate education and the preparation of young men for the practice of internal medicine. Similar conferences will be held with other groups to secure mutual understanding and more effective cooperation from various medical organizations in the specialties where there is joint interest and concern, the purpose being to avoid duplication of effort and unnecessary expenditure of funds, and also to develop efficient leadership, unification of action and satisfactory progress. The discussions on graduate education in the field of internal medicine were led, for the regents of the American College of Physicians, by Drs. O. H. Perry Pepper and Hugh Morgan, and, for the American Medical Association, by Drs. Arthur W. Booth, Austin A. Hayden, Charles Benjamin Wright and R. L. Sensenich of the Board of Trustees and Drs. W. D. Cutter and J. H. Musser of the Council on Medical Education and Hospitals. Most of the other members of the conference also participated in the general discussion. It is proposed to hold similar sessions from time to time with the executive bodies of other leading organizations in the field of the medical specialties.

EFFECT OF SULFAPYRIDINE ON THE URINARY TRACT

A new complication associated with the administration of sulfapyridine is described elsewhere in this issue.[1] Three cases of hematuria, abdominal pain and nitrogen retention were associated with the administration of this drug. All three showed hematuria apparently due to the drug, while in two there was severe abdominal pain of renal and ureteral origin. In the two in which the determination was done there was nitrogen retention due to renal insufficiency. None of the patients had shown evidence of urinary tract disease prior to the administration of the drug for pneumonia. In all instances the manifestations cleared promptly when sulfapyridine was stopped and adequate fluids were administered. Confirmatory evidence of an experimental nature is offered by the recently reported study of Antopol and Robinson,[2] who observed the formation of uroliths in the urinary tract of rats, rabbits and monkeys fed with sulfapyridine. While concretions have been observed after the administration of a single large dose, the results were more striking after a repeated feeding on successive days, although urolith formation varied greatly in the different species and to some extent even in the same species. A few hours after the oral administration of a large dose of sulfapyridine the urinary tract in susceptible animals contained needle-like crystals of the acetyl derivative of sulfapyridine. The crystals in animals that were killed were observed most frequently at the level of the bony pelvic brim. The microscopic appearance of the kidney varied with the degree of urinary stasis. There is, it is pointed out, a suggestion that the crystalline compound, when not excessive, can either be redissolved or washed out. The uroliths consisting of this acetyl derivative permit penetration of x-rays, but it has been observed that calcium can be deposited about these concrements, in which case the shell may become radiopaque. The serious potentialities of this complication of sulfapyridine therapy necessitate careful observation in each case.

1. Southworth, Hamilton, and Cooke, Crispin: Hematuria, Abdominal Pain and Nitrogen Retention Associated with Sulfapyridine, this issue, p. 1820.

2. Antopol, William, and Robinson, Harry: Urolithiasis and Renal Pathology After Oral Administration of 2(Sulfanilylamino)Pyridine (Sulfapyridine), Proc. Soc. Exper. Biol. & Med. 40:428 (March) 1939.

THE SURGEON GENERAL'S REPORT

The annual report for the fiscal year 1938 by Surgeon General Thomas Parran of the Public Health Service[1] summarizes health conditions in 1937. The general health conditions in the United States were favorable for 1937, as indicated by preliminary mortality rates. There is an indicated decrease in the death rate of about 3 per cent in 1937 as compared with 1936, and a decrease of more than 8 per cent in the infant mortality rate. The decline in maternal mortality was continued in 1937 as evidenced by a provisional rate of 4.6 per thousand live births, as compared with 5.3 for 1936. In one respect in particular, however, the United States health record was unenviable. For 1937 forty-eight states reported a total of 11,673 cases of smallpox as compared with 7,834 for 1936 and 7,957 for 1935. The number of cases for 1937 was the highest since 1931, although fortunately the case fatality rate was favorably affected by the generally mild, nonvirulent type of smallpox which obtained. The activities of the Public Health Service remain impressive. Active assistance has been rendered to numerous states and territories. Progress in investigative matters was signalized by the organization of the National Cancer Institute and by the laying of the corner stone of the first building to be erected in the new group of structures for the National Institute of Health near Bethesda, Md. Continued attention has been given to evolving a satisfactory control of biologic products, a work in which the actions of the health service have been invaluable. Investigations have been carried on in industrial hygiene, especially with the object of developing means for the protection and improvement of the health of the workers in various fields of industry, and an extensive study of rheumatic heart disease has also been conducted with noteworthy preliminary statistical, clinical and laboratory investigations already reported. Other important activities of the Public Health Service have been related to poliomyelitis, sanitation, grants-in-aid for cancer research, quarantine and immigration activities, mental hygiene and, of course, venereal disease control. The continued improving picture of the country's health is evidence that health conditions are not as black as they are sometimes painted.

1. Annual Report of the Surgeon General of the Public Health Service of the United States for the Fiscal Year 1938.

ORGANIZATION SECTION

DISTRIBUTION OF PHYSICIANS IN NEW YORK STATE

A decennial study from 1878 of the distribution of physicians in New York State made by Dr. Joseph S. Lawrence and published in the *New York State Journal of Medicine* (39: 199 [Feb. 1] 1939) shows that:

In the entire state the population has increased 167 per cent in the last sixty years, while the number of physicians has increased 477 per cent. In upstate areas the increases have been 86 per cent and 256 per cent respectively. The ratio of physician to population in the entire state is 1: 576, while in upstate alone it is 1: 720. In Greater New York the ratio is 1: 497 and in Manhattan and Brooklyn, where there is the greater concentration of specialists, the ratio is 1: 387. The increase in the population of these two boroughs in the last sixty years is 146 per cent, while the physicians increased 581 per cent. While the physicians increased much more rapidly than the population, the increase in some rural counties was much greater; for example, in Orange County, where the population increased but 50 per cent, the physicians increased more than five times that much, 288 per cent; in Rockland the population increased 124 per cent and physicians 693 per cent; in Warren the population increased 40 per cent and physicians 319 per cent.

Dr. Lawrence finds that the common complaint concerning the age and scientific qualifications of the rural physicians is not justified in New York State. According to the report:

Laboratory and hospital facilities are readily available to the rural resident physician, and journals and county medical society postgraduate courses help him keep abreast of the time as well as the urban resident physician.

The conditions and opportunities of the rural and urban physicians being so nearly equal, one might expect the periods of practice to bear a close resemblance, and they do. Approximately 25 per cent of the physicians in both areas have been in practice less than ten years and another 20 to 25 per cent have been in practice less than twenty years. The assumption that the recent graduate shuns rural practice is only partly correct. Many seek rural locations but, not being successful, are eventually obliged to locate in the cities. But there is another factor operating. Not a few physicians, seeing their most prosperous families forsake the farms for the cities, have followed them advantageously.

The state is well supplied with hospitals, maternity homes and laboratories, the latter being largely under the Division of Laboratories of the State Department of Health.

The report reaches the following conclusions:

Resident physicians and hospitals are distributed throughout the state in such fashion that no area is without medical service. Schuyler County has the lowest ratio of physician to population, 1: 1,298, and the highest is in Dutchess County, 1: 478. In the relation of general hospital beds to the population, the lowest is found in Livingston County, 1: 1,644, and the highest ratio exists in Ontario County, 1: 84. In evaluating these figures, it must be borne in mind that no county is an isolated unit, so that the services of physicians and hospitals of neighboring counties are always available.

Improved conditions for transportation and communications in the rural districts have increased the usefulness of the physician many times over what it was just ten years ago.

The same conditions have led the rural resident to seek the services of the city physician except for emergencies. In some instances this trend has induced rural physicians to move to the cities, at the same time retaining their rural practices.

None the less improved living conditions are attracting young men to locate in the rural areas.

There is no marked difference in the ages of the men practicing in the rural districts as compared with those in the urban districts.

Decreases in population must be marked and prolonged before there is any effect on the number of physicians. Areas of growing population have larger proportions of young physicians.

Nursing service as a part of a public health program demands prompt study.

STATE AND CONTRACT MEDICINE

The annual session of the International Medical Association, held at Copenhagen Aug. 25-28, 1938, heard the report of an inquiry with regard to the effect on the medical profession of a physician's holding several offices or receiving fees from several sources in the practice of medicine. The report was published in the *Revue internationale de médecine professionnelle et sociale* **11**:59 (Nov.) 1938.

Dr. Zahor of Czechoslovakia discussed the general effect of an increase in salaried physicians employed especially by the state or in sickness insurance organizations. He insisted that the most important factor in the problem was the moral effect on the physician. In discussing this, he said: "The limit of medical activities must be the possibility of maintaining honest and conscientious service. This is all the more important since the services of a physician deal with the things most dear to humanity: the health, whether of the individual as with the great majority of practicing physicians or of collective society as is the case with health officials, employees of sickness insurance institutions and so on. . . . It seems unnecessary to say again that the relations between the physician and his patients should be confidential. But actually this is no longer the case, when treatment takes on a certain 'routine.' We would offer all possible resistance to this tendency. The patient is not an object on an assembly line. Sickness is not a number on the register, even though financial considerations may make it necessary to give it such a number. Every patient must be seen as an individual: a good physician should individualize his treatment and always feel the full responsibility which the confidence of the patient places on him.

"The physician holds within his hands health or sickness, capacity to work or invalidity, hope and despair, life and death. It is due wholly to the great value of his services that the physician has acquired his social position, his material and economic level, his moral and political position, and above all his success. Every service that is performed superficially, in haste or with negligence is unworthy of a physician and harmful to his profession. Now, excess of work leads to just these things, and that is why the physician should not be permitted to undertake more labor and more functions than those which he can do honestly and conscientiously. . . .

"From another point of view, the interests of the profession demand that the principles of ethics of the medical group should be observed by every physician. This not only is necessary to preserve the prestige of the profession but also is of importance economically. But necessity knows no law, and poverty destroys the character. For those who cannot

obtain even the minimum necessities to exist, there is great danger that forbidden positions will offer forbidden rebates and will betray the professional group, to its great embarrassment. We must admit that there are already visible within the medical corps certain regrettable symptoms which demand the energetic attention of the professional group if we are to prevent a fall in the moral standard. . . .

"First of all, a professional organization has a duty to prevent situations which injure its members. . . . It should demand that medical employees be obtained exclusively through the medical society. Any institution that has need of the services of a physician should address itself to the medical association to determine the conditions of employment. Each proposal should take into consideration, first, not only the desires and interests of the institutions making the request but also those of the candidates for the position, their economic situation, and their occupations, with a view to avoiding duplications of positions."

OFFICIAL NOTES

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 2 p. m. eastern standard time (1 p. m. central standard time, 12 o'clock mountain time, 11 a. m. Pacific time).

Starting April 30, daylight saving time takes effect in Chicago. The program will therefore be broadcast at the same hour Chicago daylight saving time, which means one hour earlier central standard time, two hours earlier mountain time and three hours earlier Pacific time. In communities where daylight saving time is in effect there will be no change in the hour of the broadcast.

Owing to network conflicts the Chicago broadcast does not occur at 1 o'clock Wednesday but there is a rebroadcast from a recording over station WENR at 8 o'clock each Monday evening, on and after May 1 (8 o'clock Chicago daylight saving time, 7 o'clock central standard time). The program broadcast each Monday is identical with the network program of the preceding Wednesday.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

May 10. The Doctor's Workshop.
May 17. Healthier Babies.
May 24. No broadcast because of radio conflicts occasioned by visit of British sovereigns to the United States.

THE ST. LOUIS SESSION

Special Radio Programs

The following radio programs have been arranged in connection with the annual session of the American Medical Association in St. Louis.

Dr. Irvin Abell, President of the Association, will broadcast over the Blue network of the National Broadcasting Company, Monday, May 15, from 4:15 to 4:30 p. m. central standard time. His subject will be "American Medicine Today" Dr. Rock Sleyster, President-Elect, will broadcast over the Columbia Broadcasting System Monday, May 15, from 3:45 to 4 p. m. Dr. Sleyster will be interviewed by Miss Jane Stafford of Science Service.

Dr. W. W. Bauer, Director of the Bureau of Health Education of the American Medical Association, will broadcast over the Blue network of the National Broadcasting Company, Friday, May 19, from 4:15 to 4:30. He will present a summary of the scientific and sociological developments at the meeting.

ADDRESSES BY OFFICIAL STAFF

DR. W. W. BAUER:

May 9—Logan Howard Preschool Group, Wilmette, Ill.
May 10—Women's Club, Public Meeting, Racine County Medical Society, Racine, Wis.
May 29—South Carolina Public Health Association, Myrtle Beach, S. C.

DR. MORRIS FISHBEIN:

May 8—Arkansas Medical Society, Hot Springs.
May 18—Rotary Club, St. Louis.
May 23—Cornell University Medical School, New York.
May 23—County of Kings and Academy of Medicine, Brooklyn.
May 24—American Surgical Trade Association, Washington, D. C.
May 31—Nurses' Graduation, West Suburban Hospital, Chicago.

MR. JACK LAUX:

May 12—Community Clubs, Joliet, Ill.

DR. PAUL A. TESCHNER:

May 25—Ryburn Memorial Hospital Commencement, Ottawa, Ill.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 840 has passed the Senate, with amendment, proposing that no law of the United States shall be construed to limit the power and authority of the Secretary of War, without reference to line of duty status, to require and incur obligations for hospitalization and medical treatment of persons in active military service, other than those treated in private hospitals or by civilian physicians while on furloughs or leaves of absence in excess of twenty-four hours. The President has signed H. R. 1776, providing for the assignment of medical officers of the United States Public Health Service for duty on vessels of the Coast and Geodetic Survey. H. R. 2320 has passed the Senate providing domiciliary care, medical and hospital treatment and burial benefits to certain veterans of the Spanish-American War, the Philippine Insurrection and the Boxer Rebellion.

Bills Introduced.—S. 2214, introduced by Senator Davis, Pennsylvania, and H. R. 5979, introduced by Representative Van Zandt, Pennsylvania, propose to amend title X of the Social Security Act providing for financial assistance to certain blind persons by adding a provision that the Social Security Board shall not disapprove any plan because it provides for financial assistance to blind persons having an annual cash income of not more than $1,200. S. 2215, introduced by Senator Davis, Pennsylvania, and H. R. 5980, introduced by Representative Van Zandt, Pennsylvania, propose to amend further title X of the Social Security Act by defining the term "needy individuals who are blind" to mean "blind persons in need as defined in a State plan." S. 2226, introduced by Senator Sheppard, Texas, proposes to extend without charge the benefits of the Public Health Service, including benefits other than those received at hospitals or stations of that service, to the wives and dependent children of officers and employees of the Lighthouse Service. S. 2232, introduced by Senator Sheppard, Texas, proposes to provide hospitalization and domiciliary care in Veterans' Administration facilities to retired enlisted men of the Army, Navy, Marine Corps and Coast Guard, who are war veterans, on a parity with other war veterans. S. 2257, introduced by Senator Gurney, South Dakota, proposes to authorize the appropriation

of $1,000,000 for the construction of a veterans' hospital and diagnostic center in the first congressional district of the state of South Dakota. H. R. 2875, introduced by Representative Smith, Washington, proposes that pensions payable to widows and orphans of deceased veterans of the Spanish-American War, Boxer Rebellion or Philippine Insurrection shall be effective as of the date of death of the veteran if claim is filed within one year thereafter. H. R. 5977, introduced by Representative Lesinski, Michigan, proposes to provide pensions to members of the Regular Army, Navy, Marine Corps and Coast Guard varying with the extent of service-incurred disabilities resulting from injury or disease. H. R. 5978, introduced by Representative Sheppard, California, proposes to give to male nurses who served under contract with the War Department between April 21, 1898, and Feb. 2, 1901, the rights, privileges and benefits, including pensions, provided for female Army nurses under contract during the same period. H. R. 6041, introduced by Representative Hendricks, Florida, proposes to authorize an appropriation of $1,750,000 for the construction of a United States Veterans' Administration general medical-surgical hospital and domiciliary facility, with a capacity of at least 500 beds, on or as near to the central east coast of Florida as is feasible.

STATE MEDICAL LEGISLATION

Florida

Bills Introduced.—H. 174 proposes to require the State Board of Health to distribute salvarsan, neosalvarsan, arsphenamine, bismarsen, mapharsen, neoarsphenamine and sulpharsphenamine to the physician of any resident suffering from syphilis or kindred disease requiring the use of any of the drugs stated and financially unable to purchase the necessary drug. H. 419 proposes to require a practitioner of osteopathy to renew his license annually on or before January 1 with the osteopathic board and at that time to pay an annual renewal fee of $5. The bill also proposes to condition the renewal of a license to practice osteopathy on the presentation by the holder thereof of evidence that in the preceding year the licentiate has attended the two day educational program as conducted by the Florida osteopathic association, or its equivalent. H. 577 and S. 272 propose to authorize the State Board of Health to establish a home for the care and treatment of incurable children.

Illinois

Bills Introduced.—S. 332 proposes that corporations not for pecuniary profit organized under the laws of the state shall be liable on their contracts and for their negligence and the negligence of their officers, agents and servants in the course of their authorized duties and their employment. S. 390 proposes to enact a separate physiotherapy practice act and to establish an independent examining committee to examine and license persons to practice physiotherapy. The bill defines physiotherapy as "the method, art or science of treating the human body for hygienic or remedial purposes by the following methods: massage and manipulations with the hands or with any agency or instrument, and the use of such adjuncts as light, heat, air, water, diet, gymnastics and electricity."

Michigan

Bill Introduced.—H. 559 proposes to require all persons licensed to practice medicine, osteopathy or chiropractic to renew their licenses annually with their respective boards of examiners and at that time to pay annual renewal fees of $10. The bill proposes to condition renewal also on the presentation of evidence that the practitioner in the preceding year has attended recognized classes or clinics for the purpose of pursuing postgraduate study of subjects pertinent to his system of healing for not less than ten class hours of fifty minutes each.

Pennsylvania

Bills Introduced.—H. 1358 proposes to enact a law, to be cited as the "Pure Food, Drug and Cosmetic Act," to regulate the manufacture, sale, distribution or advertising of foods, drugs, cosmetics and devices. S. 661 proposes to require every physician attending a pregnant woman during the period of gestation or at delivery to take or cause to be taken a sample of her blood within fifteen days after the time of first examination and to submit the sample to an approved laboratory for a standard serologic test for syphilis. This bill was reported favorably and went to second reading in the senate, April 27. S. 662 was reported favorably to the senate, April 25, proposing to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a physician's certificate that he or she has submitted to an examination to determine the existence or nonexistence of syphilis and that in the opinion of the examining physician the party is not infected with syphilis or if so infected is not in a stage of that disease which is likely to become communicable.

South Carolina

Bill Introduced.—H. 845 proposes to authorize the organization of corporations to operate nonprofit hospital service plans whereby hospital care may be provided by the corporations through hospitals approved by the South Carolina Hospital Association to persons subscribing to the hospital service plans.

Wisconsin

Bill Introduced.—A. 719, to amend the pharmacy practice act, proposes that the act shall not interfere with the dispensing of drugs, medicines or other articles by physicians *in an emergency, provided only such drugs shall be kept in stock by a physician as are necessary for emergency use.* The present law provides that the act shall not interfere with the dispensing of drugs, medicines or other articles by physicians. This bill, if enacted, would seem to permit a physician to dispense only in an emergency.

WOMAN'S AUXILIARY

California

The auxiliary to the San Diego County Medical Association met at the University Club in San Diego with eighty members in attendance. A three-act comedy by Mrs. Willard Newman entitled "How Do You Like Your Medicine? or Can You Take It?" was presented.

Mrs. Frances Parish described the service given blind persons by the "seeing-eye dog," at a meeting of the auxiliary to the San Francisco County Medical Society January 17.

At the January meeting of the auxiliary to the San Joaquin County Medical Association, Miss Eileen Clark spoke on the "Function and Needs of the Juvenile Court in the Field of Child Guidance."

Mrs. William Renfry Hunt reviewed "Fifty Years a Country Doctor" by William MacCarthey at the January meeting of the auxiliary to the Santa Barbara Medical Society. Members attended a Forum on "Socialized Medicine," held by the American Association of University Women January 18.

At recent meetings of the auxiliary to the Santa Clara Medical Association, Dr. Edward Liston of Palo Alto spoke on "Medical and Hospital Insurance" and Dr. Walter H. Brown, professor of hygiene at Stanford University, on "Public Health, Past and Present."

Indiana

The auxiliary to the Marion County Medical Society held the annual dinner dance with the society January 10 at the Indianapolis Athletic Club with 480 doctors and their wives in attendance.

The auxiliary to the Vigo County Medical Society held a meeting in Terre Haute recently. Mr. Phil Brown gave an illustrated lecture on Williamsburg.

Minnesota

Dr. George A. Earl, president of the Minnesota State Medical Association, addressed the auxiliary to the association at the Women's City Club, St. Paul, February 1 on "The Medical Outlook." Mrs. W. B. Roberts is president.

Dr. J. M. Hayes addressed the auxiliary to the Hennepin County Medical Society February 3 on "Socialized Medicine."

The auxiliary to the Stearns-Benton Counties Medical Society met in St. Cloud February 9. Mrs. R. N. Jones reviewed "The Citadel." The auxiliary has placed *Hygeia* in eleven schools of these counties.

The auxiliary to the Washington County Medical Society met February 14. Mrs. E. Sydney Boleyn led a discussion of government-controlled medicine and Mrs. C. E. Proshek spoke on Czechoslovakia.

Mississippi

Mrs. Sidney Johnston reviewed "The Horse and Buggy Doctor" by Dr. Arthur E. Hertzler recently before the auxiliary to the Issaquena-Sharkey-Warren Counties Medical Society.

The auxiliary to the Fourth District Medical Society was organized by Mrs. John Howell, president of the auxiliary to the Mississippi Medical Association, February 9. Mrs. P. B. Brumby was elected president. Members of this group have already placed several subscriptions to *Hygeia* in the libraries and public schools of the district.

Pennsylvania

The auxiliary to the Allegheny County Medical Society met January 24. Mrs. Joseph P. Dobo spoke on socialized medicine. Judge Gustav L. Schramm of the Juvenile Court of Allegheny County also addressed the meeting.

The auxiliary to the Berks County Medical Society held its third Annual Health Conference in Reading January 21. Dr. Hugh P. Shellabear, president, Berks County Medical Society, awarded the prizes for the essay contest on "Why Is Health Education Necessary?" which was conducted in the county and city high schools. The films "Prevention of Burns to Children," "The Conquest of Diphtheria" and "The Control of Pneumonia" were shown. Mrs. Augustus S. Kech, president of the auxiliary to the American Medical Association, 1937-1938, addressed the meeting. Dr. Harry B. Corrigan spoke on "Communicable Diseases and Their Prevention."

The auxiliary to the Chester County Medical Society met in West Chester January 17. Mrs. Joseph Scattergood Sr. discussed the proposed National Youth Administration project at Darlington Seminary, West Chester, for the care of fifty girls, aged from 17 to 30, from families on relief from the five counties of southeastern Pennsylvania. This project offers an opportunity somewhat similar to that for boys in the CCC camps.

The auxiliary to the Delaware County Medical Society was the guest of the society at its annual meeting January 12. The speaker was Mr. David McCahan, of the University of Pennsylvania, whose subject was "Building and Insuring the Family Financial Program." It was voted to donate ten subscriptions to *Hygeia* to be placed in schools and libraries of Delaware County. Mrs. Arthur Whitney discussed socialized medicine.

INCREASING SICKNESS IN SCOTLAND

The Department of Health for Scotland has recently issued the "Seventh Report on Incapacitating Sickness in the Insured Population of Scotland." This covers the period from July 1, 1936, to June 30, 1937, during which there was an average incapacity per insured due to sickness of 14.92 days per insured person. Part of the increase in the year 1936-1937 is due to an excess of influenza cases, but when this disease is excluded there is an increase from 8.8 days in 1931-1932 to 10.9 days in 1936-1937. Studies of similar bodies of employed workers in the United States over several years and including influenza gives an average of about 9.0 days lost through sickness per worker annually. It cannot be claimed that the absolute number of days is exactly comparable, as the Scottish statistics apparently include a larger percentage of chronic cases than those for the United States. The significant and apparently wholly justifiable basis of comparison would seem to be between the continuously increasing morbidity under insurance and the constant or slowly decreasing days of sickness under private practice.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Society News.—The Los Angeles County Medical Association was addressed April 6 by Drs. Steele F. Stewart Jr. on "Early Diagnosis and Treatment of Congenital Dislocation of the Hip"; Ward M. Rolland, "Supracondylar Fractures of the Elbow," and Harold E. Crowe, "Short Hospitalization of Fractures."——Among others, Dr. John J. Shea, Memphis, Tenn., addressed the Los Angeles Society of Ophthalmology and Otolaryngology April 17 on "Management of Fractures of the Face."——Dr. William D. Sansum, Santa Barbara, discussed "The Problem of the Underweight Patient" before the Hollywood Academy of Medicine April 13.

COLORADO

Personal.—Thomas Russell Garth, Ph.D., since 1930 professor of experimental psychology, University of Denver, died April 20. In 1912 Dr. Garth assisted in the Rockefeller Hookworm Investigation and in 1930-1931 headed the expedition to study color blindness of Indians, and in 1935-1937 the expedition to study the foster Indian child in white homes; he also served with other expeditions to study the psychology of the Indian since 1919.——Dr. William N. Beggs, Denver, was guest of honor at a dinner given by the Colorado medical alumni of Washington University April 8; he graduated in 1886.——Dr. Edward G. Billings, director of the liaison department of psychiatry, Colorado General Hospital, recently received $30,000 from the Rockefeller Foundation for the continuation of his work, according to the Denver *Medical Bulletin*.

GEORGIA

Changes in Health Officers.—Dr. Albert G. LeRoy, Atlanta, has been appointed commissioner of health of Toombs County, effective January 1, and Dr. Robert F. Young, Cartersville, of Bartow County. Dr. Garland L. Weidner has been chosen assistant health officer of Atlanta. Dr. Roland A. Brown, Macon, has been appointed assistant city-county health officer of Bibb County, succeeding Dr. Herbert F. Laramore, who has accepted a position on the staff of the U. S. Veterans' Hospital in Los Angeles, it is reported. Dr. Richard C. Shepard, La Fayette, has resigned as health commissioner of Catoosa and Walker counties, effective April 15, to engage in private practice.

District Meetings.—The Fifth District Medical Society held its spring meeting April 13 at the Academy of Medicine in Atlanta. Dr. Edgar Hill Greene, Atlanta, president, Fulton County Medical Society, gave the address of welcome. Drs. A. Benson Cannon, New York, and Grady N. Coker, Canton, president, state medical association, discussed "Comparative Value of Antisyphilitic Drugs" and "Modern Trends in Medical Practice" respectively. A symposium on the clinical aspects of pellagra was presented by Drs. Tom Douglas Spies, Cincinnati, Virgil P. W. Sydenstricker, Augusta, and James McLester, Birmingham, Ala.——The Tenth District Medical Society was addressed at Athens recently, among others, by Drs. John Weyman Davis, Athens, on "Treatment of Fractures of the Neck of the Femur" and Joseph Righton Robertson, Augusta, "Internal Urethrotomy."——Dr. Leo W. Koster, New York, discussed certain phases of surgery before the Second District Medical Society at Colquitt April 14.

ILLINOIS

Society News.—Dr. Roland M. Klemme, St. Louis, discussed "Neuralgias of the Head and Face: Differential Diagnosis and Treatment" before the Adams County Medical Society, Quincy, April 10. Dr. Franklin E. Walton, St. Louis, discussed "The Surgeon's Approach to Diseases of the Gallbladder" before the society recently.——The Peoria City Medical Society was addressed March 21 by Dr. James H. Hutton, Chicago, on "Diagnosis and Treatment of Neglected Endocrinopathies"; March 7 by Dr. Raymond M. Rice, Indianapolis, "Clinical Use of Female Sex Hormones," and February 21 by Dr. August A. Werner, St. Louis, "Influence of the Endocrines on Growth and Development."——Dr. Charles E. Galloway, Evanston, Ill.,

discussed "Pathology of the Cervix" before the Sangamon County Medical Society, Springfield, April 6.——Drs. Howard A. Rusk and Harold G. Newman, St. Louis, addressed the Marion County Medical Society, Centralia, April 20, on "Diagnosis and Treatment of Undulant Fever."

Chicago

Pneumonia Service.—A twenty-four hour service for the distribution of pneumonia serum and typing of sputum from pneumonia patients has just been established by the Chicago Board of Health. While the twenty-four hour service is available to physicians only at the department's branch laboratory at the Municipal Contagious Disease Hospital, the service will be available at the central laboratory, located in the city hall, room 707, during specified hours. Detailed information may be obtained from the department of health.

INDIANA

New State Program in Psychiatry.—The state department of public welfare recently inaugurated a program to establish part time mental hygiene clinics to serve most of the communities in Indiana. With the approval of the state medical society, five physicians were given membership in the Indiana Council on Mental Hygiene to be a liaison group between the department of public welfare and the profession. In counties where it is proposed to offer services of a mental hygiene clinic team, the program is first submitted to the county medical society and only after an invitation has been extended by the society is a clinic established. Dr. Exie E. Welsch, who has been directing the mental hygiene program of the bureau of maternal and child health of the state board of health, has been transferred to the bureau of mental care of the state department of public welfare. She will assist Dr. George C. Stevens, director, division of medical care, in organizing the clinics. The liaison committee and the committee on mental health of the state association have agreed that there was no need for two distinct mental hygiene programs with similar aims being conducted in the state board and the department of public welfare.

IOWA

Personal.—Dr. Joseph M. Casey, Fort Madison, was guest of honor at a banquet given by the Fort Madison Medical Society recently in recognition of his completion of fifty years in the practice of medicine.——Dr. Henry A. Meyers, Davenport, was presented with a gold wrist watch by the Scott County Medical Society at a meeting January 3 following his resignation as secretary; he had held the position since 1930.

Public Meetings.—Dr. Ludvig Hektoen, Chicago, executive director, National Advisory Cancer Council, addressed a public meeting at the Hoyt Sherman Place, Des Moines, recently. The meeting was sponsored by the Iowa division of the Women's Field Army, Iowa. Dr. Thurman B. Rice, Indianapolis, gave a public lecture March 5 on "Problems of Sex Education."

KANSAS

Society News.—Dr. Axel N. Arneson, St. Louis, discussed "Treatment of Cancer of the Body of the Uterus" before the Shawnee County Medical Society April 10 in Topeka.——Dr. John M. Waugh, Rochester, Minn., addressed the Sedgwick County Medical Society, Wichita, April 4, on "Management of the Acute Abdomen."

Society Observes Fiftieth Anniversary.—The Golden Belt Medical Society observed its fiftieth annual meeting at Junction City April 13; the speakers were Drs. Arthur E. O'Donnell, who reported a case of screw worm in the nose; Thomas G. Orr, Kansas City, Mo., "Treatment of Peritonitis"; Jacob A. Bargen, Rochester, Minn., "Medical and Preoperative Management of Intestinal Obstruction," and John M. Porter, Concordia, "A Kansas Society Fifty Years Old."

Postgraduate Courses.—A series of postgraduate courses is being held throughout the state under the auspices of the state medical society and the state board of health with the assistance of social security funds. A four week course in obstetrics and pediatrics opened March 20, to reach Beloit, Smith Center, Hays, Ellsworth and Abilene. Drs. William F. Mengert and John H. Randall, Iowa City, are giving the instruction in obstetrics, and Drs. Jean V. Cooke, St. Louis, and Julian D. Boyd, Iowa City, the instruction in pediatrics. A similar course was scheduled for Leavenworth, Sabetha, Clay Center, Wamego and Lawrence, and the instructors were Drs. William J. Dieckmann and Morris Edward Davis, Chicago, in obstetrics and Mandel L. Spivek, Chicago, pediatrics. A course opened March 9 on venereal disease; it was to continue through April 21 with Dr. Joseph V. Van Cleve, Wichita, as the speaker. Dr. Nathan A. Womack, St. Louis, conducted the postgraduate course on cancer control, which began March 20.

KENTUCKY

State Board Sponsors Radio Program.—The Kentucky State Board of Health inaugurated a series of fifteen-minute radio broadcasts over station WHAS, Louisville, in March. The programs are broadcast Saturday afternoons at 4:45 central standard time. The first program reviewed the organization of the Kentucky State Medical Association and the state board of health and the series continues with dramatizations of the present activities of both organizations.

Society News.—Dr. Percival Bailey, Chicago, delivered the annual Alpha Omega Alpha Lecture of the Jefferson County Medical Society April 21 on "Indications for Operation in Cases of Tumor of the Brain." Drs. George A. Hendon and Pat R. Imes, Louisville, addressed the society April 17 on "Multiple Abscesses of the Liver" and "Immediate Treatment of Automobile Injuries" respectively.——George F. Cartland, Ph.D., Kalamazoo, Mich., addressed the Louisville Obstetrical and Gynecological Society April 24 on "Pituitary Ovarian Relationship with Reference to Use of Pregnant Mare Serum in Therapy."——Dr. Morris Edward Davis, Chicago, addressed a joint meeting of the Jefferson County Medical Society and the Louisville Obstetrical and Gynecological Society, March 6, on "Present Day Treatment of Hemorrhage Late in Pregnancy."

LOUISIANA

Southern Hospital News.—The new eight story addition to the Baptist Hospital, New Orleans, adding seventy-four beds to the 200 bed institution, has been completed at a cost of about $180,000.

Society News.—Dr. Charles J. Bloom, New Orleans, addressed the Iberville Parish Medical Society at Plaquemine March 3 on "Appendicitis in Infancy and Children."——Dr. Jay W. Cummins, Monroe, addressed the Ouachita Parish Medical Society recently on "The Rationale of Blood Transfusion" and Dr. Robert M. Simonton, "The Toxicology of Sulfanilamide."——Among others, Dr. Eugene M. Robards Jr. addressed a recent meeting of the Bi-Parish Medical Society at Jackson on "Involutional Melancholia and the Depressive Manic State."——It was decided at the recent annual meeting of the Tuberculosis and Public Health Association to hold the sixteenth annual session in Monroe; this will be the first time the meeting has been held out of New Orleans.——The Orleans Parish Medical Society held its joint scientific and first quarterly executive meeting April 10; the speakers were Drs. John H. Musser and Robert A. Wise on "Bacillus Pyocyaneus Meningitis, a Report of Six Cases"; Clyde Brooks, "Toxicity of Sulfanilamide and Related Compounds," and Dean H. Echols, "Tic Douloreux."——Dr. Michael E. DeBakey addressed the East Baton Rouge Parish Medical Society April 12 on "Surgical Amebiasis."

MAINE

Osteopaths Defeated in Maine Legislature.—The Maine legislature has just defeated the legislative document (H. P. 1706) (L. D. 873) which required hospitals receiving public funds to admit osteopathic physicians to practice, to treat and care for their patients and to furnish laboratory service for osteopathic physicians. The committee reported "ought not to pass" 7 to 3. After a long debate, the bill was defeated 72 to 26.

MASSACHUSETTS

Society News.—Dr. Meredith F. Campbell, New York, discussed "Urogenital Diseases of Infants and Children" before the Worcester District Medical Society April 12.

Health Week in Worcester.—The first "Worcester health week" was observed March 4-10 under the auspices of the health education committee of the local Young Men's Christian Association in cooperation with many other organizations. About thirty-eight health talks were scheduled in cooperation with the Worcester District Medical Society and about twenty-four showings of films related to health topics.

MICHIGAN

Society News.—Dr. Samuel M. Feinberg, Chicago, discussed "Mold Allergy" before the Michigan Allergy Society, Ann Arbor, March 16.——Dr. Plinn F. Morse, Detroit, discussed "Causes of Sudden Death" before the Ingham County Medical Society March 21.——Dr. John Warrick Thomas, Cleveland, addressed the Jackson County Medical Society in Jackson April 18 on "Allergy in General Practice."

Changes in State Health Department.—A new branch laboratory of the Michigan Department of Health was recently established in the Pinecrest Sanatorium at Powers. Dr. Filip C. Forsbeck, director of the bureau of epidemiology, resigned to accept a position with the U. S. Public Health Service, effective March 1. Dr. Forsbeck will make a study of dysentery in the Ohio River Valley; his headquarters will be in Cincinnati. Dr. Arthur W. Newitt, Lansing, who has been chief of the division of tuberculosis, has been appointed acting director of the division of epidemiology.

The State of Health.—The general death rate in Michigan in 1938 was 9.9, according to provisional figures published in the state medical journal. There were 50,470 deaths reported as compared with 53,468 in 1937. The birth rate was 18.7; the total number of births was 95,385 as compared with 91,566 in 1937. A new low point was established for infant mortality with a rate of 45.14 deaths per thousand live births. The maternal mortality rate was 3.56 deaths per thousand live births. Deaths caused by automobile accidents dropped to tenth place. This group totaled 1,444 in 1938 as compared to the all time high total of 2,175 in 1937. Deaths from tuberculosis declined from 2,119 in 1937 to 1,865 in 1938.

Neuropsychiatric Institute Dedicated.—The Neuropsychiatric Institute of the University Hospital, Ann Arbor, was opened February 11 with Alexander G. Ruthven, Ph.D., president of the university, presiding. Dr. Rock Sleyster, Wauwatosa, Wis., President-Elect, American Medical Association, gave the dedicatory address. The institute is a five story wing adjoining the hospital on the north with facilities for the care of sixty adult patients and twenty-three children. There are also increased teaching facilities, including an auditorium seating 140 persons on the subbasement floor and classrooms on two other floors. A large portion of the building will be devoted to research, and the neuropathologic laboratory and photographic department, which will also take care of the photography for the main hospital, are both especially well equipped, according to the *University Hospital Bulletin*. By a recent act of the state legislature, the institute will treat only voluntary patients and committed patients will not be admitted. The study and treatment of incipient or threatened mental disease will be emphasized and research will be directed toward the preventive aspects of psychiatry.

NEW MEXICO

State Medical Meeting at Gallup.—The fifty-seventh annual meeting of the New Mexico Medical Society will be held at the El Rancho Hotel, Gallup, May 11-13, under the presidency of Dr. Eugene W. Fiske, Santa Fe. Governor John E. Miles will deliver the address of welcome. Other speakers will include:

Dr. Robert W. Lamson, Los Angeles, Allergy and Pseudo-Allergy in General Practice.
Dr. William Philip Corr, Riverside, Calif., The Management of Diabetes.
Dr. Benjamin H. Orndoff, Chicago, Early Changes in the Endometrium, Diagnosis and Management.
Dr. Henry J. Goubeaud Jr., Brooklyn, Ruptured Uterus.
Dr. Jack G. Hutton, Denver, The Diagnosis of Syphilis.
Dr. Nelson Paul Anderson, Los Angeles, The More Common Skin Diseases.
Dr. Ralph M. Stuck, Denver, Spinal Injuries with Nerve Damage.
Dr. Rollin Russell Best, Omaha, The Physiological Biliary Flush as an Aid in the Management of Biliary Tract Disease.
Dr. George B. Kent, Denver, The Proper Management of Surgical Lesions of the Biliary Tract.
Dr. E. Payne Palmer, Phoenix, Ariz., Suspicious Cancer Symptoms.
Dr. Harold L. Thompson, Los Angeles, The Surgical Treatment of Peptic Ulcer.
Dr. Paul J. Connor, Denver, Objective Signs in the Diagnosis of Endocrinopathies.
Dr. Howard F. West, Los Angeles, Symptomatology and Etiology of Spontaneous Hypoglycemias.
Dr. Oscar B. Nugent, Chicago, Eye Conditions of Interest to the General Physician.
Dr. Francis C. Goodwin, El Paso, Texas, Use of Bone Traction in Scoliosis.
Dr. Jacob Travis Bennett, El Paso, Common Feeding Difficulties in Pediatric Practice.
Dr. William H. Daniel, Los Angeles, Proctology for the General Practitioner.
Dr. Charles H. Arnold, Lincoln, Neb., Splanchnic and Brachial Block Anesthesia.
Dr. Romeo J. Lajoie, Los Angeles, Angina Pectoris.

There will be round table luncheons Thursday and Friday. Entertainment will include a buffet dinner, the annual smoker, dinner dance, reception, luncheon and motor trip.

NEW YORK

New Tumor Clinic.—The Samaritan Hospital, Troy, opened a tumor clinic April 6 with Dr. Victor C. Jacobsen, associate professor of medicine, Albany Medical College, as director. Dr. Jacobsen will be consultant in pathology, Dr. William J. Hoffman, New York, consultant in neoplastic diseases, and Robert A. Patterson, Ph.D., Troy, consultant in biophysics. Sessions will be held every Thursday morning.

New York City

Hospital News.—Dr. Charles Rosenheck delivered the annual memorial address to commemorate the life and work of Dr. Henry W. Frauenthal, founder of the Hospital for Joint Diseases, March 7.——Dr. Howard Fox gave a lecture at Beth Israel Hospital recently on experiences of a dermatologist in the tropics.

Stock Exchange Discontinues Medical Department.—The medical department of the New York Stock Exchange was discontinued as an Exchange activity April 1, newspapers reported recently. Dr. Francis H. Glazebrook, medical director since 1931, has retired and Dr. Robert S. Millen, Westbury, N. Y., will take over the quarters and operate a clinic on his own behalf, it was announced.

Society News.—Speakers at a meeting of the New York Roentgen Society April 17 were Drs. Marcy L. Sussman, Simon Dack and Arthur M. Master on "The Roentgen Diagnosis of Myocardial Infarction" and Dr. William Snow, "X-Ray Visualization of Soft Structures of Pregnancy."——A symposium on eugenics and genetics was recently presented at a meeting of the International and Spanish-Speaking Association of Physicians by Maurice A. Bigelow, Sc.D., and Norman E. Hines, Ph.D., Hamilton, N. Y., and Benjamin C. Gruenberg, Ph.D.——A symposium on the prevention and treatment of automobile accidents was presented before the Medical Society of the County of New York recently; the speakers were John J. Seery, first deputy police commissioner, and Carroll E. Mealey, commissioner, bureau of motor vehicles, New York State, and Drs. David J. Kaliski, Conrad Berens and John J. Moorhead.——The New York Surgical Society devoted its meeting April 12 to a symposium on duodenal ulcer; the speakers were Drs. Richard Lewisohn, James William Hinton, Roland L. Maier and John J. Westermann Jr.

Medical Committees for the Fair.—The committees in charge of arranging medical and health exhibits for the New York World's Fair include the following in addition to those published in THE JOURNAL, April 22, p. 1609:

Dr. Wilson G. Smillie, exhibit on health administration, sponsored by the American Public Health Association.
Dr. Adolph G. G. De Sanctis, child health, growth and development committee, Mead Johnson & Co.
Waite A. Cotton, D.D.S., dentistry and oral hygiene committee, Dental Society of the State of New York.
John Mohler, D.V.M., veterinary safeguards and public health, American Veterinary Medical Association.
Dr. Harvey B. Matthews, maternal health, Maternity Center Association.
Dr. Howard W. Haggard, New Haven, Conn., maze of superstitions, the Bayer Company.
Dr. Milton J. Rosenau, Chapel Hill, N. C., milk control, Cherry-Burrell Corporation.
Dr. Francis M. Rackemann, Boston, allergy, Lederle Laboratories, Inc.
Charles-Edward A. Winslow, Dr.P.H., New Haven, Conn., health in the home, the John B. Pierce Foundation.
Leonard Greenburg, Ph.D., industrial sanitation, West Disinfecting Company.
Dr. Daniel B. Kirby, conservation of sight and education of the blind, New York Institute for Education of the Blind.

Dr. Putnam Appointed Professor of Neurology—Other Changes.—Dr. Tracy J. Putnam, since 1934 professor of neurology, Harvard Medical School, Boston, has been appointed professor of neurology and neurosurgery in Columbia University College of Physicians and Surgeons, effective October 1. He will also serve as director of services of neurology and neurosurgery at the Neurological Institute of the Columbia-Presbyterian Medical Center. Dr. Vernon W. Lippard, director of the Commission for Study of Crippled Children of the City of New York, has been appointed assistant dean of the medical college. According to an announcement, Drs. Charles A. Flood and Lawrence W. Sloan have resigned as assistant

deans to enter private practice. A native of Boston, Dr. Putnam took his medical degree at Harvard in 1915. He was Moseley traveling fellow at the University of Amsterdam, 1924-1925; Arthur Tracy Cabot fellow in charge of laboratory of surgical research at Harvard, 1925-1926; associate in surgery, Peter Bent Brigham Hospital, 1925-1928. Becoming assistant in surgery at Harvard in 1926, he subsequently served in various capacities until 1934, when he was named professor of neurology. He was visiting neurologist to the Boston City Hospital for many years. Dr. Lippard was born in Marlboro, Mass., in 1905 and graduated at Yale University School of Medicine, New Haven, in 1925. He has been associate attending pediatrician at New York Hospital and associate in pediatrics at Cornell University Medical College.

OHIO

Society News.—Dr. Henry L. Bockus, Philadelphia, addressed the Academy of Medicine of Cleveland April 21 on the diagnosis and treatment of jaundice. Dr. Leroy U. Gardner, Saranac Lake, N. Y., discussed silicosis before the academy recently.

Changes in Hospital Superintendents.—Dr. Fred G. Carter, superintendent of Christ Hospital, Cincinnati, has been appointed superintendent of St. Luke's Hospital, Cleveland, to succeed Dr. Charles S. Woods, who has resigned. Dr. Charles T. Way has been named medical director of St. Luke's and Dr. Willard C. Stoner, medical director for many years, is now medical consultant. Dr. Carter went to Cincinnati in 1935 from St. Paul, where he was for ten years superintendent of Ancker Hospital. He has been president of the Minnesota Hospital Association, the American College of Hospital Administrators and the Ohio Hospital Association; he is now president-elect of the American Hospital Association. To succeed Dr. Carter at Christ Hospital in Cincinnati, Dr. Merrill F. Steele, superintendent of Grant Hospital, Columbus, has been selected.

OKLAHOMA

Society News.—Drs. Rufus Q. Goodwin and Wilbur Floyd Keller, Oklahoma City, addressed the Pottawatomie County Medical Society, Shawnee, April 15 on "Clinical and Therapeutic Aspects of Anemia" and "The Pathology of Anemia" respectively.——Drs. Alfred R. Sugg and Ennis M. Gullatt, Ada, addressed the Pittsburg County Medical Society recently on "Perinephritic Pathology" and "Empyema" respectively.——Drs. Alvin Ray Wiley and Victor K. Allen, Tulsa, addressed the Muskogee County Medical Society recently on "Relation of Endocrines to Neoplasms of the Breast" and "Individual Technic in Anorectal Surgery" respectively.

PENNSYLVANIA

Dr. Wyant Honored.—Dr. John B. F. Wyant, Kittanning, was honored by the school children of the city March 28 in recognition of his completion of fifty years in the practice of medicine and for his interest in school health. He was presented with a radio and a plaque. A floral tribute was presented to the physician by the Armstrong County Medical Society, for which he has been secretary for nearly forty years. Dr. Wyant also served fifteen years as a member of the board of trustees of the state medical society and acted as chairman of the board for several years.

Philadelphia

Dr. Hamill Receives Strittmatter Award.—Dr. Samuel McClintock Hamill was awarded the Dr. I. P. Strittmatter Gold Medal by the Philadelphia County Medical Society April 12. Dr. Hamill, who has practiced in Philadelphia since 1890, has been active in child welfare work for many years. Among other activities he was chairman of section I on medical service of the Hoover White House Conference on Child Health and Protection and during the past four years was chairman of the Pennsylvania Emergency Child Health Committee. He has served as president of the American Academy of Pediatrics, the American Pediatric Society and the Philadelphia Pediatric Society, as chairman of the Section on Diseases of Children of the American Medical Association and was the first chairman of the section on pediatrics of the Medical Society of the State of Pennsylvania. In addition he was president of the American Association for the Study and Prevention of Infant Mortality in 1915 and again under its later name, the American Child Health Association, from 1931 to 1935. From 1901 to 1919 he was professor of diseases of children at the old Philadelphia Polyclinic and College for Graduates in Medicine and for another year at the University of Pennsylvania Postgraduate Department of Medicine.

Pittsburgh

Society News.—Dr. Allen O. Whipple, New York, delivered the Stewart Memorial Lecture of the Pittsburgh Academy of Medicine March 28 on "Diagnosis and Treatment of Pancreatic Lesions."——Dr. Albert D. Kaiser, Rochester, N. Y., addressed the Pittsburgh Pediatric Society April 14 on "Certain Phases of the Tonsil Problem in Children."——Speakers at a meeting of the Allegheny County Medical Society April 18 were Drs. Harry M. Margolis, on "Protrusions of Lumbar Intervertebral Disks as a Cause of Low Back and Sciatic Pain"; Louis H. Landay, "Coronary Heart Disease"; Joseph H. Barach and Lazarus Lewis Pennock, "Diagnostic Value of Occult Hematuria: Based on a Study of 3,000 Urinary Sediments," and Maximilian H. Weinberg, "Recent Advances in Neuropsychiatry."——A symposium on "Spastic Paralysis (Cerebral Birth Paralysis)" was presented before the Pittsburgh Orthopedic Club April 26 by Drs. Paul Titus, Samuel S. Allen Jr., John A. Heberling and Jessie Wright.

SOUTH CAROLINA

State Medical Election.—Dr. William L. Pressly, Due West, was chosen president-elect of the South Carolina Medical Association at the annual meeting in Spartanburg April 13 and Dr. Douglas Jennings, Bennettsville, was installed as president. Dr. Clough H. Blake, Greenwood, was elected vice president and Dr. Edgar A. Hines, Seneca, was reelected secretary for his thirtieth year. The 1940 meeting will be held in Charleston.

TENNESSEE

State Medical Election.—Dr. William O. Baird, Henderson, was elected president of the Tennessee State Medical Association at the annual meeting in Jackson April 14. Vice presidents elected were Drs. Julian G. Price, Dyersburg; Robert B. Gaston, Lebanon, and James E. Carson, Maryville. The 1940 meeting will be in Chattanooga.

Society News.—Dr. Virgil P. W. Sydenstricker, Augusta, Ga., addressed the Southern Interurban Clinicians Club in Nashville recently on "Hemolytic Icterus Following Splenectomy for Thrombocytopenic Purpura"; Dr. Sydenstricker was president of the club during 1938.——Drs. Henry L. Douglass and Robert H. Williams addressed the Nashville Academy of Medicine and Davidson County Medical Society, Nashville, March 28, on "Exstrophy of the Bladder" and "Results of Fever Therapy at Vanderbilt Hospital" respectively.——Drs. Henry G. Rudner and Robert L. Sanders, Memphis, Tenn., addressed the Dyer-Lake-Crockett Counties Medical Society, Dyersburg, March 1 on medical and surgical management, respectively, of common diseases of the colon, and Dr. Edward B. Smythe, Tiptonville, on "Henoch's Purpura."

GENERAL

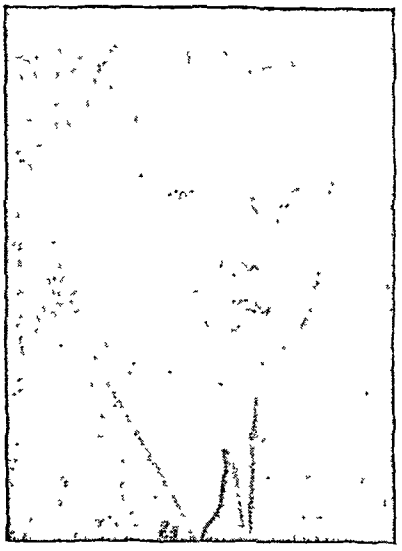
Society News.—The eighteenth annual convention of the American Physiotherapy Association will be held at the Hotel Cosmopolitan, Denver, June 25-30.——Dr. Irvin Abell, Louisville, Ky., President of the American Medical Association, was chosen president-elect of the Southeastern Surgical Congress at the annual meeting in Atlanta, Ga., in March. Dr. Grady E. Clay, Atlanta, was elected vice president and Dr. Benjamin T. Beasley, Atlanta, reelected secretary. Dr. Robert L. Sanders, Memphis, Tenn., became president for the coming year.

Hospital in India Needs Woman Physician.—The Woman's Hospital at Gauhati, Assam, in northeastern India is in urgent need of a woman physician, according to an announcement. The hospital has forty-five beds and during 1938 cared for 700 inpatients. Those interested should be able to do surgical work. There are two American nurses on the staff, two Indian women physicians, eight Indian staff nurses and twenty-six nurses in the training school. Laboratory and x-ray equipment are available. The hospital is under the Woman's American Baptist Foreign Mission Society. Applications and inquiries may be addressed to the Christian Medical Council, 156 Fifth Avenue, or to Miss Hazel F. Shank, 152 Madison Avenue, New York.

Medal Awarded to Eve Curie.—The Clement Cleveland Medal was presented to Eve Curie, Paris, France, at a dinner given by the New York City Cancer Committee at the Cos-

mopolitan Club April 18. In making the presentation, Dr. Francis Carter Wood, director of the Crocker Institute of Cancer Research, Columbia University, stated "Those in charge of this award, to be given to one who has achieved most during the year in our contest against cancer, are unanimously of the view that it should be given to the author of the 'Life of Madame Curie'—your rare achievement in writing so superb a life of your mother." According to the New York *Times*, this was the first foreign award of the Clement Cleveland Medal for distinguished service to public education on cancer control.

Young Physician Disappears.—Dr. Runyon H. Irvin, Mt. Vernon, Ill., disappeared from his home March 31. A reward is offered by the chief of police of Mt. Vernon and by his father, Mr. Grant Irvin, telephone 1015, Mt. Vernon, for information as to his whereabouts. Dr. Irvin is 31 years old, 5 feet 11 inches tall, weighs 150 pounds, has a fair complexion, blue eyes, light hair, white teeth with gold fillings. He was wearing a long light gray overcoat, a brown suit, a dark gray hat and black shoes size 11. He is said to be well mannered and genial and does not use tobacco or intoxicants. He had recently suffered a nervous breakdown. Any message concerning him should be telephoned collect to his parents.



Fellowships Awarded.—Twelve fellowships in the medical sciences, including three renewals, for study in the United States and abroad during the year 1939-1940, were awarded at the February meeting of the medical fellowship board of the National Research Council, Washington, D. C. A list of the successful candidates and institutions where they are to work follows:

Philip P. Cohen (renewal), University of Sheffield, England.
Thomas Harrison Davies (renewal), California Institute of Technology.
Victor M. Emmel, Yale University Medical School.
Dr. Alto E. Feller, Harvard Medical School, Boston.
Arden Howell, Duke University, Durham, N. C.
Fremont Ellis Kelsey, University of Pittsburgh.
Dr. Abe Ravin, Harvard, Boston.
Joseph Shack, Johns Hopkins University School of Medicine, Baltimore.
William M. Wallace, Harvard, Boston
Wilfred W. Westerfeld (renewal), Eidgenossische Technische Hochschule, Zurich, Switzerland.
Richard Winzler, University of Stockholm, Sweden.
Dr. William Barry Wood Jr., Harvard.

American Heart Association.—The fifteenth scientific session of the American Heart Association will be held in St. Louis at the Hotel Jefferson May 12-13. The Lewis A. Conner lecture will be delivered by Dr. Harry Goldblatt, Cleveland, on "Experimental Observations on the Pathogenesis and Treatment of Essential Hypertension." Dr. Cecil K. Drinker, Boston, will present the George Brown Memorial Lecture on "Physiological Considerations of the Formation and Movements of Lymph." Other speakers on the program include:

Drs. James Allen Kennedy, Nashville, Tenn., and Charles Sidney Burwell, Boston, Factors in the Circulatory Changes Associated with Pregnancy.
Dr. Henry A. Schroeder, New York, Importance of Restriction of Salt as Compared to Water in Cardiac Failure.
Bradley M. Patten, Ph.D., Ann Arbor, Mich., Microcinematographic and [illegible] of the First Heart Beats and the Begir [illegible] Living Embryos.
Dr. Do [illegible] im, M.B., and Dr. Charles H. Best, Toronto, Effect of Heparin in the Prevention of Thrombosis Experimentally Produced in Various Blood Vessels.
Dr. Reginald H. Smithwick, Boston, Immediate Effects and Late Results of Sympathetic Denervation of the Upper Extremity by Preganglionic Section.

Alumni Meetings in St. Louis.—The Missouri Medical College, class of 1899, will have a table at the Washington University Medical School Alumni banquet May 17 in the Gold Room of the Hotel Jefferson during the Annual Session of the American Medical Association in St. Louis.——The Phi Delta Epsilon fraternity will hold a dinner dance at the Hotel Chase May 17 at 7:30. Additional information may be obtained from Dr. Sam D. Soule, 4500 Olive Street, St. Louis.——Alumni of Northwestern University Medical School, Chicago, are holding a dinner in the Hotel Jefferson, St. Louis, May 17, at 6:30 p. m. Dr. George F. Rendelman, St. Louis, class of 1915, is chairman in charge. Dr. John A. Wolfer, Chicago, class of 1908, is president of the medical division of Northwestern University Alumni Association.——A dinner will be held in the main dining room of the Hotel Statler, Ninth Street and Washington Avenue, St. Louis, Wednesday evening May 17 at 7 o'clock by the Jefferson Medical College Alumni, for which all Jefferson alumni are requested to make reservations at convention headquarters. The dinner will be à la carte. Dr. Theodore P. Brookes, 1650 South Grand Boulevard, St. Louis, is chairman of the Alumni and Fraternity Reunion Committee.

FOREIGN

Dr. Loewi in Belgium.—Information has been received that Dr. Otto Loewi, formerly of the University of Graz, Austria, and co-winner of the Nobel Prize in medicine and physiology in 1936, has been released from Germany. He may be addressed in care of Club de la Fondation Universitaire, Rue d'Egmont, Brussels, Belgium. Before being released he was deprived of all his property, both inside and outside of Germany, including his Nobel Prize money, which had never been in Germany or Austria. His wife is still detained in Germany.

International Tuberculosis Conference.—The Eleventh Conference of the International Union Against Tuberculosis will be held in Berlin September 16-20 under the presidency of Prof. Lopo de Carvalho, Lisbon, Portugal. The subjects to be discussed are: "The Problem of the Virulence of the Tubercle Bacillus," "The Value of Systematic Examinations for the Detection of Tuberculosis in Subjects Over 15 Years of Age" and "The Rehabilitation of the Tuberculous." Speakers from the United States include Dr. Kenneth C. Smithburn, New York; Dr. Willard B. Soper, New Haven, Conn., and Dr. Henry Kennon Dunham, Cincinnati. Correspondence should be addressed to the Konferenzleitung der XI Konferenz der Internationalen Vereinigung zur Bekampfung der Tuberkulose, Berlin W 62, Einemstrasse 11, Germany.

Government Services

Colonel Magee Named Surgeon General of the Army

Col. James Carre Magee, Medical Corps, U. S. Army, has been appointed surgeon general of the U. S. Army with the rank of major general. He succeeds Major General Charles R. Reynolds, whose term as surgeon general expires May 31. Colonel Magee was born in Ireland in 1883. He graduated at Jefferson Medical College, Philadelphia, in 1905. In 1907 he joined the army as contract surgeon, serving for a time in the medical reserve corps of the army. In 1909 he was commissioned first lieutenant in the medical corps of the army, subsequently advancing through the various grades until 1935, when he was commissioned colonel.

Examination for Appointment in Medical Corps

The War Department announces that an examination will be held July 17-21 to qualify candidates for appointment as first lieutenants in the medical corps, regular army, to fill vacancies occurring during the next fiscal year. Due to the expansion of the air corps and coast defenses with the proportionate increase in officers of the medical corps, it is anticipated there will be considerably more than the usual number of vacancies. The examination is open to all male graduates of acceptable medical schools who have completed one year's internship in an approved hospital and who will not be over 32 years of age at the time it will be possible to tender a commission. It will be conducted by boards of medical officers convened throughout the United States and will consist of a physical examination, a written examination in professional subjects and a determination of the candidate's adaptability for military service. For additional information and application blanks address the Adjutant General, War Department, Washington, D. C. Applications will not be considered after June 30.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 8, 1939.

Limitation of Population Without Contraception

The most striking demographic phenomenon of the countries of western Europe is a fall in the birth rate of about 50 per cent in the last sixty years. In England the usually accepted cause is the use of contraceptives, though others, such as the change in the national diet from whole meal to white bread (producing shortage of vitamins B and E), were suggested at a discussion on the subject held at the Royal Society of Medicine (THE JOURNAL, March 19, 1938, p. 908). The use of contraceptives is undoubtedly an important cause, but its numerical importance is not known. In the want of exact knowledge on this point it is of great interest to turn to a neighboring country which shows a similar fall but in which contraception can be practically excluded. Eire is a Roman Catholic country and the people obey the teaching of their church, which condemns contraception. Moreover, the government has made the sale of contraceptives a serious criminal offense. Yet the carefully compiled analysis of the 1936 census, which has just been published, shows a small decline of population. This has not yet occurred in England but is imminent. In the two countries there is a similar decrease in the proportion of the young in the population and increase in the proportion of the old. In Eire, with a population of 3 million, the total decrease since the last census ten years ago is 3,500, but the numbers under the age of 21 years have fallen by 69,000 and under 15 by 47,000. A continuous trend toward an aging population has been in progress since the famine 100 years ago and is partially explained by emigration. The other factor—which indeed is the dominant one of the statistics—is late marriage. Between the ages of 25 and 29 as many as 82 per cent of males are single. This is the highest percentage in Europe and contrasts with 68 per cent in Austria, 47 per cent in England and Wales and 37 per cent in the United States. The percentage of unmarried females and their average age are higher than in most countries. With this handicap it may seem surprising that the decline of population is so small. The explanation is the high degree of fertility of those who do marry, which again is evidence of the absence of contraception. Thus the economic cause, which is limiting population in other western countries, operates, but in a different way.

Regionalization of the Public Health Service

A scheme for regionalization of the public health service has been formulated and in consequence of the international situation is rapidly being brought into force. For this purpose England has been divided into five regions, and a principal regional medical officer has been appointed for each region. He will be assisted by a small team of medical officers selected from the staff of the Ministry of Health. The new arrangement does not involve any substantial alteration in the duties which the medical officers of the department perform at present or in their relations with local authorities, but it is believed that the existence of regional staffs, who will be more familiar with local circumstances and problems than officers stationed permanently at headquarters, will be of great assistance. It is hoped also that local authorities and their officers will find it convenient to be able to refer to principal medical officers in their own regions questions of a medical or quasimedical nature. But there is a still more important reason. The regional scheme is an essential element in the preparations which the ministry is making to provide medical services for a possible national emergency. Its advantages are obvious if an air attack on London should produce any dislocation of the central control. The scheme does not involve any major change in the work of the senior medical officers at the ministry, who are responsible for special services, such as maternity and child welfare and tuberculosis, though it is hoped that they will be relieved of some routine work. In addition to their general duties they will be available for consultation with the regional staffs and, as in the past, with local authorities. The regional staffs have also been selected to make possible some specialization among their personnel. Some time must elapse before the scheme can be brought into full operation, but the urgency is such that it has been brought into force on a provisional basis.

A Zoological Index

The Zoological Society of London announces the approaching completion of the Nomenclator Zoologicus under the editorship of Dr. Sheffield Neave. This great work will be an index of the generic names of all animals. The foundation of modern nomenclature is the tenth edition of the Systema Naturae of Linnaeus, published in 1758. The Nomenclator Zoologicus is an attempt to bring into a single alphabetical arrangement all the names of genera and subgenera published during and since the time of Linnaeus down to 1935. The information contained in the new Nomenclator could be found previously only by searching a large number of publications of which the far more expensive and most ambitious is the Nomenclator Animalium Generum et Subgenerum in course of issue by the Prussian Academy of Science since 1926 and still incomplete, with references only up to 1921. The enormous number of animals which have been and are still being described by science is not generally realized. The new Nomenclature will contain 225,000 generic and subgeneric names, some 5,000 of which are not to be found in any similar work. It is said that some 10,000 new species and 2,000 new genera of insects are described each year. Of the total in the Nomenclator more than half the genera are insects, the mollusks account for 30,000, the arachnids, crustaceans and birds for 10,000 each and the worms for 8,000. The price of the Nomenclator is $31 to subscribers and $42 after publication. It has been made as low as possible and bears little relation to the cost of production.

Chemotherapy Combined with Immunotherapy

Little work has been done on the relative merits of chemotherapy and immunotherapy or on the value of combining them. At the Royal Society of Medicine Prof. Alexander Fleming of the inoculation department of St. Mary's Hospital made a communication on the synergic action of vaccine and serum therapy and on treatment with sulfanilamide and sulfapyridine. He said that it had been shown that the new chemotherapeutic agents had a bacteriostatic rather than a bactericidal action. Their chief result was interference with the growth of organisms, the destruction of which was completed by the natural defensive mechanism of the body. Even in the case of the organism most sensitive—the hemolytic streptococcus—the drug alone did not suffice to destroy it. Immunity could be increased passively by serum therapy or actively by vaccines. The results of combined serum and sulfapyridine were not yet available, but he had carried out experiments in vitro which showed the value of the combination. Antipneumococcic serum was found greatly to increase the antibacterial effect of a blood-sulfapyridine mixture on pneumococci. Several workers had shown that antiserums in conjunction with sulfanilamide had a striking action. The administration of vaccines with the new chemotherapeutic agents had given results far superior to either alone. Fleming described experiments on the mouse and rabbit in which these animals were injected with pneumococcus vaccine and six days later with pneumococci. Vaccine therapy alone, like chemotherapy alone, pro-

duced a diminution in the number of colonies, but only the two combined produced total destruction. There was clinical evidence pointing in this direction, though it was not conclusive. His conclusion was that the new drugs acted on certain sensitive bacteria, retarding or preventing their reproduction, and that then the natural defensive mechanism completed the destruction. The result depended on the sensitiveness of the infecting organisms to the drug and also on the immunity of the patient. This immunity could be increased by serums or vaccines, but the former were available only for certain infections while the latter could now be obtained for almost all bacterial infections.

PARIS

(From Our Regular Correspondent)

April 1, 1939.

Annual Meeting of American Hospital Board

After passing resolutions thanking Mr. E. B. Close for his services, without remuneration, as managing governor of the hospital, attention was called at the annual meeting of the board of governors to the fact that for the first time in the history of the American Hospital of Paris the budget for 1938 had been balanced. The medical, nursing and administration staffs were thanked by the board of governors for their untiring devotion. Services representing an income of more than two million francs (about $55,000) were rendered to part pay and free patients during 1938. In addition to the American resident physician, whose length of service varies from one to three years, the hospital also receives three graduates of American medical schools for one year's service. The nurses' training school was discontinued because of lack of funds a few years ago, but there are seventy graduate nurses from various American and European hospitals.

During the past year, donations amounting to more than 450,000 francs ($13,000) were received. The total number of inpatient days was 32,719, of which 11,260 were ward patient days. On an average forty-one patients were treated daily in the outpatient department.

Radiophotography in the Diagnosis of Tuberculosis

Examination of large groups of persons for pulmonary tuberculosis entails an almost prohibitive expenditure if films are used in every case; hence in France at least it has been necessary to limit examination of the lungs to radioscopy. At the January 31 meeting of the Académie de médecine of Paris a method termed radiophotography as employed at Rio de Janeiro, Brazil, by Dr. Manuel de Abreu was described by Dr. Georges Ronneaux of Paris. Radiophotography, or indirect radiography, consists in simultaneously photographing the thoracopulmonary images as they are observed at radioscopic examination. The camera is similar to the cameras sold everywhere for making cinematographic films. The photographs of the radioscopic images are too small to be studied directly, but they can be examined with the aid of a magnifying glass or can be enlarged for lantern slides or films of adequate dimensions, to be inspected as would be ordinary 14 by 17 inch films of the chest. When these enlargements are compared with the minute images obtained by the cinematograph, it is found that every detail observed during the radioscopic examination is preserved. The advantages of this newer method of radiophotography are that the films can be studied at a time when the radiographer is not engaged in the examination of many persons and that the expense is minimal as compared with that of making a film of every chest. When positive evidence is noted at radioscopic examination, the latter is followed by the older method of exposing the larger films.

Radiophotography is primarily a method to be recommended for the examination of large groups of school children, soldiers, sailors and hospital and industrial personnel and for use in dispensaries for the detection of pulmonary tuberculosis early in its evolution. A number of films were shown by Dr. R- neaux of patients at the Hôpital Cochin of Paris He h perfected an apparatus, termed an oscillostrator, so that t- recently introduced method of tomography, or the study (lesions of the chest in sections (pulmonary stratigraphy), c- be combined with Dr. Manuel de Abreu's method of radiop- tography. With the aid of the oscillostrator, instead of b-- obliged to use seventy-two large films for nine patients, at a- expense of 1,800 francs, he found it necessary to expose on- eighteen large films, of areas which required special study, a- an expense of only 395 francs.

Treatment of Obliterating Arteritis

At the February 28 meeting of the Académie de médecine a paper was read by Dr. Jean Walser and his co-workers in which the results of the treatment with alternate compression and decompression of twelve patients with obliterating arteritis were reported. This method has been extensively used in the United States. A marked improvement was noted in nine patients. The apparatus employed was that of Drs. Rosenfeld and Garsaux, described in the July 7, 1937, *Presse médicale*. No difference in the results was noted so far as sex was concerned. The improvement was especially of a functional character, but little relief of the pain being noted in spite of a progressive diminution of the index. A marked improvement in the trophic changes, especially in the cyanosis, was noted. The authors believe that this method of alternate compression and decompression is an important addition to the treatment of obliterative arteritis.

Incidence of Retroplacental Hemorrhage

According to an article by Drs. Trillat and Magnin in the December 1938 *Revue française de gynécologie*, sixty-six retroplacental hemorrhages were observed in 20,000 deliveries. In fourteen of the sixty-six cases there was an anomalous insertion of the placenta, but clinically these fourteen cases did not differ in any respect from those in which the placental insertion was normal. There are three clinical forms of retroplacental hemorrhage: 1. A mild form of which twenty cases have been observed; the fetus does not die in this form and the extent of separation does not exceed more than half the surface of the placenta. 2. A moderately severe form, with death of the fetus but survival of the mother; there were forty-two cases of this form. 3. The severe form, which is rare, only four cases being observed, with a maternal mortality rate of 25 per cent. Albuminuria was not found in any of the sixty-six cases. The prognosis is far less favorable in multiparas and in general beyond the age of 30 years. The earlier the symptoms appear, the less favorable the prognosis. The total fetal mortality was 66 per cent and it does not appear possible at the present time to lower this high mortality rate. Medical treatment is indicated for the mother. Following artificial rupture of the bag of waters, further obstetric intervention should be undertaken with caution, because of danger of rupture of the uterus. Surgical treatment was never employed by the authors, who believe that it is rarely indicated.

Danger of Epidemics from Spanish Refugees

The French army and public health service deserve credit for the manner in which 400,000 Spanish military and civilian refugees have been vaccinated and cared for in various portions of France. In an article by Dr. Sautet of Marseilles which appears in the February 25 issue of *Presse médicale*, attention is called to the danger that two diseases which are prevalent in Spain and northern Africa, viz.: Spanish recurrent fever and malaria, may be brought into France by the refugees. The incidence of these two forms of infection is small in European France. Spanish recurrent fever is due to Treponema hispanicum and is transmitted to human beings by bites of the ordinary tick and the tick found on dogs. Malarial infection is

especially to be feared in the spring; hence it will be necessary for the French public health service to isolate persons who have had malaria as soon as any signs of recurrence appear.

Twenty-Fifth Anniversary of Biochemical Society

The French Biochemical Society was founded in 1914. To celebrate its twenty-fifth anniversary, a meeting will be held at the Maison de chimie May 26. Two foreign biochemists will read papers at the afternoon session. Professor Thunberg of Sweden will discuss the active role of hydrogen and of water in the phenomena of biologic oxidation, and Professor Polonovski will speak on twenty-five years of biochemistry. Foreign biochemists desiring to attend are asked to write to Mr. René Fabre, 149 rue de Sèvres, Paris.

BERLIN

(From Our Regular Correspondent)

March 20, 1939.

Protection of Hospitals Against Aerial Attack

The national minister of aviation and commander-in-chief of air forces, Goering, has issued certain rules relative to the structural protection offered by civil and military hospitals and similar institutions against aerial attack. According to the air minister the proper protection of institutions that serve public health can be a vital factor in the capability of a population to resist aerial attack. It is emphasized that, in the choice of the site for a new hospital, possible danger of aerial attack should be considered as well as the hygienic requirements. Larger institutions that serve health should not be erected on sites manifestly vulnerable to aerial attack. Among extremely dangerous locations, the inner zones of cities and thickly built up areas may be reckoned. The total bed capacity of a civilian hospital or similar institution (with the exception of a university clinic) should not exceed 600 beds; military hospitals should not have more than 450 beds. Several smaller establishments at different locations are thus preferable to one large establishment. Adequate structural separation of various parts of an institution offers the best and most effective aerial protection. The pavilion system, however, is not recommended.

Air raid shelters must be constructed for the institution's personnel and patient population; there must also be especially protected emergency operating rooms. Shelters for bedfast patients and their nursing personnel should, if possible, be located in the basement. Separate shelters should be provided for patients with infectious disease. Special stipulations are made for air raid shelters in institutions for children, convalescents and old people. The architectural plans of new buildings are to include ample facilities for protection.

All civil and military hospitals should be inspected to determine whether any are so exposed that in the event of aerial attack the population would have to be evacuated. Hospitals dangerously situated should maintain their present size even if under normal conditions expansion would be demanded; in the course of time they should be torn down. If in any of the extant hospital buildings it is found impossible to provide suitable shelters from aerial attack, either in the basement or on the ground floor, new outbuildings to serve as shelters should be constructed. In such hospitals certain space may be designated within the main building which could be used if an aerial emergency should occur before the regular shelters have been completed..

Debut of Physicians in Domain of Art

"The Doctor as Painter and Sculptor" is the title of an exhibition in Berlin from February 12 to March 12 under the auspices of the Empress Frederick House for Graduate Medical Affairs. Here, for the first time in Germany, physicians have made a public debut in the domain of art. Heretofore many doctors have been known to be endowed with musical and literary talents, a number of doctors have been known who were writers and poets, and there are doctors' orchestras in Berlin, Vienna and Hamburg which have a good reputation. But nothing much has been known with regard to the extent to which physicians are active in the arts of painting and sculpture. Surprisingly, the jury of the exhibition was called on to choose from among 600 works of various kinds, including a number of carvings and chiseled forms. Among the 140 pieces selected for the exhibition, every genre, medium and technic was represented from the woodcut to the etching, from the small aquarelle, through the pastel and tempera to large-scale painting in oil, as well as wood carving and bronze casting. As many sided as the artistic aspect of the exhibition is its personal side. All types of medical men are represented, from the student to the ordinarius, from the country practitioner to the metropolitan specialist. That neurologists possess a special predilection for the brush and palette becomes evident at a first perusal of the catalogue. Virtually all the entries can be considered above the level of average amateur performance and among them are to be found some really fine works of art.

ITALY

(From Our Regular Correspondent)

March 18, 1939.

Congress of Roentgenology

The thirteenth National Congress of the Società Italiana of Medical Roentgenology took place recently at Bari with Professor Pietro as president.

HYSTEROSALPINGOGRAPHY

Prof. Armando Rossi, speaker on the first topic, dealt with female sterility, ectopic pregnancy and abortion. He pointed out the clinical and social importance of hysterosalpingography, especially in relation to dermography. He discussed the various causes of female sterility (congenital malformations, insufficient development, tumors and tubal stenosis) and advised the systematic performance of hysterosalpingography on all women who are sterile during the first year of marriage. The main characteristic of ectopic pregnancy is a special function of the uterus with periodic successive phases of contraction and dilatation, predominance of the phases of dilatation and prolonged phases of contraction. According to him, abortion from the so-called unknown causes may be due to (1) abortigenic causes on which the physician is not informed in the given case, (2) anatomic conditions and functional behavior of the uterus or (3) congenital hypoplasia of the female genitalia. Hysterosalpingography has important indications in prevention and treatment of abortion from demographic, social, clinical and medicolegal angles.

RADIOBIOLOGY OF SKIN

Professor Valenti, speaker on the second topic, said that radium and roentgen irradiations on the skin cause direct lesions to cutaneous cells with consequent temporary arrest of the functions of reproduction of the cell or death from necrosis of the nucleus. In the presence of dead cells the reparation of the basal epithelium takes place either by entrance of normal cells in the involved zone or by compensation of connective cells. If the skin is the seat of repeated irradiations in small doses, such as in the case of roentgenologists, trophic cutaneous alterations take place. The reactions of the skin to radium and roentgen irradiations are different in persons who have been previously treated by the same irradiations than in those who have not. The special behavior of the skin in these cases is due to the allergic factor.

IRRADIATIONS ON MEDIASTINUM

Professor Castronuovo pointed out the importance of roentgenology for the diagnosis and treatment of diseases of the mediastinum as well as other diseases related to physical and

psychic constitution. Roentgen irradiations are indicated in the treatment of bronchial asthma, whooping cough and hypertension..

RHEGMOGRAPHY AND STATIGRAPHY

Professors Cignolini and Gilardoni made demonstrations of an apparatus for rhegmography. The technic is original and has a place which is intermediate between seriography and kymography. Professor Vallebona presented a statigraph. Professors Palmieri and Monari reported a procedure for obtaining photographs of fluorescent screen on small x-ray films. The next congress will take place at Pisa with Professor Duranti presiding.

POLAND

(From Our Regular Correspondent)

April 3, 1939.

The Treatment of Syphilis

The Warsaw dermatologist Dr. Robert Bernhardt reported recently on the effect of treatment in 592 cases of primary and secondary syphilis. He discussed the question whether antisyphilitic treatment could prevent the development of visceral or nervous syphilitic conditions. Every case was observed for not less than ten years unless visceral or nervous involvement had developed earlier. Some of the cases have been observed since 1900; in many the treatment was started before the discovery of Spirochaeta pallida, arsphenamine treatment and serologic tests. Of the 592 patients, 133 were treated exclusively with mercury compounds, forty with arsenicals and twenty-three with bismuth preparations. A combined treatment with arsphenamine and mercury compounds was used for 271, and in 125 cases arsphenamine and bismuth preparations were used.

With mercury compounds alone, the author says that an effective treatment should consist of from six to nine series of rubs with mercuric ointment. Every series lasts from six to eight weeks, the rubs being performed daily for six days a week and the daily dose being increased from 2.5 to 4 Gm. of mercuric ointment. The dose varies with the general condition of the patient; it is reduced if any complication develops in the gums, kidneys or colon or if a fall in body weight is observed. The treatment has to last from three to five years. While the ratio between the number of good and of ill effects obtained with mercuric treatment was 1 to 1.7, no late syphilitic complications were observed in six of seven adequately treated patients.

In the series of patients treated with arsphenamine or neoarsphenamine alone, the ratio between good and ill effects was but 1 to 9. The author says that arsenical preparations act rapidly and effectively as far as symptomatic treatment of present syphilitic manifestations is concerned. As to prevention of later visceral recurrences, however, no evidence of any favorable influence has as yet been shown.

The treatment with bismuth preparations was effective in preventing later syphilitic complications. Eight of nine patients treated exclusively with adequate doses of bismuth for a sufficient period showed no evidence of such complications. In the entire series of patients treated with bismuth preparations the ratio between good and ill effects was 1 to 0.35. An adequate bismuth treatment should last from two to four years and consist of from five to nine series of from eight to ten weekly injections, each containing 0.2 Gm. of metallic bismuth. The patients treated with bismuth seem to be less disposed to later development of neurosyphilis than those treated with other drugs.

Combined treatment with arsphenamine and mercury showed a ratio between good and ill results of 1 to 1.2. The incidence of good effects was higher if the treatment was adequate. This treatment should consist of simultaneous administration of arsphenamine and a mercury preparation. The doses of each drug should not differ from the effective doses administered when the two are given separately. The same is to be said concerning combined treatment with arsphenamine and a bismuth preparation. In this series of cases the ratio between good and ill effects was 1 to 0.78. The results of combined treatment with arsphenamine and mercury and with arsphenamine and bismuth do not differ distinctly.

In conclusion, the author says that arsphenamine has not fulfilled expectations in the prevention of late visceral or nervous manifestations of syphilis.

Relation of Hypoglycemia to Hypotonia

Dr. H. Fiszel published a paper on carbohydrate metabolism in hypotonic states. He focused attention on the striking resemblance of the clinical picture of constitutional hypotonia to hypoglycemic states, which could be observed in hyperinsulinism as well as in hypoglycemia provoked for therapeutic or experimental purposes. Thus constitutional hypotonia seems to be related to hypoglycemic conditions. To throw light on this problem the author studied the blood sugar content in primary and secondary hypotonia, particularly in the glycemic curve before and after oral administration of 50 Gm. of dextrose. The research was carried out with forty patients with primary, i. e. constitutional, hypotonia as well as with subjects with secondary hypotonia, i. e. hypotonia due to such factors as heart failure and infectious diseases. There was a great difference between the shapes of the curves obtained in the two conditions. In comparison with normal records, the curve in constitutional hypotonia has been characterized by an initial subnormal level of blood sugar, an early and relatively low peak and a rapid drop, with a final deep hypoglycemic depression. In secondary hypotonia too initial hypoglycemia was present, but the peak of the curve was much higher and delayed and no final subnormal depression was shown. In some instances, in which the clinical differentiation between primary and secondary hypotonia was difficult, the curve had a medium or fairly normal shape.

The author says that there is in constitutional hypotonia a tendency to an absolute increase in the tonus of the vagal system and of the endocrine glands synergistic with insulin, while in secondary hypotonia the increase in the tonus of the vagus-insulin is relative and due to a decrease in the tonus of the sympathetic adrenal system. Further research should show whether the glycemic curve might aid in differentiating between primary and secondary hypotonia.

A Rheumatism Institute

The health authorities have decided to establish a Polish rheumatism institute to insure research on rheumatism and postgraduate education of physicians in rheumatology. There has been as yet no such institution in Poland.

Marriages

FREDERICK RUSSELL HASELTON, Lieutenant Commander, U. S. Navy, to Mrs. Ebba Hovey Hall at Great Lakes, Ill., April 14.

DALLAS NORMAN THOMPSON to Mrs. Emmie de L. Hambaugh Robinson, both of Elberton, Ga., March 18.

ROLF ANDREAS QUISLING to Miss Marie J. Sweeney, both of Madison, Wis., in Dubuque, Iowa, March 16.

SAUL RICHARD KAPLAN, Brooklyn, to Miss Reva Syril Stein of Fayetteville, N. C., March 12.

MICHAEL A. SALEEBY, Dillon, S. C., to Miss Mary G. Saleeby of Florence, March 22.

MORTON SELWYN KAUFMAN to Miss Janice Loeb, both of Washington, D. C., March 30.

RICHARD O. FLETT to Miss Alfreda Sharpe, both of Detroit, in Buffalo, March 21.

Deaths

William Edward Morgan, Chicago; Chicago Medical College, 1882; prosector in anatomy, 1881-1882, demonstrator in anatomy in 1885, demonstrator in operative surgery in 1887, professor of surgical anatomy and operative surgery in 1892, professor of clinical surgery, 1902-1920, and in 1924 was appointed medical counselor at his alma mater; professor of general and clinical surgery, Loyola University School of Medicine, 1920-1929, and since 1929 professor emeritus; past president of the Chicago Surgical Society; formerly on the staffs of the Mercy Hospital, Englewood Hospital, German Deaconess Hospital, Provident Hospital, Washington Park Hospital and the Jackson Park Hospital; aged 80; died, April 25, of chronic myocarditis and arteriosclerosis.

Arthur Vallée, Quebec, Que., Canada; Laval University Faculty of Medicine, Quebec, 1905; secretary and professor of pathological anatomy at his alma mater; from 1908 to 1912 director of the Municipal Laboratory, after serving as laboratory head at Hotel Dieu Hospital; in 1916 president of the eighth Congress of French-Speaking Physicians of America; was created a Chevalier of the Legion of Honor by the French Government during the jubilee of King George V and again at the coronation of King George VI.; member of the Royal Society of Canada, French Association for Study of Cancer, Royal College of Physicians and Surgeons of Canada and other medical societies; aged 56; died, January 8.

Leo Steiner, Chicago; Jenner Medical College, Chicago, 1906; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; member of the Illinois State Medical Society; instructor in medicine, 1911-1913, instructor in materia medica, 1913-1914, associate professor of materia medica and therapeutics, 1914-1915, and professor of materia medica and therapeutics, 1915-1916, Bennett Medical College; formerly superintendent of the Illinois Eye and Ear Infirmary; aged 55; died, January 7, of carcinoma of the colon with metastases to the liver.

Arthur Melville Shrady ⊕ New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1893; instructor in physical diagnosis, Jan. 1, 1902, to June 30, 1907, chief of clinic and instructor in hydrotherapy, July 1, 1907, to June 30, 1908, and instructor in hydrotherapy, July 1, 1908, to June 30, 1913, at his alma mater; served in various capacities on the staffs of the Seton Hospital, Harlem Hospital, Herman Knapp Memorial Eye Hospital and the Harlem Eye, Ear and Throat Hospital; aged 69; died, January 14, of heart disease.

Alexander John MacKenzie, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1900; fellow of the American College of Physicians; formerly senior demonstrator in medicine at his alma mater; president of the Ontario Medical Association and past president and councilor of the Toronto Academy of Medicine; served during the World War; for many years physician to the Upper Canada College; on the staff of St. Michael's Hospital; aged 63; died, March 3.

Lewis Cass Tisdale ⊕ Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1901; formerly associate clinical professor of surgery at Marquette University School of Medicine; for many years chief of staff at Misericordia, Deaconess, Mount Sinai and the old Trinity Hospital and a member of the consulting staff of the old Johnston Emergency Hospital; aged 60; died, January 12, of hypertensive cardiovascular disease and cerebral hemorrhage.

John David Thomas, West Rupert, Vt.; University of Vermont College of Medicine, Burlington, 1916; member of the Vermont State Medical Society; served during the World War; on the staffs of the Putnam Memorial Hospital, Bennington, Mary McClellan Hospital, Cambridge, N. Y., Emma Laing Stevens Hospital, Granville, N. Y.; aged 48; died, January 31, of coronary occlusion and arteriosclerosis.

Vard Houghton Hulen, San Francisco; College of Physicians and Surgeons of Chicago, 1887; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1888; in 1911 member of the House of Delegates of the American Medical Association; fellow of the American College of Surgeons; aged 73; died, January 14, of chronic myocarditis and cerebral thrombosis.

William Vaughn Stanfield, Attica, Ind.; Medical College of Indiana, Indianapolis, 1904; bank president; formerly county health officer; served during the World War; at one time member of the city council, county board of health and chairman of the board of health of Attica; aged 62; died, January 7, in the Methodist Hospital, Indianapolis, of coronary thrombosis.

Cassius M. C. Willcox, Kirksville, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; member of the Missouri State Medical Association; served during the World War; formerly county coroner, health officer and county physician, and member of the state legislature; aged 68; died, January 24, of carcinoma of the throat.

Frederick Charles Steinmetz, New York; Columbia University College of Physicians and Surgeons, New York, 1912; member of the American Urological Association; a member of the staff of the department of urology, James Buchanan Brady Foundation of the New York Hospital; aged 52; died, January 22, of heart disease.

John Fulton Roe, Los Angeles; Rush Medical College, Chicago, 1899; fellow of the American College of Surgeons; formerly surgeon to St. Joseph's Hospital, Denver, and chief surgeon to the Denver and Rio Grande Western Railroad System; aged 66; died, January 29, of hypertension and arteriosclerosis.

J. A. E. Beaudoin, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University at Montreal, 1892; formerly governor of the College of Physicians and Surgeons of the Province of Quebec and of Notre Dame Hospital; aged 73; died, January 7.

Frederick Josias Wurtele, North Platte, Neb.; University and Bellevue Hospital Medical College, New York, 1906; member of the Nebraska State Medical Association; served during the World War; aged 61; died, January 17, in the Lincoln (Neb.) General Hospital, of cerebral hemorrhage.

Wilmot Edwin Patterson ⊕ Westbrook, Minn.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1906; past president of the Southwestern Minnesota Medical Society; aged 56; died, January 15, in Slayton, of hemolytic streptococcic throat infection and septicemia.

Charles Joshua Tucker ⊕ Rochester, N. Y.; University of the City of New York Medical Department, 1883; veteran of the Spanish-American War; on the staff of St. Mary's Hospital; aged 79; died, January 25, of hypertensive heart disease and cerebral hemorrhage.

Robert Lee Tye ⊕ McDonough, Ga.; Bellevue Hospital Medical College, New York, 1885; past president of the Henry County Medical Society; aged 73; was drowned, January 8, when his automobile went over a bridge and pinned him down in 3 feet of water.

Lewis Edward Turrentine, Tahoka, Texas; Southwestern University Medical College, Dallas, 1909; member of the State Medical Association of Texas; county health officer; aged 53; died, January 29, in a hospital at Lubbock of acute myocarditis and pneumonia.

Edgar Eginton Stewart Jr., New York; Columbia University College of Physicians and Surgeons, New York, 1936; aged 29; died, January 16, in the Charles Es'Dorn Hospital, Walterboro, S. C., of injuries received in an automobile accident.

Robert Emmett Sylverstein ⊕ Tylertown, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1898; formerly mayor; on the staff of the Tylertown Hospital; aged 71; died, January 2, of heart disease and hypernephroma.

Given Addison Light, Salt Lake City; Georgetown University School of Medicine, Washington, D. C., 1906; member of the Utah State Medical Association; served during the World War; aged 61; died, January 11, of coronary disease.

William Mannen Young, Bloomington, Ill.; Eclectic Medical Institute, Cincinnati, 1897; member of the Illinois State Medical Society; on the staffs of St. Joseph's Hospital and Mennonite Hospital; aged 71; died, January 19, of heart disease.

David W. Reid, Jacksonville, Ill.; Chicago Homeopathic Medical College, 1889; member of the Illinois State Medical Society; on the staff of the Passavant Memorial Hospital; aged 83; died, January 15, of bilateral bronchopneumonia.

Charles Whelan, Washington, D. C.; Medical College of Alabama, Mobile, 1896; a member of the United States Board of Parole, Department of Justice; aged 65; died, January 28, in the Garfield Hospital of cerebral hemorrhage.

Allen Gano Wainright, Tulsa, Okla.; Washington University School of Medicine, St. Louis, 1902; member of the Oklahoma State Medical Association; served during the World War; aged 59; was shot and killed in January.

Louis Severin, Bluffton, Ind.; Miami Medical College, Cincinnati, 1899; past president of the Wells County Medical Society; formerly city and county health officer; aged 68; died, January 23, of a self-inflicted bullet wound.

Alexander Augustus Sizer, Schuyler, Va.; University College of Medicine, Richmond, 1899; member of the Medical Society of Virginia; served during the World War; aged 68; died, January 10, of cerebral hemorrhage.

John J. Carmody, Huntington, Mass.; St. Louis College of Physicians and Surgeons, 1924; served during the World War; aged 60; died, January 20, in the Mercy Hospital, Springfield, of influenza and coronary artery disease.

Le Roy Albert Woodward ⊕ Worcester, Mass.; Tufts College Medical School, Boston, 1914; on the staff of the Harvard Private Hospital; aged 56; died, January 22, of lobar pneumonia and pneumococcic meningitis.

Philippe Richer, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1907; aged 55; was found dead in January of poison, self administered.

John Irwin Taylor, Elizabethtown, Ky.; University of Louisville School of Medicine, 1918; member of the Kentucky State Medical Association; aged 45; died, January 27, in the Baptist Hospital, Louisville, of uremia.

Abraham Benjamin Grossman, Cleveland; Western Reserve University School of Medicine, Cleveland, 1914; served during the World War; aged 49; died, January 10, in Miami Beach, Fla., of coronary thrombosis.

Harry Claucet Payne, Paris, Mo.; University of Missouri School of Medicine, Columbia, 1903; member of the Missouri State Medical Association; aged 59; died, January 12, of carcinoma of the colon with metastases.

Paul Jerome Todd, Canton, China; Kansas Medical College, Medical Department of Washburn College, Topeka, 1902; fellow of the American College of Surgeons; aged 65; died, January 16, of coronary thrombosis.

George W. Middleton, Salt Lake City; University of Louisville (Ky.) Medical Department, 1894; member of the Utah State Medical Association; formerly mayor of Cedar City; aged 72; died, Dec. 3, 1938.

Frank Edward Schram ⊕ Chicago; Chicago College of Medicine and Surgery, 1915; served during the World War; aged 49; died, January 16, in St. Luke's Hospital following an operation for acute appendicitis.

James Bonney Sudduth, Clayton, Mo.; Barnes Medical College, St. Louis, 1904; member of the Missouri State Medical Association; formerly health commissioner; aged 82; died, January 28, of arteriosclerosis.

Clarence A. Wells ⊕ Quincy, Ill.; Missouri Medical College, St. Louis, 1897; aged 68; on the staffs of the Blessing Hospital and St. Mary's Hospital, where he died, January 15, of injuries received in a fall.

Adolph Reinhardt Wittman, Merrill, Wis.; Rush Medical College, Chicago, 1888; formerly mayor, health commissioner and member of the board of education; aged 79; died, January 11, of cerebral hemorrhage.

Alfred Edward Oakes, Elizabeth, N. J.; University and Bellevue Hospital Medical College, New York, 1913; served during the World War; aged 52; died, Dec. 20, 1938, in the Alexian Brothers Hospital.

Hugh Morrow, Patton, Pa.; College of Physicians and Surgeons, Baltimore, 1908; aged 63; died, January 9, in the Miners' Hospital of Northern Cambria, Spangler, of chronic nephritis and myocarditis.

John Shaw Gibson, Gibson, N. C.; University of Maryland School of Medicine, Baltimore, 1905; member of the Medical Society of the State of North Carolina; aged 59; died, January 24, of coronary occlusion.

Darwin Schott, Champaign, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1903; served during the World War; aged 58; died, January 30, in the Burnham City Hospital of cirrhosis of the liver.

Randolph Moore Gilliam, Chicago; University of Virginia Department of Medicine, Charlottesville, 1919; aged 43; died, January 14, in the University Hospital, Charlottesville, Va., of rheumatic heart disease.

Henry Augustus Kling, Flint, Mich.; Eclectic Medical Institute, Cincinnati, 1906; served during the World War; aged 65; died, January 24, in St. Joseph Mercy Hospital, Pontiac, of cerebral hemorrhage.

Abraham Mintz, Newark, N. J.; Rush Medical College, Chicago, 1931; member of the Medical Society of New Jersey; aged 34; died in January at the Presbyterian Hospital of chronic myelogenous leukemia.

Harry Webster Powers, Amherst, Ohio; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1886; aged 74; died, January 16, of cerebral hemorrhage.

Richard George Tietze Jr. ⊕ Winter Haven, Fla.; Long Island College Hospital, Brooklyn, 1936; aged 28; died, January 5, in a hospital at Lakeland of injuries received in a motorcycle accident.

James Carroll Patterson ⊕ Marengo, Iowa; John A. Creighton Medical College, Omaha, 1910; past president of the Iowa County Medical Society; aged 58; died, January 18, of lobar pneumonia.

Edward Elisha Pierce, Exeter, R. I.; Harvard University Medical School, Boston, 1890; member of the Rhode Island Medical Society; aged 82; died, January 28 in Providence, of coronary occlusion.

William Cabell Rives, Washington, D. C.; University of the City of New York Medical Department, 1877; member of the Medical Society of the District of Columbia; aged 88; died, Dec. 17, 1938.

Charles F. Marston, Providence, R. I.; College of Physicians and Surgeons, Baltimore, 1888; aged 74; died, January 3, in the Rhode Island Hospital of coronary thrombosis and prostatic hypertrophy.

Henry Justin Roddy Jr. ⊕ Lancaster, Pa.; Jefferson Medical College of Philadelphia, 1925; served during the World War; aged 41; died, January 11, of illuminating gas poisoning, self administered.

Theodore Dodd ⊕ Steubenville, Ohio; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; on the staff of the Gill Memorial Hospital; aged 71; died, Dec. 22, 1938.

Edwin Tracy Rhodes ⊕ York, Pa.; University of Rochester School of Medicine, 1935; aged 28; died, January 26, in the Bryn Mawr (Pa.) Hospital of influenza, pneumonia and encephalitis.

Joseph Marshall Reed, Pittsburgh; Medico-Chirurgical College of Philadelphia, 1904; served during the World War; aged 61; died, January 30, in St. Petersburg, Fla., of cerebral hemorrhage.

George L. McLaughlin, Chicago; Rush Medical College, Chicago, 1900; member of the Illinois State Medical Society; aged 63; died, January 18, in Rochester, Minn., of carcinoma of the colon.

George B. McCutcheon, Detroit; Michigan College of Medicine, Detroit, 1883; Detroit Medical College, 1885; aged 81; died, January 13, of hypertrophy of the prostate and fracture of the hip.

Robert B. South, Rea, Pa.; Baltimore Medical College, 1896; aged 72; died, Nov. 21, 1938, in the Mercy Hospital, Pittsburgh, of hypertensive heart disease, nephritis and diabetes mellitus.

Lyle F. Hansbrough ⊕ Front Royal, Va.; University of Virginia Department of Medicine, Charlottesville, 1901; aged 59; died, January 22, of acute nephritis and hypertensive heart disease.

Charles A. Paddock, Portland, Ind.; Physio-Medical College of Indiana, Indianapolis, 1901; formerly mayor, city and county health officer; aged 64; died, January 18, of heart disease.

Clark L. Phillips, Superior, Neb.; University of Nebraska College of Medicine, Omaha, 1912; aged 53; died, January 28, at the Hastings State Hospital, Ingleside, of coronary thrombosis.

Frederick Almon Steele, Half Moon Bay, Calif.; University of Vermont College of Medicine, Burlington, 1884; aged 74; died, January 18, of prostatic hypertrophy with obstruction.

Bernhard Kugelmann ⊕ New York; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1923; aged 38; died, Dec. 24, 1938, in the Wickersham Hospital.

Robert Nathaniel Cox, Verdi, Va.; Bennett Medical College, Chicago, 1914; aged 60; died, January 28, in the Holston Valley Community Hospital, Kingsport, Tenn., of pneumonia.

Fred L. Murdock, Manhattan, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1905; also a dentist; aged 72; died, January 12, of diabetes mellitus.

Clark Edwin Sargent, Detroit; Rush Medical College, Chicago, 1895; aged 71; died, January 25, in the Providence Hospital of uremia, diabetes mellitus and chronic nephritis.

Ubert Conrad Vincent, New York; University of Pennsylvania School of Medicine, Philadelphia, 1918; formerly on the staff of the Harlem Hospital; aged 46; died, Dec. 18, 1938.

John Jay Waite, Deerfield, Ohio; Cleveland Homeopathic Medical College, 1900; member of the Ohio State Medical Association; aged 78; died, January 26, of heart disease.

Dorothea Willson Dekau Palamountain, Oakland, Calif.; Cooper Medical College, San Francisco, 1905; formerly physician for the city public schools; aged 57; died, January 3.

Owen G. Blackwell, Pine Bluff, Ark.; Tulane University of Louisiana School of Medicine, New Orleans, 1901; member of the Arkansas Medical Society; aged 65; died, January 6.

Charles Willis Duffin, Guttenberg, Iowa; Rush Medical College, Chicago, 1881; member of the Iowa State Medical Society; aged 79; died, January 19, of coronary sclerosis.

Donald Walter McKay, Nelson, B. C., Canada; University of Toronto Faculty of Medicine, 1918; L.R.C.P., London, M.R.C.S., England, 1922; aged 44; died, Dec. 28, 1938.

Earnest L. Meredith, Omaha; Barnes Medical College, St. Louis, 1909; aged 54; died, January 27, in the Immanuel Hospital of Hodgkin's disease and bronchopneumonia.

John Mair Robertson, Vancouver, B. C., Canada; L.R.C.S., Edinburgh, Scotland, 1882; University of Glasgow Medical Faculty, 1883; aged 80; died, Dec. 28, 1938.

James N. Kirk, Eagle Lake, Maine; Jefferson Medical College of Philadelphia, 1889; aged 71; died, January 16, in Roanoke, Va., of perinephric abscess and stone.

Charles Campbell Stanton, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1902; aged 60; died, January 11, of a self-inflicted bullet wound.

John Forster Orr, Chicago; Victoria University Medical Department, Coburg, Ont., Canada, 1886; aged 80; died, January 8 of myocarditis and arteriosclerosis.

Martin Lawson Smail ⊕ New London, Conn.; University of Vermont College of Medicine, Burlington, 1893; aged 71; died, January 21, of chronic myocarditis.

Matthew Reed McBurney, Los Angeles; Hahnemann Medical College and Hospital of Philadelphia, 1899; aged 68; died, January 15, of chronic myocarditis.

John Tazewell Nolen ⊕ Poca, W. Va.; University College of Medicine, Richmond, 1910; aged 54; died, January 13, in a hospital at Charleston of myocarditis.

Edward Olinger Wilson, Madison, Neb.; John A. Creighton Medical College, Omaha, 1909; aged 59; died, January 9, in Bluebell, S. D., of heart disease.

Allard S. Lewis, Green Sea, S. C.; Baltimore University School of Medicine, 1897; aged 68; died, January 17, of coronary thrombosis and hypertension.

Peter Wesley Byers, Arcanum, Ohio; Medical College of Ohio, Cincinnati, 1900; formerly member of the board of education; aged 74; died, Dec. 25, 1938.

Benners Simpson Smith, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1912; aged 52; died, January 3, of chronic nephritis.

Joseph Scholfield Brooks, San Francisco; Hahnemann Hospital College of San Francisco, 1894; aged 66; died, January 22, of intestinal obstruction.

Frederick F. Zelle ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1906; aged 59; died, January 19, in the De Paul Hospital.

Durand W. Youngblood, Greenville, S. C.; College of Physicians and Surgeons, Baltimore, 1886; aged 81; died, January 9, of coronary occlusion.

John F. Courtney, Joliet, Ill.; Chicago Homeopathic Medical College, 1894; member of the Illinois State Medical Society; aged 77; died, Dec. 27, 1938.

William Henry Vose, Long Beach, Calif.; Colorado School of Medicine, Boulder, 1897; served during the World War; aged 69; died, January 14.

John Mathew Wells ⊕ Bristow, Okla.; University of Nashville (Tenn.) Medical Department, 1909; aged 63; died, January 25, of pneumonia.

Thomas L. Nutter, Belle, W. Va.; Louisville (Ky.) Medical College, 1898; aged 66; died, January 16, in a hospital at Charleston of myocarditis.

Placido Venuto ⊕ Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1934; aged 34; died, January 15, of bronchopneumonia.

William H. Mudge, Port Tampa City, Fla. (licensed in Florida in 1903); aged 77; died, January 21, of cerebral hemorrhage and hypertension.

Charles S. Stewart, Amite, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1884; aged 78; died in December 1938.

Perry Norton Whitney, Arkansas City, Kan.; Eclectic Medical Institute, Cincinnati, 1890; aged 82; died, Dec. 6, 1938, in the Mercy Hospital.

H. Orrahood, Big Isaac, W. Va. (licensed in West Virginia, by years of practice); aged 90; died, January 29, of cerebral hemorrhage.

George W. Patchen, Melbourne, Fla.; Chicago Homeopathic Medical College, 1893; aged 67; died, January 8, of coronary thrombosis.

Clinton C. Hall, North East, Pa.; College of Physicians and Surgeons, Baltimore, 1884; aged 79; died, January 9, of coronary thrombosis.

Armon C. Spooner, Spirit Lake, Idaho; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1905; aged 63; died, Dec. 31, 1938.

Samuel Perrin Rich, Tacoma, Wash.; Cincinnati College of Medicine and Surgery, 1902; aged 64; died January 11, of coronary sclerosis.

Robert John Kincaid, Mars Hill, Maine; Medical School of Maine, Portland, 1894; aged 75; died, January 1, of cerebral hemorrhage.

Eugene Y. Willis ⊕ Culpeper, Va.; Medical College of Virginia, Richmond, 1903; aged 60; died, January 5, of cerebral hemorrhage.

Albert Edward Webb, Salem, Mass.; Tufts College Medical School, Boston, 1910; aged 64; died, January 11, in the Salem Hospital.

James Barna Witherington, Munford, Tenn.; Vanderbilt University School of Medicine, Nashville, 1878; aged 84; died, Dec. 22, 1938.

Jacob C. Fults, Waterloo, Ill.; St. Louis Medical College, 1885; aged 77; died, January 30, at Shelbyville, Ind., of a cerebral hemorrhage.

Taylor Russell Baldridge, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1888; aged 77; died, January 22, of cerebral hemorrhage.

William O'Connor, Paterson, N. J.; Albany (N. Y.) Medical College, 1914; aged 65; died, January 30, of cerebral hemorrhage.

Raymond Reed Roberts, Lawrenceville, Ga.; Emory University School of Medicine, Atlanta, 1922; aged 42; died, January 5.

James William McAdow, De Kalb, Mo.; University Medical College of Kansas City, 1908; aged 55; died, January 8, of teratoma.

Arthur Henry Orcutt ⊕ Oakland, Calif; University of Illinois College of Medicine, Chicago, 1918; aged 46; died, Dec. 12, 1938.

William Gibson Hulme, Danville, Ga.; Hospital Medical College, Atlanta, 1910; aged 49; died, January 7, of angina pectoris.

Hugo von Dessauer, Brooklyn; Long Island College Hospital, Brooklyn, 1896; also a pharmacist; aged 60; died, January 2.

John Rossiter Gleason, Cleveland Heights, Ohio; Homeopathic Hospital College, Cleveland, 1889; aged 77; died, January 30.

Fred S. Brown, Oklahoma City; Missouri Medical College, St. Louis, 1893; aged 65; died, January 16, of cerebral hemorrhage.

David Caw Wilson, Park Hill, Ont., Canada; Trinity Medical College, Toronto, Ont., Canada, 1899; died, Dec. 19, 1938.

John M. Fewkes, Rio Grande City, Texas; Hospital College of Medicine, Louisville, Ky., 1895; aged 70; died in January.

Henry H. Imhofe, Baltimore; Baltimore University School of Medicine, 1893; aged 70; died, January 2, of gastric ulcer.

Roscoe Granville Blanchard ⊕ Dover, N. H.; Medical School of Maine, Portland, 1884; aged 85; died, January 12.

William James Stevenson, Aurora, Ont., Canada; Trinity Medical College, Toronto, 1887; aged 74; died, January 22.

Fred Eugene Ladd, Antrim, N. H.; College of Physicians and Surgeons, Boston, 1902; aged 67; died, Dec. 22, 1938.

Alice Lyon Fitch, Stratford, Conn. (licensed in Connecticut in 1901); aged 60; died, January 30, of arteriosclerosis.

William H. Martin, Carlisle, Ky.; University of Louisville Medical Department, 1889; aged 73; died, January 27.

Guy Frank Rogers, Los Angeles; Toledo (Ohio) Medical College, 1897; aged 65; died, Dec. 29, 1938.

Correspondence

SULFAPYRIDINE

To the Editor:—The February 11 issue of THE JOURNAL contains two original articles dealing with a clinical trial of sulfapyridine, an editorial comment, a report to the Council on Pharmacy and Chemistry, as well as a letter in the correspondence columns. Because my contributions to this subject are generously acknowledged and quoted, you will perhaps allow me space to correct one or two misquotations, as well as to comment on some of the conclusions.

I would refer you in the first place to Dr. Long's, in many ways admirable but nevertheless somewhat pragmatic, pronouncement to the Council on Pharmacy and Chemistry (p. 538). I am there said to have "stated without giving experimental detail that sulfapyridine was also an active chemotherapeutic agent in the treatment of staphylococcic infections." The reference given is to my Bradshaw lecture to the Royal College of Physicians, which in its published form contains two protocols concerning staphylococcic infections, the one detailed and the other composite. Dr. Long also quotes me as stating "that in experimental infections the drug acts by bringing about degenerative changes in the capsular material of the pneumococcus." In the publications to which reference is made, I have gone no further than to record that capsular changes are found during the course of a treated experimental infection. I have most carefully refrained from judging the significance of this capsular change until I had made a considerable study. My conclusions have lately been published (McIntosh, James, and Whitby, L. E. H.: *Lancet* **1**:431 [Feb. 25] 1939). I am surprised that Dr. Long has been unable to confirm my observation "that mice infected with pneumococci and treated with sulfapyridine are immune on recovery to infection with the homologous organisms." This phenomenon, first observed by Buttle (*Proc. Roy. Soc. Med.* **31**:154 [Dec.] 1937) with sulfanilamide and pneumococci, has in my own hands been demonstrated so frequently and with such constancy that it has formed the basis for observations concerning the mode of action of sulfanilamide derivatives.

It is unfortunate that Dr. Long's deductions should precede the publication of his experimental protocols; without these one can neither make extensive comment nor criticize the technic on which his conclusions are based. But, as fair comment, one may say that if, with the technic employed, this immunity phenomenon to pneumococci has not been observed, then the remaining experimental work, with its tepid conclusions as to the activity of sulfapyridine, may perhaps also be explained by differences in technic.

I submit that my own experimental results, which show that sulfapyridine is vastly superior to sulfanilamide in the treatment of experimental pneumococcic infections, which results have been completely confirmed by Fleming's in vitro work (*Lancet* **2**:74 [July 9], 564 [Sept. 3] 1938), and that the word "vastly" is a much more accurate description than that given by Dr. Long, who admits merely that sulfapyridine is "somewhat superior." Were Dr. Long's estimate correct, then during the three years that sulfanilamide has been widely used there should surely have been more than a mere handful of successes (usually type III) claimed for sulfanilamide in pneumococcic infections. As it is, during the mere nine months in which sulfapyridine has been available in limited amounts there have been clearcut reports concerning its effectiveness in the clinical field, and these have been made by competent observers in England, Africa and America; the two articles in your issue of February 11 are admirable examples.

The letter of Drs. Bullowa, Plummer and Finland (p. 570) opens with a ponderous warning concerning the futility of "many agents, chemical, physical and biologic, that have been recommended for the treatment of pneumonia." So far as I am aware, few if any of the "recommendations" quoted in the list have been based on extensive experimental work giving consistent results; such remedies cannot, therefore, justifiably be bracketed with sulfapyridine. The same letter contains a special plea for the continued use of serum therapy. In relation to this point, a paragraph in the original article of Drs. Flippin, Lockwood, Pepper and Schwartz (p. 531) contains the following significant statements: "Several patients who had received large doses of serum without apparent effect were given sulfapyridine and recovered," and "We instituted treatment . . . regardless of complications or the apparent terminal condition." The successes claimed for serum would be greatly altered by this test, for it is well known that a critical result with serum can be expected only when the patient is treated in a satisfactory stage of the disease.

The United States of America can provide a large amount of material for assessment under controlled conditions. It is earnestly to be hoped that further trials with sulfapyridine will produce the consistent clinical results that have already been reported from America.

LIONEL E. H. WHITBY, M.D. (CAMB.), F.R.C.P. (LOND.)
Bland-Sutton Institute of Pathology,
Middlesex Hospital, London, W. 1.

To the Editor:—I am sorry that Dr. Whitby has taken exception to parts of the report which I made to the Council on Pharmacy and Chemistry concerning the experimental and clinical status of sulfapyridine (THE JOURNAL, February 11, p. 538). I have no desire to enter into a controversy with him over our respective views on the experimental effects of sulfapyridine, as such a course wastes time and effort and rarely serves a useful purpose. However, since Dr. Whitby feels that he has been misquoted, both as to the content of his work and as to the interpretations which he has derived from certain of his investigations, courtesy requires an answer.

A rereading of Dr. Whitby's Bradshaw lecture (*Lancet* **2**:1095 [Nov. 12] **1938**) still leads me to the belief that "experimental detail" is lacking in his report concerning the therapeutic efficiency of the drug in staphylococcic infections in mice. It is well known that mice are quite resistant to experimentally produced staphylococcic infections, and while protocols of the results of experiments are given in this paper there is no mention of the origin of the strain of staphylococcus or the route or method of inoculation employed. Without this information a repetition of his experiments would be impossible.

Dr. Whitby's second point has some justification in that, although he wrote "the organisms showed degenerative capsular changes," he did not state that "the drug acts by bringing about degenerative changes in the capsular material" but said: "It [the drug] appears to exert a definite action upon the pneumococcus capsule" (*Lancet* **1**:1210 [May 28] 1938). Apparently I interpreted his remarks too literally on this point.

As I mentioned before, I have not been able to confirm Dr. Whitby's observation regarding the development of immunity in mice infected with pneumococci and treated with sulfapyridine. In the limited space allowed me for my special article I did not go into any explanation for this but, as he surmises, it can be attributed to differences in technic—or rather in the strains of pneumococci employed in the two laboratories. The strains used in my laboratory are not only highly virulent but are also rapidly invasive. With our type I strain the inoculation of one or two organisms causes the death of a mouse within twenty-four hours. Dr. Whitby's strain seems almost as virulent, in that his inoculation of five organisms generally killed control mice, but the average survival time of such animals was 3.3 days. This longer survival time evidently permits Dr. Whitby to use much larger inoculums and still get survivals in mice treated with large doses of sulfapyridine. These surviving

mice, having received a larger dose of antigen (pneumococci) than ours, may well be immune to homologous reinfection. The smaller inoculums of pneumococci used to infect our mice do not produce immunity in the surviving animals.

In our experience with the highly virulent and rapidly invasive strains, it has been difficult to obtain an appreciable number of surviving mice even though treatment was begun immediately after the infection and was continued intensively over a period of seven days. Out of 115 mice infected with about a thousand type I pneumococci each and treated with sulfapyridine, only seven survived, and while the life of mice infected with types II and III pneumococci and treated with the drug was prolonged, none survived. Hence in our hands sulfapyridine has been "somewhat superior" to sulfanilamide in the treatment of pneumococcic infections in mice and not "vastly" superior.

PERRIN H. LONG, M.D.,
The Johns Hopkins Hospital,
Baltimore.

FUNGOUS INFECTIONS TREATED BY IONTOPHORESIS OF COPPER

To the Editor:—The article "Fungous Infections of the Hands and Feet Treated by Iontophoresis of Copper" by Haggard, Strauss and Greenberg, in the April 1 issue of THE JOURNAL interests me. May I comment regarding the evidence on which their report is based? The authors neglect to prove that the cases they cite are of fungous origin and, by inference, must consider an exact mycologic diagnosis of their cases to be unimportant. Assuming that an accurate clinical diagnosis of dermatophytosis was possible in every instance, the reader is still left in doubt as to the species of fungus responsible. A report on the treatment of pneumonia in which the signs of rapid breathing, fast pulse and fever were the only reported diagnostic signs would probably be considered somewhat archaic. It is known that there is a wide variation in the therapeutic response to medication of the superficial fungous diseases according to the species of infecting micro-organism. Many cases of acute eczematoid eruptions of the hands and feet (fungous and nonfungous) respond to conservative measures, such as intermittent baths of potassium permanganate (1:3,000), superficial roentgen therapy in fractional doses and the application of bland dusting powders. When treatment of such cases is given in this way the time for apparent cure will be found to compare favorably with the average time of more than five weeks required by the authors in their reported series. Acute dermatophytosis is often overtreated, and keratolytics or fungicides used in strong concentration may produce secondary eczematization. The authors admit that their study has not been adequately controlled. Is it not trite to inquire why they should desire to publish their observations when they are incomplete? Even a preliminary report in which they say they have demonstrated that iontophoretic administration of copper causes response in dermatophytosis of the hands and feet should contain laboratory proof of the existence of an infection, cultural determination of the species of pathogenic fungus, evidence that other treatment —such as wet soaks of potassium permanganate—would not do as well, and negative laboratory results when the patient is considered cured. The degree of positive reaction, or the presence of a negative reaction to trichophytin, would also be of value and interest. Had the selection of cases included infections due to Trichophyton purpureum (in which there is no likelihood of spontaneous cure), the evaluation of the specific fungicidal effect of iontophoresis of copper might have been more fairly determined. The method may be valuable, but a report such as this does not leave this reader unduly impressed with its specific fungicidal effect. Pathogenic fungi are rarely found on normal skin. This is borne out by the work of Downing, Nye and Cousins (whose article the authors quote but could hardly have read carefully) and of other investigators. There are numerous saprophytes on normal skin, but these have no place in a discussion on dermatophytosis.

GEORGE M. LEWIS, M.D., New York.

"TRICHINOSIS"

To the Editor:—The editorial on trichinosis (THE JOURNAL, March 18, page 1074) by supplementing other efforts to emphasize the prevalence of trichinous infestations, will do good, making the profession more keenly aware of the possibility of this diagnosis. Since it may be interpreted as exaggerating the situation, it may do harm by delaying the control of the condition by rational methods. The industries concerned in hog raising and the marketing of pork products are now being approached by means of conferences to adopt some voluntary program of control.

The editorial fails to discriminate between minor degrees of infestation, which are to be shown post mortem only by refined technics, and the clinical entity trichinosis. The demonstrated high incidence of trichinous invasion does argue a potential menace of large proportions, but the small number of reported cases of trichinosis furnishes an argument for those who wish to believe that most of these invasions are of little importance. The estimate in the article of "48,000,000 cases of trichinosis" may readily be interpreted by those so minded as a reductio ad absurdum of the argument for the existence of a serious menace. The validity of applying maximum figures to the entire country also may well be questioned.

As a minor point, which nevertheless does have a bearing on the significance of the maximum figures of Evans, the misstatement regarding technics may be cited. The press preparation method is in reality the "old method," in use for some fifty years, while the digestion-Baermann technic is relatively recent. Again, Evans's use of the combined technics is no innovation, since the determinations at the National Institute of Health were made by the combined methods. Evans's higher figures, unless indeed they are due to the examination of a greater number of skeletal muscles per case or to the error incident to a relatively small sample, would appear therefore to reflect merely a higher local incidence, from which the derivation of country-wide figures would not be justified.

Believing as I do that many clinical cases of trichinosis fail of recognition, I regard the editorial as a step in the right direction of increasing professional awareness.

L. R. THOMPSON, M.D., Washington, D. C.
Director, National Institute of Health.

"PHYSIOLOGY OF THE BRAIN STEM"

To the Editor:—In the issue of January 21, page 267, of THE JOURNAL I see that the review of my monograph "Beiträge zur Physiologie des Hirnstammes" (contribution to physiology of the brain stem) contains a serious error. This review ascribes to me the opinion that the dampened and interrupted direct current selectively stimulates the fibers and centers of the autonomic system. Actually, I have demonstrated, and have also so described it, that by the interrupted (pulsating) direct current with dampened potential fluctuations the stimulus thresholds of the animal and of the autonomic systems are brought nearer to each other. The incorrect statement in the review is misleading to the neurophysiologist and neurologist, and an entirely impossible point of view is ascribed to me.

PROF. DR. W. R. HESS,
Rämistrasse 69,
Zurich, Switzerland.
Director, Physiologisches Institut
der Universität Zürich.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

PHYSICAL FITNESS INDEX TESTS

To the Editor:—What is considered the validity of the physical fitness index tests? In a review of recent strength-testing literature, Frederick Rand Rogers, Ph.D., made the following statement: "That physical educators will be called on more and more to increase pupils' health is revealed by each new report of conditions in the medical field. The plain fact is that physicians, nurses, public health services and hospital organizations are not now keeping abreast of the nation's health problems. Even if they were, they still would only serve 2 to 3 per cent of the population, chiefly preventing these from losing their lives before reaching nature's appointed span. Who is to care for the 30 or 40 per cent whose health is regularly below normal, and steadily slipping down the scale, if not physical educators? And what is health? . . . This is abundantly muscular power and coordination, which are measured most objectively, reliably, economically and interestingly to subjects by the simplest forms of strength tests." Is this a view which physical educators generally will accept and put into practice? A notice in the *Bulletin* of the Indiana State Board of Health for October 1938 was as follows: "Frederick Rand Rogers, director of physical education at Boston University, has written us as follows: 'This is to report that a Boston manufacturing concern, the DuWard Company of 51 Cornhill, Boston, is now experimenting with new designs for physical fitness testing instruments far superior to those now on the market, which they claim they can sell at greatly reduced prices. For example, the new back and leg dynamometer at less than $100 (the present instrument is listed at $200 and sold at $160-$180). As you know, the chief stumbling block to the use of P. F. I. tests has been the exorbitant cost of dynamometers; therefore we are overjoyed at this new development. This note is a warning; if you know of any one about to order dynamometers, have them wait for the new instruments, or at least until we have a chance to examine and recommend or disapprove them.'" What do you think of this? Finally, I should like to ask what steps the family physician should take when the tests show a low status.

M.D., New York.

ANSWER.—[This question has been referred to workers in the field qualified to express opinions on the subject. The answer is based on their combined views.]

This question revolves around the validity of interpreting the degree of muscular strength as a definite reflection of physical fitness. Certainly even though a patient shows high muscular ability in a test it does not follow that his entire physical condition is definitely established. The human body is too complicated to attempt a diagnosis of physical condition by muscular strength alone; furthermore, it is quite generally conceded by students of the subject of physical fitness that performance tests are not as useful and as discriminating in the estimation of physical condition as the nonperformance tests. All strength tests are performance tests and hence require the conscientious cooperation of the examinee. In connection with the statement made by Rogers that "'the capacity of an individual for work is a useful measure of his health'" it may well be asked "What kind of work?" Most individuals today are not called on for great efforts of muscular power. Physical fitness after all is the ability to adjust to the environment and is related quite as much to the countless chemical and physical processes continually taking place as to the ability of muscles to do work.

The physical fitness index test, or the Rogers test, came into use during the early years of the present vogue for what is called "tests and measurements in physical education." In fact, so widely has this test spread in elementary and in secondary schools that it is being put to the following uses in Brookline, Mass.: (1) as the basis for the physical education activities program prescribed individually for every pupil, (2) as a guide to the evaluation of teaching procedures, (3) as a yardstick against which to consider academic load (the physical fitness index purports to determine not only a child's capacity for physical activity but "to a significant degree also his capacity for mental endurance"), (4) as a criterion by which the nutritional status and health habits may be judged, and (5) apparently as a check on the adequacy of the medical examination. The school physician is without laboratory facilities, including x-ray examinations, blood tests and determinations of the basal metabolism. The physician presumably therefore misses certain important conditions affecting physical fitness. The impression one gathers is that the physical fitness index is a tool of superior diagnostic value. Armed with this tool the physical educator, "cognizant of all defects," is now being a guide to the doctor, the school nurse, the classroom teacher and the parent (Hines, Thomas H.: A New Emphasis on Health, *J. Health & Physical Education* **10**:20 [Jan.] 1939). On a priori reasoning alone, the physical education profession must be considered bold indeed to presume serious diagnostic significance inherent in a test administered at the rate of "about a minute per pupil for corps of testers." No physiologist would be willing to say that physical fitness can be judged primarily on the basis of strength, when strength is measured by a battery of tests involving single, maximal efforts. Dynamometer tests are notoriously subject to profound variations from psychic causes alone. Strength probably fluctuates moderately as all biologic functions do. What its normal limits of variation are for the Rogers strength test has never been satisfactorily studied. No valid test of physical fitness can disregard the inclusion of a direct or indirect estimate of the response of the cardiovascular respiratory system to measured work. If instead of dynamometer tests the Rogers battery measured the "staying power" of the major big muscle groups, the load, speed, duration and rate of doing work being controlled, its score would have vastly more value. A battery of tests composed of single maximal pulls on a dynamometer certainly does not indicate a child's "capacity for sustained physical activity or endurance."

The following general criticism of the whole test and measurement program prevents taking its results seriously: 1. The instruments used are meticulously calibrated. 2. The technic of the administration of the tests is carefully taught and the reliability of each operator is particularly measured. 3. The subject, however, is handled as a robot, unaffected by meals, fatigue or psychic disturbances. There is no regard for the fundamental rule that in all human research one should begin with a subject in an essentially "basal" condition and then carefully control the environment in which the tests are administered. 4. The data are subjected to involved statistical analyses and the numbers derived uncritically accepted whether there is sense behind the variables being related or not. Statistical methodology has taken the place of reason. 5. There is yet to be seen any evaluation of physical education fitness tests in a physiologic sense or any discussion of the possible mechanism whereby defects (the wen with the cancer beneath it) may be logically thought to modify physical fitness.

It may be safely concluded that current scientific opinion cannot grant that physical fitness can be deduced from one set of measurements alone or that muscular strength is either an accurate or a valuable index of physical fitness. (If it were, why is it that women at practically all ages have a longer life expectancy than men?) The skeletal muscle might be in good shape while there was difficulty impending in the smooth muscle of the viscera. Of all measurements, those of muscle might be considered the poorest. Emotional states determine their energy output in a large measure, and this is a serious objection. Positive performance tests are notoriously hard to control. Devotion to one test and the advice that all others be discarded for experimental purposes when associated with advertisements for $100 dynamometers do not lend credence to the scientific nature of the studies reported.

SPHENOPALATINE NEURALGIA AND STELLATE GANGLION

To the Editors:—What information can you give me about the stellate ganglion especially in relation to sphenopalatine neuralgia?

A. L. LANGHORST, M.D., Elgin, Ill.

ANSWER.—Sphenopalatine neuralgia was first observed clinically by Sluder in 1920. He stated that the sphenopalatine ganglion could include some cells which were sensory or afferent in function. The ganglion itself, located deep in the sphenopalatine fossa, was known to receive both preganglionic and sympathetic fibers, the preganglionic or motor fibers being components of the facial nerve, while the sympathetic fibers were derived from the plexus of the internal carotid artery. It was felt by Sluder that infection from the sinuses might invade the sphenopalatine ganglion and give rise to neuralgia. Recent anatomic studies, however, do not support the opinion that the sphenopalatine ganglion contains afferent ganglion cells or pain fibers.

The stellate ganglion, however, is formed by a fusion of the first and sometimes the second thoracic ganglion with the inferior cervical ganglion of the sympathetic trunk. This is such a long distance away anatomically from the sphenopalatine ganglion that the connections between the two, if there are any, must cover a devious pathway. There is no evidence that they have any clinical connection, although the question presented may have arisen from the fact that alcohol injection or removal of the stellate ganglion has occasionally been performed in an attempt to relieve pain in the face. It rarely occurs that facial neuralgia of unusual type persists after cutting the posterior root of the fifth cervical nerve, thus presumably denervating the

entire side of the face. It is for this type of neuralgia that the stellate ganglion has been removed in the past, in the hope that through vasomotor or secretory changes the persistent neuralgia will be relieved. The operation has not, in general, proved successful, although a few cases have been reported in which relief was obtained. It seems unlikely that this operation has been performed for relief of Sluder's neuralgia, for the neuralgia Sluder originally described is now not accepted clinically. It should be pointed out, nevertheless, that there still are certain obscure types of facial neuralgia the cause of which is not known.

PSEUDOBULBAR PALSY

To the Editor:—A woman aged 62, following a prolonged upper respiratory infection last spring, developed a hypertensive encephalopathy during the summer. This cleared up and aside from general weakness she was as well as could be expected until two months ago, when she suddenly noticed some difficulty in speech, and examination revealed a palsy of the lower part of the left side of the face. There was also dysphagia. The speech difficulty improved quickly and also the facial palsy, but in about two weeks or so it was noticed that there was a weakness on the right side of the face, the dysphagia persisting. However, after about another six weeks there was definite improvement in the dysphagia, and the right side of the face was practically normal, when suddenly she again developed some difficulty in speech and there was again a weakness of the left side of the lower part of the face. The systolic tension varies between 180 and 220 and the diastolic between 100 and 110. Eyeground examination shows evidence of arteriosclerosis, and there are some old small hemorrhages. During the siege of the hypertensive encephalopathy she had marked pain in the lower part of the back and lower extremities and the latter were tender. About two months ago when the first attack of facial palsy was noted she complained of a good deal of pain and tenderness in the right gluteal region. I might also add that when the right facial palsy was noted she complained somewhat later (about two weeks) of weakness in the right hand and upper extremity. This has improved. She also cannot retain urine as well as previously. She wears an upper and lower denture. How would you explain this varying picture, and what would you do?

M.D., New York.

ANSWER.—The observations submitted suggest a syndrome of pseudobulbar palsy. This is usually due to bilateral small hemorrhages or thrombi in either hemisphere of the brain secondary to cerebral arteriosclerosis and hypertension. These lesions involve both the right and left pyramidal tracts in the brain, producing bulbar symptoms by loss of voluntary innervation and not by actual paralysis. Any good textbook in neurology should be consulted for a detailed description of the clinical symptoms. The prognosis is usually unfavorable. The condition may last for years and the symptoms may even disappear for a time. The treatment is entirely symptomatic, depending on the underlying condition (arteriosclerosis and hypertension). Because swallowing is difficult, care in feeding is generally necessary.

HYPERTENSION AND MENOPAUSE

To the Editor:—A woman aged 45, in the menopause, has a hypertension varying from 160 to 200 systolic. All other causes of hypertension have been eliminated; there are no foci of infection, nephritis or arteriosclerosis. In similar cases I have used theelin in oil with excellent results. I tried to use it in this case but her symptoms were aggravated: dizziness, nervousness and pressure. What type of treatment would be indicated?

M.D., Missouri.

ANSWER.—The information given is so meager that it is almost impossible to discuss the therapy adequately. Each instance of hypertensive arterial disease presents a new and different therapeutic problem. It is vitally important to know, for example, the level of the diastolic tension and whether or not it is fixed or variable. One is doubtful also as regards the proof that "there is no nephritis," for the mere absence of proteinuria is often erroneously taken as a criterion of normal kidneys. Thorough study of the renal function is necessary before one can say with certainty that renal functional impairment does not exist. The relative youth of the patient and the variability of the systolic tension suggest an endocrine factor in the etiology of this instance of hypertensive arterial disease but by no means prove it; additional data might well demonstrate an aortic regurgitation as a cause of the systolic hypertension.

Before advising the institution of any therapy, one must urge that additional diagnostic information be acquired. Sources of psychic turmoil must be carefully sought for and judiciously analyzed; anxiety, fear, discouragement and the like are significant factors and, if present, the prolonged use of mild sedation (such as with sodium bromide 0.6 Gm., or 10 grains, thrice daily) is indicated. Of first importance is a determination of the basal metabolic rate; thyroid disturbances are very common at the age of this patient and are often misleadingly masked. In such instances the major rise is in the systolic tension. As mentioned, renal function studies are also desirable and careful blood studies, for anemia is a not uncommon, although most frequently ignored, provoking etiologic factor in hypertension. Should the basal metabolic rate be elevated and/or anemia exist, the therapeutic indications become clear: the correction of these abnormalities. Should these tests yield evidence of normal conditions, endocrine therapy is worthy of trial. The gonadotropic extract from pregnancy urine, antophysin (Winthrop), follutein (Squibb), A. P. L. (Ayerst) or antuitrin-S (Parke, Davis) may be of value. Of greater importance, however, is the general dietary and hygienic management, which must include an adequately liberal fluid intake, a balanced diet and avoidance of excesses of condiments and spices. Proteins should not be radically restricted, for the problem is not to treat the disease but to treat the patient who has the disease, and prolonged restriction of protein intake depletes the body's resistance to infection and aggravates any tendency to anemia. Sufficient rest, calm reassurance and wise understanding and advice regarding the petty annoyances of existence can do much toward combating the psychic turbulence so characteristic of the "stormy menopause." Mild vascular sedatives of fairly prolonged action, such as sodium nitrite, erythroltetranitrate and bismuth subnitrate are worthy of trial. Sodium thiocyanate is too toxic to be used unless the patient is under exceptionally close control and frequent observations of the blood thiocyanate level are made.

THE "RADIONICS" HOAX

To the Editor:—Has there been any scientific research to determine the usefulness of Radionics in the diagnosis and treatment of disease?

M.D., California.

ANSWER.—"Radionics" is an outgrowth of the infamous Abrams quackery devices known as the "Oscilloclast," the "Electro-Concusser," the "Biodynamometer" and the "Sphygmobiometer." There is no evidence to indicate that any scientific investigation has ever been made of these devices. Indeed, there would seem to be no reason for making such a study. It is interesting to note that the editor of the *California State Journal of Medicine* and a member of the publication committee of the Medical Society of the State of California proposed a test of the Abrams device to Dr. Abrams. He refused flatfootedly in any way to cooperate in such an investigation (THE JOURNAL, June 10, 1922).

In some of the advertising for "Radionics," it is stated to be "the science of detecting and locating diseases by a mechanical action on magnetic waves produced by the radiation of ions through an instrument especially constructed for direct application to the human body" ["Alice in Wonderland" makes amusing reading too.—ED.]—"it being no more possible to find ulcers of the stomach if ulcers are not present than it is to get a Chicago station by turning a dial on your radio to a Detroit station." The latter is not so difficult as implied, if reference is to WJR in Detroit and WGN in Chicago.

Other advertising includes the statement that since "a famous American diagnostician has declared that over 50 per cent of diagnoses are wrong . . . 50 per cent of the 'doctoring' public are being 'doctored' for the wrong thing." Just in case this isn't fallacious enough to serve as an irrational basis for adopting this illegitimate offspring of an illegitimate offspring of medicine, it is added that "the chiropractor has been greatly aided in his analysis of a patient's condition by his ability to locate nerves, which because of interference have been unable to function normally; but even this additional advantage [provided it were true.—ED.] has left still much to be desired [more especially a modicum of medical science.—ED.] in obtaining positive and definite information free from the fear of contradiction."

Such problems, however, are "simple" in the eyes of the totally uninformed radionic enthusiasts, for, believe it or not, it is claimed that radionic examination will not only determine the presence of but will actually measure the intensity of "general poison, bacterial poison, inflammation, tissue degeneration, cancerous tendencies, pus and poison producing bacteria, tuberculosis, acidosis, diabetes, fibrous tissue [sic—ED.], cysts, ulcers, etc." and will indicate in which organs the conditions found are primary and in which secondary.

Continuing more of the buncombe found in the advertising for radionics: "Countless examinations have proved beyond a peradventure that the catarrhal and mucous discharges from the orifices of the body (nose, throat, ears, etc.) are frequently only secondary conditions, being the channels used by the body for the elimination of poisons arising elsewhere. For instance, a case of discharge of mucus and pus from the nose, having been under various forms of treatment for four years, was found to be due to an inflamed and infected condition of the liver ["the

newer pathology"—ED.] the source of poison in a much-treated case of 'rheumatism' was found to be in the large intestine, which, when properly cared for, resulted in a total disappearance of the rheumatic symptoms. In a case diagnosed as 'female trouble' and 'appendicitis' the gall bladder was found to be infected and inflamed. When the spinal cause of this ["chiropractic pathology"?—ED.] had been corrected the so-called appendicitis and other troubles vanished."

Finally, it is stated that "Radionics is not a substitute for Chiropractic, but a material aid to the Chiropractor inasmuch as it is in complete harmony with Chiropractic principles. Radionics operates totally in accord with science ["ignorance of" would be more accurate than "accord with."—ED.], and offers absolute scientific proof of the truth and sanity of the Chiropractic Philosophy [comparable to proving astrology by numerology.—ED.] that nerve interference is a primary cause of disease."

It is noted that all of these statements are made without any references to scientific texts or any reports in the medical or other literature, or to anything. There is no reason to institute any scientific research to determine the usefulness of radionics, when it does not even pretend to be based on anything even faintly resembling scientific evidence or, more accurately, on any evidence. It is so palpably over the borderline of science and scientific medicine and in the field of pseudomedicine and quackery that it does not deserve to be glorified by being given any consideration by scientific workers.

ANTIRABIC TREATMENT

To the Editor:—Dec. 17, 1937, a man and his wife called and gave the following history: They had been bitten on the forearms by their pet dog the previous day. The dog was observed by a veterinarian until December 18, when it died. The head was examined in the laboratory; Negri bodies were present. I gave both patients twenty-one injections of antirabies serum, two a day for the first week and one a day for the second. Neither has developed symptoms of rabies. Two weeks ago the woman was scratched on the forearm by her house cat. The cat later developed diarrhea and paralysis of the hind quarters and died on February 21. The head was examined in a laboratory within two hours after death. No Negri bodies were found. Both the husband and the couple's two sons had played with the cat during this time. No marks or scratches were found on the father's or sons' bodies. Should the four members of the family receive antirabies serum? If so, should the frequency of the dosage be the same as in the previous course of treatment? Should the children receive only prophylactic treatment? If so, how many injections should be given and how frequently? The pathologist at the laboratory has inoculated a rat with the serum from the brain of the cat. If the rat should develop no symptoms of rabies or the postmortem examination show no Negri bodies, should treatment be discontinued?

M.D., Illinois.

ANSWER.—There does not seem to be any compelling reason why the woman, the husband or the two sons should be given antirabic treatment.

POSSIBLE NEPHROSIS FROM PAINTS

To the Editor:—Have you any information on the effects of paint on the kidneys? A girl with definite nephrosis has been for a number of years a painter in a furniture factory, using both lacquers and turpentines and oil paints, always with a brush and never with a spray.

S. J. WOLFERMANN, M.D., Fort Smith, Ark.

ANSWER.—The kidneys may be involved as one aspect of many types of occupational diseases, including those which may follow exposure to turpentine, benzene, divers alcohols and other possible constituents of paint. However, the occurrence of nephrosis as the single manifestation of injury from some industrial intoxicant is unusual. In benzene poisoning nephritis may appear, but commonly this is overshadowed by other evidences of benzene injury such as anemia, leukopenia, hemorrhagic states or lowered resistance to infection. Any claim as to the occurrence of nephritis after exposure to benzene as the single and exclusive manifestation of benzene insult is open to question. The renal system may be involved in a general picture of damage through industrial agents, but rare indeed is this one system specifically damaged to the exclusion of others. Alice Hamilton, in "Industrial Poisons in the United States," quotes from the report of the British Commission on Industrial Paints as follows: "There is not sufficient ground to warrant us in accepting the view that turpentine poisoning is the cause of the leading symptoms commonly attributed to either acute or chronic lead poisoning, nor in attributing to the inhalation of fumes of turpentine and other thinners the occurrence of chronic Bright's disease." Dr. Hamilton herself does not fully accept this quoted statement and in turn says "Turpentine vapor appears able to set up acute nephritis and repeated attacks might be expected to terminate in chronic nephritis, unless those exposed establish some sort of immunity to vapor. Of such immunity there is no clear evidence." The stand here taken is that the occurrence of nephrosis in a worker exposed to various substances entering into paint and lacquers does not in itself constitute proof that the work materials are responsible.

BISMUTH HYDRATE COMPOUND NOT CAUSE OF DEATH

To the Editor:—Recently I was called to attend an infant of 6 months who died in less than twenty-four hours after having taken three doses of bismuth hydrate compound as per the accompanying formula. The dose was one teaspoonful every two hours, the symptoms beginning within about forty minutes after the last dose. In the absence of any other reasonable cause of death I would be glad to have your opinion on this case with information as to other similar cases if any have been reported. As you are aware, this dose was relatively large, being about six times the amount specified by the company that puts out this compound, but at the same time it is generally understood that none of the ingredients are considered highly toxic. Nevertheless the symptoms from the onset until death, which occurred about twenty hours after the family noticed evidence of a collapse, the onset of which was rather sudden, included cyanosis, depressed respiration and staring eyes with dilated pupils, although the baby did not seem to be completely unconscious at the beginning. At first there was no fever, the temperature being 96 F., but within a few hours the temperature began to rise and reached 102 about fourteen hours after the onset of symptoms. At the end of approximately fifteen hours the temperature began to decline as death approached. Also at the beginning there was considerable rattling in the chest, seemingly from mucus, but under the administration of respiratory and cardiac stimulants the noise in the chest disappeared but returned later as death became apparent. There was from time to time slight vomiting, something like once each two to three hours, not excessive at any time.

HENRY B. MAY, M.D., Benavides, Texas.

Bismuth Hydrate Compound

Formula: Each fluidounce represents:	
Chloroform	2 minims (0.12 cc.)
Bismuth oxycarbonate	10 grains (0.643 Gm.)
Fluid red gum (kino eucalypti)	32 minims (2.16 cc.)
Pepsin	4 grains (0.259 Gm.)
Phenyl Salicylate	1 grain (0.064 Gm.)
Alcohol	2 per cent
Oil and aromatics	q. s.

Action and Uses: Astringent and carminative, for use in the treatment of gastrointestinal irritation and fermentation and in diarrheas of various origins.

Supply: Bismuth Hydrate Compound—Bottles 4 ounces, 16 ounces, and 1 gallon.

Administration: From one to two teaspoonfuls every half hour for six or eight doses; children 10 drops to half a teaspoonful.

ANSWER.—The amounts of each of the ingredients of the prescription which the infant received in the three teaspoonfuls given are approximately as follows: chloroform 0.05 cc., bismuth subcarbonate 0.25 Gm., fluid of red gum (kino eucalypti) 0.81 cc., pepsin 0.09 Gm., phenyl salicylate 0.024 Gm., alcohol 0.22 cc. The nature of the oil and aromatics is not stated but it is presumed that they are nontoxic in the amounts used.

Although the dose given the 6 months old infant was about six times the recommended dose, the amounts of the various ingredients were small. The small amounts of the bismuth subcarbonate and the pepsin would certainly rule them out as the cause of death. The dose of kino eucalypti is from 5 to 20 grains (0.3 to 1.2 Gm.) of the solid gum. In this case only 0.81 cc. of the solution was used. The acutely fatal dose for chloroform when swallowed is not known with certainty, but 1 ounce would be dangerous (*Sollmann*). The infant received slightly less than 1 minim. Phenyl salicylate under ordinary conditions passes through the stomach unchanged, being hydrolyzed in the intestine into its components, phenol 40 per cent and salicylic acid 60 per cent. However, human milk may split it into its components (Usener) and hence in nursing infants it might give rise to a gastritis if given in large enough amounts. In this case only 0.024 Gm. was given, which would give approximately 0.009 Gm. of phenol and 0.014 Gm. of salicylic acid. These quantities are too small to give rise to dangerous symptoms, much less cause death. The 4 minims of alcohol is negligible as a cause of death. In addition these drugs were not given at one dose but were distributed over a four hour interval of time. As far as can be learned there have been no similar cases reported from this mixture.

The fact that the onset of symptoms began after the administration of the prescription might point to it as a factor in the production of symptoms, but in this case, having the possibility of violent specific allergic reaction to one or more of the ingredients, it may be presumed that the mixture was not the cause of death.

RADIUM POISONING FROM WATCH DIAL PAINTING

To the Editor:—I am interested in learning the incidence of radium poisoning in watch dial painting. A woman, aged 33, married, has necrosis of the mandible and superior maxillae. The Wassermann reaction and physical examination are negative. The patient worked at dial painting until twelve years ago, when she states that she was declared to be entirely negative so far as radium poisoning was concerned.

BERNARD R. BERKOWITZ, M.D., New York.

ANSWER.—Bony destruction of the mandible and upper maxillary in a woman previously employed in dial painting work using radioactive substances at once suggests an effect and cause relationship. The presence of radioactive substances in the body may be precisely determined even at this late time since the active period of the radioactive substances ordinarily employed far exceeds twelve years. Suitable x-ray, electroscopic or Geiger counter examination is required. The procedures involved are described in the *Journal of Industrial Hygiene* **20**:36 (Jan.) 1938 in an article entitled "Hazards in the Radium and Mesothorium Refining Plant at the University of Missouri." This article contains the following quoted statement:

> When radium or mesothorium is carried in the blood stream or deposited in the body it is possible to detect its presence by measuring the alpha ray activity of the expired air.
>
> The alpha ray measurements of radon in the expired air were made by having the worker blow through a drying tower and then through the ionization chamber of a calibrated electroscope until the air within the chamber had been replaced by the air from the lungs.

In New York, workers at the Columbia University College of Physicians and Surgeons are believed to be experienced in problems of this character and equipped with adequate apparatus for the performance of necessary testing. If the commoner causes of bony necrosis about the mouth can be ruled out, it becomes highly probable that precise proof can be adduced that the present condition is due to the action of radioactive substances connected with work twelve years or more ago.

A representative list of literature items bearing on this topic follows:

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Bloomfield, J. J., and Knowles, F. L.: Health Aspects of Radium Dial Painting: II. Occupational Environment, *J. Indust. Hyg.* **15**: 368 (Sept.) 1933.
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Castle, W. B.; Drinker, K. R., and Drinker, C. K.: Necrosis of the Jaw in Workers Employed in Applying a Luminous Paint Containing Radium, *J. Indust. Hyg.* **7**: 371 (Aug.) 1925.
Evans, R. D.: Radium Poisoning: II. Quantitative Determination of Radium Content and Radium Elimination; Rate of Living Persons, *Am. J. Roentgenol.* **37**: 368 (March) 1937.
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Jacobsen, I. C., and Ambrosen, Johan: Measurement of the Radiation to Which Roentgen and Radium Workers Are Exposed, *Acta radiol.* **17**: 252 (June) 1936.
McMahon, M. M.: Luminous Paint Poisoning, New York State Dept. of Labor, *Indust. Bull.* **16**: 291 (July) 1937.
Martland, H. S.: Occupational Poisoning in Manufacture of Luminous Watch Dials, THE JOURNAL, Feb. 9, 1929, p. 466; Feb. 16, 1929, p. 552.
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Rud, E.: Blood Examination of the Personnel of Roentgen and Radium Institutes, *München. med. Wchnschr.* **71**: 1552 (Oct. 31) 1924.
Radium Poisoning, *U. S. Month. Labor Review* **28**: 1200 (June) 1929.

POTASSIUM SALTS IN DIABETES MELLITUS

To the Editor:—I understand that some work has been done on the potassium alterations in diabetes mellitus. Can you enlighten me on this subject, mentioning references?

M.D., New York.

ANSWER.—Rathery and Bertoliatti (*Compt. rend. Soc. de biol.* **117**:875 [Dec. 1] 1934) reported that in patients with uncomplicated diabetes the potassium content of the plasma was usually normal. In some cases in which the condition was advanced the value was increased. A detailed study of the electrolyte balance in diabetic acidosis is given in the paper by Atchley and his co-workers (*J. Clin. Investigation* **12**:297 [March] 1933).

Peters and Van Slyke (Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company, 1935, vol. I, Interpretations, pp. 787, 1054) mention that whereas the edema of malnourished individuals with severe diabetes is aggravated by the giving of sodium chloride or sodium bicarbonate it may be relieved by potassium salts. For a further discussion the reader is referred to this textbook.

Kerr (*J. Biol. Chem.* **78**:35 [June] 1928) found that whereas the potassium content of the blood serum of depancreatized dogs was essentially the same as that of normal animals, following a dose of insulin large enough to produce well marked hypoglycemia there was a definite fall in the potassium level. Kerr states that the potassium content of the erythrocytes is, however, not affected by overdosage with insulin and concludes that the potassium which disappears from the serum after insulin does not enter the corpuscles.

McQuarrie, Thompson and Anderson (*J. Nutrition* **11**:77 [Jan.] 1936) in studies on diabetic children found that potassium chloride when given in doses of from 10 to 20 Gm. daily together with a simple diet low in sodium caused a slight fall in the blood pressure and a significant increase in glycosuria. These effects were exactly opposite to those which resulted from the administration of sodium chloride in large amounts while the patient was maintained on a diet low in potassium. A high intake of sodium chloride depressed the level of serum potassium. The observations mentioned are consistent with those of Silvette and Britton (*Proc. Soc. Exper. Biol. & Med.* **37**:252 [Oct.] 1937), who reported that the administration of subtoxic doses of potassium to rats led to glycogenolysis and hyperglycemia.

IODINE AND COMPOUND SOLUTION OF IODINE IN DISINFECTION OF THE SKIN

To the Editor:—1. If a bandage on a finger is completely saturated with tincture of iodine, will it endanger the life of the finger? Is necrosis likely to occur? If so, in what time? Note the following quotation from a clipping. If the statement made in it had been regarding a 5 per cent or even a 2 per cent solution of phenol it would be credible to me, but I doubt the statement regarding tincture of iodine: "The writer recalls a sad case of mistaken zeal with respect to antiseptics when he was a medical student. A maid working for a doctor's wife cut her finger. The wife, knowing medicine by marriage, bound up the finger and, taking no chances, soaked the dressing with tincture of iodine. When the bandage was removed, the finger was literally dead and had to be duly buried." 2. Is one part of compound solution of iodine in 63 parts of water an efficient disinfectant? See following quotation from a clipping: "To summarize: A good antiseptic for the medicine cabinet can be assured by getting an ounce or two of Lugol's solution (which had better have a poison label), and a four ounce bottle. Put a half teaspoonful of Lugol's solution into the empty bottle and fill it with tap water. This gives you an antiseptic which, according to approved tests, is as powerful as merthiolate, as cheap as milk, practically stainless and odorless, and so nontoxic that any amount a little child might drink from the bottle of the dilution would in all probability do no harm. What more do you want?"

M.D., Washington.

ANSWER.—1. To bind up a finger and then saturate the dressings with tincture of iodine is so extraordinary a procedure that little can be found reported in the literature to indicate what the result would be. Similar treatment does not cause necrosis of the foot of a small laboratory animal, however. On theoretical grounds it does not appear likely that a finger would, under such circumstances, suffer any more than intense staining, with subsequent loss of more or less skin, even though full strength iodine solution had been used. Tincture of iodine evaporates rapidly, leaving a deposit of dry iodine on the skin which penetrates the local tissues slowly and is absorbed by the body and excreted in the form of iodides (Nyiri, William, and Jannitti, Marie: About the Fate of Free Iodine upon Application to the Unbroken Animal Skin: An Experimental Study, *J. Pharmacol. & Exper. Therap.* **45**:85 [May] 1932). Moreover, as soon as iodine reaches the deeper layers of skin it becomes extremely painful, differing in this respect from the phenol group of disinfectants, which produce anesthesia as they advance. Hence, in the case described, it is not probable that the patient would have left the dressing in place if the iodine had penetrated far enough to damage the deeper structures of the finger.

2. A solution prepared in the manner described would contain approximately 0.083 per cent of iodine and 0.167 per cent of potassium iodide in water. Such a solution could not be expected to reduce, by any significant amount, the number of bacteria which are ordinarily present on the skin. If, however, even weak solutions of iodine are subjected to the commonly employed in vitro tests of germicidal power or to ordinary rubbing and scraping tests for disinfection of the skin, they may, unless carefully controlled by an effective neutralizing agent for iodine, give negative and therefore misleading results, owing to the inevitable carrying over of traces of the strongly bacteriostatic iodine into cultures. Despite the claims cited, therefore, this dilute preparation of compound solution of iodine cannot be considered an efficient skin disinfectant.

QUERIES AND MINOR NOTES

PARALYZED URINARY BLADDER AND CYSTITIS

To the Editor.—A woman aged 38 fell from a horse ten years ago, sustaining a fractured lumbar spine with resultant paralysis of some leg muscles and the urinary bladder. She has had good orthopedic care and can walk with the aid of a cane and a steel brace on the right leg. The problem is this. The bladder can be emptied only by pressure above the symphysis, which she herself manages. This means that there is a small amount of residual urine, which means a chronic cystitis. This has gone on for ten years. Since she moved to this community two years ago I have kept her quite comfortable and the bladder quite clean by a thorough weekly irrigation of the bladder at my office and an instillation of 5 per cent mild protein silver. She was recently in St. Louis on a visit and was taken to a physician (a urologist) for her weekly irrigation. After the treatment he advised her to take mandelic acid for a few days every week or so in order to keep her urine more nearly normal. I had talked this over with her at previous times but had advised her against taking any urinary antiseptic which would cause sufficient renal irritation to bring down red blood cells in the urine. I am perfectly willing for her to take mandelic acid if it is not liable to cause nephritis in time. I am not writing to ask who is right but what to do. The urine can be completely sterilized but in a short time will be back where we started because the bladder cannot be completely emptied each time. She is remarkably well and free from urinary distress if she has a weekly irrigation with boric acid solution. Is the amount of infection which must be present (pus cells are present in the catheterized specimen varying from a few to ten or twenty per high power field, but the urine is always clear) apt in time to do more damage to the organism than periodic dosage with mandelic acid with consequent periodic (though mild) renal irritation? Is mandelic acid too new for this question to be answered?

M.D., Michigan.

ANSWER.—The program carried out is a good one and should not be changed in any way. Mandelic acid, while not apt to cause nephritis, would probably not be recommended in this case. It might upset the stomach. The reason the infection in the urine recurs regularly after the urine has been sterilized is that the patient has residual urine.

It is possible that a presacral neurectomy is indicated in this case. It might be well to have a good neurologist examine the patient and discuss the possibility of this procedure. Finally, one might discuss the possibility of suprapubic cystostomy and establish a permanent drainage if presacral neurectomy is not indicated. Although this will prevent possible recurrence of bladder infection, it is a nuisance to walk around with permanent suprapubic drainage and should be done only as a last resort.

EPHEDRINE SULFATE FOR ENURESIS

To the Editor.—A girl, aged 8 years, has enuresis. Quite recently her mother told me of reading about a new treatment for this condition and she was under the impression that it was in Dr. Bundesen's column. Can you tell me whether there is such a treatment and where I can find it, if so?

JOHN R. PHILLIPS, M.D., Michigan City, Ind.

ANSWER.—The treatment referred to is the use of ephedrine sulfate. The method is described in the Sept. 11, 1937, issue of the *Lancet*. The treatment is based on the observation that, in the therapy of asthma with ephedrine, periods of anuria occurred. The amount of ephedrine is greater than that of the usual therapeutic dose. The experiments were carried out by Dr. R. W. Brookfield.

GLOBULIN DETERMINATION OF SPINAL FLUID

To the Editor.—What are the practical methods of globulin determination of the spinal fluid for office procedure? As the junior scopometer is no longer available, what other instruments may be used for globulin determination of the spinal fluid and where may they be obtained?

A. J. REICH, M.D., New York.

ANSWER.—Probably the simplest and most practical method of estimating the globulin of cerebrospinal fluid is that described by Matz and Novick (*J. Lab. & Clin. Med.* **15**:370 [Jan.] 1930) under the title "Improved Colorimetric Procedures for the Quantitative Estimation of the Proteins of the Cerebrospinal Fluid." This is a slight modification of procedures described by Wu (*J. Biol. Chem.* **51**:33 [March] 1922), Ling (*ibid.* **69**:397 [Aug.] 1926) and Wu and Ling (*Chinese J. Physiol.* **1**:161 [April] 1927). The method "Clinical Determination of the Albumin Globulin Ratio in Spinal Fluid" by Exton and Rose (THE JOURNAL, Jan. 3, 1931, p. 36), in which the junior scopometer is employed, could probably be used with other instruments for measuring turbidity. The Wu colorimetric procedure employed by Matz and Novick requires a centrifuge and a colorimeter, instruments which should be available in every clinical laboratory. Either a Klett biocolorimeter or a B. & L. biologic colorimeter is satisfactory.

Most American authorities (Merritt and Fremont-Smith: The Cerebrospinal Fluid, Philadelphia, W. B. Saunders Company, 1937, p. 33) seem to feel that the determination of the protein fractions in spinal fluid, in addition to the total protein, is of insufficient clinical value to justify the work involved. The simplest satisfactory method for total protein is the Denis method modified by Ayer, Dailey and Fremont-Smith (*Arch. Neurol. & Psychiat.* **26**:1038 [Nov.] 1931). Extensive studies in which the protein fractions have been determined, have been made (Kafka: Die Zerebrospinalflussigkeit, Leipzig and Vienna, 1930). The paper of Matz and Novick reports a large number of observations on albumin, globulin, total protein and the albumin-globulin ratio, chiefly in various forms of syphilis.

ACTION OF SNUFF ON NOSE

To the Editor:—If pulverized tobacco snuff is a mucous membrane irritant when drawn by inhalation into the nasal passages, how can it produce better breathing for having used it? Your help in solving what appears to be an incongruous situation, irritants producing congestion, better breathing, will be greatly appreciated.

M D, Louisiana.

ANSWER.—Snuff is a primary irritant and causes a burning feeling when first inhaled. Later on, as the habit is formed, the burning feeling is replaced by a sense of exhilaration. When the snuff is inhaled there results, as with the inhalation of all irritating materials, an excess flow of mucus and serum, which is followed immediately by sneezing and blowing of the nose, thus clearing the passages. This explains the fact that there is more breathing space after using such an irritant.

However, there are three dangers in the use of snuff. In long continued cases there is a tendency to atrophic rhinitis. In addition, polyps seem to occur rather frequently in users of snuff, and because of the excess of sneezing and blowing there is a distinct liability to infection of the sinuses.

ORGANIC DISEASE OR HYSTERIA FROM LIGHTNING

To the Editor.—A middle aged woman was sitting near a window in a shoe shop working on her machine when lightning struck, resulting in some fire damage to the building. When this occurred the patient had convulsive seizures, became unconscious and was taken to the hospital in an ambulance. This condition persisted for more than twenty four hours and when consciousness was regained the patient complained of severe headache particularly on the left side, pain and deafness of the left ear and loss of vision of the left eye. Also at the slightest noise she would begin to shake and tremble. Since this incident, which happened seven months ago, the patient has had a draining left ear, there is practically no sight in the left eye and she is still complaining of nervousness and headache. All the various laboratory tests, including Kahn, Kline and Hinton tests and urine and blood counts, have been negative. A spinal tap has been done. In your opinion is this a traumatic or fright neurosis superimposed by hysteria or is it possible that the lightning did strike her without leaving any sign of a burn? Is it possible for lightning to strike a person without leaving any sign of burns at the site of entrance? What is your opinion as to further treatment and as to prognosis? A competent ophthalmologist examined the eye and found the optic disk normal.

M D, Maine.

ANSWER.—It is rash to offer an opinion on such a case without examination. However, the account suggests fright-neurosis with conversion hysteria, rather than a condition resulting from a structural lesion.

For purposes of diagnosis of hysteria a normal appearing optic disk would be the condition of the pupils. Obliteration or serious reduction of light or convergence reflexes in the pupil would of course be strong evidence in favor of organic disease. It is most unlikely that complete blindness of an eye sustained by lightning of organic nature could exist with normal pupillary reflexes. If the diagnosis of hysterical blindness and deafness is correct the treatment is one of suggestion, i. e. succeeding in persuading the patient that blindness and deafness are not really existing. This is a matter of personal power on the part of the physician.

PROSTATIC STONES

To the Editor.—Please discuss the treatment for prostatic calculi in a man of 47. The stones have not caused symptoms. They are located too deep in the gland to be removed through endoscopy. One of the stones is about the size of a hazelnut and the others about two-thirds that size. Is removal by surgical intervention, that is, suprapubic cystotomy, advisable in the absence of symptoms?

M D, Arkansas.

ANSWER.—The general consensus among urologists is that the mere presence of stones in the prostate is no indication for their removal. If the stone or stones do produce symptoms, they may be removed. This may be accomplished by (1) removal of the stones by means of the resectoscope—removing the overlying prostatic tissue and washing the stones out of the prostatic bed, or milking them into the bladder and then evacuating them through the sheath of the resectoscope, (2) perineal prostatotomy or (3) suprapubic cystotomy.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, April 29, page 1754.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Medical nters having five or more candidates desiring to take the examination, ime 19 21 and Sept. 11-13. Ex. Sec., Mr Everett S Elwood, 225 S ith Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY. An Affiliate of the American oard of Surgery. *Oral* examinations for all candidates, St Louis, May 1-14 *Written* Various places throughout the United States, Sept 9. pplications must be filed by July 11. *Oral* Part II Philadelphia, Oct 15 Sec, Dr Paul M Wood, 745 Fifth Ave, New York

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY Philadelphia, ct 30 Nov 1 Sec, Dr. C Guy Lane, 416 Marlboro St, Boston

AMERICAN BOARD OF INTERNAL MEDICINE *Written* Various sec- ons of the United States, Oct 16 and Feb. 19 Formal application must : received before Aug. 20 for the Oct examination and on or before in 1 for the Feb examination Sec, Dr. William S Middleton, 1301 niversity Ave, Madison, Wis

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY General oral, inical and pathological examinations for all candidates, Part II examina ons (Groups A and B) will be held in St Louis, May 15 16 Sec, Dr aul Titus, *1015 Highland Bldg, Pittsburgh (6)*

AMERICAN BOARD OF OPHTHALMOLOGY *Written* Various cities roughout the country, Aug 5. *Oral* St Louis, May 15 and Chicago, ct 7 Sec, Dr John Green, 6830 Waterman Ave, St Louis

AMERICAN BOARD OF ORTHOPAEDIC SURGERY St Louis, May ec, Dr Fremont A Chandler, 6 N Michigan Ave, Chicago

AMERICAN BOARD OF OTOLARYNGOLOGY St Louis, May 12 13 and hicago, Oct. 6-7 Sec, Dr. W P. Wherry, 1500 Medical Arts Bldg, maha

AMERICAN BOARD OF PEDIATRICS Cincinnati, Nov. 15. Appointments ust be made before July 15. Sec, Dr. C. A. Aldrich, 723 Elm St, innetka, Ill

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY Chicago, May 13. ec, Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, C

AMERICAN BOARD OF RADIOLOGY St Louis, May 11-14 Sec, Dr. arl R Kirklin, 102-110 Second Ave S W, Rochester, Minn.

AMERICAN BOARD OF SURGERY *Part II* New York, May 8 and lay 9 Sec, Dr J. Stewart Rodman, 225 S 15th St, Philadelphia

AMERICAN BOARD OF UROLOGY White Sulphur Springs, W Va, lay 26 28. Sec, Dr. Gilbert J. Thomas, 1009 Nicollet Ave, Minneapolis

District of Columbia January Report

Dr George C. Ruhland, secretary, Commission on Licensure, eports the written examination held in Washington, Jan 9-10, 939 The examination covered nine subjects and included sixty uestions An average of 75 per cent was required to pass Twelve candidates were examined, all of whom passed. Eleven hysicians were licensed by endorsement. The following schools ere represented:

School	PASSED	Year Grad	Per Cent
George Washington University School of Medicine (1936) 83 5, 85, (1937) 79 5, 82 3, 83 2		(1934)	81 1,
Georgetown University School of Medicine..		(1937)	80 5
Howard University College of Medicine.. (1935) 79 1,		(1937)	75 1
School of Medicine of the Division of Biological Sciences		(1935)	81.5
Hahnemann Medical College and Hospital of Philadelphia		(1937)	82 7
Jefferson Medical College of Philadelphia		(1937)	81.1

School	LICENSED BY ENDORSEMENT	Year Grad	Endorsement of
George Washington University School of Medicine.... (1937, 4) N. B M. Ex.		(1936),	
Georgetown University School of Medicine.. (1935), (1937, 2)			N. B M. Ex.
Howard University College of Medicine		(1932)	N. B M. Ex.
Tufts College Medical School		(1936)	N. B M Ex
Cornell University Medical College.		(1937)	N. B. M. Ex

Minnesota January Report

Dr. Julian F Du Bois, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, Jan. 17-19, 1939. The examination covered twelve subjects and included sixty questions. An average of 75 per cent was required to pass. Forty candidates were examined, thirty-nine of whom passed and one failed Six physicians were licensed by reciprocity and four physicians were licensed by endorsement The following schools were represented:

School	PASSED	Year Grad	Per Cent
Emory University School of Medicine....		(1934)	85 6
Northwestern University Medical School.....		(1936) 83 2,	88 2
Rush Medical College..		(1938)	87.3
University of Illinois College of Medicine		(1937)	93
Indiana University School of Medicine.		(1936)	86 3
Johns Hopkins University School of Medicine... (1937) 89.3		(1935)	83.1,
University of Michigan Medical School....		(1930)	84.6
University of Minnesota Medical School..... (1936) 92 2, (1937) 90 3, (1938) 82.6,* 83,* 83.1,* 84.3,* 85,* 85.2,* 85 5,* 86 2,* 86 5,* 86.6, 87.1, 87.4, 87.5, 87 6,* 87 6,* 88.1,* 88.1, 88 3, 91.2		(1935)	86.3,
Ohio State University College of Medicine....		(1938)	83.6
University of Oregon Medical School.....		(1937)	93 2
Jefferson Medical College of Philadelphia.....		(1931)	81.3
University of Pennsylvania School of Medicine..... (1936) 90 4		(1935)	85.6,
University of Texas School of Medicine.....		(1934)	89.2
Marquette University School of Medicine.....		(1938)	89.6
University of Wisconsin Medical School..		(1937)	85.1

School	FAILED	Year Grad.
University of Toronto Faculty of Medicine.....		1916

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School.... (1933) Wisconsin		(1925)	Michigan,
Rush Medical College..		(1936)	W. Virginia
University of Pennsylvania School of Medicine...		(1936)	N. Carolina
University of Virginia Department of Medicine		(1931)	Virginia
University of Wisconsin Medical School.		(1935)	Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Northwestern University Medical School...		(1938)	N. B. M. Ex
Cornell University Medical College..		(1935, 2)	N. B M. Ex
University of Edinburgh Faculty of Medicine ..		(1933)	N. B. M Ex

* This applicant has received the M.B degree and will receive the M D degree on completion of internship

Book Notices

Silicosis and Asbestosis By Various Authors Edited by A. J. Lanza, M.D, Assistant Medical Director, Metropolitan Life Insurance Company Cloth. Price, $4 25 Pp 439, with 59 illustrations. New York, Toronto & London Oxford University Press, 1938

For the past ten years this country has seen marked scientific interest in the dusty lung diseases. This has led to numerous publications, trials, conflicting testimony, legislative enactments, theories and alleged palliatives. Slowly there emerge the significant facts This book is a record of the accrued substantial observations made with regard to the two chief dusty lung diseases, silicosis and asbestosis. Its able editor, rather than author, Dr. Lanza, participated in the first well planned investigation of silicosis in this country near the year 1915, carrying out activities in the tristate lead and zinc mining district in the vicinity of Joplin, Mo. Other contributors are Drs. Sayers, Prendergrass, Gloyne, Gardner and Middleton. All have participated extensively in many investigations of dusty lung diseases. They discuss the history of silicosis and asbestosis, clinical aspects, x-ray diagnosis, chemical and experimental pathology, preventive measures, legislation, public health and economic aspects. While all sections are meritorious, the lengthy chapter on x-ray diagnosis is especially well presented. During the turmoil centering about dusty lung diseases for the past ten years it has been necessary often to make apologies for the medical profession for lack of familiarity with silicosis and later with asbestosis. Now the lament can no longer be made that in the English language there is no reliable comprehensive medical presentation on dusty lung diseases.

The printing is not as good as the contents. Several pages intended to be printed are left blank. Some lack of uniformity in the arrangement of the sections exists. Spacing, such as that in the table of contents, is poorly arranged. The repetition of the various titles of the authors in each chapter heading is superfluous In general the contents reflect to a high degree the art and science of medicine, but the make-up is not an equally good example of the art of printing.

La fluorescence en biochimie. Par Ch Dhéré, professeur de physiologie à l'Université de Fribourg (Suisse). Paper. Price, 80 francs Pp 318, with 108 illustrations. Paris: Les Presses Universitaires de France, 1937.

The first three chapters give a fairly inclusive treatment of the fundamental principles of fluorescence, of its demonstration and of the apparatus and methods for recording and measuring it. A brief chapter covers the fluorescence of carbohydrates and glucosides as well as the changes in fluorescence in the treatment of simple carbohydrates with the common reagents such as bases, acids and furfural indicators. Chapter V briefly covers pure

Thalassa: A Theory of Genitality. By Sandor Ferenczi, M.D. Authorized translation from the original German version entitled Versuch einer Genitaltheorie, by Henry Alden Bunker, M.D. Cloth. Price, $1.75. Pp. 110. Albany, New York: The Psychoanalytic Quarterly, Inc., 1938.

The German volume from which this book was translated was published in 1923 but was conceived and written between 1914 and 1919, during the war, in the author's leisure time. It is important to stress the time element, since it dates the expressed ideas to a period of psychoanalytic development which, in the short life of that science, was decidedly early. The work is a product of a time when psychoanalysis was concerned with metapsychologic speculations and was far removed from biology and medicine. The author has attempted to base his theory of genitality on biologic data and phylogenic concepts by analogy, and his speculations are highly provocative. The work is an extremely interesting and fascinating speculation but indicates the need for development of a method other than that of analogy to link biology and psychology. The fundamental premise is a lamarckian concept of evolution on which teleologic bases of evolution interpreted from psychology rest. Biologists should by all means be acquainted with this book.

Internal Medicine in Dental Practice. By Bernard I. Comroe, A.B., M.D., F.A.C.P., Instructor in Medicine, Schools of Medicine and Dentistry in the University of Pennsylvania, Philadelphia, Leon H. Collins, Jr., A.B., M.D., F.A.C.P., Associate in Medicine in the University of Pennsylvania School of Medicine, Philadelphia, and Martin P. Crane, B.S., M.D., Instructor in Medicine in the Schools of Medicine and Dentistry of the University of Pennsylvania, Philadelphia. Cloth. Price, $4. Pp. 352, with 45 illustrations. Philadelphia: Lea & Febiger, 1938.

This book has been written primarily for dentists and dental students, presenting the necessity of close collaboration between dentist and internist, as stated in the introduction: "Dentists frequently are afforded the opportunity of observing manifestations of systemic disease in individuals before these patients seek medical aid." There seems to be an underlying motive to interest the dentist in public relations work for the physician with a hope that the general public may come to appreciate a necessity of frequent physical examinations. There is little or no reference to the help a physician might be to a patient by observing foci of infection in the mouth and directing the patient to have dental attention. The text is written in clear, concise and convincing style, treating systemic diseases in twelve parts. Each part has a well planned medical summary describing specific diseases and their manifestations in the oral cavity. In each part adequate references are listed, so that more detailed information may be obtained if desired. This book should be of real value to dental schools as an accessory textbook.

Die Therapie der Thrombose. Von Dr. Ernst Friedländer. Paper. Price, 5.40 marks. Pp. 117, with 27 illustrations. Leipzig & Vienna: Franz Deuticke, 1938.

The author reviews the anatomic and pathologic aspects of thrombosis. He concurs in the view that emboli are derived from fresh thrombi and that those which occur in the third week following venous thrombosis result from newly formed thrombi. While he has established anatomic considerations well, certain physiologic conclusions lack the necessary evidence, for example that the femoral vein may be empty in a bedridden patient. The fact that in the prone position the blood travels in the femoral vein up a 34 per cent grade is important in the genesis of thrombophlebitis. The etiology of venous thrombosis is extensively reviewed but no new contributions are made. The author's main objectives in the management of thrombophlebitis are fixation of the thrombus and restoration of circulation. He believes that ambulatory patients with phlebitis should remain ambulatory and that patients confined to bed when phlebitis occurs should be put through a series of positions and graduated exercises. He believes that his method of treatment reduces the incidence of pulmonary embolism but it is to be regretted that there is not good proof of this. He stresses the danger of pulmonary embolism after thrombophlebitis, yet it has been emphasized in the American literature that embolism seldom follows phlebitis. A recent article states that thrombophlebitis was recognized clinically in only five of 116 consecutive cases of fatal postoperative pulmonary embolism. It is doubtful that the complicated exercises outlined are necessary, for patients appear to convalesce satisfactorily from phlebitis if they remain in bed with the involved leg elevated and warmed by moist packs until the tenderness over the inflamed vein has disappeared, the oral temperature has returned to normal and the edema has disappeared. The author states that with his method of treatment the average period of disability has been reduced from seventy-six to six days. The former figure is considered archaic in this country, since most patients become ambulant from eighteen to fourteen days after the onset of phlebitis when given much simpler treatment than that outlined. If one considers the mental and physical comfort of the patient in addition, the value of the author's management remains doubtful. The monograph suffers from repetition and theorization. Its chief value is in reviewing the subject of thrombosis and reemphasizing that it is not necessary to keep patients with thrombophlebitis in bed for long periods.

Synopsis of Clinical Laboratory Methods. By W. E. Bray, B.A., M.D., Professor of Clinical Pathology, University of Virginia, Charlottesville. Second edition. Fabrikoid. Price, $4.50. Pp. 408, with 68 illustrations, including 17 color plates. St. Louis: C. V. Mosby Company, 1938.

Two years ago the first edition of this excellent synopsis appeared. It had 324 pages, contained descriptions of the most frequently used laboratory tests and was well liked by physicians and technicians. In the second edition it has been enlarged but the arrangement of the chapters has remained the same. More attention has been given to the clinical significance of laboratory observations. The descriptions of the various procedures are brief but adequate. The black and white illustrations have been increased from thirty-two to fifty-one and the color plates from eleven to seventeen. Additional methods described include the determination of serum phosphatase, titration of staphylococcus antitoxin, use of the peroxidase Giesma stain, cough plate method for the diagnosis of whooping cough, vitamin C titration, test for cyanates in the blood, determination of sulfanilamide in the blood and differential heterophil agglutination for infectious mononucleosis. There are chapters on poisons and foreign substances and on surgical pathology and one listing indicators, stains and reagents. This manual is one of the best small books on laboratory diagnosis.

Nogle Undersøgelser over Nyrefunktionen ved Epilepsi. Af Alf. Yde. [Studies on Renal Function in Epilepsy.] Denne Afhandling er af det lægevidenskabelige Fakultet antaget til offentlig at forsvares for den medicinske Doktorgrad, København. Paper. Pp. 136. Copenhagen: NYT Nordisk Forlag, Arnold Busck, 1937.

This is a doctorate thesis based on extensive personal investigations of every phase of renal function in epileptic subjects observed in the university psychiatric clinic of Copenhagen and the epileptic colony "Filadelfia." Among the conclusions are that there is no definite relationship between diuresis and the epileptic attack. The author has been unable to confirm the hypothesis of preparoxysmal oliguria and postparoxysmal polyuria. The urea clearance rises above the normal upper limit for some hours before an attack and falls suddenly after the attack. It is suggested that the preparoxysmal rise may be caused by central irritation brought about by a moderate increase in epinephrine, while determinations of the chlorine in the plasma and urine did not lead to its explanation. Finally, it is concluded that functional alterations in the vegetative centers in the midbrain play a part in the precipitation of epileptic attacks.

Practical Birth-Control Methods. By Norman E. Himes, Ph.D. With the medical collaboration of Abraham Stone, M.D. Introduction by Robert L. Dickinson, M.D. Foreword by Havelock Ellis. Paper. Price, 95 cents. Pp. 254, with 29 illustrations by Irving Geis. New York: Modern Age Books, 1938.

In this book, written in a simple pleasant style, birth control and allied subjects are discussed in a comprehensive manner denoting the authors' thorough understanding of this vital problem. The medical aspects of contraception are ably presented together with effective anatomic diagrams for instruction purposes. Common misconceptions and causes for failures of the various methods are explained clearly. The book is replete with many practical details, often neglected, which are of considerable importance in the teaching of contraception. There are a number of interesting topics other than the medical aspects which are educational: legal aspects, abortion, history of contra-

ception, sterility and other subjects are presented clearly in nontechnical language. An admirable feature of the book is the discussion of the social, economic and religious backgrounds of the individual in respect to the practice of contraception. These environmental factors are intimately involved in the majority of problems, and the authors are to be complimented on the sympathetic and reasonable handling of these subjects. An informative appendix adds to the value of the book.

Les maladies de l'œsophage. Par J. Terracol, professeur à la Faculté de médecine de Montpellier. Avec la collaboration de J. Baumel et al. Cloth. Price, 220 francs. Pp. 664, with 352 illustrations. Paris: Masson & Cie, 1938.

At first thought it would seem improbable that any one could write a book of 664 pages on the esophagus alone, but actually Dr. Terracol and seventeen collaborators have done the trick. What is even more remarkable is that an examination of certain chapters, such as the one on cardiospasm, reveals that a good deal more might well have been written. In fact, the main criticism one might bring against the book is that so little is written about the treatment of cardiospasm, which is the most common disease of the esophagus. The authors seem never to have heard of the Plummer dilator, which works beautifully in most cases, and they give some space to a discussion of the old transabdominal operation, which should probably never be used. Certainly if this book goes into a second edition the authors should describe the Plummer-Vinson technic and should show the tremendous advantages of passing the dilating instrument over a thread which has previously been swallowed and allowed to pass down into the small bowel, where it is in a way anchored. Another criticism that might be directed against the book is that in places the authors might have done better to describe only the treatments which they have found useful. It only clutters up the literature to describe those which are of little if any value. These criticisms, however, should not be allowed to obscure the fact that the book contains a tremendous amount of information presented in an attractive way. Every medical library of any size should have a copy. It is well illustrated and there are some colored plates showing the esophagus as seen through the electrically lighted tube. There are good bibliographies attached to the chapters, but unfortunately there is no index.

Aids to Embryology. By Richard H. Hunter, M.D., M.Ch., Ph.D., Lecturer in Anatomy, Queen's University, Belfast. Third edition. Cloth. Price, $1.25. Pp. 178, with 44 illustrations. Baltimore: William Wood & Company, 1938.

Here is a series of brief summaries to each of which a still briefer summary is appended. The object is to provide clear and concise statements which can be memorized and used to answer questions in examinations. In this edition discussions on heredity and the current ideas as to the endocrine regulation of the female reproductive system have been added to meet new requirements of the British Medical Council. The author hopes too that he has provided enough information so that the student can take a rational and understanding view of congenital abnormalities. It is probable that the student cannot assimilate much more embryology than this unless he can come into personal contact with some of the kaleidoscopic changes of ontogeny. Often the treatment is necessarily so inadequate as to give no ideas whatever (see coelom); there are merely some pertinent phrases which may enable the student to indicate that he has heard mention of the subject in question. Some quite unnecessary mistakes have crept in, especially in the chapter on the nervous system. In an appendix there is a discussion of fetal age, with data on the time of appearance of certain ossification centers and a list of characters which can be used to estimate the age of viable fetuses.

Vom Wesen der Neurose und von ihren Erscheinungsformen. Von Dr. Ernst Speer, Nervenarzt in Lindau (Bodensee). Paper. Price, 3.60 marks. Pp. 122, with one illustration. Leipzig: Georg Thieme, 1938.

Neuroses are never permanent states in the sense of inherited and unmodifiable characteristics but always follow disturbances in assimilating and reacting to life experiences. They are partial solutions to the experience and as such indicate the possibility within the person of a satisfactory terminal solution. Neuroses are not due to structural abnormalities of the brain, either histopathologic or chemical, nor are they the results of extrapersonal demoniacal agents. The individual, furthermore, is guiltless in his illness. No neurotic consciously develops his difficulty; the neurosis develops from the unconscious. These excerpts are evidences of the dynamic concepts of the author, remarkable only because of their source. This is one of the few books that indicate a discontent with the official constitutional, racial concept of nervous disorders expressed in recent German publications. The author expresses his point of view delicately without too great detail. Concerning the early life experiences which are not successfully solved and which remain unconscious, manifesting only the partial solution in neurotic behavior, he is reticent. Nevertheless the work is a hopeful sign indicating that dynamic psychiatry in Germany is not dead but only suppressed into latency.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Compensability for Disability Following Hernia and Operative Repair.—The claimant's work required him to shovel dirt and other substances from one place to another. He alleged that on May 19, 1936, while so engaged, a hernia appeared suddenly and was immediately followed by intense pain. Previous to that time, according to his claim, he had been in sound physical condition. On June 1, he filed a claim with the industrial accident board but said nothing concerning the operation to cure the hernia that he was to submit to on the following day. The claim did not reach the board until the day after the operation, but the board was notified of the operation about July 10. After a hearing on August 12, the board held that the operation had cured the hernia and awarded compensation at the rate of $7.20 a week for twenty-six weeks for temporary disability. The claimant alleged that he had been permanently and totally disabled and appealed to the district court, Wise County. After a jury trial, the court rendered judgment in his favor for $2,492.48. The employer's insurance carrier thereupon appealed to the court of civil appeals of Texas, Amarillo.

The insurance carrier contended that the operation for the repair of the hernia had been successful and that the claimant was entitled to compensation for only temporary disability, under subdivision 4, section 12 b, article 8306, Revised Civil Statutes of Texas, 1925, which authorized compensation for twenty-six weeks only, after a successful operation for hernia. Clearly, however, said the court, if the operation failed to restore the appellee to his former ability to perform labor, it would not be a successful operation such as was contemplated by the statute. It was proved by ample evidence that the operation had reduced the hernia and that the complainant had completely recovered from the operation. He claimed, however, that notwithstanding the operative cure he had "a left-over condition from the injury and operation which rendered him totally incapacitated to perform labor." The question therefore, said the court, was whether or not the operation had failed to restore the appellee to his former ability to perform labor. The statute does not require an injured employee to file his claim for anything other than a hernia, and when he has received an injury to a specific member of the body he is not confined to a recovery of the compensation specially provided for such injury if he alleges and proves other injuries, or if it is fairly shown that the injury to the specific member of the body has involved other portions of the body or affected his general health.

In the claim filed by the claimant with the industrial accident board he stated that the front of the abdomen near the left groin, the site of the injury, was swollen, that he was unable to stand on his feet without intense pain and that the injury had resulted in permanent and total disability. A physician testified that he had examined the claimant and that when the claimant walked he had to do so very carefully in order to prevent pain; that he could not straighten his body very well

ior hold himself in a straightened position; that the claimant vas very much weakened; that the condition would last as long s he lived and that the claimant could not do anything. There vas no evidence to show that the claimant's condition was due o anything other than the injury that he received May 19. It vas proper, therefore, said the appellate court, for the trial ourt to submit to the jury the question as to whether the laimant had sustained any loss of capacity to work as the result f the injury.

The insurer complained that the trial court had refused to ubmit to the jury a special issue requested by it, asking the ury to find from a preponderance of the evidence that the laimant's disability would not be removed by physical exertion. 'he request for this special issue was based on the testimony f a medical witness to the effect that after an operation for ei nia a patient becomes "soft" to the extent that when he goes ack to work he has considerable soreness; that if the claimant vould go back to work and perform physical labor for ten ays or two weeks the soreness of which he complained would ntirely disappear, but as long as the claimant refrained from 'orking and exercising the muscles and tendons in the area of ne operation he would experience tenderness and the muscles nd tendons would be sore. The trial court refused, however, o submit that issue. The testimony of the witness, said the ppellate court, was necessarily only his opinion. The jury ould not have known whether exercise would or would not emove the disability. If the jury had undertaken to answer uch a special issue, their answer could have been nothing more ian their opinion obtained from the testimony of the surgeon s to the probability of a future event, which would not have urnished a proper basis for a judgment in a case of this kind. f the insurer desired that the jury pass on the question pre- ented by the requested special issue, the proper course would ave been for it to request an examination of the claimant, on ie theory that he was persisting in injurious practices which ended to imperil or retard his recovery. If an examination had een made under such circumstances and the evidence in respect iereto had warranted, it would have been proper for the court o submit such an issue as to whether or not the appellee was ersisting in such practices. The trial court, therefore, did not rr in refusing to submit to the jury the special issue requested y the insurer.

The court of civil appeals accordingly confirmed the judgment i favor of the claimant, but only on condition that he consent o a reduction of the award by $100, the amount allowed as the hysician's fee in the case. This reduction was based on the act that the claimant had not submitted evidence in the course f the trial as to the reasonableness of that fee.—*Travelers Ins. 'o. v. Mote (Texas), 116 S. W. (2d) 427.*

Evidence: Hypothetical Question Must Be Based on 'acts in Evidence.—The testimony of a physician, said the upreme Court of South Carolina, that in his opinion the plain- ff was totally and permanently disabled can have no probative alue in the face of evidence of the physical fact that the plain- iff was able, after he was alleged to be disabled, to perform the ame sort of work in which he was accustomed to engage. 'urther, the hypothetical question propounded to an expert itness must be framed only on facts in evidence and must not iclude the opinion of another expert As is said in 22 Corpus uris 706-9:

> The expert, properly so called, is asked what would be his judgment pon all or any prescribed part of the facts, as to which evidence has been awfully received, or which has been admitted, assuming that they are ue, provided that a sufficient number of facts are assumed to enable ie witness to give an intelligent opinion The witness having no facts i mind as the result of observation, it is in this way alone that a proper asis for a reasonable judgment can be furnished, and the witness cannot dd to the hypothetical question facts within his own knowledge *and not s evidence.* The requirement that the question should be in hypothetical orm, *stating fact of which there is some evidence in the case, continues* roughout the examination of the expert, . . Different hypotheses ay be submitted to the witness for different parties, *provided the facts nbraced in each hypothesis have some support in the evidence* . . . hypothetical question which includes, with other facts, the opinion of nother expert is improper.

—*Ellis v. Kansas City Life Ins. Co. (S. C.), 197 S. E. 398.*

Society Proceedings

COMING MEETINGS

American Medical Association, St. Louis, May 15-19. Dr. Olin West, 535 North Dearborn St, Chicago, Secretary.

American Academy of Tuberculosis Physicians, St. Louis, May 13 14 Dr. Arnold Minnig, 638 Metropolitan Bldg, Denver, Secretary.

American Association for the Study of Goiter, Cincinnati, May 22 24 Dr W Blair Mosser, 133 Biddle St, Kane, Pa, Secretary.

American Association for Traumatic Surgery, Hot Springs, Va, May 8 9 Dr Ralph G Carothers, 409 Broadway, Cincinnati, Secretary.

American Association of Genito-Urinary Surgeons, Williamsburg, Va, May 24-26. Dr. Charles C. Higgins, 2050 East 93d St, Cleveland, Secretary

American Association of Industrial Physicians and Surgeons, Cleveland, June 5 8 Dr. V. S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Bronchoscopic Society, Rye, N. Y, May 26 Dr. Lyman Richards, 319 Longwood Ave, Boston, Secretary

American College of Chest Physicians, St Louis, May 13 14 Dr. Robert B Homan Jr, 109 North Oregon St, El Paso, Texas, Secretary.

American Dermatological Association, Montebello, Canada, May 31-June 3 Dr. Fred D. Weidman, University of Pennsylvania Medical Laboratories, Philadelphia, Secretary.

American Gynecological Society, White Sulphur Springs, W. Va, May 22 24 Dr. Richard W. TeLinde, 11 East Chase St, Baltimore, Secretary

American Heart Association, St. Louis, May 12 13 Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary

American Laryngological Association, Rye, N. Y, May 24 26. Dr James A. Babbitt, 1912 Spruce St, Philadelphia, Secretary

American Laryngological, Rhinological and Otological Society, Chicago, May 10 11. Dr. C. Stewart Nash, 277 Alexander St, Rochester, N Y, Secretary.

American Neurological Association, Atlantic City, N. J, June 5 7. Dr. Henry A Riley, 117 East 72d St., New York, Secretary

American Ophthalmological Society, Hot Springs, Va, June 5 7 Dr Eugene M. Blake, 303 Whitney Ave., New Haven, Conn, Secretary

American Orthopedic Association, Buffalo, N. Y., June 5 8 Dr. Ralph K Ghormley, 110 Second Ave. S.W, Rochester, Minn, Secretary.

American Otological Society, New York, May 22 23 Dr Thomas J Harris, 104 East 40th St, New York, Secretary

American Proctologic Society, Brooklyn, N. Y, June 25 27 Dr Curtice Rosser, 710 Medical Arts Bldg, Dallas, Texas, Secretary.

American Psychiatric Association, Chicago, May 8-12 Dr. Arthur H. Ruggles, Butler Hospital, Providence, R I, Secretary.

American Radium Society, St. Louis, May 15-16 Dr Frederick W O'Brien, 465 Beacon St, Boston, Secretary.

American Rheumatism Association, St Louis, May 15 Dr. Loring T. Swaim, 372 Marlborough St, Boston, Secretary.

American Society for the Study of Allergy, St Louis, May 15 16 Dr J. Harvey Black, 1405 Medical Arts Bldg, Dallas, Texas, Secretary

American Society of Clinical Pathologists, St. Louis, May 12 14 Dr. Alfred S Giordano, 531 N. Main St, South Bend, Ind, Secretary

American Surgical Association, Hot Springs, Va, May 11 13. Dr Charles G. Mixter, 319 Longwood Ave, Boston, Secretary.

American Therapeutic Society, St. Louis, May 12 13 Dr. Joseph T. Elward, 1726 Eye St N W., Washington, D C., Secretary

American Urological Association, White Sulphur Springs, W Va, May 29 June 1 Dr. Clyde L. Deming, 789 Howard Ave, New Haven, Conn, Secretary.

Arkansas Medical Society, Hot Springs National Park, May 8 10 Dr. W. R. Brooksher, 602 Garrison Ave, Fort Smith, Secretary.

Associated Anesthetists of the United States and Canada, St Louis, May 15. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary General.

Association for the Study of Internal Secretions, St Louis, May 13 14 Dr. E Kost Shelton, 921 Westwood Blvd, Los Angeles, Secretary.

Association of Military Surgeons of the United States, Washington, D C, May 8-10. Dr. H. L. Gilchrist, Army Medical Museum, Washington, D. C., Secretary.

Connecticut State Medical Society, New Haven, May 25 26 Dr. Creighton Barker, 258 Church St, New Haven, Secretary

Massachusetts Medical Society, Worcester, June 6 8. Dr Alexander S Begg, 8 Fenway, Boston, Secretary.

Medical Library Association, Newark, N J, June 27-29 Miss Janet Doe, 2 East 103d St, New York, Secretary

Minnesota State Medical Association, Minneapolis, May 31 June 2. Dr. B. B. Souster, 11 West Summit Ave, St Paul, Secretary

Mississippi State Medical Association, Gulfport, May 9 11. Dr T. M. Dye, McWilliams Bldg, Clarksdale, Secretary

Montana, Medical Association of, Butte, June 28-30 Dr. Thomas L Hawkins, 50 North Main St., Helena, Secretary

National Gastroenterological Association, New York, June 1 2 Dr G Randolph Manning, 1819 Broadway, New York, Secretary

National Tuberculosis Association, Boston, June 26 29 Dr. Charles J. Hatfield, 50 West 50th Street, New York, Secretary

New Hampshire Medical Society, Manchester, June 8 9 Dr Carleton R Metcalf, 5 South State St, Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 6 8 Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary

New Mexico Medical Society, Gallup, May 11-13 Dr L B Cohenour, 219 W. Central Ave, Albuquerque, Secretary

North Carolina, Medical Society of the State of, Cruise to Bermuda, May 9 14. Dr T. W. M Long, Roanoke Rapids, Secretary

North Dakota State Medical Association, Fargo, May 8 10 Dr. Albert W Skelsey, 20½ North Broadway, Fargo, Secretary

Pacific Northwest Medical Association, Spokane, Wash, June 26 29 Dr. C W Countryman, 407 Riverside Avenue, Spokane, Wash Secretary

Pacific Coast Oto Ophthalmological Society, San Francisco, June 19 22 Dr. C. Allen Dickey, 450 Sutter St, San Francisco, Secretary

Rhode Island Medical Society, Providence June 7 8 Dr Guy W Wells- 124 Waterman St, Providence Secretary

Society of Surgeons of New Jersey, Elizabeth, May 25 Dr Walter B Mount, 21 Plymouth St, Montclair, Secretary

Texas, State Medical Association of, San Antonio, May 8 11. Dr. Holman Taylor, 1404 West El Paso St Fort Worth, Secretary.

Vancouver Medical Association Summer School, Vancouver, B C, June 6 9. Dr. W. W Simpson, 203 Medical Dental Bldg, Vancouver, B C, Secretary

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, St. Louis

22: 119-238 (Feb.) 1939

Histologic Study of the Eyes of Rabbits Congenitally Infected with Syphilis. H. Shiga, Tokio, Japan.—p. 119.

Late Results in Retinal Detachment Operations. D. K. Pischel, San Francisco.—p. 130.

Papillitis and Papilledema in Multiple Sclerosis. S. Sugar, Chicago.—p. 135.

Dysostosis Craniofacialis (Crouzon). A. C. Krause and D. N. Buchanan, Chicago.—p. 140.

Lectures on Motor Anomalies: VI. Principles of Surgical Treatment. A. Bielschowsky, Hanover, N. H.—p. 145.

Some Physiologic and Anatomic Aspects of the Cornea Affecting Its Pathology. T. L. Terry, Boston.—p. 153.

Monocular Protection versus Monocular Occlusion. W. H. Howard, Chicago.—p. 156.

Superficial Marginal Keratitis: Clinical and Anatomic Findings in Fellow Eyes. O. H. Ellis, St. Louis.—p. 161.

Congenital Abducens Paralysis. C. Apple, Chicago.—p. 169.

American Journal of Pathology, Boston

15: 1-154 (Jan.) 1939

Pathologic Anatomy of Experimental Thrombopenic Purpura in the Dog. L. M. Tocantins and H. L. Stewart, Philadelphia.—p. 1.

Pathologic Changes in the Heart, Skeletal Musculature and Liver in Rabbits Treated with Insulin in Shock Dosage. J. Tannenberg, Albany, N. Y.—p. 25.

Growth Processes in Cartilage and Bone Subsequent to Gonadectomy and Administration of Anterior Pituitary Extract of Cattle in Immature Male and Female Guinea Pigs. M. Silberberg and Ruth Silberberg, St. Louis.—p. 55.

*Observations on Etiology of Ulcerative Colitis: III. Distribution of Lesions and Its Possible Significance. R. Lium and J. E. Porter, Boston.—p. 73.

Polyarteritis Nodosa: Report of Case. D. R. Weir, Boston.—p. 79.

Metastasizing Fibroleiomyoma of Uterus: Report of Case and Review of Literature. P. E. Steiner, Chicago.—p. 89.

Primary Hyperparathyroidism with Extensive Renal Calcification and Secondary Hyperplasia of the Parathyroids: Report of Case. J. W. Johnson Jr., New York.—p. 111.

Tularemic Septicemia: Report of Case. P. Kimmelstiel and H. W. Caldwell, Richmond, Va.—p. 127.

Congenital Rhabdomyoma of Heart: Report of Case. J. S. Labate, New York.—p. 137.

Method for Impregnation of Perivascular Nerves on Intracerebral Blood Vessels. S. P. Humphreys, Montreal.—p. 151.

Ulcerative Colitis.—Of six cases of ulcerative colitis that came to necropsy, Lium and Porter state that the first attack of colitis occurred in two only two months before death. Four of the patients had had previous attacks and died during an acute exacerbation of the disease. Cultures of stools and agglutination reactions for dysentery organisms of five of these patients were negative. The cultures of stools for pathogenic bacteria were repeatedly negative of one but Bacillus enteritidis was recovered from the blood stream at necropsy. The disease varied in its extent; one patient showed involvement of only the rectum and sigmoid, in three the lesions extended to the splenic flexure and in one to the midportion of the transverse colon, and one showed involvement of the entire colon without extension beyond the ileocecal valve. In all instances the most severe lesions were in the rectum. At the junction of the rectum and sigmoid the ulcerations developed into three rows running in the longitudinal direction of the intestine. In places the ulcerations extended between the longitudinal rows of ulcers and when this occurred they seemed to follow a linear pattern in the circular direction of the intestine. When the fat and mesenteric attachments were dissected away from the muscular layers of the intestine it was found that the lesions lay directly over the tenial bands. This correlation was found in all six cases. The intestinal tract was unevenly involved by the disease and lesions were found in all stages of development in the same individual. The earliest gross changes observed consisted essentially of hyperemia, edema and petechial submucous hemorrhages. In certain areas in which the lesions had advanced to a later stage, superficial erosions occurred which were covered with fibrin. Other lesions were found which were interpreted as transitional stages between the earliest erosions and the frank ulcerations. Mucus in the epithelial cells was completely or almost completely absent from the early lesions. This was observed in all sections taken from the acutely involved areas and contrasted sharply with the appearance of the mucous membrane in a normal colon. The arrangement of the severest lesions in ulcerative colitis is such that they lie directly over the most powerful muscles, and there may well be a direct relation between the muscles and the lesions. The early stage of ulcerative colitis can be simulated experimentally in animals by hypermotility and spasm of the colonic muscles. Spasm and hypermotility of the intestinal muscles are a prominent clinical feature of ulcerative colitis. It seems highly probable that ulcerative colitis is primarily a disease caused by intense muscular spasm and hypermotility, and therefore the distribution of lesions follows a muscular pattern. Whatever infectious element is present may well be due to secondary involvement of the damaged areas caused by muscular overactivity.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

41: 145-304 (Feb.) 1939

Role of Autonomous Movements of Gastrointestinal Mucous Membrane in Digestion. G. Forssell, Stockholm, Sweden.—p. 145.

Cerebral Angiography by Direct Injection of the Common Carotid Artery. F. Turnbull, Vancouver, B. C.—p. 166.

Bronchiectasis, Collapsed Lung and Triangular Basal Shadow in the Roentgenogram and Their Interrelationship. W. E. Anspach, Chicago.—p. 173.

Roentgenologic Aspect of Lung Edema. Mary Werkenthin, Warsaw, Poland.—p. 183.

Some Fresh Aspects of Appendicitis: Joint Roentgenologic and Histopathologic Study. P. F. Sahyoun and A. Oppenheimer, Beirut, Lebanon, Syria.—p. 188.

*Radiotherapy in Hodgkin's Disease (Malignant Granulomatosis): Anatomic and Clinical Foundations; Governing Principles; Results. R. Gilbert, Geneva, Switzerland.—p. 198.

Results of Iliac Lymphadenectomy with Irradiation in Borderline Cancer of the Cervix. F. J. Taussig, St. Louis.—p. 242.

Hereditary Changes in Descendants of Female Mice Exposed to Roentgen Rays. G. D. Snell, Bar Harbor, Maine, and F. B. Ames, Bangor, Maine.—p. 248.

Measurement of Supervoltage X-Rays with Free-Air Ionization Chamber. L. S. Taylor, G. Singer and A. L. Charlton, Washington, D. C.—p. 256.

Progress in the Design of Rotating Anode Tubes. M. J. Gross and Z. J. Atlee, Chicago.—p. 276.

Radiotherapy in Hodgkin's Disease.—Gilbert finds that x-ray exploration of malignant granulomatosis (Hodgkin's disease or lymphogranulomatosis) offers a valuable means of orienting clinical diagnosis, of determining the site and extent of certain deep lesions, and of verifying and following their regression after treatment or their extension after recurrence. Systematic roentgen therapy is the method of choice because, by reason of the essentially lymphoid character of its lesions, malignant granulomatosis usually has an exceptional degree of radiosensitiveness. The diagnosis should rest on a biopsy whenever possible. In this systemic disease the roentgenologist giving roentgen therapy must act as a general physician. He should know its manifestations, the regions it involves, its modes of extension, its types and evolutionary caprices, its response to roentgen therapy and the reactions of the patient during treatment. The aim of treatment is to obtain as frank and as long remissions as possible, thus restoring to the patient the illusion of recovered health and complete capacity to work. This implies the destruction of all the granulomatous foci, deep and superficial, without jeopardizing the general condition of the patient or the condition of the blood. Except in special cases, roentgen therapy is more important than radium therapy because of the extent of the area to be irradiated and because of the doses to be delivered to the deepest foci. Simple, daily, fractional irradiation should be directed to each invaded region in succession or, according to the cases, directed first to regions requiring the

earliest treatment. In this way each field is irradiated only at intervals of about two days until a sufficient total dose has been given (clinical and blood examinations). Roentgen therapy should be repeated only on the recurrence of the disease. So-called maintenance or prophylactic treatment is superfluous and even detrimental. Roentgen therapy modifies the clinical aspect of the disease and retards its evolution. Its influence is the more pronounced as the disease is less malignant; its extent and the age of the patient also are deciding factors. The average duration of survival, according to different authors, has been doubled and even tripled; the same proportion is found when long term results are analyzed.

Annals of Surgery, Philadelphia

109: 321-480 (March) 1939

Some Recent Advances in Surgical Therapeusis. I. S. Ravdin, Philadelphia.—p. 321.
Surgery of the Gallbladder. B. Brooks and T. E. Wyatt, Nashville, Tenn.—p. 334.
Hepatic and Biliary Tract Disease: Review of Recent Significant Advances. F. F. Boyce, New Orleans.—p. 351.
Large, Cavernous Hemangiomas of Liver: Report of Inoperable Case Treated with Roentgenotherapy. B. S. Ray, New York.—p. 373.
*Carcinoma of Peripapillary Portion of the Duodenum. M. M. Lieber, Philadelphia; H. L. Stewart, Boston, and H. Lund, Uniontown, Pa. —p. 383.
Surgical Procedures for Carcinoma of Transverse Colon. C. W. Mayo and W. C. Simpson, Rochester, Minn.—p. 430.
Short Interval, Two Stage Thyroid Lobectomy for Hyperthyroidism. M. Taffel and S. C. Harvey, New Haven, Conn.—p. 437.
Secondary Deformities in Cleft Palate Patients. V. H. Kazanjian, Boston.—p. 442.
Perforated Wound of the Rectum into the Pouch of Douglas: Caused by Impalement. J. H. Powers and E. S. O'Meara, Cooperstown, N. Y. —p. 468.
Technic for Producing Facial Masks and Models. B. S. West, Hamilton, N. Y.—p. 474.

Carcinoma of Duodenum.—Lieber and his co-workers present a clinical and pathologic review of carcinoma of the peripapillary region of the duodenum, based on seventeen new cases and 205 cases reported in the literature. Thirteen of the authors' cases and one from the literature were found in 22,152 necropsies and three in 4,154 necropsies. The average age was about 54.4 years. Eighty-three of the patients were women and 139 were men. Only thirteen cases occurred in individuals from 15 to 34 years of age. The onset was acute in about 80 and gradual in 20 per cent of the cases. The principal symptoms and signs, irrespective of the mode of onset, were jaundice, pain, loss of weight and strength, anorexia, fever, vomiting, constipation, diarrhea and a sense of weight and pressure in the abdomen. Other less common symptoms were dyspepsia, epigastric distress, flatulence, abdominal distention, nausea and chills. Jaundice was a symptom in 98.2 per cent of the cases and pain in 59.4 per cent; both were associated at the onset of the condition in 24.3 per cent. Fever, sometimes accompanied by chills, occurred in 33.3 per cent of cases, usually late in the condition. A mass was palpable clinically in the region of the primary tumor in only four cases. The liver was palpably enlarged in 77.9 per cent of cases and the gallbladder in 49.9 per cent. A moderate grade of anemia was the rule in these patients. A correct preoperative diagnosis was made in approximately 17.1 per cent of cases. The presence of a lesion in the region of the papilla of Vater was recognized roentgenographically in sixteen of sixty cases examined. At celiotomy, a correct surgical diagnosis was made in approximately 68 per cent of 122 cases. Ninety-seven of 100 patients, treated medically and not subjected to surgery, died on an average of 6.63 months after the onset of the illness. Surgical therapy was instituted in 122 cases. There was an ultimate mortality rate of 72 per cent. The operative mortality was 50.6 per cent. Of fifty-one patients subjected only to some type of palliative procedure for the relief of obstructive jaundice, the operative mortality was 78.4 per cent. Of fifty-seven patients in whom the primary growth was resected either alone or in combination with other surgical procedures, the operative mortality was 30 per cent. The patients who died immedately after an operation were ill for an average of six months before operation. Other patients who were operated on and who survived the immediate postoperative effects lived for an average of two years after the onset of the condition, and a little more than one half of these were reported alive at the end of this period; of this group, those who died were ill for an average of seven months before operation, whereas those reported as still living were ill for an average of only two months before operation. These figures emphasize the importance of early diagnosis and early surgical treatment.

Archives of Internal Medicine, Chicago

63: 201-432 (Feb.) 1939

Etiology of Ulcerative Colitis: I. Preparation, Care and Secretions of Colonic Explants in Dogs. R. Lium and J. Porter, Boston.—p. 201.
Id.: II. Effect of Induced Muscular Spasm on Colonic Explants in Dogs, with Comment on Relation of Muscular Spasm to Ulcerative Colitis. R. Lium, Boston.—p. 210.
*Abnormalities of Calcium Metabolism. F. B. Taylor, P. Michael and L. Barnard, Oakland, Calif.—p. 226.
Renal Amyloidosis: Further Study of Clinical Course and Pathologic Lesions in Fifty-Seven Cases. H. O. Altnow, Minneapolis; Charlotte C. Van Winkle and S. S. Cohen, Oak Terrace, Minn.—p. 249.
Aspiration for Removal of Biopsy Material from the Liver: Report of Thirty-Five Cases. E. Baron, New York.—p. 276.
Relation of Cardiac Output to Congestive Heart Failure. J. McGuire, Rose Shore, V. Hauenstein and F. Goldman, Cincinnati.—p. 290.
Spontaneous Arteriovenous Aneurysms of the Thorax: Review of the Literature, with Report of Two Cases. E. L. Armstrong, C. B. Coggin and H. S. Hendrickson, Los Angeles.—p. 298.
Bundle Branch Block: Criteria of Classification, Diagnosis and Prognosis; Study of 210 Cases, with Follow-Up Data. H. A. Freund and R. Sokolov, Detroit.—p. 318.
*Gastroscopic Observations in Pernicious Anemia. R. Schindler and A. M. Serby, Chicago.—p 334.
Diseases of Metabolism and Nutrition: Review of Certain Recent Contributions. R. M. Wilder, D. I. Rutledge, Rochester, Minn., and D. L. Wilbur, San Francisco.—p. 356.

Abnormalities of Calcium Metabolism.—Taylor and his associates point out that faulty calcium metabolism accounts for a wide range of discomforts and disabilities and in some of its forms leads to untimely death. Calcium is deservedly a central figure in mineral metabolism. Americans ingest too little calcium salt. The body does not naturally conserve calcium. If there is a shortage in the supply of calcium or if there is an increased demand for it, excretion proceeds without economy and the organism is confronted with a progressive deficiency. Oversupply of calcium is probably never a practical problem in human beings. In persons with abnormal deposits of calcium salt, the problem is one of perversion of distribution and not one of excessive intake. The authors believe that one should suspect disturbance of mineral metabolism when there is defective nutrition. A child of subnormal stature may have congenital renal insufficiency, with a fault in the excretion of phosphate, as in renal rickets. A thin woman with diarrhea may be losing calcium, to the disadvantage of the function of the soft tissues; tetany may develop. A poorly nourished person with anemia may have poor absorption of iron or of calcium from the digestive tract. The food eaten may contain too little of these elements. Unusual fractures may be due not only to primary or secondary osseous neoplasm but to poor internal economy of calcium or of phosphate. A tonic convulsive state may be due to a lowered calcium content of the serum. Convulsions may result from both uremia and low calcium values. A high calcium content may cause or predispose to an abnormally slow cardiac rate or to rapid, irregular cardiac action. These effects were seen in a patient with a high calcium content secondary to metastatic carcinoma of bone. Not all spurious deposits of calcium salt are traceable to overabundance of calcium in the blood. In calcinosis and several allied diseases the calcium and phosphate contents of the serum are normal. For some reason there are points of diminished tissue viability in these conditions. Defective local circulation may be the reason. These regions become progressively buried in calcium salt. In cases in which bone is abnormally rarefied phosphatase is often present in the serum to excess. In Paget's disease, phosphatase is present in the bone in less than normal amount. When there is a suspicion of deranged mineral metabolism, the important facts can usually be obtained at the bedside with the aid of the laboratory and x-ray facilities in a class A hospital.

Gastroscopy in Pernicious Anemia.—Schindler and Serby made gastroscopic studies of twenty-three patients with pernicious anemia; nine were seen before any treatment had been given, fourteen after adequate treatment and three before and after treatment. All untreated patients presented superficial gastritis, superficial plus atrophic gastritis or patchy or diffuse

atrophy. No definite improvement of the condition of the gastric mucosa was found in four cases after treatment, atrophy definitely progressed in one, the mucosa of the antrum was found to be normal in seven, there was almost complete regeneration in one, and all portions of the gastric mucosa became normal in four cases. These facts can be explained only by the assumption that two separate diseases of the stomach are present in pernicious anemia. Primarily there is dysfunction of the cells which produce the "antianemic" factor. Secondarily there follows degeneration of the surface epithelium, with superimposed genuine inflammation, which may or may not heal when the deficiency is eliminated. The secondary inflammation is usually combined with a similar disorder of the tongue and of the intestine, with dysfunction of the hemopoietic apparatus and combined degeneration of the spinal cord. However, the absence of the "antianemic" factor may sometimes lead to severe but reversible atrophic gastritis, without diseases of the blood. Atrophic gastritis may be due in many cases to some kind of deficiency and in some to the lack of the "antianemic" factor. This disease should be diagnosed by the use of the gastroscope. A gastroscopic check-up on the effects of therapy is necessary. The frequent incidence of mucosal polyps of the stomach in pernicious anemia has been corroborated.

Archives of Otolaryngology, Chicago

29: 199-402 (Feb.) 1939

Abscess of the Brain: Relation of Histologic to Clinical Features. B. J. Alpers, Philadelphia.—p. 199.
Differential Diagnosis of Intrinsic Carcinoma of the Larynx. V. E. Negus, London, England.—p. 223.
Actinomycosis of the Ear. O. C. Risch, New York.—p. 235.
Tissue Culture of Nasal Ciliated Epithelium. A. W. Proetz and Marian Pfingsten, St. Louis.—p. 252.
Irrigation by Posterior Suction: Its Use in Treatment of Subacute and Early Chronic Posterior Sinusitis. N. Fox, J. W. Harned and S. Peluse, Chicago.—p. 263.
Radical Mastoidectomy: Its Use in Treatment of Dangerous Types of Suppuration of the Temporal Bone. N. A. Bolotow, Providence, R. I.—p. 269.
Process of Healing in Injuries to Capsule of Labyrinth. H. B. Perlman, Chicago.—p. 287.
Acute Mastoiditis from Surgical Point of View. S. Kulkin, New York.—p. 306.
Air-Borne Droplet Infection. H. C. Rosenberger, Cleveland.—p. 314.
Bucco-Antral Fistula: Method of Closure. G. Major, Pittsburgh.—p. 319.
Roentgenologic Study of the Hypopharynx, Larynx and Trachea: Its Use in Laryngeal Diagnosis. J. E. Mulsow, Milwaukee.—p. 326.
Sulfanilamide Therapy for Acute Otitis Media and Acute Mastoiditis. D. C. Baker Jr. and G. E. Bradford, New York.—p. 334.
*Chronic Suppurative Lesions of the Petrous Pyramid: Report of Six Cases with Different Pathologic Characteristics. H. I. Lillie and H. L. Williams, Rochester, Minn.—p. 345.
Cylindroma of Upper Air Passages: Cylindromatous Type of Mixed Tumor. R. Kramer and M. L. Som, New York.—p. 356.

Suppuration of the Petrous Pyramid.—Lillie and Williams report six cases of chronic suppuration of the petrous pyramid; a presumptive diagnosis was made in five after careful consideration and integration of symptoms and signs. The diagnosis was confirmed by an operation directed primarily to the petrous pyramid. If discharge from the ear, low grade sepsis and deep retro-ocular pain, which were absent, had been insisted on as the cardinal symptoms and signs, the diagnosis would have been missed entirely. The six cases exemplify different pathologic processes, ranging through caseated abscess and meningitis to thrombosis of the cavernous sinus, meningitis and rupture into the nasopharynx. Two were cases of encapsulated chronic petrositis without apparent otitis media. While it is not comforting to think of apparently healed mastoiditis or petrositis becoming active again after a period of five or ten years, nevertheless it can do so. In certain cases in which there is an obscure clinical syndrome referable to the head, the history of aural disease may assume a place of great importance in determining the lesion causing such a syndrome. The cases presented show the futility of attemping to fit clinical material into didactic or academic pigeonholes. If exploratory operation had not been instituted before the appearance of complete symptoms and signs in the six cases, the result (five recoveries) might not have been so favorable. This group of cases demonstrates to the authors that it is necessary to approach the petrous pyramid without preconceived ideas regarding the surgical technic that will be adequate for the control of the disease encountered.

Archives of Physical Therapy, Chicago

20: 65-128 (Feb.) 1939

*Evaluation of Skin Protection Against Ultraviolet Rays. A. Bachem and B. Fantus, Chicago.—p. 69.
Investigations in Fever Therapy. F. H. Krusen and E. C. Elkins, Rochester, Minn.—p. 77.
Roentgen Therapy for Inflammatory Lesions. E. T. Leddy, Rochester, Minn.—p. 85.
*Roentgen Treatment of Gas Gangrene. J. F. Kelly and D. A. Dowell, Omaha.—p. 88.
Thermotherapy of Bright's Disease and Its Complications: Preliminary Report. G. W. Stark, Syracuse, N. Y.—p. 94.
Short Wave Epilation. D. Derow, New York.—p. 101.
Chronic Myositis of Lumbar Region: Report on Studies of Fever Therapy. H. B. Shorbe, Oklahoma City.—p. 102.
Study on Economic Aspects of Physical Therapy. R. Kovács, New York.—p. 107.

Protection of Skin Against Ultraviolet Rays.—Bachem and Fantus studied the protective properties against sunburn of several materials by spectroscopic examination and cutaneous tests. From cutaneous tests they find that tragacanth paste is worthless as a protectant against sunburn, that vanishing cream, cold cream and white petrolatum are relatively much less effective than are mixtures of yellow petrolatum and wool fat petrolatum, cream salve and diachylon ointment. The cream salve tested gave the best result. This is an emulsion produced by the addition of about 50 per cent of water to a mixture of one part of wool fat and three parts of petrolatum. Its particular value is no doubt explainable by diffusion, reflection and absorption phenomena. Of the insoluble powders studied, titanium dioxide is the most efficient in its protective value and calamine is next in order. Barium sulfate and esculin were less efficient. Of soluble substances that gave promise of being useful as sunscreens ichthammol, leukichthol, caramel, quinine oleate and menthyl salicylate were tested; 2 per cent ichthammol was about as efficient as 4 per cent caramel (sugar coloring) or 5 per cent menthyl salicylate. Quinine oleate was not found to be as efficient as ichthammol and the other substances. As a sunburn protectant is applied to surfaces of the skin exposed to view, cosmetic quality of the preparation is essential. The authors therefore decided to take advantage of the "cuticolor preparations" developed by Fantus and Dyniewicz. "Cuticolor titanium dioxide" is made with titanium dioxide, which has been found to be the most efficient of the powders tested. To give this white powder a skin color, red ferric oxide (6 per cent) and yellow ferric oxide (8 per cent) are added. Rose water is employed to give it a pleasant odor. Such volatile oils as bergamot, lime, lemon, orange and cologne have photosensitizing qualities and should be avoided in sunscreens. The comparison of cuticolor ointment with various proprietary preparations on the market recommended for protection against sunburn shows that "cuticolor ointment" is superior to any of them and a test exposure of an individual to actual sunburn shows that cuticolor ointment is indeed efficient in a practical test. Formulas for six sunscreen preparations are listed any one of which, the authors say, has been found superior to a number of proprietary sun protectants on the market.

Roentgen Treatment of Gas Gangrene.—Kelly and Dowell believe that early and frequent treatment with small doses of roentgen radiation is the answer to the prevention or treatment of infections with gas forming organisms. They sent out questionnaires to about 100 physicians scattered throughout the United States and Canada from whom they obtained data on 143 cases (including their own). From the results obtained in these cases as compared with past experiences the authors are positive that x-radiation will lower mortality and lessen the necessity for amputation. The mortality rate alone is no longer a gage of successful treatment of gas gangrene and they suggest that in the future the number of amputations as well as the deaths be included in reports concerning methods of treatment in this group of infections. An analysis of the cases reveals that only the severely affected patients will die in spite of x-radiation. Accordingly, treated properly no patient should die of pure gas gangrene but rather from other causes. When it is considered that it is the severely injured, senile or debilitated patients in whom gas gangrene develops, it is realized that the primary disease, without the complication of gas gangrene, presents a variety of handicaps which in themselves will cause death in from 3 to 7 per cent of all cases. The unfortunate

individual in whom gas gangrene develops after a hypodermic injection is an exception to the seriously injured or senile patient. Unexplained pain, swelling or fever following the injection calls for an x-ray examination to establish the presence of gas, in which case roentgen treatment is imperative.

Bulletin of Neurol. Inst. of New York, New York

7: 211-336 (Dec.) 1938

Cerebral Activity Including Conscious Sensation as a Physicochemical Process with Evidence to Indicate That Many Vital Processes Can Be Expressed in Simple Mathematical Relationships The Charles K. Mills Memorial Lecture. C. A. Elsberg, New York.—p. 212

Aspect of the Physiology of Intellect, Illustrated by Jacksonian Seizures. R. M. Brickner, New York.—p. 245

Mental Disorders in Association with Epileptic Seizures in Two Patients with Tumor of the Brain. L. M. Davidoff, Brooklyn.—p. 260

Granulomatous Encephalomyelitis Due to a Protozoan (Toxoplasma or Encephalitozoon): II. Identification of a Case from Literature. A. Wolf and D. Cowen, New York.—p. 266

Transitory Neurologic Changes During Hyperthermia. R. T. Collins, New York.—p. 291

Cerebrospinal Fluid Potassium in Neurologic Disorders. W. M. Honeyman and R. L. Zwemer, New York.—p. 297

Occurrence of Dissociated Disturbances of Pallesthesia and Kinesthesia. R. W. Laidlaw, Mary Alice Hamilton and R. M. Brickner, New York.—p. 303

Apraxia and Aphasia. S. Brock, New York.—p. 321

Nocturnal Epilepsy in Patients with Brain Tumor. J. D. Spillane, New York.—p. 328

Indiana State Medical Assn. Journal, Indianapolis

32: 51-100 (Feb.) 1939

The Present Status of Venereal Disease Control. R. A. Vonderlehr, Washington, D. C.—p. 51

Public Health Aspects of Venereal Diseases. W. C. Kelly, Indianapolis.—p. 54

Laboratory Diagnosis of Syphilis. W. Dodds, Crawfordsville.—p. 57

The Health Department in Syphilis Control. M. Miller, Evansville.—p. 59

Treatment of Latent Syphilis. F. R. N. Carter, South Bend.—p. 60

Neurosyphilis. C. L. Williams, Logansport.—p. 62

Serodiagnosis of Syphilis. L. Y. Mazzini, Indianapolis.—p. 65

Treatment and Management of Gonorrhea. W. W. Hewins, Evansville.—p. 69

Recent Advances in Medicine That Are of Special Significance in Pediatrics. H. F. Helmholz, Rochester, Minn.—p. 71

Nupercaine Combinations Used in Spinal Anesthesia: Eight Year Review. F. W. Ratcliff, Lafayette.—p. 74

Hygiene of Infancy and Childhood. Indiana Pediatric Society.—p. 78

Journal of Experimental Medicine, New York

69: 179-326 (Feb.) 1939

Study of Rickettsiae Grown on Agar Tissue Cultures. H. Zinsser, Florence FitzPatrick and H. Wei, Boston.—p. 179

Specificity of Keratins. L. Pillemer, E. E. Ecker and J. R. Wells, Cleveland.—p. 191

Growth of Fowl Coryza Bodies in Tissue Culture and in Blood Agar. J. B. Nelson, Princeton, N. J.—p. 199

Differences in Immunization and Sensitization in Rabbits Injected with Relatively Avirulent or Highly Virulent Cultures of the Same Strain (H) of Hemolytic Streptococcus. D. M. Angevine, New York.—p. 211

Relationship of Infecting Dosage, Leukocytic Response, Bacteremia and Extent of Pulmonary Involvement to the Outcome of Experimental Lobar Pneumonia in the Dog. O. H. Robertson and J. P. Fox, Chicago.—p. 229

Physiologic Conditions Existing in Connective Tissue. I. Method of Interstitial Spread of Vital Dyes. P. D. McMaster and R. J. Parsons, New York.—p. 247

Id. II. The State of the Fluid in Intradermal Tissue. P. D. McMaster and R. J. Parsons, New York.—p. 265

*Quantitative Relationships Between Immunizing Dose of Epidemic Influenza Virus and Resultant Immunity. T. Francis Jr., New York.—p. 283.

Hereditary Brachydactylia and Allied Abnormalities in Rabbit. H. S. N. Greene and J. A. Saxton Jr., Princeton, N. J.—p. 301

Hemoglobin Production in Anemia Limited by Low Protein Intake: Influence of Iron Intake, Protein Supplements and Fasting. P. F. Hahn and G. H. Whipple, Rochester, N. Y.—p. 315

Relation of Immunizing Dose of Influenza Virus and Immunity.—Francis finds that a direct proportion exists between the concentration of epidemic influenza virus used for intraperitoneal immunization of mice and the degree of immunity to intranasal infection which develops. Mice vaccinated with virus of a given strength resist infection with virus of the same concentration but not more. The fact that there exists a limiting threshold for the degree of immunity which a certain strength of virus will induce indicates that the virus does not multiply after intraperitoneal inoculations. In ferrets a state of partial immunity is induced as a result of subcutaneous vaccination with active influenza virus. Vaccination with doses containing 100 or more intranasal infectious units is required for the production of circulating antibodies. Intranasal inoculation with one infectious unit results in a firm, immediate immunity, although the duration of immunity may bear a relation to the severity of the original infection and consequently to the size of the infecting dose. Ferrets in a state of partial immunity resulting from subcutaneous vaccination or from infection respond to intranasal inoculation of influenza virus with an accelerated production of neutralizing antibodies. The antibody titer under these conditions reaches a much higher level than occurs following a primary infection. Fully immune animals show no further antibody response to a second inoculation.

Journal of Lab. and Clinical Medicine, St. Louis

24: 449-558 (Feb.) 1939

Perforated Peptic Ulcer: Its Differentiation from Acute Pancreatitis by Blood Diastase Determination. J. G. Probstein, P. A. Wheeler and S. H. Gray, St. Louis.—p. 449

*Use of Urethane in Symptomatic Treatment of Bronchial Asthma. L. Farmer, New York.—p. 453.

Coexistence of Diabetes Mellitus and Diabetes Insipidus. Report of Case with Pregnancy. J. A. Greene and R. B. Gibson, Iowa City.—p. 455

Effect of Simultaneous Multiple Injections of Insulin on Blood Sugar. E. Tolstoi and Janeth Ravner, New York.—p. 458.

Comparative Study of Mediums Employed in Isolation of Typhoid Bacilli from Feces and Urines. Cora B. Gunther and L. Tuft, Philadelphia.—p. 461.

Effect of Lymphocytes in Vitro on Bacterial Toxins. H. D. Moor and Norsuda M. Newport, Oklahoma City.—p. 471.

Takata Ara Reaction in Amyloidosis. A. Taran and S. Lipstein, Staten Island, N. Y.—p. 479.

*Some Effects Produced in the Normal Stomach by the Ingestion of Moderate and Massive Quantities of Aluminum Hydroxide Gel. J. P. Quigley, I. H. Emsel and I. Meschan, Cleveland.—p. 485

*Torula Infection of the Central Nervous System: Report of Three Cases. R. G. Magruder, Charlottesville, Va.—p. 495.

Note on Stability of Picrotoxin Solutions. Phoebe J. Crittenden, Washington, D. C.—p. 500

Hemoglobin Content of Human Blood. V. C. Myers and Helen M. Eddy, Cleveland.—p. 502.

Combined Diphtheria Toxoid and Tetanus Toxoid, Alum Precipitated: Prolongation of Accelerated Immunity Following Stimulating Dose of Antigen. F. G. Jones and J. M. Moss, Indianapolis.—p. 512

Preparation of Liver Mediums. D. E. Hasley and H. Schalter, Detroit.—p. 523.

Photo Electric Colorimetry. III. Quantitative Determination of Blood Glucose, Blood Cholesterol, Serum Phosphorus, Plasma Proteins and Urine Sugar. J. E. Andes and D. Northup, Morgantown, W. Va.—p. 529.

Routine Use of Concentration and Culture Methods for Detection of Tubercle Bacilli in Microscopically Negative Sputums and Other Body Fluids. Elizabeth Petran and C. A. Perry, Baltimore.—p. 539.

Standard for Comparing the Vital Capacity of Subjects of Different Size and a Chart for Practical Use. D. J. Edwards and May G. Wilson, New York.—p. 543

Determination of Amino Acid Nitrogen in Blood and Urine: Rapid Colorimetric Method. M. Sabyun, with technical assistance of M. Goodell, Detroit.—p. 548

Ethyl Carbamate in Treatment of Asthma.—During the last eighteen months Farmer has used ethyl carbamate as an antispasmodic in thirty cases of bronchial asthma. It was administered orally to adults in doses of from 1 to 2 Gm. (dissolved in water). Not more than 4 Gm. was given in any one day or for longer than four or five consecutive days. No untoward effects were observed. In fourteen of the thirty cases the alleviating action, which sets in after from fifteen to thirty minutes and lasts several hours, was most satisfactory.

Effects on Normal Stomach of Aluminum Hydroxide Gel.—According to Quigley and his associates, the administration of aluminum hydroxide gel in massive doses (120 cc. daily) for seventy-nine days to normal dogs was without significant effect on the gastric evacuation time or the histologic structure of the gastric tissue, and it only transiently reduced the gastric secretory response of free acid to histamine. Balloon records showed that quantities of aluminum hydroxide within the clinical range failed to produce a significant change in the motility or the tone of the stomach or pyloric antrum. These records were made while the medication was being introduced into the stomach or duodenum. It is believed that the therapeutic action of aluminum hydroxide depends largely on its buffering action on gastric acid and on significant modifications in gastric evacuation and secretory activity seen in the presence of ulcer or other pathologic changes but not in the normal intestine.

Torula Infection of the Central Nervous System.—Since October 1935 Magruder has observed three instances of torula involvement of the central nervous system. Case 1, on admission, presented a clinical picture resembling intracranial tumor. After careful neurologic, laboratory and x-ray studies the diagnosis was unsuspectingly made by culturing the yeastlike organism from the spinal fluid. The organism was believed to be a contaminant and the evidence was discarded. As a result, not until craniotomy had been done was the correct pathologic process determined. Case 2 was that of torulosis in a patient with diabetes mellitus and lymphatic leukemia. The diagnosis was made by the unsuspected finding of yeastlike budding organisms, on microscopic examination, in the spinal fluid. These were identified by further laboratory procedures as Torula histolytica. In the third case the torula infection (the organism was isolated in the spinal fluid) of the central nervous system was of one year's duration. The patient is still doing her daily housework with little inconvenience from the infection. The average length (Levine) of the disease is five or six months. The longest case on record is that of a patient who lived five and one half years. The total of such cases now reported in the literature is sixty-six. Torula infestation of the central nervous system may resemble tuberculous meningitis, encephalitis, cerebral tumor and sometimes abscess of the brain, dementia psychosis and dementia paralytica.

Journal of Nervous and Mental Disease, New York

89: 273-404 (March) 1939

Biochemical Changes Occurring in the Cerebral Blood During the Insulin Treatment of Schizophrenia. H. E. Himwich, Albany, N. Y.; K. M. Bowman, J. Wortis, New York, and J. F. Fazekas.—p. 273.

Nucleus of the Oculomotor Nerve, with Special Reference to Innervation of the Pupil and Fibers from the Pretectal Region. J. W. Benjamin, Evanston, Ill.—p. 294.

Physicochemistry of the Cerebrospinal Fluid: I. Conductivity and Interferometry. Mona Spiegel-Adolf, Philadelphia.—p. 311.

Autonomic Functions of the Cerebral Cortex. R. L. Crouch and J. K. Thompson, Columbia, Mo.—p. 328.

Syndrome of Vestibular Paralysis in Man. P. M. Levin, Dallas, Texas. —p. 335.

Journal of Nutrition, Philadelphia

17: 103-198 (Feb.) 1939

*Quantitative Study, by Means of Spectrographic Analysis, of Zinc in Nutrition. Florence I. Scoular, Denton, Texas.—p. 103.

Rat Acrodynia and the Essential Fatty Acids. F. W. Quackenbush, Blanche Riising Platz and H. Steenbock, Madison, Wis.—p. 115.

Studies of Fat-Free Diets. G. J. Martin, Winona, Minn.—p. 127.

Concentration of Vitamin B_1 in Tissues of the Rat. A. S. Schultz, R. F. Light, L. J. Cracas and L. Atkin, New York.—p. 143.

Hair Growth in Young Albino Rats in Relation to Body Size and Quantity of Food. E. O. Butcher, Clinton, N. Y.—p. 151.

Long-Time Study of Nitrogen, Calcium and Phosphorus Metabolism on a Low Protein Diet. Bernice L. Kunerth and Martha S. Pittman, Manhattan, Kan.—p. 161.

Long-Time Study of Nitrogen, Calcium and Phosphorus Metabolism on a Medium Protein Diet. Martha S. Pittman and Bernice L. Kunerth, Manhattan, Kan.—p. 175.

Study of Breed and Seasonal Variations in the Ascorbic Acid Content of Certified Milk from Guernseys and Holsteins. A. D. Holmes, F. Tripp, E. A. Woelffer, Boston, and G. H. Satterfield, Raleigh, N. C.—p. 187.

Quantitative Study of Zinc in Nutrition.—Scoular performed thirty-five zinc balance studies, for which she used three normal boys of preschool age. The ashed food, feces, urine, distilled water and acid alcohol were analyzed spectrographically for zinc by comparing their spectrums with those produced by solutions of known concentration. The zinc values for food which were analyzed by quantitative spectrographic technic were found to be almost 40 per cent lower than the theoretical values estimated from published analyses for which the turbidimetric method has been used. From 0.04 to 6 per cent of the ingested zinc was eliminated through the urine. The rest of the excreted zinc, representing from 42 to 164 per cent of the ingested amount, was eliminated through the alimentary tract. Since more than two thirds of the thirty-five balance studies gave retentions which were significantly greater than the error determined for the method used, it would seem that zinc is associated with physiologic functioning. On the basis of the limited ingestion range studied it is tentatively concluded that 0.307 mg. of zinc per kilogram of body weight will supply the zinc needs of the preschool child.

Journal of Pharmacology & Exper. Therap., Baltimore

65: 129-226 (Feb.) 1939

Local Anesthetic Properties of Certain Heterocyclic Compounds. G. A. Levvy and H. B. Nisbet, Edinburgh, Scotland.—p. 129.

Studies of Cyclopropane: V. Effect of Morphine, Barbital and Amytal on Concentration of Cyclopropane in Blood Required for Anesthesia and Respiratory Arrest. B. H. Robbins, J. H. Baxter Jr., and O. G. Fitzhugh, Nashville, Tenn.—p. 136.

Influence of Certain Metals on the Stability of Insulin. M. Sahyun, A. Nixon and M. Goodell, Detroit.—p. 143.

Vasoconstrictor Action of Cocaine. W. H. Crosby, Philadelphia.—p. 150.

*Chronic Oral Administration of Atabrine. S. J. Martin, B. Cominole and B. B. Clark, Albany, N. Y.—p. 156.

Effect of Atabrine on Liver and Kidney Function. B. B. Clark, B. Cominole and S. J. Martin, Albany, N. Y.—p. 166.

Effect of Thiobismol on Therapeutic Malaria. W. F. Schwartz, Cleveland.—p. 175.

Effect of Anesthesia on Vasomotor Reversal. R. P. Herwick, C. R. Linegar and T. Koppanyi, Washington, D. C.—p. 185.

Studies on Synergism and Antagonism of Drugs: III. Further Studies on Action of Nicotine and Physostigmine on Sympathetic Ganglions. C. R. Linegar, R. P. Herwick and T. Koppanyi, Washington, D. C. —p. 191.

Metabolic Fate of N-Methylbarbituric Acids. T. C. Butler and M. T. Bush, Nashville, Tenn.—p. 205.

Distribution of Administered Bromide in Comparison with Chloride and Its Relation to Body Fluids. G. B. Wallace and B. B. Brodie, with assistance of M. M. Friedman and D. Brand, New York.—p. 214.

Distribution of Iodide, Thiocyanate, Bromide and Chloride in Central Nervous System and Spinal Fluid. G. B. Wallace and B. B. Brodie, with assistance of M. M. Friedman and D. Brand, New York.—p. 220.

Chronic Oral Administration of Atabrine.—Since daily medication is the rule in malarial prophylaxis, Martin and his colleagues made an attempt to determine the survival period, symptomatology, and the gross and microscopic changes in healthy rabbits, cats and dogs following repeated daily oral feeding of from 17 to 80 per cent of the minimal lethal dose of atabrine. These doses caused death in from nineteen to three days, respectively. The effects of such medication were chiefly gastrointestinal intolerance, disturbances of the central nervous system, progressively increased weight loss associated with anorexia and body weakness, and a yellowish discoloration of the skin, sclera and mucosa of the gastrointestinal tract. Animals receiving from 2 to 3 per cent of their oral minimal lethal dose of atabrine remained in good condition for from six to seven weeks and showed no symptoms except a slight loss in body weight. Gross and microscopic studies of animals examined post mortem revealed certain pathologic changes, but none were specifically characteristic of atabrine toxicity.

Journal of Thoracic Surgery, St. Louis

8: 239-350 (Feb.) 1939

Heart Wounds: Report of Seventeen Patients Operated on in the Medical College of Virginia Hospitals and Discussion of Treatment and Prognosis. I. A. Bigger, Richmond, Va.—p. 239.

Two-Stage Operation for Total Pneumonectomy in Treatment of Carcinoma of the Lung, Demonstrating New Technic for Closure of the Bronchus. W. F. Rienhoff Jr., Baltimore.—p. 254.

Hemidiaphragmatic Paralysis in Treatment of Pulmonary Tuberculosis. J. H. Forsee, St. Louis.—p. 272.

Effect of Pneumothorax on Rate of Pleural Absorption of Fluids: Experimental Study. H. C. Maier, New York.—p. 283.

Anesthesia for Intrathoracic Operations. H. H. Bradshaw, Philadelphia. —p. 293.

Practical Points in Lobectomy. I. A. Sarot, New York.—p. 300.

Mediastinal Teratomas: Report of Unusual Case. W. T. Doran and C. W. Lester, New York.—p. 309.

*Tuberculous Lesion of Lung Eliminated by Suppurative Putrid Infection, with Recovery. S. Berg and R. H. Dieffenbach, Newark, N. J.—p. 316.

Clinical and Roentgenologic Features of Pulmonary Abscess Located in the Superior Division of the Lower Lobes. D. W. Myers and B. Blades, St. Louis.—p. 321.

Mediastinal Emphysema as Complication of Artificial Pneumoperitoneum. A. L. Banyai and G. H. Jurgens, Wauwatosa, Wis.—p. 329.

Instillation of Opaque Oil into the Bronchus by Way of a Catheter Passed Through a Naris into the Trachea. H. B. Hunt and J. D. Bisgard, Omaha.—p. 334.

Unusual Complication Occurring During Thoracoplasty. A. R. Judd, Glen Gardner, N. J.—p. 340.

Thoracoplasty Brace. J. D. Steele Jr., Milwaukee.—p. 342.

Recovery Following Gangrene of Lung.—Berg and Dieffenbach state that acute pulmonary gangrene developed in a patient with a subclavicular cavity of several months' duration. This cavity was diagnosed tuberculous by the presence of certain symptoms and the absence of others, and by the presence of acid-fast organisms in the sputum on several occasions. The gan-

grene that developed consequently was extensive enough to involve the tuberculous area in its entirety. Complete recovery followed surgical drainage and thoracoplasty. This case differs from all other reported cases of the two conditions occurring simultaneously only in its favorable outcome. It is reported for the purpose of calling attention to the fact that if gangrene develops in other patients with tuberculous lesions accompanied by a low Gaffky sputum count the prognosis need not be considered hopeless. Modern surgical intervention permits some expectation of complete recovery

Journal of Urology, Baltimore

41: 103-264 (Feb) 1939

Hemorrhagic Cysts of the Kidney Report of Case. A. J Scholl, Los Angeles —p 103
Physiology of the Kidney from Clinical Standpoint D R Drury, Los Angeles —p 111
*Nephrobronchial Fistula Reports of Two Cases H P Lee, Spokane, Wash —p 117.
Treatment of Chronic Renal Insufficiency T Addis, San Francisco. —p 126
Ureterectomy Its Indications as an Adjunct to Nephrectomy. D. P. Fagerstrom, San Jose, Calif —p 137
Unusual Case of Membranous Inflammation of Ureteral Stump with Spontaneous Rupture B H Hager and E O. Boetticher, Los Angeles —p 151
Endometriosis of Bladder. L R Reynolds, San Francisco —p 157.
Value of Gradual Decompression and Preliminary Drainage in Bladder Neck Surgery J R Dillon, San Francisco —p. 164
Benign Bladder Tumor in a Two Year, Nine Month Old Child G. R. Ridlon, Seattle —p 173
Pyelograms in Triplicate, Advantages of the Method T. D Moore, Memphis, Tenn —p 177
Bony Walled Cyst and Interstitial Cell Tumor of Epididymis, Calculous Pyohydronephrosis and Xanthoma of Abdominal Wall Case Report· Preliminary Report of Spectrographic Analysis of Urinary Calculi C P Mathe, San Francisco —p 188
Chemistry and Biologic Significance of Male Sex Hormones F. C Koch —p 199
*Precocious Hypertrophy of Prostate Following Persistent Treatment with Gonadotropic Hormone T O Powell, Los Angeles —p. 206
Male Sex Hormone Therapy. R V Day, Los Angeles —p 210.
Ureteral Duplication with Extravesical Opening S W. Mulholland, Philadelphia —p 220
Suprapubic Cystostomy by an Endoscopic Technic L D Keyser, Roanoke, Va —p 228
Concurrently Performed Cystoscopy and Intravenous Urography L F. Huffman, Cleveland —p 234
Pathogenicity of Cocci Isolated from Urine M Goldstein, Rochester, Minn —p 237.
New Operation for Relief of Incontinence of Urine and Feces· Preliminary Report. O S Lowsley and R. W Hunt, New York —p 252

Nephrobronchial Fistula.—Fistula secondary to inflammatory processes in and about the kidney may occur at any point adjacent to the renal area, but bronchial fistula is apparently rare Lee points out that bronchial fistula should be suspected in those cases in which the patient gives a history suggesting a pathologic process in the kidney or perinephric abscess, accompanied or followed by pulmonary symptoms, severe cough and profuse sputum Some degree of pulmonary involvement probably accompanies many perinephric abscesses, but the sudden onset of severe cough and profuse purulent sputum is a particularly significant symptom of bronchial involvement. Additional evidence suggesting perinephric abscess is rales or dulness in the overlying base of the lung and elevation of the diaphragm with an overlying inflammatory process in the lung. Drainage of the perinephric abscess usually results in immediate and marked relief of the cough and sputum, with a more gradual but usually complete clearing up of the pulmonary involvement. When the kidney is markedly involved, nephrectomy may be necessary later.

Precocious Hypertrophy of Prostate.—Powell reports a case of hypertrophy of the prostate in a boy of 17 years following treatment of undescended testes with gonadotropic substance. The return of the prostate to the near normal condition after treatment was discontinued in this case offers further proof of the causal relationship between the proved hypertrophy and the glandular therapy. The author warns that caution should be exercised by the physician in treating a young man past puberty with gonadotropic substance. It is his opinion that any patient receiving such treatment should be watched carefully and that treatment should be discontinued on the occurrence of the first symptoms indicating an abnormal stimulation of the secondary sex organs.

Kansas Medical Society Journal, Topeka

40: 45-88 (Feb.) 1939

Congenital Hypertrophic Pyloric Stenosis. R. C. Fredeen, T. G. Orr and F. C. Neff, Kansas City.—p. 45.
Spinal Cord Compression Injuries: Broken Necks and Broken Backs with Spinal Cord and Spinal Nerve Injury. R. M. Stuck, Denver. —p. 48.
Anemias. W. W. Weltmer, Beloit.—p. 52.
Regional Ileitis. O. W. Longwood, Stafford —p. 54.
Intestinal Obstruction, General Considerations and Results of Low Intestinal Intubation. J B Fisher, Wichita —p. 57.
Acute Uremia: Case Report. R. S. Casford, Kansas City, Mo —p 64.
Scarlet Fever Immunization. C. B. Summers, Kansas City, Mo —p 65.

Kentucky Medical Journal, Bowling Green

37: 43-88 (Feb) 1939

The Proper Pelvic Examination. H. J. Davis, Owensboro —p. 43.
The State Hospital Program. J. G Wilson, Frankfort —p. 50
The Prophylaxis and Treatment of Tetanus W. T. Maxson, Lexington —p. 55
Cholecystitis Indications for Operation D. C Elkin, Atlanta, Ga —p 60
Backache. D E. Jones, Louisville —p. 64
Habit Training and Habit Disorders J. W. Bruce, Louisville —p 70
Is Delay Justifiable in the Surgery of Acute Cholecystitis? A. E Grimes and F. M. Massie, Lexington.—p 73
Hoarseness and Cough M. G. Buckles, Louisville —p 76.

Medical Annals of District of Columbia, Washington

8: 31-64 (Feb) 1939

*Observations on Use of Chaulmoogra Oil in Arthritis C Stanley, Washington.—p. 31.
Avitaminoses as Observed in Private Work M. W. Perry and A B Chinn, Washington —p. 39
The Problem of Chronic Alcoholism and Its Treatment R. V. Seliger, Baltimore —p. 44
Measurement of Velocity of Blood Flow from the Arm to Lung by Use of Paraldehyde (Preliminary Report). B. Manchester, Washington —p. 49.
Some Bacteriologic Aspects of Colitis A. F. Kreglow, Washington —p 53.

Chaulmoogra Oil in Arthritis.—Stanley presents the results that he obtained with chaulmoogra oil in the treatment of fifty patients suffering from the atrophic, hypertrophic or mixed forms of arthritis. He acknowledges that the treatment is purely empirical but states that much relief of symptoms ensues. As a rule, the highest percentages of improvement were attained in the acute and subacute forms of the disease. The more general classification of cases was used. Two major hypotheses are proposed in an endeavor to account for the efficacy of chaulmoogra oil in arthritis: (1) its bactericidal potency and (2) its influence on the retention of calcium While the use of chaulmoogra oil in arthritis is empirical, the uniformly favorable experience which has attended its employment by the author and others appears to warrant its continued trial as a therapeutic agent.

Medicine, Baltimore

18: 1-128 (Feb.) 1939

Glycogen Disease S. Van Creveld, Amsterdam, Netherlands —p 1.

Michigan State Medical Society Journal, Lansing

38: 89 184 (Feb) 1939

Fractures Involving the Elbow. K. Speed, Chicago —p 105
Postoperative Oxygen Therapy. E. R. Schmidt, Madison, Wis —p 109.
Obligations of the Medical Profession in Relation to Mental Health. F. G. Ebaugh, Denver.—p. 113.
*Fever of Undetermined Etiology. D. S. Smith, Pontiac —p. 125
*Further Observations on Distribution and Concentration of Sulfanilamide in Tissues of the Body After Enteral and Parenteral Administration J J. Engelfried, Ann Arbor.—p 129.
Treatment of Burns. S J Seeger, Milwaukee —p. 133.

Fever of Undetermined Etiology.—Smith presents a review of patients discharged from the University Hospital during the last ten years in whom the final diagnosis was fever of unexplained etiology. Patients with fever of less than one month, those whose fever subsided during observation although not diagnosed, postoperative cases with fever and children less than 14 years of age were excluded from the study. After these restrictions were adhered to there remained seventy-five cases. Satisfactory follow-up information was obtained in fifty-one cases, some by reexamination, some by information from the local physician and some by questionnaire. Fever of unexplained origin occurred in four classes of patients: (1) those with acute or subacute infection, type and location not determined (thir-

teen), (2) those with neoplasms, origin not apparent (nine), (3) those with rheumatic infections (seven) and (4) those whose fever may possibly be psychogenic in origin (twenty-two) In the first group of cases fever of more than 101 F, leukocytosis or secondary anemia in the majority of them and an elevated sedimentation rate were found These cases defy diagnosis, yet the diagnosis of sepsis would seem to be in order The erythrocyte sedimentation rate has been found to be a rather accurate index of tissue destruction either in neoplasm (second group) or in infection In the third group of cases one year elapsed before a diagnosis of arthritis was made The probability is suggested that the rheumatic state was the cause of the fever from the beginning Rheumatic heart disease occurs in many people who have never had arthritis Also many persons with clinical rheumatic fever recover and evidence of a valve lesion never develops in them However, it seems certain that some patients with undiagnosed fever in whom arthritis or a valve lesion never develops have rheumatic infection, how many must remain a matter of speculation until the etiology of rheumatic infection is positively determined and laboratory diagnosis in the active stage becomes possible In the twenty-two cases of the fourth group there was no objective evidence of a pathologic condition at the time of observation and none has subsequently developed over periods varying from one to ten years In this group every apparently indicated study was carried out with the exception of the brucellin cutaneous test and the sedimentation rate, which was not done in some earlier cases Most of the patients in this group were seen by a psychiatrist, who diagnosed psychoneurosis in the majority of them Fever continued in all except one case In this case the comparatively short period of fever before and after observation, five months and two months respectively, suggests the probability of an organic cause, of which the sedimentation rate might have given evidence The duration of fever before the author's observation in these cases (average 3 8 years) and its length in the follow-up (average three years) would seem to be sufficient time for any organic cause to become evident or for fever due to most causes to subside The author is inclined to agree with those who believe that fever can be of psychogenic origin and to classify these cases under this diagnosis The recognition of psychogenic fever is exceedingly difficult and such a diagnosis should be considered only after a prolonged and thorough period of observation The sedimentation rate is a valuable diagnostic procedure in differentiating infectious fevers from questionable psychogenic ones

Distribution of Sulfanilamide in Tissues.—Engelfried states that free and conjugated sulfanilamide may be recovered from all organs, tissues and fluids of the rabbit, guinea pig and man There is a high percentage of conjugated sulfanilamide in the liver of normal rabbits This percentage found in blood and various tissues of the animals varies with the individual animal Sulfanilamide is eliminated from the body in the urine as free and conjugated sulfanilamide However, a small percentage may be excreted in the stool The complete elimination of the drug from the body will require several days, depending on the amount of drug stored in the tissue and the daily urinary output The quantity of sulfanilamide recovered from the tissues and fluids of two normal adult rabbits four hours after the intraperitoneal injection of the drug was 78 and 81 2 per cent Under the same conditions, 88 5 and 96 4 per cent was recovered from two normal adult guinea pigs

Military Surgeon, Washington, D. C.

84: 193 288 (March) 1939

The Problem of Cancer with Special Reference to Heredity W S Bainbridge—p 193
Aortic Aneurysm and the Antiquity of Syphilis R C Holcomb—p 199
Treatment of Wounds in the Spanish War S Perez Vazquez, A Roquero, L G Urgotti and M Diaz Serrano—p 203
Medical Department Lessons from the Fourth Army Maneuvers, 1937 D C Hilton—p 206
Resume of the Proceedings of the Medicomilitary Inactive Status Training Unit Oct 2 16, 1938 The Mayo Foundation, Rochester, Minn F L Smith—p 228
Clinical Photography in the United States Army R P Creer—p 232
Some Observations on Hydrochloric Acid H Pleasants Jr—p 235
Asepsis and Antisepsis Its Significance in Operating Room Management B A Goodman—p 246
Equine Encephalomyelitis C F Schlotthauer—p 252

New England Journal of Medicine, Boston

220: 175 220 (Feb 2) 1939

Protean Character of Leukemias and of Leukemoid States H Jackson Jr, Boston—p 175
*Hyperhidrosis of Nervous Origin and Its Treatment by Sympathectomy J C White, Boston—p 181
Tularemia Report of Case of Typhoidal Form T L Badger, Boston—p 187
Neoplasms of the Testis Study of Results of Orchidectomy, With and Without Irradiation H Cabot and J Berkson, Rochester, Minn—p 192
Survey of Alcoholic Patients Admitted to the Boston Psychopathic Hospital in 1937 J B Dynes, Boston—p 195
Medical Aspects of Obstetrics T R Goethals, Boston—p 198

Hyperhidrosis of Nervous Origin and Sympathectomy.—White believes that sympathetic denervation of the arm and leg offers a safe and certain cure for hyperhidrosis The operation results in warm and dry extremities If care is taken to avoid the ocular fibers (the section of which results in Horner's syndrome) and to leave the highest portion of the lumbar chain in the male intact (in order to preserve the power of ejaculation) there are no annoying sequelae Case histories are presented Hyperhidrosis in the hands was relieved in one case by paravertebral infiltration of alcohol round the first and second thoracic ganglions, with only a single night's hospitalization and without any interruption of the patient's employment A second equally successful result has been obtained by Freeman Nevertheless it is the author's belief that with rare exception surgical denervation is the better procedure, as its action is certain and the operative risk is almost nil in young and otherwise healthy individuals After alcohol block there is considerable risk of incomplete results and some risk of producing a troublesome intercostal neuritis The procedure must usually be carried out bilaterally, when it is safest to do the operation in two stages The second operation can be done from four days to a week after the first, so that the total period of hospitalization is generally less than two weeks when both arms are denervated, and less than three weeks if both lumbar chains are resected

New York State Journal of Medicine, New York

39: 299 400 (Feb 15) 1939

*Treatment of Dermatophytosis with Trichophytin, Convalescent or Immune Serum and Vaccines E F Traub and J A Tolmach, New York—p 305
Study of Infant Welfare in St Lawrence County in 1935 S W Sayer, Gouverneur, N Y—p 314
A Neglected Entity in Abdominal Pain and a Common Disease—Cicatrizing Enteritis E C Cutler, Boston—p 328
Surgical Treatment of Spastic Paralysis F A Chandler, Chicago—p 338
Treatment of Pneumococcus III Pneumonia with Rabbit Serum and Sulfanilamide R T Garrett, Southampton, and J R Twiss, New York—p 345
Economic Status of Patients Admitted to Tuberculosis Clinics of the New York City Department of Health H R Edwards and Hazel D Connell, New York—p 351
Restoration of Muscle Balance in Treatment of Obstetric Paralysis J B L'Episcopo, Brooklyn—p 357
*Sulfanilamide in Treatment of Chancroid B A Kornblith, A Jacoby and M Wishengrad, New York—p 364
Common Duct Stone in an Early Typhoid Carrier Case H D Vickers, Little Falls, N Y—p 369

Treatment of Dermatophytosis.—A number of authors have reported high percentages of good results or "cures" with the various types of fungus extracts while a minority have found such preparations practically valueless Traub and Tolmach question the advisability of using the term "cure" because only prolonged observation and repeated microscopic and cultural studies could determine this point They believe that only those experiments can be accepted in which the authors actually proved that they were dealing with cases of dermatophytosis "Mycotic-like" eruptions with a positive trichophytin test, cases of probable "ids" and eczematous hand and foot eruptions clinically called dermatophytosis and dermatophytid are not the carefully selected type of cases on which such a study should be based It is difficult to evaluate accurately the results of therapy in dermatophytosis, which even if left untreated runs a most capricious course of improvement, apparent cure and relapse Therefore the authors believe it doubly difficult to judge the value of the biologic remedies when local measures in addition to the injections of vaccines are used Regardless of the type of vaccine or the type of case, the number of patients entirely uninfluenced by treatment remains high and

approximately the same and the number cured or improved relatively low. The longer that the authors followed their patients, the smaller grew the number of cases that they were able to report as "cured" or "improved." They do not feel that vaccine, trichophytin or convalescent serum treatment of dermatophytosis should be discarded but rather that stock of these agents should be taken. The biologic methods of treatment still belong in the laboratory and should not yet be advocated for general use. Some good results in a small number of cases have been reported, but the reasons for the small percentage of good results regardless of the methods of biologic treatment should be investigated. Perhaps the soil on which the fungi grow is altered by factors which have not been taken into account and which, if understood, might help in controlling the disease. Certainly the general health of the patient is a factor. In one instance a long standing proved case of dermatophytosis was completely cleared up following a thyroidectomy. The patient has been observed for seven years since operation and the eruption has not recurred. Methods of preparation of the vaccines and extracts and the question of dosages must be further studied and considered. At the present time it is the authors' belief that the usual local remedies, Whitfield's ointment, x-rays, boric acid ointment, wet dressings with boric acid, Burow's solution or potassium permanganate and the like are still the most practical and useful agents at hand. The routine use of fungus extracts and vaccines by the dermatologist and general practitioner is not yet justified by the results obtained. Further work must be done in this field and this should be considered experimental only.

Sulfanilamide for Chancroid. — Kornblith and his co-workers used sulfanilamide in the treatment of ten cases of chancroid. For the first five days the patient was given daily 80 grains (5.2 Gm.) of the drug, 20 grains (1.3 Gm.) after each meal and before bedtime. From the sixth to the fifteenth day, inclusive, 40 grains (2.6 Gm.) was administered daily, 10 grains (0.65 Gm.) after each meal and before bedtime. After this period, treatment was stopped whether or not the lesion was healed. The entire treatment was ambulatory. There were no untoward effects. The patients were cautioned to stop the drug if diarrhea developed and not to use a saline cathartic in case of constipation. They were instructed not to drink more than 1 quart (liter) of fluid during any twenty-four hours. The only other treatment advised was the use of soap and water to cleanse the lesion locally twice a day. The average time for healing was about two weeks. The authors state that, since the foregoing was submitted for publication, sixty-five proved cases of chancroid have been treated with sulfanilamide and followed. The results have been uniformly excellent. There has been no failure or recurrence. All the lesions were healed after two weeks of treatment with sulfanilamide alone.

Oklahoma State Medical Assn. Journal, McAlester

32: 45-82 (Feb.) 1939

The Surgical Diabetic. G. E. Stanbro, Oklahoma City.—p. 45.
*Dual Etiology of Intractable Asthma. R. M. Balyeat and L. E. Seyler, Oklahoma City.—p. 49.
Experience with Use of Prontylin: Case Report. H. R. Yandell, Ponca City.—p. 51.
Experience with Use of Larostidin: Case Report. G. H. Niemann, Ponca City.—p. 52.
Social Diseases at the Cross Roads. H. H. Porter, R. B. Witcher and C. Knoblock, Tulsa.—p. 54.
Lymphopathia Venereum. J. V. Van Cleve, Wichita, Kan.—p. 61.
Individuality in Treatment of Fractures Into or Near Joints. F. A. Stuart, Tulsa.—p. 64.

Dual Etiology of Intractable Asthma.—Balyeat and Seyler believe that more than 90 per cent of all cases of intractable asthma have a dual etiology: (1) sensitization factors (food, animal emanation and various dusts, pollen and miscellaneous) and (2) mechanical factors (mucus plugs, purulent bronchial secretions, asthmatic bronchiectasis and the usual form of bronchiectasis). Their recent work leads them to believe that the mechanical group of factors is of equal importance in the majority of cases and, in many, of greater importance than the sensitization factors. Practically all cases of intractable asthma start with periodic attacks of asthma due to local edema of the mucosa of the bronchial tubes, produced by contact with some substance to which the patient is specifically sensitive. Later a superimposed infection occurs in these patients, which leads to the production of mucus or purulent material. The plugging of the bronchial tubes with mucus or purulent exudate mechanically produces attacks of asthma. Why asthmatic attacks in cases of intractable asthma occur about the same time each night is explained by the authors by the fact that the amount and rate at which mucus is secreted determine when the bronchial tubes are filled and nature requires them to be cleaned out—the asthmatic attack. In many cases of asthma it is difficult to determine what actually causes death. During the last two years the authors made bronchograms in about 200 cases of intractable asthma, and they find that the majority of patients suffer from some type of bronchiectasis. Most of these patients had leukocyte counts of from 12,000 to 18,000, which is evidence of toxin absorption. They believe, therefore, that death in the majority of cases of intractable asthma is due to chronic sepsis.

Pennsylvania Medical Journal, Harrisburg

42: 465-592 (Feb.) 1939

Obstetric Review: Present Attainment and Future Hope. B. P. Watson, New York.—p. 475.
Effects of Sulfapyridine, Sulfanilamide and Related Compounds in Bacterial Infections. P. H. Long, Eleanor A. Bliss and W. H. Feinstone, Baltimore.—p. 483.
*Lipoid Pneumonia in Infancy and Childhood. I. J. Wolman, Philadelphia.—p. 492.
Rational Management of the Nephritic Child. E. S. Thorpe, Philadelphia.—p. 495.
Acute Infections of the Face. R. O. Dingman, Danville.—p. 499.
Roentgen Therapy: Adjunct in the Armamentarium of the Otolaryngologist and Ophthalmologist in Treatment of Infections. L. E. Wurster, Williamsport.—p. 506.
The General Practitioner and the 1938 Pneumonia Control Campaign. A. L. Luchi, Wilkes-Barre.—p. 509.
Care of the Skin of the Newborn: Study of the Noncleansing Technic. J. A. Ritter and Ruth Stephenson, Philadelphia.—p. 514.
Hypertension: Its Management. W. M. Bortz, Greensburg.—p. 517.
Worth-While Immunization Procedures. P. F. Lucchesi, Philadelphia.—p. 521.
Subglottic Carcinoma of the Larynx. L. H. Clerf, Philadelphia.—p. 527.
Early Diagnosis of Carcinoma of the Colon. J. A. Soffel, Pittsburgh.—p. 531.
Urticaria. S. R. Kaufman, Wilkes-Barre.—p. 534.
Postgraduate Obstetric and Gynecologic Education: The Practitioners' Review. N. W. Vaux, Philadelphia.—p. 537.
The Relation of the Ophthalmologist to the Pediatrist. W. S. Reese, Philadelphia.—p. 540.

Lipoid Pneumonia in Infancy and Childhood.—Broadly speaking, Wolman believes that lipoid pneumonia is preventable and that it could be eliminated if the facts concerning its etiology were known to all who share in the care of infants and children. Although individuals of any age may be affected, the disease is encountered more frequently at both extremes of life. Infants, and especially debilitated infants, seem to be particularly susceptible. The growing use of oily preparations, both as a source of vitamins and in the treatment of respiratory and gastrointestinal diseases, contributes to its increasing frequency. Infants should be fed cod liver oil only when awake and while held in a semierect or sitting position. Oily nose drops in the first two years of life are potentially dangerous; aqueous solutions for intranasal medication are preferable. Parents and nurses should be warned against the forcing of cod liver oil or other oils when the youngster refuses and resists. The blocking of a child's nostrils in order to make him swallow must be absolutely forbidden. Newborn or premature infants and all babies who vomit should be given vitamin concentrates rather than the larger doses of crude cod liver oil. In the feeding of oils and similar substances to weak or debilitated patients, especially to neurologic patients, the greatest forethought and precautionary care should be exercised; that is, aspiration should be prevented at any cost.

Public Health Reports, Washington, D. C.

54: 245-286 (Feb. 17) 1939

*The Formol-Gel Reaction in Rheumatic Fever: Aid in Diagnosis of Active Carditis. M. P. Schultz and Edythe J. Rose.—p. 248.
Concentration of Glutathione in the Erythrocytes of Patients with Rheumatic Fever. M. P. Schultz.—p. 264.

Formol-Gel Reaction and Carditis.—Schultz and Rose studied the serums of 108 febrile hospital or convalescent home patients afflicted with various diseases and seventy with rheumatic fever. The occurrence of both gelation and opacity were observed and recorded. When all the observations (or all in which the erythrocyte sedimentation rate was more than 9 mm.

an hour) in each group are compared, it is evident that positive formol-gel reactions were more frequently observed in rheumatic fever serums than in control serums, although the severity of the illness as reflected by an increase in the erythrocyte sedimentation rate was comparable in the two groups. This is due to the occurrence of more positive formol-gel reactions at relatively low erythrocyte sedimentation rates in the rheumatic fever patients. In the control patients ill with various febrile diseases, the formol-gel reaction was positive only in cases of severe illness. In these instances a parallel was demonstrable between the degree of erythrocyte sedimentation rate acceleration and the occurrence of positive reactions. The results in adult rheumatic fever patients severely ill with arthritis were similar. Patients with rheumatic carditis, on the other hand, reacted differently: (1) strongly positive formol-gel reactions were observed in individuals without obvious severe illness, with relatively little fever and with but slightly increased erythrocyte sedimentation rates, and (2) during the course of illness the occurrence of positive formol-gel reactions did not parallel that of most rapid erythrocyte sedimentation rates. In cases of rheumatic carditis the formol-gel reaction frequently became positive as the erythrocyte sedimentation rate was declining but coincident with the development of signs of active carditis. In some instances the test remained strongly positive while the erythrocyte sedimentation rate returned to normal. A strongly positive result in children, or in adults in the absence of arthritis, is suggestive of active carditis even in the presence of a relatively slow erythrocyte sedimentation rate. Persistently negative reactions indicate that severe carditis is probably not present and may be considered of favorable prognostic import. These observations suggest that the formol-gel reaction may be a valuable additional aid in determining the presence of active rheumatic carditis in patients known to be suffering from rheumatic fever. In those occasional instances in which positive formol-gel reactions persist longer than elevations in the erythrocyte sedimentation rate, this test may provide the only evidence of continued rheumatic activity warranting continued limitation of physical activity. The formol-gel reaction is apparently not influenced, as is the erythrocyte sedimentation rate, by the presence of cardiac decompensation or anemia.

Surgery, Gynecology and Obstetrics, Chicago

68: 257-594 (Feb. 15) 1939

Herniation Through the Diaphragm. J. J. Morton, Rochester, N. Y.—p. 257.
Experimental Traumatic Shock: Further Studies, with Particular Reference to Role of Nervous System. A. Blalock and R. D. Cressmann, Nashville, Tenn.—p. 278.
Benign Strictures of Bile Ducts with New Method of Treatment. G. E. Wilson, Toronto, Ontario.—p. 288.
Cancer of the Stomach. W. H. Ogilvie, London, England.—p. 295.
*Surgery for Ulcerative Colitis. F. W. Rankin, Lexington, Ky.—p. 306.
Regional Ileitis. B. B. Crohn, New York.—p. 314.
Regional Enteritis. C. G. Mixter, Boston.—p. 322.
*Medical Treatment of Bronchiectasis. J. J. Singer, Los Angeles.—p. 327.
*Results of Repeated Operations on the Stomach, Especially for Gastrojejunal Ulcers. H. Finsterer, Vienna, Austria.—p. 334.
Recurrent Hyperthyroidism: Report of 306 Cases Operated on from 1928 to 1937. R. B. Cattell and E. S. Morgan, Boston.—p. 347.
Contractures Due to Burns. W. T. Coughlin, St. Louis.—p. 352.
Evolution of Fracture Treatment. I. Cohn, New Orleans.—p. 362.
The Psychiatrist in Relation to Surgery. F. G. Ebaugh, Denver.—p. 372.
Treatment of Otitic Meningitis Due to Streptococcic Infection by Surgery and Sulfanilamide. C. H. McCaskey, Indianapolis.—p. 377.
Laryngeal Tuberculosis: Surgical Treatment Including Collapse Therapy. F. D. Woodward, University, Va.—p. 390.
Study of Medical and Surgical Aids to Hearing. J. A. Babbitt, Philadelphia.—p. 395.
Phylogenetic Development of Ear. J. M. Robb and H. Palmer, Detroit.—p. 401.
Ocular Manifestations of Allergy. W. B. Black, Kansas City, Mo.—p. 406.
Present Status of Surgery of Lacrimal Sac. R. O. Rychener, Memphis, Tenn.—p. 414.

Surgery for Ulcerative Colitis.—Rankin states that medical management of chronic ulcerative colitis, which consists of a dietary regimen, administration of vitamin C, elimination of focal infections and the use of vaccines and serum, is effective to some degree in the majority of cases. The principal indication for surgery is intractability to medical treatment with resulting damage to the colon, following which the function of the colon is lost and under which conditions it becomes filled with pus and detritus and is a source of absorption. Therefore surgery for chronic ulcerative colitis as for duodenal ulcer is indicated only for the complications, which occur in 15 per cent of the cases. These complications call for various types of surgical intervention. Surgery in the acute, fulminating or hemorrhagic forms of ulcerative colitis has few, if any, advantages. In this type of condition, ileostomy which completely by-passes the fecal current may be done under local anesthesia and occasionally appears to accomplish something. Total or subtotal colectomy should be carried out in multiple stages. Multiple stage operations increase the margin of safety. Sufficient time after an ileostomy should be allowed to elapse before resection is undertaken, in order to replace fluid loss, balance the blood chemistry and increase body weight and strength. The removal of a part or all of the large intestine for chronic ulcerative colitis is definitely desirable when the colon has lost its function.

Medical Treatment of Bronchiectasis.—In the diagnosis of the various types of bronchiectasis, infinite care must be exercised to arrive at definite conclusions. Fortunately, Singer declares that x-ray studies, expert laboratory facilities and the increased acumen in physical diagnosis have made it possible to sift out properly the bronchiectasis from the many pulmonary cases which formerly were diagnosed as tuberculosis, abscess of the lung or even as malignant conditions. Probably the greatest strides thus far have been in finding suitable cases for surgical approach. It has taken almost twenty years to have a fairly good idea of bronchiectasis, and in the next few years a cure may even be found. The careful study of the bacteriologic flora has contributed much to the knowledge of bronchiectasis. The treatment of sinus infections along with other symptomatic treatments have been helpful. The use of postural drainage has kept many patients so well drained of their purulent secretions that complications have been kept down to the minimum. The use of compression belts to support the abdominal muscles and also to raise the diaphragm has been effective in reducing discomforts of coughing and also aiding in expectoration. Medical treatment, while not always effective, has often improved the patient sufficiently for surgical treatment to be undertaken.

Results of Repeated Operations on Stomach.—Finsterer gives the results in a series of 331 cases in which repeated operations (2,753) were performed. There was a total mortality of 11.7 per cent, but it dropped to 8.6 per cent if cases complicated by acute perforation, acute hemorrhage or gastrocolic fistula are omitted. The most frequently performed previous operation was gastro-enterostomy, 190 cases, after which either the old ulcer had not healed or a gastrojejunal ulcer had formed. The radical operation for a gastrojejunal ulcer, following posterior gastro-enterostomy, shows a lower mortality, 6.8 per cent, than when it follows resection, 23.5 per cent. Therefore an operation is indicated at once by the return of complaints in a patient after gastro-enterostomy; and it is to be delayed if the complaints return after resection until at least several attempts with medical therapy have been made. The mortality rate attending the radical operation for recurrent gastrojejunal ulcer is 21.4 per cent. In acute perforation even the lesser operation, either closure or excision of the ulcer, produces poor results. Radical operation for gastrojejunal ulcer under general anesthesia showed a mortality rate of 42.1 per cent, nineteen cases with eight deaths. Three of these deaths were directly attributable to the anesthetic. With local anesthesia the mortality rate was 14.1 per cent. The best permanent results are achieved with the extensive two-thirds to three-fourths resection of the stomach and the preparation of the end to side anastomosis according to Hofmeister-Finsterer, even though there may have been several preceding operations. Of ninety-six patients, eighty-eight are permanently cured, or 91.6 per cent. The author states that the recurrence of a gastrojejunal ulcer after radical operation is not due to special ulcer disposition but to technical faults, too limited resection, Y shaped anastomosis or entero-anastomosis. Therefore, by avoiding these errors in technic, permanent cure is possible even after repeated resections. The term "surgically incurable ulcer" is not applicable to this type of case. The disadvantages of extensive gastric resection, too small a stomach and anemia are of little consequence since they are more easily controlled than a gastrojejunal ulcer following inadequate gastric resection.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Australian and New Zealand J. Surgery, Sydney

8: 225-332 (Jan.) 1939

Percival Pott and His Puffy Tumor. K. F. Russell.—p. 225.
Cerebrocranial Injuries. G. W. Swift.—p. 228.
Drainage in Acute Appendicitis. A. Newton.—p. 241.
Achalasia of the Esophagus. R. Flynn.—p. 244.
Prostatic Surgery: Questions of Hemostatis and Secondary Hemorrhage. H. Newland.—p. 263.
Cause and Diagnosis of Prostatic Obstruction. R. G. S. Harris.—p. 266.
*Cellulitis of the Colon: Manifestation of Diverticulitis. W. A. Hailes. —p. 270.
Anesthesia in Gallbladder Disease: Methods of Treatment in the So-Called "Bad Risk Cases." H. J. Daly.—p. 280.
Motor Mechanisms of the Forebrain. F. Goldby.—p. 285.

Cellulitis of the Colon.—Obstruction from inflammatory reaction and swelling of a length of colon, occurring at the time of the acute inflammation, is the only type of intestinal obstruction that Hailes has encountered in diverticulitis. He refers to true obstruction and not to impaired function of the sigmoid colon. This swelling is much more extensive than that usually seen in the cecum in association with acute appendicitis in those cases in which the cecal wall is involved, a statement which applies both to the induration of the intestinal wall and to the length of intestine involved. The acutely inflamed sigmoid colon appears quite often to be the origin of the inflammatory exudate and not the diverticula. A large area of visceral peritoneum is inflamed. Because of the association of the swelling of the intestine with acute inflammation in one or more diverticula in these cases, it can be assumed that the inflamed diverticulum is responsible for the cellulitis and this cellulitis may be the most prominent lesion present. The cellulitis may be localized to one portion of the sigmoid colon or involve the whole sigmoid or even the whole of the descending colon. The degree of swelling of the intestine may be extreme and it is not uncommon to see a sigmoid loop so swollen and indurated that the loop in question is unmanageable surgically if obstruction has supervened. Cellulitis of the intestine pursues the same course as cellulitis elsewhere in the body and may lead to resolution, local abscess formation, with or without rupture, or obstruction. The presence of diverticula merely indicates the possibility of diverticulitis. A long filling defect, associated with a short history, inflammatory signs and the presence of diverticula, is significant but affords no more than a ray of hope that the condition may not be malignant. The author's experience is that the more extensive the cellulitic reaction, the more likely is the condition to be inflammatory and not malignant.

British Journal of Ophthalmology, London

23: 81-144 (Feb.) 1939

"Egyptian Ophthalmia." F. W. Law.—p. 81.
Ocular Changes Associated with Naevus Flammeus. J. J. Evans and P. J. Evans.—p. 95.
Fluid Equilibrium of Body and Its Relation to the Eye. J. D. Robertson. —p. 106.

British Medical Journal, London

1: 199-256 (Feb. 4) 1939

Fractures of the Neck of the Femur: Review of Thirty-Three Consecutive Cases. S. T. Irwin.—p. 199.
Tuberculosis: Dogmas and Doubts of Sixty Years. J. M. Martin.—p. 204.
*Epidemic Nausea and Vomiting. J. D. Gray.—p. 209.
*Sporadic Infections Due to Bacillus Typhosus. J. R. W. Hay.—p. 211.
Four-Lead Electrocardiograms Taken Fifty-Three Hours Before and After the Onset of Attack of Coronary Occlusion. A. Schott.—p. 213.
Operation for Fracture of the Olecranon. N. Dunn.—p. 214.

Epidemic Nausea and Vomiting.—Toward the end of 1938 an outbreak of nausea and vomiting occurred in South Hampshire. Gray describes this epidemic in order to show that the Thanet outbreak reported by Miller and Raven in 1936 was not an isolated incident and to suggest the probability of the widespread incidence of the disease. In general the illness is short, lasting about two days. The patient complains of dizziness, nausea and vomiting. Less frequently, dizziness and nausea alone may occur. It is usually afebrile. In the South Hampshire epidemic, frontal headache and occasionally bradycardia were also noted. In common with the Danish outbreak (1935) diarrhea was encountered in the epidemic reported by the author and a higher incidence of mild pyrexia was seen as compared with that in Thanet. The epidemic occurred in an institution and the surrounding country at the same time, the total number of patients being twenty-six: thirteen women, six men and seven children. The first case was seen September 26 and the last October 31. Nineteen patients complained of giddiness, twenty-four vomited and all had nausea. Diarrhea was complained of by eleven, three had slight elevation of temperature, three had frontal headache and three had abdominal tenderness. As the disease is of such short duration it is difficult to decide what particular system is attacked. Earlier papers suggest either the gastrointestinal or the nervous system. So far, in all examinations made no organisms known to cause gastro-enteritis have been found. The greatest argument against a food or water contamination is the type of spread in families. Instead of the whole community going down at once there is a gradual peripheral spread. In the school cases two children went home and two days later both parents contracted the disease. In cases 15 to 20 of the country epidemic the passage from one individual to others in the family is clearly seen. Evidence would suggest that it is a person-to-person infection with an incubation period of at least two days. As Miller and Raven suggest, the probabilities point more to an acute infection of the central nervous system, possibly of a virus type. All the symptoms except the diarrhea may then be explained. Presumably a droplet infection is the mode of spread. It is difficult to assume that the attacks heretofore reported are isolated incidents; more probably sporadic cases occur about the country and flare to epidemic proportions only when the environment is ripe. The importance of this disease does not lie in its manifestations, which are mild, but in the possibility of its being confused with an outbreak of food poisoning or Sonne dysentery when it occurs in institutions. The latter are more serious matters than epidemic nausea and vomiting.

Sporadic Cases of Typhoid.—Hay gives an account of ten nonepidemic cases of typhoid seen during the last four years in two relatively small areas (population approximately 45,000 each). He believes that his report illustrates the protean nature of the disease with regard to its clinical manifestation, infectivity and transmission. In only two instances was typhoid suspected during the initial stages of the disease. The author states that his ten cases of sporadic typhoid illustrate (1) the difficulty in establishing a correct and early diagnosis on clinical grounds alone, (2) the importance of obtaining a specimen of blood for examination in any obscure case of fever or indefinite illness, (3) the apparent variation in susceptibility of individuals to infection, (4) the fact that transmission of the disease may occur in so many ways that each case presents an individual problem and (5) the value of close cooperation between the medical practitioner and the medical officer of health.

East African Medical Journal, Nairobi

15: 317-360 (Jan.) 1939

Pulmonary Tuberculosis in Africans. W. H. Smith.—p. 318.
Observations on Nephritis in Uganda Natives. R. S. F. Hennessey. —p. 329.
Disposal of Night Soil in Small Townships (Modification of Indore Process). A. J. Boase.—p. 341.
Malaria Research in Tanganyika. Notes on reports by R. R. Scott.— p. 347.

Journal of Neurology and Psychiatry, London

2: 1-96 (Jan.) 1939

Compulsive Features in a Patient with Leber's Disease. F. J. Curran. —p. 1.
The Arm Reflexes. G. De M. Rudolf.—p. 7.
Persistent Mirror Movements as a Heredofamilial Disorder. E. Guttmann, W. S. Maclay and A. B. Stokes.—p. 13.
Short-Distance Prognosis of Schizophrenia. E. Guttmann, W. Mayer-Gross and E. T. O. Slater.—p. 25.
Cortical Projection of the Medial Geniculate Body. H. H. Woollard and A. Harpman.—p. 35.
*Narcosis Therapy: Critical Review. R. D. Gillespie.—p. 45.

Narcosis Therapy.—In his critical review of the value of therapeutic narcosis, Gillespie states that continuous narcosis if thoroughly carried out is still fraught with some danger in spite of modifications in treatment. Freedom from risk is proportionate to the experience and care of those undertaking the treatment. The recovery rate in continuous narcosis in recent

psychoses never exceeds and usually falls short of the ultimate spontaneous recovery rate. Its therapeutic value is therefore confined mainly to curtailing the duration of psychotic conditions which would eventually pass spontaneously. It is most successful in manic excitements and considerably less successful with depressions of the manic depressive type. With recent schizophrenic disorders its effects are best in excited schizophrenia of the agitated fearful type and in hebephrenia in which the onset has been acute. Psychogenic schizophrenic disturbances in schizoid psychopaths are particularly amenable to this method. Little success is obtained with paranoid schizophrenia and with catatonic stupor. In general, when a psychotic illness follows a relapsing, recurring or periodic course with an acute onset and exogenic causes the more likely is continuous narcosis to curtail the episode. These are essentially the more spontaneously recoverable types. Continuous narcosis also has an administrative value in making chronic psychotic excitements more manageable. Occasional unexpected social recoveries are produced in chronic depressive (affective) psychoses and in chronic schizophrenia. Recently two authors obtained an unprecedentedly high recovery and discharge rate in a small group of schizophrenic patients in whom the duration of the illness was more than two years. The treatment is still entirely empirical and its efficacy is difficult to estimate because different investigators employ varying diagnostic criteria.

Lancet, London

1: 189-248 (Jan. 28) 1939

Effect of War on Civilian Populations. M. Wright.—p. 189.
Hormone Relationship Between the Ovary and the Adrenal Gland and Its Significance in the Etiology of Mammary Cancer. W. Cramer and E. S. Horning.—p. 192.
*Combined Serum and Sulfanilamide in Treatment of Streptococcic Infections in Mice. H. Loewenthal.—p. 197.
*Use of Placental Blood for Transfusion. A. P. M. Page, K. G. Seager and E. M. Ward.—p. 200.
*Transfusion with Placental Blood. J. Halbrecht.—p. 202.
Diverticula of the Duodenojejunal Flexure. R. W. Raven.—p. 203.

Serum and Sulfanilamide in Infections.—Loewenthal states that a single dose of sulfanilamide administered at the time of infection with hemolytic streptococci will protect only a minority of normal mice, whereas it protects the majority of animals which have received, from sixteen to eighteen hours before infection, a dose of antiserum which by itself is incapable of preventing death. Mice infected with hemolytic streptococci can be effectively treated with a combination of sulfanilamide and antiserum even if this treatment is given as late as eighteen hours after infection, when the animals are already severely ill. Since neither sulfanilamide nor antiserum alone achieves this result, it appears that these two agents act in a different but complementary manner.

Placental Blood for Transfusion.—Page and his associates have given twenty-five transfusions of stored placental blood and have had only one severe reaction. This did not appear to have been due to the placental blood but to the development of iso-agglutinins to the cells of the original donor, the patient's son. Slight rises of temperature have occurred on other occasions early in the series and have appeared to follow undue heating of the blood. The authors are now of the opinion that it is unnecessary to heat the blood to body temperature before use. Placental blood is preferable to ordinary adult blood because it contains no food allergens and because its clotting power is greater. The latter is an advantage in dealing with hemorrhage. A citrate saline solution has been found to be the best anticoagulant, for it gives minimal hemolysis after prolonged standing. Sterile collection of the blood is imperative if contamination is to be avoided. The authors find that the third stage of labor is not prolonged when placental blood is collected. There was no appreciable difference in the blood counts of twelve babies whose placentas had supplied blood and twelve controls, performed on the first, second and seventh days after birth and immediately before discharge from the hospital on about the fourteenth day. Icterus occurred in mild degree in three cases, one in the placental group and two in the control group.

Transfusion with Placental Blood in Malaria Countries.—Halbrecht points out that the use of preserved blood, especially placental, has an added advantage over fresh blood in countries with endemic malaria. To be absolutely safe one must not inject fresh blood from any one who has at any time had malaria, whereas with placental blood, even if the mother has had malaria recently, the organisms usually do not pass the placental filter. Still more important is the fact that in preserved blood the plasmodium dies quickly. Preserved placental blood is thus doubly safeguarded. Up to now 116 transfusions of placental blood obtained from 520 placentas have been given. There were no serious accidents and only four reactions, three consisting of a chill and one of dyspnea and tachycardia. The author urges the greater exploitation of this source of blood and states that the need of blood for transfusions in Palestine is great, owing to the large number of casualties admitted.

Medical Journal of Australia, Sydney

1: 93-130 (Jan. 21) 1939

Medicine Past and Present. H. M. Fletcher.—p. 93.
*Serologic Types of Hemolytic Streptococci Causing Scarlet Fever in Sydney. C. White, G. V. Rudd and H. K. Ward, in association with F. H. Wilson and N. J. Symington.—p. 96.
Observations on Epidemiology of Streptococcic Infections. E. V. Keogh and Helen Kelsey.—p. 100.
Occurrence of Hymenolepis Diminuta (Rudolphi, 1819) and Dipylidium Caninum (Linnaeus, 1758) as Parasites of Man in Australia. A. J. Bearup and E. L. Morgan.—p. 104.
Group Practice. L. J. J. Nye.—p. 107.
A Trip Abroad, 1937-1938. J. E. Sherwood.—p. 112.

Types of Scarlet Fever in Sydney.—During a mild epidemic of scarlet fever in Sydney during the winter of 1936, White and his co-workers isolated and typed the infecting strains of hemolytic streptococci from 314 patients. The serologic classification of Griffith was used and the prevalent epidemic strain was found to be type XVII. A similar survey was carried out in the late summer, autumn and winter of 1938. During this period there was no epidemic prevalence of scarlet fever. No one serologic type predominated among the 307 patients. Type XI was found throughout the whole period, but its incidence remained at a fairly steady level. The distribution of Griffith's types causing scarlet fever in Sydney is different from the distribution found in England. In England, types I, II, III and IV account for from 60 to 70 per cent of scarlet fever; in Sydney, 75 per cent of the scarlet fever was caused by types I, IV, XI and XVII in the period under review. A comparison of the capsulated and noncapsulated strains suggests that the capsulated strains have a greater tendency to spread in a community. The capsulated strains are much more likely to give rise to familial infections than the noncapsulated strains. Cross infection was the rule rather than the exception. This confirms similar work in English hospitals.

Tubercle, London

20: 145-204 (Jan.) 1939

Fibrosis of the Lungs. G. T. Hebert.—p. 145.
*Treatment of Tuberculous Cervical Adenitis by Intraglandular Injections of Gelatin, Acriflavine, Calcium Chloride (GACC). R. A. Hunter.—p. 161.
Tuberculosis in Cyprus (Final Report). N. D. Bardswell.—p. 165.

Treatment of Cervical Adenitis.—Hunter used a medium made up of 0.85 Gm. of sodium chloride, 5 Gm. of calcium chloride, 5 Gm. of gelatin, 0.05 Gm. of acriflavine and enough distilled water to make 100 cc., in the treatment of twenty-one children with tuberculous cervical adenitis from 20 to 35 mm. in diameter. The medium was injected into the abscessed gland. From 0.3 to 0.5 cc. of the solution was used for every daily injection. The abscess regressed in twenty cases. Bilateral involvement was found in a few cases, and they responded satisfactorily to treatment. Scarring occurred in only three cases, in two of which they are difficult to detect. Twenty-nine children with slight adenitis with glands less than 20 mm. in diameter, and possibly tuberculous, received an average of three injections each of solution. A favorable response was obtained in twenty-eight. This method appeared to inhibit further hyperplasia; it holds out great promise in the prevention or treatment of cervical adenitis. After the medium has been injected at about six sites and provided the gland ceases to enlarge and soften, the injections can be discontinued until no further reduction in size takes place for a fortnight before more injections are given.

Bruxelles Médical, Brussels

19: 563-592 (March 5) 1939

Is Silicosis a Disease Entity? A. Langelez.—p. 563.
*Importance of Facial Paralysis in Localization of Cerebral Tumors. Y. Piette.—p. 572.

Facial Paralysis in Localization of Cerebral Tumors.—Piette maintains that facial paralysis is observed frequently in the evolution of cerebral tumors. In the examination of thirty cases presenting the syndrome of intracranial hypertension it was observed twenty-one times. In one case it was due to a chronic subdural hematoma and in three cases an arachnoiditis existed. In the other cases there existed tumors of the cerebral hemispheres or of the posterior fossa. Facial paralysis was accompanied by homolateral pyramidal signs in five cases (frontoparietal tumor, tumor of the thalamus, craniopharyngioma, rolandic tumor and tumor of the fourth ventricle). The facial paralysis was of the peripheral type in only four of the cases; the cases in question were acoustic neurinoma, arachnoiditis of the posterior fossa, tumor of the fourth ventricle and a meningioma adhering to the tentorium cerebelli, passing between the cerebellar tentorium and the cerebral peduncles and then passing under the tentorium into the posterior fossa. This tumor was accompanied by homonymous, left-sided hemianopia and the syndrome of the right cerebellopontile angle. Facial paralysis of the peripheral type is an important symptom of tumors of the acoustic nerve and of the cerebellopontile angle. Facial paralysis of the central type is frequently encountered in cerebral tumors of various locations. When the paralysis is an isolated symptom it permits only the determination of the side of the location of the tumor. On the other hand, it assumes great importance if it is accompanied by early psychic disturbances or by motor aphasia. In these cases it indicates almost with certainty a tumor of the frontal lobe.

Gynécologie et Obstétrique, Paris

39: 81-160 (Feb.) 1939

Ovarian Endometriosis: Anatomic, Clinical and Therapeutic Study. G. Cotte and J. Mathieu.—p. 81.
*Indications for Ovariectomy in Course of Gestation. L. Portes and Varangot.—p. 99.
Fourteen Observations of Low Cesarean Sections with Exclusion of Inferior Segment and Drainage According to Mikulicz. L. Digonnet.—p. 105.
Investigations on Serous Phosphatasemia in Course of Pregnancy. J. Caderas de Kerleau and J. Cayla.—p. 112.
Experimental Comparative Studies on Several Abortifacients. A. Patoir, G. Patoir and H. Bédrine.—p. 116.
Influence of Crushing and of Enucleation of Corpus Luteum on Menstruation. N. Kakuschkin.—p. 125.

Ovariectomy During Gestation.—Portes and Varangot maintain that the majority of surgeons, believing that the early exeresis of ovarian cysts avoids the complications due to their rapid growth, their suppuration and especially their torsion, think that "all cysts of the ovary that are diagnosed must be subjected to surgery." This essentially prophylactic conception, and from this point defensible, seems nevertheless in need of revision on the basis of the present biologic knowledge. Ablation of ovarian cysts is not always indicated because some of them, the follicular cysts for example, must be considered as "functional" cysts, abnormal to be sure but likely to disappear spontaneously after the biologic disorder which has given rise to them has subsided. In the course of gestation the prophylactic attitude which favors the ablation of the ovarian cysts appears to have greater justification by reason of the extreme frequency of torsion, which may develop unexpectedly either in the course of gestation or immediately after delivery. However, there are contraindications to surgical intervention; on the one hand, it must be considered that many of the cysts are purely functional; the lutein cysts, for instance, are relatively frequent in the course of gestation; on the other hand, the effects of ovariectomy on the development of the frequency are uncertain. On the basis of experiments on animals and of clinical observations, the authors have been led to accept the following points with regard to ovariectomy in the course of gestation: 1. Ovarian cysts that are diagnosed during pregnancy do not necessarily have to be subjected to surgical treatment or, in an emergency, they have to be so treated only as late as possible. 2. It is wise to remove them only when this is necessary on account of mechanical or infectious complications (torsion, hemorrhage and suppuration). 3. Even in cases in which the intervention is formally indicated, it is advisable to respect the corpus luteum as much as possible, which is easy when it is localized in the healthy ovary, but it is also often possible by dissection or partial resection of the cystic pockets, when it is localized in the diseased ovary. 4. Finally, in the cases in which the ablation of the corpus luteum is inevitable, it is advisable to substitute for it, after the operation, by injecting daily and for a long period massive doses of progesterone without counting too much on the secretory action of the placenta. The authors consider this attitude as the one which, at least in principle, respects the pregnancy as much as possible when it is associated with the development of ovarian cysts.

Presse Médicale, Paris

47: 257-280 (Feb. 18) 1939. Partial Index

Contribution to Study of Pleural Endothelioma. E. Sergent and R. Kourilsky.—p. 257.
Fibrous Osteitides Without Parathyroid Adenoma. R.-J. Weissenbach and J.-A. Lièvre.—p. 260.
*Accidents in Skiing. J. Braine and C. Goury.—p. 263.
Dilatation of Bronchi and of Trachea in an Adult. D. Olmer, J. Olmer, J. Vague and J. Gallian.—p. 272.
Septic Infarct of Myocardium in Course of Secondary Malignant Endocarditis. R. Lutembacher.—p. 273.
Gastric Syphilis. S. Davicovic.—p. 275.
Roentgenologic Aspect of Notches of Vertebral Bodies of Children: Its Anatomic Substrate. P. Passebois and P. Bétoulières.—p. 280.

Accidents in Skiing.—Having discussed the incidence and the etiology of skiing accidents in a previous report, in this paper Braine and Goury take up the lesions as such. The lesions of the inferior members are most frequent and most characteristic in skiing. The typical lesions result first of all from torsional movements, conditioned by the close connection of the foot with the ski. Soon they are restricted to the region of the ankle, the most vulnerable site in the skier; soon the torsion is transmitted to the knee. Moreover, the lesions may be in the hip or in the trochanteric region. The sprains of the ankle joint injure chiefly the external lateral ligament, the anterior talofibular fasciculus of which is typically broken by forced adduction. Following further discussion of benign and grave sprains of the ankle joint, the author takes up the typical skiing injuries of the knee joint. The majority of them, not being grave, escape medical control, for many skiers content themselves with bandaging their own injured knee. As a rule it is the tibial collateral ligament which is injured. Other lesions of the knee that are encountered in skiers are ruptures of the cruciate ligaments and partial fractures by tearing away of the tibial spine, the edge of the tibial plate and so on. Lesions of the menisci, although often suspected, are rarely confirmed. The fractures of the leg that are typical for skiing are the spiral fractures. The tibial lesions are usually located below the middle of the leg. The point of the upper fragment often menaces the skin. The fibula is usually fractured higher up than the tibia. Nevertheless, although it happens rarely, the two bones of the leg may be fractured simultaneously and at the same level. Fractures of the thigh result often from direct contact with an obstacle. However, spiral fractures by torsion are also observed in the thigh. They are often in three fragments and are localized either in the upper third (subtrochanteric) or in the median third of the diaphysis. Fractures of the neck of the femur are rare in skiers, but trochanteric fractures are characteristic, particularly in skiers with insufficient training. Sprains of the hip joint and ruptures of the pelvitrochanteric muscles may give rise to deep pericoxal hematomas. Among the lesions of the superior members the dislocation of the shoulder takes the first rank. The role of the skiing sticks seems to have been exaggerated in the etiology of this lesion. It appears that a certain position of the arms favors this lesion. The traumas of the hand of the skier have two classic locations: they are metacarpophalangeal sprains of the thumb and metacarpal fractures. In these lesions the skiing sticks do play an essential etiologic part. Other lesions of the superior members which occur in skiing are those of the wrist, the forearm, the elbow and the humerus. Excoriations, particularly of the face, may result in unsightly scars. Although cranial fractures are rare, commotio cerebri and lesion of the eye are of considerable importance. Some of the ocular lesions

lead to loss of vision. Traumas of the vertebral column involve chiefly the cervical portion. The thoracic lesions are as a rule more or less severe contusions. Traumas of the abdomen may cause visceral lesions. After pointing out that adequate training of the skier will prevent many accidents, the authors stress the importance of suitable first aid. Transportation of the injured has been organized and improved by the efforts of an international association. Discussing transportation, the authors stress the advantages of Pourchier's ski-sleigh, a sort of stretcher-sleigh combination which can be constructed with the aid of the skiing equipment, the skis serving as runners and the sticks as framework of the stretcher; illustrations clarify the construction. The treatment of sprains has been greatly improved since the use of Leriche's method (local injection of anesthetics) has become widely known. Many skiers now carry syringes and ampules with them. The reduction and immobilization of fractures must be accomplished as early as possible.

Schweizerische medizinische Wochenschrift, Basel

69: 165-188 (Feb. 25) 1939. Partial Index

Criticism of Short Wave Therapy on Basis of Histologic Aspects. S. Jellinek.—p. 165.
Practical Hematology. W. Meyer-Hartmann.—p. 170.
*Second Disease in Pernicious Anemia. H. Liechti.—p. 172.
Changes in Secretion and in Blood Following Gastric Operations. G. G. Fravi.—p. 174.

Second Disease in Pernicious Anemia.—Liechti maintains that, if a patient with pernicious anemia contracts a second disease, the latter may replace the manifestations of the first. The second disease effects an alteration in the hemopoiesis; it does not, as might be assumed, further develop the megalocytic hyperchromic blood picture. On the contrary, the hemogram has a tendency to assume a hypochromic character with macrocytic or normocytic erythropoiesis. The myelopoiesis, which is usually impaired in pernicious anemia, often shows a considerable increase under the influence of the second disease. If observed early, this alteration in the hemopoiesis may be of great diagnostic significance; not that it indicates the type of disorder, but it does indicate that such a disorder exists, even though its symptomatology is still latent. The author describes case histories to illustrate this. In the first case gastric cancer developed in addition to pernicious anemia. The alteration in the hemopoiesis was observable several months before the gastric symptoms appeared. In the second case pulmonary tuberculosis developed in addition to pernicious anemia. In this case again a hyperchromic hemogram was changed to a hypochromic one. The author concludes from these observations that patients with pernicious anemia are in need of constant supervision of their blood picture not only because of a possible relapse of the pernicious anemia but also because a second, perhaps more malignant, disease may develop and produce alterations in the hemogram. Cases of pernicious anemia which later became complicated by gastric cancer have been reported repeatedly in recent years. The concurrence of these two diseases does not seem to be mere accident. To be sure, in some instances of concurrence the gastric cancer is primary, and anemia with the aspects of the pernicious type develops after the extensive gastric resection.

Folia Medica, Naples

25: 57-112 (Jan. 30) 1939. Partial Index

*Urea in Suppurative Surgical Infections. A. G. Chiariello.—p. 61.
Chemical Changes of Skeletal Muscles from Electrical Trauma. G. Montemartini.—p. 76.

Urea in Surgical Infections.—Chiariello observed the results of local application of urea in the treatment of surgical infections in thirty-one cases. The results were satisfactory. In the first series of experiments he observed the effects of urea in comparison with those of other local treatments (application of olive oil or of a 5 per cent solution of tannic acid or a local aseptic medication) in experimental septic burns. In the second series he compared the evolution of experimental aseptic wounds which were treated by local application of either urea solution or of a local or aseptic medication. The author found that urea has a detergent and deodorant action and that it stimulates regeneration of infected tissues. The results are better in chronic osteomyelitis, suppurated favus of the neck and infiltration of the urinary tract from suppuration than in varicose ulcers of long duration and in some other conditions which are related to factors other than the local ones. The treatment gives satisfactory results when it is administered after performance of the necessary surgical interventions but not otherwise. Urea stimulates autolysis of dead tissues and increases the local defenses of new tissues against the local infection. The action of urea on epithelization is slight. The bactericidal effect of urea is indirect. From the clinical and experimental results the author concludes that urea is of value in the treatment of surgical infections.

Gazzetta degli Ospedali e delle Cliniche, Milan

60: 25-48 (Jan. 8) 1939

*Mester's Test for Diagnosis of Rheumatic Diseases. G. Braghin.—p. 27.

Mester's Test for Rheumatic Diseases.—Braghin performed Mester's salicylic acid test on a group of 135 persons either normal or suffering from rheumatic or nonrheumatic diseases. The test was carried out by the original technic, which is as follows: Blood is withdrawn from the middle finger of the right hand of fasting patients before and again thirty and sixty minutes after administration of two or three intracutaneous injections of 0.2 cc. each of a sterile 0.1 per cent aqueous solution of salicylic acid, and the number of leukocytes is determined after each withdrawal. The injections are made at the flexor aspect of the right forearm at a distance of about 5 cm. from each other. They are followed by severe pain and burning sensation of short duration and by the formation, at the points of the injections, of wheals which disappear in a few hours. Positive results are shown by transient leukopenia within the first thirty minutes (and in rare cases within the first sixty minutes) after administration of the injections. The diminution of the leukocytes varies from 20 to 50 per cent or more in comparison with figures which existed before administration of the injections. The author reports the results of his observations in tables. The test gave positive results in all forty-five patients (first table) who were suffering from rheumatic diseases which included acute, subacute and chronic rheumatic polyarthritis, rheumatic ankylopoietic spondylarthritis, rheumatic ischalgia, rheumatic fever with cardiac complications and chronic rheumatic iridocyclitis. The number of leukocytes diminished within 30 and 50 per cent but not more than that. The positive results were obtained in forty cases in the blood which was withdrawn thirty minutes after the injection and in five cases in that which was taken sixty minutes after the injection. The test gave negative results in the group of thirty-one patients (second table) who were suffering from nonrheumatic diseases with symptoms similar to those of rheumatic diseases. The group included patients with tuberculosis, syphilis, articular gonococcic infection and gout. The test gave also negative results in a group of fifty-nine persons (third table), including normal persons and patients with other than rheumatic diseases. The author concludes that the test is specific for the diagnosis of rheumatic diseases. The test is a hemoclastic reaction of the type of that described by D'Amato for syphilis rather than an anaphylactic reaction, as the author previously believed.

Riforma Medica, Naples

55: 161-200 (Feb. 4) 1939

Functional Relations Between Spleen and Stomach. L. Gipperich and U. Butturini.—p. 163.
*Chemotherapy in Gonorrhea. M. Muscolino.—p. 170.
Multiple Congenital Malformations of Leg. V. Ferrara.—p. 178.

Sulfanilamide in Gonorrhea.—Muscolino observed 161 patients who had been given sulfanilamide in the treatment of gonorrhea. All but six (girls) were adults. The adults were given the sulfanilamide in daily doses of from 2 to 3 Gm. in cycles of five consecutive days each with intervals of rest for four days, during which time no other drug was administered, until two cycles had been reached and in rare cases four cycles. The six girls, who had vulvovaginitis, were given daily doses of 1 Gm. for four consecutive days followed by intervals of rest of four days, without any other drugs, up to two and rarely three cycles. Local antiseptic lavages of a weak (1:10,000) permanganate solution were administered daily all during the treatment. The latter failed to control the vulvovaginitis in young girls and was soon discontinued in

three adults because of the intolerance of the patients. The treatment controlled gonorrhea in 113 of 152 adults. The symptoms are abated early in the course of the treatment; the secretion is diminished and soon disappears. As observed microscopically, gonococci completely disappear from the secretion. The drug gives the best results in chronic and subacute gonorrhea and their various complications and better results in men than in women. The satisfactory results are permanent. The author observed the behavior of the crasis of the blood and the spermatogenesis during and after administration of sulfanilamide, in the mentioned doses. It had a slightly harmful but transient effect on the crasis of the blood of fifty patients with acute gonorrhea. It did not interfere with spermatogenesis in five normal men or in five cases of acute gonorrhea. Muscolino therefore concludes that sulfanilamide is valuable in the treatment of gonorrhea and that in the mentioned doses it is both efficient and harmless.

Archiv für Gynäkologie, Berlin

168: 1-350 (Jan. 17) 1939. Partial Index

Endometriosis Externa with Consideration of Cases of Unusual Localization. M. Tausch.—p. 8.
Aminogenic Fetal Deformities. F. Movers.—p. 22.
Naegel's Computation of Term of Birth in Light of Knaus's Theory. F. Friedl, L. Rindler and A. Geller.—p. 26.
Hormone Content of Placenta in Prolonged Pregnancy. K. D. Rosenkranz.—p. 51.
Perisigmoid Adhesions in Women. N. M. Kairis.—p. 84.
Substances Inhibiting Uterine Activity in Thymus and Liver of Fetus. S. Tapfer.—p. 169.
*Treatment of Benign Uterine Hemorrhages in Women Over 40 with Special Consideration of Symptoms of Abolished Function. M. Penkert.—p. 209.
*Prognosis of Postpartum Intra-Uterine Interventions if Performed in Clinic. F. Geppert.—p. 235.
Practical and Theoretical Aspects of Treatment of Menstrual Anomalies by Means of Hormones of Female Gonads. L. Nürnberger.—p. 240.
Clinical Estimation of Hyperemesis Gravidarum. R. Fikentscher.—p. 331.

Treatment of Benign Uterine Hemorrhages.—Penkert discusses the nature of menstrual hemorrhages and their irregularities in women beyond the age of 40 years. Then he gives his attention to the symptoms of abolished function, pointing out that they are most severe after roentgen castration and other forms of irradiation and that they are much less severe and less frequent, or even entirely absent, after removal of the diseased uterus with preservation of the ovaries. Even though the vaginal total extirpation of the uterus, without the ovaries, is not the ideal treatment of metropathias, as regards the absence of the symptoms of abolished function, as regards the rapidity of recovery and as regards the capacity to work again, it is by far superior to the roentgen castration; the same can be said about the abdominal total removal of the uterus without the adnexa in the presence of large myomas. After stressing the contraindications to the ray treatment of myomas, the author says that every benign uterine hemorrhage requires an exact diagnosis and then there arises the question, What is the best treatment for this patient? Roentgenologic treatment involves on the whole less risk and less responsibility than does an operation. Nevetheless, although the author was one of the first who introduced and advocated the roentgen treatment of myomas and metropathias, many years of observations and some disappointments have brought him to the point at which he resorts to this treatment only with reservations and in specially selected cases. He has come to the conclusion that, in spite of the great dangers that are involved in an operation, surgery is nevertheless the most prompt and best method.

Postpartum Intra-Uterine Interventions. — Geppert demonstrates that the prognosis of postpartum intra-uterine interventions that are carried out in modern clinics can be regarded as favorable as regards morbidity as well as mortality, provided of course the management of the delivery has been under clinical supervision from the beginning. The results obtained with postpartum intra-uterine interventions in the clinic are superior to those obtained in home practice, because the aseptic conditions and the presence of trained persons makes an intervention possible, before great loss of blood has taken place. To be sure, it is generally difficult to foresee disturbances of the period of the after-birth. It is known that they may appear *without* recognizable cause. For this reason a number of parturient women must undergo intra-uterine interventions in the home and thereby are exposed to greater hazards. However, the author thinks that women who in earlier deliveries experienced difficulties during the period of after-birth and those who have had abortions or curettages may expect difficulties in the delivery of the placenta in subsequent confinements and it has to be decided whether for these cases delivery in the clinic might perhaps be advisable.

Archiv für klinische Chirurgie, Berlin

194: 171-730 (Jan. 18) 1939. Partial Index

Typical Callus Formation After Ideal Reposition and Wire Suture of Fractures of Thigh. M. Biebl.—p. 171.
Papillomatous Ovarian Mucicystoma Associated with Myxoglobulosis of Appendix. O. Bittmann.—p. 228.
*Diagnosis and Surgical Treatment of Acute Venereal Lymphogranuloma. C. Reimers.—p. 264.
Organoid Character of Fibro-Adenoma of the Breast. H. Güthert.—p. 312.
*Therapy, Pathologic Anatomy and Concept of Thyrotoxicosis. A. Troell.—p. 347.
Effect of Padutin on Circulation. D. Schneider and P.-W. Springorum.—p. 373.
Surgical Treatment of Hyperthyrosis. T. von Matolcsy.—p. 390.

Acute Venereal Lymphogranuloma.—Reimers reports forty-five cases of acute venereal lymphogranuloma treated at the surgical clinic of the Military Medical School in Canton, China. In smears made from human lymph nodes and infected brain of white mice stained by the Giemsa method, the author found both intracellular and extracellular "granulocorpuscular" elements. However, the author is uncertain as to the practical clinical value of this observation in early diagnosis. In his experience the intracerebral implants of lymph node material or of pus in white mice permits an earlier diagnosis than the Frey antigen, even though it requires not less than eight days. The identity of climatic bubo and of venereal lymphogranuloma was established by the crossed reaction of the European antigen and an antigen prepared by the author. The microscopic examination of the tissues, especially in mixed infections, is as valuable in diagnosis as the Frey reaction. For therapeutic purposes the author divided his cases into the following stages: (1) the stage of abscess formation, (2) the stage of inguinal lymph node enlargement, (3) the stage of iliac lymph node enlargement, (4) the fistulous stage and (5) the residual ulceration. He advocates conservative treatment for the acute stage. For the second and fourth stages he suggests radical removal of the involved glands, while involved iliac lymph nodes are to be operated on only in exceptional cases. On the basis of his observations in several of the cases, syphilis likewise is a factor in the formation of genito-anorectal elephantiasis (esthiomene). The author stresses the point that application of the Frey antigen tests in the differential diagnosis of all chronic inflammatory diseases of the large and small intestine should be of value, because the differentiation of venereal lymphogranuloma from other chronic inflammatory diseases on a clinical basis alone is not possible.

Thyrotoxicosis.—Troell operated in 1,842 cases of thyrotoxicosis during the period from 1930 to 1937. His operative mortality, which up to 1924 amounted to 9.6 per cent, fell considerably after the introduction of compound solution of iodine in 1925. This mortality in 354 surgical cases between January 1925 and October 1930 was 3.3 per cent, while the mortality from that period up to 1937 in 579 surgical cases amounted to 2.6 per cent. In the begining only patients with diffuse exophthalmic goiter were placed on preoperative treatment with compound solution of iodine. Later this treatment was extended to highly toxic cases of nodular goiter. In the cases of nodular goiter of mild toxicity the author used both before and after operation a preparation called "kinifos." This is a preparation consisting of quinine, sodium bromide, sodium phosphate and calcium lactate. The reason for withholding compound solution of iodine from patients with toxic nodular goiter was partly the fear of inducing an iodine thyrotoxicosis and partly the clinical and histologic differences between the two types of the disease. However, the difficulties attending a sharp differentiation of the two types, as well as a careful analysis of individual cases, compelled the author to give up the dualistic concept of thyrotoxicosis and assume instead that the differences in the clinical

picture of the two are rather to be explained by the age and constitution of the patient. The demonstration by Okkels of a hypertrophy of the Golgi apparatus characteristically present in all cases of thyrotoxicosis lends considerable support to the theory of nosologic identity of the two clinical pictures. The average duration of preoperative treatment with compound solution of iodine amounted to ten days. Debilitated patients were given, besides the solution, insulin, blood transfusions and intravenous dextrose. On the completion of the operation the patient was given 1,000 cc. of 5 per cent dextrose solution subcutaneously and the same amount by rectum, the latter with addition of 1.25 cc. of tincture of opium and 2 cc. of compound solution of iodine. Very sick patients and those with a severe postoperative reaction were given twice the amount, with the addition of 5 cc. of the compound solution of iodine in the intravenous dextrose infusion.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

104: 629-806 (Jan. 16) 1939. Partial Index

Determination of Hemoglobin in Spontaneous Diuresis. U. Schaare.—p. 656.
Influence of Feeding with Spleen and Liver on Number of Erythrocytes in Dogs in Which Anemia Has Been Induced by a Gallbladder Fistula. A. Zih.—p. 672.
Action of Creatine on Blood Sugar in Frogs. A. Lanari.—p. 679.
Behavior of Ketone Bodies in Experimental Impairment of Liver. G. Mikulicich and S. Markees.—p. 682.
Influence of Nicotine on Mineral Constituents of Blood: Calcium Content of Blood. L. H. Strauss and P. Scheer.—p. 691.
*Interrelations Between Insular Apparatus of Pancreas and the Gonads. Erna Hoffmann.—p. 721.
*Significance of Histamine and of Its Action as Cause of Late Death After Burns. E. Bernhard-Kreis.—p. 756.

Relation of Insular Apparatus of Pancreas to Gonads.—Hoffmann states that clinical and experimental observations indicate that relations exist between the islands of Langerhans and the ovaries or testes. The glycosurias of pregnancy indicate interrelations between the insular apparatus of the pancreas and the ovaries. She reviews the relations of pancreatic disturbances to the genital functions in women and men, pointing out that diabetes may produce amenorrhea and atrophy of the ovaries and of the uterus. Moreover, diabetic women are frequently sterile. Diabetes in men is frequently accompanied by impotence; in fact, impotence often exists before the diabetes has been recognized. Atrophy of the testes and azoospermia result in some diabetic men. The author further reviews the literature on the pathologic-anatomic changes in the gonads of animals in which diabetes was artificially produced and in the insular apparatus of castrated animals. Since the reports about the effects of castration on the insular apparatus were contradictory, she made morphologic studies on male mice. Mature male mice were castrated and, after various lengths of time, the pancreases of these animals were compared with those of normal animals. Summarizing her observations, the author says that relations exist between the gonads and the insular apparatus of the pancreas because castration is followed by a considerable increase in the incretory tissue. The counting and measuring of the islands indicated that this increase of incretory tissue is the result of an enlargement of existing islands. A relative increase, by reduction of the excretory tissue, could be excluded on the basis of the counting and measuring of the islands. Compared to normal values, the increase in insular tissue amounts to approximately 80 per cent. Enlargement of the islands is accomplished by transformation of excretory tissue into insular tissue. From the fact that castration causes an enlargement of the islands it may be concluded that the gonads exert an inhibiting effect on the insular apparatus but that the pancreas, on the other hand, stimulates the gonads. Whether this mutual modification is direct or whether other organs, such as the hypophysis, intervene is a problem that remains to be solved.

Histamine and Late Deaths After Burns.—According to Bernhard-Kreis, the problem of the ultimate cause of death from burns, particularly of late death, has not been solved. Continuing earlier animal experiments on connections between the mechanism of anaphylactic shock and that of damage by heat, he found that, as regards the changes in the organs, former observations were corroborated. He observed that by the repeated injection of extracts from organs that have been damaged by heat it is possible to produce changes which greatly resemble those which are produced by heat directly. Thus it can be concluded that there are no corroborating factors for direct connections between burns and anaphylaxis. The animals uniformly exhibit the signs of a steadily progressing cachexia no matter whether they have been treated with organic macerations that contained protein or with decoctions and roasting extracts that were free from protein but contained peptones and albumoses. The resulting organic changes are predominantly of the parenchymatous degenerative type; however, a comparison with those resulting from poisoning with pure solutions of histamine reveals that they cannot be ascribed to the fact that histamine acts in the extracts. In the organ extracts, particularly those from the skin and the musculature, the biologic methods of assay did not reveal the presence of histamine except in two unusual cases. This applies to the cold macerations of unchanged native organs as well as to the decoctions and roasting products. The action of these extracts and the action of the comparative processes in the living (scalding) is thus ascribed to roasting products and to peptones and albumoses. Action of histamine or of similarly acting substances (H-substances) must still be rejected.

Vestnik Khirurgii, Leningrad

56: 159-308 (Aug.) 1938. Partial Index

Resuscitation of Animals After Fatal Poisoning with Chloroform. I. P. Petrov and Z. I. Strukova.—p. 159.
*Utilization of Human Fat in Surgery. A. D. Kartavova.—p. 169.
Procaine Hydrochloride Block in Fractures of Ribs. L. M. Kapitsa.—p. 176.
Operative Approach to Tumors of the Occipital Fossa. I. S. Babchin.—p. 181.
Skin Temperature in Various Stimulations of Sympathetic Nervous System. A. I. Arutyunov and N. V. Semenov.—p. 188.

The Use of Human Fat in Surgery.—Kartavova calls attention to the fact that fat may act as a source of water in patients with disturbed water balance in addition to constituting the principal source of reserve energy of the organism. Utilization of fat for parenteral administration to patients unable to take nourishment by mouth has been attempted from time to time without definite results. The author reports her experiences with parenteral administration of human fat in fifty cases. The method of preparation is as follows: Fat obtained in the course of an operation is washed several times with cold water, cut up into small pieces and placed in an autoclave for from two to two and one-half hours, filtered through four thicknesses of gauze and sterilized by boiling. The resulting substance is a thick, yellow, odorless fluid with neutral reaction. Another source of fat is that taken from cadavers of persons dying suddenly. The average dose injected subcutaneously amounted to 50 cc. As much as 200 cc. could be administered without untoward effects. The injected fat is readily absorbed and produces no ill effects. It is indicated after resection of the stomach, in grave cases of peritonitis with continuous vomiting and in patients exhausted from suppurative disease.

Vrachebnoe Delo, Kharkov

20: 561-640 (No. 8) 1938. Partial Index

Effect of Antireticular Cytotoxic Vaccine on Healing of Fractures. O. A. Bogomolets.—p. 565.
Question of Capacity of Cells of Malignant Neoplasms for Differentiation. A. D. Timofeevskiy.—p. 569.
Alteration of Functional State of Active Mesenchyma in Allergy Growth of Malignant Neoplasms. Yu. A. Spasokukotskiy.—p. 581.
Metabolism and Physicochemical Characteristics of Malignant Tumors. E. Ya. Sterkin.—p. 593.
*Effect of Estrogenic Substance and Cholesterol on Growth of Neoplasms. I. M. Peysakhovich.—p. 603.
*Diagnosis of Cancer of Pancreas. V. M. Kogan-Yasniy and A. Ya. Altgausen.—p. 611.

Estrogen and Cholesterol in Growth of Neoplasms.—According to Peysakhovich, introduction of large amounts of cholesterol into the organism of an animal with experimental neoplasms (mice and rats) leads to an increase in the average weight and rate of growth of the neoplasm. The mechanism of this effect is bound up with factors having to do with hypercholesterolemia. He believes that lowering of the function of the reticulo-endothelial system, as a result of its partial blockade with cholesterol, is an important factor. Hyperestrogenization in mice and rats leads to a marked increase in the tendency to growth and the weight of all transplanted tumors. Structural

alterations in sex glands, resulting from long continued injections of large doses of endocrine preparations, bring about partial castration, thus creating conditions favoring activation of the growth of neoplastic new formations. Partial castration, in addition, causes a general alteration in the entire system of glands of internal secretion. The author did not observe a synergistic effect when the two substances cholesterol and estrogen were injected simultaneously. The two substances resemble each other in their ability to stimulate the growth of experimental neoplasms.

Cancer of the Pancreas.—Kogan-Yasniy and Altgausen emphasize the difficulty of diagnosis of cancer of the pancreas and its differential diagnosis from cancer of the liver, the biliary tracts and the duodenum and particularly from cancer of the papilla of Vater. The difficulty is due to the fact that the conditions mentioned present a number of similar symptoms, the principal of which is obstructive jaundice. Bergmann's statement that carcinoma of the papilla of Vater and of the duodenum can be diagnosed roentgenologically with considerable accuracy was not confirmed by their clinical experience. The authors emphasize that the determining factor in the differential diagnosis between cancer of the pancreas and cancer of the papilla of Vater is to be found in the functional disturbances of the pancreas. Glycosuria, which results from the invasion of the insular apparatus, is present in a considerable portion of the cases of pancreatic cancer. These cases are likewise characterized by rapid emaciation resulting from diminution of oxidizing processes and from inadequate assimilation of nourishment. Microscopic examination of feces reveals the absence or diminution of pancreatic ferments by the presence of neutral fat and undigested muscle fibers. In view of the fact that trypsin converts the amino acids leucine and tyrosine into indole, the quantitative determination of indican can serve as an accurate index of the excretory function of the pancreas. The authors cite several cases in which the determination of the internal and external pancreatic secretions made it possible to differentiate between carcinoma of the pancreas and that of the papilla of Vater. Their clinical experience gives support to an old statement of Leube that marked indicanuria speaks against cancer of the head of the pancreas.

Acta Medica Scandinavica, Stockholm

98: 289-440 (Jan. 25) 1939. Partial Index

Hyperthyroidism and Treatment with Compound Solution of Iodine. J. Tillgren and N. Sundgren.—p. 289.
Some Experiments with Lymph Gland Material from Cases of Infectious Mononucleosis. P. J. Wising.—p. 328.
*Relapsing Gastric Hemorrhages and Their Treatment. S. Hesser.—p. 340.
Familial Occurrence of Stenosis of Aortic Isthmus. E. Klemola.—p. 355.
Heparin and Sedimentation of Blood. K. N. von Kaulla.—p. 374.
*Observations on Essential Thrombopenia (Morbus Maculosus Werlhofii). S. Heinild.—p. 385.
Sulfanilamide Treatment of Experimental Tuberculosis in Guinea Pigs. N. Levin.—p. 422.

Relapsing Gastric Hemorrhages and Their Treatment.—Hesser says that acute gastric hemorrhage still presents many unsolved problems. During recent years it has attracted interest, principally owing to a certain new attitude in the matter of treatment. Surgeons have urged that operations should be performed in many of these cases during the acute stage, to prevent threatened death from loss of blood. Nevertheless, in medical circles conservative therapy is still recommended, especially since Holmgren and Meulengracht claimed that the prognosis had been materially improved by the abandonment of starvation diet and by giving food in a liquid or semisolid form in sufficient quantities from the beginning of the treatment for gastric ulcers. In view of the fact that bleeding gastric ulcers are a common complaint, the question of treatment is of great practical importance. In this paper the author gives his attention chiefly to the relapsing gastric hemorrhages, which, judging from his own experience, constitute a substantial proportion of the large group of acute gastric hemorrhages. Analyzing a material of 406 patients with gastric hemorrhages, he says that in 284 one hemorrhage occurred and that in 122 two or more hemorrhages occurred; that is, relapses occurred in about 30 per cent of the cases. Among the relapsing cases one relapse is most usual (57 per cent) but two or more relapses are by no means unusual (up to twenty-two relapses in one case). The age of predilection for relapses is on the whole the same as for hemorrhages in general; that is, the frequency predominates in the ages between 30 and 60 years. In the matter of distribution by sex the same rule applies to relapses as to primary hemorrhages, namely that they are much more frequent in men than in women (more than twice as frequent). Regarding the anatomic situation of the ulcer, the author says that duodenal ulcers predominate considerably over ventricular ulcers (twice as frequent). Discussing the prognosis, he says that he observed four deaths in 122 cases of relapsing hemorrhage. The four patients who died were a man aged 84, a woman aged 79, a man aged 64 and a woman aged 41, which shows that, as in the case of primary hemorrhages, the more advanced ages seem most threatened. The author's material included thirty cases in which gastric operations were performed (gastro-enterostomy, and Billroth I and Billroth II) and gastric hemorrhages recurred once or more often. From this it appears that ventricular operations are by no means effective prophylactic measures against hemorrhages.

Essential Thrombopenia (Morbus Maculosus Werlhofii).—Heinild says that essential thrombopenia (idiopathic purpura with thrombocytopenia or hemorrhagic purpura) is a disease of unknown origin characterized by spontaneous hemorrhage of the skin and mucous membranes. Hematologic examination shows a great decrease in the number of blood platelets, absence or retardation of retraction of the clot, prolongation of the bleeding time and a decrease in the capillary resistance. The disease may have an acute or a chronic course. On the basis of the present status of knowledge on thrombopenic conditions, four groups can be differentiated: (1) essential thrombopenia, (2) symptomatic thrombopenia, (3) hyperergic thrombopenia and (4) hypersplenic thrombopenia. After giving the characteristics of these four groups the author reports and analyzes six cases of his own observation. He shows that the first case must be designated as a symptomatic thrombopenia of unknown origin. In this case the course of the disease was malignant, affecting chiefly the bone marrow and, as found at necropsy, toxic changes developed in the lymph glands. Cases 2, 3, 4 and 5 present aspects which closely correspond to the definition of chronic essential thrombopenia. Case 6 is of interest because it is one of those transitional cases which should be placed between the real forms of purpura without decrease in platelets (idiopathic purpura) and essential thrombopenia. The author thinks that the observations of several other investigators and his own investigations justify the theory that deficiency of the capillaries is constantly present and is of fundamental importance in this disease because its degree of severity coincides with the clinical manifestations. But of course it must be remembered that the constantly present symptom thrombopenia is of equal importance. It is of special interest that essential thrombopenia frequently appears at the time of the climacteric, that at this time of life a tendency to purpura has previously been proved experimentally, and that the so-called medicamental allergic thrombopenia seems to have a predilection to appear at this period. Hence it is natural to suppose that disturbances in the endocrine balance also predispose to the development of so-called essential thrombopenia. In this publication it has been proved that the thrombopenic condition is not due to the cessation of the production of estrogen as such. Nor are endocrine variations the only predisposing causes, for the disease often appears in early childhood. This is a warning against the expectation of good results from the conventional treatment of thrombopenic conditions. It is evident that while symptomatic thrombopenia is frequently caused by fundamental disturbances in the hemopoietic system and hence beforehand renders any therapy unavailing, allergic thrombopenia on the other hand has a tendency to spontaneous recovery. The good effect of the splenectomy is indisputable and it seems due more to the improved function of the capillaries than to any increase in the number of platelets. There is no doubt that splenectomy would produce a good result in cases 2, 3, 4 and 5. The present examination, however, does show that conservative treatment, when consistently effected, may cause a considerable improvement in the function of the capillaries. It will be a problem for the future to elucidate the origin of essential thrombopenia.



Rock Sleyster

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, No. 19 — COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS — MAY 13, 1939

ANGINA PECTORIS AND CARDIAC INFARCTION FROM TRAUMA OR UNUSUAL EFFORT

WITH A CONSIDERATION OF CERTAIN MEDICOLEGAL ASPECTS

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NEW YORK

Can a nonpenetrating injury to the chest or severe bodily effort directly provoke cardiac infarction or lead to changes in the heart that give rise to the syndrome of angina pectoris? This question, arising so frequently in connection with claims under workmen's compensation acts, has not yet been satisfactorily answered. The preponderant opinion at present seems to be that trauma and effort so rarely precede the onset of coronary thrombosis that their association is just coincidental. This thesis has been particularly elaborated by Master and his associates.[1] They have analyzed the events attending 530 attacks of coronary thrombosis. They find that 22 per cent of attacks occur when the patient is at rest, 20 per cent while he is asleep, 18 per cent while he is walking, 14 per cent during mild activity and 5 per cent during moderate activity. They point out that since half of the day of normal persons is spent in mild or moderate activity, one might well expect that half of all attacks of coronary thrombosis would occur during this period. The fact that 36.9 per cent of attacks occurred during such mild activity therefore is interpreted as a mere temporal, not a causal, association. Only 2 per cent of the attacks followed unusual exertion, and 5 per cent followed excitement. On the basis of this low incidence of coronary thrombosis following unusual stress the authors conclude that in such cases the association of the stress and the vascular occlusion is only accidental. Coronary thrombosis following operation was encountered in 4 per cent of their series. In this instance, however, the authors do not apply the criteria of probability employed in their discussion of the effect of exertion on coronary thrombosis but on general grounds conclude that operation is a factor that may initiate coronary thrombosis.[2]

These deductions are inconsistent. I fully agree with Master that coronary thrombosis very often occurs while the individual is at rest or asleep and that in many cases no antecedent injury or effort has taken place. But to argue from this that such accidents are not competent causes of coronary thrombosis appears incorrect. The fact that pneumothorax is due usually to pulmonary tuberculosis or to the rupture of an emphysematous bleb does not negate the fact that it may follow trauma to the chest; or that cerebral hemorrhage is caused usually by disease of the cerebral arteries that it may not be due to trauma to the head.

In my experience trauma or bodily effort may directly induce closure of a coronary artery with cardiac infarction or may initiate the syndrome of angina pectoris. This occurs with sufficient frequency to be of practical clinical importance as well as of medicolegal significance. I propose in this paper to present evidence from the literature as well as from my personal experience that injuries to the chest or severe effort may produce signs and symptoms of injury or impairment of the coronary arterial circulation.

TRAUMATIC NONPENETRATING INJURIES OF THE HEART

Many cases of injury to the myocardium following nonpenetrating injuries to the chest have been observed at necropsy and reported in the literature. In Warburg's[3] recent monograph 174 instances of myocardial lesions due to nonpenetrating traumatic injuries to the chest are abstracted from the literature. To these he adds thirteen new cases of his own. Many types of myocardial injury are described, ranging from rupture of one of the cardiac chambers to scattered small myocardial hemorrhages. In a number of the cases in his series, as well as in others not included in his book, damage to the coronary arteries or the anginal syndrome has been observed after this type of injury. A few such cases will be briefly cited.

A man aged 45, struck in the precordium by a wagon shaft, was unconscious for several minutes and when consciousness returned complained of severe pain in the chest, back, left shoulder and left arm.[4] Physical examination revealed no cardiac abnormalities. The patient continued to suffer from cardiac pain, which came particularly when he was active and which prevented him from climbing stairs. He died suddenly six months after the accident. At necropsy organized thrombi were found in the anterior descending branch of the left and in the circumflex branch of the right coronary artery. The myocardium was scarred and there was an aneurysm of the left ventricle at the apex. There was advanced arteriosclerosis of the descending aorta between the aortic isthmus and the diaphragm.

A boy aged 12 years was run over by a wagon and six ribs of the left side of the chest were fractured.[5] After recovery from the accident the boy was apparently well for twelve years, except

1. Master, A. M.; Dack, Simon, and Jaffe, H. L.: Factors and Events Associated with Onset of Coronary Artery Thrombosis, J. A. M. A. **109**: 546 (Aug. 21) 1937.

2. Master, A. M.; Dack, Simon, and Jaffe, H. L.: Postoperative Coronary Occlusion, J. A. M. A. **110**: 1415 (April 30) 1938.

3. Warburg, Erik: Subacute and Chronic Pericardial and Myocardial Lesions Due to Non-Penetrating Traumatic Injuries, New York, Oxford University Press, 1938.

4. Schmincke, A.: Beitr. z. traumatischen Aetiologie d. Arteriosclerose, Deutsches Arch. f. klin. Med. **149**: 145 (Dec.) 1925.

5. Joachim, H., and Mays, A. T.: A Case of Cardiac Aneurysm Probably of Traumatic Origin, Am. Heart J. **2**: 682 (Aug.) 1927.

for occasional attacks of palpitation and vomiting. At the age of 24 he began having attacks of paroxysmal auricular flutter, some of which lasted as long as a week. Heart failure developed in some of the attacks. He died suddenly at the age of 25. Necropsy revealed an aneurysm of the anterior aspect of the left ventricle. The anterior descending branch of the left coronary artery stopped abruptly at the upper edge of the aneurysm. The authors concluded that it had been destroyed by the trauma thirteen years previously.

A man aged 40 who had been perfectly well fell on his back while skiing.[6] When he arose he felt nauseated, but he kept on. A quarter of an hour later he collapsed, vomited and complained of severe precordial pressure and angor animi. The pulse was irregular, the heart sounds faint and the blood pressure 95 systolic, 55 diastolic. In a short time the liver became enlarged. Fever and leukocytosis followed. An electrocardiogram taken twenty-four hours after the fall showed a high take-off of the T waves in leads 2 and 3. A subsequent electrocardiogram showed a typical Q_3-T_3 pattern.

A man aged 57, who was accidentally struck over the precordium by a golf ball, was in a state of shock for fifteen minutes but gradually recovered, so that he was able to attend to his business the following two days.[7] On the night of the third day there was an attack of angina pectoris, with electrocardiographic evidence of cardiac infarction. Prior to the injury there had been no symptoms of coronary disease.

Bean[8] described three cases of coronary thrombosis following trauma. Beck[9] as well as Munck[10] has described contusions of the heart with hemorrhage into the myocardium, verified at necropsy.

Experimental studies have confirmed these clinical observations. Kissane, Fidler and Koons[11] struck blows on the chests of anesthetized dogs. Electrocardiographic abnormalities, especially changes in the RT segments, were observed. Pathologic studies revealed subendocardial and subpericardial hemorrhages. In three cases in which the electrocardiograms were abnormal, no lesions were discovered. The most complete studies are those of Schlomka.[12] Most of the experiments were carried out on rabbits and cats; in two cases dogs were used. The precordium was struck with blows of moderate intensity. Rarely was the blow sufficiently strong to cause rupture of the heart or death. Frequent electrocardiograms were taken. Characteristic and common observations were sinus bradycardia (even when the vagus had previously been cut), extrasystoles, ventricular tachycardia, ventricular fibrillation, auricular fibrillation and partial and complete heart block. In many instances typical "coronary" T waves, with high take-offs, were encountered. X-ray studies usually revealed cardiac dilatation. In many cases the electrocardiographic changes rapidly returned to normal; in not a few there was permanent cardiac damage, manifested by persistent electrocardiographic changes and cardiac enlargement. Cardiac abnormalities occurred particularly when the precordium itself was struck; injuries to other parts of the chest rarely produced cardiac damage. T wave changes occurred with particular frequency from a quick sharp blow with a small object concentrated in a small area, particularly directly over the sternum or the apex. Pathologic changes were chiefly focal myocardial hemorrhages. In some animals who succumbed to the trauma no anatomic lesions were discovered. Some of the rabbits used had previously been sensitized to horse serum. In these, anemic infarcts of the myocardium were very common. From his own studies and from a review of the clinical, physiologic and pathologic literature Schlomka concluded that blows sharply localized to the precordial area produce a spasm of the coronary arteries and that, depending on the duration of the ischemia, the changes in the myocardium may be reversible or irreversible. The coronary arteries themselves may be injured by the ischemia so that permanent damage to these vessels may ensue. He drew a parallel between such coronary spasms and the segmental arterial spasm observed in the case of gunshot wounds that penetrate the tissues near arteries of the extremities. Arterial spasm following arterial embolism may offer an analogous phenomenon.

Kohn[13] was the first to describe the syndrome of traumatic angina pectoris. Careful students of the subject such as Warburg,[3] Schlomka,[12] Beck[9] and Barber[14] all agree that symptoms of angina pectoris may be initiated by traumatic nonpenetrating injuries to the chest in the precordial region. I entertain the same conviction. The following case, which I observed, offers convincing evidence of the validity of this conclusion:

CASE 1.—A man aged 62, who had worked for seventeen years as a plumber, doing heavy work, carrying bathtubs into buildings and the like, without any symptoms whatever, was cleaning a sewer pipe, Nov. 7, 1935, which had become blocked. For this work a heavy cable was fed into the sewer by one man and extracted on the other side by the patient. The cable was new and had considerable spring. The patient was winding the cable into a coil on the receiving end when it suddenly sprang and struck him with considerable force in the left lower part of the chest. He was stunned. Things became dark before his eyes and he had to remain leaning against the wall for half an hour. Then with some effort he finished the job but went to the feeding end of the cable, where the work is lighter. He managed to work slowly and intermittently for the rest of the day. In the afternoon local pain and swelling appeared on his chest where he was struck, and when he returned home his wife remarked that his face looked pale and drawn. The next morning he returned to work, but slight effort, such as using a wrench, provoked pain in the precordium, compelling him to rest every half hour or so. On this day and on the following days he noted increasing difficulty in walking, so that by the fourth day he was compelled to stop, after walking five blocks, by a sense of choking in the left side of the chest, which radiated to the left side of the neck. He continued to work with difficulty for ten days. November 25 he experienced precordial pain which become progressively more severe, which lasted all night and for which he was given a hypodermic injection of morphine. He remained in bed eight weeks after this attack. Ever since he has had angina pectoris on effort. Fluoroscopic examination June 24, 1938, revealed much enlargement of the left ventricle. The first heart sound was of good quality. There was a systolic murmur at the apex. The blood pressure was 110 systolic, 80 diastolic. The electrocardiogram showed low voltage and slurring of the QRS complex in all leads, a Q wave and a flat T wave in lead 1, and a large Q wave and negative T wave in lead 4.

6. Kienle, F.: Klinische und elektrokardiographische Beobachtungen bei traumatischem Hinterwandinfarkt, Ztschr. f. Kreislaufforsch. **30**: 674 (Sept. 15) 1938.

7. Relation of Myocarditis and Coronary Thrombosis to Trauma, Queries and Minor Notes, J. A. M. A. **101**: 1503 (Nov. 4) 1933.

8. Bean, W. B.: Infarction of the Heart, a Morphological and Clinical Appraisal of 300 Cases: I. Predisposing and Precipitating Conditions, Am. Heart J. **14**: 684 (Dec.) 1937.

9. Bright, E. F., and Beck, C. S.: Nonpenetrating Wounds of the Heart, Am. Heart J. **10**: 293 (Feb.) 1935. Beck, C. S.: Contusions of the Heart, J. A. M. A. **104**: 109 (Jan. 12) 1935.

10. Munck, Willy: Investigations on Heart Lesions Due to Blunt Force, Hospitalstid. **80**: 525 (May 11) 1937.

11. Kissane, R. W.; Fidler, R. S., and Koons, R. A.: Electrocardiographic Changes Following External Chest Injuries to Dogs, Ann. Int. Med. **11**: 907 (Dec.) 1938.

12. Schlomka, L.: Commotio Cordis und ihre Folgen, Ergebn. d. inn. Med. u. Kinderh. **47**: 1, 1934.

13. Kohn, H.: Angina Pectoris und Unfall, Klin. Wchnschr. **8**: 795 (April 23), 843 (April 30) 1929.

14. Barber, Hugh: Trauma of the Heart, Brit. M. J. **1**: 433 (Feb. 26) 1938.

CORONARY OCCLUSION OR ANGINA PECTORIS INDUCED BY SEVERE OR UNUSUAL BODILY EFFORT

Ever since Kohn in 1929 set up the syndrome of angina pectoris traumatica there have been repeated references in the literature to coronary artery occlusion following severe bodily effort. Fitzhugh and Hamilton[15] described many cases of coronary thrombosis following unusual or violent physical exertion and concluded that the effort induced the arterial occlusion. In their experience "more often than not fatal anginas or coronary occlusions were immediately preceded by unusual departures from ordinary habits of living."

Kampmann[16] described the case of a man aged 43 who was pulled to the ground violently when the crank handle of a bus that he was cranking kicked back. Immediately he felt sharp precordial pain and became dizzy. He was able to drive a little farther but half an hour after the accident vomited and experienced severe precordial pain, broke out in a cold sweat and became pulseless and cyanotic. He slowly improved. The following day his heart rate was 32. In the subsequent eight days it rose slowly to 60, but he had a number of attacks of Stokes-Adams syncope. Two years later he still had precordial pain on exertion. The heart sounds were faint; the electrocardiogram showed a Q_3-T_3 pattern and a PR interval of 0.21 second. This man experienced an infarction of the posterior aspect of his left ventricle after the accident and with this a complete heart block. The author referred to other reported cases of traumatic heart block.

Phipps,[17] without giving detailed clinical histories that make possible a critical evaluation of his data, reported that in 40 per cent of cases coronary thrombosis occurred under conditions of physical stress and that in 13 per cent it occurred during exercise. Luten[18] found effort rarely associated with coronary thrombosis, but it is chiefly Master who denies that effort is a competent producing cause of coronary thrombosis.

Bean and Mills[19] in a recent study of 1,640 attacks of coronary occlusion found that in northern cities these attacks occur with much greater frequency in winter than in summer. There were twice as many attacks in January as in August. They conclude that the greater frequency of infections and the heightened metabolism in cold weather increase the work of the heart and so add to the hazards to which these patients are exposed.

I have examined and studied twenty-five patients in whom coronary occlusion appears to have been directly induced by severe or unusual exertion. The following cases illustrate this sequence:

CASE 2.—I. R., a man aged 47, seen July 27, 1937, had known for about a year that his blood pressure ranged between 150 and 160. He had, however, felt quite well except for headaches and had worked hard as a painter without symptoms. July 6, while lifting an 85 pound can of paint, he experienced sudden pain in the left arm and in both jaws. He dropped the can and in a few moments felt well. Five hours later, while he was rolling a barrel up an incline, he experienced some pain in the left arm and jaw, as well as in the midchest. The pain became very severe, lasted eight hours and was associated with a sense of choking. He remained in bed for three weeks, until the time of his examination. He was a well built man. Fluoroscopic examination revealed slight enlargement of the left ventricle. The heart sounds were of good quality. There were no murmurs. The blood pressure was 130 systolic, 80 diastolic. The electrocardiogram showed Q waves and sharply negative T waves in leads 2 and 3. He was again seen two months later. He had no symptoms, but the blood pressure had risen to 160 systolic and 100 diastolic. He was awarded compensation under the workmen's compensation law of New York State.

CASE 3.—M. S., a man aged 53, who had always been perfectly well and strong and had no knowledge of previous heart disease or high blood pressure, at about 9:30 a. m. May 22, 1937, lifted a roll of pattern paper, weighing 180 pounds, in order to place it on a table. He experienced sudden sharp and pressing pain in the left lower part of the chest, which radiated to the back of the left side of the chest. For a few minutes he was unable to catch his breath and unable to straighten up. Then he coughed up a small amount of blood with some relief. He immediately stopped work and was driven home by a friend. Severe pain continued throughout the day, in spite of the fact that he received a number of hypodermic injections. An electrocardiogram taken May 24 showed an elevation of the RT segment in leads 1 and 2, a marked depression of the RT segment, a negative T wave and a deep Q wave in lead 4. May 27 he was taken to the Manhattan General Hospital, where he stayed until July 12. Here a diagnosis of coronary thrombosis was made. An electrocardiogram taken July 12 showed negative cove plane T waves in leads 1 and 2, very low voltage in all leads, Q waves in leads 2 and 3 and a negative T wave and a Q wave in lead 4. August 22 he was admitted to the Israel-Zion Hospital, complaining of shortness of breath and precordial pain, and remained in this hospital until October 14. Here a diagnosis of left ventricular insufficiency was made in addition to that of coronary thrombosis. He has been in bed most of the time since then. When he attempts to walk he experiences precordial pain and pain in the back which compel him to rest. Bending too provokes such pain. Sept. 20, 1938, fluoroscopic and x-ray examination revealed marked generalized dilatation of the aorta and a great enlargement of the heart, involving chiefly the left ventricle and auricle. Along the lower half of the left border of the heart there was a marked bulge, which on fluoroscopic examination showed practically no pulsation. On the x-ray film one saw marking the edge of this bulge a crescentic shadow, which apparently represented calcification. The heart sounds were feeble. There were no murmurs. The blood pressure was 130 systolic, 90 diastolic. The electrocardiogram showed low voltage in all leads, Q waves in leads 1, 2 and 4, an elevated RT segment, a negative T wave in leads 1 and 4 and a W shaped QRS complex in leads 2 and 3.

CASE 4.—S. N., a man aged 44, first observed April 2, 1937, had had occasional attacks of midabdominal cramps three years previously unrelated to meals. At that time he was unable to walk or climb stairs as readily as formerly, because he became tired and slightly dyspneic. After a few months these symptoms disappeared, but they recurred in January 1937. A gastrointestinal x-ray series suggested the presence of a peptic ulcer. In March he noted a heaviness in his chest, which was persistent but was not intensified by excitement. March 29, while lifting a 50 pound package, he experienced severe substernal pain, was unable to catch his breath and collapsed. The pain lasted about fifteen minues. He went home by subway, stayed in bed for one day and had no further pain. He was seen four days after the accident. Fluoroscopic examination revealed a heart of normal size and configuration. The heart sounds were dull. There were no murmurs. The blood pressure was 190 systolic, 60 diastolic. The electrocardiogram showed elevation of the RT segment in leads 1, 2 and 4. An electrocardiogram taken April 16 showed a diphasic T wave in lead 1, a depressed RT segment in leads 2 and 3 and an elevated RT segment in lead 4. He was seen at intervals during the following one and a half years, and during this time no additional symptoms developed. He applied for compensation under the workmen's compensation act of New York state but his claim was disallowed.

15. Fitzhugh, Greene, and Hamilton, B. E.: Coronary Occlusion and Fatal Angina Pectoris: Study of the Immediate Causes and Their Prevention, J. A. M. A. **100**: 475 (Feb 18) 1933.
16. Kampmann, Werner: Ein Fall von isolierter Verletzung des Herzreitzleitunessystems, München. med. Wchnschr. **82**: 129 (Jan. 24) 1935.
17. Phipps, Cadis: Contributory Causes of Coronary Thrombosis, J. A. M. A. **106**: 761 (March 7) 1936.
18. Luten, Drew: Contributory Factors in Coronary Occlusion, Am. Heart J. **7**: 36 (Oct.) 1931.
19. Bean, W. B., and Mills, C. A.: Coronary Occlusion, Heart Failure and Environmental Temperatures, Am. Heart J. **16**: 701 (Dec.) 1938.

CASE 5.—S. S., a man aged 49, first observed Nov. 18, 1935, had been perfectly well until three weeks previously, when, while carrying a 60 pound package up one flight from the cellar, he experienced substernal pressure, which lasted about five minutes. This was unassociated with sweating. He continued work but from that time on noted that on working too hard or on walking three blocks he would experience substernal pressure and pain, which would compel him to stop his activities. He was well built. Fluoroscopic examination revealed a heart of normal size and configuration. The first heart sound was split. There were no murmurs. The blood pressure was 130 systolic, 90 diastolic. The electrocardiogram was normal except for a very low T wave in lead 4. He was seen again in February 1936; the symptoms were unchanged. The T wave in lead 4 was now of normal size. He was last seen Nov. 20, 1936. His anginal symptoms persisted.

CASE 6.—H. T. in 1926, when he was 35 years old, was driving a new truck and the motor stalled. He had to crank the engine. This took some time and effort because the motor was new. When he got back into his seat and began to drive away, he experienced pain in the region of the left elbow and some distress in the left side of the chest and had difficulty in catching his breath. He was compelled to stop the truck and get out and walk to the nearest subway station. The original elbow pain stopped after about two minutes but recurred as he walked and compelled him to make his way slowly. He then rested for five weeks and felt quite well until 1936. He had changed to a lighter occupation. In 1936 he began to experience substernal pressure and difficulty in breathing on walking a few blocks, compelling him to rest. These symptoms have continued. I examined him in May 1938. Fluoroscopic examination revealed a transverse heart of normal size. The first heart sound was a bit dull. There were no murmurs. The blood pressure was 140 systolic, 90 diastolic. The electrocardiogram was normal. He was seen again in October 1938. The symptoms of angina pectoris had persisted, but there had been no prolonged attacks of pain. Physical examination disclosed no new developments, but the electrocardiogram now showed a depressed RT segment in lead 1 and a sharply negative T wave in lead 4.

CASE 7.—P. L., a man aged 43, who had worked at his occupation as a painter without any symptoms whatever until July 12, 1937, on this day started work an hour late and rushed to catch up. He was sizing some partitions with a sponge and working very fast. After forty-five minutes he began to sweat and became dizzy. He then experienced a tearing pain to the left of the sternum, which was followed by a constricting sensation, and broke out into a cold sweat. Hypodermic medication was given and he was taken to a hospital, where he stayed for four weeks and where an electrocardiogram showing infarction of the left ventricle was obtained. After discharge from the hospital he still had frequent precordial pain, unrelated to exertion, although greater exertion caused some difficulty in breathing. He was, however, able to resume his work. Fluoroscopic examination September 28 revealed slight enlargement of the left ventricle and some dilatation and elongation of the aorta. The heart sounds were of good quality. There were no murmurs. The blood pressure was 120 systolic, 70 diastolic. The electrocardiogram showed a flat T wave in lead 2 and a sharply negative T wave in lead 3. He applied for compensation under the workmen's compensation laws of New York state, but his claim was disallowed.

CASE 8.—J. B., a man aged 48, first observed Dec. 22, 1936, had had an attack of pressure in the upper part of the abdomen, sweating and collapse five weeks previously, which lasted for ten minutes. He was in bed for ten days and had no recurrence of the pain. He was then well and was working as a hotel keeper. December 20 he had an argument with two drunken men and threw them downstairs and immediately afterward dragged a drunken woman up two flights of stairs. When he reached the top of the stairs he broke out into a cold sweat and was unable to move. He then experienced substernal pain and difficulty in breathing. He was seen two days after this occurrence. He was febrile and appeared ill. There were a few rales at the bases of the lungs. The heart sounds were feeble. The heart rate was rapid. He was seen subsequently on March 25, 1937. Fluoroscopic examination revealed much enlargement of the left ventricle and some enlargement of the left auricle. The first heart sound was faint. The pulmonic second sound was accentuated. There were no murmurs. The blood pressure was 90 systolic, 60 diastolic. The electrocardiogram showed low voltage and slurring of the QRS complex in all leads and Q waves and negative T waves in leads 1 and 4.

CASE 9.—B. S., a man aged 55, first seen in February 1938, was suddenly seized nine years previously, while dancing after a wedding dinner, with substernal pressure which developed into severe pain and was associated with cold sweat. The pain lasted about four hours and was relieved by hypodermic medication. He was in bed for eight weeks. Ever since, walking two blocks would provoke substernal pressure, compelling him to rest. During the three months prior to his present examination, anginal attacks would come on at rest and there had been a number of attacks of paroxysmal dyspnea. Physical examination revealed a few rales at the bases of both lungs. Fluoroscopic examination revealed great enlargement of the left ventricle and of the left auricle. The first heart sound was quite faint and split. The second sound at the apex was reduplicated. There was a systolic murmur at the apex. The blood pressure was 115 systolic, 70 diastolic. The electrocardiogram revealed bundle branch block.

CASE 10.—M. E., a man aged 47, first observed in December 1934, for several years had had some heartburn after eating but was otherwise well. Eleven weeks previously, during intercourse, he experienced pressing pain to the left of the sternum, which radiated down the left arm, and he broke out into a cold sweat. The pain lasted about fifteen minutes and was relieved by a hypodermic injection. He went to work the next day; he again broke out into a cold sweat, feared that another attack was coming on and went to a hospital, where he stayed for four weeks. After discharge from the hospital he noted that walking six blocks or so during cold weather would provoke substernal pressure which compelled him to stop. Fluoroscopic examination revealed some enlargement of the left ventricle. The first heart sound was dull. Both basic second sounds were accentuated. There was a systolic murmur at the aortic area. The blood pressure was 110 systolic, 80 diastolic. The electrocardiogram showed an elevated RT segment with a diphasic T wave and a Q wave in lead 1, a slightly depressed RT segment with a diphasic T wave in lead 3 and a deep Q wave and a negative T wave in lead 4. He was seen again in December 1937, still complaining of angina pectoris on exertion. The electrocardiogram now showed a sharply negative T wave in lead 1, and the T wave in lead 4 had become positive.

CASE 11.—A. N., a man aged 47, who had in July 1930 experienced slight distress in the lower anterior part of the chest while playing ball, would stop when experiencing pain. Oct. 18, 1937, while playing football, he experienced sudden pain in the anterior part of the chest, as though he were in a vice, and broke out into a cold sweat. Severe pain lasted one-half hour and milder pain lasted for two days. The following day his temperature rose to 101 F. He stayed in bed for six days. After this he noted that walking or climbing stairs would provoke substernal pain, compelling him to rest. He was a stockily built man. Fluoroscopic examination October 28 revealed moderate enlargement of the left ventricle and left auricle. The first heart sound was dull. There were no murmurs. The blood pressure was 110 systolic, 70 diastolic. The electrocardiogram showed slurring of the QRS complex and Q waves and sharply negative T waves in leads 2 and 3.

CASE 12.—I. D., a man aged 49, who had been complaining for one and a half years of epigastric burning one or two hours after meals, relieved by sodium bicarbonate or milk, occasionally was awakened at night by this pain. Jan. 18, 1936, while trudging through a heavy snowfall on a very cold day, he began to experience cramplike pain behind the sternum, which radiated to the left upper extremity. He began to sweat. The pain slowly became worse, and he returned home and was given a hypodermic injection a few hours later. Intermittent pain continued for two days and he remained in bed for two weeks. He was seen February 8. He was a stout man of high color. Fluoroscopic examination revealed a heart of normal size and configuration. The heart sounds were of good quality. There were no murmurs. The blood pressure was 135 systolic, 80 diastolic. The

electrocardiogram showed a small Q wave and a low T wave in lead 1 and a deep Q wave and sharply negative T wave in lead 4.

CASE 13.—M. B., a man aged 45, had had a very hard day Sept. 21, 1938, delivering furniture. It was raining heavily and he was wet to the skin. Indeed the weather was so inclement that the driver of the furniture truck telephoned his employer a number of times asking for permission to postpone deliveries to another day, but permission was refused. Toward the end of the day, while the patient was carrying a chifforobe up a second flight of stairs and while he was lifting it high over the banister to make a turn at the landing, he suddenly felt as though something had snapped behind the lower part of the sternum. This was immediately followed by severe pressure across the lower part of the chest, which radiated to the lower pectoral area. He made his way down the stairs, collapsed and was unconscious for four hours. He was taken to a hospital, where he remained for six weeks. After his discharge from the hospital, walking five blocks always provoked sharp parasternal pain on the left, which radiated to the back and which compelled him to rest. Fluoroscopic examination December 30 revealed slight enlargement of both ventricles. The heart sounds were dull. There were no murmurs. The blood pressure was 95 systolic, 70 diastolic. The electrocardiogram had a very low T wave in lead 1 and a Q wave and negative T wave in lead 4.

CASE 14.—S. S., first observed in August 1930, when he was 58, at that time had no symptoms referable to the heart. He had an old tuberculous lesion at both apexes. The left ventricle was slightly enlarged and the aorta a bit dilated and dense. The heart sounds were of good quality. The blood pressure was 160 systolic, 100 diastolic. The electrocardiogram showed only left axis deviation and low voltage. In November 1934 he began to experience substernal pressure and epigastric pain while at work and while walking. The pain would compel him to rest. Feb. 22, 1935, while walking to work during a blizzard, he experienced severe substernal pressure and great weakness. Nevertheless he went to his shop and went to work, and four hours later, while lifting a heavy machine, he became very weak, broke out into a profuse sweat and fainted. Fluoroscopic examination four days later, February 26, revealed that the heart was of the vertical type and not enlarged. The heart sounds were of good quality. There was a systolic murmur at the apex. The blood pressure was 140 systolic, 80 diastolic. The electrocardiogram showed a depressed RT segment, with a diphasic T wave in lead 2 and a Q wave and sharply negative T wave in lead 3. Angina pectoris on slight exertion persisted. He applied for compensation under the workmen's compensation laws of New York State. This case differs from the others in that the symptoms suggesting coronary thrombosis occurred four hours before he went to work and were apparently precipitated by the effort of walking in a snow storm. The final collapse occurred when he overexerted himself four hours after the beginning of the symptoms of coronary thrombosis. In this case the exertion of walking in the snow storm rather than the lifting of a heavy machine must be regarded as the cause of the coronary thrombosis.

These clinical observations, together with those of other authors, warrant the conclusion that the syndrome of coronary occlusion may be induced by a nonpenetrating injury to the chest or by unusual effort and that the same causes may initiate the syndrome of angina pectoris. The reluctance of many clinicians to accept a causal relationship between these phenomena is due in part to the fact that when an injury occurs during work the patient naturally seeks to establish that the work as such was responsible for his disability. He may wittingly or unwittingly construct a logical series of events leading up to his injury. There is a universal tendency among patients to ascribe their illnesses to some concrete indiscretion or accident. Of the fourteen cases that I have presented, only five involved a problem of workmen's compensation. In the others the patient had nothing to gain by ascribing his illness to an unusual effort.

Inability to visualize the mechanism by which lesions of the coronary arteries may be induced by trauma or by bodily effort has further retarded the acceptance of a causal relationship between these events. Recent pathologic studies throw some light on this problem. The manner in which nonpenetrating injuries of the chest can cause myocardial damage has been discussed, and experimental and postmortem evidence has been presented to prove that such traumatic lesions of the heart actually occur.

The way in which unusual bodily effort or strain can induce acute changes in the coronary arteries and in the coronary circulation is suggested by several anatomic studies. Leary [20] states that rupture of an atheromatous cavity of the wall of a coronary artery into the lumen is the standard terminal lesion in older persons dying of coronary thrombosis.

Paterson [21] has studied intimal hemorrhages of the coronary arteries, which are due apparently to rupture of capillaries in the arterial wall. Such intimal hemorrhages are commonly found in recently thrombosed coronary arteries. His studies suggest that capillary rupture and intimal hemorrhage are closely concerned with the formation of most coronary thrombi. Thrombosis in the lumen of a coronary artery may be initiated by diffusion of blood from an intimal hemorrhage into the lumen, by necrosis of the intima or by retrograde capillary thrombosis. Paterson points out that during periods of physical stress a rise in pressure in the capillaries of the intima may occur, causing their rupture. Complete closure of a coronary artery by a thrombus may occur hours or days after the original capillary hemorrhage.

Winternitz [22] has demonstrated the rich capillary network that is found in the arterial wall, particularly in the neighborhood of sclerotic areas, and has shown that hemorrhages into the intima are frequently the precipitating factors in arterial thrombosis.

Wartman [23] has described six cases of complete occlusion of a sclerotic coronary artery by a large hemorrhage into its wall. In one of these cases an intra-arterial thrombus was associated with the intramural hemorrhage. In all cases death was caused by the hemorrhagic arterial occlusion. Winternitz [22] observed similar cases.

These anatomic studies suggest how unusual exertion may bring about coronary artery occlusion. With physical effort there is a sudden alteration of arterial pressure, cardiac action is increased, rupture of one of the capillaries or sinusoids in the arterial wall may occur, or a softened atheromatous plaque may rupture into the arterial lumen. If the hemorrhage is large there may be almost immediate occlusion of a coronary artery; if the hemorrhage is small or slow or if it is followed by a gradually growing mural thrombus the occlusion may develop slowly or remain incomplete. Thus the concept of coronary occlusion and of angina pectoris induced by physical exertion established by

20. Leary, Timothy: Coronary Spasm as a Possible Factor in Producing Sudden Death, Am. Heart J. **10**: 338 (Feb.) 1935.

21. Paterson, J. C.: Capillary Rupture with Intimal Hemorrhage as a Causative Factor in Coronary Thrombosis, Arch. Path. **25**: 474 (April) 1938. Paterson, J. C.: Relation of Physical Exertion and Emotion to Precipitation of Coronary Thrombi, J. A. M. A. **112**: 895 (March 11) 1939.

22. Winternitz, M. C.; Thomas, R. M., and LeCompte, P. M.: The Biology of Arteriosclerosis, Springfield, Ill., Charles C. Thomas, Publisher, 1938.

23. Wartman, W. B.: Occlusion of Coronary Arteries by Hemorrhage into Their Walls, Am. Heart. J. **15**: 459 (April) 1938.

discriminating clinical observation finds support and confirmation in dissections of diseased arteries. It follows that when symptoms of coronary artery disease are induced by physical strain, even when the patient has had no preceding symptoms, there have most likely been antecedent anatomic lesions of the coronary arteries. When such symptoms follow nonpenetrating blows to the precordium no such preexisting arterial disease need be predicated.

CRITERIA FOR DIAGNOSIS

These cases often give rise to legal issues, in particular in connection with workmen's compensation acts. The question arises whether the particular injury or effort was a competent producing cause of the symptoms. This can be answered only by a careful evaluation of the succession of events in each individual case, with due recognition of the fact that patients tend to ascribe their illnesses to some unusual experience which actually may have no significance.

When trauma or effort damages the heart, cardiac symptoms, with rare exceptions, develop almost immediately. Precordial pain or breathlessness or both are common and compel the patient to stop whatever he is doing. There may be dizziness, fainting or shock, but these signs may be missing. Complete collapse need not occur and often, after a short rest, the patient is able to carry on for a while or is able to make his own way home. Immediate examination of the heart may not reveal any significant abnormalities. Warburg [3] reported that "fifteen of the fifty-one indubitable cases that were examined post mortem did not immediately after the trauma present such symptoms that there was reason to presume that the heart had been injured."

There is considerable variation in the time that elapses before the full symptoms and incapacity develop. In many instances extensive cardiac damage occurs immediately after the accident or follows within a few hours. In others there is a free interval of many hours or even of several days between the accident and the development of major cardiac damage, and during this interim the patient may complain of little beyond weakness and some uneasiness in the chest. In still other cases there are continuous symptoms of minor cardiac embarrassment after the accident, but these may not be severe enough to incapacitate the patient. Finally after days or even weeks a complete coronary occlusion occurs, leading to complete disability. Case 1 of my series is a good illustration of this sequence. Immediately on receiving the injury the patient had to rest for a while and then continued to work with difficulty. During the following ten days there developed progressively more severe symptoms of angina pectoris, but he still remained at work. Finally, on the eighteenth day after the accident, coronary thrombosis developed, causing him to remain bedridden for eight weeks. Although the major disablement was delayed eighteen days, there was a continuous train of symptoms between the time of the accident and the coronary occlusion.

To relate an accident or an unusual effort to a subsequent coronary thrombosis or syndrome of angina pectoris one must predicate cardiac symptoms accompanying or immediately following the event to which the cardiac injury is ascribed. If the symptoms are immediately disabling the causal connection is clear. If a lapse of days occurs between the causal event and the complete disablement there must be a continuity of symptoms dating from the event. It is conceivable that an intimal coronary hemorrhage might be caused by severe bodily strain and that it might give rise to no symptoms for several days, until marked obstruction of a coronary artery has taken place. Such a train of events is difficult to prove, and the possibility of its occurrence does not yet warrant its presentation as fact in a court of law.

It has been indicated that the occurrence of coronary thrombosis or the syndrome of angina pectoris after unusual effort gives presumptive evidence of antecedent sclerosis of the coronary arteries. Such arteriosclerotic lesions may give rise to no symptoms and to no cardiac disturbances; they may be nothing but evidence of normal aging. From the point of view of the law, the patient is not diseased nor has he clinical disease. When an unusual strain during work is followed by cardiac disability in the sense outlined, and when this occurs in a person who has been previously well and free from symptoms while at work, it is proper to conclude that the disability was induced by the work and is therefore compensable.

SUMMARY

In fourteen cases coronary occlusion or the syndrome of angina pectoris immediately followed a nonpenetrating injury to the precordium or unusual bodily effort. Eleven additional similar cases have been observed, and further cases have been reported in the literature.

Pathologic studies of several authors suggest the mechanism by which such traumatic lesions of the coronary circulation can be induced.

When a person previously free from symptoms of coronary artery disease has such symptoms after an injury to the chest or unusual physical exertion, the heart disease may be attributed to these external factors. When a person with simple angina pectoris has coronary artery occlusion following such injury or effort the sudden progression of the lesion may be ascribed to these causes. When such a sequence of events occurs in a person gainfully employed while he is at his task, it is proper to conclude that the cardiac disability is compensable, provided the cardiac symptoms accompany or follow immediately on the event to which the cardiac injury is ascribed and provided there is a continuity of symptoms dating from the event to the time of complete disability. Such disability may be delayed by several days or weeks.

1185 Park Avenue.

This Disruption of Medicine.—First physiology abandoned medicine, and in going took largely from medicine its function of studying the normal processes of the body; it also took something more important, for clinical medicine seemed to relax its claim to the use of the experimental method, which it had forged and which physiology, its offspring, now chose as its own chief weapon. Pathology has budded or is budding off, assuming for its part the study of the mechanism of disease, human or otherwise, and in almost all its aspects. This disruption of medicine, as it was originally constituted and as Harvey knew it, may be the inevitable outcome of its growth, may profit physiology, may profit general pathology, may even profit the medical sciences when these are viewed as one whole; but it is a process which can be carried too far, and it then becomes, is becoming, detrimental to the development of the clinical branches of work. It is necessary for medicine, still the parent and still largely possessed of guiding authority, to call a check to this subdivision of her estate.—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

BLOOD STUDIES IN BRUCELLOSIS

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In another paper [1] it was pointed out that the introduction of various intracutaneous tests and Huddleson's opsonocytophagic reaction, while providing a new approach to the study of brucellosis, has raised certain confusing problems which have not yet been solved. It seems probable that these tests, together with the agglutination reaction, are of service in indicating whether or not the tissues have been invaded by Brucella at one time or another, in this respect affording information of essentially the same value and limitations as the tuberculin test in suspected tuberculosis or the Wassermann test in syphilis. Doubt has properly been cast on the infallibility of Huddleson's diagnostic criteria, however, by the facts that brucellosis, a common and endemic disease, may be latent or asymptomatic and that the finding of positive tests may thus not indicate active disease but merely coincidental infection of no significance.

The difficulties are further increased by the paucity of physical signs, so that at the present time the diagnosis of brucellosis must rest on indirect laboratory evidence plus a more or less typical symptomatology. It becomes important, therefore, to search for measurable objective abnormalities sufficiently typical and frequent to assist in determining the presence or absence of activity. In a series of patients tested for brucellosis, we have encountered certain morphologic changes in both red and white blood cells so frequently as to warrant a somewhat detailed report.

METHODS AND MATERIALS

Source of clinical material and diagnostic methods were detailed in another communication.[1] Studies of the white blood cells are reported in 271 cases and of the red blood cells in 286 cases. Tests were made in all cases by Foshay's antiserum intracutaneous test,[2] by macroscopic agglutination tests read after forty-eight hours and by Huddleson's opsonocytophagic test (modification of R. M. C. described by Evans.[3]).

Huddleson [4] has stated that a positive cutaneous reaction (brucellergin) with low or absent opsonins indicates active disease. It is generally recognized, however, that cutaneous reactions in any disease are such delicate indicators of bacterial invasion that they may be positive even in asymptomatic disease and hence unreliable as indexes of activity. This objection likewise obtains in Foshay's antiserum test, for this reaction appears to furnish information of the same significance as those tests in which antigens or antigenic derivatives are employed. Frequently patients are encountered who present symptoms compatible with a diagnosis of chronic brucellosis and who yet give only a positive cutaneous reaction. In order to determine whether the hematologic abnormalities are as frequent in this group of cases as in those with more definite evidence of Brucella invasion, we have divided our cases into two series: Group I includes those patients with only a positive antiserum cutaneous reaction, opsonins and agglutinins being absent, while group II includes those patients who, in addition to a positive cutaneous reaction, also had demonstrable agglutinins (1:40 or higher) or opsonins (at least one cell out of twenty-five showing phagocytosis of twenty or more organisms).

Technical Procedures.—All determinations were made with Bureau of Standards glassware. Blood was collected by venipuncture and clotting was prevented by a mixture of potassium and ammonium oxalate (0.05 Gm. of ammonium oxalate and 0.04 Gm. of potassium oxalate to 5 cc. of blood). Counts of the white cells were made in both chambers of a double hemacytometer, the total counts on the two sides checking within 400 cells. Differential counts were done by the two coverslip method and stained with Wright's stain. In every instance 100 cells were classified on each of two separate coverslip preparations; if discrepancies were noted, the slips were discarded and the process was repeated.

TABLE 1.—*Differential Counts in Cases Showing Lymphocytic Leukocytosis*

Case	Group	Age	Total White Blood Cells	Segmented Polymorphonuclears	Stab Poly morphonuclears	Eosinophils	Basophils	Small Lymphocytes	Large Lymphocytes	Young Lymphocytes	Plasma Cells	Monocytes	Young Monocytes
867	II	40	10,300	39 5	10 5	2 5	1 0	3 5	28 5	4 0	.	10 5	...
897	II	73	11,000	38 0	13 0	1 0	1 0	8 5	31 5	1.0	.	6 0	. .
968	I	42	11,600	33 0	5 0	2 5	0 5	4 0	37 0	100	.	8 0	. .
914	I	28	9,900	46 5	5 0	.	0 5	5 5	35 5	2 0	.	5 0	. .
848	I	7	11,100	44 5	6 5	2 5	. .	15 0	23 5	3.5	.	4 0	0 5
846	I	4	10,100	49.0	2 0	0 5	1 0	7.0	30 0	1.0		9 0	0 5
843	I	5	11,200	30 5	4 5	.	0 5	20 5	32 0	5 0	. .	7.0	. .
748	I	47	11,500	32 5	7.5	3 0	0 5	16 5	21 5	3 5	1 5	13 5	..
695	I	35	9,900	45 0	8.0	2 0	.	23 0	17 0	2 0	.	3 0	. .
972	II	60	12,700	52 5	3 5	4 0	1.5	4 0	27.0	1 5	1 0	5 0	.
947	II	39	12,600	40 5	2 5	3 5	0 5	2 0	31 0	10 0	0 5	9 5	.
893*	II	3	10,000	33 5	0 5	5 5	1 0	8 5	42 0	3 0	0 5	5 5	.
814	II	45	9,600	27 5	5 0	4 5	0 5	17 0	28 5	2 0	14 5	0 5	. .
769	II	27	11,700	38 5	5 5	3 0	...	26 5	13 5	6 5	..	6 5	.
739	II	34	9,500	32 0	4 5	6 0	1 0	14 0	28 0	5 0	.	9 5	. .
706	II	19	10,300	27 0	6 0	4 5	1 5	15 0	36 0	5 0		5 0	..
645	II	2	15,000	10 0	3 0	0 5	0 5	24 0	48 0	1 0	.	11 5	0 5
865	I	33	10,300	54 0	1 5	2 0	1 0	16 0	20 0	2 0		3.5	. .

* The structure of the white cells in this case was strongly suggestive of infectious mononucleosis; but the heterophile antibody test was negative on two occasions

In the erythrocyte studies, Wintrobe's [5] methods were employed throughout. Red blood cell counts were made from the same pipet on the two sides of a double hemacytometer, the two counts checking within 100,000 cells. Pipets were invariably shaken well in a mechanical shaker. Hemoglobin was determined by the Sahli method with instruments standardized both by the Bureau of Standards and by the Van Slyke method. In all charts dealing with erythrocytes, percentages rather than actual numbers of cases have been used, to permit comparison of our results with the normal range as determined by Wintrobe.[6]

THE LEUKOCYTES

It is generally stated that brucellosis is characterized by leukopenia with relative lymphocytosis. Amoss,[7] however, pointed out that the disease in many instances is actively lymphocytogenic, normal or increased total white blood cell counts often showing a high percentage

From the Brucellosis Laboratory, Clayton Foundation for Research

1. Calder, R. M.: Chronic Brucellosis, South. M. J., to be published.
2. Foshay, Lee: J. Infect. Dis. **59**: 330 (Nov.-Dec.) 1936.
3. Evans, Alice C.: Pub. Health Rep. **53**: 1507 (Aug. 26) 1938.
4. Huddleson, I. F.; Johnson, H. W., and Hamann, E. E.: Am. J. Pub. Health **23**: 917 (Sept.) 1933.
5. Wintrobe, M. M.: Am. J. M. Sc. **177**: 513 (April) 1929; Blood of Normal Young Women Residing in a Subtropical Climate, Arch. Int. Med. **45**: 287 (Feb.) 1930.
6. Wintrobe, M. M.: Bull. Johns Hopkins Hosp. **53**: 118 (Sept.) 1933.
7. Amoss, H. L.: Internat. Clin. **4**: 93 (Dec.) 1931.

of lymphocytes. In our experience acutely and seriously ill patients ordinarily have leukopenia. But in the chronically ill patients in this series leukopenia is not invariable (chart 1). The average total leukocyte count was found to be 7,225 in the group I cases, 7,130 in the group II cases and 7,173 in all cases. Counts above 9,500 not explainable on the basis of obvious complications occurred in thirty instances; of these, only twelve showed a polymorphonuclear leukocytosis while eighteen showed lymphocyte percentages of from 38 to 63 per cent (table 1).

The Lymphocytes.—Evidence of active stimulation of lymphopoietic centers was observed in almost every case. Two hundred and six (76 per cent) of the 271 patients had more than 30 per cent of lymphocytes, and

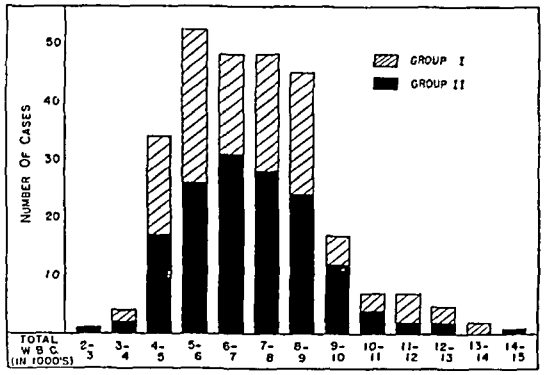


Chart 1.—Total leukocytes.

forty-five patients (16.6 per cent) had more than 50 per cent of lymphocytes (chart 2). Absolute numbers of lymphocytes were likewise increased; 151 of the 271 patients showed more than 2,500 of these cells, and in thirteen cases they numbered more than 5,000 (chart 3). Active lymphocytogenesis was further evidenced by the appearance of immature lymphocytes in the peripheral blood, as studied by the methods of Wiseman.[8] According to Wiseman an absolute value of approximately 100 is the usual maximum of these elements for the normal person. In contrast to this norm, four fifths of our patients showed values higher than 100. Wiseman's studies indicate that the occurrence of such forms constitute a "shift to the left" in the

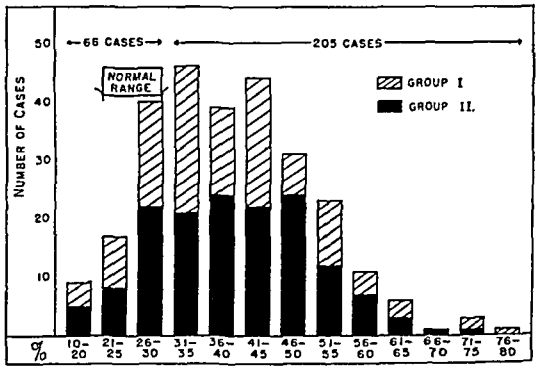


Chart 2.—Percentages of total lymphocytes.

lymphocyte series analogous in import to the well known "shift to the left" in the granulocyte series in the usual Schilling count (chart 4).

Microscopic Appearance of the Lymphocytes.—The mature lymphocytes in our cases frequently showed only a few or even no azurophilic granules. Large lymphocytes were more frequent than small lymphocytes, but this fact, as pointed out by Wiseman, is probably due to fixation and drying. Those cells having relatively large amounts of cytoplasm were not suggestive of the cells of infectious mononucleosis, in that nuclei of

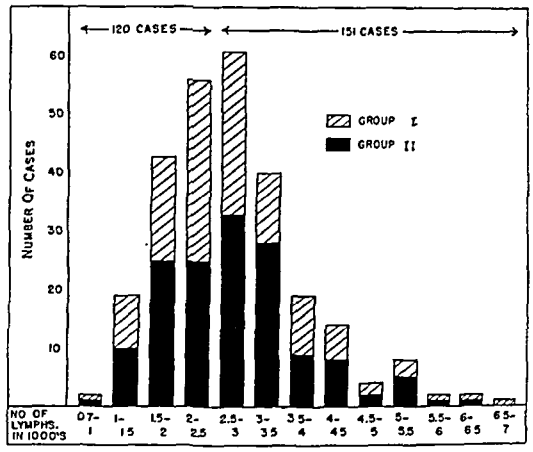


Chart 3.—Distribution of lymphocytes (absolute numbers) by cases.

ameboid shape were not encountered, nor was the cytoplasm of the foamy, light blue appearance characteristic of mononucleosis. Only one exception was noted, and in it the heterophile antibody test was negative on two occasions.

The immature lymphocytes were characterized by the frequent occurrence of nucleoli. The nucleus of these young cells was purplish blue and of fairly even distribution, and the cytoplasm, which contained no granules, was deeply basophilic, approaching true blast

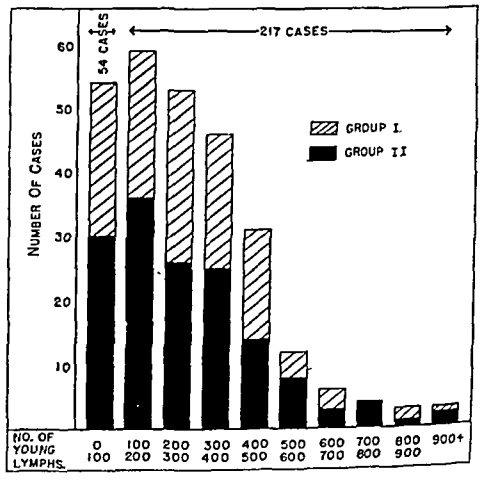


Chart 4.—Young lymphocytes (absolute numbers) by cases.

cells in its affinity for the basic stains. All gradations of basophilia were observed in different cells, but in our data only those cells with deeply basophilic cytoplasm were classified as immature.

Some of the cells, obviously immature because of their cytoplasmic basophilia, differed from those described in that their nucleus was small, round and intensely stained; their chromatin, while densely clumped, was not arranged in orderly fashion. Still other cells, which we classified as young lymphocytes, approached plasma cells in appearance, the chromatin being arranged in typical cart-wheel formation and the nucleus occasionally

8. Wiseman, B. K.: J. Exper. Med. 54:271 (Aug.) 1931.

even being eccentrically placed. We did not classify this type as a plasma cell, however, because the cytoplasm seemed identical in appearance to that of the immature lymphocytes, and the cells were definitely smaller than typical plasma cells.

Plasma Cells.—In slightly more than one third of our cases, cells possessing all the characteristics of plasma cells were observed. When present, they accounted for from 1 to 3 per cent of the total leukocytes. It is not our purpose to discuss whether or not plasma cells belong to the lymphocytic series; in our tables they have not been so classified. If they actually belong in the

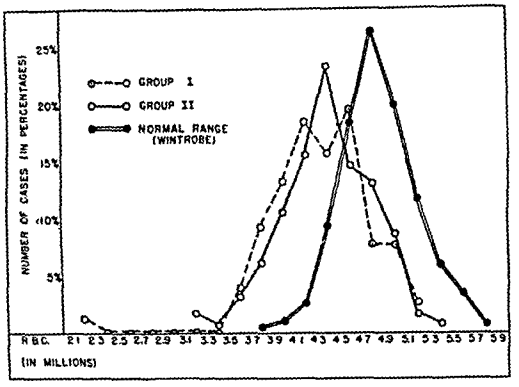


Chart 5.—Red blood cell counts (females).

lymphocytic series, their presence is additional evidence of the lymphocytogenic effect of Brucella infection.

The Monocytes.—In general, the absolute number of monocytes was not increased. Of the 271 cases, 227 (approximately 84 per cent) showed less than 700 monocytes, while forty-four (approximately 16 per cent) showed more than this number. Only seven patients had more than 1,000 monocytes, the maximum being 1,800; only one of these patients was a child, and in all of them tuberculosis had been excluded by appropriate tests.

Structurally there was nothing especially striking about the monocytes. We gained the impression that

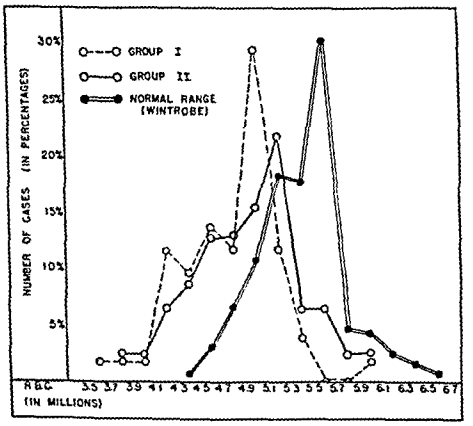


Chart 6.—Red blood cell counts (males).

more than the usual number of these cells showed diffuse, fine, pink granulation and that immature forms, as evidenced by basophilia of the cytoplasm, were more frequent than in normal bloods; but these changes were not definite enough to appear significant.

Monocyte-Lymphocyte Ratio.—Cunningham and Sabin and their associates [9] have stressed the importance of the monocyte-lymphocyte ratio as an index of the state of activity in tuberculosis. Since in many respects the fundamental pathologic changes of tuberculosis and brucellosis are similar, a determination of

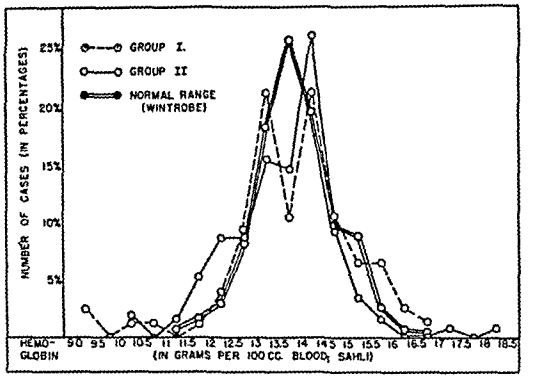


Chart 7.—Hemoglobin (females).

the monocyte-lymphocyte ratio in our cases is of interest. In almost all instances, the observed monocyte-lymphocyte ratio was lower than normal (0.33); it was normal or above in only twenty-seven cases. Extremely low values (0.15 or less) were observed in more than half of the cases. Attempts to relate the monocyte-lymphocyte ratio to state of activity, severity of infection or prognosis must await further observations.

The Granulocytes.—The total number of granulocytes was almost invariably reduced, both in percentages and in absolute numbers. The percentage of "stab" neutrophils was often elevated, but the increase in absolute numbers of these elements was not so striking. The left shift in certain cases is reminiscent of the counts in typhoid; but in our experience the percentage of "stabs" is rarely as high as in typhoid. It would appear from these observations that, in certain instances at least, myelogenic stimuli are present but that peripheral destruction exceeds their production. The question is of practical importance because of the phagocytic role of the polymorphonuclear cells in ridding the body of Brucella.

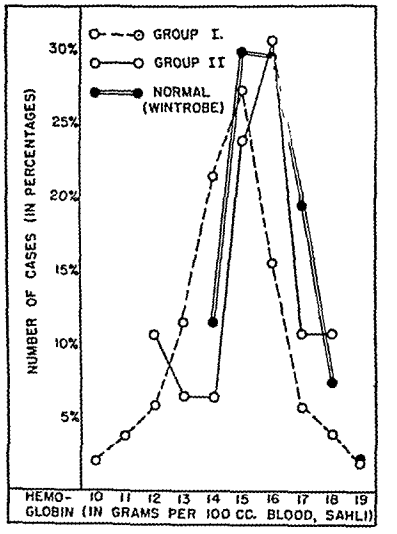


Chart 8.—Hemoglobin (males).

In one tenth of the cases, basophils were present in proportions greater than 1 per cent, the maximal percentage observed being 3. Approximately one fifth of these cases showed eosinophil counts of 5 per cent or more. Even excluding those cases for which there is an obvious explanation of the eosinophilia, the increase

9. Cunningham, R. S.; Sabin, Florence R.; Sugiyama, S., and Kindwall, J. A.: *Bull. Johns Hopkins Hosp.* **37**: 231 (Oct.) 1925.

in these cells is noteworthy. "Stab" eosinophils were frequent, at times equaling the mature forms in number. The significance of these observations is not apparent.

THE ERYTHROCYTES

Total Erythrocyte Counts.—As will be seen from charts 5 and 6, severe grades of anemia were rarely encountered. On the average, the red blood cell counts were approximately a half million lower than normal. Mean values for the various groups are shown in table 2. In the few cases showing severe grades of

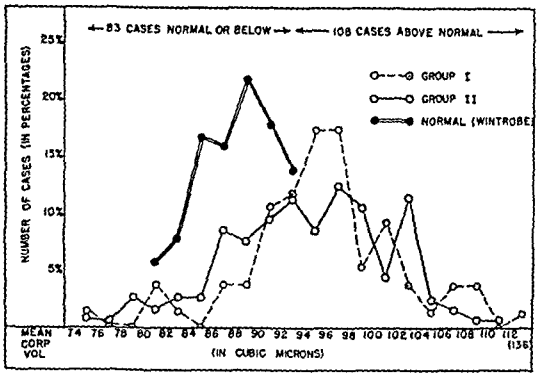


Chart 9.—Mean corpuscular volume (females).

anemia, an explanation of the anemia (menorrhagia, secondary infections, coincidental malaria, inanition and the like) was usually obvious.

Hemoglobin Determinations.—The values for hemoglobin, as determined by the Sahli method and calculated in grams per hundred cubic centimeters of blood, showed curves closely paralleling normal (charts 7 and 8). The average values (table 2) also approximated normal

Volume of Packed Red Blood Cells.—On the average, the volume of the packed red blood cells (obtained by centrifuging in hematocrit tubes and noting the proportion of packed red cells to supernatant plasma) showed a smaller departure from normal than did the total erythrocyte counts (table 2).

TABLE 2.—*Summary of Mean Values*

	Group I Cases	Group II Cases	All Cases	Normal Mean (Wintrobe)
Red blood cells, female	4 32	4 39	4 37	4 85
Red blood cells, male	4 75	4 91	4 82	5 43
Hemoglobin, female	13 72	13.59	13 64	13 90
Hemoglobin, male	14 58	15.46	14 90	15.90
Volume of packed red blood cells, females	41 15	41.16	41 15	41.80
Volume of packed red blood cells, males	43 59	45 72	44 59	47.70
Mean corpuscular volume, females	95 80	94 20	94 80	88 00
Mean corpuscular volume, males	91.90	93 50	92 70	86 50
Mean corpuscular hemoglobin content, females	31 90	31 10	31 40	29 20
Mean corpuscular hemoglobin content, males	30 80	31 60	31 20	29 10
Mean corpuscular hemoglobin concentration, females	33 30	33 00	33 20	33 50
Mean corpuscular hemoglobin concentration, males	32 50	33 90	33 60	34 00

Mean Corpuscular Volume and Hemoglobin Content.—The disproportion between volume of packed red cells and total erythrocyte counts is accounted for by the fact that the average volume of the individual red cell is significantly greater than normal. Similarly, the disparity between total hemoglobin and erythrocyte counts is reflected in hyperchromia of the red blood cells. Charts 9, 10, 11 and 12 show these changes in detail. Definite macrocytosis (charts 9 and 10) was present in more than half of the cases, and the incidence of hyperchromia was likewise striking. In only six cases of apparently uncomplicated brucellosis were microcytosis and hypochromia observed.

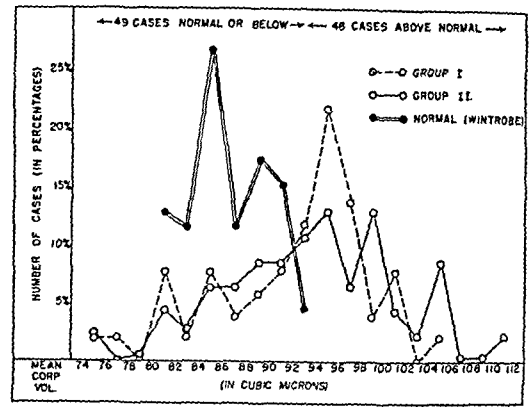


Chart 10.—Mean corpuscular volume (males).

As a check on the accuracy of our determinations of average erythrocyte volume, measurements of the diameters of red blood cells by the method of Price-Jones were made in twenty-three of these cases. By this method also a distinct macrocytosis is apparent (chart 13).

Mean Corpuscular Hemoglobin Concentration.—Bethell [10] has called attention to the fact that, if the plasma proteins are low, osmotic relationships between red cells and plasma are disturbed, with resultant swelling (relative macrocytosis) of the erythrocytes. Since the hemoglobin content of the cell remains constant, the swelling of the cell results in its being less saturated with hemoglobin than usual. Such a condition results in the triad of macrocytosis (cell volume greater than

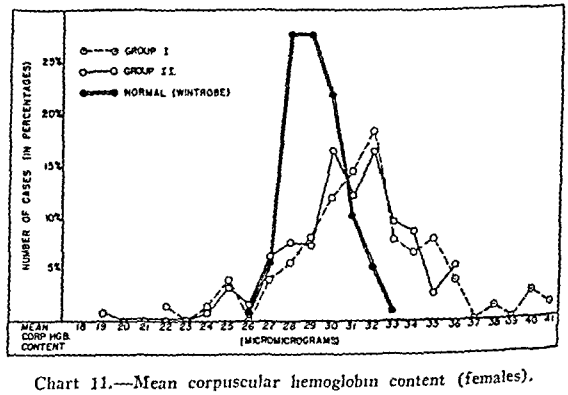


Chart 11.—Mean corpuscular hemoglobin content (females).

95 cubic microns), normal mean corpuscular hemoglobin content (from 28 to 31 micromicrograms), and decreased mean corpuscular hemoglobin concentration (less than 32 per cent).

Our cases were therefore analyzed to determine how frequently this triad occurred. Charts 14 and 15 show the hemoglobin concentrations of all patients studied. It will be noted that the hemoglobin concentration is low in a fairly large percentage of cases (sixty-eight cases). But these data include forty-five cases of definite hypochromia, most of them presenting complications sufficient to account for the low hemoglobin

10 Bethell, F. H., and Rottschaefer, Gerald: Univ. Hosp. Bull., Ann Arbor 2:65 (Nov.) 1936.

content. Excluding these and two cases of pregnancy, there remain only twenty-one cases (7.3 per cent) in which the possibility exists that the observed macrocytosis was due, partly at least, to a circulatory phenomenon.

In contrast to this small number of patients in whom the macrocytosis was apparently merely a physical phenomenon, it is impressive to note the large number of cases in which the hemoglobin concentration of macrocytes was normal or even high. The conclusion seems justified that the observed macrocytosis is due not merely to physical alteration of osmotic relationships but to defects of maturation.

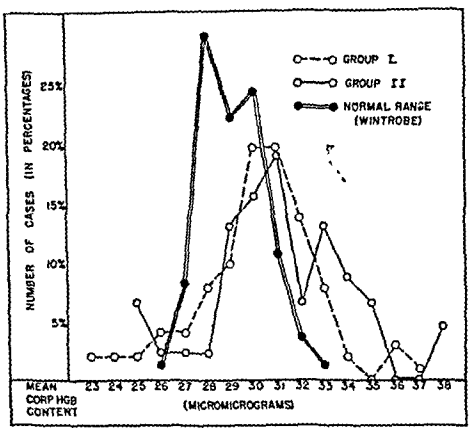


Chart 12.—Mean corpuscular hemoglobin content (males).

Microscopic Appearance of Erythrocytes.—Variations in size and shape of the erythrocytes were minimal. In general, the cells were all larger than normal and their hemoglobin content was likewise uniformly increased. Hypochromia and microcytosis were distinctly rare. In a very few instances pencil-shaped cells were observed. Nucleated red blood cells were infrequent. In two or three cases the inclusion of red blood cells in monocytes was observed. Polychromatophilia of slight degree was present in approximately 10 per cent of the cases.

Reticulocytes.—Reticulocyte counts were done in twenty-two of the cases reported in this series. The values ranged from 0.3 to 3.3 per cent, with mean values of approximately 1 per cent.

TABLE 3.—*Sedimentation Rates of Erythrocytes*

Millimeters per Hour	Group I Cases		Group II Cases	
	Male	Female	Male	Female
1-5	8	1	15	3
6-9	10	13	4	15
10-15	10	16	11	22
16-25	12	23	9	32
26-35	5	10	4	23
36-45	2	6	1	8
46-55	3	5	3	9
56-65	2	1	0	3

Coagulation.—In approximately one third of these cases, clotting was slow and incomplete. Free cells were often present even after the blood had stood overnight in the ice box. Normal retraction of the clot was rare; often there was no retraction at all. The coagulation defects do not seem to be related to decrease in blood platelets, for these elements are grossly normal in number and appearance in the stained preparations.

Sedimentation Rate of Erythrocytes.—Moderate acceleration of sedimentation rates (above Wintrobe's normal of 9 mm. for males and 15 mm. for females) occurred in slightly more than one third of these cases.

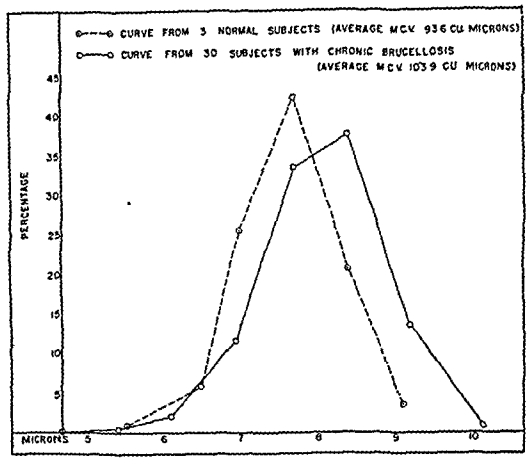


Chart 13.—Price Jones curves in chronic brucellosis.

Very slow rates were not uncommon. Excessively fast rates were usually explainable on the basis of complications, such as arthritis or effusions (table 3).

Gastric Analysis.—Gastric analysis was done in ten cases in which there were macrocytosis and hyperchromia. Our procedure was to aspirate the fasting contents and then administer 50 cc. of 7 per cent alcohol and 0.4 mg. of histamine, specimens being withdrawn at fifteen minute intervals.

In nine of the ten cases there was no free hydrochloric acid in the fasting specimens. All of them, however, showed free acid after histamine. Values

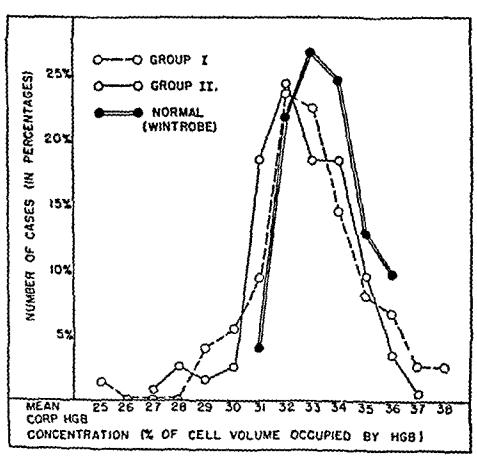


Chart 14.—Mean corpuscular hemoglobin concentration (females).

were definitely low in five cases, in the lower limits of normal in two cases and within the usual range of normal in three cases. Neither complete histamine anacidity nor, on the other hand, excessively high acidity was encountered.

Van den Bergh Tests.—The van den Bergh test was performed on 142 untreated patients. Of these, eighty-seven (61 per cent) showed bilirubin values of less than 0.5 mg. per hundred cubic centimeters of blood, while fifty-five (39 per cent) showed higher values. In the latter group, most of the values were less than 1 mg., the highest being 1.8 mg. The reaction was of the delayed direct type, the color change occurring after

thirty seconds and reaching its maximal intensity before the addition of alcohol and ammonium sulfate.

Evidence of Damage to the Liver.—It has been recognized previously that portal cirrhosis of the liver is often associated with macrocytosis. Wintrobe [11] has summarized the literature on the subject, and his description of the blood changes in diseases of the liver parallels our observations on the blood in these cases: "The anemia . . . is rarely severe. The macrocytosis affects the great majority of the red corpuscles, which show relatively little variation in shape or size. The lack of variation in the size of the corpuscles, however, does not distinguish the condition from pernicious anemia, for the distribution curves of the diameters of the red corpuscles are like those in cases of pernicious anemia with similar grades of anemia. Nucleated red corpuscles are uncommon and the fragility of the erythrocytes is normal." It is very unlikely that the cases which are included in our series represent the accidental association of pernicious anemia with brucellosis, for in the first place they are too numerous, and in the second place histamine anacidity has not occurred in those cases in which the gastric contents have been examined

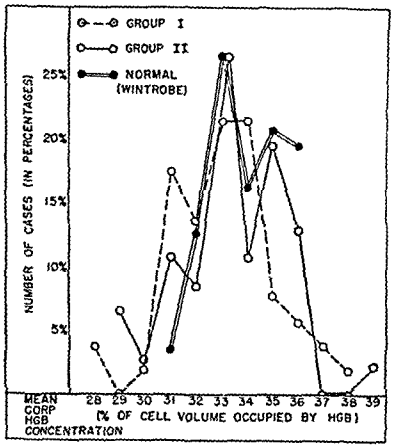


Chart 15.—Mean corpuscular hemoglobin concentration (males)

The striking parallelism between our observations and those cited by Wintrobe as occurring in hepatic disease makes reasonable the conclusion that these changes in all probability are due to anatomic or functional derangement of the liver. Contributory evidence for this idea is held in the facts that (1) low grade jaundice as measured by the van den Bergh reaction is not uncommon, (2) this reaction is of the delayed direct type, which ordinarily is associated with structural damage to liver parenchyma, and (3) the liver is, in our experience and that of others, more commonly enlarged in this condition than is the spleen.

SUMMARY

Structural studies of the blood were made in almost 300 patients with evidence of Brucella invasion. Normal leukocyte counts occurred in one half, leukopenia in one third and leukocytosis in one sixth of the cases. Active lymphocytosis was the most striking feature encountered and was evidenced by an increase in both percentage values and absolute numbers of lymphocytes and by unusually high numbers of immature lymphocytes (a lymphocytic "shift to the left"). Plasma cells were frequent. Monocytes in general were not increased in number, and the monocyte-lymphocyte ratio was almost invariably low. Many cases showed a moderate increase in percentage of "stab" neutrophils, but the total number of neutrophils was usually reduced. In one fifth of the cases there was moderate eosinophilia, often with immature forms.

Mild anemia of the macrocytic, hyperchromic type was frequent. Evidence was obtained that these changes are due to maturation defects, probably the result of damage to the liver.

Coagulation of the blood was slow and often incomplete. Clot retraction was also imperfect. The sedimentation rate was usually not extremely high except when complications, such as arthritis, were present.

These abnormalities of the blood were observed so consistently that they appear to represent a fundamental part of the disease with which these patients are suffering. So far as we are aware, they are duplicated in their entirety by no other known disease. It would seem, therefore, that the regularity with which they occurred in this group of patients is confirmatory evidence of the specificity of the tests on which the diagnosis of brucellosis was made.

Further analysis of our data indicates that these blood changes occur as often in patients with only a positive cutaneous reaction as in those who also show agglutinins and opsonins. Since these abnormalities seem to be a specific effect of Brucella invasion, their equal incidence in the two groups of patients indicates that, in many instances, a positive antiserum cutaneous reaction may be the sole evidence of brucellosis.

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11 Wintrobe, M. M.: Relation of Disease of the Liver to Anemia, Arch. Int. Med. **57**: 289 (Feb.) 1936

PLASMA PROTHROMBIN AND THE BLEEDING TENDENCY

WITH SPECIAL REFERENCE TO JAUNDICED PATIENTS AND VITAMIN K THERAPY

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It is our main purpose in the present article to discuss treatment of the bleeding tendency so often seen in patients suffering from disease of the biliary tract. Bleeding from mucous surfaces often occurs spontaneously in these patients, but the greatest danger is from bleeding at operation or from the wound after operation.

Through the work of several laboratories [1] it has been shown that a newly discovered vitamin, vitamin K,

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Aided by a grant from the John and Mary R. Markle Foundation. Funds for a technical assistant were supplied by the Graduate College, State University of Iowa

1. Reported by
Dam, Henrik: The Antihemorrhagic Vitamin of the Chick, Biochem. J. **29**: 1273 (June) 1935
Dam, Henrik; Schønheyder, Fritz, and Tage Hansen, Erik: Studies on the Mode of Action of Vitamin K, ibid. **30**: 1075 (June) 1936
Schønheyder, Fritz: The Quantitative Determination of Vitamin K, ibid. **30**: 890 (May) 1936
Almquist, H. J., and Stokstad, E. L. R.: Hemorrhagic Chick Disease of Dietary Origin, J. Biol. Chem. **111**: 105 (Sept.) 1935
Quick, A. J.: The Coagulation Defect in Sweet Clover Disease and in the Hemorrhagic Chick Disease of Dietary Origin, Am. J. Physiol. **118**: 260 (Feb.) 1937
Hawkins, W. B., and Brinkhous, K. M.: Prothrombin Deficiency the Cause of Bleeding in Bile Fistula Dogs, J. Exper. Med. **63**: 795 (June) 1936
Greaves, J. D., and Schmidt, C. L. A.: Nature of the Factor Concerned in Loss of Blood Coagulability of Bile Fistula Rats, Proc. Soc. Exper. Biol. & Med. **37**: 43 (Oct.) 1937.
Warner, Brinkhous and Smith [2]
Butt, Snell and Osterberg.[3]
Dam and Glavind [4]
Smith, Warner, Brinkhous and Seegers [16]

plays an important part in prothrombin formation in the body. Patients with obstructive jaundice or with biliary fistulas, having no bile in the intestine, have difficulty in absorbing such fat-soluble materials. Without adequate absorption of vitamin K they suffer from faulty formation of prothrombin, and for this reason a tendency to bleed develops.

The therapeutic use of vitamin K in the treatment of jaundiced bleeders was first reported by Warner, Brinkhous and Smith [2] and almost simultaneously by Butt, Snell and Osterberg.[3] Additional cases were reported almost at once by Dam and Glavind.[4] All these reports have indicated that dramatic relief from the bleeding tendency is obtained in most cases by the administration of vitamin K. Further details of the literature on this vitamin may be obtained from the articles just cited.

BLEEDING IN OBSTRUCTIVE JAUNDICE: REPORT OF CASE

E. W., a white woman aged 53, who entered Mercy Hospital April 20, 1938, because of pruritus and jaundice, for the past two years had had periodic attacks of pain in the right upper quadrant of the abdomen. The attacks lasted from one hour to several days. Early in February they increased in severity and were accompanied by lassitude and weakness. Jaundice made its appearance at this time, but the patient refused hospital treatment until the pruritus had become intolerable.

She was well developed and well nourished. The skin showed marked jaundice and much excoriation because of the pruritus. There were considerable rigidity and tenderness in the right upper quadrant, but the gallbladder could not be felt. The temperature, pulse rate and respiratory rate were within normal limits. The stools were clay colored and the urine deep yellow. The coagulation time was six minutes by the capillary tube method.

At operation, April 22, a number of stones were removed from the gallbladder and one large stone was removed from the common bile duct. A drainage tube was placed in the gallbladder and another in the common bile duct.

After operation the patient showed no untoward symptoms for several days. The temperature remained at about 37 C. (98.6 F.). April 26 bile ceased to drain and some blood dripped from the tube. Irrigation of the tube was attempted but was discontinued because of pain. On the following day the dressings were found to be saturated with blood. The patient vomited 300 cc. of fluid which contained bright red blood. The stools were tarry black. Bleeding continued on the following day and the jaundice, which had been subsiding, began to increase, probably because of obstruction by blood clots. April 29 an attempt was made to give an enema, but before much fluid had been injected the patient expelled 1,000 cc. of reddish black fluid, obviously blood.

A sample of blood drawn at this time showed deep jaundice of the plasma (van den Bergh test, 17 mg. per hundred cubic centimeters). The coagulation time was thirteen minutes by the capillary tube method. The bleeding time (Duke's method) was greatly prolonged, the patient continuing to bleed for more than six hours from a simple stab wound. The red cell count, previously normal, had now fallen to 2,000,000. A transfusion of 300 cc. of blood was given April 29 and another April 30. These transfusions seemed to have little effect, for oozing from the operative wound continued.

At this stage, analyses for prothrombin carried out for the first time showed the plasma prothrombin content to be 8 per cent of normal, a result considered adequate to explain the bleeding. April 30 and May 1 vitamin K emulsified in 30 cc. of 2 per cent sodium taurocholate was given by mouth. Each dose contained the vitamin which had been extracted [4a] from 200 Gm. of dry alfalfa meal. Bleeding from the operative wound ceased within twenty-four hours of the onset of treatment. The treatment itself produced some nausea; hence the vitamin was given in capsule form on the following two days. May 3, after three days of treatment, the plasma prothrombin content had risen to 69 per cent of normal from the original 8 per cent. The bleeding time (Ivy's [5] method) was now six minutes. May 3 and 4 the vitamin, given in emulsion form in half the original dose, produced no nausea. During the following three days no vitamin K was given and May 7 the dressings again showed blood. Blood drawn for analyses showed that the plasma prothrombin content had fallen to 47 per cent, a level which we have come to consider in the upper part of the danger zone. From May 9 to 18 the patient received vitamin K emulsion equivalent to 100 Gm. of alfalfa meal daily. The bloody drainage ceased on May 10, and the plasma prothrombin content on May 17 was found to be 71 per cent of normal.

The jaundice increased for a few days after removal of the drain on May 1 but thereafter it subsided and on May 12 the van den Bergh test showed that the plasma bilirubin content had fallen to 4.1 mg. per hundred cubic centimeters. May 18 the jaundice had completely subsided and vitamin K therapy was discontinued. The remainder of the patient's stay in the hospital was entirely uneventful, except for a transient period of vomiting. The patient left the hospital June 5 and when seen August 23 had remained free from symptoms.

This case illustrates postoperative bleeding in a patient with chronic biliary obstruction. There was no serious bleeding at the time of operation, but four days after operation blood began to ooze at the operative site and this bleeding continued despite two transfusions. The plasma prothrombin concentration at that time was 8 per cent of normal. We have noted in a number of cases that when the plasma prothrombin level is low prior to operation one may anticipate a further fall after operation. This fall is presumably due to the utilization of prothrombin in forming fibrinous exudate at the operative site. The level at which bleeding actually occurs is variable, and the actual onset of bleeding is often precipitated by the operation itself or even by minor traumatic factors. Rarely does bleeding occur until the prothrombin has been reduced at least to 50 per cent of normal. Occasionally a level of 20 per cent will be tolerated without hemorrhage, but patients below the 50 per cent level are definitely in the danger zone.[5a]

Relief from bleeding in this case occurred within twenty-four hours after the institution of vitamin K therapy. This is in accord with previous experience [6] that the plasma prothrombin level rises rapidly out of the danger zone when vitamin K is absorbed in adequate amounts. At the end of three days of treatment the prothrombin level had risen to 69 per cent of normal, whereas it had been 8 per cent of normal. This case also illustrates the point that treatment should not be relaxed too early, for when it was discontinued the prothrombin level fell to 47 per cent within three days and bleeding began again. On resumption of therapy, bleeding again ceased and the prothrombin level rose to 71 per cent. One cannot urge too strongly that

2. Warner, E. D.; Brinkhous, K. M., and Smith, H. P.: Bleeding Tendency of Obstructive Jaundice: Prothrombin Deficiency and Dietary Factors, Proc. Soc. Exper. Biol. & Med. **37**: 628 (Jan.) 1938. Brinkhous, Smith and Warner.[4a]

3. Butt, H. R.; Snell, A. M., and Osterberg, A. E.: The Use of Vitamin K and Bile in Treatment of the Hemorrhagic Diathesis in Cases of Jaundice, Proc. Staff Meet., Mayo Clin. **13**: 74 (Feb.) 1938.

4. Dam, Henrik, and Glavind, Johannes: Vitamin K in Human Pathology, Ugesk. f. læger. **100**: 248 (March 10) 1938; Lancet **1**: 720 (March 26) 1938.

4a. Brinkhous, K. M.; Smith, H. P., and Warner, E. D.: Prothrombin Deficiency and the Bleeding Tendency in Obstructive Jaundice and in Biliary Fistula: Effect of Feeding Bile and Alfalfa (Vitamin K), Am. J. M. Sc. **196**: 50 (July) 1938.

5. Ivy, A. C.; Shapiro, P. F., and Melnick, P.: The Bleeding Tendency in Jaundice, Surg., Gynec. & Obst. **60**: 781 (April) 1935.

5a. Warner, Brinkhous and Smith.[2] Brinkhous, Smith and Warner.[4a]

6. Warner, Brinkhous and Smith.[2] Butt, Snell and Osterberg.[3] Dam and Glavind.[4]

therapy be continued at least as long as bile continues to drain at the operative site. This use of the vitamin should be extended to include the preoperative period. Had this particular patient been given vitamin for several days prior to operation, there is little doubt that excessive bleeding would have been prevented altogether.

PROTHROMBIN VALUES IN OTHER CONDITIONS

The accompanying table shows prothrombin values in a number of clinical conditions In three cases of thrombopenia the plasma prothrombin values were within normal limits. These cases throw doubt on the view, occasionally cited,[7] that platelets are the source of prothrombin.

In three cases of hemophilia the prothrombin values were normal. In case 4 two weeks treatment with vitamin K produced no change in the prothrombin or the clotting time (forty-five to seventy-five minutes). This is in accord with the experience of Dam and Glavind.[4]

Miscellaneous Plasma Prothrombin Values

Case No	Sex	Age (Yr.)	Diagnosis	Prothrombin, %
1	♀	13	Thrombopenic purpura	90
2	♂	0.5	Thrombopenic purpura	79
3	♂	31	Persistent thrombopenia, nonsymptomatic	100
4	♂	25	Hemophilia	96
5	♂	11	Hemophilia	86
6	♂	44	Hemophilia	92
7	♂	6	Acute leukemia	66
8	♂	46	Acute leukemia	82
9	♂	7	Acute leukemia	86
10	♂	55	Laennec's cirrhosis; primary carcinoma of liver (autopsy)	79
11	♂	55	Laennec's cirrhosis (clinical)	42
12	♂	24	Laennec's cirrhosis (autopsy)	72
13	♂	29	Laennec's cirrhosis (clinical)	66
14	♂	25	Laennec's cirrhosis (autopsy)	30
15	♂	23	Laennec's cirrhosis, slight; "Banti's disease" (laparotomy)	66
16	♀	50	Syphilitic "Banti's disease" (clinical)	65

In three cases of acute leukemia there was moderate reduction in the prothrombin level.

In six cases in which the diagnosis of Laennec's cirrhosis of the liver had been made there was a reduction in the prothrombin level. In two of these the value was definitely in the danger zone, but in neither did we observe areas of bruising or evidence of bleeding from mucous surfaces, such as one sometimes sees in patients with this disease. Patient 11 was treated for two weeks with vitamin K, but the prothrombin level remained constant at about 40 per cent. Patient 16, with a clinical diagnosis of syphilitic Banti's disease, was treated in a similar manner but without effect on the prothrombin concentration. Such results indicate that the lowering of the prothrombin concentration is not the result of a deficiency in vitamin K.

COMMENT

There is as yet no proof that vitamin K is a component of the prothrombin molecule. It may be, instead, in some way essential to proper function of the tissues concerned in the manufacture of prothrombin.

Work from this laboratory indicates that the liver is vitally concerned in the process of manufacturing prothrombin, for the plasma prothrombin level falls when the liver is partially excised [8] or when it is injured by chloroform poisoning.[9] It seems probable that the lowering of the prothrombin level in cases of cirrhosis is due mainly to defective hepatic function, which is not the result of deficiency in the supply of vitamin K This view is in accord with the fact, already reported,[4a] that patients with disease of the biliary tract may respond poorly to vitamin K if the liver is badly damaged (i. e. by obstructive biliary cirrhosis or by extensive growth of a neoplasm within the liver). It is now clear that prothrombin formation can be interrupted either by a reduction of the supply of vitamin K or by interference with the integrity of the liver. The vitamin is of therapeutic value in the former case.

The technic for titration of prothrombin is still somewhat too involved for general use and we have had little success in predicting bleeding by the use of tests of the bleeding time and clotting time. Many patients have normal values by these tests, and yet persistent bleeding develops. Unless prothrombin analyses are made, it is advisable to give the vitamin in a routine manner for several days to all patients with biliary disease both before operation and during the crucial postoperative period.[10] The vitamin appears to be entirely harmless, for we have given it to animals in doses many times as great as the amount recommended for therapeutic use.

It has been suggested that vitamin D may be useful in the treatment of the bleeding tendency of patients with disease of the biliary tract. Being fat soluble, this vitamin too is absorbed with difficulty when bile is absent from the intestine.[12] McNealy, Shapiro and Melnick [13] analyzed a large series of cases of disease of the biliary tract both with and without supplements of this vitamin. Their conclusions, based partly on clinical evidence and partly on tests of bleeding time, indicated a beneficial effect. A little later Boys [14] reached the same conclusion. Wigodsky and Ivy [15] have recently analyzed a vitamin K preparation and found it to contain so little vitamin D that its activity in such patients cannot be ascribed to the latter. It is possible that in human beings, when the disease is complicated by infection, a deficiency in vitamin D may contribute to the difficulty in forming prothrombin However, our own experiments on dogs with sterile biliary fistulas [16] failed to show that vitamin D has any effect in raising the prothrombin level. In the aforementioned cases bile or bile salt was fed along with

7. Bayne-Jones, Stanhope: The Presence of Prothrombin and Thromboplastin in the Blood Platelets, Am J Physiol **30**: 74, 1912

8 Warner, E D. Plasma Prothrombin: Effect of Partial Hepatectomy, J Exper Med **68**: 831 (Dec) 1938

9. Smith, H. P., Warner, E. D., and Brinkhous, K M: Prothrombin Deficiency and the Bleeding Tendency in Liver Injury (Chloroform Intoxication), J. Exper. Med **66**: 801 (Dec) 1937

10 Since this article was written a simple bedside test for control of vitamin K therapy has been devised by S. E Ziffren, C A Owen and G R. Hoffman of this laboratory and will be published in the near future. In brief, freshly drawn blood is mixed with one tenth its volume of thromboplastin [9] and the clotting time compared with that of a normal control. From the ratio of the two clotting times one can calculate the clotting power in percentage of normal This test is considerably simpler than either our prothrombin method or the test advocated by Quick (Am J Physiol **114**: 282 [Jan] 1936)

11. Footnote deleted on proof

12 Tammann, H: Ueber die Beeinflussung der porotischen Osteomalazie nach Gallenfistel durch das D-Vitamin, Beitr. z klin Chir **142**: 83, 1928 Greaves, J D, and Schmidt, C. L A.: The Role Played by Bile in the Absorption of Vitamin D in the Rat, J. Biol. Chem **102**: 101 (Sept) 1933

13. McNealy, R. W.; Shapiro, P. F, and Melnick, P.: The Effect of Viosterol in Jaundice, Surg, Gynec & Obst **60**: 785 (April) 1935

14. Boys, Floyd: A Report on the Value of the Ivy Bleeding Time Test and the Use of Viosterol in Cases of Obstructive Jaundice, Surgery **2**: 817 (Dec.) 1937.

15 Wigodsky, H S, and Ivy, A C: Assay of a Vitamin K Preparation for Vitamin D, Proc Soc Exper. Biol. & Med **38**: 785 (June) 1938

16 Smith, H P; Warner, E D; Brinkhous, K. M, and Seegers, W. H.: Bleeding Tendency and *Prothrombin* Deficiency in Biliary Fistula Dogs Effect of Feeding Bile and Vitamin K, J. Exper. Med **67**: 911 (June) 1938

vitamin D. Since the diet normally contains small quantities of vitamin K, it is possible that the bile salt given permitted enough absorption of this vitamin to raise the prothrombin level out of the bleeding zone. It is to be hoped that studies of human beings will be repeated with the plasma prothrombin level as a control on the procedure.

CONCLUSIONS

Our case illustrates postoperative bleeding in a patient with obstructive jaundice. Such bleeding is due to profound reduction in the plasma prothrombin level. When the patient was treated with vitamin K, the prothrombin level rose and bleeding ceased.

Patients with thrombopenic purpura and patients with hemophilia have normal prothrombin values, and evidence indicates that such patients obtain no relief from administration of vitamin K.

In three cases of acute leukemia the prothrombin level was found to be slightly reduced.

In cases of Laënnec's cirrhosis the prothrombin level may be markedly reduced, but evidence indicates that the reduction is due to defective hepatic function, which is not the result of deficiency in vitamin K.[17]

ACUTE INTERSTITIAL PNEUMONITIS: A NEW DISEASE ENTITY

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The Cornell University Infirmary receives practically all seriously ill patients from the student body. Minor ailments, such as common colds without fever, are taken care of at the medical adviser's office or in the offices of practicing physicians of the town.

The infirmary records of the twenty years from 1917 to 1937 reveal that (1) the many cases of "cold and fever" occurred irregularly through every year but always reached their peak sometime in December, January, February or March, (2) pandemic influenza occurred in 1918-1919 and 1919-1920 only, (3) interpandemic influenza occurred in definite outbreaks in 1925-1926, 1927-1928, 1931-1932 and 1936-1937

TABLE 1.—*Diseases of the Respiratory Tract from 1925 to 1937*

Year	Student Registration	Cases of Uncomplicated Interpandemic Influenza	Cases of Interpandemic Influenza Complicated by Pneumonia	Cases of Pneumonia Unrelated to Influenza
1925-1926	5,132	644	4	4
1927-1928	5,205	437	3	11
1931-1932	5,916	639	3	13
1936-1937	6,177	824	4	8

(table 1) and (4) from eight to sixteen cases of pneumonia occurred through each nine month college year (table 1).

In October 1937 there began to appear a type of infection of the respiratory tract different from anything that we had seen previously. It did not belong to any of the four categories listed. It did not attack large numbers, as interpandemic influenza had usually done, and it was not accompanied in the majority of cases by the bone ache and backache of typical influenza; it was apparently a new acute disease of the respiratory tract having as its cardinal feature specific lesions in the lungs inaudible to the stethoscope but definite in the roentgenogram of the chest. To this disease we have applied the term acute interstitial pneumonitis.

TABLE 2.—*Diseases of the Respiratory Tract from 1937 to 1939*

Year	Student Registration	Cases of Uncomplicated Interpandemic Influenza	Cases of Interpandemic Influenza Complicated by Pneumonia	Cases of Pneumonitis	Cases of Pneumonia Unrelated to Influenza
1937-1938	6,115	129	1	39	8
1938 to Jan. 24, 1939	6,569	41	0	27	4

Since October 1937, in no month when the infirmary was open have we failed to have cases of pneumonitis. There have been eighty-six cases as shown by definite radiographic evidence (table 2).

RADIOGRAPHIC EVIDENCE

Several of the patients had roentgenograms taken before definite evidence was visible on the film and were then observed almost daily as the pathologic change was developing in the lungs. Others were rechecked at regular intervals during the entire period of their illness. A review of the roentgenograms leads to the conclusion that (*a*) definite x-ray evidence may not appear until from thirty-six to forty-eight hours after the clinical onset, (*b*) the infection spreads from the hilus outward, following the bronchial and vascular tree, as do many other pulmonary infections, and (*c*) the cases can be roughly divided according to the radiographic evidence into three groups.

The onset has been marked by increased density in the hilar shadows, with a fan-shaped localized accentuation of and a numerical increase in the linear pulmonic markings extending from the hilus into the adjacent lung field. This extension is down into the base in the majority of the cases; it may be lateral or, not infrequently, into the first and second interspaces. In one group of cases, those of milder involvement, there then appeared over this area a diffuse even increase in density, which was not sufficient, however, to eliminate the linear markings and suggested an intense congestion rather than a true consolidation of lung tissue. The visible changes did not usually extend to the margin of the lung, and they cleared rather rapidly, ordinarily in from one to two weeks (fig. 1).

In a second group of cases, of more serious involvement, the infiltration in the fan extended more frequently to the periphery of the lung, with irregular areas of markedly increased density suggestive of lobular involvement and more typical of definite bronchopneumonia. Resolution was correspondingly slower than in the first group (figs. 2 and 3).

In about 5 per cent of the cases the involvement was severe. The development was similar to that in the preceding groups except that, in addition to the original focus, there was a diffuse spread throughout the remainder of the lung with partial or complete involvement of the other lung. This additional involvement was characterized by a generalized swelling of the pulmonic markings with a light mottling somewhat

17. Since this article was written, vitamin K has been placed on the market by Abbott Laboratories, North Chicago, Ill. The vitamin K preparations used in our own work were prepared partly by ourselves and partly on an experimental basis by the Upjohn Company of Kalamazoo, Mich.

From Cornell University Infirmary.

similar to that of pulmonary edema or intense passive congestion and additional irregular blotchy areas of very lightly increased density. We believe the underlying pathologic change in this type of case to be a definite interstitial inflammation. In this group there was a decided tendency to some involvement of the interlobar pleura and, in one case, of the parietal pleura. Clearing of the lung fields was slow, taking from one to two and one-half months (figs. 4, 5 and 6).



FIG 1 (case 1).—A typical rounded fan present in the cases of mild involvement and frequently in the early stages when the disease is severe, showing the intensified lineal markings through a hazy background.

COURSE

The onset of the disease is usually not sudden but is ushered in by a period of weakness, malaise and slight fever lasting for two or three days. The temperature gradually mounts, and the patient begins to complain of cough, pains in the chest or sore throat or a combination of these symptoms. (In some cases, however, the onset has been sudden, as in pneumonia.) At this stage there are usually signs of pharyngitis or a cough and a temperature of from 100 to 102 F., but stethoscopic examination of the chest gives no evidence of consolidation and there is little or no sputum. There may be a few fine rales. The radiographic evidence at this stage is usually that of group 1, and in many cases the disease recedes from this point (fig. 1).

As the disease progresses, as it does in cases of group 2, the temperature rises to 103 or 104 F., not infrequently exhibiting the peculiarity of being up in the morning and down in the evening. The patient feels quite ill at this stage, not infrequently complains of tightness in the chest and pain on coughing and sometimes shows the flushed cheeks so often seen with pneumonia. Stethoscopic examination of the chest still reveals no pleurisy or consolidation; there may be a few fine rales, and sputum is entirely lacking or scanty and has been in none of our cases either of the "rusty" or of the "cherry juice" type. Roentgenograms of the chest at this period show the fan-shaped area of increased density, generally extending to the periphery of the lung (fig. 3).



FIG. 2 (case 2).—A typical rounded basal fan on the second day of illness and the forerunner of a more severe infection (see fig. 3).

In our third group of cases, the onset and development of the disease was similar to that in group 2 except that there was a characteristic sudden jump in the temperature and evidences of toxicity, indicating a sudden and pronounced spread of the infection. The febrile period was more prolonged and more severe. Moist rales were invariably present, but the sputum was still scanty in proportion to what one might expect from the rales. The toxicity of the disease was severe, and the prognosis in each case for a number of days was grave. We believe that these cases are similar to those described by Dr. Hobart Reimann.[1]

The leukocyte counts have shown mild leukocytosis, the commonest count early in the disease being about 8,500 and running later up to 14,000 or 16,000. In one instance late in the disease there was a leukocyte count of 22,000. The percentages of polymorphonuclears has been in most instances between 63 and 75. In only one instance did it reach 88.

The pneumonitis terminates by lysis; there is no spectacular crisis. The patient was usually hospitalized ten days, though one of the four, with severe extension of the process to both lungs, required seventy-six days. Sixty-one of the eighty-six were hospitalized for a period not exceeding fourteen days. Complications are apparently rare, there having been no bronchiectasis, no organization of exudate and no abscess in our first eighty-six cases of the disease. There have, however, been evidences of mild pleuritic involvement in those of severe involvement. In the cases of rather rapid recovery in which the pulmonary lesions have previously been lacking, it is not unusual to find, after the patient has had a normal temperature for three or four days and been discharged from the infirmary, many coarse rales over the areas shown by roentgenogram to be involved. These rales may be present for as long as two weeks after the termination of treatment in bed. Though the course of the disease is comparatively short in the cases of mild involvement, it has not infrequently caused the loss of from 16 to 18 pounds (7 to 8 Kg.) in otherwise healthy young college students, and several patients have found themselves so weak at the termination of the disease that they have had to ask leave of absence for the remainder of the term to recuperate. That some students can take this disease in their stride is evidenced, however, by the fact that one of our football players had a typical attack in October 1938, recovered completely and went on to participate successfully in a hard schedule of intercollegiate football.



FIG. 3 (case 2).—Appearance on the eighth day of illness. The area of density has extended to the periphery of the lung and is considerably widened. This represents the maximum spread of the process in this case.

EPIDEMIOLOGY AND ETIOLOGY

Among the eighty-six patients so far observed, there have been six instances of two from the same house, one instance of five from the same house and one

1. Reimann, Hobart A.: An Acute Infection of the Respiratory Tract with Atypical Pneumonia, J. A. M. A. **111**: 2377-2384 (Dec. 24) 1938.

instance of four from the same house. In the clusters of four and five cases, the original patient was ill and coughing about the fraternity house for several days before he went to the infirmary; the other patients followed at intervals of from five to fourteen days in one instance and from thirteen to fourteen days in the other. The other patients admitted having gone into the room of the original patient and having talked with him, thinking he "just had a cough."

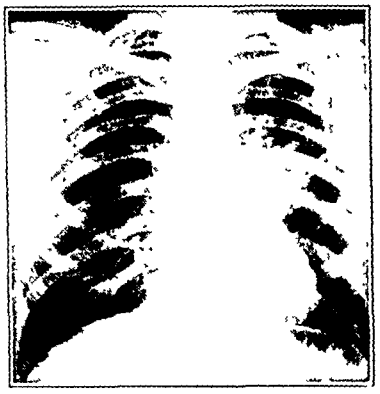


Fig. 4 (case 3).—Initial rounded fan on the third day of illness

In the absence of cough, the infectiousness of the disease may not be very great, since we had in the series one instance in which, under the crowded conditions of a house party week-end, two students slept in the same bed with another student ill with pneumonitis (but not coughing) and remained well. A student who sat next to one with pneumonitis (who was coughing) in his economics class came down with the same disease twelve days later.

As a result of our limited experience, we feel that this disease is more infectious than pneumonia, and we now, as a routine, hospitalize and isolate all our patients, permitting no visitors.

In the absence of sputum, cough swabs have been obtained by tickling the pharynx. Cultures of material from these swabs and of sputum have frequently been reported as showing mixed Streptococcus viridans and Staphylococcus aureus. In mouse tests of the sputum at the Tompkins County laboratory, the mice have but rarely succumbed, but when they have, pneumococci have usually been found. Material sent to the New York State Health Department laboratory has led to occasional reports of the higher types of pneumococci, e. g. type VIII, types XV and XVIII and type XI. On the basis of evidence accumulated to date, no definite statement can be made as to cause, but a virus would seem more probable than bacteria.



Fig. 5 (case 3).—Maximum spread on the ninth day of illness. Note the extension of the original fan and the diffuse mottling of the remainder of the originally involved lung and also of the other lung

COMMENT

The question may well be asked Why is this disease not simply atypical pneumococcic pneumonia? We feel that it is not for the following reasons:

1. The areas of density shown in the roentgenograms are not lobar and are less dense than in the case of lobar pneumonia. The radiographic evidence in the majority of cases does not conform with that usually found in cases of bronchopneumonia. 2. The fever is intermittent rather than continuous, as in pneumonia. 3. There is milder leukocytosis and a smaller rise in the polymorphonuclear count than is the rule in pneumonia. 4. Severe sweating is much more common than in pneumonia. 5. The disease appears to be more communicable than pneumonia usually is. 6. The respiratory rate is not as high as that usually found with pneumonia. 7. There has been much less sputum and no "rusty" sputum or "cherry juice" sputum in our cases. 8. There is much less prostration than is the rule in pneumonia. 9. The number of cases and the time of year they have occurred are both entirely out of line with any of our previous records of pneumonia. 10. Careful bacteriologic examination has failed to show pneumococci consistently in the sputum, while rapid isolation and typing of pneumococci in cases definitely of pneumonia is our common experience.

Is acute interstitial pneumonitis a new disease? A checking of the available literature does not give us a definite answer to this question. In only four published works do we find reference to outbreaks of disease probably identical with or closely allied to this disease:

1. According to the records of the medical department of the United States army in the World War:[2]

> Certain cases of average severity, however, showed on physical examination persistent rales at either base. At Fort Sam Houston, Texas, 25 per cent of 1,000 cases of uncomplicated influenza gave this finding. There was no other evidence clinically of anything resembling pneumonia; however, x-ray plates showed local areas of increased density corresponding to the physical signs in practically all of this group. This finding is probably to be interpreted as an early or slight example of the lesion described from Walter Reed General Hospital as "hemorrhagic pneumonitis."



Fig. 6 (case 4).—Diffuse mottling with irregular blotchy areas of lightly increased density, typical of the severe form, on the eleventh day of illness. This may be present for two or three weeks before it begins to recede

2. Major Albert Bowen[3] recorded an epidemic of "acute influenza pneumonitis" occurring in United States troops stationed in Hawaii from 1931 to 1934 and described the radiographic evidence as follows:

> Influenza pneumonitis involves only a portion of a lobe, usually basal, though it has been seen in the upper lobes and involving more than one lobe without increase in symptoms. It extends outward from the hilus well into the parenchyma, occasionally reaching the periphery. The roentgen appearance is

2. United States History of the World War, Washington, D. C. Government Printing Office, 1928, vol. IX, Section on Roentgenology, p. 153.

3. Bowen, Albert: Acute Influenza Pneumonitis, Am. J. Roentgenol. 34: 168-174 (Aug.) 1935.

that of a confluent mottled fan or rounded area, usually of homogeneous moderate density in the central portion, with the borders fading into the normal lung. It has the appearance of an exudative alveolar infiltration and is usually more localized and of more even density than the bronchopneumonias of childhood or than those which complicate adult diseases.

3. Dr. William H. Allen [4] reported sixty-eight cases of "acute pneumonitis" in the wards of the Station Hospital, Fort Sam Houston, Texas, in 1935. He quoted Major Albert Bowen's roentgenologic description and thus summarized the disease:

> Acute pneumonitis is used as the designation for a form of respiratory infection characterized by a benign course, few physical signs and roentgenologic evidence of a localized inflammatory process in the lung.

4. Dr. Hobart A. Reimann [1] reported eight cases of "atypical pneumonia" from the Jefferson Medical College and Hospital. He said:

> The strikingly similar clinical features of the cases reported suggest that the condition belongs to a disease group not conforming to influenza or the usual form of the common cold but included in an undifferentiated group of infections of the respiratory tract, often called tracheobronchitis, capillary bronchiolitis or bronchopneumonia.

These eight cases were similar in many respects to our few cases of serious involvement in which the pathologic process spread rather widely through both lungs. Obviously at a large city hospital it would be only the patients with rather severe or prolonged disease who would be likely to receive hospitalization, a situation quite different from that in a university or army post. In spite of this disadvantage, Dr. Reimann shrewdly deduced that his eight cases may have represented "the severe uncomplicated form of an otherwise mild and commonly encountered infection."

CONCLUSIONS

1. In a fifteen month period quite free of pandemic influenza, we have observed among the 6,569 students at Cornell University in Ithaca an epidemic of eighty-six cases of acute infection of the respiratory tract in which roentgenograms of the chest revealed typical fan-shaped areas of increased density.

2. On the evidence presented we have concluded that these areas of density were not areas of true consolidation or pneumonia.

3. We suggest that the most descriptive title of this disease is acute interstitial pneumonitis.

4. Though this is apparently a new disease in this area, it is probably identical with the "acute influenza pneumonitis" described by Major Albert Bowen as occurring in Hawaii from 1931 to 1934, with the "acute pneumonitis" described by Dr. William H. White as occurring in Texas in 1935 and with the "atypical pneumonia probably caused by a filtrable virus" described by Dr. Hobart A. Reimann as occurring in Philadelphia in 1938.

5. In areas where acute interstitial pneumonitis is found, all patients with an acute infection of the respiratory tract with a temperature rising above 101 or 102 F. should have a roentgenogram of the chest made for the purpose of excluding pneumonitis or making possible a more accurate prognosis if that disease is present.

4. Allen, William H.: Acute Pneumonitis, Ann. Int. Med. **10**: 441-446 (Oct.) 1936.

THE DETECTION OF TUBERCULOUS INFECTION

COMPARATIVE VALUE OF THE PATHOLOGIC EXAMINATION, THE TUBERCULIN TEST AND THE X-RAY EXAMINATION

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In the offices of large numbers of physicians in the United States, the examination for the presence of tuberculous infection has become as routine as that for syphilitic infection. Literally millions of such examinations are performed annually. The procedure now in practice has been extremely effective in leading to the detection of unsuspected pulmonary tuberculosis.

The Surgeon General of the United States Public Health Service, Dr. Thomas Parran, has seen the great value of this program and has said that the entire population of the United States should be tuberculin tested and that x-ray examination should be made of the chests of the reactors together with the other phases of the examination necessary to diagnose the existing tuberculosis in this country. Yet Lumsden, Medical Director, United States Public Health Service, has cast disfavor on the scheme following a small personal survey. This dissenting voice may have created doubt in the minds of a few who have not had experience with the test or are only beginning to use it.

As it is only the person who is infected with tubercle bacilli who becomes ill from tuberculosis, the first point to be determined in any medical examination is whether such infection exists. Three methods have been used to determine the presence of tuberculous infection, namely the pathologic examination, the tuberculin test and the x-ray examination.

THE PATHOLOGIC EXAMINATION

In 1876 Parrot observed that when tuberculous involvement is detected in the tracheobronchial lymph nodes there is nearly always a primary focus in the corresponding lung. In 145 cases examined he did not fail to find the lung focus. His student Hervouet emphasized the fact that the postmortem examination must be done with great care and that the making of a few sections of the lung would not suffice because some of the primary foci are extremely small, scarcely exceeding the size of a pin's head. Hutinel reported exceptions, that is, tuberculous foci in the tracheobronchial lymph nodes when no focus could be found in the lung, but he believed that this finding was due to the minute size of the pulmonary focus.

In 1898 Kuss said that primary tuberculosis in childhood cannot be diagnosed clinically but can be found at postmortem by painstaking examination. He pointed out that this condition is characterized by a small tubercle usually located just beneath the pleura, which nearly always results in involvement of the lymph nodes at the lung root. He found that the size of the focus in the lung varies from that of a hazel-nut to that of the head of a pin.

Read in part before the sixth National Medical Congress of Argentina at Cordoba, Oct. 17, 1938.
Prepared with the aid of a grant from the Research Fund of the University of Minnesota.
From the Departments of Preventive Medicine and Internal Medicine, University of Minnesota Medical School, and the Lymanhurst Health Center.

In 1900 Naegeli found gross or microscopic evidence that tuberculous infection was present in 98 per cent of adult bodies which were subjected to postmortem examination.

In 1916 Ghon dissected in detail the organs of the chest as well as all the other organs and lymph nodes of 184 bodies. "Only in this way," he states, "was I able to detect slight tuberculous lesions in some cases where there had been positive tuberculin reaction." Because of their small size the detection of some of the pulmonary foci was "a very difficult task and often required considerable time." Again he says "The smallest foci were scarcely found at all in the cases with anatomical healing. This fact is of importance: it explains to us why it is often difficult to find such foci. . . ." In five of his cases the foci were located in organs outside the chest.

In 1933 Robertson published a report of his extensive pathologic examinations, which dealt largely with the lesions of the primary tuberculosis complex. He says: "To assert positively that any lesion during life or after death is or is not of tuberculous origin often reveals in the final analysis definite and occasionally humiliating errors. This is no expert, no matter what experience or special training he may have had, who has not been 'fooled' by this disease. . . . It is diagnosed as present when it is not. . . . The patient is assured that tuberculosis is not present when it is. Even macroscopic examination of excised tissues may fail to reveal its hidden presence. Orth demonstrated this fact six years before Koch announced the discovery of the bacillus of tuberculosis, when he found, by the microscope, lesions in grossly normal lymph nodes of animals fed on fodder infected with tuberculous material. The patient or his physician is told that the tuberculosis which he once had has been completely healed. Such a statement can never be made with any great degree of certainty and it is my purpose here to emphasize this fact."

Calcified lymph nodes and primary pulmonary foci have been ground and inoculated into guinea pigs by many workers to determine the presence or absence of virulent tubercle bacilli. Lubarsch, Rabinowitsch and Wegelin have recovered tubercle bacilli from as high as 50 per cent of such lesions. Opie and Aronson obtained positive results in 30 per cent of 169 bodies in which the lesions were thought to be apparently healed. Feldman examined microscopically and by guinea pig inoculation lesions of the primary complex from sixty-eight human beings. Although there was evidence of histologic activity in a considerable number, in only one was he able to demonstrate the presence of viable or virulent tubercle bacilli. He questions whether or not the evidence of histologic activity may not have been due to the presence of silica, which was demonstrated in these lesions. He finds that even morphologic studies cannot determine the presence or absence of viable or virulent tubercle bacilli in the lesions of the primary complex. Thus, apparently the infection completely dies out in a considerable number of the lesions of primary complexes and in others the bacilli remain alive and serve as a potential threat to the future health of the individual.

Sweany has established that pure bone develops around the foci in approximately 25 per cent of cases in man and that when the lesions of the primary complex are well calcified or ossified the capsule may be resorbed.

Thus the detailed pathologic examination is a highly accurate method of detecting the presence of the primary tuberculosis complex (tuberculous infection). Unfortunately the majority of them are located so remote from the surface that they are not available for antemortem examination.

THE TUBERCULIN TEST

Tuberculin prepared by different laboratories or even separate lots by the same laboratory may vary considerably in potency. Therefore extensive studies have been conducted by such workers as Dorset, Long and Seibert, who have determined that it is the protein fraction of the tubercle bacillus which sensitizes the tissues of the infected individual. Moreover, they have produced purified protein derivative. While this has not rendered old tuberculin obsolete—extremely valuable when prepared in such laboratories as that at Saranac Lake—it is a definite step forward. The intensive studies now in progress by Long and Seibert promise a standardized testing substance with a dosage which will be as effective in determining sensitivity of the tissues to tuberculoprotein as is possible to attain.

Lumsden says "Skin testing with any of the tuberculin preparations now on the market or otherwise amply available as a sole means of establishing an epidemiological index or rate of incidence of tuberculous infection in the general population of a community or region is of questionable value or definitely futile." I see no justification for this statement; a discrepancy (not as great as that reported by Lumsden) has been recognized for a long time. As early as 1893, Bang of Denmark called attention to the fact that in cattle the occasional animal which did not react to the tuberculin test had unmistakable tuberculous lesions demonstrated at postmortem examination. He said: "But the imperfections of tuberculin mentioned here are eclipsed by its good qualities. According to my experience, which is founded on a very great number of autopsies, it is in 10 per cent of the cases at most that tuberculin will be at fault and it is only in a very small percentage of these cases that the fault will be of consequence." In 1898 Reynolds said: "I do not mean to convey the impression that I consider tuberculin absolutely infallible, but I do consider it more nearly infallible than the human eye or sense of touch."

Every one knows that the Wassermann and other equally good tests are not infallible for the detection of syphilitic infection, yet no informed physician would condemn them and even call them futile because of the occasional failure.

There are certain factors absolutely necessary for the successful administration of the tuberculin test:

1. A high grade tuberculin with recently tested potency must be used.

2. For the individual who has not reacted to 0.01 or 0.1 mg. as the first dose, a second dose of 1 mg. should be administered in from forty-eight to seventy-two hours. When purified protein derivative is used, one should always employ the usual second dose for those who do not react to the first. The administration of a sufficient dosage of tuberculin is important, as a 10 to 20 per cent error may result from using only the small dose. For persons beyond middle life, larger final doses may be necessary.

3. If tuberculin is not lodged in the layers of the skin, no reaction will appear even though the tissues are sensitized to tuberculoprotein.

4. Interpretation is best made by palpation. In the absence of induration or edema no reaction should be recorded. Many one or two plus reactions have been based on areas of pinkness or redness and are not an indication of sensitivity to tuberculoprotein.

When adequate care is used in carrying out these four points the number of persons one misses who have foci of living tubercle bacilli in their bodies will be insignificant. If such care is not taken, of course, the results will not tally with previous records.

The evidence of the specificity of a good preparation of tuberculin properly administered now makes a voluminous literature:

1. One can administer the tuberculin test to large numbers of guinea pigs and find no reactors, then inoculate them with living tubercle bacilli; a few weeks later all will be reactors if the test is again administered.

2. Independently the veterinarians have conducted their investigation on tuberculin. The critics and advocates of tuberculin now active in the medical profession had their parallels in this profession forty years ago. The veterinarians have long since settled their controversy because the immediate postmortem examination of the carcass was proof positive of the specificity of the test. In the United States, tuberculosis among the 58,000,000 cattle, as manifested by the tuberculin reaction, has been reduced since 1917 to one half of 1 per cent or less in all but nine of the 3,134 counties. In 1917 there were 40,746 cattle condemned for tuberculosis under federal inspection in the United States; in 1938 there were only 2,385 cattle condemned. Was this futile? The veterinarian used the tuberculin test as the "sole criterion" of tuberculous infection.

3. A strain of tubercle bacillus with markedly attenuated virulence, known as BCG, when properly administered to man and animals is capable of sensitizing the tissues to tuberculoprotein.

4. We have observed 643 students of nursing and medicine who were nonreactors to tuberculin but who soon after exposure to patients suffering from contagious tuberculosis presented strong reactions. Boynton found that the rate of tuberculous infection among students of nursing in a general hospital service was 100 times greater than among students in the college of education, while among students in a special tuberculosis service it was 500 times greater than in the college of education. Among eighty-five students of nursing and medicine who developed lesions which could be located during life by one or more phases of the examination, not one failed to react to tuberculin.

5. When a contagious case of tuberculosis exists in a family, one finds that nearly all other members react to tuberculin. The presence of the tuberculin reaction among children in such families is so universal that the administration of the test to the children is often used in differential diagnosis. For example, a woman reported to one of our chest clinics with evidence of extensive disease in one lung. The x-ray laboratory reported advanced pulmonary tuberculosis. Tubercle bacilli could not be found in the sputum and she did not react to tuberculin. Finally her four small children were brought to the clinic but not one reacted to tuberculin. The final diagnosis was pulmonary abscess with no evidence of tuberculosis.

6. The tuberculin reaction among children often leads to the source of the infection. For example, Edwards of Cleveland administered the tuberculin test to first grade school children and examined the adult contacts of the reactors. In 1937, 163 and, in 1938, 224 previously unreported cases of pulmonary tuberculosis were brought to light in this manner. Can any one speak of a test which results in such accomplishments as "futile"?

7. Ch'iu found that of 446 children who reacted to tuberculin at the average age of 7 years, 15 per cent had fallen ill or had died of tuberculosis ten or more years later, whereas of 772 children who were nonreactors to tuberculin at the average age of 6.6 years only 1.7 per cent had fallen ill from tuberculosis when traced ten or more years later. Can any one say that a test is "futile" which selects the potential future cases of clinical tuberculosis in this manner?

THE X-RAY EXAMINATION

When the x-rays are used as the final diagnosis of tuberculosis, certain physical limitations of this method must be held in mind else the medical scientist will join the ranks of the awe struck public to whom x-rays are still largely magic. X-rays at their best are entirely dependent on the eyesight of the viewer. Some of the physical limitations are as follows:

1. The x-ray examination usually is limited to the chest. Ghon and other pathologists have called attention to cases in which the most minute examination at postmortem revealed no evidence of tuberculosis in the lung or hilus and yet definite foci were found in other parts of the body. Sweany has shown that about 12 per cent of the tuberculous infections are extrapulmonary. This fact immediately gives the x-rays a 12 per cent handicap.

2. On the usual single film exposed in the posterior-anterior diameter, a considerable part of the lung is obscured from view by shadows of the heart, diaphragm, and so on. Sweany has found that approximately 31 per cent of the lesions which can be detected by postmortem examination had their shadows so obscured from view on the antemortem x-ray films. Thus, an additional 31 per cent handicap must be given the x-rays in detecting tuberculous infection.

3. The x-ray examination is such a gross method that areas of disease must be macroscopic in size before they cast shadows on the x-ray film that are visible to the naked eye.

Miller's x-ray and postmortem studies of 400 cases led to the following conclusions: "With a technic of examination based upon careful study, calcification of tuberculous first infection in the thorax is demonstrable roentgenographically in only about one fourth of the existing cases. The superimposition of structures of varying density, the factors of cardiac and intrapulmonary vascular movement and the minute size of many of the calcium deposits are responsible for this. Blood vessels roentgenographed axially produce shadows which may be confused with those of calcium." Since 75 per cent of the lesions which contain calcium are not demonstrated by x-ray examination, this method cannot be set up as the standard method of detecting tuberculous infection.

Even in the small percentage of primary lesions which are located by x-ray examination it usually takes from one to several years before sufficient calcium is deposited so that it can be detected by x-ray examination. Pinner states that he has observed noncalcified primary tuberculosis complexes that were several years old and one such case in which bacteriologic evidence

of tuberculosis extended over seven years preceding death. Thus, if one were to use the x-rays to determine the presence of infection to find its source, the persons responsible for the infection would continue to disseminate bacilli or even die before their disease would be detected. On the other hand, the tuberculin reaction is definitely present from three to seven weeks after infection occurs and one can immediately seek the open case responsible for the infection. Sweany has shown that 12 per cent of the lesions found at postmortem cannot be detected by x-ray examination because they are too small or too new to cast shadows. Thus another 12 per cent handicap accrues to the x-ray examination.

4. The careful pathologic studies of Sweany have shown that many lesions of the primary tuberculosis complex become almost completely resorbed after fifteen to twenty years, thus casting no shadow on the x-ray film. There is another very definite group of primary lesions which do not form calcium deposits. This, together with those which resorb, constitutes another 25 per cent handicap for the x-rays.

Thus, according to the postmortem work of Sweany, the x-ray examination has a total handicap of 80 per cent in the detection of the lesions of primary tuberculous infection.

If the tuberculin reaction developed in only 20 to 25 per cent of animals inoculated; if it had led to the discovery of only 20 to 25 per cent of the tuberculous cattle of this nation; if it had aided us in finding only 20 to 25 per cent of infected children, certainly we would not be using it as our best standard in the detection of tuberculous infection; yet a 20 to 25 per cent effective standard has been relied on in the report of Lumsden.

5. Even the shadows we do see on the x-ray film are not diagnostic of etiology; those cast by tuberculous lesions may be identical with those of lesions of entirely different etiology. Gloyne of London says: "Thus in the case of hilus shadows an accurate phraseology was certainly needed for what we saw, but when we added the word tuberculosis, we made an inference from the observed facts which we now know to have been often wrong. A similar tendency is creeping in with regard to miliary shadows. We are apt to describe them as miliary tuberculosis. But there is a group of cases in which these shadows disappear after some months and are unaccompanied by the usual symptoms and signs of serious illness. Now miliary tuberculosis is a pathological term with a well defined meaning denoting a fatal disease and I cannot help feeling that our minds will be all the clearer if we can give to the new science of radiology a terminology of its own which cannot be confused with pathology."

Moreover, it is impossible from a shadow on the x-ray film to differentiate between shadows cast by bone, calcium or dense deposits of fibrous tissue. There are causes of calcification in the lungs and hilar region other than tuberculosis.

Frimann-Dahl and Waaler made postmortem examinations of 200 bodies which had previously had x-ray examination. They identified the primary complex in forty-two. They also studied the nontuberculous lesions which had produced shadows so easily misinterpreted for parts of primary complexes. In forty-eight cases there were ossifications and calcifications and thickened pleura not due to tuberculosis. Pieces of wood and cellulose around which calcium had been deposited were found immediately subjacent to the pleura in two cases. Ossifications between the alveoli were found in seven. Emboli and thrombi which had calcified were found in six cases. They also found the cause of the densities on the x-ray film in some cases to be due to silicotic nodules. I have seen pieces of lead in the chest and small remains of iodized oil in the bronchial tree cast shadows which were interpreted as representing lesions of the primary complex until the history revealed the true condition.

6. Krause called attention to the gradual loss of sensitiveness to tuberculin if reinfections do not occur. On a number of occasions attention has been called to the disappearance of allergy as revealed by the tuberculin test among children at Lymanhurst. This has also been observed by those working with BCG; that is, after this substance has been administered, sensitiveness of the tissues reaches its height, following which it may wane and finally disappear as far as can be determined by the tuberculin test. It is believed in such cases that the BCG has completely died out.

When all tubercle bacilli in the lesions of the primary complex have died there remains nothing except the "shells" in which they formerly lived. Tuberculosis is no longer present, regardless of the shadows that may be seen on the x-ray film. Such persons if not reinfected apparently lose their sensitiveness to tuberculin and are therefore nonreactors.

The x-rays are limited by their very nature in two opposite ways. They fail to record or at least we fail to see shadows of all the lesions whether due to minute size or obstructions in the chest and at the same time they record shadows of nontuberculous lesions as well as those of previous tuberculous lesions which no longer harbor virulent bacilli and which have no more clinical significance than an appendicitis scar.

As long as one can submit the same x-ray film to four different roentgenologists without one knowing of the readings of the others and receive three or four entirely different interpretations and as long as one can submit a film to a roentgenologist and receive a definite interpretation on one day and a month later submit the same film to the same roentgenologist and receive an entirely different interpretation, it seems more than likely that many of the differences which have been reported with reference to calcifications are due to errors in interpretation rather than to actual differences in the pathologic condition. Assuming that films have been made by the best possible technic there remains one important essential, namely that shadows be described by a physician who knows the limitations of the x-ray examination.

RECENT REPORTS OF DISCREPANCIES BETWEEN THE TUBERCULIN TEST AND THE X-RAY EXAMINATION

Recently several reports of discrepancy between the tuberculin test and the x-ray film have been made. For example, Nelson and his associates found among 198 children who reacted to tuberculin that eighty-five (42.9 per cent) had what they considered definite roentgenologic evidence of calcification, forty-three (21.7 per cent) had questionable evidence of calcification and seventy (35.4 per cent) had no evidence of calcification. Among sixty-two children who were nonreactors to tuberculin they found what they considered definite roentgenologic evidence of calcification in twenty-seven (43.5 per cent), questionable evidence in five (8.1 per cent) and no evidence in thirty (48.4 per cent). They conclude that low grade or healed tuberculous lesions

in children may exist when the tuberculin reaction is negative or only questionably positive.

Among 1,220 children examined, Crimm and Strayer state that 619 (50.7 per cent) had primary tuberculosis as evidenced by calcification in the lungs, while among 1,998 adults so examined 447 (22.4 per cent) showed evidence of such calcification. The result of the tuberculin test is not given

Crimm and Short reported 191 cases of children and young adults who did not react to tuberculin but who they believe had at some previous time acquired the primary infection of tuberculosis from x-ray evidence of focal areas of calcification. In seventy-five persons who two or three years before were reported as one plus or two plus reactors, they found that 18 per cent had become nonreactors. Over a period of four years they saw four patients who were previously nonreactors who became reactors.

TABLE 1.—*Nonreactors to Tuberculin, January 1922 Through May 1931*

	Number
Incomplete or unsatisfactory examinations	394
X-ray examination negative	3,483
Pleural changes	91
Bronchiectasis	34
Questionable or slight calcification	76
Slight calcification	23
Moderate calcification	9
Calcified nodules throughout both lungs	2
Fibroid and calcified deposits in apex only	1
Advanced pulmonary tuberculosis	2
Pulmonary abscess	1
Pneumonia	32
Total	4,148

Gass and his co-workers examined 1,015 white and 276 colored children from 6 to 19 years of age. They submitted the x-ray films of the chests to five different observers, among whom there was unanimous agreement "as to the presence of definite tuberculous lesions in 32.8 per cent of the tuberculin-positive reactors and 24.7 per cent of the tuberculin-negative reactors. Such lesions were noted on at least four of the five observations in 39.4 per cent of the tuberculin-positive children and 46.2 per cent of the tuberculin-negative reactors."

McKneely made an x-ray survey of 6,000 children at Hagerstown, Md., and reported that 963 showed evidence of pulmonary tuberculous infection. Among 2,837 children who were nonreactors to tuberculin approximately 13 per cent had what he considered x-ray evidence, whereas among approximately 700 children who reacted to tuberculin there was x-ray evidence in 20.6 per cent. McKneely says: "In summary, tuberculin testing followed by roentgenographic examination of the reactors in the Hagerstown school children would have missed 85 per cent of the children with tuberculous lesions which were revealed by an x-ray survey. These results seem to show also that the reaction to the tuberculin test is almost unrelated to the roentgenographic diagnosis in this group of school children. Clearly, this finding appears incompatible with much that is believed to be true about tuberculosis and the tuberculin test. The first question which may be raised concerns the accuracy and correctness of our technics, and interpretations. These have been checked as carefully as possible and to date no basic error has been found." One wonders whether man's inability to determine etiology from the x-ray film is not basic enough as far as error is concerned.

Lumsden and his co-workers examined 4,400 scho children from 6 to 19 years of age in Coffee Count Ala., and Giles County, Tenn. He states that in Gil County 43.2 per cent of the white school children an 25.8 per cent of the colored school children and i Coffee County only 0.6 per cent of the white scho children and only 1.1 per cent of the colored scho children showed lesions "regarded by the authoritie generally as unquestionably healed or arrested primar lesions of tuberculosis." Among the white childre examined in Giles County 46.2 per cent of the tube culin reactors and 42.7 per cent of the nonreactors wer reported to have evidence of calcium deposits reveale on their x-ray films.

If one is working in a community where approxi mately 100 per cent of the children have become infecte with tubercle bacilli, one might expect to find abou 20 per cent with evidence of the primary complexes o the x-ray film. In addition one would find simila shadows of lesions with entirely different etiology. I is possible that in some areas of this country the non tuberculous causes of densities, such as fungous disease and silicotic nodules, are more prevalent than in others Therefore in communities where nearly all the children are infected with tubercle bacilli and the other causes of densities on the x-ray film are prevalent a much higher percentage of shadows so often interpreted as representing the primary complex will be found than in communities where the incidence of tuberculous infection among children is low and the other causes of densities on x-ray film are rare.

Among adults there appears to be a definitely lower percentage who have shadows interpreted as calcium deposits than among children. For example, an examination of 846 students by Scheel of Oslo revealed shadows without calcification which he believed were due to deposition of fibrous tissue in 6.9 per cent of the tuberculin reactors and in only 1.6 per cent of the nonreactors. He found evidence of calcified foci in from 12.2 to 16.2 per cent of the tuberculin reactors and in 0.7 per cent of the nonreactors.

Lees examined 464 medical students at the University of Pennsylvania; 338 reacted to tuberculin and thirty-nine (11.2 per cent) showed evidence of calcium deposits on the x-ray film. Of the 126 nonreactors ten (7.9 per cent) gave evidence of calcium deposits

Among 4,372 students who entered the University of Minnesota in the fall of 1936, 1,004 reacted to the tuberculin test. An x-ray film examination was made of 982 of these, of whom only 140 (14.2 per cent) showed possible evidence of primary complexes such as calcium deposits.

Ylvisaker and his co-workers made x-ray films of the chests of 9,301 adult employees in the home office of the Prudential Insurance Company and found that 762 (8.2 per cent) gave evidence of calcium deposits in the chest.

It is possible that the reporting of definitely smaller numbers of adults than children with evidence of calcium deposits may be due in part to resorption of the calcium, bone, and so on, which Sweany has described.

OBSERVATIONS AT LYMANHURST

At the Lymanhurst School in Minneapolis we have examined 16,824 children since 1921, many of whom have been reexamined periodically. First examinations have been made of infants of a few months and of all other ages throughout the period of childhood. We have observed the same infants and children periodically from the time of the first examination as they grew into

adulthood and have seen some of them reach the fourth decade of life. Thus we have seen the complete evolution of tuberculosis in the human body from the time the individual was exposed, following which parts of the primary tuberculosis complex were occasionally detected by x-ray film in the lung or in the hilus or in both. Among such persons we have seen the primary complex make its appearance as well as acute reinfection forms of disease, such as meningitis, pneumonia, miliary tuberculosis, pleurisy with effusion, and peritonitis. We have seen chronic reinfection forms develop, such as those involving the lungs, the kidneys, numerous bones and joints and the digestive tract.

When these observations began, it was generally assumed that all children had been infected with tubercle bacilli and that therefore the x-ray examination should bring to light evidence of calcium deposits, particularly in the hilar region in the majority. For example, in 1925 in one group of 1,412 children we reported that our roentgenologists had found evidence of calcium deposits in 1,024 (72.6 per cent) and that 55 per cent of those with evidence of calcium on the x-ray film did not react to the tuberculin test. At that time the work of several authors emphasized the fact that deposits in the lung or hilus interpreted as calcium are not always due to tuberculosis.

In 1927 we reported the examinations of 4,500 children of whom the roentgenologist had described evidence of calcium deposits in 3,155 (70.1 per cent). In these 3,155 the tuberculin reaction was present in 1,683 (53.3 per cent). The same year we reported the examinations of 1,772 children among whom the roentgenologist had reported the evidence of calcification in 1,077 (60.7 per cent). Of this number said to have calcium deposits demonstrated by x-ray film, 56 per cent reacted to the tuberculin test. The conclusion was that the discrepancies between the tuberculin reaction and

TABLE 2.—*Tuberculin Reactors, January 1922 Through May 1931*

	Number
Changed from nonreactors to reactors	189
Changed from reactors to nonreactors	68
No x-ray examination	134
X-ray examination negative	2,995
Pleural changes (no evidence of calcification)	124
Pleural changes with evidence of calcification	49
Bronchiectasis, no calcium	15
Bronchiectasis with calcium	3
Questionable calcification	233
Definite calcification	765
Calcifications in cervical or abdominal regions only	5
Hodgkin's disease	1
Pneumonia (no calcium)	13
Fine fibroid deposits or nodular infiltrations in apex	16
Primary foci in pneumonic stage	41
Clinical pulmonary tuberculosis (no calcium)	24
Tuberculosis of bones and joints (no calcium)	15
Clinical pulmonary tuberculosis (with calcium)	37
Tuberculosis of bones and joints (with calcium)	10
Total	4,737

the x-ray examination "may be accounted for either on the ground that the calcification is due to some healed inflammatory condition of a nontuberculous nature, to tuberculous involvement which has completely died out or to error in interpretation of shadows." When a child was reported to have evidence of calcium deposits revealed by the x-ray film in the parenchyma or hilus, slight rotation of the chest under the fluoroscopic screen examination often would obliterate the shadow. Again, on one film of a child's chest the roentgenologist would report evidence of a definite calcium deposit in the hilar region, whereas, on the next examination of the same child's chest no such evidence would be reproted. Structures such as blood vessels seen on end were responsible for many of the reports of the presence of calcium in our previous examinations. About this time reports were

TABLE 3.—*Examinations from June 1, 1931, Through Dec. 31, 1938*

No test	12	
Total number examined	7,939	
Nonreactors	6,156	
Reactors	1,771	(22.3 per cent)
NONREACTORS		
No x-ray examination	4,987	
X-ray examination	1,169	
No abnormalities	1,064	
Possible calcium	74	
Definite evidence of calcium	18	(1.5 per cent)
Clinical pulmonary tuberculosis	2	
Pneumonia	11	
REACTORS		
X-ray examination	1,771	
No abnormalities	703	
Possible calcium	468	
Definite evidence of calcium	527	(29.7 per cent)
Primary foci in pneumonic stage	25	
Clinical pulmonary tuberculosis	34	
Pneumonia	14	

appearing in the literature calling attention to the work of others who had observed this error, notably that of McPhedran.

By 1930 the interpretations of our x-ray films were so much in error that they were really of little value in the continuation of our studies. Therefore they were reinterpreted in the light of new information.

In table 1 are grouped those who did not react to the tuberculin test and those with incomplete examination with reference to tuberculin and x-ray examination who registered in our clinic before June 1, 1931. The total group consists of 4,148 individuals, 394 of whom were not adequately examined. Thus the group with satisfactory examinations consists of 3,754 children; 3,643 (97 per cent) had no evidence of calcium deposits reported on the x-ray film, while 111 (3 per cent) had such evidence reported, although some of it was questionable. One child had definite pulmonary abscess; two had unmistakable advanced pulmonary tuberculosis. In both of them only the epidermal test was administered. It is probable that in one case desensitization had occurred, as the disease was in the terminal stage when the test was administered. In the second case such an explanation does not seem logical and, unfortunately, larger doses of tuberculin were not administered.

Among the remaining children, thirty-two had shadows in the lung parenchyma which completely disappeared on subsequent examinations. This shows the great advantage of having an opportunity to make periodic examinations. I have seen a number of such cases which on a single examination were designated as tuberculous on the basis of the x-ray shadow. No person, whether a reactor or a nonreactor to tuberculin, should ever be given a diagnosis of pulmonary tuberculosis from the shadows revealed by one x-ray examination. In not a single case of this entire group did we find a shadow in the lung which proved to represent the primary focus in the pneumonic stage.

Table 2 includes 4,737 children who reacted to tuberculin, as they registered in our clinic before June 1, 1931. However, in 134 the x-ray examination was not

done or was unsatisfactory. Of the 4,346 who had x-ray film examinations, 869 (20 per cent) were reported to have definite evidence of calcium deposits. Of the remainder there were 233 who had questionable evidence of calcium deposits on the x-ray film. Among this group of tuberculin reactors it will be observed from table 2 that twenty-five had clinical tuberculosis of the bones and joints and sixty-one had clinical pulmonary tuberculosis.

Because so little evidence of disease was found among our nonreactors, we have not made x-ray films of the chests of nonreactors since June 1931 unless they were demanded by the family or one or more symptoms aroused our suspicion. It will be observed (table 3) that only twelve of the 7,939 children who were examined between June 1, 1931, and Dec. 31, 1938, were not tested with tuberculin. Of those tested only 22 per cent reacted, while among those examined before June 1, 1931, 54 per cent reacted. Among the nonreactors (table 3) only 1,169 had x-ray film examinations and of these only eighteen presented definite evidence of calcium deposits. We have given no consideration whatever to those reported as having possible or probable calcium deposits demonstrated on the x-ray film except to list them. Clinical pulmonary tuberculosis was found in two of these nonreactors.

Among the 1,771 reactors (table 3), definite evidence of calcium deposits was reported in 527 (29.75 per cent), primary foci in the pneumonic stage in twenty-five, clinical pulmonary tuberculosis in thirty-four and nontuberculous pneumonia in fourteen.

As in the group examined prior to 1931 clinical pulmonary tuberculosis was found in sixty-one and since 1931 in thirty-four cases, making a total of ninety-five, all of whom were tuberculin reactors, and since nearly all of this group were in the teen age period, it is almost fruitless to make x-ray films of the chests of children even though they react strongly to tuberculin, before they reach the age of adolescence. It is nearly fruitless to make x-ray films of the chests of children who react to tuberculin to find evidence of the lesions of the primary complex. Therefore our studies have led us to look on the x-ray film of the chests of children as almost a total waste as far as tuberculosis is concerned.

However, when the period of adolescence is reached and on through the span of life, every tuberculin reactor should have an x-ray examination of the chest annually as long as no significant shadows appear and much more frequently if shadows appear which may be due to clinical tuberculosis. Those who present such shadows are subjected to complete examination, including laboratory studies of the sputum and the gastric contents for acid-fast bacilli, periodic red cell sedimentation tests, observation for symptoms, examination for abnormal physical signs, and frequent x-ray examinations of the chest to determine whether the shadow persists and if so whether it changes in size. Even bronchoscopic examination may be resorted to in arriving at the final diagnosis. Thus the diagnosis of tuberculosis often is made only with extreme difficulty; there are no short cuts, such as a single x-ray examination of the chest. Indeed, any one who makes diagnoses without utilizing all of these procedures is open to criticism by experienced physicians. Our experience at the Lymanhurst Health Center has been such that the term "x-ray diagnosis" has become obsolete. We have seen so many errors made that we now accept nothing except a complete examination of which the x-ray film is only a part.

THE RELATION BETWEEN VITAMIN A AND DARK ADAPTATION

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I. PURPOSE

Night blindness and similar visual disturbances have long been associated with the nutritional state of the body. In recent years this connection has been traced to the vitamin A of the diet [1] and has become understandable in terms of the chemical relation between vitamin A and the light-sensitive pigments of the retina.[2]

After the establishment of vitamin A as a factor in the visual cycle, it seemed logical to use the properties of vision for the detection of early stages in vitamin A deprivation. Such tests were made by Edmund and Clemmesen [3] with visual intensity discrimination as an index and by Jeans and Zentmire [4] with dark adaptation as a criterion. Other investigations [5] followed and, though some of this work has been found to be perhaps more enthusiastic than critical,[6] it showed that the original idea is probably sound and that under properly controlled conditions some visual properties may be used in diagnosing a lack of vitamin A long before it becomes clinically evident.

The measurements to be reported in this paper were made in an effort to study the behavior of dark adaptation under controlled vitamin A conditions and to ascertain under which circumstances the properties of dark adaptation are indicative of preclinical avitaminosis A.

II. DARK ADAPTATION

Dark adaptation is a familiar phenomenon. On coming from the brightly illuminated outdoors into a dimly lighted room, one can see hardly anything at first, but, as one stays indoors, objects slowly take shape, and after fifteen or twenty minutes they appear so clear that one recalls the initial visual obscurity with astonishment. The process of achieving this good vision is called dark adaptation. It was first described by Aubert [7] in 1865 and first measured by Piper [8] in

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This research was aided by a grant from the Rockefeller Foundation.

An account of this work was first given March 29, 1938, to the Round Table on Nutrition and Public Health sponsored by the Milbank Memorial Fund and held at the New York Academy of Medicine. It was later reported briefly at the Vitamin Round Table of the Clinical Congress of the Connecticut State Medical Society at New Haven, Conn., Sept. 21, 1938. Part of the results have been published as a preliminary note in Science (88: 219 [Sept. 2] 1938).

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2. Wald, George: Carotenoids and the Visual Cycle, J. Gen. Physiol. 19: 351 (Nov.) 1935.

3. Edmund, Carsten, and Clemmesen, S.: On Deficiency of A Vitamin and Visual Dysaptation, Copenhagen, Levin & Munksgaard, 1936.

4. Jeans, P. C., and Zentmire, Zelma: A Clinical Method for Determining Moderate Degrees of Vitamin A Deficiency, J. A. M. A. 102: 892-895 (March 24) 1934.

5. Reviewed by Jeghers, Harold: Night Blindness as a Criterion of Vitamin A Deficiency, Ann. Int. Med. 10: 1304-1334 (March) 1937. For more recent references see Isaacs, Jung and Ivy.[6]

6. Compare especially the following critical papers: Palmer, C. E., and Blumberg, Harold: The Use of a Dark Adaptation Technic (Biophotometer) in the Measurement of Vitamin A Deficiency in Children, Pub. Health Rep. 52: 1403-1418 (Oct.) 1937. Isaacs, B. L.; Jung, F. T., and Ivy, A. C.: Vitamin A Deficiency and Dark Adaptation, J. A. M. A. 111: 777-780 (Aug. 27) 1938. Gridgeman, N. T., and Wilkinson, H.: Night Blindness and Vitamin A Deficiency: The Use of the Biophotometer, Lancet 1: 905 (April 16) 1938.

7. Aubert, H.: Physiologie der Netzhaut, Breslau, 1865.

8. Piper, H.: Ueber Dunkeladaptation, Ztschr. f. Psychol. u. Physiol. d. Sinnesorg. 31: 161, 1903.

1903. Since then it has been extensively studied, and now there exists a body of information which is sufficient to describe it quantitatively.[9]

Measuring dark adaptation involves finding the minimum light which must illuminate a given surface in order to render it visible. This threshold illumination is high when one enters a dark room and decreases as one stays in the dark. The most striking thing about this change in visual threshold is its range; it can easily cover a gamut from 100,000 units of light intensity at the beginning to 1 unit at the end of dark adaptation.

The retina is neither a simple nor a uniform structure. It possesses two kinds of receptors—rods for vague colorless vision at low light intensities and cones for acute color vision at high intensities—and these are distributed in a definite and characteristic pattern over the surface of the retina.[10] Since dark adaptation is accomplished by both rods and cones, their distribution and properties determine the precise nature of the dark adaptation corresponding to any region of the retina. Unless understood, these complexities will trip the innocent investigator who is unaware of the accumulated visual knowledge of the last twenty-five years.

It would obviously be out of place to present this information here, especially since it has already been reviewed in detail elsewhere;[9] therefore we may state categorically that there are at least six specifications which must be made in order that measurements of dark adaptation may be numerically precise and quantitatively valid. These conditions are (1) the intensity and (2) the duration of the light present before dark adaptation begins and (3) the area, (4) the retinal location, (5) the color and (6) the duration of the light used for measuring the course of dark adaptation.

In order to understand what these specifications involve, it is well to look at the measurements of dark adaptation shown in chart 1. For the moment consider only the upper set of points in the chart. They are single measurements which record the light intensity which the observer can just barely see as he stays in the dark. Time is plotted on the horizontal axis on an ordinary linear scale. Light intensity, however, is plotted on the vertical axis on a power or logarithmic scale. On such a scale 1 means 10 units, 2 means 100 units, 3 means 1,000 units, and so on. The most important reason for using a logarithmic scale is the large range of intensities covered by the data. A simple linear plot would have to be enormous to show any detail in such a range and would cramp some portions of the data and exaggerate others. Another virtue of a log plot is that a percentage error always occupies the same distance; a 10 per cent error is the same size whether applied to 1 unit or to 1,000 units.

Chart 1 shows that dark adapation proceeds in two steps. The first is rapid and is over in a few minutes; the second is late in starting and goes on for a half hour or more. It is now well known that the rapid first adaptation records the behavior of the cones of the retina, while the delayed and slower second adaptation reports the function of the rods. When, as for chart 1, the measurements have been made with violet light, this is brought out by the sharp and easily noted color difference between those thresholds which are determined by the cones and those made by the rods. Even a completely inexperienced observer records the fact that at the threshold the lights corresponding to the first section (solid circles in chart 1) appear violet or blue, while those composing the second section (unfilled circles) show no color at the threshold.

The six conditions under which the measurements are made influence profoundly the relative extent, the duration and even the form of the two parts of the dark adaptation curve. Thus the brightness and duration of the light adaptation which precede dark adaptation will fix the time of appearance of the cone-rod transition; after prolonged exposure to high intensities, the break may not come before fifteen or sixteen minutes, whereas after short exposure to low intensities it may come after half a minute or even less. The same is true of the color of the light used for measuring the threshold. Measured with red light, dark adaptation may show mainly the first, cone section, followed perhaps by a very slight rod section, which appears after thirty minutes; while with violet light the cone portion may hardly show, and only the rod, secondary section will be dominant. Similarly the area and location of the part of the retina used in the tests share with the other factors the control of the course of dark adaptation.

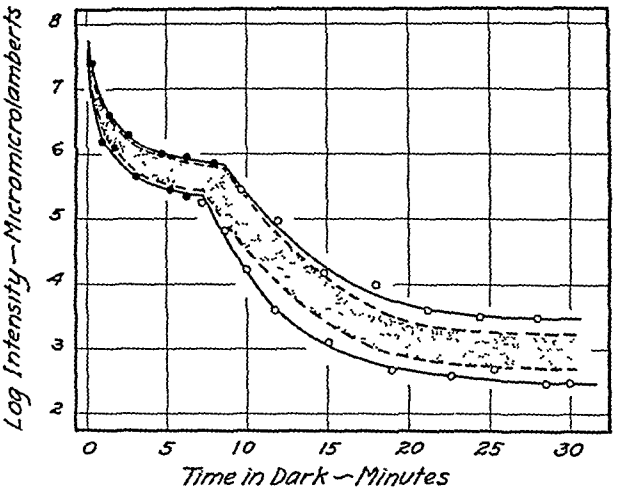


Chart 1.—The course of dark adaptation in 110 normal persons. The points represent the single measurements made with two subjects yielding the highest and lowest values of the final threshold. The dotted area contains 80 per cent of the population. Note the cone primary adaptation marked with filled in circles, the rod secondary adaptation marked with unfilled circles and the cone rod transition time.

III. STANDARD CONDITIONS AND APPARATUS

Since all these circumstances determine the nature and course of dark adaptation, it took many preliminary tests and a long experience with visual measurements for us to formulate the best conditions for routine measurements. The conditions we finally adopted as standard were chosen for their physiologic reasonableness.

To begin with, the precise effects of nutritional and pathologic conditions on the course of dark adaptation are not known. We therefore chose such a light adaptation that both cone dark adaptation and rod dark adaptation are separately and adequately shown in the measurements. This means a light adapting field, occupying about 35 degrees visual angle, whose brightness is about 1,500 millilamberts. The exposure

9 Hecht, Selig: Rods, Cones and the Chemical Basis of Vision, Physiol Rev. 17: 239-290 (April) 1937.
10. Osterberg, G.: Topography of the Layer of Rods and Cones in the Human Retina, Acta Ophth., vol. 13, suppl. 6, pp 1-103, 1935.

to it is for three minutes, which is long enough to produce the main effect and short enough to keep the subject from being bored.

The test field occupies 3 degrees visual angle in diameter as a compromise between a smaller field, which reports the behavior of a uniform part of the retina, and a larger field, which is more easily seen by untrained subjects. The test field and the light adapting field are viewed 7 degrees nasally with the right eye. This position was selected because at this point the population of retinal rods and that of cones are more nearly

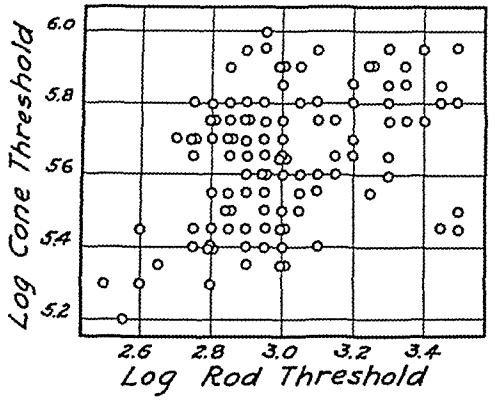


Chart 2.—Relation between final rod threshold and final cone threshold shown by 110 persons. The two thresholds are obviously connected, but the correlation is less than half perfect. As chart 4 shows, age is the biggest factor in disrupting the correlation.

equal than in the center of the retina or farther in the periphery. Moreover, the luminous fixation point used to keep the eye centered and steady is thus sufficiently far from the measuring area so as not to interfere with its function.

The measuring light is from the extreme violet end of the spectrum. This makes the rod section always maximal in range and furnishes the clear color distinction between cone function and rod function already referred to and shown in chart 1. The measuring light is exposed in flashes of one-fifth second, which is long enough to produce a good perception of the test area and short enough to be near the retinal action time.

These specifications may be duplicated by any one who will set up apparatus for controlling intensities, times, positions and areas. However, for convenience Hecht and Shlaer[11] have designed an adaptometer which not only incorporates these specifications but is so arranged that they can be varied in case it is necessary to investigate other aspects of dark adaptation under different but controlled conditions. This apparatus and the mode of its use have been described in detail and therefore need not be reproduced here. Throughout the present research we used an apparatus of this design and followed the recommended procedure.

In barest outline, this procedure consists of two parts. First the eye is exposed to the standard light adaptation. Then as the subject stays in the dark the intensity threshold of the selected region of the retina is measured with flashes of violet light. The exact steps in the measurements are important, and the various parts of the apparatus are concerned merely with carrying them out expeditiously and with precision. Each datum secured represents the just perceptible light intensity at a certain time in the dark, and between ten and fifteen such determinations yield a curve of dark adaptation similar to those shown in chart 1.

Measurements of dark adaptation made in this way reach a final threshold whose brightness is about one thousand-millionth of a lambert. This brightness represents approximately the appearance of a white card illuminated by a candle 1,000 feet away and corresponds roughly to an illumination of one millionth of a foot candle. The logarithms of such fractional numbers are negative and inconvenient to use. We therefore adopted a unit much smaller than the lambert: this is the micromicrolambert ($\mu\mu$l), which is a lambert $\times 10^{-12}$, or one million-millionth of a lambert. All possible values of the threshold are thus given by positive logarithms.

IV. NORMAL VARIATION

Before making any dietary experiments, we wished to ascertain the normal distribution of the characteristics of dark adaptation. For this purpose we made routine measurements with 110 persons, most of whom had university associations, as faculty, students, wives or children. The reason for choosing university people is not merely the obvious one of convenience but rather the practical one of normality. University people are more likely to represent a well fed group, well balanced in its dietary habits. That this judgment is right will be evident later. The measurements are all single readings and first performances. This makes them comparable to measurements which are likely to be made for ordinary diagnostic purposes.

Chart 1 gives the type of result we secured. The two sets of measurements actually shown are of the two persons who yielded the extreme final rod thresholds, the highest and the lowest. The stippled band between the two dashed curves is drawn to include the data of eighty-eight people, or 80 per cent of our population. The chances are therefore quite high that

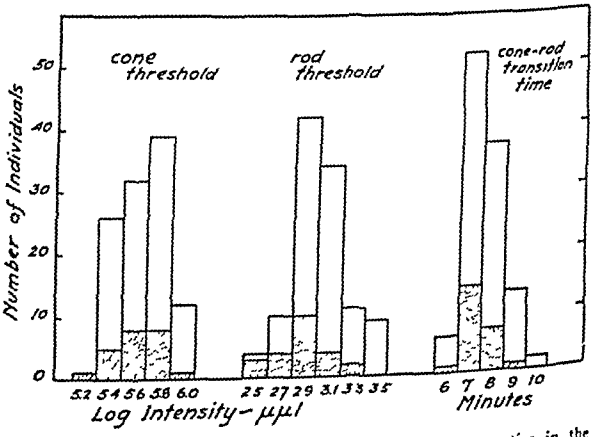


Chart 3.—Distribution of the three dark adaptation properties in the population. The stippled areas represent females. Obviously sex does not affect the distribution.

an average person when tested will show a dark adaptation curve which falls in this band.

It so happens that this stippled area in the cone region actually contains 93 per cent of all the cone measurements. This is because cone threshold and rod threshold are only partially correlated. Chart 2 records the final cone and rod thresholds of our population. It is evident that there is a general tendency

11. Hecht, Selig, and Shlaer, Simon: An Adaptometer for Measuring Human Dark Adaptation, J. Optic Soc. America 28: 269-275 (July) 1938. This instrument was made for us by Mr. O. C. Rudolph, 55 Van Dam Street, New York City.

for the two thresholds to vary in the same direction but that the correlation is not high. Determined in the usual statistical manner the correlation coefficient of the two final thresholds is 0.44, where 1 is a perfect correlation and 0 is no correlation.

After studying the various properties of the course of dark adaptation, such as the speed of adaptation and time for the cone-rod transition, we selected three aspects which seem to possess quantitative value as description. These are the final cone threshold, the final rod threshold and the cone-rod transition time. Chart 3 shows the distribution of these properties in our population. The cone threshold distribution appears slightly skew; the other two distributions are approximately symmetrical. The stippled areas represent females and the clear areas males. Obviously sex does not affect the distribution.

Age has some influence on dark adaptation. This is most clearly evident on the final cone threshold. Chart 4 shows that the cone threshold slowly rises with age, as evidenced by the position of the distribution maximum for the different age groups. Because violet light is used in these measurements, it is possible that the rising cone threshold is due to the yellowing of the ocular media with age. In that case the same rise in the threshold should be shown by the rods. However, the rod threshold shows no such obvious change with age. There is a subtle shift in distribution of rod thresholds with age which deserves to be pointed out, but we lay no emphasis on it. Note in chart 4 that for the 15 to 20 year group the distribution is skew to the left of the maximum, for the 21 to 25 year group it is symmetrical, for the 26 to 39 year group it is definitely skew to the right of the mode and for the 40 to 65 year group it is strongly skewed to the right. On the other hand, the cone-rod transition time is unaffected by age, the distribution maintaining the same maximum and the same degree of asymmetry throughout.

How much of the spread covered by the measurements is day-to-day variation and how much is fixed individual difference? Our experience with visual measurements indicates a maximum day-to-day intensity variation of 0.3 log unit. It may well be that for several days or even weeks of measurement of a visual function a person is consistent to within less than 0.1 log unit. Then, perhaps after a short lapse of time or quite suddenly as the result of fatigue or of a night out or even for no apparent reason, he may change and give values which fall within about 0.3 of the previous readings. Previous measurements with dark adaptation follow this expectation. However, for routine purposes we chose six subjects at random and measured them five or six times in four weeks. The resulting threshold variation for each person corresponds with previous experience, and it would serve no useful purpose to reproduce the measurements. A range of 0.3 log unit is a factor of 2 in actual light intensity. This means that, if the threshold today is 1, next week it may be 2 and it will continue to lie between these values. Considering that the total threshold change during dark adaptation is about 4 log units, or 10,000 to 1, this is a comparatively small variation.

This day-to-day fluctuation is not due to experimental or instrumental errors. In the apparatus we use, it is a simple matter to set a reading to 0.1 log unit, and a careful investigator can set it to considerably less. The variation encountered among the population therefore represents not only the day-to-day fluctuations that any individual might be subjected to but in addition real differences between the individuals.

V. BASIS FOR INDIVIDUAL DIFFERENCES

The total spread of final rod thresholds in charts 1 and 3 is 1.0 log unit, or 1 to 10 in linear intensity units. Deducting 0.3 log unit as the expected day-to-day variation leaves 0.7 log unit as the range within which individuals vary one from another. It is naturally tempting to suppose that the distribution in this range is due to the variation of the vitamin A content of the diet and of the body and that an individual's position in the population spread depends on his normal eating habits. Our experiments do not bear this out.

Of the eleven persons whose final rod thresholds lie in the extreme upper range, we selected six for study. Their diets seemed well balanced and contained plenty of vitamin A, and none of them showed any of the usual clinical signs of A deficiency; moreover, none of

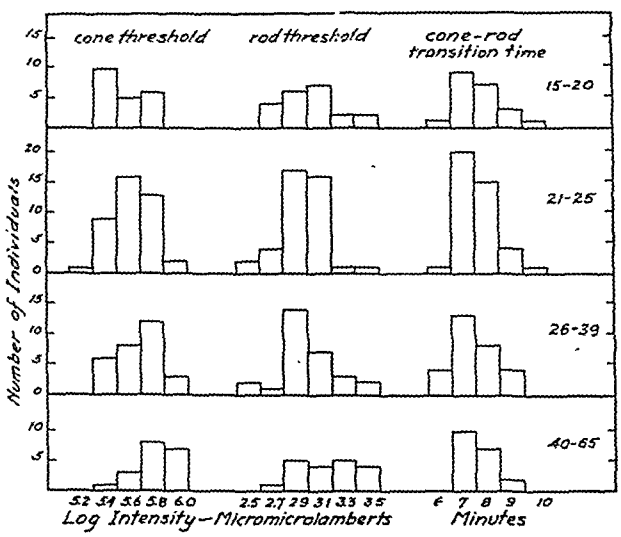


Chart 4.—Distribution of dark adaptation characteristics according to age. The cone threshold is most affected by age, the rod threshold only slightly and the cone-rod transition time not at all.

them had noticed any subjective difficulties in dark adaptation. We fed them 50,000 units of vitamin A daily for three and four weeks in addition to their regular diet. Five of the six showed no changes in their dark adaptation curves during this period, that is no change that did not fall within the normal day-to-day variation evidenced by any person whose curves are measured repeatedly. Obviously neither the daily fluctuations nor the differences between normal persons can be attributed to the daily fluctuations or the consistent differences in the vitamin A content of the diet. This is also confirmed by the case of one of the investigators in our laboratory whose final rod threshold has remained consistently among the highest despite the fact that he has eaten all sorts of supplementary vitamin A and carotene in the last two years.

Our study is thus in contrast to the investigation of 162 medical students in Boston made by Jeghers.[12] He reported that fifty of these students were subnormal in their dark adaptation. Of the fifty, at least twenty-seven were described as clinically aware of their poor dark adaptation and fifteen as possessing cutaneous

12. Jeghers, Harold: The Degree and Prevalence of Vitamin A Deficiency in Adults, J. A. M. A. **109**: 756-761 (Sept. 4) 1937.

symptoms in addition. All those tested improved under treatment, most of them strikingly. Our own group contains sixty students, undergraduates and graduates. Their dark adaptation characteristics dominate the first two age groups in chart 3 and do not differ from those of the other groups except as age influences their distribution. Actually our six persons with high thresholds are all students, and five of them showed no change with supplementary feeding of vitamin A. The sixth will be discussed in a moment.

The differences between our subjects and those of Jeghers may be quite real; however, these differences may be exaggerated by the apparatus used by Jeghers, namely the biophotometer. Other studies with this instrument have previously failed of complete corroboration, and the instrument itself may be criticized on several grounds. In particular, Jeghers [12] reported a sharp correlation between biophotometer readings and the estimated vitamin A content of the diet of his medical students. Such a correlation has failed to appear in a similar study by Isaacs, Jung and Ivy,[6] who have shown that the statistical errors involved in

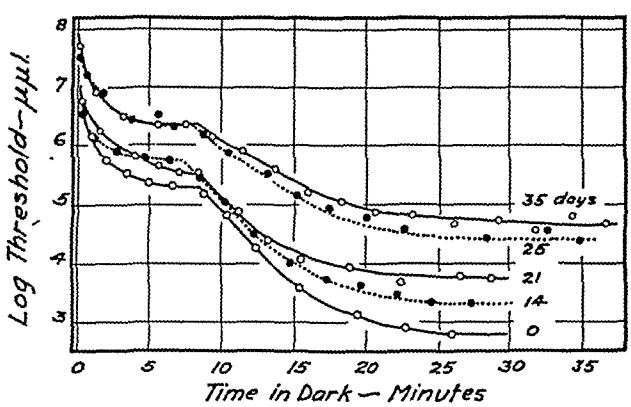


Chart 5.—Dark adaptation measurements made with one person at various times in the course of a diet practically free from vitamin A. The filled and unfilled circles merely keep the different sets of measurements apart and are smoothed by dotted and continuous lines respectively. Compare this chart with chart 1 and note how soon the data reach a level above the normal.

the use of the biophotometer are too large for such a study to be significant. The biophotometer does not incorporate in its structure and recommended procedure many of the critical specifications for measuring dark adaptation already referred to and fails to link its results with physiologic knowledge. One of the major errors is the lack of a fixation point; this failure to define the retinal area measured probably results in considerable erratic variation among individuals depending on the skill and aptitude of the subject.

In our study, even though in general the position of a normal person in the threshold spread is probably determined by other things than his diet, it is conceivable that one whose threshold is normally low may, on account of a deficient diet or of another bodily condition, be shifted to a higher position in the threshold range. Of the six subjects with high thresholds selected, one turned out to be such a person.

To begin with, his final rod threshold corresponded to log I = 3.5 and his cone-rod transition time to ten minutes, both of which are maximal in our population. Like the other five persons, he had an apparently normal diet. Yet, unlike that of the others, his dark adaptation was distinctly altered by the supplementary feeding. At the end of a week his final rod threshold had fallen from log I = 3.5 to 3.0 and at the end of three weeks it reached nearly 2.5. Moreover, during this time his cone-rod transition time had shortened steadily from ten minutes to six.

It will be apparent in a moment that ordinary dietary avitaminosis A does not change the cone-rod transition time, even though it may alter the cone and rod thresholds considerably. On the other hand, avitaminosis due to cirrhosis of the liver alters not only the thresholds but also the cone-rod transition time, as Haig, Hecht and Patek [13] showed. Apparently catarrhal jaundice also changes the cone-rod transition time.[14] We are therefore inclined to think that the extreme position of this individual in the population, as well as his exceptional response to supplementary feeding of vitamin A, is due to some aberrant factor in his vitamin A metabolism which may later become apparent clinically.

VI. DIETARY AVITAMINOSIS

After having established the spread in the dark adaptation of a normal population, we studied the dark adaptation of four young men on a regimen of decreased vitamin A. First we measured their dark adaptation almost daily for two weeks while they continued their normal and apparently adequate diet. Then we restricted their diet to foods that were calculated to yield at most 150 units of vitamin A daily. In this we followed the data compiled by Daniel and Munsell.[15] No special supplements were given of the other vitamins, because we wished to imitate the conditions under which dietary avitaminosis A would most commonly become established. The diet was maintained for about forty days, after which all four men returned to their normal food habits. Two were given daily supplements of 50,000 units of vitamin A for about six weeks afterward.

In studying the data during this experiment we followed the various properties shown by the dark adaptation curves. In particular we wanted to discover how the three selected characteristics shown in chart 3 behaved during the tests, because in the experiment with dietary avitaminosis A made by Jeghers [12] on himself the measurements were performed with inadequate apparatus and procedure and failed to show what actually happened to the course of dark adaptation. In the recent and similar experiment reported by Wald, Jeghers and Arminio,[16] made since our preliminary notices, the procedure and apparatus have been changed to render the results more revealing of the properties of dark adaptation.

Chart 5 shows five curves of dark adaptation made with one of our subjects during different stages of the deficient diet. Of the three critical properties it is apparent that both the cone thresholds and the rod thresholds are affected by vitamin A deprivation. Rod vision is affected more than cone vision, as evidenced by the more rapid and extensive rise of the rod section during the diet. This confirms the work of Haig, Hecht and Patek,[13] who found more extensive changes in rod function than in cone function in the dark adaptation of patients with cirrhosis of the liver. It is confirmed by the measurements of Wald, Jeghers and Arminio.[16]

13. Haig, Charles; Hecht, Selig, and Patek, A. J.: Vitamin A and Rod Cone Dark Adaptation in Cirrhosis of the Liver, Science **87**: 534-536 (June 10) 1938.
14. Haig, Charles: Personal communication to the author.
15. Daniel, E. P., and Munsell, H. E.: Vitamin Content of Foods, Miscellaneous Publication 275, United States Department of Agriculture, 1937.
16. Wald, George; Jeghers, Harold, and Arminio, Joseph: An Experiment in Human Dietary Night Blindness, Am. J. Physiol. **123**: 732-746 (Sept.) 1938.

Differing from the clear effect of the diet on the cone and rod thresholds is the complete lack of effect on the cone-rod transition time; this remained the same during all the vicissitudes of the diet for all four subjects.

The parallel behavior of rod and cone functions is shown in chart 6, which records the results with the two subjects who were given supplements of vitamin A after their return to a normal diet. The data of J. M. are about average for the four subjects, while L. W. represents the extreme effects. Each point in chart 6 is the final threshold either of the cone section or of the rod section of such curves as those in chart 5. The thresholds of the last two runs on the normal diet are shown above the diagonally shaded area on the time axis of chart 6; the clear area records the duration of the deficient diet and the black area the subsequent normal diet, supplemented as already described. It is not necessary to stress the similarities of the changes in cone and rod vision. The results confirm those of Haig, Hecht and Patek for the cone and rod thresholds during vitamin A therapy of alcoholic subjects with cirrhosis and are in turn corroborated by Wald, Jeghers and Arminio's study of one instance of dietary avitaminosis.

The important thing which chart 6 brings to light is that, as measured by dark adaptation, the presence of a dietary avitaminosis becomes evident after the very first day of the absence of vitamin A in the diet. Because of the normal day-to-day variation no reliance can be put on such a single early measurement, but the rise in threshold continues steadily and in less than a week of vitamin A lack the rod and cone thresholds in chart 6 have mounted well beyond their daily fluctuations, and a conclusion of decreased visual function can be reached with reasonable certainty. Note particularly that after about ten days of the diet the rod threshold has risen beyond the commonly encountered range included in the band in chart 1 and that a few days later it has reached a value which is higher than the extreme found in only 3 per cent of our normal population. This clearly indicates the normal character of our own population, since so short a period of deficiency sends the measurements beyond the common range.

During this period of a deficiency diet our subjects were instructed to report any subjective or other symptoms noted; with one exception none were reported, though at least one subject did a fair amount of night driving. The one report was made by L. W. toward the end of the period, when he recorded that he had collided with a wall in his home and was surprised that he had not seen it. Evidently most night illumination is well above the threshold of vision.

The return to a normal diet with or without daily supplements of vitamin A did not result in the spectacular recovery of the visual function reported by Edmund and Clemmesen [3] and by Jeghers.[12] As chart 6 shows there is a slightly rapid drop in threshold at first, but this is followed by a gradual decrease in threshold, and it took about two months for our subjects to return to the normal range.

Several times after the administration of a dose of vitamin A we followed the dark adaptation of an experimental subject at intervals during the day, but we observed no striking change. Chart 6 shows one such instance, which is perhaps the only effect that we could call a positive one. It concerns the three points in the rod data of L. W. above the narrow black area. This records a single administration of 100,000 units of vitamin A, and the points above it show the cone and rod thresholds determined in the usual way before the dose and three and six hours after it. The drop in rod threshold is about 0.4 log unit, which, considering the variation shown by L. W. during the remainder of the experiment, is nothing to be certain about and is in a different category from the almost immediate drop to normal reported since by Wald, Jeghers and Arminio.[16] A possible reason for this divergence in results may be that their subject was given supplementary vitamin B during the deficient diet, while ours took only the amounts present in the restricted diet. But this is not the case with the dramatic recoveries reported by Edmund and Clemmesen.[3] Further work will be necessary to clear up this discrepancy.

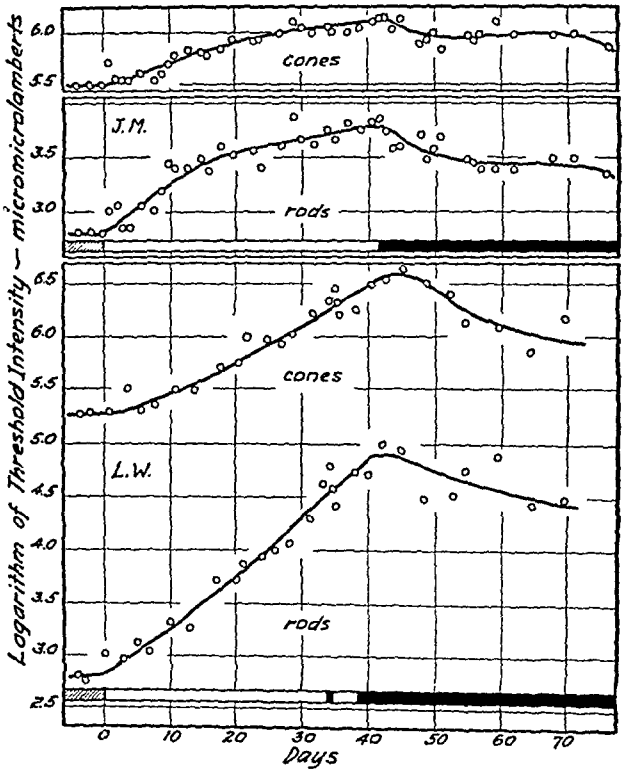


Chart 6.—The final cone and rod thresholds of two subjects on a diet nearly free from vitamin A. The diagonally shaded part represents the normal diet, the clear part the diet free from vitamin A and the black part the normal diet plus 50,000 units of vitamin A daily.

VII. DARK ADAPTATION AND DIAGNOSIS

As a result of these observations we feel certain that measurements of dark adaptation when carried out under properly standardized conditions can be used as an aid in the determination of the vitamin A condition of the body. Normal dark adaptation means a normal vitamin A content of the body, and an abnormal dark adaptation means a disturbance in the vitamin A content.

What normal is remains to be defined precisely, but this definition must be made by others. At present we may take it to mean the dark adaptation and vitamin A content of ordinarily well nourished, healthy persons such as we chose for our survey. It may well be that the common, normal dark adaptation can be improved by supplementary feeding of vitamin A. Our own attempts in this direction have not been successful, but they lasted only from three to four weeks, and more prolonged supplementation may be necessary. How-

ever, even if the commonly found dark adaptation could be improved in this way, it remains to be shown that improvement is desirable. For the present therefore normal had better be accepted in its ordinary usage.

When the dark adaptation of a person is found to be abnormal, it may mean either that his retina is not adequately supplied with vitamin A or that his visual apparatus is defective. Such defects may be congenital, like the absence of cone or rod function, or they may be acquired pathologic disturbances. When these genetic and pathologic possibilities have been excluded, one must next determine the basis for the lack of retinal supply of vitamin A. It may be the diet, in which case the remedy is simple. It may, however, be some other link in the metabolic chain from diet to retina, such as the liver, in which case other signs must be looked for.

It is these possibilities which make us doubtful of the recommendation by Wald, Jeghers and Arminio [16] that the final rod threshold alone may be adequate as a diagnostic sign. Since the final cone threshold also changes during avitaminosis—dietary and pathologic—the recognition of a change in its value serves as a corroboration of the rod data. Moreover, it is not the final threshold

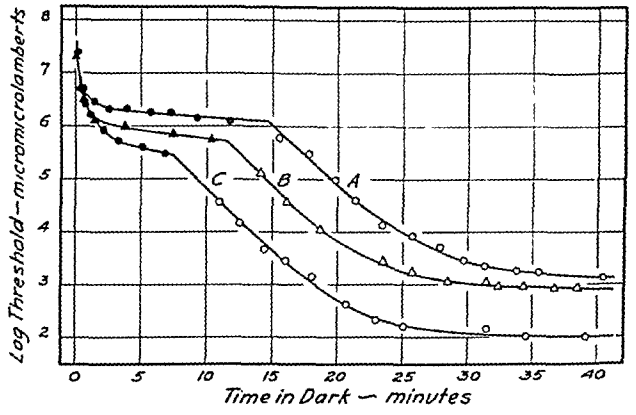


Chart 7.—The dark adaptation of a patient with cirrhosis of the liver, taken from the preliminary report of Haig, Hecht and Patek.[13] The conditions of measurement were slightly different from those here used but near enough for adequate comparison. Curve A was obtained when the subject was on an ordinarily adequate diet, while curves B and C were obtained after 105 and 127 days of intensive vitamin A therapy. Note especially the decrease in cone-rod transition time, as compared with its stationary position in the experiment with dietary avitaminosis recorded in chart 5.

alone which changes but the whole position of the dark adaptation curve on the intensity axis, and it is with much more confidence that one can conclude from the curve as a whole rather than from the position of its final point.

More significant than either of these reasons is the fact that other properties of dark adaptation are also subject to change, and it may be that further study will show characteristic disturbances of adaptation resulting from various diseases. Thus simple dietary avitaminosis does not change the time of the cone-rod transition point, whereas severe cirrhosis of the liver delays its appearance to almost twice the time, even though the final thresholds may be affected to the same extent in the two instances. We think this so important that we reproduce in chart 7 the curves from Haig, Hecht and Patek's study of dark adaptation in an instance of cirrhosis of the liver. Curve A was obtained when the subject had been on a normally adequate diet for three weeks, while curves B and C were obtained after 105 and 127 days of intensive vitamin A therapy. Compare this chart with chart 5 and note especially the way the time for the cone-rod transition gradually shifts to normal. It may well be that this difference in behavior of the cone-rod break is purely a matter of short period avitaminosis versus prolonged deprivation. This in itself would be of significance in diagnosis. For such reasons we feel that it is better to determine the dark adaptation curve as a whole rather than just the position of the final rod threshold.

These reasons apply equally well to the calls that are sure to be made for an apparatus for rapid diagnosis. This is a desirable trend, especially for extensive survey purposes, but we hope that it will not be acted on soon. A rapid procedure can consist only of a shorter light adaptation followed by the determination of the time to reach one or two fixed intensities during dark adaptation. To be reached rapidly these fixed points must be on the cone curve, so that one will lose the value of the cone-rod transition time and of the final rod threshold as aids in diagnosis. It might seem that if one started with a low enough intensity of light adaptation the resulting adaptation would be purely a rod function even if rapidly made. However, for the low light adaptation to be effective it must be preceded by a preliminary period of dark adaptation, which defeats the aim of a quick test. In short, a rapid test can measure only cone adaptation, and too little is known at present of the effects of disease and diet on dark adaptation for any one to select with confidence a point on the curve for use as a fixed criterion. We therefore urge, for a while at least, that authors performing clinical and physiologic investigations with dark adaptation and vitamin A record the whole curve of dark adaptation in their procedure.

SUMMARY

The dark adaptation of a university population of 110 persons, when measured under standardized conditions, shows three properties which are useful quantitatively: the final cone threshold, the final rod threshold and the time for the transition from cone function to rod function. The distribution of these properties is not affected by sex. Age definitely increases the cone threshold but affects the rod threshold only slightly and the cone-rod transition time not at all.

The range over which these properties vary in the population is composed partly of day-to-day variation and partly of individual difference, the latter causing much the wider spread. Individual differences were not the result of differences in the vitamin A content of the diet, and with a solitary exception no significant changes were produced by supplementary vitamin A feeding of persons with the highest thresholds.

Four young men when deprived of dietary vitamin A responded by a steady rise of both cone and rod thresholds which was apparent almost from the first day after the removal of vitamin A from the diet. After about two weeks' deprivation they showed thresholds above any values normally found in the population; their thresholds continued to rise so long as the dietary deprivation was maintained. The return to a normal diet with or without supplementary vitamin A resulted in an initial small rapid drop in threshold followed by a gradual decrease; nearly two months was required for the subjects to return to normal.

Measurements of dark adaptation when made under critically standardized conditions can be used as an aid in the diagnosis of avitaminosis A produced not only by a lack in the diet but by a functional disarrangement in the flow of vitamin A from diet to retina.

THE ENDOCRINE IMPLICATION OF JUVENILE CHONDRO-EPIPHYSITIS

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FRED L. STRICKROOT, M.D
AND
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DETROIT

Juvenile chondro-epiphysitis is described as an alteration in shape of the developing epiphyses associated with an apparent aseptic necrosis. Pathologically there may be rarefaction or even cystlike formation and degeneration. Clinically there is possibility of eventual deformity. Roentgenographically it is characterized by the following changes in the developing osseous centers: diminution in size, decrease in density, rarefaction, fragmentation, irregularity of the ossification contour and in general a fuzzy, ragged appearance of the chondro-epiphysial structures. Depending on the various structures showing such x-ray changes, almost innumerable proper or descriptive names have been employed. This conglomeration of proper names is confusing in conditions which, we think, are identical and have the same etiology.

The suggested etiology up to the present time has been entirely theoretical without any modicum of fact. The current popular impression leads one to believe that it is the result of some inflammatory reaction or blood vessel anomaly resulting in poor vascular nourishment. It also has been thought that it is a uni-epiphysial disturbance and that clinically it is associated with pain and swelling.

The significance of this publication is an attempt to prove that juvenile chondro-epiphysitis is due to an endocrine imbalance, specifically to a primary or secondary hypothyroidism in which the tissue differentiating factor is absent, that it is a generalized process involving one or more of the developing chondro-epiphysial structures and that it is at least incipiently asymptomatic.

Engelbach some twenty years ago pointed out the value of the roentgenographic study for osseous development in clinical endocrinology. It ranks today as one of our most useful diagnostic procedures. In the younger age group, from birth to 8 years, it pertains specifically to thyroid function and is related to the time of appearance of the various centers. A *delay in* appearance of the centers is pathognomonic of a hypothyroid state due to the absence of this same tissue differeniating factor. Certainly in this age group the x-ray by far outranks the basal metabolic rate for accuracy because of the evident difficulty in evaluating the latter test in younger children with the ordinary clinical apparatus available.

In the older age group, from juvenility to completion of adolescence, the epiphyses are all present and in a fair state of development. In this period delayed or advanced union gives visual x-ray evidence of gonadal function, early union being indicative of premature adolescence or sex maturity, delayed union being indicative of a gonadal hypofunction.

In 1931 we began to do routine x-ray studies on all children with suspected endocrinopathies, following the plan originally devised by Engelbach and his colleagues Tierney, MacMahon and Shelton.[1] Hence not one joint but from two to four were roentgenographed, depending on the age of the patient. Very early in our studies of endocrine dwarfism we were struck by the frequency of single or multiple involvement of the chondro-epiphysial structures and so originally reported our observations.[2] It soon became apparent that this condition was not peculiar to dwarfism but was being seen with as great or greater frequency in other endocrine conditions displaying signs of hypothyroidism.

The basis for this report is the study of (1) a group of 258 clinically proved endocrinopathic patients in the age range of 8 to 15 years and (2) a control group of ninety-nine assumed normal children in the same age group. Out of the 258 endocrinopathic patients studied ninety-one, or 35.2 per cent, showed a chondro-epiphysial disturbance. Two hundred and eighteen of this group displayed clinical evidence of primary or secondary hypothyroidism, such as roentgenographic evidence of delay in osseous development, decreased basal metabolic rates, increased blood cholesterol or developmental delay. The number of hypothyroid cases showing chondro-epiphysial disturbance was eighty-five, or 39 0 per cent; in other words, all but six cases of *chondro-epiphysitis* were associated with hypothyroidism. Eight hundred and ninety-four joints were roentgenographed, an average of 3.46 roentgenograms per patient. It is believed that the incidence would have been materially increased if more or if all joints had been roentgenographed as a routine. Thirty-eight, or 41.7 per cent. of the ninety-one showing involvement showed multiple epiphysial disturbance. An unusual observation in table 1 is the most frequent involvement of the trochlea of the humerus. More than casual survey of the literature failed to reveal chondro-epiphysitis

TABLE 1—*Site of Occurrence of Osteochondritis*

Site	Number of Cases in This Series	Original Reporter
Trochlea of the humerus	44	
Epiphysis of os calcis	40	Haglund, 1907
Tibial tubercle	26	Osgood, 1903; Schlatter, 1903
Olecranon	11	
Greater trochanter of femur	8	
Lesser trochanter of femur		Monde Felix, 1922
Head of femur	5	Legg, Calve, Perthes, 1910
External condyle of humerus	4	
Capitellum of humerus	3	Panner, 1927
Patella	3	Kohler, 1908
Tip of acromial process	1	
Distal epiphysis of tibia	1	Stein, 1922
Head of radius	1	
Distal epiphysis of radius	1	
Distal epiphysis of ulna	1	Burns, 1931
Tarsal scaphoid	1	Kohler, 1908
Head of humerus	1	Hass, 1921
Greater tuberosity of humerus	1	Hass, 1921; Lewis, 1928
Heads of metacarpals		Manclarie, 1927
Iliac crests		Buchman, 1925
Upper end of tibia		Ritter, 1929
Astragalus		Monchet, 1928
Accessory patellar centers		Larsen, 1921
First metatarsal		Wagner, 1930
Head of second metatarsal		Freiberg, 1914
Head of fifth metatarsal		Iselin, 1912
Vertebral epiphyses		Scheurman, 1921
Vertebral body		Calvé, 1926
Sternal end of clavicle		Friedrich, 1924
Internal condyle of humerus		Legg, 1930; Lohr, 1930
Carpal scaphoid		Preiser
Medial sesamoid of first metatarsal		Renander, 1924
Os tibiale externum		Haglund, 1908
Ischiopubic junction		Odelberg, 1924, Van Neck, 1924

1. Engelbach, William: Endocrine Medicine, Springfield, Ill., C. C. Thomas, 1932.

2. Engelbach, William, and Schaefer, R. L.: Endocrine Dwarfism, J. A. M. A. **103**: 464-468 (Aug. 18) 1934. Engelbach, William; Schaefer, R. L., and Brosius, W. L.: Endocrinology **17**: 250-262 (May-June) 1933. Engelbach, William, and Schaefer, R. L., ibid. **18**: 387-392 (May-June) 1934. Schaefer, R. L., ibid. **20**: 64-71 (Jan.) 1936.

in this developing osseous structure. There were only three patients in the entire group who had any symptoms referable to the osseous involvement; two were referred by the orthopedic collaborator and one by a pediatrician,[3] who recognized the possibility of an associated endocrine factor as the cause of the chondro-epiphysitis. It is well to emphasize here that all the



Fig 1.—Left chondro epiphysitis of tarsal scaphoid (Köhler's disease), right after fifteen months' treatment with thyroid extract at tolerance

patients in this group receive a careful routine diagnostic survey including history, physical examination and laboratory studies such as confirming basal metabolic

TABLE 2.—*Incidence of Chondro-Epiphysial Disturbance in Endocrinopaths: Age Group 8 to 15 Years*

	Number Studied	Cases Showing Chondro-Epiphysial Disturbance: Number	Cases Showing Chondro-Epiphysial Disturbance: Per Cent	Extent of Epiphysial Involvement: One Epiphysis	Extent of Epiphysial Involvement: More Than One Epiphysis	Extent of Epiphysial Involvement: Per Cent Showing Multiepiphysial Involvement
Endocrinopaths.	278	91	35.2	53	38	41.7
Patients with evidence of hypothyroidism...	218	85	39.0	49	36	42.3
Patients without ascertained evidence of hypothyroidism.....	40	6	15.0	4	2	33.3

rates, urinalysis, blood count and blood chemistry studies including sugar, nonprotein nitrogen, cholesterol, calcium and phosphorus.

Our control group study was made possible at the Anatomical Laboratory and Associated Foundations of Western Reserve University[4] through the courtesy of the late Dr. T. Wingate Todd.

The records of ninety-nine children who fulfilled our requirements as being free from endocrine imbalance were placed at our disposal for study. The age range was the same as of the endocrinopaths studied. These children are referred to the foundation for study only after they have been certified by their family physician or pediatrician as being free from gross physical or mental defect and from behavioristic problems. No particular type of clinical examination is designated, but the physician is required to ascertain that the child is in a good state of organic health and shows no clinical evidence of metabolic defect. Roentgenographic studies with a view of bone age assessment are made as a routine at yearly intervals, or oftener if the child is under 5 years. X-ray films of six areas are made: the hand, elbow, shoulder, hip, knee and ankle. The majority of the files consulted showed at least four yearly studies entailing twenty-four x-ray films; a few had had seven studies a year or a total of forty-two films, and it was decidedly in the minority that there were only one or two studies a year. All areas are roentgenographed in the anteroposterior and lateral positions. An approximate total of 2,200 films was viewed.

Of the group reviewed only seven, or 7 per cent, showed evidence of chondro-epiphysitis.

At this time our studies are not sufficiently advanced to give any imposing factual data with regard to follow-up x-ray films after treatment. However, in eight cases so far studied a complete return to normal bone detail roentgenographically has been obtained by the administration of a fully tolerant and maintained dose of thyroid extract. Zuck[5] in 1933 reported that the restorative process could be hastened by endocrine therapy. That normality can result without treatment is readily admitted, as we are aware that not infrequently mild endocrine imbalances spontaneously correct themselves. It is suggested, however, that such x-ray evidence is a definite indication for thyroid therapy.

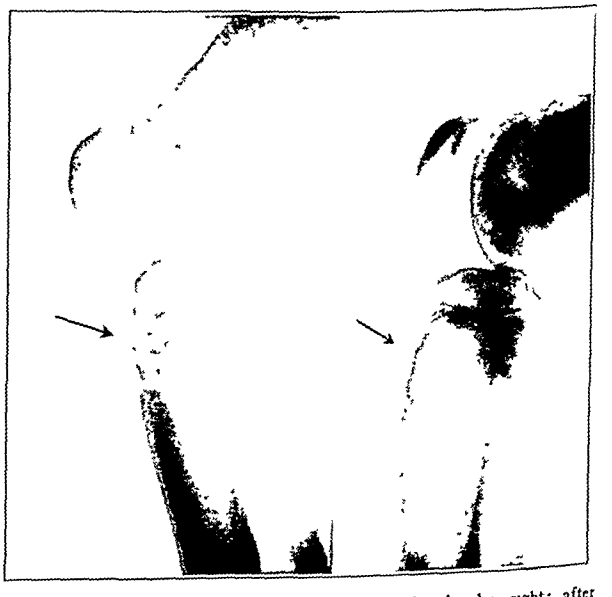


Fig. 2.—Left: chondro-epiphysitis of the tibial tubercle; right: after twelve months' treatment with thyroid extract at tolerance. Note improvement in the bony detail of the epiphysis and disappearance of the fragmentation and irregularity in both cases

CONCLUSION

1. A group of 258 endocrinopathic patients in an age range of 8 to 15 years was studied: ninety-one, or 35.2 per cent, displayed single or multiple evidence of chondro-epiphysitis; eighty-five of the ninety-one showed clinical or laboratory evidence of primary or secondary hypothyroidism.

3. Dr. C. L. Douglas of Detroit.
4. Aid was received from Mr. Howard H. Gradis, Dr. Todd's assistant.
5. Zuck, T. T.: J. Pediat. 3: 424-433 (Sept.) 1933.

2. A control group of ninety-nine nonendocrine patients in the same age range showed only seven, or 7 per cent, cases in which there was involvement of chondro-epiphysial structures.

3. Chondro-epiphysitis is of *endocrine origin*, specifically due to a primary or secondary hypothyroidism, usually asymptomatic and, to a degree, undoubtedly generalized.

4. Chondro-epiphysitis is a pathognomonic sign of hypothyroidism.

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DIPHTHERIA IMMUNITY IN CHICAGO

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Although diphtheria mortality and morbidity have been gradually decreasing in most parts of the United States for the past twenty-five years, they have not been reduced to the level which it was hoped would be attained. Antitoxin, control of carriers and the Schick test were important. The discovery of toxoid added new impetus to the efforts to control this disease. It was believed that the inoculation of a large proportion of the child population would result in almost complete eradication of diphtheria.

The results obtained with the use of toxoid did not, however, approximate expectations. The present study explains to some extent this failure.

In Chicago, until 1931, three 1 cc. doses of antitoxin at weekly intervals were used for diphtheria immunization. In 1931 plain toxoid, two 1 cc. doses at weekly intervals, was employed. From 1932 to 1934 alum toxoid, two 1 cc. doses at weekly intervals, was used; from June 1934 to August 1934 a 1 cc. dose of alum precipitated toxoid was used; from Aug. 1, 1934, to January 1935, two 1 cc. doses of alum toxoid at weekly intervals were given; from January 1935 until late in 1936 a 1 cc. dose of alum precipitated toxoid was again used. Since that time we have employed three doses of plain toxoid given a month apart, the first dose 0.5 cc. and the other two doses 1 cc. each.

Before a change was made from one type of preparation to the other, experimental tests were carried out on groups of at least 1,000 children each. The children were inoculated with the various preparations, and Schick tests were made at intervals of from two to six months to determine whether protection against diphtheria had been obtained. In other words, the determination of the type of preparation to be used was based on the Schick testing of inoculated children, together with evidence obtained from similar studies carried out elsewhere.

Table 1 reveals that diphtheria mortality and morbidity reached a low level in 1933. After that time there was a gradual rise. The levels, however, did not nearly approach those of the years prior to 1933. The reduction in 1933 was the result of widespread inoculation with toxoid of children in the city of Chicago.[1] Since that time the number of inoculations each year have been at least 80 per cent of the number of children born.

We therefore believe that, as far as the number of children inoculated is concerned, we are taking the steps necessary to control diphtheria adequately. Failure to maintain the low rates of mortality and morbidity obtained in 1933 must consequently be ascribed to the fact either that inoculated children are not rendered immune or that if they do become immune this immunity is lost with the passage of varying intervals of time.

In order to determine what has been occurring with the groups of children inoculated with the various preparations employed in Chicago, a study was undertaken in 1936. Children inoculated with these different preparations were selected of as nearly the same age as possible. The ages at the time of testing varied generally between three and seven years. In the group that received toxin-antitoxin, the children were somewhat older, that is between 9 and 13 years. Those who received three doses of toxoid at monthly intervals for the most part were between 1 and 2 years of age. A record was kept of the intervals between the time the inoculation for the prevention of diphtheria was given and the time at which blood was drawn for the determination of the antitoxin content. Antitoxin titrations were determined by the Fraser modification of Romer's technic,[2] except that white guinea pigs were used instead of rabbits. The children were given a Schick test immediately after blood was drawn for the antitoxin determination. This was done because the Schick test in itself is known to stimulate the formation of antitoxin in the blood.

TABLE 1.—*Diphtheria Mortality Rate per Hundred Thousand of Population*

Years	Cases	Deaths	Death Rate
1912	7,288	953	41.4
1913	8,593	968	41.1
1914	7,071	767	31.8
1915	5,863	679	27.6
1916	6,980	787	31.3
1917	10,290	1,229	47.8
1918	5,708	721	27.5
1919	6,361	592	22.1
1920	7,761	630	23.1
1921	9,313	678	24.4
1922	7,367	564	19.9
1923	5,836	366	12.7
1924	3,672	216	7.4
1925	2,926	241	8.1
1926	2,540	224	7.2
1927	4,123	442	13.8
1928	4,880	457	14.0
1929	6,012	513	15.4
1930	4,962	411	12.1
1931	3,146	215	6.2
1932	1,266	68	1.9
1933	154	9	0.3
1934	327	41	1.2
1935	762	83	2.4
1936	614	87	2.5
1937	655	84	2.3

RESULTS

Group 1. The children in this group had received three injections of toxin-antitoxin a week apart during 1930. The children ranged in age from 3 to 7 years at the time of the injection, the majority being 5 years of age. The ages at the time the Schick tests were done ranged from 9 to 13 years. In the majority of

1. Bundesen, H. N.; Fishbein, W. I., and Niblack, H. C.: Diphtheria Control in Chicago, J. A. M. A. **100**: 1093 (April 8) 1933.

2. Fraser, D. T.: Tr. Roy. Soc. Canada (Sect. V, Biol. Sc.) **25**: 175 (May) 1931.

instances the blood was drawn and the Schick test done about six years after inoculations had been given.

The Schick tests gave negative results in all except two cases. Both of these children were 5 years of age at the time of the inoculation and 11 years of age at the time the Schick test was done. Thus, of 125 total children in the group, 123 showed negative Schick tests.

Table 2 shows the results of the antitoxin determination of these 123 Schick-negative children. Of the two children who showed positive Schick tests, one had less than 1/500 unit of antitoxin per cubic centimeter of blood, while the other had between 1/500 and 1/250 unit of antitoxin.

Group 2. This group was made up of children who had been given plain toxoid—two doses at weekly intervals—during 1932. The children were about 5 years of age at the time of inoculation and about 9 years of age at the time the blood was drawn and the Schick test done.

There were 125 children in this group; 106 were Schick negative and nineteen Schick positive. Of these nineteen Schick-positive children twelve had less than 1/500 unit of antitoxin per cubic centimeter of blood, four had between 1/500 and 1/250, two had between 1/250 and 1/100 and one had between 1/100 and 1/50.

Group 3. This group consisted of children who were given two doses of alum toxoid, not precipitated, one week apart. These children were inoculated between 1932 and 1934. Their average age at the time of inoculation was between 5 and 6 years. The blood was drawn and the Schick test done when the children were between 7 and 9 years of age.

Of these 145 children, sixteen showed positive Schick tests and 129 showed negative Schick tests. Of those who showed positive Schick tests, seven had less than 1/500 unit of antitoxin per cubic centimeter of blood and nine had between 1/500 and 1/250 unit. In table 2 under group 3 are the results of the antitoxin determination in the Schick-negative children.

Group 4. In this group there were 119 children, ranging in age from 5 to 7 years. This group had been given one dose of alum precipitated toxoid in 1934. Blood was drawn and Schick tests were done in 1936.

Of these 119 children, six showed positive Schick tests and 113 were negative. Of those who showed positive Schick tests, three had between 1/500 and 1/250 unit of antitoxin per cubic centimeter of blood, two had less than 1/500 and one had between 1/25 and 1/10. The antitoxin determinations and percentages of those who showed negative Schick reactions are seen under group 4 in table 2.

Group 5. In the latter part of 1936 and in 1937 a group of 107 children were given plain toxoid, three doses at monthly intervals. The ages of the children varied from 8 months to 2 years at the time of inoculation. Blood was drawn for antitoxin determination and the Schick test was done on this group in the early part of 1938, which was from one to one and one-half years after the inoculations were given.

In this entire group of 107 young children there were none who showed positive Schick test reactions—all were Schick negative. The antitoxin determination of these children can be seen under group 5 in table 2. Schick test studies were carried out on a large number of the children in each of the five groups during 1936, 1937 and 1938.

In group 1, in 1936 and 1937, Schick tests were done on a group of 583 children ranging in age from 10 to 15 years, who were given antitoxin, three doses a week apart, prior to 1931. Of this group of 583 children 546, or 93.6 per cent, showed negative Schick test reactions and thirty-seven, or 6.4 per cent, were positive.

In group 2, Schick tests were done on a total of 829 children ranging in age from 10 to 15 years, who had received two doses of plain toxoid one week apart in 1931 and 1932. Of these children 702, or 87.1 per cent, showed negative Schick test reactions and 127, or 12.9 per cent, positive.

In group 3, Schick tests were done in 1936 and 1937 on 634 children ranging in age from 7 to 9 years. These children received two doses of 0.2 per cent alum toxoid, not precipitated, one week apart in 1932 to 1934. Of these 514, or 81.1 per cent, showed negative Schick test reactions and 120, or 18.9 per cent, positive.

In group 4, a total of 660 children ranging in age from 1 to 4 years, were given one dose of alum precipitated toxoid in 1934. Of this group, in which Schick tests were done in 1936 and 1937, 612, or 92.7 per cent, showed negative results, and forty-eight, or 7.3 per cent, positive results.

In group 5, 1,000 children, or 100 per cent, of those tested, during 1938, ranging in age from 1 to 11 years, but for the most part from 1 to 2 years of age, responded negatively to the Schick test. This group was given plain toxoid, three doses a month apart, during 1936 and 1937.

TABLE 2.—*Diphtheria Antitoxin Content of Children with Negative Schick Reactions*

Units of Diphtheria Antitoxin per Cc. of Blood Serum	Group 1		Group 2		Group 3		Group 4		Group 5	
	Number of Children	Per Cent of Total Specimens	Number of Children	Per Cent of Total Specimens	Number of Children	Per Cent of Total Specimens	Number of Children	Per Cent of Total Specimens	Number of Children	Per Cent of Total Specimens
1: 10 or more	78	63.4	53	50.0	62	48.1	33	29.2	79	73 8
1: 25 to 1: 10	14	11.4	14	13.2	19	14.7	16	14.2	17	15.9
1: 50 to 1: 25	8	6.5	9	8.5	7	5.4	16	14.2	8	7.5
1:100 to 1: 50	7	5.7	9	8.5	14	10.9	15	13.3	1	0.9
1:250 to 1:100	4	3.3	7	6.6	10	7.8	17	15.0	2	1.9
1:500 to 1:250	5	4.1	6	5.7	7	5.4	12	10.6	0	0
Less than 1:500	7	5.7	8	7.5	10	7.8	4	3.5	0	0
Total	123		106		129		113		107	

Group 1: Toxin-antitoxin 1 week, 3 doses.
Group 2: Plain toxoid, 1 week, 2 doses.
Group 3: Toxoid 0.2 per cent alum added, 1 week, 2 doses (not precipitated).
Group 4: Alum precipitated toxoid, 1 dose.
Group 5: Plain toxoid, 3 doses, monthly intervals.

COMMENT

Immunity to diphtheria may occur in various ways. It may be inherited, it may be acquired as a result of inoculation of some type of antigenic material or it may develop as a result of the inhalation of minimal

doses of diphtheria organisms. There is the possibility of "maturation immunity" or insusceptibility to disease due to maturity, independent of minimal inoculations.

In most children who are immune to the disease such immunity has probably developed as a result of all these factors. The inherited immunity is probably almost completely lost, in practically all cases, by the time the child has reached 1 year of age. Immunity that develops as the result of the inoculation of antigenic material lasts for a varying period of time, depending on the type of material inoculated and on the interval between doses. The longer the period after inoculation, the less should be the antitoxin content of the blood if these children are not exposed from time to time to diphtheria organisms, so that further immunity may develop as a result of the natural body processes.

In a consideration of the results which we have obtained in our experimental work, these various factors must be borne in mind. A greater interval elapsed between the time of inoculation and the time of testing in the children in group 1 than in the other groups. Hence from this standpoint it is to be expected that they would show lesser amounts of antitoxin. However, there was a greater opportunity for natural immunity to develop. Therefore an exact comparison is not possible between the children in the various groups. Nevertheless the figures seem to indicate that, both from the standpoint of the amount of antitoxin in the blood and from the standpoint of the Schick test, those children who received three doses of toxoid a month apart were better protected against diphtheria than those who received other types of inoculations. Just how long this immunity will continue cannot be stated at the present time. It is our intention to carry out further tests of the antitoxin content of the blood, from year to year, on the same group to determine the answer to this question.

Evaluation of the methods used to immunize the children in the five groups cannot be given with exactness till more time has passed and the relapse rate in group 5 can be determined. The observation may be made, however, that the time interval between immunization and the Schick test decreased by the integral variant of 1, while the percentage of relapses decreased by roughly 6 per cent a year from group 2 to group 5, giving an expected relapse rate in group 5 of zero, which it actually was. This does not make the results of a relapse rate of zero seem as good an omen of future high Schick negatives as may be expected from first examining the results. In fact, group 1, with a time lapse between immunization and Schick testing of six years and a relapse rate of only 2.4 per cent, has the statistical advantage over all other groups provided the important effect of environmental stimuli can be discounted.

Jensen [3] has experimentally shown that the rate at which antitoxin disappears from the blood is a function of a rectangular hyperbola: $Y = \frac{1}{X}$ or

$$T = \frac{A - X}{AX} \cdot \frac{1}{K}$$

A is maximum concentration of antitoxin following an antigenic stimulus, X is the amount of antitoxin which remains, T units of time after the moment at which A is reached, K is a constant which is different for each individual. This is the same formula by which lysins and other antibodies disappear from the blood.

3. Jensen, Claus: Deutsche med. Wchnschr. 57: 324 (Feb. 20) 1931.

One can see by the formula that when the amount of antitoxin is small the rate of decrease is small; i. e., if a patient has 1 unit of antitoxin per cubic centimeter of blood, his rate of loss of antitoxin is 10,000 times greater than when the antitoxin reaches 0.01 unit per cubic centimeter. If X or the antitoxin level is small and K is small, very long periods of time may elapse before an appreciable loss of antitoxin has been effected.

The toxin-antitoxin courses took place, however, at a time when the exposure to endemic diphtheria was much greater than could be experienced by the other groups; hence, so many of this first group encountered adequate secondary stimuli that the frequency of the Schick positive reactions decreased.

The main value of repeated doses of an antigen is that, should the antitoxin titer fail to rise within two or three days after the first inoculation it will not rise until the advent of a secondary stimulus.

The reasons given for failure to maintain the low rates of mortality and morbidity—that inoculated children are not rendered immune or that this immunity is lost with the passage of varying intervals of time—are ruled out by figures given in tables which show that

TABLE 3.—*Diphtheria Antitoxin Content of Blood in Inoculated Children*

Units of Diphtheria Antitoxin per Cc. of Blood Serum	Positive Reaction to Schick Test by Groups — Number of Children Reacting in				
	Group 1	Group 2	Group 3	Group 4	Group 5
1: 10 or more	..	..	..	..	..
1: 25 to 1: 10	..	..	..	1	..
1: 50 to 1: 25	..	..	..	..	..
1:100 to 1: 50	..	1	..	..	..
1:250 to 1:100	..	2	..	..	..
1:500 to 1:250	1	4	9	3	..
Less than 1:500	1	12	7	2	..
Total	2	19	16	6	0

the inoculated children are immune and that the immunity does last for a long period of time. Some other reason for this increase must be looked for.

The idea, backed by experimental proof, has been repeatedly put forward that the number of carriers of virulent diphtheria organisms is increased in proportion to the number of Schick negative persons in a community, and when a Schick positive is replaced by a Schick negative a potential avirulent carrier is replaced by a potential virulent carrier. Thus with a declining avirulent carrier rate goes a corresponding increase in the virulent carrier rate.

"Incomplete artificial immunization of a group may have no inhibitory effect on the total incidence of diphtheria and, for a short period, may increase the risk of attack in the unprotected section of the community." [4] The increased number of virulent carriers (gravis), coupled with the fact that an increased rate of relapses occurred in groups 2, 3 and 4, supposedly due to failure of the action of natural environmental stimuli, account in part at least for the upswing of diphtheria morbidity and mortality rates.

In the past, the Schick test has been relied on almost exclusively as an index of the immunization status against diphtheria. The Schick test is subject to some criticism. Presumably the test is negative when there is more than $\frac{1}{250}$ unit of antitoxin per cubic centimeter of blood.

4. Dudley, S. F.; May, P. M., and O'Flynn, J. A.: Special Report Series, No. 195, Medical Research Council, London, 1934.

It is interesting to note that fifty-nine of the 471 children in the first four groups studied had a negative Schick test with an antitoxin content of blood less than $\frac{1}{250}$ of a unit per cubic centimeter.

It has been stated that a child should have at least $\frac{1}{25}$ unit of antitoxin per cubic centimeter of blood to be relatively well protected against diphtheria. Hence the unreliability of the Schick test as the measure against diphtheria is indicated.

We find that, in group 1, 74 per cent of the children who received toxin-antitoxin had more than $\frac{1}{25}$ unit. In group 2, 63.2 per cent of the children who had received two doses of plain toxoid had more than this quantity. In group 3, 62.8 per cent of those who had received two doses of plain alum toxoid a week apart had more than this amount. In group 4, 43.4 per cent of the children who had received one dose of alum precipitated toxoid had more than this amount, while, in group 5, 89.7 per cent of the children who had received three doses of plain toxoid had more than $\frac{1}{25}$ unit of antitoxin per cubic centimeter of blood serum.

TABLE 4.—*Procedures Employed by One Hundred and Four State and City Health Departments*

Doses Employed	Number of City and State Health Departments
Alum Precipitated Toxoid (The dose varies from 0.5 to 1 cc.)	
1	58
2 (1 month apart)	9
2 (2 weeks apart)	8
2 (3 weeks apart)	2
2 (1 week apart)	1
2 (2 months apart)	1
2 (1 year apart)	1
Plain Toxoid (The dose varies from 0.5 to 1.5 cc., the usual dose being 1 cc.)	
2 (1 month apart)	10
2 (3 weeks apart)	9
2 (2 weeks apart)	5
3 (1 week apart)	5
3 (3 weeks apart)	5
3 (2 weeks apart)	3
3 (1 month apart)	3
Toxin Antitoxin (Employed in three doses a week apart in five city or state health departments)	

Of the methods of inoculation that have been employed in these five groups of children, it seems, from our figures, that without question the use of three doses of plain toxoid a month apart is the most efficient.

Further studies, however, will be necessary in order to determine the duration of such immunity as is acquired.

At present, according to the replies to a questionnaire which we sent to the health officers of many states and cities, there is great variation in the procedures employed in an attempt to produce immunity against diphtheria. Replies were received from 104 state and city health departments: thirty-six state and sixty-eight city. These replies indicated that thirty-seven cities employed alum precipitated toxoid almost exclusively, twenty-two employed plain toxoid almost exclusively, and seven employed both preparations, while two used both alum precipitated toxoid and toxin-antitoxin. The alum precipitated toxoid, according to these replies, is used more often than any type of antigen, the one dose method being employed by fifty-eight city and state health departments. The dose varied from 0.5 to 1 cc.

Table 4 indicates the number of health departments using alum precipitated toxoid, plain toxoid and toxin-antitoxin.

CONCLUSION

The evidence seems to indicate that more immunity to diphtheria is obtained when the antigen is given in a greater number of doses and the interval between inoculations is longer. Three doses of plain toxoid at monthly intervals seem to give the best result.

The Schick test cannot be relied on as a definite measure of the immunization status. The type of inoculations being used throughout the United States at present for the most part cannot be relied on to produce permanent immunity. With the adoption of three inoculations of toxoid at monthly intervals, it is to be hoped that diphtheria mortality and morbidity rates will show an even greater reduction in the future than they have in the past.

ADDENDUM

In March and April 1939, since the completion of this paper, seventy children in group 5 were retested to determine the antitoxic content of the blood and their reactions to the Schick test.

All the children were Schick negative. Thirty-eight, or 55.8 per cent, had more than $\frac{1}{10}$ unit of antitoxin per cubic centimeter of blood; seventeen, or 25.0 per cent, from $\frac{1}{25}$ to $\frac{1}{10}$; nine, or 13.2 per cent, from $\frac{1}{50}$ to $\frac{1}{25}$; three, or 4.4 per cent, from $\frac{1}{100}$ to $\frac{1}{50}$, and one, or 1.4 per cent, from $\frac{1}{250}$ to $\frac{1}{100}$. These figures represent a loss of 18.0 per cent in the group having more than $\frac{1}{10}$ unit, a gain of 9.1 per cent in those having from $\frac{1}{25}$ to $\frac{1}{10}$, a gain of 5.7 per cent in those having from $\frac{1}{50}$ to $\frac{1}{25}$, and of 3.5 per cent in those having from $\frac{1}{100}$ to $\frac{1}{50}$, with a loss of 0.4 per cent in those having from $\frac{1}{250}$ to $\frac{1}{100}$ unit.

These tests were carried out approximately two to two and one-half years following the administration of three doses of toxoid at intervals of one month.

Of the children who received three doses of plain toxoid at intervals of a month, 80.8 per cent have maintained, for a period of from two to two and one-half years, an antitoxic content above $\frac{1}{25}$ unit, which is the amount stated to be necessary for relatively good immunity against diphtheria. Thus in group 5 about 9 per cent of the children in a period of a year shifted from more than $\frac{1}{25}$ unit to less than this amount. At present none of this group have less than $\frac{1}{250}$ unit of antitoxin, which is the amount stated to be necessary to give a negative Schick test. These figures would indicate that with three doses of plain toxoid, given a month apart, immunity is relatively well maintained for a period of at least two to two and one-half years.

The children in this group probably have not had as great a possibility of coming in contact with diphtheria as those in the other groups. It seems evident, however, that this group of children must be retested yearly for the next several years before it will be possible to state definitely the rate at which immunity, as determined by the antitoxic content of the blood, is lost from year to year.

It is of interest to note that ten children of group 5 were retested in 1939 for their antitoxic content in addition to the seventy referred to. These ten, however, were Schick tested about three weeks prior to the drawing of blood for the antitoxin determination. Eight of these ten had more than $\frac{1}{10}$ unit in 1937; one had $\frac{1}{50}$ and the other $\frac{1}{25}$ unit. In 1939, after the Schick

test, eight showed more antitoxin than they had in 1937, one had the same amount, and one showed a slightly lesser amount.

Thus it seems from these figures that the stimulation of a Schick test in itself probably may be sufficient to increase the antitoxin content of the blood at least temporarily.

In view of the fact that there seems to be a gradual loss in the antitoxic content of the blood, consideration should be given to the advisability of reinoculating children with one dose of some antigen at intervals of from three to five years to maintain a sufficiently high level of antitoxin to ward off the disease.

GALLBLADDER DISEASE IN PATIENTS UNDER THIRTY YEARS OF AGE

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While disease of the gallbladder occurs at any age, even in fetuses and newly born infants,[1] it is considered primarily a disease of middle age and later life.[2] Approximately 16.5[3] to 21[4] per cent of patients operated on for symptoms due to disease of the gallbladder are under 30. In an effort to determine the course of the disease before 30 and the end results following cholecystectomy, an analysis was made of sixty-three cases of operation performed during the first three decades of life. These cases represented 21 per cent of 300 consecutive cases in which I had performed the operation.

There were fifty-eight females and five males. The distribution by decades and by sex is shown in table 1.

The ratio of females to males was 12 to 1. This figure is much higher than the ratio for all ages, for which reported values have varied between 2.05 to 1[3] and 5.5 to 1.[5] In the group of 300 cases from which these sixty-three were selected, the ratio was 5.2 to 1. On the other hand, in a study limited to 432 children under 15 years of age[6] the ratio, while still in favor of females, was less than 2 to 1.

The general belief that a patient with disease of the gallbladder is usually overweight is not always borne out by the facts. Doran and his associates,[7] for example, reported that 53 per cent of their patients were overweight; Smithies,[3] on the other hand, reported but 8 per cent obese or consistently gaining weight. In the series of patients under consideration, twelve (19 per cent) were definitely overweight, forty-seven (74.6 per cent) were of average weight and four (6.3 per cent) were noticeably thin.

Since symptoms referable to the gallbladder occur frequently in relation to childbirth, it was not surprising that of the forty-eight married women in the series twenty-three (47.7 per cent) had symptoms either during pregnancy or shortly thereafter. In two cases the symptoms were so severe and persistent that operation was done during pregnancy; the pregnancy continued uneventfully. The remaining twenty-one patients deferred operation for at least two years, but all were operated on within five years of the onset of symptoms.

Acute infectious diseases, particularly typhoid fever and scarlet fever, have been frequently cited as etiologic factors in disease of the gallbladder. In this group thirty-five (55.5 per cent) gave a history of one or more infectious diseases. Twenty-eight patients had had measles, eight scarlet fever and four typhoid fever. Of the twenty-three patients with symptoms during pregnancy, only nine (39.1 per cent) gave a history of acute infection. This would imply that the likelihood of disease of the gallbladder in pregnant women is not increased by a previous infectious disease.

The symptoms were similar to those presented by older patients, such as pain in the area of the gallbladder at times radiating to the back and sometimes to the shoulders, and belching, nausea and vomiting. While pain was always the prominent symptom, in fifty cases (79.3 per cent) it was severe enough to be described as colic. In fourteen cases (22.2 per cent) it frequently occurred after eating. Only fifteen patients (23.8 per cent) complained of eructations, although belching was reported[8] as "prominent and distressing" in as many as 68.9 per cent of a group of patients of all ages. Nausea and vomiting affected twenty-nine (46 per cent), occurring almost as frequently as in older patients.

The symptoms varied in duration from twenty-four hours, when the patient was operated on after the first attack of colic, to twelve years in a patient of 29.

TABLE 1.—*Sex and Age by Decades*

Age (years)	Males	Females	Total
To 9	1	0	1
10 to 19	0	4	4
20 to 29	4	54	58
Totals	5	58	63

TABLE 2.—*Duration of Symptoms*

Years	Patients
Less than 1	19
1 to 2	18
2 to 3	16
4	5
5	3
More than 5	2

Table 2 shows the duration of symptoms for these sixty-three patients. The average duration for the entire group was 2.1 years and the average age was 24.7 years.

While only five patients (7.9 per cent) were operated on before the age of 20 (table 1) four additional patients, making a total of nine (14.2 per cent), had symptoms begining in their teens. Potter[6] collected from the literature 432 cases under the age of 15 years, and Starr[8] noted that 36 per cent of his patients had symptoms before the age of 25.

But five patients (7.9 per cent) showed evidence of clinical jaundice, and three of these (60 per cent) had no stones in the gallbladder. Blalock[9] pointed out that

1. Shawan, H. K., and Long, E. C.: Gallbladder Disease in Young Children, Am. J. Surg. **21**: 43 (July) 1933. Hamilton, H. B.; Rich, C. O., and Bisgard, J. D.: Cholecystitis and Cholelithiasis of Childhood, J. A. M. A. **103**: 829 (Sept. 15) 1934.
2. Niemeier, O. W.: The Importance of Earlier Operation in Chronic Gallbladder Disease, Canad. M. A. J. **37**: 332 (Oct.) 1937. Smithies.[3] Blalock.[9]
3. Smithies, Frank: Clinical Manifestations in Gallbladder Disease: A Study of 1,000 Operatively Demonstrated Cases, Northwest Med. **19**: 31 (Feb.) 1920.
4. Deaver, J. B., and Bortz, E. L.: Gallbladder Disease, J. A. M. A. **88**: 619 (Feb. 26) 1927.
5. Wilson, W. D.; Lehman, E. P., and Goodwin, W. H.: Prognosis in Gallbladder Surgery, J. A. M. A. **106**: 2209 (June 27) 1936.
6. Potter, A. H.: Biliary Disease in Young Subjects, Surg., Gynec. & Obst. **66**: 605 (March) 1938.
7. Doran, W. T.; Lewis, K. M.; Deneen, L. V., and Hanssen, E. C.: Gallbladder Surgery: A Report of 200 Consecutive Operated Cases of Gallbladder Disease, Ann. Surg. **98**: 321 (Sept.) 1933.
8. Starr, F. N. G., cited by Potter.[12]
9. Blalock, Alfred: A Clinical Study of Biliary Tract Disease, J. A. M. A. **83**: 2057 (Dec. 27) 1924.

jaundice was almost as common in patients of all ages with noncalculous cholecystitis as in patients with cholelithiasis.

Of the sixty-three gallbladders that were removed, four (6.3 per cent) were acutely inflamed and fifty-nine (93.6 per cent) showed chronic cholecystitis, including one with cholesterosis. Thirty-eight gallbladders with chronic inflammation (64 per cent) contained stones, and stones were also present in all but one of the acutely inflamed gallbladders. In other words, a total of forty-one gallbladders (65 per cent) had stones. One patient, a boy of 7 years, showed noncalculous acute cholecystitis.

Besides this 7 year old boy there were twenty-one patients with noncalculous cholecystitis; sixteen of these (76.1 per cent) had colicky pain. Other investigators [10] have reported that approximately 55 per cent of their patients with noncalculous chronic cholecystitis gave a history of colic.

Eight common ducts (12.6 per cent) were opened and, together with the hepatic ducts, explored. Only three common ducts (37.5 per cent) contained stones. The patients with choledocholithiasis had no jaundice at any time. They were 24, 27 and 29 years old. The shortest duration of the disease was four years, in the 24 year old patient. Symptoms were present for five years in the 29 year old patient and for seven years in the 27 year old patient.

The incidence of stones in the common duct in the entire series was 4.7 per cent, but for the forty-one cases of calculous gallbladder the incidence was 7.3 per cent. It has been reported that in only 4 per cent of cases of noncalculous gallbladder are stones found in the common duct.[11] In the twenty-one instances of noncalculous gallbladder in this series no stones were present in the biliary ducts.

TABLE 3.—*Comparison of End Results*

Author	Cured or Improved: With Stones, %	Cured or Improved: Without Stones, %
Present study (patients under 30)	97.2	85.0
Wilson, Lehman and Goodwin [9]	79.0	64.0
Kunath (J. A. M. A. **109**: 183 [July 17] 1937)	84.3	69.0
Graham, E. A., and Mackey, W. A. (J. A. M. A. **103**: 1497 [Nov. 17] 1934)	....	65.2
Brown, M. J. (Am. J. Surg. **41**: 238 [Aug.] 1938)	....	70.8

Stones are not rare in the common and in the hepatic duct of patients under 30. Of 221 patients with stones in the biliary ducts, fifteen (7.4 per cent) were under 30.[11] Moreover, of 226 patients under 15 with disease of the gallbladder, thirteen (5.7 per cent) had stones in the biliary ducts, including an 8 month fetus and two infants of 12 and of 25 days.[12] On the other hand, the incidence of stones in the common and in the hepatic duct of patients of all ages has been reported as high as 21.2 per cent.[11]

One patient in this group had acute hemorrhagic pancreatitis associated with cholelithiasis. She was an obese woman 29 years old who had had symptoms for three years before operation.

There were no deaths in this series.

Only four patients had any postoperative complications. One patient had phlebitis, which kept her in the hospital thirty-four days; she had had a similar complication following childbirth three years previous to operation. One patient had a superficial infection of the operative wound, which cleared up in several days. Another patient, aged 29 years, whose common duct was opened and explored and the sphincter of Oddi dilated, had a gas bacillus infection. The infection was not severe and she was discharged from the hospital as "well" on the twenty-first postoperative day.

It was possible to follow fifty-seven patients (90.4 per cent) after operation. Twenty-four patients were followed from one to four years, fifteen were seen from five to eight years after cholecystectomy and eighteen were followed from eight to ten years or more. The longest period of observation was thirteen years.

Fifty-three patients (92.9 per cent) were free from symptoms when last seen. Thirty-six (97.2 per cent) of the thirty-seven who had gallstones were entirely relieved; seventeen (85 per cent) of the twenty who had noncalculous chronic cholecystitis were either greatly improved or completely relieved. These satisfactory end results were much better than those reported for patients of unclassified age groups (table 3). In the reports for cholelithiasis the improvement varied from almost 3 to 18 per cent, while for noncalculous cholecystitis the improvement ranged from 14 to 21 per cent.

Four patients (7 per cent) had attacks of gallbladder colic following cholecystectomy. One of these patients had cholelithiasis and three had noncalculous cholecystitis. The pain was severe enough in two cases to warrant repeated hypodermic injections of morphine by the family physician. At no time did any of these patients have jaundice, chills or fever. X-ray examination showed no abnormality. Whether these postoperative attacks of colic were due to overlooked stones in the common duct, to biliary dyskinesia or to some extrabiliary abnormality is problematic.

One patient who was considered cured was free from symptoms for two years after removal of a noncalculous gallbladder. Then the attacks recurred and persisted for three years. Because nonsurgical treatment gave no relief, another operation was done; only adhesions were found. Since then she has been free from all symptoms.

In any group of patients with a noncalculous gallbladder the question may be raised whether operation is justified, in view of the large percentage that are unrelieved. Blackford and his associates [13] followed 200 patients of all ages with noncalculous chronic cholecystitis for from five to fifteen years. They reported that but 37 per cent had satisfactory relief without operation for more than eight years; 48 per cent who had nonsurgical treatment for the same period either were operated on later or should have been, because of persistence of symptoms.

SUMMARY

Sixty-three patients operated on for disease of the gallbladder before the age of 30 represented 21 per cent of 300 consecutive cholecystectomies.

Operation before the age of 30 does not mean that the disease is necessarily of short duration; five patients

10. Kunath, C. A.: The Stoneless Gallbladder, J. A. M. A. **109**: 183 (July 17) 1937. Smithies.[3]

11. Lahey, F. H., and Swinton, Neil: Stones in the Common and Hepatic Bile Ducts, New England J. Med. **213**: 1275 (Dec. 26) 1935.

12. Potter, A. H.: Gallbladder Disease in Young Subjects, Surg., Gynec. & Obst. **46**: 795 (June) 1928.

13. Blackford, J. H.; King, R. L., and Sherwood, K. K.: Cholecystitis: Study Based on Follow-Up After from Five to Fifteen Years of 200 Patients Not Operated On, J. A. M. A. **101**: 910 (Sept. 16) 1933.

(7.9 per cent) had symptoms for five or more years and one had symptoms for twelve years.

Only four patients (6.3 per cent) had acute cholecystitis and fifty-nine patients (93.6 per cent) had chronic cholecystitis. Gallstones were present in forty-one cases (65 per cent); this included three of acute cholecystitis.

Three patients had stones in the common duct, an incidence of 4.7 per cent, but when the incidence was based on the forty-one cases of calculous gallbladder it was 7.3 per cent. The duration of the symptoms in these cases varied from four to seven years.

Fifty-seven patients (90.4 per cent) were followed after operation; fifty-three (92.9 per cent) were free from symptoms when last seen. Thirty-six patients (97.2 per cent) of thirty-seven with cholelithiasis were entirely relieved; seventeen of twenty with noncalculous chronic cholecystitis (85 per cent) were either greatly improved or completely relieved.

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TREATMENT OF VULVOVAGINITIS WITH ESTROGEN

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Infections of the immature vagina present a social and medical problem of considerable magnitude, especially in hospitals and asylums for children. Despite the available diagnostic procedures, it is often most difficult to differentiate the transmissible (gonococcic) from the nonspecific form of vulvovaginitis. It therefore becomes imperative to isolate at considerable cost and inconvenience every institutional case of vulvovaginitis. The occurrence of gonococcic vulvovaginitis in the home of a family presents no less a problem in preventing the spread of the infection to young sisters and schoolmates. In many instances the condition remains unrecognized until two or more members of a family are affected.

Although serious complications such as arthritis, salpingitis and ophthalmia are relatively infrequent, unless the gonococcus assumes an unusual virulence in passing through one or more susceptible hosts even the mild form of the infection leaves its imprint on the psyche of the affected child. The persistence of vulvar irritation for many months or years centers the attention of the growing child on the generative organs and often leads to the habit of masturbation and premature heterosexual inclinations.

The incidence of gonococcic vulvovaginitis varies with the facilities of the community to detect and isolate infected children lacking proper supervision. Taussig [1] found that 5 per cent of the girls attending the dispensary of the St. Louis Children's Hospital had gonococcic vaginitis and that in most instances the parents or guardians were unaware of its existence. Compulsory reporting of cases to health authorities, education of parents in prophylaxis and better nursing facilities in hospitals have tended in recent years to decrease the incidence of the infection in most communities.

From the Philadelphia Institute for Medical Research in the Philadelphia General Hospital.

1. Taussig, F. J.: Diseases of the Vulva, New York, D. Appleton & Co., 1931.

ETIOLOGY OF VULVOVAGINITIS

Although the poor resistance of the ill child, as seen in the exanthems and in severe infections of the upper respiratory tract, plays an important role in the predisposition to vulvovaginitis, the most important predisposing factor is undoubtedly the low resistance of the immature vagina to any pathogenic bacteria, especially the gonococcus, which thrives in the alkaline medium occasioned by the glycogen-poor vaginal epithelium of the child.

The immature vagina, though not a sterile cavity, is zealously guarded against gross contamination and traumatism by the hymen until sexual maturity. Often the inexperienced nurse or intern, in making the routine vaginal smear preliminary to admission to the hospital, inadvertently brings the cotton swab into contact with the unclean external parts before the vagina is entered. This contamination plus the unavoidable friction-traumatism to the delicate vaginal epithelium frequently results in a nonspecific vaginitis, rendering the vagina more susceptible to invasion by the gonococcus. Such errors may be obviated, as suggested elsewhere by one of us,[2] by examining the centrifuged vaginal washings obtained through a small, soft rubber catheter after the vulva is thoroughly cleansed.

In institutional epidemics of gonococic vulvovaginitis the disease is most often transferred through the medium of diapers, bed linens, rectal thermometers or the hands of careless nurses. The nursing technic in a pediatric ward should be based always on the assumption that one of the patients has an unrecognized gonococcic vulvovaginitis. In most instances of vulvovaginitis occurring in the home of the patient, the source of infection may be traced to an infected member of the family or to a contaminated lavatory seat at home or in school. According to Taussig,[1] this is the most frequent mode of transmission of the disease because of the characteristic manner in which children slide from high toilet seats.

DIAGNOSIS OF VULVOVAGINITIS

The clinical picture of vulvovaginitis is unmistakable. To differentiate the transmissible (gonococcic) from other types of vulvovaginitis requires careful bacteriologic study by smear and culture. The demonstration of [illegible], intracellular diplococci, morphology of gonococci, is fairly reliable. Unfortunately the smear method has its limitations and, when negative or doubtful, the more refined culture method is essential to a differential diagnosis. The relative merits of the two diagnostic procedures in children presenting definite clinical symptoms of gonococcic vulvovaginitis were evaluated by Ruys [3] as follows: "Smears positive, culture positive in 111; smears negative, culture positive in fourteen; smears positive or doubtful, culture negative in seven." The superiority of the culture method was thus amply demonstrated. Since Micrococcus catarrhalis, frequently present in the vagina of children, morphologically resembles the gonococcus, the culture method is especially valuable in instances of positive smears without clinical symptoms. One must nevertheless remember that even the culture method is not infallible, since an overgrowth of secondary invaders may obscure the picture. Negative cultures under these conditions do

2. Mazer, Charles, and Rubin, S.: Vulvovaginitis in Children, Am. Physician **31**: 653 (Dec.) 1926.

3. Ruys, A. Charlotte: The Etiology of Vulvovaginitis Infantum, J. A. M. A. **105**: 862 (Sept. 14) 1935.

not preclude the possible presence of gonococci. The gonococcus complement fixation test, even with the improved technic employed by Mascall,[4] is positive in only 58.6 per cent of cases of gonococcic vulvovaginitis. It is therefore safer to consider every case of vulvovaginitis as gonococcic when discovered in a pediatric ward or an asylum for children.

PATHOLOGY OF GONOCOCCIC VULVOVAGINITIS

In the acute stage the vulva is reddened and edematous. When viewed through an endoscope the vaginal mucosa appears congested and the site of small erosions. The portio vaginalis in the vicinity of the pinhead sized external cervical os presents the same pathologic picture, giving the erroneous visual and bacteriologic impression of an associated endocervicitis. We agree with Schauffler and Kuhn [5] that the endocervix of the child is practically never invaded by the gonococcus because of the rudimentary state of its racemose glands. This also explains the singularly low incidence of salpingitis in children affected with gonococcic vaginitis. None of the 118 patients in this series showed clinical evidence of salpingitis, nor did one of us (Mazer) observe a single instance of this complication during the severest institutional epidemic of gonococcic vaginitis and arthritis in medical history, which occurred in one of the Philadelphia maternity hospitals in 1924.[6]

Bartholinitis is extremely rare. It was not encountered in any of our 118 patients. The urethral meatus is often red and pouting, but Skene's glands are rarely infected. However, the presence of pus cells in the urine voided following cleansing of the vulva points to an anterior urethritis, which was encountered by Miller [7] in six of sixty-eight cases of gonococcic vulvovaginitis. Only one of the 118 cases herein reported presented a definite urethritis.

Proctitis is apparently a frequent complication and may be a source of vaginal reinfection when untreated. The smear method is evidently inadequate to demonstrate involvement of the rectum. By means of a special culture medium, Ruys [8] recovered gonococci from the rectum in every child afflicted with specific vulvovaginitis. Clinical evidence of an associated proctitis is, however, rarely seen except during an institutional epidemic of the disease, when, as shown by Cooperman,[6] even the male infants show symptoms of proctitis.

Arthritis is rarely encountered except during epidemics, when the gonococcus assumes an unusual virulence in passing through many nonresistant hosts. Illustrative of this was the high incidence of gonococcic arthritis encountered during the Philadelphia epidemic, in which twenty-seven males and forty females were equally affected with gonococcic arthritis.[6]

BASIS OF TREATMENT OF VULVOVAGINITIS WITH ESTROGEN

Owing to the presence of maternal estrogen, the vaginal epithelium of the newborn is of considerable thickness (from thirty to forty layers of cells). The numerous basal layers are compact and irregular, forming papillae which penetrate deeply the tunica propria. Superimposed on the basal epithelium are many layers of spindle-shaped, glycogen-containing cells. The vaginal secretion is acid and the bacterial flora predominantly of the bacillary type.[9] Thus the safeguards present at birth are similar to those current in the mature vagina, which is so highly resistant to infections other than Trichomonas vaginalis. Within three or four weeks after birth, when the influence of maternal estrogen subsides, the numerous layers of glycogen-containing epithelial cells are thrown off and the basal zone becomes thin and regular in outline—evidence of inactivity. There is a paucity in cell glycogen and of Döderlein's bacilli, resulting in alkalinity of the vaginal secretions.[10] The vagina remains in this vulnerable state throughout childhood until the advent of puberty, when the estrogen elaborated by the maturing ovaries causes a return of the vaginal mucosa to a neonatal-like state, varying only slightly in structure during the cyclic changes in production of estrogen by the active ovaries. With the advent of senility, the vaginal epithelium once again reverts to that resembling immaturity, becoming even more vulnerable to infection and traumatism than the childhood vaginal epithelium. The superficial layers disappear, leaving only about six layers of small nucleated cells with a granular cytoplasm.[11]

Knowledge of these facts led Lewis [12] to employ injections of estrogenic substances in the treatment of gonococcic vulvovaginitis in the hope of transforming the vulnerable childhood vagina to the resistant adult types. The new treatment suggested by Lewis evoked considerable discussion in the medical literature, some favorable and some entirely unfavorable.

In employing a new product in the treatment of human ailments, its safety must be established first. The most valid objection to the use of estrogen in children is the possibility of permanent damage to the ovaries. This objection, based on the experimental observation [13] that prolonged treatment with estrogen produces regressive ovarian changes, is difficult to substantiate in human beings. Very few of the children treated with estrogen for gonococcic vaginitis have to date attained puberty. None have attained the age of childbearing, to permit determination of the effect of the hormone on germ plasm.

In defense of the use of estrogen, the following evidence of its safety is available:

1. Rats and monkeys given considerable quantities of estrogen for a relatively long period ultimately become estrous, mate and reproduce normally.[14]

2. The blood of the unborn infant is normally surcharged with estrogen to a degree (at least 1 mouse unit per cubic centimeter) far greater than that of children treated with maximum doses of the substance.

3. The few treated children who have already attained puberty have menstruated at the predicted age.[15]

4. Mascall, W. N.: Pathological Diagnosis of Female Gonorrhea, Lancet **2**: 233 (July 29) 1933.

5. Schauffler, G. C., and Kuhn, Clifford: Information Regarding Gonorrhea in the Immature Female, Am. J. Obst. & Gynec. **25**: 374 (March) 1933.

6. Cooperman, M. B.: Gonococcus Arthritis in Infancy: A Clinical Study of Forty-Four Cases, Am. J. Dis. Child. **33**: 932 (June) 1927.

7. Miller, J. R.: Two Years' Experience with Theelin Treatment of Gonorrheal Vaginitis, Am. J. Obst. & Gynec. **29**: 553 (April) 1935.

8. Ruys, A. Charlotte, and Jens, P. A.: Kulturelle Untersuchung des Rektalschleimes bei Kindern mit Vulvovaginitis gonorrhoica, München. med. Wchnschr. **80**: 846 (June 2) 1933.

9. Cruickshank, Robert, and Sharman, Albert: Biology of Vagina in Human Subject; Glycogen in Vaginal Epithelium and Its Relation to Ovarian Activity, J. Obst. & Gynaec., Brit. Emp. **41**: 190 (April) 1934.

10. Lewis, R. M., and Weinstein, Louis: The Production of Vaginal Acidity by Estrin, Surg., Gynec. & Obst. **63**: 640 (Nov.) 1936.

11. Davis, M. E.: The Treatment of Senile Vaginitis with Ovarian Follicular Hormone, Surg., Gynec. & Obst. **61**: 680 (Nov.) 1935.

12. Lewis, R. M.: Study of Effects of Theelin on Gonorrheal Vaginitis in Children, Am. J. Obst. & Gynec. **26**: 593 (Oct.) 1933.

13. Allen, Edgar: Sex and Internal Secretions, Baltimore, Williams & Wilkins Company, 1932.

14. Allen, Edgar, and Diddle, A. W.: Ovarian Follicular Hormone Effects on Ovaries, Am. J. Obst. & Gynec. **29**: 83 (Jan.) 1935.

15. Mazer, Charles, and Israel, S. L.: Studies on the Optimal Dosage of Estrogens: An Experimental and Clinical Evaluation, J. A. M. A. **108**: 163 (Jan. 16) 1937.

4. Regularly menstruating women who receive estrogen in doses of 10,000 rat units every fourth day for periods varying from two to four months menstruate normally after withdrawal of treatment and bear normal offspring.[16] The more recent employment of vaginal suppositories, requiring, as it does, relatively small doses of estrogen, has partly solved the problem of possible harmful effects.

Next in importance to the safety of treatment of specific vaginitis with estrogen is its comparative effectiveness. Does it accomplish a cure sooner than other methods of treatment? Is the cure permanent or temporary? Opinions of competent clinicians concerning this phase of the problem differ so widely that, for the present, one must rely solely on personal experience. Dosage, length of treatment, mode of administration, attention to extragenital foci of infection not influenced by the substance and the ability to eliminate extraneous sources of reinfection undoubtedly account for the discordant reports. Dosage and route of administration are indissolubly linked, since even a small fraction of the hypodermic dose of estrogen produces the desired hypertrophy of the vaginal mucosa when introduced directly into the vagina.[17] Employment of the small doses required for vaginal administration of the substance reduces the incidence of the undesirable, though temporary and harmless, effects, such as enlargement of the breasts and premature menstruation, often encountered with effective hypodermic doses. There are, nevertheless, definite objections to prolonged vaginal treatment of the child. In addition to requiring intelligent cooperation of the mother, who, despite her intelligence, may nevertheless inadvertently carry the infection to another member of the family, oft-repeated vaginal treatment of the child frequently creates the habit of masturbation and premature heterosexual inclinations.

The size of the dose is the determining factor in accomplishing a cure. The length of treatment determines the percentage of recurrences. The longer the period of treatment, the less the chance of recurrence. The dose must be sufficient to cornify the vaginal epithelium and to reduce the p_H of the vaginal secretions to a point below 6. Our experience has shown that the minimum effective hypodermic dose is 500 rat units given every other day. Smaller doses, such as 100 rat units (approximately 800 international units), even when administered daily, produce only doubtful vaginal reactions and require treatment for as long as twenty-two weeks.[18] The minimum dose by the vagina is 100 rat units nightly, inserted on retiring. With these doses, the necessary vaginal response (cornification, acidity and an absence of pus and gram-negative diplococci) is usually observed on the fourth week of treatment.

In considering the problem of dosage, it is pertinent to clarify the existing confusion which dual standardization of estrogenic products creates. Estrogenic substances vary widely in their ability to cornify the vaginal mucosa of the rat. The international unit (weight unit) of estrogen is 0.1 microgram. The rat unit (biologic unit) is the minimum quantity of estrogenic substance capable of evoking estrus in the castrated rat. The ratio between the international unit and the rat unit varies with the chemical composition and the purity of the product. In our laboratory, various samples of estrone (theelin) yielded 1 million rat units per gram, estriol (theelol) 150,000 rat units per gram, estradiol (progynon-DH) as much as 10 million rat units per gram, and estradiol benzoate (progynon-B) 5½ million rat units per gram. It is evident, therefore, that the use of the rat unit is preferable when dealing with the several estrogens.

Equal to the importance of dosage in accomplishing clinical and bacteriologic cure is the length of treatment in preventing recurrence of the infection. It will be seen later that the percentage of recurrences is larger when the period of treatment, despite early and repeated negative smears, is much less than eight weeks. We[15] have previously stressed the importance of the length of treatment in preventing recurrences. Lewis[18] is equally emphatic on this point. The truth of the dictum that too short a period of treatment and not reinfection is responsible for the majority of early recurrences is evident from a study of some of the available literature on hypodermic treatment of vulvovaginitis with estrogen. Regardless of dosage, which if inadequate could not have produced even a temporary cure, too short periods of treatment (from twenty-one to forty days) allowed recurrences in nine of twenty-two patients treated hypodermically by Te Linde,[19] in seven of thirteen treated by Phillips,[20] in four of eleven treated by Brown[21] and in eight of twenty-two children treated by Reichert.[22] On the other hand, with longer treatment (from fifty to sixty days), Limper[23] observed no recurrences in twenty-four patients discharged as cured, and Lewis[18] encountered none in twenty-two. Recurrences appearing soon after the vagina returns to its former immature state (four weeks after treatment) may be reasonably attributed to insufficient length of treatment and not to reinfection. Those appearing later than three months after withdrawal of treatment may be attributed to reinfection or to a persistent focus not within the influence of the substance.

EVALUATION OF TREATMENT WITH ESTROGEN IN 118 CASES OF GONORRHEAL VULVOVAGINITIS

The present study embraces a group of 118 children, ranging in age from 18 months to 11 years, admitted consecutively to the wards of the Philadelphia General Hospital from January 1935 to May 1937 for the treatment of gonococcic vulvovaginitis. The diagnosis in each case was based on clinical symptoms and on the presence of gram-negative, intracellular diplococci, structurally characteristic of the gonococcus in the vaginal smear. Since the children were hospitalized during the entire period of treatment, there was an excellent opportunity to observe the response to the administration of estrogen. About one third of the children were in the acute stage of the illness at the time of admission. The duration of the disease in the others ranged from two months to two years. There was

16. Mazer, Charles; Meranze, D. R., and Israel, S. L.: Evaluation of the Constitutional Effects of Large Doses of Estrogenic Principle, J. A. M. A. **105**: 257 (July 27) 1935.
17. Berger, Milan: Besonders hohe Wirksamkeit des Follikelhormons bei vaginaler Instillation, Klin. Wchnschr. **14**: 1601 (Nov. 9) 1935.
18. Lewis, R. M., and Adler, E. L.: Gonorrheal Vaginitis: Results of Treatment with Different Preparations and Amounts of Estrogenic Substance, J. A. M. A. **106**: 2054 (June 13) 1936.
19. Te Linde, R. W., and Brawner, J. N., Jr.: Experiences with Amniotin in the Treatment of Gonococcal Vaginitis in Children, Am. J. Obst. & Gynec. **30**: 512 (Oct.) 1935.
20. Phillips, R. B.: Theelin Therapy in Vulvovaginitis, New England J. Med. **213**: 1026 (Nov. 21) 1935.
21. Brown, D. K.: Management of Vulvovaginitis in Children, Brit. J. Ven. Dis. **11**: 207 (July) 1935.
22. Reichert, J. L.; Epstein, I. M.; Jung, Ruth, and Colwell, Charlotte A.: Infection of Lower Part of Genital Tract in Girls, Am. J. Dis. Child. **54**: 459 (Sept.) 1937.
23. Limper, M. A., and Hieronymus, E. E.: Treatment of Gonorrheal Vaginitis in Childhood with Estrogenic Substances, J. Pediat. **9**: 240 (Aug.) 1936.

no appreciable difference in the response of the respective groups to treatment with estrogen.

Eighty-one of the 118 children were treated by means of hypodermic injections of estradiol benzoate (progynon-B [24]); thirty-four received the same product as vaginal suppositories, and the remaining three were given estradiol (progynon-DH) orally.

HYPODERMIC ADMINISTRATION OF ESTROGEN

Sixty-one of the eighty-one children hypodermically treated received from 1,000 to 1,500 rat units and seven were given 500 rat units every other day for eight weeks; the remaining thirteen received 500 rat units every other day for a period of from four to six weeks.

The first of four consecutive vaginal smears was obtained after two weeks of treatment in forty-six cases, in the fourth week of treatment in fourteen and during the fifth week in eighteen. The vaginal discharge was then scanty, thick and snow white, revealing a mass of non-nucleated epithelial cells and gram-negative bacilli on smears. In the remaining three the vaginal smears were persistently positive, possibly because of inadequate vaginal drainage of accumulated débris, which in itself may have been a source of irritation. In order to evaluate treatment with estrogen accurately, no attempt was made to dilate the introitus or to irrigate the vagina for the purpose of removing the plugs of desquamated epithelial cells.

Sixty-one of the seventy-eight children successfully treated with estrogen hypodermically were followed for a period of from three to twenty-three months, with an average of ten months for the entire group. There were only six (10 per cent) recurrences in the sixty-one followed-up patients who had received hypodermic treatment. Analyzing the sixty-one followed-up cases according to the length of treatment, we found four recurrences in the fifty-three who had received treatment for eight weeks and two in the eight who had received treatment for a period of only from four to six weeks. Notwithstanding the fact that the comparison is made on too few patients, it is nevertheless significant that the incidence of recurrences in the group of eight followed-up patients who had received the relatively short treatment was three times greater than in the group treated for the full period of eight weeks. Equally significant is the fact that recurrences with shorter treatment were not only more numerous but appeared much earlier (from four to six weeks after treatment), suggesting that incomplete cure was the cause of the trouble.

Side effects other than growth of pubic hair occur more frequently and are more intense with adequate hypodermic treatment than with vaginal suppositories. Twenty-one of the eighty-one children (26 per cent) showed enlargement of the breasts, which persisted for about a month after withdrawal of the treatment; seven (8.5 per cent) had a scanty growth of pubic hair, which eventually disappeared, and eight (10 per cent) had a single episode of uterine bleeding either during treatment or later.

TREATMENT WITH VAGINAL SUPPOSITORIES OF ESTROGEN

Thirty-four children were treated with vaginal suppositories, each containing 200 rat units of estradiol benzoate (progynon-B), inserted nightly on retiring for a period of eight weeks.

A clinical cure and four consecutive negative vaginal smears were obtained during the fourth week of treatment in thirty-three of the thirty-four children. The remaining patient failed to respond to vaginal as well as to subsequent hypodermic treatment with 1,500 rat units given every other day for a period of eight additional weeks.

The side effects with vaginal suppositories of estrogen were less pronounced than with hypodermic treatment. In eight of the thirty-four patients there was a moderate enlargement of the breasts; in six there was a semblance of pubic hair growth and in one a single episode of menstruation. This child was, moreover, 11 years old and might have menstruated irrespective of the treatment.

Twenty-six of the thirty-three children treated with vaginal suppositories and discharged as cured were followed for a period of from three to thirteen months, averaging seven months. There were no recurrences, essentially substantiating the observation of Te Linde [19] that the treatment of gonococcic vulvovaginitis with vaginal suppositories is practically free from recurrences. He [25] states that a check-up of his first 100 patients treated by vaginal suppository showed ninety-eight of them clinically well and with negative smears from three months to two and one-half years after the last treatment.

ORAL TREATMENT

In three patients, oral administration of 1,500 rat units daily of estradiol (progynon-DH) for a period of eight weeks failed to accomplish a cure. They were subsequently treated by other methods. These results with oral therapy are in accord with those obtained by Te Linde [19] in six patients treated with equally large doses for a period averaging 105 days. It seems that in the human being as well as in the experimental animal [26] the minimum effective oral dose of estrogen must be five times greater than the hypodermic dose.

SUMMARY

1. The basis of treatment of vulvovaginitis with estrogen is the ability of the substance to create a temporary maturity environment in the vagina of the child and thus render it resistant to pathogenic bacteria.

2. The dose of estrogen must be sufficient to cornify the vaginal epithelium and to reduce the p_H of the vaginal secretions to a point below 6.

3. Treatment for eight weeks, despite an earlier clinical and bacteriologic cure, is a safeguard against recurrence of the infection.

4. Hypodermic injections produced a clinical and bacteriologic cure in seventy-eight of eighty-one children, with a 10 per cent incidence of recurrence.

5. Treatment with vaginal suppositories of estrogen produced a clinical and bacteriologic cure in thirty-three of thirty-four children without any recurrence in the twenty-six who were observed for a relatively long time.

6. Oral treatment was ineffective in three children who received as much as 1,500 rat units daily for a period of eight weeks.

7. Side effects, such as growth of pubic hair, uterine bleeding and enlargement of the breasts, are temporary and are more frequently encountered with hypodermic than with local treatment with estrogen.

2047 Spruce Street.

24. Drs. Gregory Stragnell and Erwin Schwenk supplied the material employed in this work.

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LOCAL AND SYSTEMIC EFFECTS FROM INHALATION OF STRONG SOLUTIONS OF EPINEPHRINE

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Inhalation of vaporized 1 per cent solution of epinephrine is extensively used in the relief of bronchial asthma.[1] This is a convenient way of obtaining directly the well known bronchodilator action of epinephrine without the necessity of hypodermic injection. The clinical results have been generally good as to relief of asthmatic attacks. At least ten atomizers are advertized as specially designed for this purpose, and, in addition, 1 per cent solution of epinephrine is the active ingredient of a large number of trade-marked antiasthma products offered to the public. In spite of the widespread use of this strong concentration of epinephrine, no reports have been made as to possible local irritative effects on the respiratory tract. When it is remembered that deep inhalations of this potent drug are practiced almost indefinitely in a chronic disease state, it would appear desirable to understand more fully and definitely, if possible, the mechanism of the antiasthmatic action and the possible side actions locally and systemically. Therefore, studies were initiated toward these ends and are reported in this paper.

SIZE OF DOSE

The vaporizers ordinarily used are specially designed to throw out very fine impalpable droplets, which are so small that they will not wet or fog a mirror. In order to determine how much of the solution was vaporized under conditions of ordinary use, three hand atomizers, or nebulizers, of the type prescribed for epinephrine inhalations were weighed on an analytic balance before and after use on ten different occasions. After squeezing the bulb forty times, which is more than is commonly done by patients, there was delivered an average of 0.034 Gm. of the 1 per cent solution, or 0.34 mg. of epinephrine from the mouth of the nebulizer, or about 0.008 mg. of epinephrine per compression. Only a small portion of this solution reaches the bronchi when the vapor is inhaled through the mouth. Spoto [2] working with dogs and Rubow [3] with rabbits estimated the penetration of such nebulized fluids into the deep respiratory passages by using solutions of chemicals which could be quantitatively determined in the lung tissue. They found that not more than 3 per cent of inhaled vapor reached the lung, and generally the amounts were much less. According to these authors the greater part of the solution was deposited on the pharynx, larynx and trachea.

Similar localization was confirmed for patients by the following observation:[4] A surgical patient, with a bronchial fistula in the anterior wall of the chest communicating with the left main bronchus, was prepared for excision of the fistula. A 5 per cent aqueous solution of gentian violet was continuously vaporized into the patient's mouth for several minutes while he inhaled deeply and exhaled through the fistula. A small catheter in the fistula conducted the expired air through a test tube of water, but this remained uncolored. The operation then proceeded, with excision of the fistulous tract. Examination of it immediately after removal failed to reveal the slighest trace of staining of the tissue by the gentian violet, although a blue color was present in

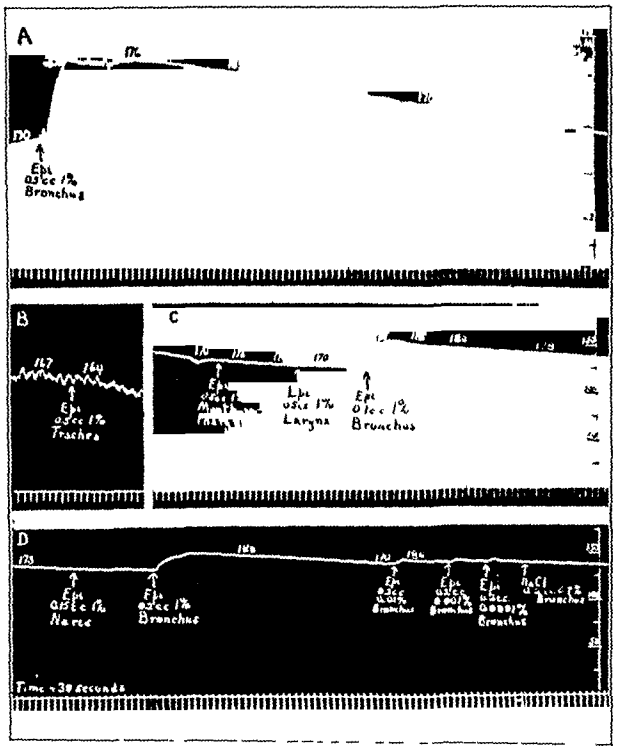


FIG. 1.—Effects on the blood pressure of a cat from different volumes and strengths of solution of epinephrine applied to isolated segments of the respiratory tract (pentobarbital anesthesia).

the mouth and posterior portion of the pharynx. Obviously not enough gentian violet reached the bronchus to impart a color to the water or to stain the walls of the fistula. From the fact that the tinctorial capacity of aqueous solutions of gentian violet is very great, a definite color being present in dilutions as low as 1:10,000,000, the total amount of the dye in the air expired must have been negligible. The mechanisms for removing particulate matter from the inspired air must be extremely efficient, as practically all the droplets were removed from the air before it reached the smaller bronchi. This agrees with Spoto's and Rubow's observations that the greater part of a vaporized solution remains in the upper part of the respiratory passages. In view of this result, it was of interest to determine whether the epinephrine was absorbed from the upper part of the respiratory tract and exerted any systemic effects.

Supported, in part, by grant 320 from the Committee on Therapeutic Research, Council on Pharmacy and Chemistry, American Medical Association.

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1. Matzger, Edward: California & West. Med. **43**: 226 (Sept.) 1935. Graeser, J. B., and Rowe, A. H.: J. Allergy **6**: 415 (July) 1935; J. Lab. & Clin. Med. **21**: 1134 (Aug.) 1936; Inhalation of Epinephrine Hydrochloride for Relief of Asthma in Children, Am. J. Dis. Child. **52**: 92 (July) 1936. Larsen, K. H., and Nielsen, N. A.: Acta med. Scandinav. **91**: 197, 1937.

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CIRCULATORY EFFECTS

To this end the pressor and cardiac effects of inhalation of epinephrine in twelve asthmatic patients and four normal persons were determined as a measure of systemic absorption. The patients were all accustomed to the use of the nebulizer and were tested during an acute asthmatic attack. Pulse rates and blood pressures

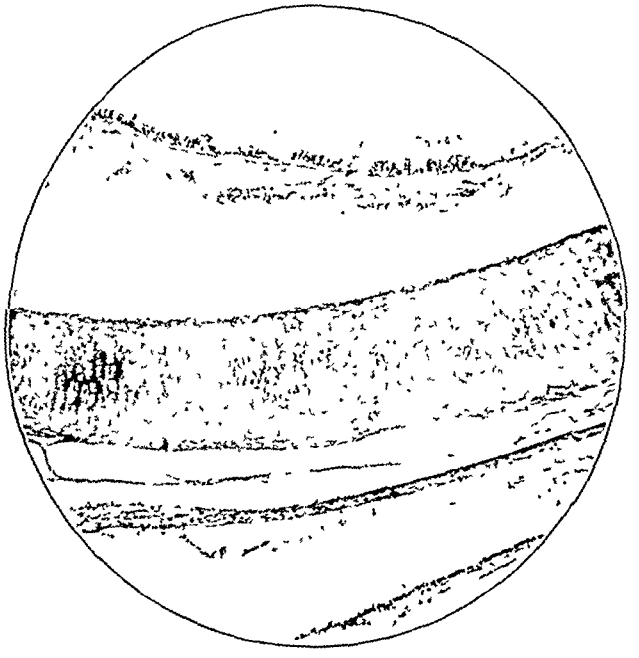


Fig. 2.—Microscopic section of trachea of cat after inhalation of 1 per cent solution of epinephrine, showing loss of cilia and desquamation of epithelium, together with beginning leukocytic infiltration of submucosa.

were determined every two minutes during ten minute periods before and during inhalation of the vapor and for ten minutes afterward. The administration consisted of ten deep inspirations with the nebulizer held just within the mouth. No changes in pulse rate or blood pressure were observed in either of the groups tested. Two of the normal persons noted subjective signs of palpitation and vertigo, but they were able to produce the same sensations by deep inhalations alone without epinephrine. These results are in general agreement with the clinical reports [1] and indicate that a systemic action of epinephrine under the conditions is not common.

Animal experiments were next made for more precise determinations of systemic effects under better controlled and more varied conditions. Cats anesthetized with intraperitoneal injection of pentobarbital sodium, 35 mg. per kilogram of body weight, were used. After tracheotomy, a section of the trachea was isolated by ligation from the larynx above and the bifurcation below in order to divide the respiratory tract into three parts, namely mouth and nasopharynx, trachea, and pulmonary or bronchial airways. Arterial blood pressure was measured by means of a cannula inserted into a common carotid artery and connected to a mercury manometer recording on a kymograph. The pulse rate was counted every five minutes or oftener.

The results of instilling different volumes of solution of epinephrine into these three regions are illustrated in figure 1. *No change in pulse rate or blood* pressure was recorded after instillation of such large doses as 5 mg. of epinephrine into the mouth, nasopharynx or isolated trachea. That is, typical systemic effects were not demonstrated after application to the mucosa above the bifurcation of the trachea. The bronchial mucosa, however, proved to be a good absorbing surface for epinephrine, since pulse and blood pressure changes were demonstrated after as little as 0.0002 mg. deposited in a bronchus. Considering the differences in body weight and the amounts lost in the upper air passages, a patient would require almost 100 inhalations to get an equivalent amount into his lungs and therefore to get systemic effects. This quantity could be obtained more readily, however, if compressed air were used for the vaporization, as is sometimes practiced in physicians' offices.

The failure to produce any effects from the excessive quantities applied to the tissue in the upper part of the respiratory tract makes it improbable that the solution deposited in this region is effective, acting either by reflex irritation or after absorption. In addition, the previous demonstration that to get systemic actions from the solution deposited deep in the lungs would require a much more prolonged period of inhalations than is ordinarily used for therapeutic effects makes it improbable that the effectiveness depends on getting enough absorbed in the lungs for a systemic action. Therefore the anti-asthmatic actions are probably the result of the direct local effects of the epinephrine on the congested bronchial mucosa and spastic musculature, occurring independently of absorption into the general circulation.

EFFECTS OF CHRONIC INHALATION

Repeated inhalations of this strong solution of epinephrine might be expected to cause local irritation and damage to the mucosa of the upper airways, since more



Fig. 3.—Microscopic section of trachea of cat after inhalation of 1 per cent solution of epinephrine. Ulceration of mucosa with loss of epithelium, marked leukocytic infiltration of submucosa and lumen filled with mucopus.

than 95 per cent of the inhaled solution is deposited in this region. Therefore ten cats and six rabbits were given the vapor for a determination of the local effects on the tissues. They were healthy animals, maintained on the standard diet of the laboratory colony. The animals were treated as follows: 1. Four rabbits and six cats were given inhalations of 1 per cent solution of epinephrine twice a day six days a week for a maxi-

mum of 121 days for the rabbits and seventy-one days for the cats. The dose was ten squeezes of the atomizer bulb or 0.0085 cc. of the solution of epinephrine delivered into the mouth as the vapor at each administration. 2. As controls, two cats and two rabbits inhaled at the same time an equal volume of physiologic solution of sodium chloride vaporized with a similar nebulizer. All inhalations were given through a mouth gag with the special nebulizer recommended for patients, and the jets of vapor were synchronized with the animals' inspiration in the same manner as is practiced by patients. 3. Because Graeser and Rowe and others [1] have reported gastrointestinal upsets in patients using epinephrine by inhalation, which they ascribed to swallowing the larger droplets, two cats were made to drink 1 cc. of 1 per cent solution of epinephrine six times each week. This was continued for twenty-two days with one cat; the other cat died on the seventh day. Histologic sections were made from the respiratory tracts of all the animals dying during the course of the experiment or killed at the conclusion of the medication. The accompanying table summarizes the histologic changes observed.

The most frequent abnormality was the presence of mucopus in the lumens of the bronchi. This occurred in seven of the ten animals receiving inhalations of epinephrine and in three of the six controls. The significance of this exudation is doubtful. More significant was the change illustrated in figure 2 of loss of tracheal cilia in six of the medicated animals and desquamation of tracheal and bronchial epithelium in four. These changes were not observed in any of the controls. In three of the epinephrine-sprayed animals there was a leukocytic infiltration of the tracheal submucosa which was sufficiently generalized to be termed a tracheitis, as shown in figure 3. Two cats from this group also showed evidence of bronchitis. These inflammatory reactions were not seen in the unmedicated controls. Five of the ten animals taking inhalations of epinephrine died during the course of the experiments after an average of thirty-seven days, the animals that remained being killed after an average of eighty-seven days.

Both of the animals receiving solution of epinephrine by mouth showed evidence of severe diarrhea, marked anorexia and loss of body weight, as did also one of the cats receiving the inhalations of epinephrine. Postmortem examination of the intestinal serosa and peritoneum of these three cats indicated the presence of inflammation, and the gastrointestinal mucosa showed many small ulcerated and hemorrhagic areas. Accordingly, these applications of epinephrine produced the typical signs of local irritation in both pulmonary and gastrointestinal tissues.

The question might be raised whether similar effects might be produced in patients. It is obvious that the opportunity of examining the trachea and lungs of patients receiving inhalations of epinephrine for asthma would be comparatively rare. However, we had an opportunity of examining one patient with conditions which were confirmatory of the changes in the cats. The pertinent facts of this case may be presented, with the histologic pictures, as follows:

A man aged 60 with advanced pulmonary tuberculosis showed no clinical signs of tracheal or laryngeal involvement. Inhalations of 1 per cent solution of epinephrine were given every two hours for forty-eight hours before death. At autopsy, which was performed immediately, the trachea was reddened down to within a short distance above the bifurcation. Microscopic examination revealed marked leukocytic infiltration throughout the reddened area (fig. 4) and areas of complete loss of epithelium with leukocytic infiltration of submucosa (fig. 5). Special stains revealed no evidence of tuberculous processes in this region, and the larynx and the bronchi below the bifurcation were free of these acute inflammatory changes, or tuberculosis. The pathologic diagnosis at this part of the autopsy was acute tracheitis produced by the inhalations.

COMMENT

The amount of epinephrine obtained from a 1 per cent solution by proper vaporization for inhalation is considerably less than the usual dose with other methods of administration. A patient taking ten deep inhalations of the vapor from a hand atomizer receives not more than 0.08 mg. of epinephrine into his mouth. Only about one one-hundredth of this quantity gets down to the bronchioles, where it produces its therapeutic effects. The minimum intravenous dose of epinephrine required to produce just demonstrable systemic effects is of the order of 0.001 mg. per kilogram of body weight, or about 0.07 mg. for an average adult. Assuming that the total amount of vapor sprayed into the mouth reached the lung and was instantly and completely absorbed, the dose of epinephrine would be barely enough to produce a trace of action after systemic distribution. However, since not more than about one one-hundredth of the inhaled epinephrine vaporized

Pathologic Changes in Rabbits and Cats Given 1 per Cent Epinephrine or Physiologic Solution of Sodium Chloride Twice a Day by Inhalation or 1 per Cent Epinephrine by Mouth

Animal and Number	Fate	Bronchopneumonia	Bronchitis	Tracheitis	Mucopus in Lumen	Desquamation of Epithelium	Loss of Cilia	Comment
Epinephrine 1 per Cent Solution by Inhalation								
Rabbit 1	Died 34 days	..	.	.	.	.	..	No gross or microscopic pathologic changes
Rabbit 4	Died 117 days	—	..	..	—	—	+	Pleural empyema
Rabbit 3	Killed 121 days	..	..	.	.	.	+	Pathologic changes limited to trachea
Rabbit 2	Killed 121 days	..	..	—	—	—	+	Pathologic changes limited to trachea
Cat 3	Died 6 days	..	..	..	..	..	..	Normal respiratory tract; marked gastro enteritis
Cat 1	Died 8 days	—	—	—	—	—	+	Extensive inflammatory changes
Cat 2	Died 18 days	—	—	—	—	—	+	Lower half of trachea plugged with mucus
Cat 6	Killed 54 days	..	..	..	—	..	..	
Cat 4	Killed 71 days	..	..	..	—	..	..	No changes in lungs or small bronchi
Cat 5	Killed 71 days	.	.	.	—	..	..	
Physiologic Solution of Sodium Chloride Inhalation								
Rabbit 1c	Died 82 days	+	—	..		..	.	
Rabbit 2c	Killed 121 days	..	.	..	.	..	..	Normal
Cat 1c	Killed 71 days	..	..	..	—	..	..	Trachea and lungs normal
Cat 2c	Killed 71 days	..	..	.	—	..	..	Trachea and lungs normal
Epinephrine 1 per Cent Solution by Mouth								
Cat 11	Died 7 days	..		—	—	+	.	Gastro enteritis and loss of weight
Cat 12	Killed 22 days	..	..	..	..	..	..	Gastro enteritis and loss of weight; respiratory tract normal

in the mouth gets to the lungs, it is improbable that enough would be absorbed for a circulatory action. Therefore it is not surprising that clinical pulse rate or blood pressure changes are usually not demonstrable after inhalation of epinephrine. Nielsen reached the same conclusion when he found the dose of epinephrine

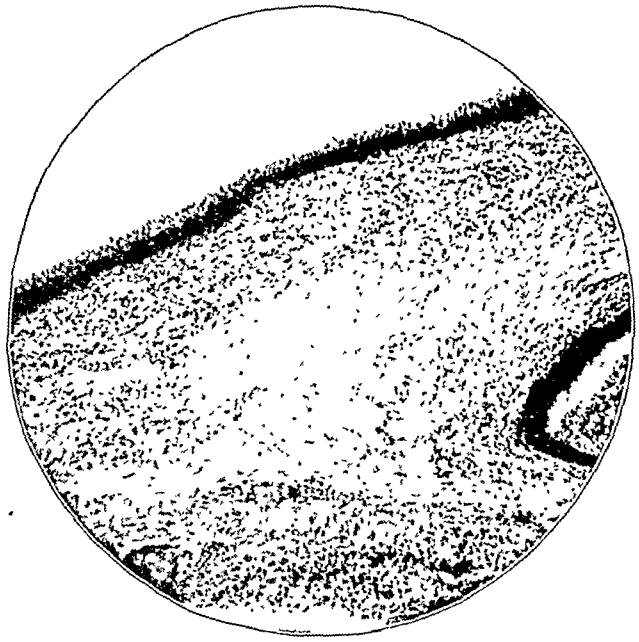


Fig. 4.—Microscopic section of tracheal mucosa of a patient who received inhalations of 1 per cent solution of epinephrine every two hours for forty-eight hours preceding death; marked leukocytic infiltration.

by inhalation to be considerably less than the systemic dose for an effect in the same patient. These results taken together indicate that the relief of asthmatic symptoms after inhalations of epinephrine is the result of a local or direct action of the epinephrine on the bronchial muscle or mucosa, the greater effectiveness for this condition being presumably due to the direct contact of the drug with the site of action.

As for the possible objectionable side actions from repeated inhalations of epinephrine, very definite pathologic changes were demonstrated by us in the respiratory tissues of some of the animals used and in the patient who had inhaled 1 per cent solution of epinephrine. In spite of the small total amount of epinephrine that is deposited on the mucosa, each droplet contains a very high concentration of the drug. It may be that the local irritant effect of each droplet is just as great for the point of deposition as that which would result from the application of a greater volume to a proportionately larger area.

The type of lesion observed in the tracheal and bronchial mucosae is in many ways similar to lesions produced by Fox[5] by spraying the nasal mucosa of rabbits with 1:1,000 solution of epinephrine hydrochloride. After daily applications for three months he found considerable denudation and intra-epithelial abscesses with leukocytic infiltration. The irritant power of even this ten times weaker solution is therefore well known for the nasal mucosa in animals as well as in patients. There can then be little doubt that a stronger solution, i. e. ten times, or the 1 per cent strength, would produce greater local irritation, as was indeed demonstrated by us.

5. Fox, Noah: Chronic Effect of Epinephrine and Ephedrine on Nasal Mucosa, Arch. Otolaryng. 13:73 (Jan.) 1931.

The solution of epinephrine used in our experiments, like many epinephrine products on the market, contains about 0.2 per cent sodium bisulfite to prevent oxidation of the drug. It has not been determined whether the irritation in the respiratory tract is due to the epinephrine itself, to the high acidity or to the preservative. In a recent publication, Tainter, Throndson and Lehman[6] described the irritant actions of sodium bisulfite on other mucous membranes. They showed that concentrations of this salt comparable to those in commercial epinephrine products were sufficient to produce local inflammatory reactions. However, the vasoconstriction probably contributes mainly to the local reaction, since it is well known that concentrations of epinephrine greater than 1:10,000 are apt to produce such prolonged vasoconstriction as to cause tissue damage from anoxemia with secondary inflammatory reactions.

Finally, there may be considered the bearing of these various observations on the clinical use of inhalations of epinephrine. There is no doubt that in many patients asthmatic attacks can be controlled by inhalation of strong solutions of epinephrine. There can also be little doubt that in some if not all patients the solution of epinephrine will produce inflammatory changes in the upper respiratory passages and possibly also in the gastrointestinal tract if droplets are swallowed. The more efficiently the patient breathes and draws the vapors into the deeper airways, the more extensive will be the inflammatory changes. If the concentration of the epinephrine should be increased from the 1 per cent strength now commonly employed to the 10 per cent strength advocated by Nielsen,[1] the possibility of local

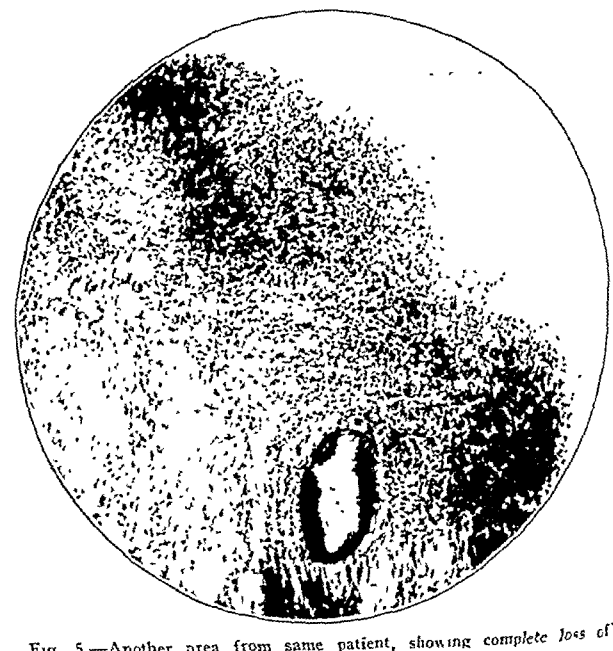


Fig. 5.—Another area from same patient, showing complete loss of epithelium and more marked round cell infiltration.

injurious effects would be still greater. The main reason for using the inhalation procedure is that it saves the patient the inconvenience of hypodermic injections. However, if this advantage is obtained at the expense of setting up inflammatory reactions in the mucosae of the respiratory passages, which are already the seat of a morbid process, the secondary effects of the inhalation

6. Tainter, M. L.; Throndson, A. H., and Lehman, A. J.: Proc. Soc. Exper. Biol. & Med. 36:584 (June) 1937.

may prevent or delay restoration of these tissues to normal, even though the spasmodic attack is alleviated. The clinician would therefore seem to be under the necessity of deciding in each individual case whether the gain in convenience of medication by inhalation is great enough to justify the possible production of added pathologic changes.

SUMMARY AND CONCLUSIONS

1. Epinephrine, in strengths of 1 per cent or more, is used extensively by inhalation in the treatment of asthma. This procedure introduces smaller quantities of the drug into the lung than those clinically effective by injection.

2. There is no demonstrable absorption of epinephrine from the respiratory tract in cats, except deep in the lungs. However, from the lungs, blood pressure effects can be produced from minute doses, indicating good absorption from the lower respiratory mucosa, and the possibility of producing direct effects by the drug on the bronchiolar muscle and mucosa.

3. Inhalation of 1 per cent solution of epinephrine at frequent intervals in cats and rabbits produces in some animals an irritation of the tracheal mucosa, with desquamation of the epithelium and inflammatory changes. Similar changes were observed in the trachea of a tuberculous patient similarly medicated for forty-eight hours before death.

4. Careful consideration should be given by the physician to the possible occurrence of undesirable local irritative effects from inhalations of epinephrine such as those demonstrated by us, and whether these are great enough in the individual patient to outweigh the convenience of taking the drug by inhalation rather than by injection.

Sacramento and Webster streets.

Clinical Notes, Suggestions and New Instruments

ADENOCARCINOMA OF THE BREAST COINCIDENTAL WITH STRENUOUS ENDOCRINE THERAPY

G. R ALLABEN, M D, AND S E OWEN, PH D, HINES, ILL

Estrogenic substance induces mammary cancer in mice usually only after several months' application The carcinogenic agents likewise require considerable periods of application Injections of estrogenic substance or of carcinogenic chemicals in rather excessive doses may shorten the time of appearance of experimental tumors

The ordinary therapeutic doses of estrogenic substance and the rather short periods of treatment should not involve a risk of the subsequent development of cancer. A substitution therapy extending over many months does involve such a risk, especially if the woman treated presents a family history of mammary cancer and may thus supposedly be classed as susceptible

Cramer [1] has presented an excellent review of the etiology of mammary cancer in man and in mice. Olch [2] expressed the belief that prolonged ovarian activity during the usual menopausal ages is detrimental or of no benefit to the mammary parenchyma. Crossen and Hobbs [3] noted the high incidence of delayed menopause in cases of adenocarcinoma of the body of the uterus. Wassink's [4] statistical study on Dutch people showed that family history, as regards mammary cancer, was exceedingly important. Waaler's [5] observations in Norway lead to similar opinions Lacassagne [6] suggested that in experimental animals the hereditary factor for cancer of the breast may consist in an unequal response of the breast in the different strains to similar doses of estrogenic substances. Cramer [7] more recently demonstrated that mouse strains bearing a high incidence of cancer of the breast are more susceptible to estrogenic substance. It appears also from his work that the pituitary thyrotropic factor antagonizes the susceptibility to estrogen. A clinical investigation to determine if possible methods of identifying women who are unusually responsive to estrogenic agents is urgently needed. There is also much room for consideration of the family histories in the early diagnosis of mammary cancer.

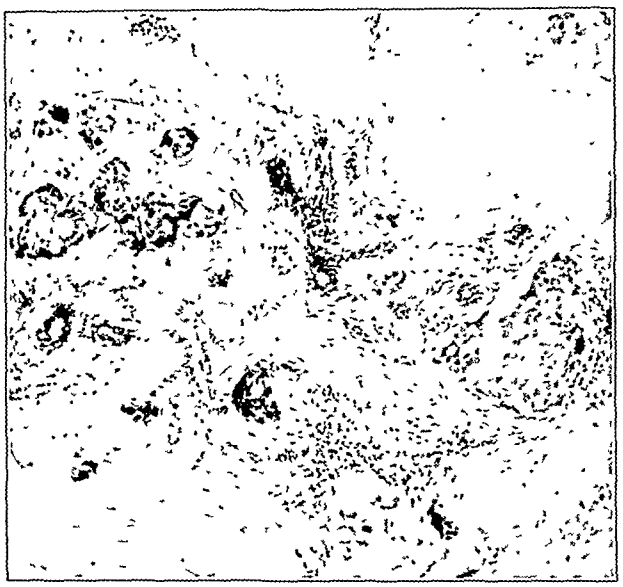


Fig 1.—Section of the original tumor, showing obliteration of the ducts and fibrosis

The following case is offered as an instance of what we believe to be an unwise use of estrogenic substance during the menopausal period. The adenocarcinoma of the breast in this instance, coincidental though it may be, tends to incriminate the heavy and prolonged estrogen treatment used:

REPORT OF CASE

History.—A white woman aged 50, a nurse, never married, entered the hospital in February 1938, complaining of a tumor mass in the right mammary gland, slightly painful and tender to pressure There had been no loss of weight The onset had occurred three weeks before admission to the hospital. While reaching to clean a wall of her home she had felt a pain in her right breast, and on examination she observed a lump which was tender to palpation. On consulting a physician she was referred to the hospital.

Menstruation began at the age of 11 years and continued regularly to the age of 48. In September 1936 she consulted a physician for symptoms of weakness and fatigue following

From the Tumor Clinic and Cancer Research Unit, Veterans Administration Facility

Drs Hugh Scott, W E Kendall and L H. Prince and Mr R P Creer assisted in the preparation of this paper

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physical exertion. She was told that her blood pressure was low and was given estrogenic therapy, receiving 2,000 units intramuscularly twice a week for twenty-six weeks. At this time she consulted another physician, and this type of therapy was continued. She was given one injection of 10,000 units of estrogen and then 2,000 units three times a week for six months. During this time she did not menstruate, but occasional fulness of the breast was noted. In the fall of 1937, when she voluntarily stopped the injections, there was a copious menstrual flow lasting one week. There has been none since.

She had had measles, mumps and chickenpox in childhood and pneumonia at the age of 9 years and again at 20, with complete recovery. Tonsillectomy had been done in 1920. She had been admitted because of a mild depressive psychosis in March 1931 and discharged improved in July 1931. She was readmitted in October 1935, when an atypical mucous cyst of the lower lip was removed and hyperkeratosis of the left cheek was treated by superficial irradiation. She was discharged in November 1935, with maximum benefit. She had always been declared competent as to her psychosis, and at this time, although worried about her breast, she had good insight and judgment was not defective.

Her mother died at the age of 63 of carcinoma of the liver and her father at 72 of nephritis and cardiac disease. Five



Fig. 2.—Section of metastatic nodule.

brothers reached adulthood but had all died from various causes other than cancer. Four older married sisters had no history of cancer.

Examination.—The patient was well developed and somewhat obese. Her height was 67 inches (170 cm.) and her weight 186 pounds (84.4 Kg.). In the upper outer quadrant of the right breast a tumor mass 5 by 7 cm. in diameter was present. This was not attached to the deeper structures or to overlying skin. There was no retraction and no discharge from the nipple. No adenopathy was noted in the drainage areas. The left breast was apparently normal. General examination showed no further abnormality. The urine showed a trace of albumin and a moderate number of white blood cells. The Wassermann and the Kahn test were negative. A blood count was within normal limits. X-ray examination of the chest showed no abnormality.

Course.—Radical mastectomy was performed, with careful dissection of the axilla and removal of both pectoral muscles. A study of the removed specimen showed several small nodes just adjacent to the primary tumor. Microscopic examination showed adenocarcinoma in both the primary tumor and the metastatic nodes.

The patient received a full course of postoperative irradiation.

COMMENT

The total dose of estrogen (258,000 units injected) used in this case may not seem high. The therapy, however, was practically continuous for over a year. That no menstrual periods occurred in this interval rather substantiates the factor of continuous dosage, as do the prolonged menses when the treatment was discontinued. The patient's history indicates periodic if not rather constant stimulation of the breast during the period of therapy. This feeling of fulness in the breast was not noted after discontinuance of the estrogen therapy. There was but one instance of cancer in the family and that not cancer of the breast.

In our experience papillomas of the mammary duct similar to that noted in Schimmelbusch's disease may be induced in experimental animals in short periods with low doses of estrogen. More prolonged experimental treatment brings forth typical tumors of the breast. It is not our intent to generate cancerphobia or to discourage the correct therapeutic use of estrogenic preparations. We feel, however, that there is some question whether prolonged and continuous therapy, as in the case reported, is compatible with the normal physiologic endocrine balances. At the menopause nature is attempting to close a period and to readjust biologically the tissues concerned. Correct endocrine therapy should, it would seem, be planned to aid the natural physiologic procedures. Continuous estrogen therapy would maintain this agent at a high level in the body. A consistently high estrogen level is certainly unphysiologic as is evident from studies on estrogen excretion. More attention should be given to timing and to tapering off the doses of estrogen when this agent is employed for therapeutic effect during the menopausal period.

ANTERIOR POLIOMYELITIS TREATED WITH SULFAPYRIDINE

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In view of the variation in the severity of the infection causing anterior poliomyelitis, with its differences in clinical picture, its symptomatology and its resulting paralysis, one case report is not of great value. The case here reported is interesting because the patient was seen during the acute stage and rather surprising results were had accompanying the use of sulfapyridine in the treatment.

History.—M. E. M., a well developed girl aged 9 years, weighing 65 pounds (29.5 Kg.), was first seen March 22, 1939, complaining of pain in the right leg and inability to walk without falling; onset had occurred two days before with fever, headache, pains in the back and legs, and general malaise.

Examination.—The temperature was 101, pulse 120, respiratory rate 20.

The skin, eyes, nose, throat, lungs, heart and abdomen were all entirely normal.

Examination of the right leg revealed the knee jerk reflex absent; the patient was unable to flex the thigh on the pelvis or flex the foot on the leg. Kernig's sign was positive. Oppenheim's and Babinski's signs were normal. There was no disturbance of sensation. Examination of the left leg revealed the knee jerk exaggerated. There was muscular tenderness throughout the thigh with normal flexion of the thigh on the pelvis and the foot on the leg. Kernig's sign was positive. Oppenheim's and Babinski's signs were normal or negative.

The patient was unable to stand on the right leg alone but could stand on both legs and walk with help with a slight dragging of the right foot and toe.

The arms, forearms and hands were normal. Function was good.

The posterior neck muscles were rigid and the patient was unable to flex the head on the chest without pain. There was no opisthotonos.

The pupils were of normal size and they reacted well to light and distance.

Ten cc. of clear spinal fluid was withdrawn; the pressure was slightly increased but returned to normal with this volume removed. Cell count in undiluted fluid was 100. Stained

smears showed 50 per cent polymorphonuclears and 50 per cent lymphocytes. No organisms were found with three Gram stains. Sugar was normal, a trace. Globulin was present with a heavy trace. Cultures were made on blood agar plates and reported at intervals of twelve, twenty-four, forty-eight and seventy-two hours.

The urine, March 23, was normal except for a slight trace of albumin. March 26 it was normal except for a slight trace of acetone. March 27 it was entirely normal.

March 23 there were 4,330,000 red blood cells, 85 per cent hemoglobin, 8,900 white blood cells, 64 per cent polymorphonuclears, 31 per cent lymphocytes, 4 per cent large mononuclears and 1 per cent basophils.

March 24 there were 4,210,000 red blood cells, 82 per cent hemoglobin, 9,750 white blood cells, 76 per cent polymorphonuclears, 29 per cent lymphocytes, 2 per cent large mononuclears and 1 per cent basophils.

March 25 there were 4,150,000 red blood cells, 82 per cent hemoglobin, 9,050 white blood cells, 70 per cent polymorphonuclears, 23 per cent lymphocytes, 5 per cent large mononuclears and 2 per cent basophils.

March 26 there were 4,150,000 red blood cells, 80 per cent hemoglobin, 6,450 white blood cells, 71 per cent polymorphonuclears, 22 per cent lymphocytes, 5 per cent large mononuclears and 2 per cent eosinophils.

March 27 there were 4,080,000 red blood cells, 80 per cent hemoglobin, 5,600 white blood cells, 70 per cent polymorphonuclears, 25 per cent lymphocytes, 4 per cent large mononuclears and 1 per cent eosinophils.

Treatment and Medication.—The patient entered the hospital March 22, 1939, at 9 p. m. The usual routine blood, urine and spinal puncture were done. Neoprontosil 15 grains (1 Gm.) every four hours for three doses was started at 11 p. m.

On the morning of March 23 examination was essentially the same as previously detailed, with the additional observation of toe drop with the foot extended and the thigh flexed on the pelvis on the right side, and paresthesias of both forearms and the little fingers of both hands. A molded plaster of paris splint was applied to the leg and foot at this time.

Sulfapyridine was started at 4 p. m., seven 7/10 grain tablets every two hours for twelve doses, at which time the temperature was 103.4 F., the pulse 130 and respiratory rate 28, with the blood picture 4,330,000 red blood cells, 85 per cent hemoglobin, 8,900 white blood cells, 64 per cent polymorphonuclears, 31 per cent lymphocytes, 4 per cent large mononuclears and 1 per cent basophils. The temperature returned to normal and remained so for twelve hours. The drug was temporarily discontinued, because the patient was slightly cyanotic and increasingly irritable, with anorexia, but was again started when the temperature returned to 100, in the same dosage, every three hours for six more doses. The temperature again returned to normal for a twelve hour period; the drug was discontinued, and the temperature returned to 99 for a two hour period only twice since sulfapyridine was stopped, and has been normal or subnormal for the past five days. The change in the blood picture with regard to giving sulfapyridine was as follows: March 23, 4,330,000 red blood cells, 8,900 white blood cells, 85 per cent hemoglobin. March 27, 4,080,000 red blood cells, 5,600 white blood cells, 80 per cent hemoglobin. The kidney function and urine were essentially normal at the onset and no untoward effects were noticed with the treatment. The slight rigidity of the neck muscles rapidly disappeared. The spinal fluid showed no growth on culture at twelve, twenty-four, forty-eight and seventy-two hours. The patient's general condition has satisfactorily improved. There is no further muscular paralysis than was present at the first visit, which was the third day after onset. The right leg and foot from the hip is in a molded splint, with no deformity, and the neurologic manifestations on this side are still an absent knee jerk and inability to flex the thigh on the pelvis or flex the foot on the leg.

CONCLUSIONS

This case could have terminated as it has in paralysis of the flexor muscles of the foot, leg and thigh of the right side without the use of sulfapyridine and not be unusual in any way; others have done it; but (1) the apparent dramatic response of the white blood cell count, (2) the drop in temperature from 104.5 to normal in twenty-four hours, remaining so for twelve hours and again responding to medication the second time, with continued approach to normal of the white blood cell count, and (3) the relief of the paresthesias, all so closely following the administration of sulfapyridine, leave us to determine whether this drug has a virtue in anterior poliomyelitis.

Take the report for what it is worth, but further use, properly given, is certainly justified in such cases, especially in patients seen early in the disease, as this case shows. I do not make the slightest claim of sulfapyridine being specific, having only a lingering hope for the future.

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HEMORRHAGIC MUCOCELE OF THE APPENDIX

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V. R., a high school girl aged 16, was admitted to the hospital Aug. 10, 1935. She had been in good health except for what she termed minor attacks of indigestion intermittently during the past two years. The attacks were never serious enough for her to consult her physician. On the morning of August 9 after arising she was taken with a dull aching pain in the right lower quadrant of the abdomen which did not radiate. The patient suffered profound nausea and vomited seven times during the day. There was no history of constipation and her menstrual periods were regular.

On admission to the hospital the patient's temperature was 100 F., the pulse 110 and the leukocyte count, 30,700. There was a definite palpable tumor mass in the right lower quadrant of the abdomen, exquisite tenderness over McBurney's point and an early peritoneal reflex. There was no abdominal distention; the last menstrual period had been normal and within ten days. A diagnosis of ovarian tumor with twisted pedicle was made and immediate operation advised.



Mucocele after removal, showing its tremendous size as compared with the appendix and its position lateral to the appendix.

Under ether anesthesia the abdomen was opened through a right paramesial incision and a tumor was exposed in the right iliac fossa. The tumor was entirely free of adhesions. The gallbladder and stomach and both kidneys were normal and there was no obstruction of the bowel. This tumor was dark in color and shaped like a cucumber. The appendix appeared to lie at its distal end and was attached approximately an inch from the junction of the appendix to the caput coli. The apparent pedicle was twisted about 120 degrees, and this whole mass was gangrenous. The tumor was removed from the appendix and the appendix was removed in the routine manner without drainage.

Convalescence was without incident and the patient was discharged in good condition on the eleventh postoperative day.

The gross appearance demonstrated a large, soft tumor with a thin, connective tissue wall almost bisected, thus forming two lobes filled with coagulated blood. The tumor was attached to the appendix. Section was made of the thin wall. The appendix, 6.5 cm. by 1 cm. at the proximal end, tapered to 6 mm. at the tip; the tumor was attached to the proximal portion by a small pedicle.

The microscopic section of the cyst wall filled with blood and showed hemorrhagic mucosa supporting only a few mucous glands, which showed hemorrhage into their lumens; the solitary follicles were enlarged, the lymphoid cells being pushed apart by edema and hemorrhage. The submucosa was edematous, its blood vessels were enlarged and congested and there was a large amount of hemorrhage into this coat; the muscular

Dr. Warren Howard permitted me to publish a report of this case. Dr. James B. Rucker gave his cooperation in the interpretation of the pathologic picture and Dr. George W. Bascom reviewed the literature.

coats were normal in thickness but were infiltrated with many lymphoid cells and a slight amount of hemorrhage.

The diagnosis was hemorrhagic mucocele of the appendix.

My interest in mucocele of the appendix was stimulated not only because of the rarity of this abnormality but also because it is a challenge to the diagnostic acumen of the general surgeon.

The frequency of the disease is of interest because, in reviewing the literature, I find that there have been approximately 250 cases reported since Virchow's[1] classic description of mucocele in 1863. Castle,[2] in a total of 13,158 autopsies, found twenty-eight cases, or a frequency of about 0.2 per cent. Mayo and Fauster[3] reviewed the surgical cases of the Mayo Clinic from 1917 to 1930 and found that mucocele of the appendix was encountered only seventy-six times in 31,200 cases in which appendectomy had been performed, a frequency of about 0.24 per cent.

A description of the pathologic changes occurring in the development of mucocele of the appendix is found in the work of Deaver,[4] and Vorhaus.[5]

The first process, according to Vorhaus, is assumed to be due to recurrent infections of the appendix causing a gradual stenosis of the lumen at one or more points distal to the obliterated lumen; sterile contents are presupposed. Then in the presence of actively secreting mucous glands a distention occurs, and theoretically there is a change in the mucus resulting in the transformation of mucin into pseudomucin.

The facts favoring this theory are as follows: There is a complete or almost complete stenosis of the lumen, or else with the increasing distention the fluid would be forced out. Secondly, there cannot be any pathogenic bacteria or else empyema or gangrene would result. Lastly, an active mucous membrane secreting mucus in excess of its absorption is necessary or distention would not occur. This results in the development of either rupture of the mucocele causing pseudomyxoma peritonaei or a thin walled watery cyst due to cessation of activity of the mucous glands which eventually becomes atrophic as a result of pressure atrophy. In my case the cystic fluid was hemorrhagic, probably owing to a ruptured blood vessel after the proximal portion of the appendix had become twisted.

Thus the rupture of a mucocele into the peritoneal cavity produces a condition of potential malignancy, pseudomyxoma peritonaei, the resulting effect on the patient and future response to treatment depending entirely on whether or not the mucous membrane lining the mucocele has been sufficiently destroyed by pressure atrophy.

The most common cause of pseudomyxoma peritonaei is due to pseudomucinous cystadenoma of the ovary. Therefore it is more frequent in the female, while mucocele of the appendix is the only known cause of pseudomyxoma peritonaei in the male.

The symptoms are vague and not characteristic of any specific clinical entity, especially the uncomplicated cases. Other than a history of (1) abdominal distress, (2) a palpable mass in the right lower quadrant of the abdomen, there are no other constant features. These points were the only constant factors mentioned by both Mayo and Fauster[3] and Dannreuther[6] in their reports. Although my patient had the symptoms of an acute surgical condition within the abdomen, which was due to a 120 degree rotation of the mucocele on the proximal portion of the appendix, these acute symptoms may be those of obstruction of the intestine, which has been reported to occur when the mucocele becomes invaginated into the cecum.

However, as a rule most of these patients tolerate these vague symptoms until they become so distressing and the pain so intensified that they voluntarily seek relief.

The diagnosis of mucocele of the appendix or pseudomyxoma peritonaei of appendical origin is usually made at autopsy, or at the operating table in a case with a preoperative diagnosis of ovarian tumor with or without a twisted pedicle, uterine fibroids, carcinoma of the cecum, terminal ileitis, intestinal obstruction or intraperitoneal neoplasm. In my case a diagnosis of ovarian tumor with twisted pedicle was made because of the acute onset of symptoms, the exquisite tenderness, the fever and the high leukocyte count. The disease is most common in middle aged and elderly women although my patient was only 16. There are no constant symptoms or signs which are pathognomonic of this disease. While roentgenographic evidence of mucocele of the appendix following a barium enema was used by Vorhaus,[5] Simon,[7] LeWald[8] and Lifvendahl and Ries[9] in the only preoperative diagnosis of mucocele of the appendix, this procedure does not always give constant results, since usually the lumen is stenosed or at best there may be an occasional mucocele with intermittent patency of the proximal end of the appendix.

However, with a history of vague gastrointestinal complaints and a palpable tumor mass in the right lower quadrant of the abdomen one should at least include mucocele of the appendix in the differential diagnostic considerations.

The treatment of mucocele of the appendix and pseudomyxoma peritonaei is definitely surgical. In the uncomplicated cases surgical removal is done with extreme caution to prevent rupture of the mucocele, while in complicated cases of mucocele of the appendix with pseudomyxoma peritonaei removal of the remaining parts of the ruptured mucocele and removal of as much of the mucoid gelatinous material and implants as possible are followed with roentgen therapy.

CONCLUSIONS

1. Mucocele of the vermiform appendix is a clinical rarity but is important because of its disastrous complications.
2. Its clinical incidence is approximately 0.24 per cent.
3. It is one of two known causes of pseudomyxoma peritonaei.
4. The clinical diagnosis is extremely difficult unless this condition is kept in mind, since there are no constant pathognomonic signs or symptoms especially incident to mucocele of the appendix.
5. The treatment is surgical.

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SULFANILAMIDE IN THE TREATMENT OF SMALLPOX

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I have recently treated seven cases of smallpox, four with sulfanilamide and three with symptomatic treatment:

CASE 1.—Mrs. G., aged 44, a housewife, white, first observed Jan 18, 1939, complained chiefly of severe backache and fever coming on rather suddenly during the preceding night. At first she felt chilly but did not have a definite rigor. This was accompanied with severe aching of the back in the lower lumbar region, across the hips and down the back of the legs. There was considerable headache and some nausea but no vomiting. There was some discomfort in the throat but no cough. There was no constipation, diarrhea or disturbance of the urinary system. There had been very little sweating. The patient was rather obese and appeared to be extremely ill. The skin was dry, the face was flushed and there was some restlessness. The temperature was 103.2 F.; the pulse rate 96 and the blood pressure 140 systolic, 90 diastolic. The eyes and nose were not congested but the throat showed red, cryptic, slightly enlarged tonsils and some redness of the pharynx. The chest was clear and there was no cardiac irregularity. There was no abdominal tenderness and no enlargement of the abdominal organs. The reflexes were normal. There was no rash on the skin. The urine showed a slight trace of albumin, with a high specific gravity but no pus cells, casts or erythrocytes.

The patient was given acetylsalicylic acid 5 grains (0.32 Gm.) every three hours; there was no question of her not staying in bed. The following day there was little change in the patient's condition other than a slight lowering of the temperature (101

F.). The acetylsalicylic acid seemed to ease the aching somewhat. On the third day the temperature was normal and the patient was feeling much better and was up about her household duties. On the fifth day the patient came to my office complaining of a "breaking out." She was covered—scalp, face, chest, arms, legs, palms and soles—with about 200 pustules about the size of a small pea, sitting on a red areolar base. On the palms and soles the pustules were very hard and tense. They contained a semipurulent material, which on smears showed short chained streptococci. On the seventh day definite umbilication was seen; on the ninth the pustules were beginning to dry, and on the thirteenth they were desquamating. The eruption was accompanied by a slight elevation of temperature (from 99 to 100.6 F.) and mild prostration.

CASE 2.—H. G., aged 18, the son of patient 1, a farmer, first seen February 5, complained chiefly of severe backache and headache, some nausea but no vomiting. The onset had been rather sudden the night before when a rather severe chill was experienced while he was attending a movie. There was no cough, constipation or symptom referable to the urinary tract. The symptoms followed the identical pattern of those presented by his mother. The patient was well developed and well nourished. The skin was dry and clear. The temperature was 104 F., the pulse rate 110 and the blood pressure 118/80. Otherwise the examination was negative. He was given acetylsalicylic acid 5 grains every three or four hours and sulfanilamide 10 grains (0.65 Gm.) every three hours. The following day the patient's condition was unchanged except for very slight cyanosis of the lips and some duskiness of the skin. There was no rash. On the third day the temperature was 99 F. and the patient felt much better. The aching had abated but there was some nausea. The dosage of sulfanilamide was reduced to 5 grains every four hours. On the fourth day the temperature was 98.2 F. and the patient was much improved. There were three very small dark red macules on the right forearm and three or four in the scalp. These were rather tender and caused some itching. On the sixth day the patient was out of bed and the following day he was attending to his farm work. The macules disappeared on the sixth day and there was no further eruption.

CASE 3.—Mr. F. G., aged 53, the husband of patient 1, a farmer, first seen February 8, complained chiefly of severe headache across the forehead; there was also some backache and generalized aching in the limbs. There were no other complaints. The temperature was 102 F., the pulse rate 96 and the blood pressure 138/96. The examination was otherwise negative. He was given acetylsalicylic acid 5 grains with phenobarbital one-half grain (0.032 Gm.), but this gave no relief and dilaudid 1/32 grain (0.002 Gm.) was given at intervals of about ten hours to relieve the aching. Marked restlessness and semidelirium also developed. On the third day the temperature, which had varied between 101 and 103 F., fell to 99 F., and the next day there was a widespread eruption of discrete red macules and papules about the size of a pea, the temperature became elevated again to 101 F., and the papules and macules in two days were well marked pustules, which soon became umbilicated. On the eleventh day of the disease they began drying up and on the fifteenth day they were practically all gone. The patient had been vaccinated forty years before. None of the other patients in this series had been vaccinated.

CASE 4.—Mrs. S., aged 30, daughter and neighbor of patient 1, a housewife, had been in and out of her mother's house while her mother was ill and became ill February 6 with symptoms very similar to those described in the foregoing cases, namely backache, headache, fever and some nausea. I first saw her February 7. The temperature ranged from 102 to 104 F. for three days and on the fourth day returned to normal. During this period she received sulfanilamide 10 grains every three hours and acetylsalicylic acid 5 grains as needed. On the fourth day a few small macules were noted on the wrists and forehead. The medication was discontinued on the fifth day, the macules disappeared on the sixth and she was about her household duties on the seventh.

CASE 5.—Mr. C., aged 34, a son-in-law of patient 1, a farmer, when first seen, February 8, had been ill for two days, complaining of intense backache, headache and high fever. The patient was well developed and well nourished and was apparently very ill. The temperature was 104 F. Acetylsalicylic acid 5 grains with phenobarbital one-half grain gave some symptomatic relief. On the fourth day the temperature was normal and no eruption was noted. On the fifth day, however, many macules were noted over the body which rapidly became papular, then vesicular and pustular, followed by umbilication on the ninth day of the disease and drying up and crusting on the fifteenth. The eruption, as in the other cases described, covered the entire body including the palms and soles, and there were some papules in the pharynx and nose.

CASE 6.—Mrs. C., aged 30, a daughter of patient 1, a housewife, was first seen February 18 after being ill about thirty-six hours. She had had a rather sudden onset, had complained of intense backache and headache and had vomited twice. The history and symptoms were identical with those in the preceding cases. Her temperature was 103 F. She was given sulfanilamide 5 grains every three hours and acetylsalicylic acid as needed for the aching. On the fourth day the fever subsided and on the sixth there were three well defined vesicles on the right cheek which went through the typical evolution of pustulation, umbilication and desquamation. During the last phase of the disease there was some slight elevation of temperature (from 99 to 100 F.). On the tenth day of illness she was out of bed and feeling fairly well.

CASE 7.—Mr. W., aged 30, white, a farmer, first seen February 23, had spent the night with patient 3 on February 15. During the night of February 22 he rapidly became very ill; he had a light chill that lasted fifteen minutes and aching of the back and limbs, and he vomited. When he was seen he was very restless. The temperature was 104.2 F. The pulse was 110. There were no significant changes found on examination other than the fever and the restlessness. Morphine one-fourth grain (0.016 Gm.) was required to relieve the backache. He was given sulfanilamide 10 grains every three hours. On the fourth day the temperature was normal and he was feeling very well. A few macules developed on the forearms which lasted about twenty-four hours. He was back at work on the seventh day.

COMMENT

These seven cases are all identical as to onset and the initial period, typical of smallpox. All show a sudden onset of severe and excruciating backache and headache with an abrupt rise in temperature persisting for three days. There seemed to be very little variation in the patients who received sulfanilamide and those who did not. However, in the patients who received sulfanilamide there was no pustular eruption except in case 6, in which three pustules occurred. In the cases in which sulfanilamide was not used there was the typical eruption of smallpox. Sulfanilamide seemed to abort the second phase of smallpox with its pustulation and scarring; there were some macular spots on all those receiving sulfanilamide, but they were evanescent. As far as morbidity goes, the patients who received sulfanilamide recovered immediately after the subsidence of fever and the symptoms of the initial phase. The effect of sulfanilamide in patients with the typical eruption already present is not known, since the patients who received sulfanilamide were started on the treatment before an eruption appeared.

The occurrence of these seven cases in the same community and mostly in the same family during an outbreak of smallpox, and the absence of an eruption in those who received sulfanilamide therapy does not seem to be coincidental.

SUMMARY

1. Three of the seven patients with smallpox were treated symptomatically and in all three the typical eruption of smallpox developed.

2. The remaining four patients were given sulfanilamide, and in three there was only an evanescent macular eruption which rapidly disappeared; in the remaining case there were only three pustules.

3. The patients who were given sulfanilamide were back at work about a week sooner than those who did not receive it.

4. Sulfanilamide seems to have a beneficial effect in the treatment of smallpox when administered early in the disease.

INTERSEXUALITY

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DETROIT

Intersexuality is an interesting phenomenon and cases of this type are not frequently encountered. In his book on genital abnormalities Young [1] has given a complete review of the subject and has presented cases of his own.

REPORT OF CASE

The following case is of interest:

E. Z., a student aged 12 years, was seen Sept. 26, 1932, by the late Dr. Max Ballin, having been referred by the Childrens' Center of Detroit because of abnormal sexual development.

At the time of the birth of the patient, the mother was told that there was some abnormality of the sex organs but that the baby's sex was female. The child was christened Ida and was reared as a girl. At the age of 10 a school nurse discovered that there was some abnormality of the sex organs but did not report the condition until the child was ready to enter high school at the age of 12. There had been no menstruation, either normal or vicarious. There was nothing significant in the past history.

The father is Polish and the mother is Lithuanian; both are living and are of average build.

The patient was well built and well nourished, of stocky type, with a height of 61½ inches (156 cm.), weighing 116 pounds (52.6 Kg.), with dark complexion and dark brown hair (fig. 1). The patient had a deep voice like a young man of 16 or 17. There was some hair on the upper lip. The breasts were of the flat male type. There was a female type of distribution of pubic hair. The penis was somewhat smaller than normal, hook shaped with chordee Hypospadias of the scrotum, urethra and prepuce was present. The scrotal halves were fairly well developed and split in the middle and did not contain testicles (fig. 2).

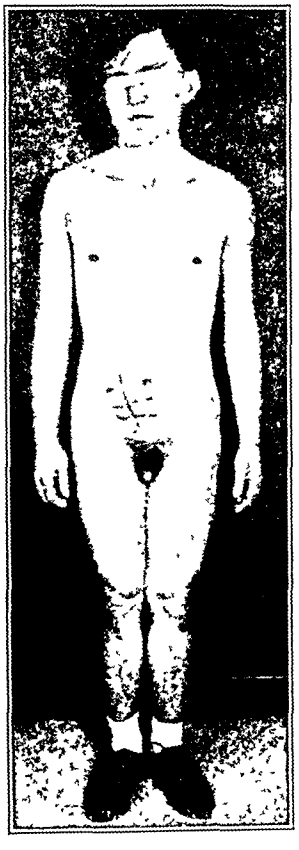


Fig. 1.—Appearance of patient June 15, 1938. Note the short, stocky build with female distribution of pubic hair

There was a rudimentary vagina 6 cm. in length and about 1 cm. below the penis (fig. 3). A well developed prostate could be felt by rectal examination. Physical examination was otherwise negative.

Laboratory examination revealed that the blood, urine and chemistry of the blood were normal; the Wassermann reaction was negative. The blood pressure was 110 systolic, 72 diastolic. The basal metabolism was plus 10 per cent.

X-ray examination of the skull was essentially negative; that of the chest and urinary tract was also negative. There was no suggestion of an adrenal tumor.

It was decided that the patient was of the male sex and he was therefore rechristened Eugene, he was sent away for two weeks, his hair was cut so that it conformed to the masculine type and he donned long trousers.

Beginning Dec. 22, 1932, Dr. Ballin performed a series of corrective plastic operations. In the first stage the chordee was corrected; a constricting band between the corpora cavernosa was excised which permitted straightening of the penis. Jan. 17, 1933, a plastic operation on the glandular part of the urethra was performed, and June 24 the fistula which had formed posterior to the glans was operated on. June 5, 1934, an anterior urethra was constructed from the skin flaps of the posterior aspect of the penis. This urethra was constructed over a rubber catheter but was not connected to the original orifice of the bladder. Sounds were passed at periodic intervals every two or three weeks up to the present. His condition has been very satisfactory with this series of operations except for the fact that cystitis has persisted.



Fig. 2.—Showing scrotal halves with vaginal opening

April 27, 1938, an acute appendicitis developed and on April 28 an acutely inflamed appendix was removed by one of us (Dr. Allen). The remainder of the abdomen was carefully examined and a small uterus was found with bilateral tubes and normally developed ovaries with the fimbriated ends of the tubes found patent. No rudimentary testicles were found. He made an uneventful recovery.

Gonadotropic assay of the urine was attempted several times but, because of bacterial infection present in the urine, all animals used in the tests died.

As he had reached the age of 18, a discussion with the patient concerning his psychosexual aspect was undertaken. He stated that he has always liked girls and for the last two years has had erections. He has had frequent orgasms with emissions, the discharge coming through the perineal urethra. Several specimens of this discharge were collected but no spermatozoa were found, nor were there any spermatozoa in the urine collected immediately after the discharge. He masturbated quite frequently and became sexually excited very easily. He expressed a desire to marry in the future but felt embarrassed because he had to sit down to urinate. This was his only complaint. He shaved once a week, for there was but a sparse growth of hair present on his face, being more like the "down of youth."

He was rather quiet in his speech, the voice being deeply masculine. He was of a retiring nature and it was difficult to have him discuss his case freely; he cooperated well in the examinations.

COMMENT

This patient would fall in the group termed by Klebs [2] as pseudohermaphroditismus masculinus internus. In this group, in addition to male sex organs, tubes, uterus and vagina have

From the Department of Medicine, Harper Hospital and Wayne University, and the Department of Surgery, Harper Hospital.

1. Young, Hugh: Genital Abnormalities, Hermaphroditism and Related Adrenal Diseases, Baltimore, Williams & Wilkins Company, 1937.

2. Klebs, cited by Young.[1]

also developed. According to Creevy,[3] one can classify any pseudohermaphrodite by the use of two adjectives: The first (masculine or feminine) indicates the nature of the sex gland. The second (external or internal, complete) indicates whether it is the sex of the internal or of the external or of both groups of genitalia that differs from that of the gonad.

Rubovits and Saphir,[4] in reporting their case of intersexuality, say: "Our microscopic evidence of testicular tubular atrophy and absence of spermatogenesis is enough to rule out the diagnosis of true hermaphroditism and to confirm again the fact that true hermaphroditism never has been found in man." Young,[1] on the other hand, states that his is the ninth accepted case of hermaphroditismus verus on record.

Psychically the patient considered himself as belonging to the male sex and was fond of the females. He says that he "feels mixed up" because he was reared as a girl and was "changed over." He has desires for intercourse with females, has erections and a discharge no doubt prostatic in origin, since no spermatozoa were ever found in the discharge or in the urine passed immediately after the discharge. No trace of a testicle could be found at operation.

His build is distinctly masculine, as shown in figure 1. His voice is deeply masculine and was present at the age of 12, indicating a well developed cartilaginous larynx. He is only 63 inches (160 cm.) in height, showing that the union and



Fig 3.—Forceps in vaginal opening.

ossification of the epiphyses took place prematurely. His appearance is very much like that seen in achondroplastic dwarfs with short muscular arms and legs.

SUMMARY

The case of intersexuality here reported is classified according to the Klebs grouping as pseudohermaphroditismus masculinus internus. In this group the male individual has also tubes, a uterus and a vagina. Our patient had, in addition, well developed ovaries. No testicles were seen or palpated.

The prostate was well developed. The patient had been reared as a girl until the age of 12 years, when he was rechristened with a masculine name and has since lived as a male. His sexual inclination is toward the female sex. He has erections and orgasms with a prostatic discharge through a perineal urethra. Micturition can be accomplished only in the sitting position.

964 Fisher Building.

3 Creevy, C. D.: Pseudohermaphroditism: Report of Five Cases, Internat. S. Digest **16**: 195-212 (Oct.) 1933.

4 Rubovits, W. H., and Saphir, William: Intersexuality, J. A. M. A. **110**: 1823-1826 (May 28) 1938.

DEATH FROM GRANULOCYTOPENIA AFTER SULFANILAMIDE THERAPY

PHILIP CORR, M.D., AND RALPH N. ROOT, M.D., RIVERSIDE, CALIF.

Sulfanilamide is such a valuable drug that it is being used very widely and with perhaps some lack of caution. For this reason it seems wise to report another fatal case to the small series of severe granulocytopenias resulting presumably from its use.

REPORT OF CASE

Mrs. M. S., white, American, aged 22, entered the Riverside County Hospital Sept. 19, 1938, because of a severe throat infection of about two weeks' duration. There had been a high fever with vomiting for two days. At the time of entrance into the hospital there was no other relevant history.

On physical examination at that time the patient was well developed and well nourished and appeared acutely ill. The temperature was 104.6 F., the pulse 136 and the respiratory rate 28. A general physical examination was done, examination of the vagina and rectum being omitted; the following observations were made: There were several superficial ulcerated areas about the lips. A few white patches were noted on the gums. The breath was foul. The tonsils were moderately enlarged and covered with a grayish, necrotic membrane. No bleeding was noted on traumatization of the membrane. The pharynx was injected. There was a mild anterior cervical adenitis bilaterally. On the posterior surface of the left hand between the first and second fingers was a small linear abrasion, surrounded by a small area of inflammation.

A smear from the throat revealed many diphtheria-like organisms. On the basis of this report 65,000 units of diphtheria antitoxin was given promptly. The following day culture of material from the throat was negative for diphtheria and the smear was reported negative for diphtheria. Numerous fusiform bacilli with a few spirilla were noted.

On the day of entrance the laboratory reported the hemoglobin content to be 68 per cent, with 3,120,000 red blood cells, 800 white blood cells with 8 per cent polymorphonuclear neutrophils, 2 per cent eosinophils and 90 per cent lymphocytes. The condition was then recognized as agranulocytic angina. Pentnucleotide was given intramuscularly in four doses of 10 cc. between meals on September 20 and 21. A transfusion of 550 cc. of whole citrated blood was given September 21.

September 20, the day after admission to the hospital, the white blood cell count improved to 1,100 per cubic centimeter with 48 per cent lymphocytes and 52 per cent polymorphonuclear neutrophils. The following day, the day of the patient's death, the white blood cell count was 2,000 with 56 per cent lymphocytes and 44 per cent neutrophils.

The patient's temperature remained around 103.6 to 105 F. until two days after her entrance into the hospital, when it gradually rose to 107.8 (rectal) before death. She was delirious much of the time the last day. At the time of death the small inflammatory lesion of the left hand amounted to a cellulitis involving most of the left hand posteriorly.

After repeated questioning by both of us the patient finally admitted, on the day of her death, that she had taken some tablets for leukorrhea. After this admission it was found that on Aug. 27, 1938, she had taken 80 grains (5 Gm.) of sulfanilamide, repeating this dose the following day. She then took 40 grains (2.6 Gm.) a day for six days and then 20 grains (1.3 Gm.) a day for seven days, the last tablets being taken September 11, eight days before she entered the hospital. Altogether 540 grains (35 Gm.) was given in a period of fifteen days by an osteopathic physician. No check was made of the blood count until entrance into the hospital, and no mention

was made by this practitioner of the medicine given when he sent the patient to the county hospital as probably having diphtheria.

The Kahn test was strongly positive, the report being made the day after the patient's death. A blood culture was negative after ten days' incubation. The urinalysis on entrance revealed a heavy trace of albumin, with a negative sugar reaction, from 6 to 8 white blood cells per high power field, and a markedly positive acetone reaction.

Autopsy was done by one of us (R. R.) on the embalmed body sixteen hours after death. There was a soft, nonpitting swelling of the dorsum of the left hand. There was an abrasion between the first and second fingers of the left hand with considerable dark bluish discoloration in that region. There was moderate swelling of the neck with palpable lymph nodes bilaterally. No other lymphadenopathy was noted.

When the pleural cavity was opened no free fluid was encountered, and no adhesions were noted. The pleurae showed evidence of some inflammation. There were several dark purplish hemorrhagic areas seen on the surface of the lungs, most marked in the right upper lobe. These were from 1 to 5 cm. in diameter and on cut section appeared dry, rough and raised. They were not limited to the surface and were not wedge shaped. There was some evidence of necrosis present in the centers. Otherwise the lungs were essentially normal. The pericardium was markedly injected and there were several small hemorrhagic areas. No abnormal amount of fluid was seen in the pericardial sac. The heart was not enlarged. The heart muscle was firm and of good tone, while its chambers, valves and vessels showed no abnormalities.

No free fluid was found in the abdominal cavity. The peritoneum was white and glistening. No adhesions were present. The liver appeared congested and there was a small dark area noted on the anterior surface of the right lobe which was soft and necrotic on cut section, but no free pus was present. The spleen was soft and moderately enlarged and had a smooth capsule. There was no evidence of abscess or of infarction. The stomach was dilated but essentially normal. The small and large intestine showed no abnormalities. The kidneys were moderately enlarged. Thin capsules stripped with ease, revealing congested surfaces. The parenchyma was poorly outlined. There was no dilatation of the ureters. No inflammation of the bladder was noted. The tubes and surrounding tissues were markedly congested and thickened, but no exudate was present. The ovaries were essentially normal. The uterus was small.

Sections of tissue from various organs were removed and examined by Dr. Oran I. Cutler of Loma Linda. His report showed the following:

Microscopic Examination.—The wall of the fallopian tube was congested but there was practically no scarring and no leukocytic infiltration was present. There was edema of the lung, and fairly numerous heart disease cells were present. In one section there were many masses of bacteria but no leukocytic reaction. In the ovaries there were some cysts lined with tiny dark cells. The kidney showed no definite pathologic changes. The pulp of the spleen was loose and relatively acellular. The liver showed some cloudy swelling.

The final diagnosis was agranulocytic angina caused presumably by sulfanilamide.

There was serologic evidence of syphilis.

COMMENT

Nine deaths have previously been recorded in the literature from agranulocytosis apparently caused by sulfanilamide according to a compilation by Kracke [1] in October 1938. A few more cases have been recorded in which recovery has taken place. Many more have probably occurred—some unrecognized, some unreported. With the increasing use of this valuable drug, more cases may be expected.

It is assumed that the drug, added to some unknown factor, produces a maturation arrest of the granulopoietic tissues.

There should be some simple means of avoiding this grave complication. One suggestion is commonly made [2] to have repeated frequent blood counts. This is an excellent suggestion and should be given serious consideration. However, if followed rigidly and as a routine by all those giving sulfanilamide it would probably cost many more lives by restriction of the use of sulfanilamide than it would save by prevention of agranulocytic deaths, which are apparently very rare. In the case of agranulocytosis from aminopyrine, it is relatively easy to solve the problem by substituting some other similar drug. As yet we have not found a comparatively effective, relatively harmless substitute for sulfanilamide.

Even with frequent blood counts it has not been proved that this will prevent deaths from agranulocytosis. In Young's [3] case examination of the blood five days before death failed to reveal an impending granulocytopenia, although the white blood count was reduced from 12,000 to 7,800. The granulocytopenia developed in this case four days after the sulfanilamide was discontinued.

A second suggestion has been made which should receive serious consideration, i. e. that any patient having toxic symptoms of any nature should (1) be denied further use of the drug or (2) should be watched very closely. This would seem to be an excellent rule to follow. Further use of the drug should be denied if the condition being treated is not of major seriousness, and the policy of strict observation should be enforced with blood counts every other day if sulfanilamide therapy is urgent.

A third point in preventing agranulocytic complications might be made concerning the dosage. In an adult the smallest dose of sulfanilamide given preceding the onset of agranulocytosis was 25 Gm., and in that case it was probable that the patient had taken more. In practically all the other cases reported 35 Gm. or more had been ingested in a period of two weeks or more. With our present information we might say that the general practitioner might safely give up to 20 Gm. of sulfanilamide before being concerned about agranulocytosis. That dosage may well care for many of the simpler infections treated with this drug.

This case further substantiates the causal relationship between sulfanilamide therapy and agranulocytosis.

1. Kracke, R. R.: Relation of Drug Therapy to Neutropenic States, J. A. M. A. **111**: 1255-1259 (Oct. 1) 1938.
2. Sulfanilamide and the Blood, editorial, Ann. Int. Med. **12**: 725 (Nov.) 1938.
3. Young, C. J.: Agranulocytosis and Para-Amino-Benzene-Sulfanilamide, Brit. M. J. **2**: 105 (July 17) 1937.

NICOTINE POISONING WITH A SALT OF NICOTINE

A. F. WAGNER, M.D., AND MILES E. DRAKE, PH.D.
LOS ANGELES

The reported instances of fatal nicotine poisoning according to Webster [1] and to Beeman and Hunter [2] are relatively infrequent. The nicotine insecticides are the usual preparations of nicotine used for suicidal purposes. To our knowledge there have been no reports of poisoning with a dry salt of nicotine.

The case reported here was one of suicide which came to the Los Angeles County coroner. The autopsy revealed no evident cause of death. The viscera were therefore sent to the county chemist for analysis.

Following the usual routine for extracting alkaloids there was left, after evaporation of the alkaline ether extract of the stomach contents, a considerable quantity of white crystalline material. This white residue was purified and proved to be nicotine by the mercury bichloride and gold chloride microchemical tests and this was confirmed by biologic tests on frogs. Chemical examination showed that the nicotine salt was not the sulfate or hydrochloride but the tartrate. Later crystals of nicotine tartrate were identified in some cigarets found among the effects of the deceased. As the patient was a pharmaceutical chemist and had access to the salts of nicotine, one may readily understand how such a little used salt of nicotine was employed in this instance.

Dr. Wagner is autopsy surgeon, Los Angeles County; Dr. Drake is assistant to the county chemist.

1. Webster, R. W.: Legal Medicine and Toxicology, Philadelphia, W. B. Saunders Company, 1930, p. 618.
2. Beeman, J. A., and Hunter, W. C.: Fatal Nicotine Poisoning, Arch. Path. **24**: 481 (Oct.) 1937.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1938

TWENTY-SEVENTH ANNUAL REPORT

The means employed for obtaining data for this report were described last year. A communication was addressed to the health officer of each of the ninety-three cities, requesting the number of deaths from typhoid both among residents and among nonresidents which were recorded for 1938. The difficulty of obtaining an adequate estimate of population continues and will harass the public health official until the 1940 census has been completed. In all instances the local estimate when furnished by the health officer has been used. There are some who feel that their cities have grown slightly during the past years and others take credit for a decrease in population. Study indicates that in no instance is a grave statistical error committed by using the local estimate rather than falling back on the 1930 census figures. It is hoped that after the 1940 figures become available these tables can be revised, but even then it is anticipated that the corrections will be of only a minor character.

Paratyphoid has again been excluded. In tables 1 to 8 inclusive (as well as in table 10) a special note has been made of cities in which all deaths occur among nonresidents. Similar notation has been added for the death rates for 1936 and 1937 but in no instance for preceding years. Another symbol has been used to indicate those cities in which more than one third of the reported deaths were stated to have been among nonresidents.

Special attention is called to the cities listed in table 9 which report no typhoid death during the past two years. Bridgeport reports no death in five years, Fort Wayne no death in four years, South Bend and Utica no death in three years. Attention is also directed to the seven cities (Toledo, Hartford, Syracuse, Worcester, Springfield, Evansville and Camden) which are placed among those of first rank rather than on the honor roll in table 10 merely because they have been charged with deaths among nonresidents. It is quite appropriate to think of these cities as belonging in the honor group. Local circumstances beyond the control of the public health officer frequently require the hospitalization in large cities of cases which belong in the surrounding rural communities. This same comment applies to those cities in which a relatively high share of the typhoid deaths occurred among nonresidents.

Seven of the large New England cities report no death from typhoid in 1938 (table 1). Only four of these cities (Bridgeport, Fall River, Lynn, New Bedford) were in this same honor group in 1937. Bridgeport has extended its good record to five years. Somerville, which last year recorded no death for four years in succession, reports one death among residents in 1938. Springfield, after passing through a period of three successive years with no death among residents, reports one death among nonresidents in 1938. Providence reports no death in 1938 among twelve resident patients. Three of these cases occurred in one family and are attributed to the fact that children were playing near an old privy. Of two deaths reported from New Haven, one occurred in a nonresident. Of five deaths reported from Boston, three were among nonresidents. Hartford, with but one death and that in a nonresident, reports that in 1936, during the Connecticut River flood, 97,334 typhoid inoculations were given and that during the 1938 flood 4,435 such protective treatments were administered to Hartford residents. The New England cities as a whole (population 2,645,438), although reporting a rate as low as that for 1937, have lost first place among the grouped cities (table 13).

TABLE 1.—*Death Rates of Fourteen Cities in New England States from Typhoid per Hundred Thousand of Population*

	1938	1937	1936	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Bridgeport	0.0	0.0	0.0	0.3	0.5	2.2	4.8	5.0	10.3
Fall River	0.0	0.0	0.9	0.2*	2.2	2.3	8.5	13.4	13.5
Lynn	0.0	0.0	1.0	0.2	1.5	1.6	3.9	7.2	14.1
New Bedford	0.0	0.0	1.8	1.1*	1.5	1.7	6.0	15.0	16.1
Providence	0.0	0.4	0.8	1.1	1.3	1.8	3.8	8.7	21.5
Cambridge	0.0	0.8	0.0	0.9	2.1	4.3	2.5	4.0	9.8
Lowell	0.0	1.0	1.0	1.0*	2.6	2.4	5.2	10.2	13.9
Worcester	0.5*	0.5*	0.0	0.6	1.0	2.3	3.5	5.0	11.9
Hartford	0.5*	1.1	0.5	1.2	1.3	2.5	6.0	15.0	19.0
Boston	0.6†	0.4*	0.1*	0.6	1.2	2.2	2.5	9.0	16.0
Springfield	0.7*	0.7*	0.0	1.0	0.4	2.0	4.4	17.6	19.9
Waterbury	0.9	0.0	0.0	0.4	1.2	1.0	8.0	18.8	
Somerville	1.0	0.0	0.0	0.4	1.3	1.6	2.8	7.9	12.1
New Haven	1.2†	1.2	1.2	0.7	0.6	4.4	6.8	18.2	30.8

* All typhoid deaths were stated to be in nonresidents
* Rate computed from population as of April 1, 1930, as no estimate for July 1, 1933, was made by the Census Bureau
† One third or more of the reported typhoid deaths were stated to be in nonresidents

Seven of the large New England cities report no death from typhoid in 1938 (table 1). Only four of these cities (Bridgeport, Fall River, Lynn, New Bedford) were in this same honor group in 1937. Bridgeport has extended its good record to five years. Somerville, which last year recorded no death for four years in succession, reports one death among residents in 1938. Springfield, after passing through a period of three successive years with no death among residents, reports one death among nonresidents in 1938. Providence reports no death in 1938 among twelve resident patients. Three of these cases occurred in one family and are attributed to the fact that children were playing near an old privy. Of two deaths reported from New Haven, one occurred in a nonresident. Of five deaths reported from Boston, three were among nonresidents. Hartford, with but one death and that in a nonresident, reports that in 1936, during the Connecticut River flood, 97,334 typhoid inoculations were given and that during the 1938 flood 4,435 such protective treatments were administered to Hartford residents. The New England cities as a whole (population 2,645,438), although reporting a rate as low as that for 1937, have lost first place among the grouped cities (table 13).

TABLE 2.—*Death Rates of Eighteen Cities in Middle Atlantic States from Typhoid per Hundred Thousand of Population*

	1938	1937	1936	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Utica	0.0	0.0	0.0	0.6	1.1	3.9#	.	.	.
Reading	0.0	0.0	1.8	0.4	1.6	6.0	10.0	31.9	42.0
Buffalo	0.0	0.2*	0.3	0.6	2.7	3.9	8.1	15.4	22.8
Scranton	0.6¶	0.7*¶	0.6¶‡	1.4	1.8	2.4	3.8	9.3	31.5
Erie	0.0	0.8*	0.8*	1.0	0.9	2.3	6.9	49.0	46.6
Elizabeth	0.0	0.8	0.8	0.9	1.6	2.4	3.3	8.0	16.6
Rochester	0.3	0.0	0.6†	0.4	1.7	2.1	2.9	9.6	12.8
New York	0.3	0.3	0.4	0.8	1.3	2.6	3.2	8.0	13.5
Newark	*0.4*	*0.0*	*0.2*	*0.3*	*0.9*	2.3	3.3	6.8	14.6
Syracuse	0.5*	0.0	0.0	0.8	0.8	2.3	7.7	12.3	15.6
Paterson	0.7	0.0	0.7	0.9	1.0	3.3	4.1	9.1	19.3
Yonkers	0.7	0.0	0.7‖	0.7	0.5	1.7	4.8	5.0	10.3
Philadelphia	0.7¶	1.4	0.7	0.9	1.1	2.2	4.9	11.2	41.7
Jersey City	0.9	0.3	0.6*	0.2	0.9	2.7	4.5	7.2	12.6
Pittsburgh	0.9†	0.7†	0.7†	0.9	2.4	3.9	7.7	15.9	65.0
Albany	1.4	1.3†	1.5	1.1	1.8	5.6	8.0	18.6	17.4
Camden	1.6*	1.6	0.8	2.8	4.4	5.9	4.9	4.5	4.0
Trenton	2.4†	0.8*	0.8*	1.1	2.1	8.2	8.6	22.3	28.1

* All typhoid deaths were stated to be in nonresidents
† One third or more of the reported typhoid deaths were stated to be in nonresidents
Incomplete data
* Typhoid deaths furnished by Pennsylvania Department of Health, Harrisburg
‡ Rate computed from 1930 census population, as no local estimate was given
‖ Corrected rate. In review for 1936, Yonkers reported cases instead of deaths

The lowest rate, of 0.35, is reported from the East North Central states, while second place goes to the West North Central cities and third place to the Middle Atlantic cities. In the New England cities there were recorded twelve deaths in 1938, a number identical with that of 1937.

The Middle Atlantic states have a group rate (0.44) which is significantly lower than that of 1937 (0.51). The 1938 rate is slightly below that of the New England

The preceding articles in this series were published in THE JOURNAL May 31, 1913, p. 1702, May 9, 1914, p. 1473, April 17, 1915, p. 1322, April 22, 1916, p. 1305, March 17, 1917, p. 845, March 16, 1918, p. 777, April 5, 1919, p. 997, March 6, 1920, p. 672, March 26, 1921, p. 860, March 25, 1922, p. 890, March 10, 1923, p. 691, Feb. 2, 1924, p. 389, March 14, 1925, p. 813, March 27, 1926, p. 948, April 9, 1927, p. 1148, May 19, 1928, p. 1624, May 18, 1929, p. 1674, May 17, 1930, p. 1574, May 9, 1931, p. 1576, April 30, 1932, p. 1550, May 13, 1933, p. 1491, May 19, 1934, p. 1677, June 8, 1935, p. 2093, June 6, 1936, p. 1983, June 19, 1937, p. 2118, and July 30, 1938, p. 414

cities and is nearly half the rate of the Middle Atlantic cities for the quinquennial period 1931-1935 (0.80). There has been no death recorded in Utica for the past three years Syracuse continued to hold her place of honor in that there was recorded no death among

TABLE 3.—*Death Rates of Nine Cities in South Atlantic States from Typhoid per Hundred Thousand of Population*

	1938	1937	1936	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Norfolk	0.8	0.8	0.0	4.2	2.2	2.8	8.8	21.7	42.1
Atlanta	0.9†	1.9†	3.2†	7.2	11.1	14.5	14.2	31.4	58.4
Washington	1.0†	1.9	1.6	2.6	2.8	5.4	9.5	17.2	36.7
Baltimore	1.5†	1.2	0.9	1.4	3.2	4.0	11.8	23.7	35.1
Tampa	2.0†	0.0	0.0	3.0	3.8	19.1	43.9#		
Wilmington	2.7	1.8	0.9	1.5	3.1	4.7	25.8#	23.2#	3.0
Richmond	2.7†	3.2†	2.7	2.5	1.9	5.7	9.7	15.7	34.0
Miami	3.6†	6.3	3.1†	2.2	3.5				
Jacksonville	5.2	4.0	1.3	1.7	4.4				

Incomplete data
† One third or more of the reported typhoid deaths were stated to be in nonresidents.

residents in 1938, but the record of this city has been somewhat embarrassed by the occurrence of one typhoid death among nonresidents in 1938. Six cities in this group report no typhoid death in 1938 There were seven such cities in 1937. Utica and Reading are the only two cities reporting no death in each of these two years Buffalo, Scranton, Erie and Syracuse record no death among residents during the past two years Scranton, as in the case of Springfield, has passed through five consecutive years with no death among residents Paterson, with no death in 1937, records one death among residents in 1938. Newark, with no death in 1937, reports two among residents in 1938 New York reports twenty-two deaths, of which twenty were among residents. Pittsburgh reports six deaths, three among residents Philadelphia reports fifteen deaths, all among residents In the group as a whole (population

TABLE 4.—*Death Rates of Eighteen Cities in East North Central States from Typhoid per Hundred Thousand of Population*

	1938	1937	1936	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Fort Wayne	0.0	0.0	0.0	2.2	4.2	12.9	7.3	.	
South Bend	0.0	0.0	0.0	0.7	.				
Milwaukee	0.0	0.0	0.3	0.2	0.8	1.6	6.5	13.6	27.0
Canton	0.0	0.0	1.0*	0.9	1.4	3.3	8.9		
Grand Rapids	0.0	1.0*	0.6*	0.2	1.0	1.9	9.1	20.5	29.7
Youngstown	0.0	1.1	1.1†	1.1	1.1	7.2	19.2	29.5	35.1
Peoria	0.0	1.7*	1.7*	0.9	0.2	3.7	5.7	16.4	15.7#
Detroit	0.2†	0.3	0.5	0.6	1.3	4.1	8.1	15.4	22.8
Chicago	0.3	0.3	0.3	0.4	0.6	1.4	2.4	8.2	15.8
Cleveland	0.3†	0.5	1.0	1.1	1.0	2.0	4.0	10.0	15.7
Toledo	0.3*	1.2*	1.0†	1.3	3.0	5.8	10.6	31.4	37.5
Columbus	0.3	1.5	3.7*	2.0	2.1	3.5	7.1	15.8	40.0
Akron	0.4	1.6†	0.8†	0.8	1.5	2.4	10.6	21.0	27.1#
Cincinnati	0.6	1.3†	1.9†	1.4	2.5	3.2	3.4	7.8	30.1
Evansville	0.9*	2.7†	0.0	1.9	6.2	5.0	17.5	32.0	35.0
Flint	1.2	3.0†	1.2	0.7	1.6	4.6	22.7	18.8	46.9
Indianapolis	1.3	1.3	0.8†	1.2	2.7	4.6	10.3	20.5	30.4
Dayton	1.3†	1.4†	1.8†	0.8	1.9	3.3	9.0	14.8	22.5

* All typhoid deaths were stated to be in nonresidents
† One third or more of the reported typhoid deaths were stated to be in nonresidents
Incomplete data
° Rate computed from 1930 census population, as no local estimate was given

13,469,996) there were fifty-nine deaths in 1938 compared with sixty-eight in the preceding year. There are two geographic areas which have a lower death rate for 1938, the East North Central and the West North Central.

The rate for the South Atlantic cities (*1.74*) is much improved over that of 1937 (1.96) but is not as low as that of 1936 (1.55). In these cities (population 2,638,626) there occurred forty-six deaths in 1938 and fifty-one in 1937. There was no city without a death in 1938, although six of the nine cities in this group report that one third or more of the deaths occurred among nonresidents. Baltimore reports thirteen deaths, eight among residents. It is reported that, in investigating sources of infection in typhoid cases, there were located sixteen carriers presumably responsible for twenty cases. Many cities in the South continue to be embarrassed by the high percentage of deaths among nonresidents. The large cities serve as hospital centers for the neighboring suburban and rural areas which are without adequate means of caring for the communicable diseases and which frequently suffer from the want of whole-time local public health supervision Of five deaths recorded for Richmond, four were

TABLE 5.—*Death Rates of Six Cities in East South Central States from Typhoid per Hundred Thousand of Population*

	1938	1937	1936	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Louisville	0.8†	0.6*	1.4†	2.3	3.7	4.9	9.7	19.7	52.7
Birmingham	1.7†	1.4	5.0*	3.9	8.0	10.8	31.5	41.3	41.7
Chattanooga	1.7	1.7	0.0	4.7	8.0	18.6	27.2	36.8#	
Memphis	3.1†	4.9†	4.7†	7.9	9.3	18.9	27.7	42.5	39.3
Knoxville	3.9	3.2	4.1	5.7	10.7	20.8	25.3#		
Nashville	4.9†	1.2*	4.4†	5.6	18.2	17.8	20.7	40.2	61.2

* All typhoid deaths were stated to be in nonresidents
† One third or more of the reported typhoid deaths were stated to be in nonresidents
Incomplete data
° Rate computed from 1930 census population, as no local estimate was given

TABLE 6.—*Death Rates of Nine Cities in West North Central States from Typhoid per Hundred Thousand of Population*

	1938	1937	1936	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Wichita	0.0	0.0	1.9	0.7	1.2	6.3			
Minneapolis	0.0	0.2*	0.0	0.8	0.8	1.9	5.0	10.6	32.1
Kansas City, Kan	0.0	0.8*	2.3	1.1	1.7	5.0	9.4	31.1	74.5#
Omaha	0.0	1.3	0.9*	0.9	1.3	3.3	5.7	14.9	49.7
St Louis	0.5	1.1†	0.8	1.6	2.1	3.9	6.5	12.1	14.7
St Paul	0.7	0.0	0.7	0.7	1.4	3.4	3.1	9.2	12.8
Des Moines	0.7	0.7	2.8	2.1	2.4	2.2	6.4	15.9	23.7
Kansas City, Mo	0.7†	1.4†	0.5	1.5	2.8	5.7	10.6	16.2	35.6
Duluth	1.0	0.0	0.0	1.0	1.1	1.7	4.4	19.8	45.5

* All typhoid deaths were stated to be in nonresidents
† One third or more of the reported typhoid deaths were stated to be in nonresidents
Incomplete data

among nonresidents; of six in Washington, two were among nonresidents Three deaths among nonresidents are included among the five deaths reported for Miami It is stated that for one nonresident death the infection was contracted prior to the arrival of the patient in Florida. Miami originally reported eight deaths for the year 1937. The director of health states that this should now be changed to six deaths for that year Of eight deaths recorded by Jacksonville, but one occurred in a nonresident. The health department reports that a plan is being developed to require inoculation of all food handlers against typhoid. This city continues to serve as a medical center for seven or eight nearby rural counties with no public health units. Such a unit has, however, recently been established in Duval County, which includes the territory immediately surrounding Jacksonville. After two consecutive years with no typhoid death, Tampa records one death among residents for two reported in 1938.

The East North Central cities (population 9,907,440) can boast of the best record for 1938 (rate 0.35). In 1937 there were sixty-one deaths reported from these

cities. In 1938 the number of deaths had dropped to thirty-five. There are seven cities which report no death and two additional cities (Toledo, Evansville) which record no death among residents. In addition to this there are three cities (Detroit, Cleveland, Dayton) in which one third or more of the reported cases were stated to be in nonresidents. Fort Wayne reports no typhoid death in four years, South Bend no death in three years, Milwaukee and Canton no death in two years. There has been no death among residents in Grand Rapids and Peoria during the past four years. Toledo reports no resident death in two years. Dayton records a significantly high proportion of deaths among nonresidents during each of the past three years. Of three deaths each in Cleveland and Detroit, one in each

TABLE 7.—*Death Rates of Eight Cities in West South Central States from Typhoid per Hundred Thousand of Population*

	1938	1937	1936	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Tulsa	0.6	0.0	0.7‡	1.1	8.3	16.2#	...	....	....
Oklahoma City	1.3	3.1	4.3‡	4.3	7.4#	...	...	....	....
San Antonio	2.3†	3.8	2.7	4.2	4.6	9.3	23.3	29.5	35.9
Fort Worth	2.7†	2.2	3.3	4.6	5.9	6.1	16.3#	11.9	27.8
Houston	3.1	2.0	3.8	3.2	4.8	7.6	14.2	38.1	49.5#
Dallas	4.3†	3.0*	1.5*‡	5.4	7.3	11.2	17.2	....	....
New Orleans	5.5†	2.3†	6.5†	9.6	9.9	11.6	17.5	20.9	35.6
El Paso	5.9	0.0	6.8‡	4.9	9.1	10.8	30.7	42.8	....

* All typhoid deaths were stated to be in nonresidents.
† One third or more of the reported typhoid deaths were stated to be in nonresidents.
Incomplete data.
‡ Rate computed from 1930 census population, as no local estimate was given.

TABLE 8.—*Death Rates of Eleven Cities in Mountain and Pacific States from Typhoid per Hundred Thousand of Population*

	1938	1937	1936	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Seattle	0.0	0.0	0.5	0.6	2.2	2.6	2.9	5.7	25.2
Tacoma	0.0	0.0	0.9	0.7	1.8	3.7	2.9	10.4	19.0
Portland	0.0	0.3	0.6	0.8	2.3	3.5	4.5	10.8	23.2
Salt Lake City	0.0	0.7	0.0	1.0	1.9	6.0	9.3	13.2	41.1
San Diego	0.0	1.6†	1.8†	1.3	1.0	1.6	7.9	17.0	10.8
Long Beach	0.6	0.0	0.6*	0.2	1.1	2.1#	...	....	....
Oakland	0.6†	0.3	0.3	1.0	1.2	2.0	3.8	8.7	21.5
Los Angeles	0.6†	0.7†	1.0†	0.8	1.5	3.0	3.6	10.7	19.0
San Francisco	0.7	0.6	0.3†	0.8	2.0	2.8	4.6	13.6	26.3
Denver	1.0	2.7	2.0	1.8	2.6	5.1	5.8	12.0	37.5
Spokane	2.4†	0.0	0.8	1.4	2.2	4.4	4.9	17.1	50.3

* All typhoid deaths were stated to be in nonresidents.
† One third or more of the reported typhoid deaths were stated to be in nonresidents.
Incomplete data.

city was of a nonresident. Chicago reports a total of twelve deaths, two of which were stated to be in nonresidents.

The six cities in the East South Central Group show an increase in the death rate (2.10 in 1937, 2.36 in 1938). This rate, however, is considerably below that of 1936 (3.35) and that of the quinquennial period 1931-1935 (4.81). The actual number of deaths in these six cities increased from twenty-eight in 1937 to thirty-two in 1938. No city in this group is without a death in 1938. The influence of the surrounding rural areas in contributing to the hospital load and thus to the death rate of the urban centers in the South is well illustrated by the fact that in Birmingham, Memphis and Nashville more than one third of the deaths were among nonresidents. Birmingham, with five deaths, reports two in nonresidents; Memphis, with nine deaths, records four in nonresidents; Nashville, with eight deaths, reports three in nonresidents. Chattanooga reports two deaths among residents, with a comment that in both instances the source of infection was outside the city. Special mention of the influence of the surrounding rural area and the Negro population to the death rate for Memphis was made in our report a year ago.

TABLE 9.—*Thirteen Cities with No Typhoid Death in 1937 and 1938*

Bridgeport*	Lynn	South Bend†
Canton	Milwaukee	Tacoma
Fall River	New Bedford	Utica†
Fort Wayne**	Reading	Wichita
	Seattle	

* No typhoid death in five years.
** No typhoid death in four years.
† No typhoid death in three years.

The West North Central group (population 2,785,688) reports a noteworthy reduction in the death rate (0.76 in 1937, 0.40 in 1938). There is but one group of cities (East North Central) which has a lower death rate. Four cities (Wichita, Minneapolis, Kansas City, Kan., Omaha) report no typhoid death in 1938 and the first three of these record no death among residents in 1937. Minneapolis has had no death in a resident during the past three years. Duluth, after two years with no death, now reports a single death in a resident. This death, however, is sufficient to move Duluth from the head to the bottom of the table. This is the only group in which there is no city with a death rate in

TABLE 10.—*Death Rates from Typhoid in 1938*

Honor Roll: No Typhoid Deaths (Twenty-Nine Cities)

Bridgeport	Lowell	Reading
Buffalo	Lynn	Salt Lake City
Cambridge	Milwaukee	San Diego
Canton	Minneapolis	Scranton
Elizabeth	New Bedford	Seattle
Erie	Omaha	South Bend
Fall River	Peoria	Tacoma
Fort Wayne	*Portland*	*Utica*
Grand Rapids	Providence	Wichita
Kansas City, Kan.		Youngstown

First Rank: from 0.1 to 1.9 Deaths per Hundred Thousand (Forty-Eight Cities)

Detroit	0.2†	Los Angeles	0.6†	Pittsburgh	0.9†
Chicago	0.3	Oakland	0.6†	Waterbury	0.9
Cleveland	0.3†	Tulsa	0.6	Denver	1.0
Columbus	0.3	Des Moines	0.7	Duluth	1.0
New York	0.3	Kansas City, Mo.	0.7†	Somerville	1.0
Rochester	0.3	Paterson	0.7	Washington	1.0†
Toledo	0.3*	Philadelphia	0.7	Flint	1.2
Akron	0.4	San Francisco	0.7	New Haven	1.2†
Newark	0.4	Springfield	0.7*	Dayton	1.3†
Hartford	0.5*	St. Paul	0.7	Indianapolis	1.3
St. Louis	0.5	Yonkers	0.7	Oklahoma City	1.3
Syracuse	0.5*	Louisville	0.8†	Albany	1.4
Worcester	0.5*	Norfolk	0.8	Baltimore	1.5†
Boston	0.6†	Atlanta	0.9†	Camden	1.6*
Cincinnati	0.6	Evansville	0.9*	Birmingham	1.7†
Long Beach	0.6	Jersey City	0.9	Chattanooga	1.7

Second Rank: from 2.0 to 4.9 (Thirteen Cities)

Tampa	2.0†	Fort Worth	2.7†	Miami	3.6†
San Antonio	2.3	Richmond	2.7†	Knoxville	3.9
Spokane	2.4†	Wilmington	2.7	Dallas	4.3†
Trenton	2.4†	Houston	3.1	Nashville	4.9†
		Memphis	3.1†		

Third Rank: from 5.0 to 5.9 (Three Cities)

Jacksonville	5.2
New Orleans	5.5†
El Paso	5.9

* All typhoid deaths were stated to be in nonresidents.
† One third or more of the reported typhoid deaths were stated to be in nonresidents.

excess of 1.0. Not only do these cities as a group have a low death rate but actually the lowest number of deaths. There were eleven deaths in 1938, compared with twenty-one in 1937. The Iowa State Health Department reports that no statistical correction is as yet available regarding deaths among nonresidents and consequently such information is not included in the

report for Des Moines. It is likely, however, that this same error might creep into the statistics of many other cities widely scattered throughout the United States.

The eight cities of the West South Central group did not fare so well. Here the rate increased from

TABLE 11.—*Number of Cities with Various Typhoid Death Rates*

	No. of Cities	100 and Over	50 to 99	20 to 49	10 to 19	01 to 09	00
1906-1910	77	75	2	0	0	0	0
1911-1915	79	58	19	2	0	0	0
1916-1920	84	22	32	30	0	0	0
1921-1925	89	12	17	48	12	0	0
1926-1930	92	3	10	30	37	12	0
1931-1935	93	0	6	17	28	42	0
1930	93	2	6	30	23	22	10
1931	93	2	6	23	28	22	12
1932	93	1	7	13	29	29	14
1933	93	0	7	18	19	33	16
1934	93	0	9	11	27	23	23
1935	93	0	7	15	18	29	24
1936	93	0	3	15	21	36	18
1937	93	0	1	13	26	26	27
1938	93	0	3	13	14	34	29

2.34 in 1937 to 3.52 in 1938. The actual number of deaths increased from forty-nine to seventy-four. The death rate increased in six of the eight cities, Oklahoma City and San Antonio being the only two with a lower

TABLE 12.—*Total Typhoid Rate for Seventy-Eight Cities 1910-1938* *

	Population	Typhoid Deaths	Typhoid Death Rate per 100,000
1910	22,573,435	4,637	20.54
1911	23,211,341	3,930	17.02
1912	23,835,399	3,132	13.14
1913	24,457,989	3,285	13.43
1914	25,091,112	2,781	11.08
1915	25,713,246	2,434	9.47
1916	26,257,550	2,191	8.34
1917	26,865,408	2,016	7.50
1918	27,086,696†	1,824†	6.73
1919	27,735,083†	1,151†	4.17
1920	28,244,878	1,088	3.85
1921	28,859,062	1,141	3.95
1922	29,473,246	963	3.26
1923	30,087,430	950	3.16
1924	30,701,614	943	3.07
1925	31,315,598	1,079	3.44
1926	31,929,782	907	2.84
1927	32,543,966	648	1.99
1928	31,158,150	628	1.89
1929	33,772,334	537	1.59
1930	34,386,717	554	1.61
1931	35,131,915	503	1.60
1932	35,691,815	442	1.24
1933	35,691,815	423	1.18
1934	35,401,715	413	1.17
1935	35,401,715	348	0.98‡
1936	36,216,404	336	0.9 §
1937	36,771,787	280	0.76#
1938	36,972,985	248	0.67##

* The following fifteen cities are omitted from this table because data for the full period are not available: Canton, Chattanooga, Dallas, Fort Wayne, Jacksonville, Knoxville, Long Beach, Miami, Oklahoma City, South Bend, Tampa, Tulsa, Utica, Wichita, Wilmington.

† Data for Fort Worth lacking.

‡ The rate for ninety-three cities in 1935 was 1.03 (total population 87,437,812, typhoid deaths 385), whereas in 1930 it was 1.64, and in 1933 and 1934 it was 1.24 and 1.25, respectively. The 1931-1935 average for the ninety-three cities is 1.31.

§ Rate for ninety-three cities in 1936 was 0.96 (total population 38,249,694, typhoid deaths 365).

Rate for ninety-three cities in 1937 was 0.82 (total population 38,885,435, typhoid deaths 318).

Rate for ninety-three cities in 1938 was 0.74 (total population 39,147,556, typhoid deaths 291).

Special Note.—Deaths for 1936 have been corrected, as Yonkers originally reported seven deaths and later corrected report to one death.

death rate. El Paso, with no death in 1937, reports a rate of 5.9 (six deaths) in 1938. All but one of these deaths are among residents. Oklahoma City records no data concerning deaths among nonresidents. Of six deaths in San Antonio, four were among residents; of eleven in Houston, nine were among residents; of twenty-nine in New Orleans, fourteen were among residents. With no death in a resident in 1936 and 1937, Dallas reports thirteen deaths for 1938, of which nine were among nonresidents.

The cities in the Mountain and Pacific states show a continued reduction in the rate (0.52 in 1938, 0.68 in 1937). There were recorded twenty-two deaths in 1938, twenty-eight deaths in 1937. In 1938 there were five cities with no death (Seattle, Tacoma, Portland, Salt Lake City, San Diego). Three additional cities (Oakland, Los Angeles, Spokane) record one third or more deaths which were in nonresidents. There was but one city with a rate in excess of 2.0 (Spokane). There were but three deaths in Spokane, two of which were among nonresidents. Two cities (Seattle, Tacoma) report no typhoid death in 1937 and 1938. Of five deaths in San Francisco, four were among residents. Of eight deaths in Los Angeles, five were among residents. Denver does not keep a record of deaths among nonresidents.

THE HONOR ROLL

The number of cities with no death from typhoid has increased to twenty-nine. In 1936 there were but eighteen such cities, in 1937 twenty-seven. Of particular significance are the data in table 9, which furnishes

TABLE 13.—*Total Typhoid Death Rate per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions*

	Population	Typhoid Deaths		Typhoid Death Rates				
		1938	1937	1938	1937	1931-1935	1926-1930	1921-1925
New England	2,645,438	12	12	0.45	0.45	0.70	1.31	2.45
Middle Atlantic	13,469,996	59	68	0.44	0.51	0.80	1.40	2.07
South Atlantic	2,638,626	46	51	1.74	1.96	2.70	4.50	7.01*
East North Central	9,607,440	35	61	0.35	0.62	0.75	1.29†	2.32†
East South Central	1,355,080	32	25	2.36	2.10	4.81	8.21	13.00
West North Central	2,785,688	11	21	0.40	0.76	1.24	1.82	3.43
West South Central	2,120,553	74	49	3.52	2.34	5.36	7.24	13.05§
Mountain and Pacific	4,220,735	22	28	0.52	0.68	0.88	1.89	2.33

* Lacks data for Jacksonville and Miami.

† Data for South Bend for 1925-1929 are not available.

‡ Lacks data for Oklahoma City in 1936.

§ Lacks data for Oklahoma City.

the names of thirteen cities with no typhoid death in 1937 and 1938. Bridgeport and Fort Wayne have continued their excellent records. While last year there was but one city in the third rank (*Miami*), and this city would not have been included in this rank had the correct number of deaths been recorded, in 1938 we find three cities in this group, only one of which reports a significant number of deaths among nonresidents. As already stated, several of the cities in the first rank would appear in the honor roll were they not charged with deaths in nonresidents. Table 11 continues to show a swing "to the right," although the number of cities in the group having death rates from 50 to 99 has increased from one to three.

NEW LOW RECORDS ATTAINED

For the seventy-eight cities (table 12) for which complete data are available since 1910, there occurred 248 deaths from typhoid in 1938, which is the lowest of record (280 in 1937, 336 in 1936). The rate for this group of cities is for the fourth consecutive year less than 1.0. The rate for the ninety-three cities studied in 1938 is also below 1.0 (0.74) and below the corresponding rate for 1937 (0.82). This annual review again showed a downward trend in the death rate from

typhoid in the large cities of the United States. No outbreak of epidemic proportion has been recorded in these cities. Routine vaccination of the population is not practiced except under flood conditions. However, in progressive communities vaccination is urged for contacts to cases and for persons who travel widely in countries where sanitary conditions are not of the best. There seems to be a trend in some places to encourage the inoculation of foodhandlers, especially in the Southern states. The noteworthy gains for 1938 have been made in the East North Central and West North Central cities. The New England and Middle Atlantic groups have, on the whole, maintained their excellent rates of many years' standing.

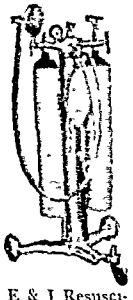
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

E & J RESUSCITATOR AND INHALATOR ACCEPTABLE

Manufacturer: E & J Manufacturing Company, 139 South Verdugo Road, Glendale, Calif.

The E & J Resuscitator and Inhalator may be used for producing artificial respiration by mechanical means or simply as an inhalator for providing a concentration of oxygen or a mixture of oxygen and carbon dioxide around the mouth and nostrils. The apparatus is available in three models, one portable and two for hospital service. The portable unit weighs 100 pounds complete with gas cylinders. The resuscitator side[1] of the appliance produces artificial respiration by setting up in the lungs a sequence of alternating positive and negative pressures. The stroke automatically adjusts itself within limits to the lung capacity of the patient. While both positive and negative pressures are set at the factory, the gas flow may be regulated by a control valve at the will of the operator. Since the gas volume is adjusted to the lung capacity of the adult to produce the proper number of respirations per minute, the same flow would cause a more rapid respiratory rate in a child with smaller lung capacity. A regulator control valve is placed on the apparatus, which enables the operator to reduce gradually the flow of oxygen, thus automatically reducing the number of respirations per minute.



E & J Resuscitator and Inhalator.

The inhalator side[2] of the apparatus supplies a constant flow of oxygen or oxygen and carbon dioxide mixture to the mouth and nostrils. The transfer from the resuscitator to the inhalator side of the device is accomplished by means of a lever, so that either one or the other technic is independently available.

The E & J Resuscitator and Inhalator is designed to be used in emergencies in which natural respiration has failed with resulting asphyxia. The portable unit may be employed by fire and police departments, by life guards and mine rescue squads, and by other trained organizations rendering first aid. The hospital unit is provided for such respiratory emergencies as arise in hospital practice.

When used as a resuscitator, gas pressure in the tank operates the pistons contained within the mechanism. A face mask is fitted tightly over the patient's nose and mouth after an "Airway" (a wire device for holding down the tongue to clear a passage to the trachea) is placed in the patient's mouth. Gas, after passing through and actuating the apparatus, enters the face mask through a hose and is carried into the trachea and lungs at a pressure of from 12 to 14 mm. of mercury. There is a safety valve on the mask which is set at the factory and releases at approximately 18 mm. of mercury. The gas is withdrawn under a smaller negative pressure of from 7 to 9 mm. of mercury below the atmospheric level. The exhaled gas returns through another hose to a separate cylinder, creating the vacuum in the mechanism, and is finally discharged into the atmosphere. Briefly, therefore, the resuscitator is operated by the energy of the gas stored in the tank under pressure, while the selfsame gas is used in the lungs for resuscitation purposes. If the throat is filled with mucus, an aspirator, a separate accessory, is available which utilizes the negative pressure phase of the resuscitator cycle to clear the air passages.

After natural breathing has resumed, by the turn of a lever the respirator is turned off and the inhalator turned on for such time as is deemed necessary. When the inhalator side is used, the gas passes from the tank through a regulating valve, thence into a rubber breathing bag and finally to the patient's mask. On exhalation, it passes through the auxiliary exhalation valve and out to the atmosphere. The inhalator side of the apparatus is similar in operation to other inhalators accepted by the Council.

In cleaning the apparatus, the firm recommends the use of 20 per cent aqueous solution of green soap, worked into a good lather, and the face cushion, celluloid mask, mask valve and hose leading to the apparatus should be scrubbed with this solution. Then the parts should be rinsed with clear water, and given a second washing with an aqueous solution 50 per cent alcohol and allowed to dry.

The evidence that has been made available indicates quite clearly that the machine has demonstrated its worth in trained hands. The critical data consisted of many reports on the use of the resuscitator in the fields of surgery and obstetrics.

It must be pointed out, however, that the process of blowing oxygen into the lungs and aspirating it has a reverse effect on the circulation from that of normal respiration. Normal respiration tends to facilitate the exchange of gases in the lung capillaries. When the lung is inflated, even at very moderate pressures, circulation through the lung capillaries is retarded for an instant, since the blood pressure in these capillaries is very small. Stoppage here necessarily affects the entire circulation. However, periodic stops last only a moment, since the peak pressure (14 mm. of mercury) is maintained for only a short part of the cycle.

Another point should be borne in mind. While artificial respiration has been maintained by systems of this type in physiologic laboratories where experiments are performed on animals with the chest opened, the pressure required for adequate ventilation in such cases is much less than that required to distend the lung when the diaphragm must be forced down against the pressure of the abdominal contents and the bony thorax distended by pressure exerted by the lung from within.

In accepting the apparatus the Council wishes to stress two points, namely: (*a*) no artificial resuscitator or inhalator should replace the training of medical men and first aid men in the prone pressure method of resuscitation; (*b*) it is very important that this machine be used by well trained operators who have received their instruction from competent physicians.

The acceptance of this apparatus, therefore, is not to be regarded as a recommendation to abandon prone pressure methods of artificial respiration. In cases needing resuscitation the prone pressure method should be instituted immediately pending the arrival of any type of resuscitator, inhalator, or respirator, providing the patient's condition permits.

It is manifestly impossible to apply prone pressure artificial respiration in all conditions which arise in medical practice, as instanced in surgical operation on the abdomen when respiration fails. In such cases a mechanical device for maintaining artificial respiration over short periods may be very desirable. Operators who are trained to use the mechanical resuscitator should also be equally well trained in the prone pressure method of artificial respiration.

In view of its findings, the Council on Physical Therapy has voted to accept the E & J Resuscitator and Inhalator for inclu-

1. Resuscitator, an apparatus for revivifying, reviving or restoring from apparent death or from unconsciousness.
2. Inhalator, an apparatus for facilitating the breathing or drawing in of gas or a spray.

sion in its list of accepted apparatus, with an understanding of the limitations and hazards of positive pressure resuscitators, with the expectation that it will be used only by professional or other adequately trained personnel.

RESUSCITATION

A Comment by the Secretary of the Council on Physical Therapy

Historical documents record that man has tried innumerable methods, in one form or another, of reviving victims of asphyxia. Probably the earliest record of an attempt to resuscitate is in the Bible. Here it is said that Elisha brought back to life the son of a Shunamite woman by breathing into the mouth of the child.

We find also that in the early ages men employed burning and cutting of the skin, used boiling water, burning oil, whipping and noise as means of reviving the victim, as well as less drastic procedures, such as the application of heat by warm clay or ashes and warm poultices.[1] Counter shock, contrast baths, electrical stimulation, ducking in water, and blows on the soles of the feet and at the region of the heart are recorded. Two unusual methods were the drawing of a couple of teeth and the administration of wine or brandy. Of these two, if the patient was lucky enough to be revived, undoubtedly he preferred the latter rather than the former method. Fumigation has been used, that is, blowing tobacco smoke or charcoal fumes into the mouth or into the rectum. The rolling methods were tried; for example, rolling the patient over and over like a barrel, rolling him in a barrel or rolling him on a barrel. Manipulation, such as moving the arms in and out or up and down, working the legs, applying pressure alternately to the stomach and then to the chest or turning the victim back and forth from side to back are also recorded. Other methods were laying the patient face down or on his back and lifting his hips up and down, and countless other methods. Such were some of the practices of medical antiquity.

One method, placing the patient in a prone position and, among other operations, applying pressure to the small of the back, has survived. It is known as the Schafer prone pressure method. Careful investigation of the physiology involved has led to its acceptance and recognition.

When oxygen was discovered, it was used for resuscitation. At the present time a mixture of oxygen and carbon dioxide gas is an acceptable method, since investigation has shown that carbon dioxide stimulates the respiratory centers.[2]

Concurrently with some of the aforementioned methods, mechanical means were introduced in the sixteenth century. So we learn that Paracelsus of Switzerland in 1530 was the first to make use of the common fireside bellows for introducing air into the lungs of the apparently drowned person. In 1776 John Hunter improved the bellows for filling the lungs with fresh air and withdrawing exhaled breath from the patient. This method appeared to be so useful in the opinion of the Royal Humane Society of London that it was adopted by that organization in 1782. In 1911 the pulmotor appeared on the market. This was an automatic pumping device energized by the compressed gas within the tanks, which introduced gas into the air passages and sucked it out.

The report of the Council on Physical Therapy in this issue on the E & J Resuscitator and Inhalator precedes this item. It is energized by compressed gas stored in the two tanks in the carrying case. By a positive and negative pressure created at the mouth and nose within a face mask, gas passes back and forth within the air passages. The device automatically regulates itself to the size of the lungs and is provided with safety appliances. For the past seven years the Council on Physical Therapy has given careful consideration to mechanical resuscitating apparatus and has accepted the Drinker and Emerson respirators, both adult and infant size. The Council has also considered and accepted inhalators of various makes which provide an atmosphere of oxygen and carbon dioxide at the nose and mouth of the victim. These appliances, such as the H-H Inhalator and the Davis and the B-K Inhalators, are used in conjunction with the Schafer prone pressure method of resuscitation.

There follows a communication from Dr. Yandell Henderson and the Council's reply. Dr. Henderson is a recognized authority in the field of resuscitation and is a champion of the Schafer prone pressure method of resuscitation and one of the originators of the H-H Inhalator. He has opposed mechanical methods of the blow and suck type of resuscitator. One of his reasons is that the promotion of this kind of resuscitation will have a tendency to depreciate the value of the Schafer prone pressure method. In accepting the E & J Resuscitator the Council points out most emphatically that acceptance is not a recommendation to abandon the Schafer prone pressure method but that safety organizations, Boy Scouts, Red Cross and all other first aid groups should be carefully instructed in the use of this valuable measure. It is very important, the Council states, that all resuscitators and inhalators be used by well trained operators who have received their instructions from competent physicians.

As an indication of the care which the Councils of the Association take in consideration of products, the E & J Resuscitator is an excellent example. The Council on Physical Therapy has considered this product for a period of several years. During this time there have been numerous charges and countercharges received from several sources and in most cases the arguments were sincere. In such a situation the Council is not to be deterred from its cardinal principle—that it will not accept an apparatus for inclusion in its list of accepted apparatus until it is satisfied by the evidence and unless the manufacturer limits its claims to what the Council considers true and justified. The Council has spent a great deal of time in going over painstakingly the evidence which has been presented, which involves mechanical construction, principles, physiology and respiration, and other material.

1. Fisher, Hart Ellis: The Evolution of Resuscitation, Transactions of National Safety Council, 1931.
2. Henderson, Yandell: Resuscitation, J. A. M. A. **103**:750 (Sept. 8), 834 (Sept. 15) 1934.

AN OPEN LETTER BY DR. YANDELL HENDERSON

To the Board of Trustees:—For some years past the American Medical Association has maintained a *Council on Physical* Therapy. Like the Council on Pharmacy and Chemistry, it is intended to afford the medical profession the technical advice that will maintain high standards of therapy and protect the public against harmful materials and methods. Yet in one of the most important fields of physical therapy—that of resuscitation—the influence of the Council, instead of being beneficial, is becoming extremely harmful. It is lowering standards and promoting methods and devices that will severely decrease the saving of life.

Three points require particular attention: 1. The Council on Physical Therapy is antagonizing a policy for general training in manual artificial respiration followed with marked success for many years by the American Red Cross. 2. It is approving apparatus that, if generally adopted, will seriously decrease the efficiency of the treatment of carbon monoxide poisoning and thereby largely increase the mortality. 3. It is tolerating and thereby virtually approving and promoting apparatus of the pulmotor type for application to the asphyxial newborn, which apparatus, if it works at all, administers a form of artificial respiration that tends rather to induce than to overcome atelectasis, and that in addition sometimes causes serious damage to the lungs.

I. Although I have no official authority to speak for the Red Cross, I have a reason for defending its methods of resuscitation, which I believe to be equally valid. Twenty-six years ago, in 1912, at the request of the director of the United States Bureau of Mines, the American Medical Association appointed a committee to investigate the subject of resuscitation from asphyxia by mine gases and, in particular, to recommend the best method of administering artificial respiration. The committee (generally referred to as the First Resuscitation Commission) included W. B. Cannon, chairman, G. W. Crile, Joseph Erlanger, S. J. Meltzer and myself. At the request of the National Electric Light Association this committee was enlarged by the addition of several electrical experts, including Elihu Thompson and A. E. Kennelly, to form the Second Resuscita-

tion Commission for the investigation of electric shock. Under both commissions we made very thorough investigations—among which I dealt particularly with manual artificial respiration; and on these investigations we based positive recommendations. These recommendations were at once adopted by the Bureau of Mines (Technical Paper 77, 1914), the United States Navy, the electric light industry and, most important of all, the American Red Cross. The chief recommendations were (1) the elimination of all mechanical appliances for giving artificial respiration under field conditions, and (2) universal training in the Schafer prone pressure method of artificial respiration. For the elimination of mechanical apparatus, of which four types were tested, several reasons were given: 1. At best such apparatus was found to be no more effective than the manual method. 2. A face mask frequently leaks and automatic apparatus often fails to operate as intended. 3. Experience proves that in any community where there is such apparatus the training in manual artificial respiration is neglected, the apparatus is sent for and the early moments of asphyxia, which are critical for the saving of life, are lost. 4. The form of respiration induced by the pulmotor, the appliance to which we devoted most careful consideration, was found to be distinctly unphysiologic and prone to induce atelectasis and to cause serious injury to the lungs.

In 1917 a third commission reviewed and generally confirmed these recommendations (*Science* **48**:563, 1918). Among its members were S. J. Meltzer, chairman, E. F. Du Bois, D. L. Edsall, W. H. Howell, Reid Hunt, C. A. Lauffer, J. W. Schereschewsky, G. N. Stewart, E. B. Vedder, C. H. Frazier and Yandell Henderson, and for the electrical industry Elihu Thompson, A. E. Kennelly, Wills Maclachlan and C. B. Scott. And in 1922 a fourth commission (*J. Indust. Hyg.* **6**:125, 1923), which included C. K. Drinker, chairman, W. B. Cannon, D. L. Edsall, H. W. Haggard, L. J. Henderson, Yandell Henderson, W. K. Lewis, F. W. Peabody and R. R. Sayers also disapproved mechanical artificial resuscitation devices, particularly those of the pulmotor type, and advocated general training in manual artificial respiration for use in such emergencies as drowning and electric shock. It was under this fourth commission that the treatment of carbon monoxide asphyxia by inhalation of a mixture of carbon dioxide with oxygen was developed and introduced (Drinker, C. K.: Carbon Monoxide Asphyxia, Oxford University Press, 1938. Henderson, Yandell: Adventures in Respiration, Baltimore: Williams & Wilkins Company, 1938).

Largely under the influence of the Red Cross, based on the reports of these commissions, more than 13 million policemen, firemen, boy scouts and others have been trained to administer manual artificial respiration and many lives are now thereby saved. It is deplorable that the influence of the Council on Physical Therapy should now be exerted against the recommendations of these commissions and against such training. Yet this influence is becoming effective, for a letter recently received asks me whether I advocate "resuscitators," by which name devices of the pulmotor type are now called, and notes "a strong tendency toward the use of resuscitators and elimination of the prone pressure method."

II. Having myself formerly served as a member of the Council on Physical Therapy, and having from time to time corresponded with its Chairman and Secretary, I have been led to conclude that the attitude of the Council in regard to the recommendations of these four commissions is not really one of opposition. It is merely one of ignorance. The Council is evidently unacquainted with the work that was done under these commissions. None of the members of the Council are specialists in the subject of resuscitation nor do they seem to realize that resuscitation is a very specialized subject. Each device that is submitted to the Council is merely referred to a referee; and while I was in the Council the reports of these referees, of whose names I was never informed, showed that their anonymous authors in many cases lacked both the general knowledge and the practical experience that the evaluation of any device in the field of resuscitation requires.

I will instance two such devices. One is an inhalator for the treatment of carbon monoxide asphyxia. When I wrote to the Secretary of the Council in regard to this device he replied "The Council has accepted the S. O. S. Inhalator put out by the Oxygen Equipment and Service Company of Chicago. This device, as you know, looks very much like other inhalators that have been accepted by the Council." Yet, in fact, this device is essentially different from and inferior to the inhalators now used by the rescue crews of city fire departments and other organizations. Those inhalators are particularly designed to administer a mixture of carbon dioxide with oxygen and to promote the rapid elimination of carbon monoxide by the avoidance of all rebreathing. This inhalator, on the contrary, can use only pure oxygen, for if carbon dioxide were added the small supply of oxygen in its little cylinders would be almost immediately exhausted. And it expressly provides for at least partial rebreathing, which will correspondingly prevent the elimination of carbon monoxide and prolong the asphyxia. It is, in fact, simply an oxygen inhalator like those used twenty years ago, before the modern treatment of asphyxia was developed.

The referee on this device was evidently unaware of the developments of recent years in regard to asphyxia and its treatment. And the Council in accepting his report either showed a similar degree of unawareness or else neglected to give the matter any serious consideration. The result of the approval of this device will be the loss of many lives that could and should be saved.

I venture therefore to suggest that, if the Council cannot devote the requisite knowledge, care and time to the examination of devices in the field of resuscitation, it could at least follow the lead and adopt the recommendations of another organization, namely the committee on safety of the American Gas Association. That association includes practically all of the city gas companies and is therefore vitally interested in holding the mortality from carbon monoxide asphyxia to a minimum. Its committee on safety does apply modern knowledge to this field and does devote the requisite time and care to its recommendations to afford the public the protection that it needs.

The other device to which I refer is the E & J Resuscitator. This device has been before the Council for about five years during which time its sales agents have continually claimed that it was about to be approved. And as two advertisements of it have appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (a full page advertisement on June 25, 1938, and previously a smaller one on May 7), and as it has been exhibited at the annual meeting of the Association, a formal approval would scarcely have been more effective in foisting this device on hospitals, bathing beaches and various other agencies concerned with resuscitation.

Yet this so-called "resuscitator" is to all intents and purposes simply a pulmotor under another name. All the objections that applied to the pulmotor apply equally to this device, and it is needless to rehearse them. But one additional objection must be mentioned. It arises from the interest that has developed in recent years in regard to the asphyxia and resuscitation of the newborn. The lungs at birth are in a state of atelectasis, and even in the normal child they are only gradually dilated. It should be obvious then that in the treatment of asphyxia of the newborn nothing should be done to collapse them. Yet in the artificial respiration produced by this "resuscitator" and similar apparatus of the pulmotor type not only inflation but also deflation is applied. Its action, as should be expected, tends therefore not to promote but rather to oppose the dilatation of the lungs and often causes serious injury, demonstrable at autopsy. After application of this apparatus the survival of the baby is in fact rare. How injurious the E & J Resuscitator may be is shown in a recent paper by Dr. F. N. Coryllos. Dr. Coryllos was himself a supporter of the value of this device for use in connection with thoracic surgical operations. Nevertheless he found that, when healthy dogs were submitted to artificial respiration by means of it, the lungs after a few hours were in several cases too far collapsed and damaged for the animals to survive (*Surg., Gynec. & Obst.* **66**:698 [April] 1938).

The case against this device could scarcely be clearer or stronger. Yet year after year goes by and the Council still hesitates to approve or disapprove while the device appears to have an increasing sale at bathing beaches and in the maternity wards of hospitals.

III. If these two devices stood by themselves, the case against them would scarcely justify so unusual a motion as this appeal over the heads of the Council on Physical Therapy to the Board of Trustees of the American Medical Association. But in fact there is probably no subject other than that of perpetual motion apparatus that exercises so strong a lure for ignorant inventors as that of restoring the dead to life. There is certain to be in future, as in the past, a long succession of devices invented for this purpose. And it is of literally vital importance that, if there is to be a Council on Physical Therapy and it is to pass on such devices, it should be competent and use competent means and agents. In particular, it should free itself from the popular but fallacious assumption on which the invention of all pulmotors, resuscitators and other artificial respiration devices is based that the restoration of respiration in a nonbreathing patient is like starting the motor of an automobile: in other words, that if the thorax is put through the movements of breathing by vigorous "cranking" it will pick up the rhythm and continue to run. In fact, on the contrary, natural respiration is induced only by chemical not mechanical conditions; and those conditions are the supply of oxygen and carbon dioxide through the blood from the lungs to the respiratory center in the base of the brain. It is for this reason that the inhalators used by the rescue crews as adjuncts to manual artificial respiration on cases of submersion and electric shock are superior to all apparatus of the pulmotor type. The fact that such apparatus is able to inflate and deflate a rubber doll is impressive only to those who are untrained in the physiology of respiration.

YANDELL HENDERSON, PH.D., New Haven, Conn.

THE COUNCIL ON PHYSICAL THERAPY VOTED TO ADOPT THE FOLLOWING REPLY.

HOWARD A. CARTER, Secretary.

REPLY TO THE OPEN LETTER FROM DR. YANDELL HENDERSON

The Council on Physical Therapy has devoted much time to the entire subject of resuscitation in relation to all types of respirators, resuscitators and inhalators.

Dr. Henderson's first charge is that the Council on Physical Therapy "is lowering standards and promoting methods and devices that will severely decrease the saving of life." The Council has on many occasions emphasized the importance of the Schafer prone pressure method of artificial respiration. In the booklet "Apparatus Accepted" the Council describes and promotes this life-saving measure. The Council will continue to publicize this important method and will vigorously combat any effort on the part of an institution or organization to discard it.

Dr. Henderson's second charge is that the Council "is approving apparatus that, if generally adopted, will seriously decrease the efficiency of the treatment of carbon monoxide poisoning and thereby largely increase the mortality." The Council has accepted the Drinker and Emerson types of respirators, which are of unquestionable value especially in infantile paralysis: the H-H Inhalator, the B-K Inhalator, and the Davis Inhalator, which functions on the same principle as the H-H Inhalator. All of these appliances have been on the Council's accepted list for several years.

Further on in the letter Dr. Henderson refers to the S. O. S. Inhalator. Although the Council has given consideration to this product, it has not released a report of acceptance on this unit and does not expect to until further evidence is submitted by the manufacturer to substantiate certain claims made. At present, therefore, this product stands neither accepted nor rejected. The firm has been asked to submit further evidence of its efficacy as, for example, a report of animal experiments definitely showing the amount of carbon monoxide present in the bag when the inhalator is being used in resuscitation.

The third charge is that the Council "is tolerating and thereby virtually approving and promoting apparatus of the pulmotor type for application to the asphyxial newborn, which apparatus, if it works at all, administers a form of artificial respiration that tends rather to induce than to overcome atelectasis, and that in addition sometimes causes serious damage to the lungs." Following this charge Dr. Henderson gives a detailed study of appointments of commissions by the Red Cross, American Medical Association, National Electric Light Association and engineering societies and a report of the findings of these commissions. He intimates that the Council is not familiar with the work of these commissions or their results and definitely states that the Council has no member or members familiar with the subject of resuscitation—"nor do they seem to realize that resuscitation is a very specialized subject." He further condemns the Council's method of referring these appliances to referees "of whose names I was never informed. . . ."

In reply the Council would state that it has made exhaustive studies of the E & J Resuscitator (the product to which Dr. Henderson refers later on in his letter) to satisfy itself that the apparatus was not of the old type pulmotor. The Council is thoroughly familiar with the work of the commissions to which Dr. Henderson refers and also with their reports concerning the Schafer prone pressure method of resuscitation, to the use of the inhalator type of apparatus and to the condemnation of the old type pulmotor.

Investigation indicates that the S. O. S. Inhalator has been used by several fire and police departments in the vicinity of Chicago with success. This product, therefore, is definitely a product in competition with accepted inhalators.

Furthermore, the Oxygen Equipment and Manufacturing Company is refilling tanks with carbon dioxide and oxygen mixture, which is the mixture furnished by the Mine Safety Appliances and marketed under the trade name of "Carbogen." (Carbogen is not accepted by the Council on Pharmacy and Chemistry.) The refilling of tanks has reduced the cost of this mixture, especially in the vicinity of Chicago. Furthermore, one of the charges of Dr. Henderson, that is, that the tanks are too small and that "its little cylinders would be almost immediately exhausted," is denied by the manufacturer, since the tanks are one-half the size of those furnished by the Mine Safety Appliances Company and other firms. The firm points out that a user of this equipment can lay in a supply of tanks and can, in fact, connect the unit to a large sized oxygen tank if the occasion arises.

The E & J Resuscitator and Inhalator was first discussed in Queries and Minor Notes in THE JOURNAL Nov. 16, 1929, page 1583. The reply condemned the E & J Resuscitator. In February 1934 the E & J Resuscitator and Inhalator was submitted to the Council for consideration. After investigation, a report of rejection was referred to the firm. The E & J Manufacturing Company pointed out that in its opinion the report was in error and submitted arguments that convinced the majority of the Council members that further investigation was indicated.

A leading chief surgeon of a large corporation, who had considerable experience with the E & J Resuscitator and Inhalator, not only wrote to the Council but made a trip to Chicago to interview the Chairman, the Secretary and one other member of the Council. He presented evidence showing that a number of these resuscitators were in use in various plants of which he was in charge and that they had rendered definite life-saving service in many instances.

The Council has selected specialists of known reputation to serve as referees for all inhalators and resuscitators. Since 1935 at least four referees, specialists in the field, have investigated independently the E & J Resuscitator and Inhalator and made reports to the Council.

During the year 1936 the E & J Manufacturing Company submitted evidence to the Council accumulated by the late Dr. Pol Coryllos. Dr. Coryllos's paper was published in *Surgery, Gynecology and Obstetrics* in April 1938 but the substance of the report, together with motion pictures, was furnished the Council in 1936. The work of Dr. Coryllos, in the opinion of the Council, was well done and convinced the members that the E & J Resuscitator and Inhalator was a safe appliance, that it had real life-saving value and that an injustice would have been done to its manufacturer if the original report of rejection had been published.

Thirty-nine different physicians of recognized professional ability were asked by the Council to submit reports of cases treated with the E & J Resuscitator. The vast majority of these reports were highly favorable to the resuscitator in spite of the fact that many of the patients were practically moribund at the time when resuscitation was initiated.

Finally, the Council had submitted to it a report of Dr. D. Ben Martinez, published in THE JOURNAL Aug. 14, 1937, in which he reported 500 cases of resuscitation of the newborn; the E & J Resuscitator was used in these cases.

A large midwestern fire department uses the E & J Resuscitator and Inhalator in preference to inhalators, giving as reasons: 1. Inhalators require at least two, or preferably three, men to operate, while the E & J Resuscitator requires but one man. 2. Inhalators require more space to use than does the resuscitator. 3. The E & J Resuscitator is more practical when used on a pregnant woman or on a person with broken ribs. 4. Better results are obtained with the E & J Resuscitator. The fire department has defended its use of the E & J Resuscitator in the face of opposition. It has convinced its city's health department that the resuscitator is efficient. The department had three E & J Resuscitators in 1931 and in 1934 purchased seven more and now it has twelve. Squads are well trained in the use of this apparatus and are also well trained in the use of inhalators and the Schafer prone pressure method. They demonstrated completely their ability to use this apparatus to the complete satisfaction of a committee of the Council.

Therefore, in reply to Dr. Henderson's charges that the Council on Physical Therapy is not familiar with resuscitation, that it depends simply on the statements of referees of questionable ability, and that it is accepting apparatus that will "lower standards and promote methods and devices that will severely decrease the saving of life," the Council submits the foregoing information to demonstrate the thoroughness of its investigation of the E & J Resuscitator and the effort the Council has put forth to avoid the loss of a single life through any of its published actions.

COUNCIL ON PHYSICAL THERAPY.
HARRY E. MOCK, M.D., Chairman.
HOWARD A. CARTER, Secretary.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. PAUL NICHOLAS LEECH, Secretary.

THE PRESENT STATUS OF TESTOSTERONE PROPIONATE: THREE BRANDS, PERANDREN, ORETON AND NEO-HOMBREOL (ROCHE-ORGANON) NOT ACCEPTABLE FOR N. N. R.

Within the past few months extravagant claims for the action of the male sex hormone testosterone have appeared in professional and lay publications. The naturally popular appeal of this substance has aroused wide interest with the aid of ample newspaper publicity. It may eventually prove that this substance, testosterone, or its esters will be a valuable addition to our armamentarium of glandular therapy; but it is the Council's belief that many claims for it have been grossly exaggerated. The male hormone has only recently been made available for clinical use and there have already been widespread announcements of its remarkable effects, both physical and psychic, which are a long way from actually being established. In view of the uncontrolled advertising and publicity, the Council is issuing this report on the status of the male hormone.

Testosterone, the male or testicular hormone, was first isolated from bulls' testes. It is not to be confused with androsterone, which appears in human urine. After establishment of its formula, Ruzicka was able to prepare the identical substance synthetically. It is generally accepted that testosterone is the substance secreted by the interstitial cells of the testes and that its function is the induction and maintenance of the secondary sex characteristics of the male. Fatty acid esters of testosterone are more slowly absorbed from the site of injection than the free testosterone. It apparently acts by simulating gonadal activity and in this manner the physiologic response has been observed to improve considerably. The most widely used ester at present is the propionate of testosterone.

In the clinical use of most endocrine preparations it seems to be a fairly consistent rule that the response to any hormone is most efficient and satisfactory when there already exists a clearly defined deficiency of that substance. This rule holds quite well for the male hormone and aids in indicating the use of this substance. Therapy has been attempted in the following conditions and, while the treatment of all of them is still in the experimental stage, it appears that results are promising in only a few.

EUNUCHOIDISM

The most careful studies in the clinical use of testosterone have been made in cases of eunuchoidism.[1] The cases of testicular deficiency reported by these workers were well defined. The testes were either absent or atrophic or else retained in the abdomen. The penis was underdeveloped and the prostate hypoplastic. Erections were infrequent or feeble and libido was negligible. Other signs and symptoms were typical: deficiency of pubic, facial and body hair, fine boyish skin and high pitched voice. Psychic conflicts were frequent, rendering the patient anxious, depressed and apathetic with a feeling of social inferiority. Occasionally the patients suffered from hot flashes, irritability and depression, symptoms typical of the climacteric.

The response to testosterone propionate was reported to be excellent. Within a short time sexual desire was initiated, erections became frequent and satisfactory, and nocturnal emissions occurred. After several months of continuous treatment the hair growth became heavier, the skin reverted to the adult type and the voice changed to a lower pitch. The prostate in a few cases enlarged somewhat and the penis approached normal dimensions. The psychic responses were no less spectacular. Relief from climacteric distress was complete, self assurance returned and emotional stability was manifested. Some of the beneficial results on the psyche may have been merely the reflection of the patient's pleasure in the physical changes and the sensations of sexual activity.

The dosage required to bring about these changes varied considerably. According to Kenyon,[2] from 7 to 21 mg. of testosterone is metabolized and lost daily in the urine and on these grounds he believes that 25 mg. daily is a reasonable amount for injection. Results have been obtained with smaller doses, but the preponderance of opinion indicates that from 75 to 150 mg. per week is necessary for complete replacement therapy. It cannot be stressed too strongly that the desired effects persist only as long as the therapy is maintained. No cure should be expected and regression of all beneficial changes takes place soon after the last injection. It is obvious, therefore, that androgenic therapy is an expensive procedure. Although the experimental treatment of eunuchoidism has proved successful, social and economic factors are formidable obstacles when this therapy is applied to the private patient. The careful selection of cases and the use of great caution are demanded for the proper treatment of this condition.[2a]

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1. Hamilton, J. B.: Treatment of Sexual Underdevelopment with Synthetic Male Hormone Substance, [illegible] 21: [illegible] (Sept.) 1937. Vest, S. A., Jr., and Howard, J. E. [illegible] with the Use of Male Sex Hormone: Use of [illegible] in Hypogonadism, J. Urol. 40: 154 (July) 1[illegible]

2. Kenyon, A. T.: The Effect of Testosterone Propionate on the Genitalia, Prostate, Secondary Sex Characters and Body Weight in Eunuchoidism, Endocrinology 23: 121 (Aug.) 1938.

2a. A well known news weekly has recently given wide publicity to the method adopted by Foss in England of administering to patients testosterone propionate by inunction. Following this work, several firms have put on the market ointments containing testosterone propionate. Foss and also Parkes administered to several eunuchs doses of from 20 to 50 mg. of testosterone propionate in about 2 cc. of ointment daily in order to obtain satisfactory results. The products marketed in this country contain only 2 mg. of the androgen per cubic centimeter of ointment. It is apparent, therefore, that to administer the appropriate amount of active material the patient must anoint himself with from 10 to 25 cc. of ointment daily. This would, of course, make quite a mess.

IMPOTENCE

The great majority of young men who complain of impotence suffer from so-called psychic impotence. The few cases reported in the literature which were treated with androgens did not respond very favorably.[3] This is in line with the rule just stated that the male hormone works best when there exists a deficiency. The males with a psychic disturbance have normally functioning testes and the additional male hormone provided by injection does not appear to correct this disturbance. Transitory improvement reported in several cases is probably the result of suggestion. There is no evidence that testosterone propionate has an aphrodisiac action in males with normal testicular function.

SENILITY

It appears that many pharmaceutic firms would have one believe that in the ampule of testosterone propionate lies the Fountain of Youth. The few reports in the literature of attempted rejuvenation are not at all promising. Laroche and Bompard[4] injected several aged men with this material and failed to improve their sexual powers appreciably. Apparently the action of male hormone on the masculinity of an individual is effective only within a certain age limit. Other factors, nervous or circulatory, probably play a role in the mechanism of erection and their absence in elderly males may prevent the response to testosterone. Premature impotence may well fit into this category, but sufficient data are not at hand from which conclusions may be drawn. The involutional melancholia of males, for which testosterone has been suggested, has not been subjected to adequate trials to justify androgenic therapy other than on an experimental basis.

STERILITY

It is known that testosterone propionate will maintain spermatogenesis in the hypophysectomized rat, but once tubular degeneration has set in, it is unable to stimulate sperm formation. There is apparently some species difference in the response of the testes to androgens. Wells and Moore have shown that injections of male hormone stimulate spermatogenesis in the ground squirrel, while Moore and Price and others have demonstrated an atrophy of the testes in similarly treated adult rats. There is little clinical evidence that this substance is of any use in human male sterility. The few cases of therapeutic success reported in the literature certainly do not warrant the use of androgens in this disorder at the present time.

PROSTATISM

There are a number of reports dealing with the use of male hormone in prostatism.[5] The impression seems general that improvement is evidenced in most cases on this type of treatment. In long standing cases of complete or incomplete retention there was a return of spontaneous urination soon after the first few injections. Frequency and nocturia decreased. The amount of residual urine diminished and the general condition of the patient improved following amelioration of the distress of prostatism. In most cases of prostatic hypertrophy there was no decrease in size of the organ. Laroche and his co-workers[6] obtained in several cases a diminution in size of the prostate, but they were careful to point out that this was due probably to the disappearance of congestion and inflammation and not due to any regression of the prostatic adenoma. In this regard it seems ill advised to describe, as several authors do, the androgenic therapy as treatment of prostatic hypertrophy, when no evidence is at hand that the excess tissue is appreciably affected. As a matter of fact, it has been recently shown that "the injection of 285 to 1,125 mg. of testosterone propionate in from 12 to 95 days results in no significant restoration of the involuted prostate of presenility and in no observable alteration in the histological appearance of the tissues formed in benign hypertrophy."[7] The actual mode of action of the androgen is unknown, the improvements being due possibly to an improvement in sphincter action, or relaxation of spasm, an increase in bladder tone or an attenuation of prostatic congestion.

On the other hand, Clarke[8] believes that conservative treatment is just as effective. He has followed ninety-three cases of prostatism and shown a large number of satisfactory responses on instrumentation alone. He suggested that a period of five years is necessary before results of endocrine therapy can be reliably assessed. The view taken by Riches[9] is an admirable one and strikes a note of caution in accepting this newer treatment of prostatism:

> The natural history of prostatic obstruction is one of frequent remissions and relapses, and many vaunted remedies in the past have owed their ephemeral reputations to their use at a time when acute congestive retention has just been relieved by catheterization. After a period perhaps of years it has been found that the prostatic enlargement has steadily progressed and has ultimately required operation when the patient is older and less fit and his kidneys have begun to fail. Herein lies the greatest danger of treatment by male hormone and it must be emphasized that all such treatment is still in the experimental stage, and is, therefore, only justified in patients who are not so ill as to need active surgical treatment or are too ill to stand much chance of surviving such treatment. The field for experiment is thus greatly reduced and the assessment of results is made difficult by the normal remissions and relapses incident to the disease.

CRYPTORCHIDISM

Hamilton[10] has induced descent of the testes in immature monkeys by means of testosterone propionate injections. He has also obtained these results in cryptorchid boys and has suggested that androgens may be of value in the differential diagnosis of obstructive and nonobstructive cryptorchidism. By administering such therapy, the physician need not wait until puberty to know whether the testes will descend spontaneously. In Hamilton's opinion, male hormone may also aid in the surgical treatment of undescended testes. These recommendations are attractive, but approval must await further clinical trial.

On the other hand, Kunstadter[11] warns against the induction of precocious puberty in boys by means of androgens. He observed some patients who were relatively sensitive to the androgenic substance, developing definite masculine traits after the administration of a moderate amount of this material. He considered these reactions harmful to the patient, especially from the psychologic standpoint. There have been several cases reported in the literature in which boys on androgenic treatment have resorted to masturbation and other undesirable behavior. It is highly important to remember that normal puberty varies considerably in its time of appearance. The diagnosis of hypogonadism in boys should be made with reserve and the endocrine treatment on the presumption of this condition should be accordingly avoided.

GYNECOLOGIC CONDITIONS

Estrous cycles of rodents have been suppressed by means of testosterone administration on the basis of its similarity to progesterone. In the monkey, Zuckerman[12] inhibited menstruation and obtained involution of the endometrium and ovarian atrophy by injections of androgenic substance. Inhibition of menstruation has also been obtained in the human being by Hartman[13] and by Papanicolaou and his co-workers.[14] Several

3. Miller, N. E., and others: Mental and Behavioral Changes Following Male Hormone Treatment of Adult [illegible] and Psychic Impotence, Proc. Soc. Exper. Biol. & Med. [illegible] 1938. Laroche and Bompard.[4]

4. Laroche, G., and Bompard, E.: Essais de traitement de l'impuissance sexuelle masculine par l'hormone male, Progrès méd. **66**: 530 (April 9) 1938.

5. Day, R. V., and others: Sex Hormone Therapy for Prostatism, Am. J. Surg. **39**: 100 (Jan.) 1938. Laroche and others.[6]

6. Laroche, G., and others: Prostatic Hypertrophy: Results of Therapy with Testosterone Acetate and Propionate, Presse méd. **45**: 932 (June 23) 1937.

7. Moore, R. A., and McLellan, A. M.: A Histological Study of the Effect of the Sex Hormones on the Human Prostate, J. Urol. **40**: 641 (Nov.) 1938.

8. Clarke, Ruscoe: Prostate and Endocrine—Control Series, Brit. J. Urol. **9**: 254 (Sept.) 1937.

9. Riches, E. W.: The Use of Male Sex Hormones, Practitioner **140**: 60 (Jan.) 1938.

10. Hamilton, J. B.: Effect of Male Hormones upon the Descent of the Testes, Anat. Rec. **70**: 533 (April 25) 1938.

11. Kunstadter, R. H.: Induction of Premature Puberty with Androgenic Substance, Endocrinology **23**: 661 (Nov.) 1938.

12. Zuckerman, S.: Inhibition of Menstruation and Ovulation by Means of [illegible], Lancet **2**: 676 (Sept. 18) 1937.

[illegible] Menstruation Inhibiting Action of Testosterone, Proc. Soc. Exper. Biol. & Med. **37**: 87 (Oct.) 1937.

14. Papanicolaou, G. N., and others: Inhibitory Effects of Male Sex Hormone on Human Menstruation and Their Evaluation by Vaginal Smears, Proc. Soc. Exper. Biol. & Med. **37**: 689 (Jan.) 1938.

investigators[15] have treated cases of functional menorrhagia with testosterone propionate and have been able to decrease the uterine bleeding. Hundreds of milligrams of the material was usually necessary to produce the desired results. Desmarest and Capitain[16] have reported beneficial results in mastopathy with somewhat smaller doses (100-200 mg.). Other conditions in which male hormone therapy has received trials are the menopause, undesired lactation and dysmenorrhea. Such treatment should be reserved for the present for the specialist in this field, since very little is known as to the proper handling of these cases except that to obtain desired results in most cases it appears necessary to employ tremendous doses of testosterone propionate. Very little is known regarding the permanence of these results. The practicability of this therapy is, therefore, rather doubtful just now. Furthermore, a definite harm is risked when male hormone is administered to females. Greenhill and Freed[17] have induced a significant degree of virilism in women treated with this substance for certain gynecologic disorders including hirsutism and low voice. Other undesirable reactions may eventually be demonstrated.

MISCELLANEOUS

There are other conditions for which androgenic therapy has been suggested, such as atrophic rhinitis, acne and gynecomastia. The available data in such cases are either absent or inadequate to justify any claims of usefulness.

CONCLUSIONS

According to our present knowledge, testosterone propionate shows promise in only a few conditions. Careful studies have shown that it is adequate replacement therapy in true testicular deficiency (eunuchoidism), but the applicability of this therapy in actual practice is still undetermined. Its employment in cases of cryptorchidism, though not well established clinically, is on a sound physiologic basis. The relief so often elicited by testosterone propionate in cases of urinary retention due to prostatism is quite gratifying, but a reliable evaluation of the benefits or dangers of this treatment must await extensive experimentation over a period of years. All other claims are either exaggerated or immature and should be disregarded until substantial evidence becomes available on which to evaluate them.

The Council deferred further consideration of testosterone propionate until it has been properly evaluated by ample clinical experience.

On the basis of the foregoing report and without a detailed investigation of the advertising policies of the firms which market this substance, the Council also declared the marketed brands of testosterone propionate, namely Perandren (Ciba Pharmaceutical Products, Inc.), Oreton (Schering Corp.) and Neo-Hombreol (Roche-Organon) (Hoffmann-LaRoche, Inc.), unacceptable for inclusion in New and Nonofficial Remedies.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary

RACÉPHEDRINE HYDROCHLORIDE (See THE JOURNAL, April 1, 1939, p. 1257).

Racéphedrine Hydrochloride-Gane's Chemical Works, Inc.—A brand of racéphedrine hydrochloride-N. N. R.

Manufactured by Gane's Chemical Works, Inc., New York. No U. S. patent or trade mark.

15. Loeser, A. A.: Action of Testosterone Propionate on Uterus and Breast, Lancet **1**: 373 (Feb. 12) 1938. Foss, G. L.: Action of Testosterone Propionate on Female: Clinical Application and Dosage, Lancet **1**: 992 (April 30) 1938. Desmarest and Capitain.[16]

16. Desmarest and Mme. Capitain: Testosterone Acetate, Therapy of Mastopathies: Seventeen Cases, Presse méd. **45**: 777 (May 26) 1937.

17. Personal communication.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

CELLU BRAND LOGANBERRY JUICE

Distributor.—Chicago Dietetic Supply House, Inc., Chicago.

Description.—Canned loganberry juice packed without added sugar.

Manufacture.—Good quality loganberries on which no spray material has been used are thoroughly washed, sorted for spoilage and foreign matter, preheated and pressed through ordinary press cloth. The juice is run into cans which are sealed and heat processed.

Analysis (submitted by distributor).—Moisture 90.0%, total solids 10.0%, ash 0.4%, fat (ether extract) 1.0%, protein (N × 6.25) 0.2%, crude fiber 0.02%, carbohydrates other than crude fiber (by difference) 8.4%, invert sugar 8.3%, sucrose 0.1%.

Calories.—0.4 per gram; 11 per ounce.

RED & WHITE BRAND FLOUR (BLEACHED)

Distributor.—Slocum-Bergren Company, Minneapolis.

Manufacturer.—Russell-Miller Milling Company, Minneapolis.

Description.—A long patent, bleached flour milled from hard winter wheat.

Manufacture.—Hard winter wheat is cleaned, washed, dried, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. The flour is bleached with 13 Gm. of a mixture of benzoyl peroxide and calcium phosphate and 2 Gm. of nitrogen trichloride per barrel.

Analysis (submitted by manufacturer).—Moisture 13.5%, total solids 86.5%, ash 0.5%, fat (ether extract) 1.5%, protein (N × 5.7) 11.2%, sucrose 1.3%, reducing sugar as invert sugar 1.7%, crude fiber 1.0%, carbohydrates other than crude fiber (by difference) 72.3%.

Calories.—3.48 per gram; 99 per ounce.

MILLER'S BRAND SPAGHETTI, MACARONI AND MACARONI PRODUCTS

Manufacturer.—Miller's Food Products, Inc., Los Angeles.

Description.—Spaghetti and macaroni, of various sizes and shapes, prepared from durum wheat semolina and water.

Manufacture.—Durum semolina and water in formula proportions are mechanically mixed and kneaded. The resulting dough is forced through a pressing and cutting machine and the pieces are dried and packed.

Analysis (submitted by manufacturer).—Moisture 11.4%, total solids 88.6%, ash 0.6%, fat (ether extract) 0.3%, protein (N × 5.7) 12.4%, crude fiber 0.4%, carbohydrates other than crude fiber (by difference) 74.9%.

Calories.—3.52 per gram; 100 per ounce.

CRADLE BABY BRAND STRAINED AND SEEDLESS APRICOT JAM

Manufacturer.—Glaser, Crandell Company, Chicago.

Description.—Canned strained apricot jam sweetened with sucrose. The jam may contain small amounts of added acid or pectin or both.

Manufacture.—Canned California apricots which conform to the specifications of the manufacturer are softened and subsequently treated as described for Cradle Baby Brand Strained and Seedless Fig Jam (THE JOURNAL, March 18, 1939, p. 1071).

Analysis (submitted by manufacturer).—Moisture 30.4%, total solids 69.6%, water insoluble solids 0.9%, water soluble solids 68.7%, ash 0.4%, protein (N × 6.25) 0.4%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 67.7%, acidity 0.8%.

Calories.—2.72 per gram; 77 per ounce.

THE CASE OF BRINKLEY VS. FISHBEIN

PROCEEDINGS OF A LIBEL SUIT BASED ON AN ARTICLE PUBLISHED IN *HYGEIA*

On March 22 in the District Court of the United States for the Western District of Texas began the trial of the case of *John R. Brinkley* v. *Morris Fishbein,* based on an article published in *Hygeia,* entitled "Modern Medical Charlatans." The judge was the Honorable Robert J. McMillan; the attorneys for the plaintiff, Messrs. Morriss & Morriss of San Antonio and Phil Foster of Del Rio; the defendant was represented by Messrs. Loesch, Scofield, Loesch & Burke of Chicago, Brooks, Napier, Brown & Matthews of San Antonio, and Boggess, LaCrosse & Lowrey of Del Rio, Texas.

The case attracted much attention, particularly in Del Rio, the home of Brinkley. The following statement by Millard Cope in the San Angelo (Texas) *Standard-Times* gives the setting of the stage:

"Inwardly, however, Del Rioans are hoping for a victory for Dr. Brinkley because they have not forgotten what he and his hospital meant to Del Rio when he performed his operations in Roswell Hotel here.

"He maintained a monthly pay roll estimated at between $17,000 and $20,000 before moving the hospital to Little Rock, Ark. That meant plenty to business in Del Rio.

"The manager of one of Del Rio's largest department stores said that firm lost a thousand dollars a month in accounts when the Brinkley hospital was moved. Postal receipts, so often used as a business barometer, reflected a decline when Dr. Brinkley's hospital was moved. In 1937, for instance, postal receipts aggregated $54,167.54. (That was the year he testified as having grossed $1,100,000.) Last year, however, with the Brinkley hospital in Little Rock, receipts dropped nearly a fifth to $44,399.22.

"SAYS DEL RIO SUFFERED

"'Del Rio suffered its greatest loss when Dr. Brinkley moved to Little Rock.' declares H. Lippe, whose picture and curio business, he says, has shown a heavy loss.

"Over at the Del Rio National Bank, J. A. Walker reminds that any city the size of Del Rio will suffer when it loses such a pay roll as Dr. Brinkley maintained. 'Of course, Del Rio was getting along before we ever heard of Dr. Brinkley, and we'll still go along, but it's obvious that the hospital is missed.'

"The Chamber of Commerce, through James C. Netts, secretary, admits there are some vacant houses and waiting hotel and tourist camp rooms, which were filled when Dr. Brinkley attracted thousands of persons to his hospital annually. Some of the tourist camps were built to accommodate the influx of oldsters.

"Obviously, the Roswell Hotel, used by Dr. Brinkley as his hospital, is missing the patients and guests, drawn magnet-like to its registration desk. F. H. Childs, the manager, isn't experiencing so many full houses as before.

"Wherever one goes in Del Rio, virtually the same story is given. What city of 10,000 wouldn't miss a $20,000 pay roll every month, plus spendings of thousands who came seeking a more potent sex life? . . ."

In his article Mr. Cope gives the following description of Dr. Brinkley:

"Del Rioans have a kindly feeling for Dr. Brinkley for a lot of reasons other than the pay roll he maintained when he operated the hospital here. He maintains his home in Del Rio, a palace sort of Spanish-type architecture centered in a 12 acre tract. It's prettier at night, because the two lighted fountains are turned on, a dozen colors changing all the time as lights are thrown on water squirting 30 feet into the air. One has no difficulty in knowing its owner. The name "Dr. Brinkley" is in large letters on the gates to the blue-painted concrete drives, and the name flashes in neon on the fountains at night.

"Some say he has as much as $200,000 invested in the place. Inside, visitors see furniture brought over from France, imported tapestries, carpets, and works of art. There is an $11,000 pipe organ. In one of the rooms is a collection of perfumes which he has collected as a hobby and which now is valued at more than $5,000. He collects a variety of things. He's just as likely to return from a world cruise with a collection of cameras as flamingoes, freak dogs or shotguns.

"The unusual Dr. Brinkley has a flair for the unusual.

"MAKES NUMEROUS DONATIONS

"He thought the high school should have a business course and donated the typewriters, desks and other equipment. He provides candy and fruit for every child in Del Rio at a Christmas party each season. When the Rotary Club sought to increase its student loan fund, he offered to match it, reaching into his pocket to display three $500 bills. He offered $25,000 cash if the city would cause a similar amount for a public library to be raised.

"Though he built radio station XERA at Villa Acuna, Mexico, across the Rio Grande, he now denies any ownership, explaining he sold his interest and buys time as any other advertiser who broadcasts.

"He is driven to the court trial each morning by Mrs. Brinkley in a long, specially built body Cadillac, its color as bright a red as any fire truck, on which the name "Dr. Brinkley" is inscribed in 13 places, from the hub caps to the trunk. She stops the car at the curb, they kiss, and he's met by a group of admirers as he walks toward the federal building.

"A FORTUNE IN DIAMONDS

"Nattily attired, his close-cropped Van Dyke neatly trimmed for his appearance in court, and with diamonds flashing on his fingers, a tie-clasp and in a lodge emblem across his vest, Dr. Brinkley reflects some of the wealth he has acquired. The diamond in the ring on one finger is 14 carats, he says. On the other hand is a smaller one. There's a line of big ones in the tie clasp worn above the top button of his vest. Some estimate he may have spent as high as $100,000 for them. He has bought diamonds for Mrs. Brinkley, too. . . .

"Transportation is not much of a problem for Dr. Brinkley. He goes by land, air or water. He literally has a fleet of high-powered automobiles. There is a Lockheed Electra monoplane, with pilot and co-pilot, a 12-passenger ship for which he paid $58,000 and then added more than $20,000 worth of extras.

"ADMIRAL OF THREE YACHTS

"He's an admiral in his own right, owning three yachts. A picture of Dr. Brinkley in his private admiral's uniform hangs in Editor Travelstead's office. It is autographed: 'To Warrior Travelstead from Fighting Admiral Brinkley.' He would have bought another yacht, but the $1,000,000 price, he thought, was a little steep. It was the vessel on which abdicated King Edward VIII and the former Wally Simpson honeymooned in the Mediterranean. He had an associate contact a London broker as to the price.

"Hearing of the plight of orchard owners in the Rio Grande Valley in not being able to dispose of their fruit, he decided to buy an orchard. He passed up dividends for a few years by setting out new, choice trees. Now, his output is contracted. The grapefruit Dr. Fishbein ate Saturday morning in the Roswell Hotel came from the Brinkley orchard. . . .

"Judge R. J. McMillan's oblong little court room in the federal building is filled an hour before each day's trial begins, but that doesn't mean there is much of a crowd on hand. Its seating capacity is less than 100, and some twenty-five or thirty form a waiting line outside.

"A CLASS TO THE TRIAL

"The Del Rio school civics class was taken to one of the court sessions by its teacher, Miss Mary Louise Nelson. It prompted the remark that it should have been the physiology class. Another suggested taking the vocational agriculture class, referring to the goat glands.

"Judge McMillan keeps the strictest of order and there hardly has been a witness or attorney whom the judge has not called down in some manner. . . .

"Members of the jury represent varied professions, with ranching, as might be expected, predominating. They are: J. D. Harwood, Bracketville ranchman; Daniel Pedrotti, Del Rio merchant; H. D. Dick, Knippa farmer; Wilson Bonner, Dryden ranchman; William Paysinger, Batesville ranchman; L. G. Nunn, Uvalde bookkeeper; H. B. Cummings, Reagan Wells farmer; I. Hayes Cavender, Con Can stock farmer; B. H. Dessler, Juno ranchman; Herman Schafer, Brackettville, laundry employee; Harold Davis, Crystal City laborer; and Chester N. Neely, Sabinal mechanic."

The jury was chosen from some thirty residents of the Western District, most of them ranchers and farmers of this area, some representing various businesses. After preliminary addresses to the jury by the attorneys, the lawyer for the plaintiff presented as exhibits the articles published in *Hygeia* for January and February 1938.

TESTIMONY OF EFFIE KELLEY

The first witness, Miss Effie Kelley, stated that she was a newsdealer in the city of Del Rio and that the periodical had been circulated in the town.

TESTIMONY OF A. C. PETERMEYER

The second witness was A. C. Petermeyer, who stated that since April 15, 1938, he had resided in Little Rock, Ark., and before that time, from October 1933 to April 1938, in Del Rio, Texas. He stated that he was a physician and surgeon, licensed in May 1917 in Missouri; by reciprocity in 1918 in Kansas, where he became associated with the Brinkley Hospital in Milford in October 1933. He moved with the Brinkley group to Del Rio, where he remained until removal to Little Rock in 1938. He obtained his license in Texas in 1929. After stating that he had observed the work of Dr. Brinkley during his association, the evidence proceeded as follows:

Q.—Now, tell us, Dr. Petermeyer, please sir, what specialty, if any, Dr. Brinkley engaged in while here in Del Rio? *A.*—His specialty was dealing more with the infections and hypertrophy of the prostate gland, in conjunction, of course, with the treatment and surgery of other urinological conditions. By that I mean urinological—I mean the urinary organs, the kidneys, the bladder and urethra.

Q.—And was Dr. Brinkley or not during all of that time engaged in the active practice as a physician and surgeon? *A.*—He was.

Q.—Was he or not during that time himself performing operations on patients? *A.*—The majority of them.

Q.—For prostatic trouble? *A.*—Yes.

Q.—And cases of that nature? *A.*—Dr. Brinkley was performing practically all of the operations.

Q.—Now, tell us, please, Doctor, what hospitals he has in Little Rock, Arkansas, please, sir? *A.*—Dr. Brinkley has a hospital at Twentieth and Schiller Avenue in the city of Little Rock, and a second hospital on the Arch Street Pike, about sixteen miles from the city of Little Rock.

Q.—Tell us what the nature of the practice in those hospitals is and what they are operated for, particularly for what purpose? *A.*—In the two hospitals there are these departments, the urinological department, which treats, examines and treats and operates conditions of the urethra, urinary tract, kidneys, bladder, prostate gland, testicles; and the rectal department, where all pathological or disease conditions of the rectum and colon are treated. We have a hernia department where we specialize in the injection treatment of hernia. Those are the three departments that we have.

Q.—Now, how many hospitals—I mean is that all in one hospital? *A.*—The majority of that work is done at the hospital at Nineteenth and—or Twentieth and Schiller. The hospital in the country is used more for our patients who have had work to come back for free examinations and check-ups and to receive additional treatment should any of them be in need of it, but the hospital on Schiller sometimes is filled to capacity so that new patients arriving at that hospital are sometimes taken care of at the hospital in the country.

Q.—Tell us what personnel there is at the hospital there, Doctor, with reference to doctors and help in the way of nurses. *A.*—At the city hospital Dr. Brinkley and Dr. Osburn are in charge of all the urinological treatments and surgery. Dr. H. J. Hilburn specializes in diseases of the rectum; also the treatment for varicose veins and hernia. Dr. Davis is in charge of the physical examinations, Dr. J. H. Davis makes all of the physical examinations of the new patients coming to the town hospital. Dr. Chandler is in charge of the x-ray department and chemical laboratory. Mr. Kirschberg is the laboratory technician. There are two or three more whose names I am not familiar with who are working in the laboratory under Mr. Kirschberg. Mr. Kirschberg is a licensed laboratory technician. At the country hospital Dr. Parnell is in charge of the patients who arrive there for their rechecks and treatment. Dr. Hilburn reports there every afternoon to treat rectal and hernia cases. When the city hospital is filled to capacity and new patients are then taken to the country hospital where they are operated by Dr. Osburn. Miss Vira Wederbrook is superintendent of the town hospital. She is the surgical nurse and assistant to Dr. Brinkley and Dr. Osburn. We have a staff of graduate nurses, the names of whom I am not able to give you.

Q.—Yes, sir. *A.*—But there are twelve or more graduate nurses.

Q.—Now, Dr. Petermeyer, can you tell us who of those doctors were with Dr. Brinkley here in the hospital here? *A.*—Dr. J. H. Davis, who is examining physician at the town hospital in Little Rock, was also examining physician at the hospital in Del Dio; Dr. Chandler, who is in charge of the x-ray department in Little Rock was also in charge of the x-ray department while the hospital was located in Del Rio; Mr. Kirschberg, a licensed technician, was also in Del Rio.

Q.—Now, Doctor, can you tell us, please, sir, what the extent or volume of the practice of Dr. Brinkley was here in Del Rio? *A.*—You mean the number of patients?

Q.—Yes, sir. Just give us an idea of the volume of his—and extent of his practice and where they came from while he had his hospital here? *A.*—While the hospital was located in Del Rio, Texas, patients came to the Brinkley Hospital from every state, practically every state, practically every province in Canada, Alaska, Nova Scotia and Central America.

Q.—Well, were the— *A.*—The number of patients during that time from October 15, 1933, to January 1, 1938, would be somewhere in the neighborhood of fifteen thousand.

Q.—Now, for what length of time was that fifteen thousand, over what period? *A.*—From 1933, about October, to January 1, 1938.

Q.—Now, do you know whether or not you had many patients from this general locality in and around Del Rio? *A.*—Yes, we had more patients from the state of Texas than any other locality.

Q.—A great many more from Texas than other places? *A.*—Many more.

Q.—And a great—did you or not have a great many patients from the general region around Del Rio, in and around Del Rio? *A.*—Yes, we had a large number of patients from Del Rio and Val Verde County and surrounding counties.

Q.—Now, Dr. Brinkley has a license to practice in Texas. *A.*—Yes.

Mr. Brown:—I don't think this gentleman would know about that.

THE COURT:—The license would be the best evidence.

Mr. Morris Jr.:—You admitted that in your answer. Do you make any question about his having his license to practice?

Mr. Brown:—We just have the formal objection, if the court please, that this gentlemen wouldn't be able to testify to that.

THE COURT:—If there is no issue about it why waste time on it? Is it admitted he is licensed to practice in Texas? We have plenty of issues in the case without wasting time. Is there any admission on that?

Mr. Brown:—No. I just didn't want this gentleman to get out of the general field.

THE COURT:—I think we have lost time by the objection. Go ahead.

Q.—And do you or not know that during all that time he was engaged in the active practice of his profession? *A.*—He was.

Q.—And is he yet engaged in the practice as a physician and surgeon? *A.*—He is.

Q.—Did you know anything about the article which was published in *Hygeia*, the article herein sued on, at the time it came out, about that time? *A.*—Yes, I read it.

Q.—And did you or not have any occasion to discuss the matter or observed Dr. Brinkley with reference to the article? *A.*—Yes.

Q.—And what affect it had on him? *A.*—Yes, sir.

Q.—Just tell the jury, please, sir. *A.*—Well, the—

Mr. Brown:—Your honor, I don't remember if there is any issue as to what effect it might have had on him personally.

THE COURT:—I think he claims he suffered mental anguish.

Mr. Brown:—All right.

Q.—Go ahead, tell what you observed in that connection, just tell the jury. *A.*—There was a great deal of conversation on the street by the people of Del Rio. A large number of copies were requested from our news stands so that people could read it. The article humiliated Dr. Brinkley in the presence of his friends and acquaintances in Del Rio, as well as with the members of his profession.

Q.—Did it or not appear then to bother and distress him a great deal? *A.*—It did; Dr. Brinkley was rather reluctant to appear in public after that article was published about him. Naturally it would make any one feel reluctant to appear in public after that.

CROSS EXAMINATION

Questions by Mr. Brown:

Q.—Dr. Petermeyer, what college is it, please, that you graduated from? *A.*—The American School of Osteopathy and Surgery, at Kirksville, Mo.

Q.—Did they specialize there principally in bone work? *A.*—No; the curriculum at Kirksville is practically the same as any class A school; the subjects taught and textbooks used are standard ones.

Q.—But it is known as a college of osteopathy, is it not? *A.*—It is.

Q.—Did you perform the surgery after you came to Del Rio, in Dr. Brinkley's hospital? *A.*—I was doing the surgery, part of it, when I came, but the majority of it was done during 1936 and 1937.

Q.—That is after you had been here some time? *A.*—Yes.

Q.—Did you ever do that operation where they take a part of a goat and put it in a man? *A.*—No.

Q.—Do you operate in the hospital up in Arkansas? *A.*—No.

Q.—What is the principal type of operation that they do when a man has a complaint, as far as his prostate glands are concerned? How do you operate for that ordinarily? *A.*—Do you want a complete description of the operation, how it is performed?

Q.—Yes, if you please. *A.*—After the patient has been accepted for treatment and is in need of treatment to the prostate gland, and all of the preoperative treatment has been performed, and the patient has been prepared properly to receive an operation—I will just give you the technic of the surgeon in the operating room. That is what you want?

Q.—In words we can understand, if you please. *A.*—The scrotum is anesthetized with apothesine.

Q.—With what? *A.*—Apothesine, a local anesthetic. The testicle is picked up in the left hand with the index finger of the right hand; the head of the epididymis is an appendage of the testicle; and an incision is made through the skin, through the dartos, through the fascia, through the cremasteric muscle—

Mr. Morriss:—Tell us what those are.

Q.—That is just cutting down to get to the testicle? *A.*—Yes. An incision is made through the scrotum down to the testicle. The testicle is lifted up into the incision so that the epididymis is available.

Q.—Tell us just in language that we may understand better. What is the epididymis? *A.*—It is a collection, you might say, of tubules attached to the side of the testicle. It has two parts.

Q.—Kind of like an appendage? *A.*—You might consider it something like that. It consists of a large area known as the globus major and a tail of it known as the globus minor. From the globus minor we have an extenuation of a tube known as the vas deferens.

Q.—That runs still on up? *A.*—That runs on up to the seminal vesicles. After the testicle is brought up into the incision so that the—this appendage, the epididymis, can be thoroughly examined, the ducts which lead from the testicle to make up the epididymis are inspected and examined with the examining finger.

Q.—Now, excuse me. I am not very familiar with it, of course. Is there a little space, a little distance between the main bulk of the testicle and where the addition or appendage is? Is there a little space there? *A.*—Yes, sir, slightly.

Q.—About how much is that, ordinarily, just in a general way, those little tubes, about how long would they be ordinarily? *A.*—Which tubes are you speaking of?

Q.—The ones reaching from the testicle, that you mentioned, up to the epididymis? *A.*—They are very short, perhaps 1 centimeter in length after they leave the testicle to where they converge in the epididymis. In fact, the epididymis is so closely attached to the testicle, it is closely attached to the testicle with tissue, but you can feel with your finger the space between the epididymis and the testicle.

Q.—Now, what do you do then in respect—I interrupted you there. What do you do with respect to examining those little tubes? *A.*—We examine them with the fingers to feel for the presence of small nodular areas, which usually mean infection.

Q.—What do you call those little tubes, technically? *A.*—The vasa efferentia.

Q —Now, is there another word they use for it, some kind of efferent tubes? A —It is the same thing

Q —Efferent tubes? A —Yes

Q —Now, how many of those, ordinarily, in each testicle? A —Fifteen to twenty

Q —Well, after you have then examined and found which one is diseased, if any, and the condition, what do you do then in continuation of the operation? A —They are ligated

Q —What does that mean, please? A —Tied off

Q —Well, is the number in each testicle in every person always the same? A —They may vary

Q —Do they vary in different people in number, I mean? A —Yes

Q —Well, how many do you tie off ordinarily? A —Sometimes all of them and sometimes half of them and sometimes none

Q —I say ordinarily, an ordinary operation? A —The ordinary operation, seven or eight of them are ligated or tied off

Q —Substantially half of them? A —Yes

Q —Does that tied off mean—does that mean that no fluid or anything can go through that one any more? A —Yes sir

Q —It stops it? A —Yes, sir

Q —Well, if you stop all of them in each testicle, what result would that have? A —Well, on what?

Q —I mean on the man's sexual powers For instance, what would be the effect of it? A —Sometimes it increases it

Q —To tie them all off? A —Yes sir, all of them

Q —All of the tubes? A —Yes, sir

Q —I mean, now, as to sterility? A —It would produce sterility, but at the same time increase his sexual vitality

Q —What is the difference between sterility and impotency? A —Sterility means that the individual is not able to produce a heavy male sperm, which when it comes in contact with the female ovum will cause a direct cell formation

Q —In other words, he can't have any more children? A —That is right

Q —But that condition can exist and at the same time he would have the ordinary sexual power except for the production of children? A —He could have

Q —But if you cut them all off on both testicles that would produce sterility? A —It would

Q —And in the ordinary operation you cut off about half of them? A —Yes

Q —Of course, that varies in the different patients, I imagine? A —Yes

Q —Now, what else do you do now in addition to cutting off some or all of these little tubes that run between the main part of the testicle and the appendage there? A —The artery running along the vas deferens is also ligated, tied off

Q —That is the blood vessel that runs along the tube that goes on up from the testicle, that goes on up? A —Yes, sir The vas deferens is picked up and injected with about 5, 3 to 5 cubic centimeters of a 2 per cent mercurochrome solution This solution is injected through the vas deferens and if the tube is open and functioning the solution will pass on into the seminal vesicles

Q —What is that last you mentioned? A —Seminal vesicles?

Q —Yes A —Small vesicles are located between the rectum and bladder, just above the prostate, and is a sort of reservoir or storehouse for seminal fluid As it passes upward from the testicles this solution reaches the seminal vesicles, if they are distended with it considerably, and out through the ejaculatory ducts These two little tubes leading from the seminal vesicles lead to the prostate In fact, they go through the posterior aspect of the prostate gland, emerging on the floor of the prostate The solution usually appears the next time the patient voids At least a part of it does It does away with the catheterization of the ejaculatory ducts, which are often blocked with infection If the solution will not pass into the seminal vesicles or if we find the vas deferens is blocked and it presents plenty of evidence of infection we may remove a portion of it

Q —Of what is that? A —Of the vas deferens

Q —Why? A —Because it is like any other focal infection, like the appendix or tonsils or any other organ, if it can no longer function it becomes a menace to the future health of the individual

Q —And you cut out a portion of them? A —Yes, sir

Q —About how long in length is that, ordinarily? A —It may be from an inch to 4 or 5 inches in length

Q —Does that also produce sterility A —A patient is already sterile, if the mercurochrome will not pass through the patient is sterile

Q.—Is that all of the ordinary and usual operation that you do for the condition? Now, what effect—excuse me—what effect does that operation have on an enlarged or diseased prostate gland? A —Research workers and scientists who have been working along the lines of the glandular system have fairly well agreed on the fact that there are two secretions from the testicles The one secretion, or excretion—

Q —Excuse me please I meant to say that as far as the enlarged prostate is concerned, the operation you mentioned there whether that will eventually cause the prostate to become smaller, be relieved as far as the passing of urine is concerned? A —That is what I was coming to I was only explaining it a little more in detail

Q —Yes, sir Now, then, in reference to—

Mr Morriss Jr —Let him answer the question

Mr Brown —You can ask him

Q —If the prostate is enlarged so that it blocks the passage of the urethra do you ever cut a portion of it out? A —If the prostate is enlarged enough to produce over 4 ounces of residual urine—by that I mean the gland is enlarged so much that it will not permit the bladder to empty.

Q —Then what do you do? A —A transurethral resection is necessary

Q —What is that? A —That is the removing of the obstructing portion of the prostate

Q —Do you have to make an incision? A —No, the instrument is passed through the urethra and the operation is performed through the sheath of the instrument you use

Q —Now, does Dr Brinkley's hospital ordinarily charge for—what does it ordinarily charge for that operation? A —Transurethral resection? We usually charge $250

Q —And for this operation you described first, about the testicle? A —From $275 up

Q —Does he sometimes give a guaranty after one of these operations? A —We give future service, yes sir, and we guarantee to the patient that if the operations that he has received does not reduce the growth of the prostate gland so he can empty his bladder properly he is privileged to return *and have a transurethral* resection at no additional expense

Q —Does that cost $750? A —Yes sir That also includes his hospitalization and his medications and dressings, anesthetic and operating room fee

Q —You mentioned a while ago a class A medical school What do you mean by that, please? A —The medical schools are classified, I think A and B, and an A school having a higher rating than a B school

Q —Do you know who it is that classifies the different medical schools throughout the country? A —No

Q —Don't you know, Doctor, that is—that it is a fact that they are classified in that classification as accepted by the American Medical Association? A —I presume so

Q —That is your understanding of it, is it not? A —Yes

Q —Now, up there at the hospital there, as I understand it you are now no longer serving as a doctor, but you are the business manager, are you? A —Yes

Q —Do you know of any other recognized doctors in the United States that use the technic of operation that you have here described? A —Yes sir

Q —Who are they, please? A —I do not have the consent to divulge their names, but I can give you one whose article has appeared in literature published by the institution

Q —By which institution do you mean? A —From the Crile Clinic in Cleveland, Ohio

Q —That is the institution that published what, what was it? A —The institution published this article, the article was written by Dr. Lower, who is in charge of the George Crile Clinic

Q —At what place? A —Cleveland, Ohio

Q —You don't want to name any others that do this same operation that you all do? A —Not having their permission to divulge their names I wouldn't care to

Q —All right, sir Now, as I understood it, you said you operated on about 15,000 people here at Del Rio? A —No, that number of patients came to our hospital

Q —Oh, I see Well, of that number, how many were operated on, do you remember? A —No, I do not

Q —Do you know what the average charge for the operations was while they were here in Del Rio? A —The average charge would be including their hospitalization and operating room fee and anesthetic and examination. Their entire expense would probably average around $400

Q —Did Dr Brinkley or any one in his hospital after they got here to Del Rio, did they ever use the goat gland? A —No

Q —Transplanting the goat gland in a human? A —No

Q —By the time they got here they had quit that, had they? A —There was none of that done here

Q —Are you doing any of that up in Arkansas? A —No

Q —Did you ever do any of that yourself in Kansas when you were there at Milford with the doctor? A —No

Q —Did you ever see any of it done while you were there? A —No

Q —The man that wrote that article up there for the Crile Clinic saying he had done this same operation, did you mean cutting out a portion of the prostate gland or the operation you first described, that is where you tied away the little tubes? A —A ligature operation, yes, sir

Q —That is the one he described in that article, is it? A —Yes, sir

Q —Do you know whether or not that doctor also put the mercurochrome in the tube also, like you do? A —I don't recall

Q —Do you get more patients with this trouble of the prostate from the cold states or warm states, or is there any difference? A —There is a difference, because cold weather affects urinary troubles more than warm weather, and we have a great many patients, of course, from both regions warm and cold, but cold weather does affect and aggravate the symptoms of the prostate and bladder

Q —Also do you get more people from the north of you or south of you, from Little Rock? A —I don't believe there is very much difference

Q —Do you know about how many patients they operate on there now in Little Rock since you have been there, how many they operate per week for this ordinary operation? A —During the past two months I expect the average would be about fifty, between forty and fifty a week

REDIRECT EXAMINATION

Questions by Mr Morriss Jr

Q —You spoke of the operation when all of the ducts are ligated as producing sterility Do you or not ever perform any operation which might produce or continue a sterile condition in a man without first fully explaining that situation to him and obtaining his consent? A —No we do not

Q —Is that the universal practice in that respect? A —It is

Q —Well, now, is that usual in the case of very old men? A —Altogether

Q —Now, Doctor, you also told us that a charge of $750 was made which covers the operation and hospitalization Does it or not also include the examination which is made? A —Yes it does

The witness then outlined what was said to be the regular physical examination of patients coming to the Brinkley Hospital, beginning with the top of the head and through the body, as is usual in complete physical examinations, describing also the basal metabolic test, the use of the cystoscope, electrocardiograph, and the x-rays. He also described in detail the equipment of the institution, proceeding then as follows

Q —Now, then, Dr Petermeyer, I want to ask you this question, please sir Counsel asked you whether any other type of operation was performed and you spoke of the transurethral resection A —Yes, sir

Q —Will you explain to the jury what that consists of and how that operation is done?

THE COURT —I think he explained that *on* cross examination

Mr Morriss Jr —I didn't understand it so

THE COURT —Counsel asked him what it was and he told him what the operation was Now, you have had this witness on the stand for a long time If you are going to back track and repeat we will never get through

Mr Morriss Jr —I wasn't back tracking—

THE COURT —I am not arguing with you, Counsel That is the ruling of the Court.

Mr Morriss Jr —Yes, sir Note the exception

Q —How many different types of operations would you say are done with reference to the prostate, then? A —Aside from our routine procedure operation we *do that and also* the suprapubic operations That is opening into the bladder above the pubic bone, openings there are *made* to remove large stones and growths We also remove stones by a crushing instru-

ment which is introduced through the urethra, through the urinary canal, providing the stone is not too large. The instrument will remove a stone about 3½ centimeters; that would be about, well, say about an inch or an inch and a half in diameter. The instrument will pick up a stone that size and crush it, and by crushing each fragment separately it can be washed out through a tube or sheath.

Q.—Are there any other operations that are performed, Doctor? *A.*—Operations on the testicle, scrotum, penis, kidney, bladder.

Q.—Now, in my questions of you I have intended these questions to apply to the time that this article was published, and let me ask you whether or not your answers to these questions, whether the same answer is applicable to the time which the article was published, as to the various operations and examinations given and treatment? *A.*—It is.

Q.—And the technic pursued? *A.*—The same.

Q.—Now, how long, Dr. Petermeyer, have you been observing Dr. Brinkley in the performance of prostate operations? *A.*—Since 1933.

Q.—And have you or not assisted him during that time with operations? *A.*—Prior to the time he located his hospital in Little Rock?

Q.—Yes, sir, that is what I say, while he was here in Del Rio? *A.*—Yes, sir.

Q.—You assisted him with the operations, did you, Doctor? *A.*—Yes, sir.

Q.—And did you or not in many other instances in which you did not assist, observe the operations? *A.*—Yes, sir.

Q.—And can you tell us how many operations you have seen Dr. Brinkley perform for prostate trouble? Just give us your best estimate. *A.*—Oh, several thousand.

Q.—Now, Doctor, have any of these patients who have come to Dr. Brinkley originally and received any of these operations, have they returned during the time you have been with the hospital? *A.*—They have.

Q.—And have you or not had an occasion to examine and observe them prior to their first operation by Dr. Brinkley? *A.*—Yes, sir.

Q.—And have you or not had occasion to observe and examine them subsequent to the operation? *A.*—Yes, sir.

Q.—Well, now, just tell the jury as best you can what the practice with reference to the patients is with reference to returning, and approximately how many you would say that you have had the occasion to observe, and how long after they had been to Dr. Brinkley was it that they would come back? *A.*—From 1933, until January of 1938, I had occasion to examine a large number of patients who came to the hospital, to give them the preoperative treatment and either see them operated by Dr. Brinkley or operate them myself, give them the postoperative treatment and check them out or dismiss them from the hospital at the end of their hospitalization time.

THE COURT:—That wasn't the question he asked you, Doctor. He asked you about those that came back.

A.—Oh, yes. Our patients are privileged to return for rechecks, for examination. We want them to, and if they don't return in a certain length of time we frequently write them and ask them why they haven't come back for their examination or check-up. I would say that 5 per cent, about 5 per cent of the patients return for additional work.

Q.—Now, then, after what length of time have they been out, ordinarily, just tell us what varying lengths of time. *A.*—The time varies from six months to several years.

Q.—Now, then, Doctor, tell us with reference to those patients which you have had an opportunity to examine and observe prior to the time of their operation and subsequent to the time of their operation, what you have found with reference to beneficial effects of the operation given? *A.*—I would say that 80 to 95 per cent of the patients respond favorably to the treatment.

Q.—Well, now, tell us what you mean by responding favorably, what effect it has, what physical effect? *A.*—Those who have received our routine operation and treatment for infection or enlargement of the prostate gland?

Q.—Well, I am talking about the gland, what effect you have observed in the way of improvement or benefits received? *A.*—The benefit has been general. They have been not only able to empty their bladders better and be relieved of their urinary symptoms, but they have felt better and in a general way have gained weight and their rest is improved and they sleep better. Many of those who were not able to work at all are able to go home and within a reasonable length of time go back to their job.

Q.—Do you mean by that, then, Doctor, that the operation was successful in those percentages of cases that you have told us? *A.*—Very.

The witness then described the method by which records are kept in the hospital, after which the evidence proceeded.

Q.—Now, Doctor, please explain to us—counsel asked you about it, about the guaranty. Just what that consists of, what it entitled the patient to, explain that to us? *A.*—The guaranty, or lifetime future service, entitles the patient to return at any time regardless of time for free examination and check-up. Should we find that he is in need of further treatment we offer it to him at no additional expense. If he needs a transurethral resection, that is performed without any additional expense other than his board and room in the hospital, but he never pays any more for treatment or surgery pertaining to the type of work that he came for.

Q.—Then in these cases, Doctor, is it not true that when they first come you make the complete examination and then the operation or treatment is given and then is the patient also requested to return within six months or a year for an additional check-up and to return regularly? *A.*—No, he is not. It is not compulsory, he does not have to return, but we ask him to and request that he does.

Q.—Yes, sir, that is what I say, that he is requested to return for additional examination and check-up to see how his general physical condition is getting along, is that correct? *A.*—Yes, sir.

Q.—And that additional examination and check-up and any further treatment which may develop to be necessary of the prostate is all administered without additional charge, is that right? *A.*—That is right.

Q.—Doctor, about how long do the patients remain in the hospital after the operation? *A.*—In uncomplicated cases they usually remain about seven days.

Q.—And how long are they there before the operation? *A.*—That depends somewhat on the time necessary to make the examination and depends on the condition of the patient, whether or not he is an operative risk at that time. Occasionally we have to keep a patient several weeks, or into the second week or several weeks, before he is operated, and occasionally at that length of time we send him home without any service because we feel he would be a poor operative risk.

Q.—You mean his physical condition is determined by you as such that you feel you could not help him or benefit him with an operation? *A.*—We feel we could not help him and he might die as a result of the operation from shock or from being in a debilitated condition.

Q.—Because of his debilitated condition? *A.*—That is right.

Q.—In those cases do you make a charge to the patient? *A.*—We make a charge of $50 for the examination plus $35 a week in the hospital.

Q.—Is that all of the charge that is made to them? *A.*—We charge sometimes for medications and sometimes we charge just for the examination and their hospitalization.

Q.—Now, with reference to the injections of the mercurochrome solution, Doctor, in the vessels, as you have described it, just tell the jury where that is injected and what is its course?

THE COURT:—No, he has described that, counsel, once.

Mr. Morriss Jr.:—I want to know the purpose of it.

THE COURT:—If you are going to go over the testimony of every witness like you have on this doctor we would be here too long. I want you to bring this examination to a close. You have brought him way beyond the realm of redirect examination.

Mr. Morriss Jr.:—Well, it is—

THE COURT:—You will have to comply with the Court's rule.

Mr. Morriss Jr.:—I wasn't going to ask that question, I was going to ask in connection with what was the purpose.

THE COURT:—He has told why he did it.

Mr. Morriss Jr.:—Has he explained that?

THE COURT:—Yes, sir.

Mr. Morriss Jr.:—Note the exception.

THE COURT:—Exactly why they did it, what they did and why they did it. It is going over the same thing twice.

Q.—Is the system of examination and treatment of the patient after you have—as you have given it to us, Doctor, is that the system which was inaugurated and required by Dr. Brinkley in the treatment of prostatic troubles? *A.*—Yes, sir.

RE-CROSS EXAMINATION

Questions by Mr. Brown:

Q.—Doctor, at any hospital they give a patient a complete examination before they operate on him, don't they, and they take his history? *A.*—I think they do.

Q.—And they make a chart of all the patient tells them and of the conditions they have found, don't they? *A.*—They do.

Q.—Do you know what this formula 1020 has in it? That is Dr. Brinkley's formula, isn't it? *A.*—Yes, sir.

Q.—Do you know what he has in it? *A.*—Yes, sir.

Q.—What is that? *A.*—I haven't his permission to answer that.

Mr. Brown:—We would like to know.

THE COURT:—You will have to answer the questions, Mr. Witness.

Q.—How much do you charge for that No. 1020?

THE COURT:—Wait a minute, they have some objection.

Q.—How much charge is made for that prescription 1020? *A.*—Of course, a treatment with that intravenous medication we charge $100.

Q.—Is that the one you have given the patient to take home and have it put in him by his home doctor when he gets home? *A.*—No.

Q.—Postoperative treatment? *A.*—No, we give that to him at the hospital.

Q.—The doctor at home doesn't use 1020? *A.*—Only if he is a recheck patient and does not have time to remain longer.

Q.—But anyway you charge $100 for prescription 1020? *A.*—Not for that if he takes it home, if he takes it home there is no charge.

Q.—If it is given in the hospital there is a charge of $100? *A.*—Yes, sir.

Q.—What has it got in it?

Mr. Morriss Sr.:—Of course, this witness says he is an employee of that hospital and this is a proprietary—

THE COURT:—I know, but if he knows it. He is here testifying on the stand. He will have to answer the question.

Mr. Morriss Sr.:—It is privileged.

THE COURT:—There is nothing privileged about it.

Mr. Morriss Sr.:—Would it not be privileged in a sense in that it is a matter that belongs to his employer and—

THE COURT:—No, I don't think so.

Mr. Morriss Sr.:—In other words, a trade secret.

THE COURT:—I don't see any secret. He said he gives it to the patient to take home, and chemists could analyze it.

Mr. Morriss Sr.:—Note the exception.

THE COURT:—Answer the question if you know.

A.—The chief element in it is hydrochloric acid.

Q.—What per cent of it is hydrochloric acid? *A.*—I don't know.

Q.—Very small, is it not? *A.*—No, sir.

Q.—Do you have any idea of the percentage? *A.*—Perhaps one to one thousand.

Q.—One to one thousand. In other words, one thousand of what, water? *A.*—Yes.

Q.—One thousand of water and one of hydrochloric acid? *A.*—Yes.

Q.—Is that all it has in it? *A.*—No.

Q.—What else has it got in it? *A.*—Mercury.

Q.—How much mercury? *A.*—I don't know the percentage.

Q.—What else has it in it? *A.*—It has methylene.

THE COURT:—Are you talking about now or at the time?

Mr. Brown:—At the time, if you please.

A.—Methylene.

Mr. Brown:—At the time or before?

THE COURT:—You had better make that clear because the evidence shows Dr. Brinkley is running a place up in Arkansas, and we are only interested in what happened down here.

Mr. Brown:—This article was in February of last year, and I am talking about either at that time or a reasonable time before that.

THE COURT:—All right.

Q.—What else has it in it, please? What else had it in it, please? *A.*—I believe that is about all.

Q.—How much did you have to pay, wholesale, for that stuff you put in 1020? *A.*—I don't know.

Q.—Now, do you know what was in these other prescriptions that he prescribed over the radio, prescriptions No. 50 and 60 and those other prescriptions he would talk about over the radio and the person would go to the drug store and get the prescriptions by number so and so? Do you know what is in those prescriptions? *A.*—No, sir.

Mr. Morriss Jr.:—We want to object to that question as assuming something not proved. It is a duplicitous question also.

THE COURT:—Yes, it is not in line with anything he asked on redirect examination. I don't think it is proper re-cross examination of any matter.

Mr. Brown:—Yes, sir.

Q.—Do you know what gives that 1020 the blue color to it? *A.*—The methylene, I believe.

Q.—Now, what pathologist is it there at your hospital, or was it at the time of this article and before, what pathologist was it that made this investigation of the tissues and so forth? *A.*—Mr. Kirshberger.

Q.—Mr. Kirshberger? *A.*—Yes.

Q.—He is a doctor? *A.*—A licensed technician.

Q.—Who licensed him, do you know? *A.*—Oh, no.

Q.—Do you know of anybody—is there such a thing as a licensed laboratory technician? *A.*—Well, these technicians who graduate from some of these standard laboratories.

Q.—You don't know who licenses them? Do they get licenses from the state, or whom? *A.*—I don't know.

Q.—Now, is this Dr. Brinkley's hospital, or was it at the time here and before, was his hospital approved by the American Hospital Association?

Mr. Morriss Jr.:—We object to that as being irrelevant and immaterial and having no bearing upon the question.

THE COURT:—Overrule the objection.

Mr. Morriss Jr.:—And as being hearsay in its nature, and without any probative force and prejudicial to the rights of the plaintiff.

THE COURT:—If the witness knows I think it is legitimate examination.

A.—I don't know.

Q.—Was it approved by the American College of Surgeons?

Mr. Morriss Jr.:—The same objection.

THE COURT:—What is the witness's answer?

A.—I don't know.

THE COURT:—He says he doesn't know.

Q.—As I understand it, Doctor, you operated while the hospital was here in Texas, did you? *A.*—Yes, sir.

Q.—And was Dr. Osburn here at the hospital at that time? *A.*—No, sir.

Q.—Did he ever work here at the hospital, Dr. Osburn? *A.*—In the business office.

Q.—But he didn't operate, did he? *A.*—No.

Q.—But he was the business manager in Texas and you operated, is that right? *A.*—Yes, sir.

Q.—Then when you moved to Arkansas you changed it there, he operates there in Arkansas and you are the business manager, is that right? *A.*—Dr. Brinkley and Dr. Osburn.

Mr. Morriss Jr.:—We object to that as being immaterial and irrelevant, anything that may be done after the article in question was published.

THE COURT:—I don't know, it goes to the qualifications of these parties.

A.—Dr. Brinkley—

THE COURT:—Just a moment. It goes to the qualifications of these parties, to develop their qualifications. Overrule the objection.

Mr. Morriss Jr.:—Note the exception.

A.—Dr. Brinkley and Dr. Osburn.

Q.—Now operate in Arkansas? *A.*—In Little Rock.

Q.—And you are the business manager? *A.*—Yes, sir.

Q.—Do you make the arrangements to get the money out of the folks before you do the work on them? *A.*—No, sir.

Q.—You do it for nothing, without getting any money? *A.*—The patient pays the business manager of the hospital. I am at the business office and have nothing to do with the collection of fees.

EXHIBITS

The attorney for the plaintiff then presented in evidence as exhibit the issue of *Hygeia* for January 1938 containing the first portion of the article entitled "Modern Medical Charlatans," and particularly the portion which read: "In a few spots over the United States, around 1925 to 1930, local stations continued to pour forth filth and falsehood. In the obscure Kansas village of Milford, a blatant quack, one John R. Brinkley, whose professional record reeks with charlatanism of the crudest type, had for some years been demonstrating the commercial possibilities of goat-gland grafting for alleged sexual rejuvenation."

TESTIMONY OF LOWELL BROWN

The next testimony was that of Lowell Brown. He testified that he was tutor for Dr. Brinkley's son and that he made a trip with them to Europe in 1937. He described the conduct of Dr. and Mrs. Brinkley on the boat, stating that they associated freely with the other passengers. He stated also that Dr. Fishbein was a passenger on the same boat. The evidence then proceeded:

Q.—Well, did any of your party associate with the people on the boat, with his people or any of them? *A.*—Yes, I think Dr. Brinkley's son and Dr. Fishbein's boy played together for two or three days until they knew whose sons they were. In fact, I visited with Dr. Fishbein's daughter and played ping-pong with her a few times, and we drove a golf ball into a blanket hanging on the ship there, and along about the second or third day I visited with her I casually remarked to her if she knew who my boss was and she said no, and I told her and she was interested in asking what kind of man Dr. Brinkley was.

THE COURT:—Counsel, is this competent.

Mr. Morriss Sr.:—I don't know where he is leading, your honor. I don't know whether it is or not, but it may be.

THE COURT:—I know, but it seems to be some narration of an episode between him and a girl.

The Witness:—Well, it is—

THE COURT:—Just a moment, Mr. Witness, you be quiet until the Court has colloquy with counsel and confine yourself to answering questions. What do you say about it, counsel?

Mr. Morriss Sr.:—I am sure that it would be of no moment unless something came of it. I will ask him this:

Q.—Did that association continue on the trip throughout, or was it terminated, or what? *A.*—She terminated the conversation rather abruptly. I think we spoke a time or two after that but never associated any more after that.

Q.—Was it or not terminated by you, on your account, or was it terminated because of her?

THE COURT:—Counsel, I don't think that is binding on Dr. Fishbein and I don't think it is relevant unless you can show something with regard to the article itself.

Mr. Morriss Sr.:—This was before the article, your honor, this is some time before.

THE COURT:—I know that, but the charge in the article was on the ship they didn't associate with other people. Now you are trying to prove what this tutor here did.

Q.—Now, then, what about Doctor's—was the party composed of the doctor and his wife and son and you? *A.*—Yes, that is correct.

Q.—You speak of yourself, were you with his son? *A.*—Yes, sir.

Q.—His little boy? *A.*—Yes.

Q.—How old is the doctor's boy? *A.*—Eleven years.

Q.—Well, now, what about Dr. and Mrs. Brinkley on that trip back, did they or not refuse to associate with anybody, or anything of that kind? *A.*—Just the usual thing, just as I tell you. I could have told you with the other questioning. There was a picture taken, a group picture at the dinner table one evening on the *Queen Mary* going over. I don't believe any picture was taken coming back. I don't know of anything extraordinary about any of our behaviors in any way.

Q.—What do you mean, group picture? *A.*—Dr. and Mrs. Brinkley and Johnny Boy and myself, and I have the picture at home, and I am sure they do.

Q.—Were they in company with others? *A.*—Yes, sir, people all around them. Of course, the picture was taken by flashlight of us, of the family, and I think the picture will show in the background other tables besides ours. It was in the dining room.

He then stated that Dr. Brinkley was a delegate to the Rotary convention on this trip.

The cross examination follows:

CROSS EXAMINATION

Questions by Mr. Brown:

Q.—Have you ever been with him on any of his yachts? *A.*—Yes, sir.

Q.—What was the name of the yacht that you were with *him* on? *A.*—Well, it was called *Dr. Brinkley No. 2.*

Q.—*Dr. Brinkley No. 2?* *A.*—Yes, sir.

Q.—And where did you go on that occasion? *A.*—Well, my first yacht trip was up and down the New England coast. I got on the yacht at Port Washington, Long Island.

Q.—Did you ever see yacht No. 1, Dr. Brinkley's yacht No. 1? *A.*—Yes, sir.

Q.—Have you seen Brinkley No. 3? Is there a No. 3? *A.*—I think it is also called No. 2, but I have been aboard of it.

Q.—In other words, he has been the possessor of three fine yachts, hasn't he?

Mr. Morriss Jr.:—We object to that, it is irrelevant and immaterial and a conclusion and opinion of the witness.

THE COURT:—If you strike the word fine out the question will not be subject to objection.

Mr. Brown:—Yes, sir. What they declared on here is that he has been the possessor of three fine yachts, hasn't he, Mr. Witness?

THE COURT:—They objected to that as calling for a conclusion, whether or not he knows what a fine yacht is. Why don't you confine it to "three"?

Q.—He has owned three yachts, hasn't he? *A.*—Yes, sir.

Mr. Morriss Jr.:—We would make the further objection, your honor; for instance, they may have made some statements in the article which were true. That in no manner, or the proof of the truth of those in no manner relieves or tends to relieve the other.

THE COURT: I know, but they can prove all of their case at one time. Of course, it may be that this line of examination is objectionable, inasmuch as you didn't ask him anything about it on direct examination. However, under the new rules there is the right to recall the witness, and we can save that time here.

Mr. Morriss Sr.:—I thought it was a part not charged.

Mr. Brown:—That was charged particularly in the petition, about the yacht.

Q.—The boats that he went back and forth on to Europe were the best boats going and coming, as far as you know, weren't they fine, big ships? *A.*—He wouldn't be very apt to go in a tub, I wouldn't think.

THE COURT:—Now, Mr. Witness, I want to admonish you. You are supposed to answer questions here, not make an argument. That will be done by the attorneys.

The Witness:—I am sorry.

THE COURT:—Observe the court's ruling.

Q.—That ship, the *Normandie,* that is a big, fine ship, isn't it, Mr. Witness? *A.*—I think so.

Mr. Morriss Jr.:—We object to that as being a conclusion.

Mr. Morriss Sr.:—And it is immaterial and irrelevant.

THE COURT:—I think everybody can pretty nearly take notice of the fact that the *Normandie* is a big boat, probably a fine one.

Q.—What was the name of the other one, the one you went over in? *A.*—The *Queen Mary.*

Q.—Well, that is a big one and a fine one, too, isn't it, sir?

Mr. Morriss Jr.—The same objection.

Q.—Is that right?

The Witness:—Do I answer?

THE COURT:—Yes, go ahead and answer.

A.—I should think so.

Q.—And on the *Normandie* he had the most expensive and biggest suite of cabins, their biggest ones on the boat, didn't he?

Mr. Morriss Jr.:—Just a minute. This witness is not shown to be competent to testify to that.

THE COURT:—What is the materiality?

The Witness:—I wouldn't be—

THE COURT:—Counsel, what is the materiality in that?

Mr. Brown:—They allege that—that is part of the article upon which they allege and are suing us for damages for saying that. We just want to show that it was so.

THE COURT —I believe the article said he travels abroad and returns to this country in the finest suites and finest boats Overrule the objection

Mr Brown —And that is the portion ——

Mr Morriss Jr —Our objection is the witness is not shown to be competent to testify, and it would be a conclusion and opinion on his part

THE COURT—About what?

Mr Morriss Jr —Whether the most expensive and finest

THE COURT —If he doesn t know he can say so, but counsel can have him describe the suites

Q —How many rooms did you have in the suite for instance on the *Normandie*? *A* —We had two rooms a room for the boy and I and a room for Dr and Mrs Brinkley

Q —Were they little bitty staterooms where you had to crawl up one over the other to get in bed, or what kind? *A* —Nice sized rooms You didn t climb up

Q —Twin beds in them? *A* —Yes sir

Q —Or little beds? *A* —They had small single beds

Q —Did you have a living room and dining room in that same suite? *A* —On one of the ships I believe we did

Q —Which one, the *Normandie*? *A* —Yes

Q —And what kind of rooms did you have on the *Queen Mary*? *A* —Well we had double rooms, a room for the boy and I which had single beds and a room for Dr and Mrs Brinkley which had single beds

Q —Did you have a living room or dining room, anything like that? *A* —No

Q —Those suites on those ships Mr Witness were handsomely furnished, fine stuff in them *A* —I don t know whether I am competent to judge on that

Q —You know the difference between broken down furnishings and nice ones? *A* —Things were comfortable enough both ways

Q —Weren t they handsomely furnished? You know enough about things that you can say whether they were furnished in fine style or not? *A* —Well, naturally, any first class cabin on a ship of that kind is nicely furnished In my opinion you couldn't get anything else

Q —Now, about how long did you work for Dr Brinkley altogether? *A* —Five years and two months I believe to be just about exact

Q —That is, you have been a tutor for his son for that long? *A* —Yes, sir

Q —Did you start working for him after he came to Del Rio? *A* —No sir, I went to work for him in Milford, Kansas, just a few weeks before he came here

Q —Are you still working for him? *A* —No sir

Q —When did you quit? *A* —December 1st

Q —Last December 1st?

The witness then stated that he is now in the life insurance business in Council Grove, Kansas

RADIO BROADCASTS

At this time the court and the lawyers considered the question of the order of the court to Brinkley to produce either transcripts or victrola records of his broadcasts from the station in Mexico Dr Brinkley stated "I don't know anything about it I imagine the records prepared in 1938 have all been destroyed I don't think the station keeps them over two or three months after they are filed over there"

After much discussion about getting the records or transcripts of the broadcasts, the court said

THE COURT —It seems to me as a practical matter that this should be handled very simply Everybody knows Dr Brinkley for years has been broadcasting over the radio I hear it all the time running around in my car I have always understood and I presume it is true, that he doesn t personally go over and do it that frequently he sends records over there If that is true why not say so and if he can get the records all right If we can t we will have to handle it some other way Why make trouble about it?

Mr Morriss Jr —We hadn't intended to make trouble about it I wanted to explain that to the Court We hadn t intended to make any trouble about it at all we just didn't construe—

THE COURT —If they are over there will you try in good faith to get them?

Mr Morriss Jr —Yes, sir, we will

Next came the discussion of the number of depositions which would be introduced by the attorneys for both sides and as to what the court would permit in the introduction of depositions

Second Day, March 23, 1939

On the beginning of the second day, the plaintiff rested his case, at which time Mr Matthews, attorney for the defendant, introduced a motion for a directed verdict in accordance with the new federal rules that permit the making of such motions at the close of plaintiff's evidence

Mr Matthews said

However preliminary to that we would like to call your honor's attention to what we consider to be a contempt of this court and conduct on the part of the plaintiff here requiring that this case be discontinued On last night the plaintiff in this case Dr Brinkley over the radio that he regularly broadcasts over made derogatory statements with respect to the defendant in the case mentioning him by name He made derogatory statements with respect to the American Medical Association and made statements generally referring to and having a bearing upon the case now on trial In substantiation of that we would like to call Dr Brinkley

THE COURT —What is before the court about it? Is it your idea that the trial is prejudiced by what he has done?

Mr Matthews —Your honor, it seems to me to broadcast over a powerful radio station one of the parties get on a powerful radio station during the trial of the case, and broadcast over it during the trial is obviously contempt of court

THE COURT —You make a motion and have him cited and I will hear that separately and apart from the case If any of the jurors heard the broadcast and were swayed by it that might be grounds for a motion for a new trial

Mr Matthews —What we want to do is to make a motion in contempt and call this to the attention of the court and ask that a mistrial be declared at this time

THE COURT —I am not going to declare a mistrial on it unless I am advised that some of the jurors heard or were influenced by it I don't think it is wise during the course of the trial to stop and go to interrogating the jury about that

Mr Matthews —I think that is correct, your honor

THE COURT —And the question as to whether they heard the broadcast and whether they were influenced by it is one that could come up on a motion for new trial, but if I stop now and start trying the jury out on what they heard if anything, and whether it had any influence on them would militate against the trial The jury ought not to be poked around during the trial of the case

Now, with regard to the matter of whether the taking of the air and making a broadcast of that kind constitutes a contempt of court and whether civil or criminal I will hear you on that if you make a motion and require them to answer, when this case is over

Mr Matthews —Now, your honor—

THE COURT —I am not going to attempt to pass on the matter in advance, but I will certainly say to counsel for the plaintiff, who of course should have advised his client, inasmuch as you heard the court admonish the jury to refrain from talking or listening to any one about it and even not to read the newspapers it is certainly poor judgment to go upon the air with the case during the trial of the case I don't suppose counsel is responsible for that

Mr Morriss Sr —First I ever heard of it is right now Of course, we never in any manner anticipated it We will inquire of Doctor about it

TESTIMONY OF JOHN R BRINKLEY

Mr Brown, attorney for the defendant, then called to the stand John R Brinkley, the plaintiff The evidence proceeded as follows

Examination by Mr Brown

Q —What is your name, please? *A* —John R Brinkley

Q —Where do you live now, please, Doctor? *A* —Del Rio, Texas

Q —And do you operate a hospital here in Del Rio now? *A* —Not now

Q —You operate one, as I understand in Arkansas, Little Rock Arkansas? *A* —Two hospitals, yes sir

Q —Doctor, without stating the exact date, about how long have you been practicing medicine? *A* —Since 1915, since 1915

Q —Yes sir Now when did you first commence to advertise yourself as a doctor? *A* —I think I began radio talks about our hospital in 1929

Q —Well had you issued any pamphlets—first, when did you first do the goat gland operation, taking a piece of goat testicle and putting it in— *A* —I got—

Mr Morriss Jr —Just a moment We object to that as being irrelevant and immaterial to any issue in the case, as being remote, too remote for consideration here, and as not bearing on any issue in the case

THE COURT —No counsel, I think that if the plaintiff doesn't offer himself as a witness the defense under the rules has a right to call him, cross examine him just as fully as if he had taken the stand on his own account

Mr Morriss Sr —We think so, too

THE COURT —And that is what they have done Now, he put the matter in issue here as to his reputation What he has done his qualifications, all that sort of thing and they are entitled to search it thoroughly So I overrule your objection

Mr Morriss Jr —I would like to be heard

THE COURT —I have just heard you

Mr Morriss Sr —May it please the court, there is a matter that I wish we might state to the court, remind the court of That is, there is no evidence whatever from the plaintiff concerning this matter, except on cross examination they asked plaintiff's witness if during all the time since 1933 that he had been with the doctor any such practice had prevailed, or any such operation, and he said no The undisputed testimony therefore is that now to go back to some remote time for them to prove the matter of the experiments with the goat glands would be too remote here It is a question of his practice now

THE COURT —I don't think so They have charged Dr Fishbein charged in this article that this man was a quack engaged in quackery, and I think they are entitled to show anything with regard to his practice that will throw light on the matter Overrule the objection

Mr Morriss Sr —If it is not too remote Note the exception

THE COURT —A man that comes into a libel suit practically puts his entire life in issue

Mr Morriss Sr —We don't think that is correct, your honor

THE COURT —It is a question of his reputation If it is damaged, how much it is damaged Overrule the objection

Mr Morriss Sr —If it is a question of reputation we make the added objection that that is too remote and must be proved also by general reputation and not by specific acts

THE COURT —All right

Mr Morriss Sr —Note the exception

Q —When did you first do the operation of taking a testicle out of a young goat and putting in the testicle of a man? *A* —1917

Q —And how long did you continue to do that operation? *A* —Up until the end of 1932, beginning of 1933

Q —When did you first open, when did you move to Milford, Kansas, and start practicing there? *A* —1917 Yes, 1917

Q —1917? *A* —Yes

Q —Did you advertise by pamphlets, newspaper advertisements, or any other way before you started broadcasting? *A* —Yes

Mr Morriss Sr —Will your honor note our exception goes to all this?

THE COURT —If you want to make an objection you had better make it

Mr Morriss Sr —I hate to interrupt

THE COURT —It is your province to interrupt

Mr Morriss Sr —Anything back of—I mean back of 1930, we would object to as being too remote That is the objection we make, the objection to this, it is too remote

THE COURT —Overrule the objection

Q—You say you started broadcasting, first, in answer to my question, when did you start advertising yourself as a doctor? You said you started broadcasting in 1929 Now, I want to ask you if that is when you started broadcasting, have you advertised yourself as a goat gland specialist before 1929? *A*—Yes, sir, I advertised myself as a specialist on gland transplantation before 1929

Q—When did you start advertising? *A*—I can't be sure Some where around maybe 1921 or 1922, somewhere around there.

Q—And when did you build a hospital in Milford, Kansas? *A*—1917

Q—1917? *A*—Yes, sir

Q—Now, in those advertisements did you hold out to the world that the goat gland operation would make a man young sexually again?

Mr Morriss Sr—Just a moment May it please the court, that would be the same objection, it is too remote, and for the further reason that it doesn't call for the best evidence or wouldn't be the best evidence

THE COURT—Overrule the objection

Mr Morriss Sr—Exception

Q—Now, just a minute In those advertisements that you issued about the goat gland operation from 1917 to 1929 when you started on the radio, did you hold out to the world that that goat gland operation would make a man sexually young again?

Mr Morriss Sr—Just a minute

Q—Or words to that effect?

Mr Morriss Sr—Just a moment

THE COURT—I have overruled your objection once

The Witness—I don't remember

Mr Morriss Sr—The record wouldn't show any objection to this question I don't want to interrupt I wish we might have it understood that the court would allow us to have an objection to all this same line

THE COURT—Well, the court has to have an opportunity to rule on whatever is presented Under the new rules you don t need to take an exception

Mr Morriss Sr—If it is a different objection we will make it but otherwise we would not have to

THE COURT—It is your duty to except if you think anything is improper It is no reflection on you to except, I mean to object

Mr Morriss Sr—I am not speaking about the exception, I am speaking about the objection I hate to be interrupting

THE COURT—I don't know any way you can avoid it It is the court's idea that these parties are entitled to go into this man's professional record, his reputation, both on the issue of any compensatory damages and on the issue of actual damages, also on the question as to the truth of the allegations contained in the article declared on I don't think they are limited as to time by the last few years

Mr Morriss Sr—Well, we think there is a reasonable limit

THE COURT—For instance, suppose a man has been practicing twenty five years without a license at all You could show that if you charge he is a quack, an unethical practitioner

Mr Morriss Sr—That is the point we want to be heard on because we think the court is in error on that and that is the very point I want to be heard on

THE COURT—State it now What is it?

Mr Morriss Sr—I will ask co counsel—

THE COURT—No, counsel, we have to proceed here in accordance with the rules of the court I will hear you if you want to be heard but don't call your co-counsel

Mr Morriss Sr—He has the authorities on it, but I may say this just as a matter of principle For instance, we know that there is always a limit in time upon which you may inquire It is a matter, as the court said a while ago, which relates to a question of character or reputation. For instance, we know that if you had a witness on the stand in any criminal case you may in criminal cases in Texas inquire about indictments and such as that within a certain period, but that is limited If it is more than seven years ago it is too remote, it is too much against the presumption of the law that a person has changed in that respect, and here this charge against him is that he is doing he is now guilty of this, that and the other, and of course to go back to the days of experimentation would not be proper if they are remote For instance, I might have tried and lost a case or done most any matter in the way of error, or I might have been incompetent, we will say, and then I might have gained competency in the practice of law, and it is the same way with a doctor, the same way with any and every professional man, and so it isn t proper to go back to a remote time to ask about this here, and moreover, here are the specific things that are charged in this libel, certain statements they made in this article are charged upon, many others are not They have to be confined to a reasonable period of time and to—and of course—I started to say this, that the proof of the truth of any other allegation doesn't help, I mean any other accusation in the article doesn't help upon this I do not have in mind right now the style of the United States Supreme case where there is a comment on the fact that it is an old custom to try and certainly a wholly unwarranted one, to try to prove the truth of certain things in the article in justification when the matter to be proved the truth or falsity is the particular portions of the article that are charged It doesn t matter that he may have told the truth in other parts of the article if he then slanders or libels him, any other parts of the publication go out, and those that are charged upon and nothing else are the ones, so we say that the lapse of time is such that that is too remote and therefore—and that moreover that isn't a part of the charge in this case, and to prove that doesn't disprove the libel which is sued on here, or to adduce testimony with regard to it, and therefore we say that is calculated to simply prejudice the rights of the plaintiff and all that testimony we will say it is calculated to prejudice the rights of the plaintiff, and it is irrelevant, immaterial and incompetent to establish or disprove the allegations in this case, and entirely too remote

THE COURT—Overrule the objection.

Mr Morriss Sr—Note the exception

Q—Doctor I will ask you that question again, if you please? *A*—I don t remember that I ever sent out any literature specifying I would make an old man young or anything like that

Q—Did you say in any literature that the goat gland operation would be an aid in impotency *A*—Very likely I did

Mr Morriss Sr—Now he is asking again what he said in literature, and the literature is the best evidence

Mr. Brown—This is the man that had it put out

Mr Morriss Sr—That doesn't relieve it

THE COURT—Overrule the objection

Mr Morriss Sr.—Note the exception

A—I can't remember the contents of the literature I mailed out years ago, it would be utterly impossible for me to testify to its contents

Q—But you do remember, don't you, if you please, in advertising the goat gland operation to the world for ten years, up until 1929, say, when you started on the radio, isn't it a fact you told the people of the United States that if they would let you operate on them with a goat gland it would aid impotency?

Mr Morriss Sr—The same objection, your honor

THE COURT—Overrule the objection

A—Yes, I think I recommended the implantation of goat, sheep monkey glands, as an aid to sexual weakness

Q—You did that in numerous pieces of literature you put out up to the time you started broadcasting in 1929, did you, Doctor? *A*—Very likely thousands of them

Q—It is the fact you did, didn't you, please? *A*—I mailed out a lot of literature advertising this gland work I was doing, running into thousands of pieces of literature

Q—And you got back thousands of letters through the mail didn t you, asking about it, before you started on the radio? *A*—I received a lot of mail, yes, sir

Q—Now, you quit the goat gland people, as I understand it—when did you quit fooling with the goat gland proposition?

Mr Morriss Sr—We object to that—when did you quit fooling

Mr Brown—I beg your pardon

THE COURT—I think the form of your question has an air of levity

Mr Brown—I beg your pardon

Q—When you discontinued the use of the goat gland operation, when was that? *A*—1933

Q—1933 Now, from the time you started in in 1917, up to 1933 how many of those operations, about, did you perform? *A*—Several thousands of them

Q—Did you make people pay up money for it, charge them for it? *A*—No, the—

Q—I don't mean— *A*—The gland tissue was an adjunct to something else

Q—When you used the goat gland operation did the patients pay you for that work? *A*—I didn't sell them an operation for a gland operation alone The gland was used in conjunction with other work I was doing as an adjunct to other surgery.

Q—Did you charge them for that? *A*—They paid for the glands and other work at the hospital, it was all together paid for

Q—Did your literature say that the four phase operation, at the time you had the goat gland operation, that the whole operation, and for the guaranty, you charged them $750? *A*—That is right

Mr Morriss Sr—Just a minute We are going to make an objection and move that that be excluded, for all of the reasons we did before

THE COURT—Overrule the objection

Q—Well, you say several thousand you operated on What is your best recollection as to whether that means two or three thousand or five thousand? I don't know what your best recollection as to how many people you operated on when you used the goat gland operation is

Mr Morriss Jr—Now, of course, we just have to object to questions that pertain to the goat gland operations

THE COURT—Well, if you think it improves your situation any do it

Mr Morriss Jr—Well, we object to it, if the court please

THE COURT—It seems to me that you have a good many objections to this kind of evidence. If there is any merit in one, one is just as good as forty, so far as the record is concerned

Mr Morriss Jr—We don't want to be put in the attitude of waiving by the failure to object.

THE COURT—I have tried to indicate to you the court's view about the matter This article, you yourself read all of it and if you haven t read it all the court would have let the defendant read it He is charged there with a good many more things than you declare on They go way back into his history in that article and charge him with matters, and those matters are pertinent and relevant to matters now being inquired about and when he alleges he is an ethical practicing doctor and his reputation is being damaged and he has been injured, he puts that in issue, and they are entitled to inquire into it Now, that is my idea, and that is why I rule the way I do, and I tried to make it clear to counsel Now, if you want to persist in making these objections it is your duty to do so if you think it will help, but it isn't helping the trial along any

Mr Morriss Jr—We just want it understood we are not waiving our objection to all of this line of testimony

THE COURT—You can state that in the record, but the court is not making any agreement with you

Mr Morriss Jr—We want it understood, then—

Mr Brown—No, we don't like to appear to be permitted by the word understood

THE COURT—I am not making any agreement at all

Mr Morriss Jr—Then we will have to object, and we object to this being too remote

THE COURT—Overrule the objection

Q—You said you had operated on several thousand people using the goat gland operation?

Mr Morriss Jr—The same objection

Q—Will you please give us a better idea as to what you mean by several thousand? *A*—Well, I have in mind five or six thousand people

Q—Five or six thousand people? *A*—Yes, sir.

Q—And during those years when you were sending out that literature you sent out thousands of pieces of literature, didn't you, telling people that that goat gland operation, in connection with the operation was a great success?

Mr Morriss Jr—Now, we object to that because any literature would be the best evidence, and that it is immaterial and irrelevant to any issue in the case, and too remote

THE COURT.—Overrule the objection

A—Yes, I told them that the operation was a great success, yes

Q—And after using it from 1917, up to 1933, why, you don t use the goat gland technic any more, do you? *A*—It isn t necessary to transplant glands any more, because we have commercial glandular preparations that we can buy on the market and inject to take the place of the glandular transplantation

Q—The question was you don't use the goat gland operation, haven t used it since 1933, have you? *A*—That is right

Q—Now, when you started broadcasting in 1929—by the way, before you started advertising as a doctor were you a member of the American Medical Association? *A*—Yes, sir

Q—And then isn't it a fact that the ethics of that association are opposed to a doctor advertising himself and saying he is the best doctor and that he can cure you? In other words, the ethics of the American Medical Association are opposed to a doctor advertising himself, isn't that correct?

Mr Morriss Jr—Just a moment We object to that as calling for a conclusion and opinion of the witness, and not being the proper standard or criterion of what would be proper in the case

THE COURT—Overrule the objection

A—My understanding is that the ethics of the American Medical Association are opposed to any form of advertising by any physician

Q—Yes, sir Now, after you started broadcasting in 1929 and that was when you operated, then, in 1929 1930, 1931, 1932, and quit in 1933, the goat gland operation, did you tell the people on those broadcasts during those years, did you tell them about the goat gland operation? *A*—No, sir, I didn't

Q—Not over the radio? *A*—No, sir, I never said anything about the goat gland operation over the radio on none of my broadcasts

Q—During the years 1929 to 1933, when you were still using it, did you still put out literature? *A*—Yes, sir

Q—Telling about the goat gland operation? *A*—Yes, sir

Mr Morriss Jr—The same objection

THE COURT—Overrule the objection

Q—In other words, you advertised yourself and the goat gland operation in printed advertisements, is that right, up to 1933?

Mr Morriss Jr—Same objection, if the court please

A—Yes and no There is some period in there, I don't remember just when it was, when the earlier literature, as I remember it, I am just trying to give you an idea—

Q—That is the literature you put out? *A*—I know what you are driving at, and I am trying to help you out

Q—Well, I thank you very much *A*—I am not trying to hedge at all

Q—All right *A*—The earlier literature was built around a gland operation and the gland operation was, we will say, the star of the literature, and then the gland operation was minimized and the prostate work for enlarged prostates began to become the star in the literature to where the gland operation in the literature began to take a back seat, if you will pardon me for such a homely illustration

Q—It had the front seat for ten years or more, didn't it? *A*—No, not ten years, it didn't have the front seat that long

Q—What did you say in the literature from 1929 to 1933, when you stopped using the goat gland operation, what did you say in the literature about the goat gland part of it? *A*—I don't think I said very much about the gland operation at all in the literature If I had one of the little blue books I used to mail out we could look at it and see

Q—Is this the one about your health—is this the one you mean? *A*—Let's see if this is the one I am trying to think about There is something that I have in mind here that I was trying to point out to you I think this is what I am getting to

Q—Is this the one? *A*—Here is what I am getting to You see here is the book I am thinking about where all I say about the glands, I discuss it here on page 25 to 26 Gland transplantation, the compound operation is the outgrowth of experiments

At this point Dr Brinkley identified the various pamphlets which he has been using from time to time, including those sent from Kansas, pamphlets entitled "Rejuvenation," "The Compound Operation or the Modern Passport to Successful Rejuvenation," the pamphlet entitled "Recharge Your Batteries," the advertisement headed "Every Man Past Forty Should Know the Truth," the pamphlet entitled "The Brinkley Hospitals," the book entitled "The Life of a Man," postal cards used in circularizing patients, also advertisements which had been published in various newspapers

The testimony then proceeded as follows

Q—Doctor, are you the most learned physician in the United States? *A*—No sir, I don't think so

Q—Haven't you claimed to be the most learned physician in the United States? *A*—No

Q—Haven't you claimed to be the greatest surgeon in the world? *A*—Maybe some people writing for me have, but I haven't myself

Q—Well this chapter in your book here, isn't it a fact chapter nine is entitled "The most learned doctor in America"? *A*—It may be It may be what Mr Wood put in it, that biography

Q—With the copyright held by your wife's sister? *A*—That is Wood's conception of it

Q—Isn't it a fact that on page ten here, or page 110, it says speaking of you, 'Dimly he had begun to realize that he was gifted beyond the run of doctors" Isn't that in your book? *A*—Maybe, I don't remember

Q—And here at page 200, doesn't it say "I'm going to show the American Medical Association, and the doctors and people of this country, that John R Brinkley has more medical knowledge than any of them have shown"? *A*—I never said it Probably Wood did

Q—You are going to disclaim everything that appears in your biography? Are you or not? *A*—I am—

Mr Morriss Jr—We object to that as being argumentative

Mr Brown—I withdraw that question, if the court please

Mr Morriss Jr—His biography—

THE COURT—The question is withdrawn, counsel

Q—Isn't it a fact on page 203 you said you are going to show "to the jealous organized doctordom in America that he was more qualified than any of them"? *A*—No, I never said that It may be in the book Wood may have said it, but I never said it.

Q—Page 214, doesn't the book say here, "in his presentation of facts no matter on what subject, he is a student of human nature, a psychologist a master showman, as well as one of the world's most learned doctors and surgeons"? Isn't that in your book?

Mr Morriss Jr—We object to counsel continuously putting into the question "your book"

THE COURT—Let's find out something more about the book, its connection

Mr Morriss Jr—It is composed and written by another person

Mr Brown—No, I asked—

THE COURT—Let's find out whether it was published under his authority or not, whether he knew about it, whether he ever repudiated it or anything You haven't gone far enough with it

Q—Is there a new edition of this book, a later one than this? *A*—Yes, sir

Q—When was the latest one published? *A*—I declare I don't know. About two years ago, I think something like that

Q—Has it got a blue back on it, has it a stiff back? *A*—It has a cover on it something similar to this

Q—Well, hasn't it got a stiff back like an ordinary book? *A*—No The one with the blue back is the first edition

Q—Oh *A*—That is the first one

Q—That is the one which is stiff like an ordinary book? *A*—Yes, bound in cloth

Q—Where did the man get the facts from that wrote this book? *A*—Well, he collected them up from different places I employed him to write a biography of myself

Q—I see *A*—And I don't know he asked me and he asked my wife, he asked people that were acquainted with us He went back to North Carolina where I was born and you might say made a research of me, and then he wrote this book

Q—Have you ever repudiated this book? *A*—No, I haven't repudiated it

Q—Did you pay him for his work? *A*—Yes, sir, I paid him to write it

Q—Did you read any of it? *A*—Yes, sir

Q—Did you read all of it? *A*—No, I don't know as I have read all of it, but I have read a lot of the book

Q—And you hired, you employed him to write it for you? *A*—That is right

Q—*And you paid him for writing it*? *A*—I did

Q—And you have had how many editions issued, altogether? *A*—Three or four, I think about four editions

Q—And you are selling the latest edition of it right here in Del Rio now, aren't you? *A*—No, sir

Q—Who is selling the latest edition? *A*—Nobody

Q—It is out of print, is it? *A*—No

Q—Where could we get the latest edition? *A*—You would have to get them from the printer, I guess, in Kansas City, Missouri We don't have any of them on hand here

Q—Sir? *A*—I say we don't have any of them on hand here in Del Rio, because we don't do any mailing from Del Rio, you see

Mr Brown—Your honor, I think that connects it sufficiently

THE COURT—How has the book been distributed?

Q—Who has sold the book? *A*—I gave it away, what was distributed I never sold the book The first edition—

THE COURT—You sent it out as an advertisement?

The Witness—No, I just sent it out to people to let them read it. A lot of people write to me and ask me a lot of questions

THE COURT—All right, go ahead and ask him your questions I believe the last matter before the court was counsel's objection to your asking him about what was in the book I overrule that objection

Q—Doesn't it say in the book on page 310, quoting the "splendid words of Sidney Lanier 'What possible claim can contemporary criticism set up to respect—that criticism which crucified Jesus Christ, stoned Stephen, hooted Paul for a madman, tried Luther for a criminal, tortured Galileo, bound Columbus in chains, drove Dante into the hell of exile and committed so many other impious follies and stupidities that a thousand letters like this could not suffice even to catalogue them?' Of their company is John R Brinkley" Isn't that in your book on page 310? *A*—Probably is, yes, sir

Q—Yes, sir Doctor, I want to ask you now about some things the book says about the goat gland proposition, about what you claim about the goat gland proposition, or rather operation, as to whether it includes sexual powers, that is what I want to ask you about Now, on page 95, isn't it a fact that the book says, in speaking of the goat gland operation, when you first considered, "it was such an easy field, he knew, for any practitioner to hold out false hopes to a troubled patient, and charge him almost anything Other doctors had told him how the suckers bite, at any bait, when they are troubled in this vital aspect of their own manhood" Is that in your book at page 95? *A*—It very likely is, yes, sir.

Q—Were you the first man that ever did this operation of taking the goat testicle and putting it in the man's testicle? Were you the first man that ever did that? *A*—So far as I know I was, yes, sir

Q—Does your book state here at page 101—you remember you operated on two old farmers first, didn't you, two old farmers?

Mr Morriss Jr—We make the same objection

Q—At Milford, Kansas—

THE COURT—Overrule the objection

Mr Morriss Jr—It is too remote, irrelevant, immaterial and a specific instance rather than a general matter

A—The first man I operated on was 45 years of age, and I think the second man I operated on was about 38 years of age

Q—Were they troubled with loss of sexual power. *A*—Yes, sir

Q—What effect did the goat gland operation have on them? *A*—They claimed complete restoration of their sexual powers

Q—Then did you operate on two people kind of having trouble with their minds? *A*—Yes, sir

Q—And the fifth operation, was that on a boy when you passed a barber shop and heard them making fun of the operation? Did you take a young man out and operate on him, or rather did you operate on one of the boys that was there in the restaurant or barber shop? *A*—I think the third operation was a cashier in a bank that went insane.

Q—I say you had two farmers and then two that were troubled in the mind, and was the fifth one a man around Milford, when they were kind of laughing about the operation? *A*—Oh, I know who you mean, old Charley Tasine The boys in the barber shop were kidding Charley, whether he would have an operation or not, and he said he would if he had the money, he would have an operation, and I was coming along, and I said, "You don't have to have any money, come up to the hospital and I will give it to you for nothing"

Q—And you gave it to him? *A*—Yes, sir.

Q—You took him up and the operation was entirely successful, wasn't it? *A*—Yes, sir He was a bachelor and he got married right afterwards, anyway

Q—Didn't the book say on page 101 that "the man to whom Doc had done this had become a regular billy goat, twice as good as any other man around Milford"? *A*—That is what he claimed He was one of these boasting fellows liked to blow off as to his ability.

Q.—About that time you owed some money on your hospital, didn't you? *A.*—Yes, sir.

Q.—And you hired a publicity agent to come down there and help you advertise, did you? *A.*—I hired a man that had had experience in advertising to come down there and advise me if there was anything I could do to increase my business.

Q.—Yes, sir, and didn't he ask you, "Well, you are just a country doctor here away out in the country. What has happened here unusual, what has been done here that we can advertise?" Didn't he ask you about that? *A.*—Yes, he did.

Q.—And finally after your studying around about it didn't you tell him about this seven, I think it was, operations you had performed with the goat gland operation, or whatever number it was? *A.*—I don't remember whether I had seven at that time—

Q.—I don't mean the number, if you will excuse me, but didn't you tell this advertising man finally, "As far as doing anything different, I will tell you, I have done this goat gland operation"? *A.*—That is right.

Q.—And didn't he reach over and grab you by the hand and say "Well, we have them, it is worth a million dollars"? *A.*—He said, "Dr. Brinkley, you have something that is worth a million dollars to you."

Q.—Well, it has been worth a whole lot more than that, hasn't it, Doctor?

Mr. Morriss Sr.:—That is irrelevant and immaterial.

Mr. Brown:—We say he has been getting the shekels out of the people.

THE COURT:—I think it is a matter of argument. You were asking about the goat gland operation. Sustain the objection.

Mr. Brown:—You sustain the objection?

THE COURT:—To that question, yes.

Q.—The book here on page 155 quotes from you; it says "I began removing several inches of the vas deferens, lymph chain and vas deferential artery, together with a crown suture through the pampiniform plexus located in the epididymis; and in addition to this surgical technique the transplantation of the testicles from the three-weeks-old Toggenberg goat. Needless to say, the results were astonishing, miraculous." That is in your own words, isn't it, Doctor? *A.*—Yes, sir, I have seen astonishing and miraculous results, yes, sir.

Q.—Now, I don't mean to go into technical details of it. Let me ask you this. I may have it wrong in my mind. *A.*—All right.

Q.—Is it a fact that in operating on the goat gland operation, as I understand it, and please correct me if I haven't got it right, you didn't remove any of the testicles out of the man, did you? *A.*—The ordinary goat gland operation is what you are thinking about, isn't it?

Q.—Yes. *A.*—Certain ones I took and cut a hole out of the man's testicle and took a chunk out and filled the hole up in the testicle with goat gland.

Q.—Ordinarily you would cut a little flap or slip? *A.*—Just a pocket to put the gland in.

Q.—Would you put a piece of the goat gland in that little hole? *A.*—No. A 3 week old goat, I would use a 3 weeks old gland, just take the capsule off of the gland and transplant the whole gland.

Q.—You would put a goat testicle in one man's testicle and another in the other side? *A.*—Yes, and sometimes put them in the abdominal muscles. There were different locations for them.

Q.—Now, Doctor, we say in this piece that you are suing us about here, one of the things that you are suing us for, it says that the effect of it is that since you started advertising the goat gland operation that you have made lots of money. That is a fact, isn't it? *A.*—I think that is something we all have to argue about, whether a fellow makes lots of money or not.

Q.—I don't mean whether you have spent it or spent it on expenses or used bad judgment as to what you did with your money, but this says this, it says "he continues to demonstrate his astuteness in shaking shekels from the pockets of the credulous Americans." In other words, that is one of the things you are suing us about, is whether you have gotten lots of money out of the American people, isn't that a fact? *A.*—Well, it is the way you state it; shaking shekels is entirely different, to my way of thinking, a different expression than "you have made a lot of money by operating on people."

Q.—All right, over here there is another place that they allege on where it says it has been reported that at some times you have made as much as $55,000 a week. "The evidence assembled indicates that at various times Brinkley has made as much as $55,000 a week as a result of his various quackeries." *A.*—I never made anything like $55,000 a week. I wish I had.

Q.—You stated that you operated on five or six thousand for the goat gland operation, and the main operation was $750. *A.*—Yes, but only a small per cent pay $750.

Mr. Morriss Jr.:—We object to going into that. It is irrelevant and immaterial to any issue in the case, as to what was made out of it or what profit was made out of that, and we make that additional objection.

THE COURT:—I think the authorities all hold that the entire article is admissible. If you can cull certain parts out and say they are false and libelous, they have the right to put in the whole article for the purpose of seeing the drift and purpose of the entire writing.

Mr. Morriss Jr.:—Yes.

THE COURT:—And while the fact part may be true wouldn't relieve them from responsibility for that part which is false, still in an effort to show the article is substantially or wholly true, I think they are entitled to take it up entirely. Overrule the objection.

Mr. Morriss Jr.:—If the court please, we think these matters, other matters, unless they reflect light upon the particular part charged on, are improper to be gone into.

THE COURT:—I know, but the question is the damage this man suffered, that is in the case, and you can't compress it into any narrow confines and get a just trial, and I think that they have put him on the stand and that allows them to do it. They are entitled to go into the matter very fully and ventilate it if they want to, so I am going to overrule the objection.

Q.—Doctor, I am not asking you now about your net income report or your report to the government or anything of that kind, but I want to ask you what was the gross income, the total income of yourself and your wife for the year 1938?

Mr. Morriss Jr.:—We object to that as being immaterial and irrelevant and improper and incompetent.

THE COURT:—Counsel, I ruled on your matter. You and I have an entirely different conception of the ruling with regard to preserving your record. I think if you make it clearly known to the court that you object to a certain line of procedure and the court overrules you and announces that that line of procedure is to go on, you have done enough. You seem to think you have to get up and make an objection every time a question is asked. I think you had better look at that new rule.

Mr. Morriss Jr.:—I think this was a different question.

THE COURT:—The point about it is, it is militating against the trial in two ways. In the first place, it is taking a lot of time and, in the second place, it is so breaking up the thread of what is sought to be brought out that the jury and court and everybody else loses the natural continuity of the story, and I am going to ask you to consider that rule and see if you think it is necessary for you constantly to do this. I know the nature of your objection. I told you what the court's ruling is. I have gone to the trouble several times to outline to you my idea as to what I think the course of the trial ought to be. If it is contrary to your idea, why, after having stated your reasons, don't you let it go at that? The record is going to show what has transpired. I don't think it is necessary for you to interrupt every time anybody does anything.

Mr. Morriss Jr.:—If the court please, we thought this was a different line of questioning, and we think it is because, in the first place, as I understood counsel, it related to 1938. Is that correct?

Mr. Brown:—Yes, sir.

Mr. Morriss Jr.:—Which was subsequent to the time of the article.

THE COURT:—I don't see the difference. I ruled they could inquire into the money he made out of these operations that were a part of his advertising campaign. The mere fact they confine it to one year doesn't change the ruling. I am going to have to ask you to help the court a little bit. I don't want to appear to be querulous or arguing with you, still you will have to assist in the trial of this case. Otherwise we will be here too long.

Mr. Morriss Jr.:—We were under the wrong impression a while ago.

THE COURT:—I know, but there doesn't seem to be any way to get rid of you. Every time I say something it provokes a new argument out of you.

Mr. Morriss Jr.:—Well, I didn't want to be put in the attitude of waiving any matters, and secondly, with reference to this, we thought it was an entirely different matter and inquiries as to his general income.

THE COURT:—That is the fifth time you told me it was a new matter. If you think that is helping us to go forward, I don't see it.

Mr. Morriss Jr.:—We except to the court's remark.

THE COURT:—All right.

Q.—What was the gross income of yourself and your wife for the year 1938? *A.*—Our gross income for the year 1938, from all sources—I can't give you the exact figures because my auditors make this out—is around $810,000 gross.

Q.—Yes, sir. Now, what was your gross income for the year 1937? *A.*—If I remember correctly, the gross income for 1937 was pretty close to eleven hundred thousand, right at $1,000,000 gross. Either it was a little over ten hundred thousand or a little under, I just can't remember those exactly, but I have it, of course, at my office in Little Rock. I have copies of my income tax return. That would give the dollars and cents.

Q.—You took a trip one time on a boat to China, didn't you, you and your wife? *A.*—That is right, yes, sir, in 1923.

Q.—And you had had a great deal of unfavorable publicity in the papers before you took that trip, hadn't you?

Mr. Morriss Sr.:—Just a moment. We think—

THE COURT:—I think the question is argumentative.

Mr. Morriss Sr.:—Besides, it refers back to a time in 1920 or '21. I believe he said. It is very, very remote.

Q.—It is a fact that before, just before you took that trip and while on that trip you had a great deal of very unfavorable comments in the newspapers, but—

Mr. Morriss Sr.:—Just a moment. If so, that would be hearsay and not binding on this plaintiff.

THE COURT:—You can ask him if he had been commented on in the newspapers just before he took the trip. I don't know what you are leading up to.

Mr. Morriss Sr.:—Let it be understood that we object to it primarily because it is too remote and not an issue in this case and collateral, immaterial and irrelevant.

THE COURT:—Overrule the objection.

Mr. Morriss Sr.:—And hearsay, of course.

THE COURT:—Overrule the objection.

Q.—It is a fact, is it not, that before you took that trip and when you were on that trip the newspapers commented very widely on you in an unfavorable way? *A.*—No, sir, I don't think that happened until after I was in China. I think it broke loose after I left.

Q.—Doesn't the book say it was before and the passengers even shunned you on the boat? *A.*—Oh, Lord, no. Oh, no, the comment about the passengers on the boat was we were guests of the captain of the steamer and there was a certain amount of jealousy due to that.

Q.—You tell about full dress dining with the captain, don't you? *A.*—Yes, sir.

Q.—Doesn't it say on page 166, "All aboard!" And then it says that "at the very time when he was completing his plans to go to Shanghai, at Dr. Thompson's invitation, to operate on wealthy Chinese sufferers"? And then it says "These flaming headlines in every paper against him made it practically impossible for him to secure patients in America." Don't you remember that those newspaper attacks were on you before you left for China? *A.*—No, I don't think they really got started until after I got over there. I don't think they had.

Q.—All right. Excuse me. *A.*—I ought to have—I am not trying to dodge the issue, but that is my impression. You will probably have copies of those newspapers, and it will give the dates.

Q.—I just read this part out of the book. Doesn't it say on page 157 "Unfortunately, the provincial-minded Americans on board were jealous at these attentions, and left the Brinkley party pretty much to itself"? *A.*—That was on account of the captain being so solicitous to Mrs. Brinkley and setting aside reservations in the picture show, and he ignored the rest of the passengers, and I think they resented so much attention being paid to us by the captain of the ship.

Q.—Now, as to this article in the *Hygeia*, published by the American Medical Association, it is a fact, is it not, Doctor, that the newspapers and magazines of this country on several occasions have commented most unfavorably about you and your work?

Mr. Morriss Jr.:—We object to that as a conclusion, calling for a conclusion and opinion of the witness, and would not be the best evidence and is irrelevant and immaterial and incompetent to establish any issue in the case, and hearsay.

THE COURT:—This is cross examination here, in effect, under the rule. Overrule the objection.

Mr. Morriss Jr.:—Note the exception.

A.—I think that what adverse criticism that I have read in the magazines and newspapers concerning me has probably had its basis in statements from the American Medical Association, which they used as an authority in denouncing me.

THE COURT:—Doctor, he didn't ask you that question.

Q.—I asked you isn't it a fact that at different times up to the time that this article was published the newspapers and press of the country have attacked you very severely, you and your work? *A.*—I don't think the press of the country knows it. The Kansas City *Star* put on—

Q.—I am just asking you, if you please, about the press of the country. You can say no if you like. *A.*—I would say no to that, that is the way I would answer that.

Q.—Do you remember what they call the diploma mill scandal? *A.*—Yes, sir, I do.

Q.—Isn't it a fact that the newspapers of the country in this diploma —what do you mean by diploma mill scandal? What is that, please? *A.*—It refers to a situation that was existing pretty much all over the United States, and I believe its headquarters were in the state of Missouri. There was some understanding between certain people operating medical schools in the state of Missouri and secretaries of state boards of the various states where that somebody that didn't have the proper qualifications or something like that would buy or get a degree from one of these schools and then by some aid from somebody get by the board.

Q.—In other words, they would get their diploma without studying like they are supposed to do, but by paying in some way, they would get a diploma when they were not entitled to it? *A.*—Some hocus-pocus, yes, sir.

Q.—That is what you called the diploma mill scandal, wasn't it? *A.*—Yes, sir.

Q.—And that was pretty widely discussed throughout the country in the newspapers, wasn't it? *A.*—Yes, sir.

Q.—And in connection with that didn't the newspapers charge you, that you had gotten your license and your diploma in this diploma mill route, that they turned out the diplomas like a mill ground them out?

Mr. Morriss Jr.:—We object to that. It is not the best evidence and is hearsay, calls for a conclusion and opinion and not competent to establish any issue in the case and as being too remote and is an improper attempt to show reputation by specific, any specific instance, and show truth by hearsay.

THE COURT:—What do you say about that, counsel?

Mr. Brown:—Well, your honor, just in mitigation I want to show that at former times during his professional career—he is complaining of damages by reason of this article, and certainly we have a right to go into whether the other papers have commented on his standing, in mitigation of the damages.

THE COURT:—All right, overrule the objection.

Mr. Morriss Jr.:—Note the exception.

Q.—Isn't it a fact that you became branded from end to end of the land as a diploma mill graduate?

Mr. Morriss Sr.:—Just a moment. If the court please, we make the same objection for each and all of the reasons just now given, and the inquiry is not directed as to any particular time and it is in no way shown that it is or could in any way be proved in mitigation, as counsel said was the purpose, of damages in this case because of the remote time and that some other paper may have done, and of course that further calls for a conclusion and is argumentative.

THE COURT:—If these facts be true wouldn't they be entitled to be considered with regard to the motive and intent of the defendant Fishbein in making these charges, as to whether or not he had grounds upon which he honestly believed them?

Mr. Morriss Sr.:—I shouldn't think for a moment—

THE COURT:—The authorities have held that.

Mr. Morriss Sr.:—I shouldn't think for a moment a publication back in 1920, we will say, whether it was right or wrong, whether slanderous or not, by somebody else could be put in evidence to mitigate damages for a libel published in 1938. I wouldn't think so, your honor.

THE COURT:—Overrule the objection.

Mr. Morriss Sr.:—We accept.

At this time a short recess was had, at the conclusion of which the following proceedings were had, in the presence of the jury:

THE COURT:—All right, read the last question.

The reporter thereupon read the last question, as follows:

"*Q.*—Isn't it a fact that you became branded from end to end of the land as a diploma mill graduate?" *A.*—I couldn't say that I was branded from one end of the land to the other as a diploma mill graduate. I know the newspapers carried a lot of articles about me being connected with a graduate of that school.

Q.—That they called a diploma mill? *A.*—Yes, sir.

Q.—And those pieces appeared all over the country in papers, didn't they, Doctor? *A.*—I am quite sure many, many papers carried it, yes, sir.

Q.—Isn't it a fact that Henry Ford's Dearborn *Independent* carried a lengthy attack on you and he called you the dean of quacks?

Mr. Morriss Sr.:—The same objection, may it please the court, the same objection.

THE COURT:—Overrule the objection.

Mr. Morriss Jr.:—At the same time we make—

THE COURT:—Please observe the rule as to only one counsel.

A.—In 1923—

Mr. Morriss Sr.:—Of course, we make the motion as to this and all matters that have preceded it on this question wherein the attempt to get that in under the guise of mitigation, we make the motion first that it be excluded and the jury instructed not to regard it for any purpose, for all of the reasons that we have stated an objection to it, and secondly, that as to each and all of it that it be limited and the jury be instructed so that they may understand that it is limited to the purpose of mere consideration, and cannot be had for any other purpose on this than the subject of mitigation.

THE COURT:—Well, I think it is admissible not only from the standpoint of mitigation but it is admissible as going to the good faith of the defendant in the matter, as to whether he actually believed what he was writing.

Mr. Morriss Sr.:—Then limited to those purposes—

THE COURT:—If you want it limited that way the court will limit it that way.

Mr. Morriss Sr.:—We want it limited only in the event the court overrules our objection, which we consider good, and admits it.

THE COURT:—I will overrule the objection and limit it to those purposes.

Q.—Dr. Brinkley, the Kansas City *Star*, what town is that published in, Kansas City, Kansas or Missouri? *A.*—Kansas City, Missouri.

Q.—And what has the daily circulation of the Kansas City *Star*—what is that circulation, do you know? *A.*—I think it was 245,000 at that time.

Q.—When you were practicing there in Kansas the Kansas City *Star* was attacking you in various ways, was it not? *A.*—Daily, yes, sir.

Mr. Morriss Sr.:—Just a moment. The same objection, it is too remote for any purpose here.

THE COURT:—Overrule the objection.

Mr. Morriss Sr.:—That is among all of the others.

Q.—Do you know whether the Kansas City *Star* was read in every state in the union? *A.*—I don't know what their circulation—I don't know where they went to.

Q.—Yes, sir. They would write up these things, put them on the front page, wouldn't they, the Kansas City *Star*? *A.*—Many of their articles were on the front page.

Q.—Now, were the papers at the time of those attacks by the Kansas City *Star* on you, did the papers of the country have headlines about your alleged fakery, quackery and fraudulent activities?

Mr. Morriss Sr.:—Same objection, your honor.

THE COURT:—Overrule the objection.

Mr. Morriss Sr.:—Also it is a conclusion and hearsay.

A.—For some strange reason the papers over the country didn't seem to copy these articles out of the Kansas City *Star* and reprint them. Very few were printed by other papers. I had a clipping bureau to see what distribution there was over the country of those articles at that time, and it seemed it was confined mostly to the Kansas City *Star* itself.

Q.—Isn't it a fact that the papers all over the country carried pieces about your alleged fakery, quackery and fraudulent activities? *A.*—I suppose many papers did.

Q.—Isn't it a fact, Doctor? *A.*—I wouldn't say a fact.

Q.—I don't mean every paper. *A.*—I don't know the extent. When I say papers all over the country carried it I would be saying every paper over the United States.

Q.—No, I don't mean that, but papers generally? *A.*—No doubt many papers.

Q.—Carried articles accusing you of being a fake and quack and things of that kind? *A.*—I think many papers did.

Q.—Yes, sir. In the American Medical Association—what is that, please, what is the American Medical Association? *A.*—Well, the American Medical Association, I believe, is a corporation incorporated under the laws of the state of Illinois with principal offices at 535 North Dearborn Street, Chicago, and it publishes a weekly medical journal and other publications, including *Hygeia* Magazine.

Q.—How long have they been— *A.*—And they publish a medical directory.

Q.—How long has the American Medical Association been in existence, do you know about how long? *A.*—I don't know whether they were organized in 1856 or 1876.

Q.—Isn't it a fact, Doctor, that most of the regular physicians throughout the United States are members of that association?

Mr. Morriss Sr.:—We object to that as being immaterial and irrelevant to any issue here.

THE COURT:—Overrule the objection.

Mr. Morris Sr.:—Note the exception.

A.—My impression is about 80,000 physicians belong to the American Medical Association, and I think the total number of physicians in the United States is somewhere around 140,000 to 150,000. That is what is in my mind. It may be more than that, because I am not in a position to be an expert on how many doctors there would be. That would be for Dr. Fishbein to say.

Q.—You haven't much opinion for the activities of the American Medical Association, have you? *A.*—In some respects I don't like their activities.

Q.—Do you think most of the men in the association instead of being Christian gentlemen as of old, they are politicians and abortionists, do you think that is what the members of the American Medical Association do?

Mr. Morriss Sr.:—We object to that as being immaterial and irrelevant to any issue in the case, as to what he would think.

THE COURT:—Sustain the objection.

Mr. Brown:—We except to the ruling of the court.

Q.—What was your income in the fiscal year 1936? *A.*—I couldn't tell you that.

Q.—You don't have an approximate idea about it? *A.*—No, I don't remember what it was.

Q.—Whether it was a half million or a million? *A.*—I would have to get the information from my bookkeeper.

Q.—You can't remember whether it was a half a million or a million? *A.*—No, I can't.

Q.—All right. Dr. Brinkley, so that you will understand it, if you please, the first paragraph of the article says this, "He continues—" that you are suing on the part of the article—I will say this so you will understand what I am asking you about in these questions. It says, "He continues to demonstrate his astuteness in shaking shekels from the pockets of the credulous Americans, notwithstanding the efforts of the various governmental departments and agencies." Now, throughout your practice the governmental departments and agencies have tried to stop you from these advertisements, and as far as your license and broadcast is concerned they have been opposed to you, haven't they, the governmental agencies? *A.*—No, sir, not that I can think of.

Q.—That is the way you want to answer it? *A.*—Yes sir.

Q.—All right, sir. Well, you had, at one time you had a license to practice medicine in the state of Connecticut, didn't you? *A.*—Yes, sir.

Q.—The state examining board of Eclectic, the Eclectic board after an investigation and hearing, they revoked your license to practice in Connecticut, did they?

Mr. Morriss Jr.:—Just a moment. We object to that as being immaterial and irrelevant and incompetent to establish any issue in the case, and that any order which was made by the board would be the best evidence and that it is incompetent to establish any issue in the case and would be hearsay and incompetent and prejudicial to the rights of the plaintiff.

THE COURT:—Overrule the objection.

Mr. Morriss Jr.:—Except.

Q.—It is a fact that your license to practice medicine in the state of Connecticut, after investigation that your license was revoked, was it not? *A.*—No investigation was made.

Q.—Well, it was revoked? *A.*—They were revoked, yes, sir, when I was in China. I never was even called before the board or an investigation made. They put out a blanket order and revoked the licenses of every Eclectic doctor in the state of Connecticut, some having been licensed there for fifty years.

Q.—Your license in Connecticut was revoked? *A.*—Yes, sir.

Q.—You had this radio station in the state of Kansas? *A.*—Yes, sir.

Q.—Were you operating that station under permit of the United States government? *A.*—Yes, sir.

Q.—That permit was issued under what they call the Federal Radio Commission? *A.*—At that time, yes, sir; Federal Communications Commission now.

Q.—Now, how long, altogether, did you operate your Kansas station? *A.*—*It was built in 1923 and I sold it in 1931.*

Q.—When did the federal government revoke your radio license or refuse to renew the license of your radio station in Kansas? *A.*—They refused to renew the license in June 1930.

Q.—June 1930? *A.*—Yes, sir.

Q.—Now, is it a fact that a reporter for the *Star*, the Kansas City *Star*, that this reporter was a great booster of President Hoover in the Republican convention when Hoover was first elected President?

Mr. Morriss Jr.:—I don't see any pertinency, your honor.

Mr. Brown:—I will show it, your honor, *in just a moment.*

THE COURT:—Unless you can indicate some pertinency to it it seems to be going too far afield.

Mr. Brown:—I want to ask him if he didn't accuse President Hoover himself, after he was President of the United States, of influencing the Radio Commission to revoke his license, showing under our allegation here you have done these things even though the governmental agencies and governmental departments have tried to stop you.

THE COURT:—All right, overrule the objection.

Mr. Morriss Jr.:—Note the exception. We move the court now to instruct the jury not to consider these remarks.

THE COURT:—Yes, the jury will, of course, realize that the remarks of counsel are not evidence. You will not consider his remarks as evidence, it is simply made to assist the court in ruling on the objection.

Mr. Brown:—Yes, sir.

THE COURT:—*You will be governed by what you hear from the witness* stand. Go ahead.

Q.—What was the man's name, do you remember it? He was a prominent reporter on the *Star* that was one of the first promoters of the—of President Hoover's campaign for the presidency. Do you remember the name of that reporter? *A.*—No, sir, I do not. May I help you out a little bit? I think you are thinking of the managing editor of the *Star*, Mr. Roberts, that was the promoter of Mr. Hoover's campaign. It never occurred to me it was a reporter. I think it was Mr. Roberts, the managing editor of the *Star*.

Q.—He was a great supporter of Mr. Hoover's? *A.*—Yes, sir.

Q.—Then Mr. Hoover appointed some members of the Federal Radio Commission, did he not? *A.*—I guess he appointed them all.

Q.—Yes, sir. *A.*—I think he did.

Q.—Is it a fact that even President Hoover himself, when this controversy *came up about refusing your license in Kansas, that he advised* the Radio Commission that they ought to revoke your license or influenced the Radio Commission?

Mr. Morriss Sr.:—Now, may it please the court, that would be the rankest hearsay.

THE COURT:—I think you would have to show this witness knew it of his own personal knowledge.

Mr. Brown:—I will show that he has charged that in a document which he has ——

THE COURT:—Then ask him about that, don't ask him this as a matter of original evidence.

Mr. Brown:—Yes, sir.

THE COURT:—Sustain the objection.

Mr. Brown:—Note the exception.

Q.—Isn't it a fact that on page 229 of your book in reference to when they were having a hearing about renewing your license it was stated, "and the *Star*, as the A. M A. and everybody knew, was very close to the new president; and, in turn, he held a position of advantage over the Federal Radio Commission." Didn't you state that in your book? *A.*—Yes, sir.

Q.—And didn't you say "That was the set-up. It was inevitable that the A. M. A. would seek the help of the *Star*. It was inevitable that the *Star* would throw itself enthusiastically into the fight. There *are things in history that never see the light of day.*" McDonald is the name of that reporter I was thinking about. Was there a reporter named McDonald? *A.*—Yes, sir, that was one of their reporters.

Q.—It is a fact, then, that you claim in the book here that the President himself interested himself with the Radio Commission to get your license revoked, isn't that a fact? *A.*—Yes, sir, that was told to me by Vice President Curtis, is where I got my information.

Q.—Vice President Curtis told *you the President himself had interested* himself? *A.*—Yes, sir.

Q.—And the Radio Commission had a hearing with respect to renewing your license, did they not? *A.*—Yes, sir.

Q.—And the Radio Commission of the United States government refused to renew your license in Kansas, did they, Doctor? *A.*—Three did and two didn't.

Q.—But the majority refused to renew your license? *A.*—Yes, sir.

Q.—Now, you have had a pretty severe contest in reference to the state board or authorities out there in California, didn't you? Didn't you apply for a permanent license to practice in California? *A.*—Yes, sir.

Q.—You practiced there a few weeks under a temporary license, didn't you? *A.*—Yes, sir.

Q.—Made $40,000 there, didn't you? *A.*—I don't recall what the gross returns were.

Q.—Something like that, wasn't it? *A.*—I consider it was something like that, yes.

Q.—*Then* after you came back to Kansas isn't it a fact that you were indicted in California and that they sent the officers out to Kansas to bring you back to California?

Mr. Morriss Sr.:—Just a moment. The same objection, that is, the objection that it is immaterial and irrelevant and incompetent to establish any issue in this case, doesn't show any character of wrong upon his part or any character of impropriety or unethical conduct, and it is hearsay.

THE COURT:—What character of indictment was that?

Mr. Brown:—Practicing medicine in conspiracy with another fellow, another doctor, contrary to the laws of California.

THE COURT:—Overrule the objection.

Mr. Morriss Sr.:—And the fact that that happened—in other words, an indictment is no presumption of any man's guilt of anything.

THE COURT:—I think that is perfectly true, counsel, but when you are inquiring into the question as to the intent and motives of a party in writing an alleged libelous article, and when you are inquiring into it not only from the standpoint of a basis of compensatory damages, but you accuse *him of malice and ask for exemplary* damages, you are entitled to put yourself in his place and see what light and information he had that he thought was true that would warrant him in writing this article, and accordingly you are on a different footing. Overrule the objection.

Mr. Morriss Jr.:—But we do move that it be definitely understood as not being admissible except—

THE COURT:—As not being admissible for the purpose of proving the alleged indictment, but simply on the question of mitigation and the question of the good faith of this party in writing this article. All right.

Q.—Well, that is a fact, isn't it, Doctor, you were indicted in California and they sent officers back to Kansas to try to take you to California *A.*—Yes, sir.

Q.—And you were very much displeased with the activities of the United States government in reference to refusing to renew your radio permit, were you not? *A.*—Displeased?

Q.—Yes.

Mr. Morriss Jr.:—The fact that he was displeased is irrelevant and immaterial.

Mr. Brown:—Your honor, it is under the question of the activities of the governmental agency.

THE COURT:—Whether he is displeased or not, what would that tend to prove? *It naturally follows that if he wanted his license renewed* and they wouldn't renew it he wouldn't like it, but I don't like the form of your question.

Mr. Brown:—All right the question is withdrawn.

Q.—Isn't it a fact you stated and circulated matter in reference to your contest with the governmental departments—that you state in this book and circulated that California has a legal record for persecution that stinks to Heaven? A.—It probably is in the book, yes, sir.

Q.—"*Tom Mooney is still in jail there. The United States has a* legal record for persecution that stinks to Heaven." Didn't you put that in about your government with reference to this, and didn't you put that in the book and circulate the book? *A.*—I think it is in there, and the book was circulated.

Q.—There it is—"the United States has a legal record for persecution that stinks to high Heaven." That is in there, isn't it, Doctor? *A.*—Yes, sir.

Mr. Morriss Sr.:—We move the exclusion of that for all of the same reasons and for the further reason it is shown that the article or book is not written by Dr. Brinkley but written by a wholly different man.

THE COURT:—I know, but the doctor said he paid the man to write it. He read it and has been giving it away.

Mr. Morriss Sr.:—He said he read parts of it. He made the statement he never had read it.

THE COURT:—That goes to the weight of the evidence rather than to the admissibility. He is circulating the book, he says he is giving it away. I think that is legitimate examination. Overrule the objection.

Mr. Morriss Sr.:—Note the exception.

Q.—Now, after the Federal Radio Commission refused to renew your permit in Kansas you appealed that case to the Court of Appeals of the District of Columbia, didn't you? *A.*—That is right, yes, sir.

Q.—And that court agreed with the government? *In other* words, they sustained the action of the board in refusing to renew your permit? *A.*—Yes.

Mr. Morriss Sr.:—Same objection, may it please the court, and for the further reason that nothing of that matter is in the publication which is complained of, nor would it be the best evidence.

THE COURT:—Overrule the objection.

Mr. Morriss Sr.:—Note the exception.

A.—The court held with the commission, yes, sir.

Q.—And didn't you print and circulate in this book here throughout the country here that as far as your contest with the government departments was concerned, that the commission and the court ignored all the weight of the evidence, for they were out to get Brinkley? *A.*—Very likely I said that, yes, sir.

Q.—Now, then, you had a license, of course, to practice medicine in the state of Kansas, didn't you? *A.*—Yes, sir.

Q.—And was it the board of health of the state of Kansas *had a* hearing— *A.*—No, the board of medical examiners is the licensing body.

Q.—Of the state of Kansas, they had a hearing on whether they would revoke your license to practice medicine in Kansas, didn't they? *A.*—Yes, sir.

Q.—And you had been practicing medicine in Kansas since 1917, up to— *A.*—1930.

Q.—Was it in 1930 that they revoked your license to practice? *A.*—Yes, sir.

Mr. Morriss Sr.:—We make the same objection to all that, your honor.

THE COURT:—All right.

Q.—So this board who licenses people to practice medicine in Kansas, they had a *hearing in respect to your case*, didn't they, Doctor? *A.*—Yes, sir.

Q.—*And after that hearing* they revoked your license to practice medicine in Kansas, didn't they? *A.*—That is right, yes, sir.

Q.—Yes, sir, and after they revoked your license you appealed that case to the Supreme Court of the state of Kansas, didn't you? *A.*—No, I don't think it went to the Supreme Court of the state of Kansas. I think it went to some federal court.

Q.—Let me see. *A.*—I don't think it went to the Supreme Court of Kansas, I think it went to the federal court.

Q.—Isn't it a fact *that you appealed to the Supreme Court of Kansas* after they had revoked your license to practice medicine? *A.*—I don't think we ever went to the Supreme Court of Kansas after the license was revoked.

Q.—Well, isn't it a fact— *A.*—Maybe we did, but *it runs into my* mind that we went into a federal court.

Q.—I will ask you that in just a minute. Isn't it a fact that on page 244 you say "Meanwhile Brinkley's attorney went before the Supreme Court of Kansas and sought to prevent the hearing"? *A.*—That was before the hearing.

Q.—Oh, excuse me. You claimed that the members of the medical board of Kansas were so prejudiced against you they wouldn't give you a fair trial, isn't that right? *A.*—That is right.

Q—So you went to the Supreme Court of Kansas trying to have your case heard before somebody else or another board or something of that kind? *A*—I declare I don't know what went before the Supreme Court, I don't know what we went before the Supreme Court for.

Q—Anyway, you went before the Supreme Court of Kansas before the hearing? *A*—Yes, sir

Q—And isn't it a fact that in your book here at 244 you copy what the Supreme Court of Kansas said about your case, and didn't the Supreme Court of Kansas say this, or you said this, "The Supreme Court was hardly impartial in its denial of Brinkley's claim, since it went beyond the charges in purporting to express them, holding that they held that Brinkley was 'an empiric without moral sense, and having acted accordingly to the ethical standards of an imposter, the licensee has performed an organized charlatanism until he is capable of preying on human weakness ignorance and credulity to an extent quite beyond the invention of the humble mountebank' . who was 'fleecing the defective, the ailing, the gullible and chronic medicine takers who are moved by suggestion, and is scandalizing the medical profession and exposing it to contempt and ridicule'"? A—Something like that

Mr Morriss Jr—We object to that may it please the court, for the dual reason, first, that it was written in a book which is shown not to have been—he may have authorized it or assented to this man writing his biography and agreed to pay for the publication That doesn't mean he is the writer or author of it—

THE COURT—I have already overruled you on that question, counsel

Mr Morriss Jr—All right Secondly, the other matter is hearsay, and for the further reason it is simply quoting what some other concern said about him

THE COURT—As I understand it, the comment that counsel was just reading, is something that the Supreme Court said, is that correct, counsel?

Mr Brown—Yes, sir, copied by this man

THE COURT—And put in this book and circulated by Dr Brinkley

Mr Morriss Sr—Yes, sir

THE COURT—Overrule the objection I can't see why if the doctor put it in the book and circulated it himself he can take exception

Q—Now, since you have been here in Texas, isn't it a fact that the state medical board of Texas filed suit to revoke your license to practice in Texas? *A*—Yes sir

Q—And they filed that suit up in Dallas didn't they? *A*—No, here in—yes I guess it was Dallas Dallas, yes

Q—Now, in respect to this allegation here about the government agencies being against you his the American government itself, Dr Brinkley, been against you in your desire to practice medicine and your advertisements and your radio talks, has the American government itself been against you? *A*—Well I wouldn't know how to answer that question

Q—Well, isn't—don't you claim that the American government itself—well, I will just say here on page 276 of your book isn't it a fact you state, "The American Government itself now came out openly against" him? *A*—I think I was referring to the State Department, yes sir

Q—The State Department of the United States government? *A*—(No answer)

Q—Now, it says in the article, you see this first paragraph, it says that you are a quack and it said about making money Then we said in the article that the various governmental departments—that you kept on making money notwithstanding the efforts of the various governmental departments and agencies Then down here you also state that you have been damaged because the article says that when your radio station was removed from Kansas—don't you say from Kansas—"he departed to Mexico, obtaining a license from the Mexican Government" Now, when you lost your license to broadcast in Kansas, Doctor, it is a fact that you then went to Mexico and made arrangements for the station across the river from Del Rio isn't it?

Mr Morriss Sr—Same objection

THE COURT—Overrule the objection

A—Yes sir

Q—And you are now broadcasting from station XERA at Villa Acuna, Mexico? *A*—Yes sir

Q—Just across from Del Rio, Texas? *A*—Yes sir

Q—That is true, isn't it? *A*—Yes sir

Q—Isn't it a fact that "all sorts of efforts have been made to remove him from the air, but apparently without success," that is true? *A*—All sorts of efforts were made to remove me

Q—Here is one thing Dr Fishbein said in the article which you now complain of He said all sorts of efforts have been made to remove him from the air, but apparently without success'? *A*—Yes, I quite agree with that part of the article All sorts of efforts have been made to try to close me down put me out of business I agree with them

Q—So that is true, isn't it? *A*—I agree with Dr Fishbein on that

Q—Now, the article says—

Mr Morriss Jr—Just a minute In connection with that we would like to say "all sorts of efforts, that would necessarily mean by some particular person or individual The question would be on whose part If all sorts of efforts have been made by the American Medical Association, by Dr Fishbein, or at his instigation, why of course then it would perhaps be of some bearing, but if somebody else some wholly independent concern, we just think that that sort of thing, that that kind of statement is a shotgun statement and doesn't show anything about who made all sorts of efforts or at whose instigation, and therefore would have no place in this evidence

THE COURT—You seem to be in disagreement with your client He says he is heartily in agreement with it

Mr Morriss Sr—I understand, but we are talking about the legal aspect not talking about whether they were made, but it is not shown by whom

THE COURT—I don't know that I understand what the nature of your objection is what is before the court, but if you are objecting to that last question that was asked and the answer, I will overrule your objection

Q—Now in connection with the sentence in the article that you complain of is right now, that is, February 1938, "right now he is not doing much in the way of goat gland transplanting" That is correct, isn't it, Doctor? You weren't doing any at that time, were you? *A*—I haven't been doing any transplanting since 1933

Q—So that sentence is correct, "right now he is not doing much in the way of goat gland transplanting' Is that correct?

THE COURT—He answered the question, counsel Pass on He answered it

Q—Now, then, we come to this part here where it says "he reads" the article says, "he reads the symptoms of patients and then by remote control prescribes the pill that they should use" Well, isn't it a fact that people write in to you, ever since you have been broadcasting, they write in to you telling you of their ailments and symptoms and so forth? *A*—Yes, sir, they write to me but I don't go back over the radio and answer their letters and prescribe for them

Q—Don't you tell them over the radio what prescription to take? *A*—No sir

Q—Have you ever done that? *A*—Not since 1930

Q—Not since 1930? *A*—No sir

Q—Well, how do you then—do you have any prescriptions now that are numbered? *A*—No, sir

Q—When did you quit numbering your prescriptions? *A*—1930

Q—That is the last time? *A*—Yes, sir

Q—Do you sell 1022 now? *A*—No, I don't sell it

Q—Do you— *A*—Unless you can call selling—you come into my hospital and become a patient and I use it on you I sell it that way, but I don't sell it out through the mail or advertise it to mail to somebody, you send me so much money and I will send you 1020 I don't do that

Q—When did you quit? Say the folks would write in to you and say "I hurt so and so and my symptoms are so and so," and you would take the letter and read it over the radio on broadcasts and say, "I advise this lady to take prescription No 50" *A*—I quit that in 1930

Q—In 1930? *A*—Yes, sir I promised the Federal Radio Commission—we had the hearing in June 1930—that I wouldn't read those letters and prescribe any more over the radio, and I haven't since

Q—But how many years before 1930 did you do that? *A*—I only did it for about a period of six months I began it in the fall of 1929, and the whole thing was over in June 1930

Mr Morriss Jr—Now, then, we move the exclusion of that

THE COURT—Overrule the motion

Q—Did you ever advertise in any of your literature or say over the radio if the people would send a dollar or two dollars in that you would advise them what was the matter with them and tell them what medicine to take? *A*—No I said if anybody wanted a personal letter from me to send two dollars and I would write them a personal letter of advice I didn't say I would send anything I had to do that to overcome so many requests There were thousands of requests wanting me to write them something and it was utterly impossible to do it

Q—Now, then, here is another line you complain of "In addition of course, he has a hospital in Del Rio where he performs some peculiar operations" During that time back there before 1930, when they would write the letters and then you would prescribe over the radio, didn't you have an arrangement with the druggists throughout Kansas where they would have this medicine in the drug stores numbered Dr Brinkley prescription No 50? *A*—The druggist had the prescriptions I had the druggists in five states, which we would call the primary service area of the radio station In other words, our trade territory And these prescriptions were sent to the druggists for their files, so if you came in and said No 50 the druggist would mix it and compound it according to that prescription That is the way it was handled

Q—How many of those numbered prescriptions did you have, do you remember, about? *A*—It seems to me like they ran somewhere from one to fifty, something like that

Q—And the people would write in and then you would read the letter over the radio? *A*—Yes, sir

Q—And you would say "I advise this lady and people that are suffering like her to go to the drug store so and so," whatever drug store she lived by, "and get prescription number so and so"? *A*—No 50 or 60 or 70, whatever it was, yes, sir

Q—And, of course, you got some commission or divided the profits with the druggist, didn't you, Doctor? *A*—I didn't get a commission I had an understanding with the druggists that they were to send so much of their total weekly sales to be applied against the weekly broadcasts In other words, if that wasn't done he would be getting it for nothing

Q—In other words you made some money? *A*—I didn't make any myself, there was no intention to make money out of it It went to the station for operating expenses

Q—Now, the article said you operated a hospital at Del Rio That was correct, wasn't it? *A*—Yes, sir

Q—Now, it said "where he performs some peculiar operations" Well, the operation that you performed on the enlarged prostate, that was different from the standard operation performed for that by the regular doctors, wasn't it, Doctor? *A*—Well the operations I perform are different from the rank and file performed by the regular doctors. Of course, I do transurethral work—

Q—I just wanted to cover that point You performed operations here in Del Rio that were different from the regular standard practice, as you understand it? *A*—Yes, sir

Q—That was adopted by most of the physicians? *A*—Yes, sir

Q—That is true, isn't it? *A*—Yes, sir

Q—And the main one of these is what you call the compound prostate operation for elderly gentlemen, that was the main one, wasn't it? *A*—I call it the surgical technic It used to be called the compound operation

Q—And in which it says "He merely injects a little mercurochrome" You did in that operation, in many cases, inject some mercurochrome into the tubes passing from the main sex glands, didn't you?

Mr Morriss Sr—Just a moment, counsel He misconstrues the statement the way he words that

THE COURT—That is a matter of argument You will have an opportunity to examine the witness

Q—In some cases of course you would do more than inject the mercurochrome, is that right? *A*—In all cases I do more

Q—You do more? *A*—Yes

Q—All right Now, you don't collect from the patients yourself, do you, Doctor? *A*—No, sir

Q—You have some manager, business manager, that makes arrangements about getting paid for the work? *A*—That is right

Q—And do you usually inquire, ordinarily and usually do you inquire of your business manager to see whether your people can pay or will pay before the work is done? *A*—Yes, sir

Q—Ordinarily? *A*—No, sir

Q—Most of the time you do the work without knowing whether you are going to get the money? *A*—I thought you meant did we make inquiry to find out whether the patient had money or not

Q—No, sir Here a man comes, he wants to be operated on and you think he is going to be operated on, whether you endeavor, as a business man of course you endeavor to see if you are going to get your money if you operate on that man? *A*—That is right, yes, sir

Q —Now, in reference to these—you get a whole lot of letters, don't you? A —Quite a few, yes, sir

Q —And you answer—no, I believe you state now that you don't answer those letters over the radio? A —No, sir

Q —But you develop a lot of your business through the mail by correspondence and letters you get from people and letters you write to them? A —Yes, sir

Q —Now, since you have been in Del Rio you haven't used the goat gland operation, as I understand it? A —None whatever, no, sir

THE COURT —He has been asked about that several times, counsel Don't ask him about that again

Mr Brown —I beg your pardon

Q —You have been using what you call your new surgical technic What did you say awhile ago it was? A —Surgical technic, yes, sir

Q —Now, what has been the result in operating on the prostate glands by the use of this new technic? Has it reduced the enlarged glands? A —Yes, sir, it does

Q —Isn't it a fact that you claim that it clears the infection out of the entire human body? A —Not the operation itself but by the ministration of drugs and removal of focal points of infection—

Q —Excuse me— A —Let me explain something to you so you can ask me better questions When we speak of our surgical technic at $750 that not only refers to a man's prostate gland but refers to dental work and everything

Q —I understand about that A —We take a case to clean him up and we call that our surgical technic guaranteed service for lifetime That is what we are talking about, complete service for the patient for whatever he needs

Q —This book published in 1937, on page 301, don't you claim it greatly increases the sexual powers of men and women? A —Well, the work we do—

Q —No excuse me Didn't the book you published in 1937 say that? A —Probably it did

Q —Overcome depressed mental conditions, that is what you said in the book wasn't it? A —I think so yes sir

Q —Didn't you say in the book "He has, as a matter of cold sober fact, changed the color of his patient's hair, smoothed the wrinkles out of their faces and turned their complexions from a sickly pallor of old age and disease back to the ruddy glow of health"? A —That is true

Q —Is that true? A —Yes, sir

Q —What is the closest to $55 000 a week that you ever made? This thing says here it has been reported that sometimes you have made $55,000 a week What is the closest to that you ever got that you recollect? A —I don't think that I ever exceeded over $120,000 to $125 000 in a *month*

Q —In one month? A —So if we divided that by four it wouldn't be that much

Q —You don't think that Dr Fishbein ought to pay you any damages because he said you made $55,000 do you?

Mr Morriss Sr —Just a moment, that is argumentative

Mr Brown —I beg your pardon, your honor

Q —Doctor, you have been the possessor of three fine yachts, haven't you? A —Well I am happy—

Q —I say you have been the possessor of three fine yachts, haven't you? A —I own three yachts yes sir

Q —Well, how many men does it take to run the one you have now? A —It takes twenty one men

Q —A seagoing yacht? A —Yes, sir

Q —You don't want to say it is a fine yacht, do you? A —The one I have now is a mighty nice yacht, yes, sir

Q —Thank you Now, when you go and come across the seas on your summer trips you go in the finest boats, don't you? A —I try to go on good boats, seaworthy boats

Q —Are there any better boats than the *Queen Mary* or *Normandie*? A —If there were I would have been on them

Q —You go on the finest boats and stop in the best suite on the boats, don't you? A —I try to, yes, sir

Q —Isn't it a fact that for yourself and your wife and tutor and little boy you paid $1,900 to get from France back to the United States on the *Normandie*?

Mr Morriss Jr —We object to that as being irrelevant and immaterial

THE COURT —Overrule the objection

Mr Morriss Jr —Note the exception

A —I don't know what I paid the American Express Company I have an unlimited charge account with them, and after the trip was over five or six months later, they sent a statement in to me and my bookkeeper paid the bill

Q —You don't know whether it was $2 000 or $5,000, do you? A —No I suppose it was eighteen hundred or two thousand dollars, I suppose, something like that

Q —Well, in traveling across there on the boats do you and Mrs Brinkley talk to the passengers or not? A —Oh, some of them, if we meet them and get acquainted with them, yes, sir

Q —Doctor, the money is still rolling in to you isn't it, and you make most of your money out of the practice of medicine, don't you? A —Yes, my main income is from my hospital work

Q —And the money is still rolling in, isn't it? A —Well, I don't consider it that way

Q —I don't mean rolling in This thing here says rolling In other words, you are still making good money as a physician, aren't you? A —I have a nice practice

Q —Now, when you were here, when you were here in Del Rio you didn't have a separate hospital, did you? Was your hospital in the Roswell Hotel? A —That is right, we used three floors in the Roswell for hospital purposes

Q —Now, how many rooms does that downtown hospital have, the downtown hospital you have in Little Rock? A —Oh, about fifty

Q —How many patients will the downtown hospital accommodate? A —We can squeeze in forty

Q —Yes, sir Was that a two story building or a three? A —Two stories

Q —Was that an old building or was it constructed as a hospital? A —That was St Luke's Hospital, owned by one of the surgeons down there that died, and I bought it afterwards

Q —And then you have another hospital out in the country about sixteen miles? A —Yes We call that the Country Club Hospital

Q —That is an old *country club out there*? A —No, it was the Shriners' Country Club out there

Q —How many rooms has that got, about? A —You want to know how many patients I can keep out there?

Q —Yes, sir A —So I must tell you we can take care of about fifty patients out there It is in a *different arrangement* from the rooms at the other place There is a large receiving, reception halls, and dining rooms and dance rooms

Q —Do you own that? A —Yes, sir

Q —How many acres are there there? A —Three hundred and seventy five

Q —It was at one time used as a country club? A —I want to correct that statement You asked me if I owned it I don't know whether it means anything or not, but at least I want to try to tell the truth That is in a trust estate for my son, and I am the trustee and manage the trust estate Whether that makes any difference in the answer I don't know

Q —Now, those three floors that you say you had, did you have the whole of the three floors in the *Roswell Hotel here in Del Rio*? A —Well, we had all of the mezzanine floor, and if I am not mistaken I think—I think we had two floors above that, completely to our own use

Q —How many rooms were in there altogether? A —I don't remember We used the mezzanine for administrative purposes and operating room We had our sterilizing equipment and laboratory equipment in the basement

Q —Were any patients on the mezzanine floor? A —No, they were all examining offices and diagnostic offices and treatment offices and operating room and business offices and things like that

Q —Dr Brinkley, under this new technic I understood from Mr Petermeyer that testified yesterday, that you cut the ducts between the testicle and the epididymis, or the fold, or whatever you call it? A —No counsel, we don't cut, we ligate

Q —You tie it? A —Yes, a linen suture

Q —It is just the same as if you cut it, nothing can come through there? A —As long as the suture is on there the patient would be sterile Take the *suture off and he is fertile again*

Q —You say about fifteen of those little ducts from the testicles to the epididymis, each testicle has about fifteen Now, when you perform the operation do you tie all the little ducts between the testicle and the epididymis? A —In some cases they are all tied off In other cases only a part of them

Q —Well, didn't you say in your deposition that that—what was the name of that case Parnell case, when they took your deposition didn't you say three *different times* you *cut them* all you cut all of the efferent duct, tied them off, excuse me, ligated all of the efferent duct reaching from the testicle to the epididymis? A —If my memory hasn't gone bad on that deposition, I stated we ligated a part of that not all of them and I think the counsel asked me "Well how many?" and I said "Probably ten, eight or ten or eleven," something like that

Q —Isn't it a fact in *the deposition* you said three different times you ligated all of them? A —We do ligate all of them in certain cases yes, sir

Q —I can show you that, as to how it came up, as to that time Now isn't it a fact that in that deposition when they asked you about it you said "Question Now, what do you mean by ligating those ducts, state that technique to us please Answer Well, it is talking of the fifteen efferent ducts on each side approximately that number, tying off some of the sections of the testicle so secretions can't pass through the ducts to the epididymis I think that is about as plain as I can say what I mean by ligate Question Do you mean tie off with catgut or linen? Answer Yes, sir, we use linen And you sometimes tie of all fifteen of the efferent ducts Question Of both testicles? Answer That is right If *you don't do it on both* sides you might as *well not* do it at all Question Well, do you do it on both? Answer Yes, sir Question All fifteen ducts? Answer Yes, sir Question Do you ligate the vas as well Doctor? Answer No, sir Question That is the main tube that goes on up, isn't it"—excuse me just a minute A —I think I had already answered you

Q —I want to show how you answered *in the deposition* A —Yes

Q —Doctor, last Sunday night isn't it a fact you offered hundred dollar prizes over the radio to folks that would write the best letter on good health and send it to you and the names of two people that were sick and two people that had enough money to pay their way to Arkansas? A —I didn't specify the number

Mr Morriss Jr —Just a moment We desire to make an objection that that isn't a relevant time, that it is not a matter at the time that is in issue

THE COURT —Don't the courts hold these damages, if there are any damages, are not only retroactive but perspective?

Mr Morriss Jr —Yes, sir

THE COURT —The extent of the injury not only relates to the present and past but is carried forward to the future

Mr Morris Jr —Yes, sir

THE COURT —Accordingly, it would be proper to inquire as to the present condition, what he is doing, how his business is, and that sort of thing

Mr Morris Jr —We don't think it is proper to go into any matters now that wouldn't reflect upon, wouldn't shed any light on the issue of the damages at all

THE COURT —Well, the general allegation is made as to the lack of ethics and the fact that he is a quack I think what he is doing now would be relevant I will overrule the objection

Mr Morriss Jr —Note the exception

Q —That is a fact, isn't it, Doctor? On last Sunday night, substantially, you said you wanted to make a hundred dollar prize, to give it to the one that writes the best letter on health and sends to me the name of two sick people who are able or have money enough to pay their way to Little Rock, Arkansas? A —No, sir, that isn't the way I said it

Q —All right, how did you say it? A —I said "Next Wednesday we are going to divide one hundred dollars in cash into ten equal prizes

Q —Oh, yes A —*What I want you to do* is to take one sheet of paper and complete this in twenty words or less I consider *good health* my most valuable possession because—because what? Complete that in twenty words or less, on a separate sheet of paper send me the names and addresses of men that you are personally acquainted with that you personally know to be sick and in need of our services, physically and financially able to come to see us

Q —Physically and financially able to come *to see you where*? A —Little Rock, Arkansas

Q —Yes, sir And last night isn't *this* a part of your radio address last night, "Do you want to participate in the distribution of $500 cash without your having to send any bottle cap or carton or to buy anything just your intelligence? You are thinking we will listen on the air first This opportunity will close to you, but between now and April 30th there are going to be many men and women receiving distributions" You say I

that last night, didn't you, Doctor? *A*—I never heard the advertisement I don't know a thing about it All I can answer you about it is I told the announcer to make a contest along similar lines and $500 would be awarded May 5th

Q—Who was doing that talking you or— *A*—I wasn't over at the station, I wasn't over there I don't know, I guess Mr Don Howard, the announcer, I suppose

Q—They didn't use a record of your voice or anything of that kind? *A*—He may have Maybe I made a record before I left and went back to Little Rock I made a record last—I made a record last Monday morning and I think I put on that record—

Q—This $500 business? *A*—I believe I did

Q—All right And that came over the air last night, didn't it? *A*—I don't know, I never listened to the station If you heard it I guess it did

Q—Then you don't—excuse me "First prize $100 in cash, second prize $50, third prize $25, fourth prize $10 in cash five prizes of $5 each, and then 290 other cash awards of $1 each, 299 cash awards Each entry you send in has 299 chances to win as much as $100 in cash and listen, folks, it is easy All you have to do is think just think a little and be real sincere and real honest Here is the slogan, 'I consider Dr Brinkley the world's foremost prostate specialist because,'" and that is the blank? *A*—Yes

Q—And complete that in twenty words or less on one sheet That is the idea isn't it? *A*—Yes

Q—That is practicing medicine, isn't it? *A*—What?

Q—Practicing surgery, is that practicing medicine, practicing surgery, please? *A*—No

Q—All right, sir, "and complete that in twenty words or less on one sheet On the second sheet I want you to be real sincere and know what you are doing Just mail at least five names and addresses of men that you are personally acquainted with Be sure you know them be sure you know they are sick and be sure you know that they are in need of Brinkley's hospital service Be sure you know, be sure you know that they are physically and financially able to come to see us Just those five names and addresses on one sheet of paper You complete the slogan 'I consider Dr Brinkley the world's foremost prostate specialist because—blank—on a second sheet of paper, and send it to Dr J R Brinkley, Little Rock Arkansas and this prize ends April 30th and this cash will be distributed May 5th Now, folks, for your own health's sake, for your wife's sake for the sake of your loved ones, if sick don't neglect to send for the book Don't sit down there and listen to me and do nothing about it If undecided, don't know what to do, then listen, then listen to what you can do Come and see us I don't mean come see me or come to see the doctors and the nurses, come to see my patients We have two hospitals full of people Come in the front door or even in the back Meet the patients See what is happening to them They are just people like you And then decide what you want to do" Now, that was your advertisement that went out over the radio last night, wasn't it? *A*—I don't know whether it went out last night or not, but that is my advertisement, so what difference does it make?

Q—Probably this week? *A*—Yes sir

Q—And you send it out over this powerful radio station right across the river isn't it? Is that the station it goes over now? *A*—Yes

Q—How far will that reach, to Canada and all over the United States? *A*—It doesn't get into Canada because of a 50,000 watt station at Toronto knocks it out

Q—Practically all over the United States, is that right? *A*—Not in the East The primary service area of the station is a line drawn through Louisiana, Alabama, Georgia, up around through the Carolinas and Virginia and skirting Pennsylvania, a part of Ohio and across along the circular line passing through the Great Lakes and on down to the coast Of course, now, of a morning when we broadcast the Canada station is not on and the station will reach out all over the United States and Canada but I suppose you are talking about evening broadcasts

Q—Doctor, is this kind of advertising, is it usual for practitioners of medicine in the United States to conduct prize contests such as this? *A*—Not if they want to stay in the American Medical Association

Q—Excuse me Is it usual for practitioners of medicine in the United States to conduct these prize contests? *A*—No, sir, I don't think so

Q—Do you know of anybody else that is talking over big radios offering cash money? *A*—No, sir

Q—Do you know of anybody sending out certificates with red seals on them—give me that—with red seals on them, telling them, if you will come down to the hospital and write the best piece of any ten people we will put a seal on it like a notary seal tell them if they will do that, we will give them an automobile? *A*—No, I don't know of anybody doing that

Q—You are the only one doing that? *A*—As far as I know

Q—Isn't it a fact that on March 22, this year, that you sent out this broadcast over your station 'What is the use of trying to do anything when there is cancer in your prostate gland, because leaving that infection in there for years—there must have been something left out there—what are you going to do about it? You take a risk Why take a chance? You are sick and miserable Is your property doing you any good? Is that money doing you any good? Yet you have worked and made money, made property for the purpose of using it when you need it, and when a man and woman is sick is there any time in your life when you need to spend that money more than a time to get your health back? If you don't supply the money you are going to die You are not going to know health until your body becomes so diseased and so great a sum of money that you can't mortgage the property"—that must be left out— *A*—It is garbled

Q—Yes, I withdraw it "That is the picture that some men and women—of some men and women who neglect their lives poor houses at the end of the road and it might not have been, might not ever have been true if you had acted promptly That is, don't continue to take treatments that are doing you no good I believe that by the time of the end of this broadcast comes you are going to go and call or mail reservations to come to Brinkley's hospital in Little Rock as thousands of people have done and start life again down that road on the poor house This is Dr Brinkley urging you to do it now" There are some portions left out there *A*—It is garbled

Q—That is substantially it? *A*—Some of it is so and some don't make sense

Q—Yes I agree Did you ever say over the radio, Dr Brinkley, in effect Come to me and don't let your family doctor two dollar you to death'? *A*—Yes, sir

Q—How many times have you said that? *A*—I don't know how many times

Q—Throughout how many years have you said that? *A*—I only started that this year That is a new one

Q—Is it? How many times have you said it in the last year? That is, "Come to me, don't let the old family doctor two dollar you to death" *A*—I didn't say the old family doctor, I said don't let your doctor two dollar you to death I don't think I said old family doctor

Q—You didn't want to say that, did you? *A*—Oh, I wouldn't say that

Q—Oh Doctor, now, where do you claim, please, that you got your medical education? *A*—I had three years in Bennett Medical College, one year in Eclectic Medical College in Kansas City, Missouri

Q—When did you go to Bennett? Was that in Chicago? *A*—Yes, sir I matriculated in 1908 and left there when the junior year was over, about the 1st of June 1911

Q—Did you go to one right after the other? I mean no skipping there, three solid years? *A*—1908 to 1909, the freshman year solid, 1909 to 1910, sophomore year, was solid, and from the fall of 1910 to 1911 I missed about six weeks of the first part of junior year and didn't get back into school until some time, I think, around the early part of November

Q—Now, where were you during those six weeks that you missed? *A*—Telegraphing in New York

Q—For whom were you working? *A*—Western Union

Q—Do you remember what months those were? *A*—I went down to New York—I think I went down from Montreal, I was telegraphing in Montreal, and I left Montreal, I think it was around September, and went down to New York and resumed work for the Western Union there until some time in November

Q—About how long had you been in Montreal? *A*—I went to Montreal when I got through with my sophomore year in the summer of 1910, and I spent the summer up there

Q—And then you missed, you say, some of the fall term, about six weeks? *A*—Yes, sir

Q—And then you completed your junior year at Bennett College at the end of the spring term? *A*—Yes, sir, in 1911

Q—And when did you go to this Kansas City Eclectic College? *A*—1914 to 1915

Q—So you skipped how many years in there between the Bennett College and the Eclectic College? *A*—Well out of school in the summer of 1911 and not back in school until the fall of 1914 That was three years

Q—And during that time what were you doing? *A*—During the summer of 1911 and fall of 1911 I was practicing medicine in western North Carolina where I was born and raised, by permit of the secretary of the medical board, who knew I was an undergraduate Practiced there until some time, I think it was in October of 1911, going down to Jacksonville, Florida, for a couple of weeks, where I worked for the Western Union Telegraph Company, and left there and went to Whiteville, North Carolina

Q—When was that do you remember? *A*—Well, I think I went to Whiteville, I think I landed in Whiteville right close to the end of 1911 I can't be sure

Q—Yes sir *A*—And that has been so long ago, twenty, nearly thirty years ago I am trying to give you approximately

Q—All right, sir *A*—And some time in there some place I left Whiteville, I don't remember when, I can't remember when I was there, and I went up to St Louis, Missouri, and stayed around there for a short time and came on back to Tennessee, went to Danrich, Tennessee, practiced medicine at Danrich during the summer of 1912, the summer of 1912 I was practicing medicine at Danrich Tennessee During the fall of 1912 I moved down to Knoxville, Tennessee and I practiced around there somewheres toward the close of 1912 and the beginning of 1913, some time during the beginning of 1913—

Q—Now, you didn't have a regular license at that time, as I understand it? *A*—I had a license, undergraduate's license

Q—All right *A*—I had an undergraduate's license in Tennessee I was practicing legally

Q—Did you ever work and practice down at Greenville? *A*—I opened an office there for another man I never practiced there, never have practiced there

Q—What was the man's name? *A*—Mr Burke

Q—What was your partner's name in that venture? *A*—His name was Crawford

Q—Isn't Burke and Crawford the same man? *A*—No, Mr Burke was the owner of a chain of medical offices over the country

Q—What kind of diseases did that chain treat? *A*—Treated two, gonorrhea and syphilis

Q—Now, when you were there at Greenville, that institution you opened up at Greenville, they had paid ads in the paper advertising they would treat gonorrhea and syphilis, didn't they? *A*—I can't remember

Q—What was the name of the institution, the branch office you opened up at Greenville? *A*—The Electro Medic Specialists I think that is the name of it

Q—Do you remember whether—do you remember whether you did any advertising there? *A*—Oh, yes, there was many newspaper advertisements run

Q—Electro Medical Doctors? *A*—It might have been doctors

Q—Where was the store located? *A*—You mean the office?

Mr Morriss Jr—Just a minute It seems to indicate that this was not advertising Dr Brinkley, he was not—this was advertising of some body else, where he simply went to open the place of business for him, so it isn't a question of what the advertisements say for the other doctor, or some other doctor We think that that wouldn't have any bearing here, and besides it is far too remote

THE COURT—Overrule the objection

Mr Morriss Jr—Note the exception

Q—Well, it is a fact that you went down there to Greenville even while just a student doctor, before you ever got your diploma you went down there to Greenville working for a man that had a chain Was that fellow Burke a doctor? *A*—No, sir

Q—And he had these offices in different towns? *A*—Yes, sir

Q—And they treated gonorrhea and syphilis? *A*—That is right

Q—You went down there and opened up to start the office for him in Greenville, North Carolina? *A*—South Carolina

Q—And when you opened up and got ready to start, isn't it a fact you put big ads in the newspaper that you were opening up this office for the treatment of gonorrhea and syphilis? *A*—I know advertisements were run in the paper announcing the opening of the office That is what my business was, to advertise the opening of the office

Mr. Morriss Sr —In connection with that we want to make certain objections I guess your honor wants to quit now

THE COURT —You have made your objection and it was ruled on

Mr Morriss Sr —There is further matter coming on We will try to find out just what it is

THE COURT —We will take a recess

At this time a recess was taken until 2 p m of the same day, at which time the following proceedings were had, in the presence of the jury

Questions by Mr Brown

Q —Doctor when we closed just before dinnertime you had started to say—you had stated that you went down to Greenville and opened up a branch there for Mr Burke and that office was going to treat gonorrhea disease and syphilis and then the question was asked you and I don't think it was answered, whether you had put ads in the paper when you opened up that office there advertising the office to treat gonorrhea and syphilis *A* —I can't remember the contents of the ads but I know there was many ads running in the newspapers announcing the opening of the office

Q —And did you practice there in connection with that? *A* —No, sir

Q —Now what kind of a degree or diploma did you get when you say you got three years? *A* —The Bennett College in Chicago and one year at the Eclectic College

Q —And where was that? *A* —At Kansas City, Missouri

Q —And what kind of a degree or diploma did you get from the Eclectic College at Kansas City? *A* —A degree of M D, Doctor of Medicine

Q —Doctor of Medicine? *A* —Yes, sir

Q —Did it state on there whether it was an Eclectic College, or not or an eclectic degree? *A* —That was the name of the university, the Eclectic Medical University that was the name of the school

Q —What does that mean eclectic? *A* —It is a word meaning to select the best I believe that is the literal translation of the word select the best

Q —Isn't it a fact that Arkansas is the only state in the Union now that will issue a license to practice medicine when a man has gotten a diploma from an eclectic college? *A* —I don't know

Q —Do you know of any other state besides Arkansas that will let you practice if you have graduated from an eclectic school? *A* —Oh yes, I think you can go before many medical boards and get a license to practice

Q —Just upon your degree or diploma? *A* —You would have to take the state board examination

Q —Have to take the examination? *A* —Yes sir

Q —Now, when you graduated from the Eclectic College of Kansas City it is a fact, isn't it, that the whole class went at one time down to appear before the Eclectic Board in Arkansas? *A* —I know most of us went down, but I don't know whether all went down or not, I don't think all went

Q —Practically all? *A* —The majority of them did

Q —Did one of the professors go along with them? *A* —Yes, sir

Q —And there they were admitted to practice medicine in the state of Arkansas? *A* —They passed the examination, yes, sir

Q —That examination was before what is known as an Eclectic Board? *A* —Eclectic Medical Examination Board yes, sir

Q —Now, in reference to your licenses to practice medicine I don't think you answered the question as to whether you had a temporary license to practice medicine in California? *A* —Yes sir

Q —And then you applied for a permanent license to practice medicine in California didn't you? *A* —Yes sir

Q —Did you make an application to practice—that was refused? *A* —Yes, sir

Q —Did you make an application to practice medicine in the state of Illinois? *A* —Yes, sir

Q —Was that refused? A —Yes, sir

Q —As late as 1938 isn't it a fact that you again applied to the state of Connecticut to practice in Connecticut? *A* —In 1938?

Q —Yes, sir *A* —No, sir

Q —Within any recent years have you reapplied for a license to practice in Connecticut? *A* —No, sir

Q —My information may be incorrect *A* —You are wrong there

Q —Since your license was revoked in Connecticut you never have reapplied? *A* —No, sir

Q —Lately have you reapplied to any other state to practice medicine? *A* —No sir

Q —When were you first married, please, Doctor? *A* —1907

Mr Morriss Sr —We just say that anything of that kind is incompetent irrelevant and immaterial to any issue in this case, to ask when he was first married and we can see no pertinency of the inquiry here and we shall object to all testimony along that line

THE COURT —I think a general background from the witness and the plaintiff would be admissible

Mr Morriss Sr —We think it would not be admissible on any ground and it is a matter that can't be legitimately used for any purpose, and the only purpose for which it could be used would be an improper one, and therefore, we shall object to it and all testimony pertaining to it

THE COURT —Reference is made to the family in the article that the suit is on I will overrule the objection

Mr Morriss Sr —Note our exception

Q —When were you first married, please? *A* —1907

Q —And who did you marry? *A* —Sally White

Q —Now, when did you marry your present wife? *A* —1913

Q —And what was her name, please? *A* —Minnie Jones, Minnie T Jones

Q —That was in 1913? *A* —Yes, sir

Q —And did you get a divorce from your first wife? *A* —Yes sir, I did

Mr Morriss Jr —We make the same objection to all of that, if your honor please

Q —When was that? *A* —In the early part of 1913

Q —Was that a citation by publication?

THE COURT —Counsel, I don't think there is anything gained in trying out the divorce case

Mr Brown —I am not going to do it, your honor

THE COURT —It is not in issue here I think it is all right to show the constituents of his family and the effect the article might have had on him, but any questions as to the rights or wrongs of the divorce case—I don't know what they are, but I am not going to inquire into that

Q —Did you remarry your present wife? *A* —I did

Q —In what year, please? *A* —In 1915 or 1916, I forget which

Q —Now, your first wife, did she get a divorce from you or did you get a divorce from her—you say she got one from you too

Mr Morriss Sr —That is objected to

THE COURT —What is the materiality of that?

Mr Brown —Just to show the whole picture of it, your honor

THE COURT —Yes, I know, but the picture may be too broad, and take too long and I don t see that we are interested in that, that is not an issue in this article, and outside of showing what the constituents of the family are and who they are, why, I don't think it is material to go into the question of the divorces

Mr Brown —We except to the ruling of the court

Q —Now, when you were down there in Greenville and opened up that office there, weren't you charged with forgery and practicing medicine without a license? *A* —No, sir

Q —Weren't you arrested there for something?

Mr Morriss Sr —We object to that for all of the reasons That is going back to a period, we assume from the inquiry, to 1911

Mr Brown —1913

Mr Morriss Sr —Well, 1911 to 1915, and the Doctor said he had been practicing with irregularity since 1915, and we say it is immaterial and irrelevant and too remote and that it is not the best evidence and that it is of a nature calculated to prejudice his rights without any rule of law which would admit it, and it is not a proper matter of impeachment

THE COURT —I will overrule the objection

Mr Morriss Sr —Note our exception

A —No, sir, I wasn't arrested there I was arrested in Knoxville Tennessee on a charge that was brought down there

Q —What were those charges, please? *A* —I don't know what the charge was, but I know that this fellow, Crawford—

Q —Excuse me, but I understand about that Isn't it a fact that down at Greenville they charged you with forgery and practicing medicine without a license? *A* —Not to my knowledge, I don t even know what the charge was

Q —Did they take you back to Greenville? *A* —I voluntarily went back

Q —Were you in jail there for any time? *A* —No sir, I didn't stay in jail while I was at Greenville, I stayed—

Q —At the sheriff s house, or something? *A* —Yes sir, at the sheriff s house about forty eight hours, and I paid off these bad checks that this fellow had written

Q —And your lawyer's name was Burke? *A* —I don't remember

Q —And the man with you, he was named J E Crawford? *A* —Yes sir

Q —And did your father put up the money for these checks or your father in law?

Mr Morriss Sr —We object to that

THE COURT —I think that is immaterial

Mr Brown —I just had this in mind, it is shown that he is charged with forgery and we just want to show that his family rustled up the money and paid the fellow that had the checks and they never did prosecute the checks, and that is as to why it wasn't concluded with a conviction or otherwise and that is what we had in mind

Mr Morriss Sr —We will ask the court to instruct the jury not to consider the improper remarks of counsel

Mr Brown —I just wanted to tell the court what I had in mind

THE COURT —Yes, sir, but you must not in telling the court attempt to testify yourself until the court has an opportunity to rule on those matters I will sustain the objection to the question as asked and I will instruct the jury to disregard the remarks of counsel as they are not competent

Mr Brown —We except to the ruling of the court

Q —Now, when you were up there in Milford, Kansas did you plead guilty to a liquor case? *A* —I did

Q —Did you pay a fine? *A* —I did

Mr. Morriss Sr —The witness answered before we could make the objection, and we didn't anticipate it We make the same objection as to that

THE COURT —Isn't that charge made in the article?

Mr Morriss Sr —It is not a charge in issue

THE COURT —The entire article is in evidence in the first place, and in the second place the question as to this man's reputation and the damages sustained, if any, by this article that is issued here—all of these matters that tend to show what his history and record are go to make up his reputation, and for that reason it is admissible in evidence and for that reason I will overrule the objection

Mr Morriss Sr —We except to the ruling

Q —Were you arrested up in Kansas for shooting a man or shooting at him, or something of that kind—had a shooting scrape?

Mr Morriss Sr —Same objection

THE COURT —I understand

A —No, sir I didn't get arrested for shooting at a man

Q —You were arrested in some kind of a find or shooting scrape?

Mr Morriss Sr —We make the same objection There is no indication on earth who was right or wrong

THE COURT —Overruled

A —This fellow had me put under a peace bond because I made some remarks concerning him that caused him to be afraid, I guess and they put me under a peace bond, I don't know whether I was arrested or not but I had to give a bond to not shoot him

Q —As to the different specialties that you followed back there in Greenville, North Carolina you were there, as I understand it, working as a doctor in venereal diseases, gonorrhea and syphilis, is that right? *A* —I wasn't working at all, we were just getting the office opened up there and that was the kind of office it was going to be

Q —And then you have advertised that you can treat cancer? *A* —No sir, I haven't advertised that I treat cancer

Q —That you had a cancer cure? *A* —No, sir What you are referring to is some experimental work that I was carrying out

Q —A cure on cancer—a cure for cancer? *A* —Following the line of reasoning of Maud Slye of Chicago

Q —Have you advertised that your treatment that you have given in your practice will benefit cancer? *A* —No, sir

Q—You haven't? *A*—No sir

Q—Do you advertise that your treatment benefits insanity, Doctor? *A*—I haven't advertised in that sense, but I have reported cases of insanity that I have treated that have later recovered

Q—And, then, of course, you have many of these advertisements that your treatments aid in sexual rejuvenation, haven't you, Doctor? *A*—Yes, sir

Q—We went over that this morning? *A*—Yes, sir

Q—Now, your main specialty is the treatment of the prostate gland, is that right? *A*—Yes, sir, the enlarged and infected prostate

Q—Doctor, this prescription 1020 that you treat your patients with, when you sell that prescription how much do you get for it? *A*—I don't sell it in the way you mean it

Q—Well I mean how much does it cost the person that is going to get it that comes to your hospital or that you use it on? *A*—Well, it is not given to an individual separately, but it is always in combination bits, never given separately by itself

Q—If they get it, the patient, it costs them a hundred dollars doesn't it? *A*—That would depend altogether some patients pay us a hundred dollars, but they get different kinds of medicine when they are paying that, and they may get the prescription 1020

Q—I am talking about 1020 *A*—Yes sir

Q—The 1020 prescription *A*—There isn't anybody that comes and pays us a hundred dollars and gets 1020

Q—Six tubes of 1020, don t you sometimes sell that for a hundred dollars? *A*—No sir, that wasn't the way it was handled, we used to treat the infected prostates whenever a man came here to the hospital

Q—I am just asking you now about selling it, and how much did you get for prescription 1020?

Mr Morriss Jr—Counsel interrupts the witness, he asks him a question and then he interrupts the witness before he has time to complete the answer, if your honor please

THE COURT—Let him answer the question However I will admonish the witness to listen carefully and answer the question, and do not answer something else—and you will both save time

Q—Did you ever get any money when you gave a patient 1020, Doctor? *A*—Most assuredly

Q—You did? *A*—Yes sir

Q—How much did you get? *A*—Well, I can't answer you that question

Q—Now, what is in this 1020? *A*—1020 is a number that goes on different ampules that I have in my hospital and the ampules are numbered 1020 and those ampules always contain a certain amount of hydrochloric acid one in a thousand, and the twenties indicate 20 cc of liquid in the ampule, and the hydrochloric acid strength of the ampules is one in a thousand, and that is the reason for the 1020 being on that ampule, some ampules 1020 contain nothing but methylene blue water and hydrochloric acid and other ampules contain hydrochloric acid and coloring matter and some of the iodides, and sometimes a small amount of mercury

Q—You mean that this 1020 has different things in it sometimes? *A*—Yes, sir there are varied forms, the idea of the 1020 is to signify a definite thing

Q—I thought 1020 would be the same thing, but I am so ignorant of such a matter One 1020 will have one thing and another 1020 will have another thing, is that it, Doctor? *A*—Yes, sir, and it is identified by the different colors, and there is 1020 blue and 1020 red and 1020 pink and things like that

Q—What do you put in 1020 blue? *A*—1020 blue is a solution of one in a thousand hydrochloric acid methylene blue and water

Q—How much does that material cost you wholesale? *A*—Oh, those ampules in large quantities five thousand or ten thousand at a time, cost less than a quarter apiece I think about eighteen cents

Q—You mean filled? *A*—Yes, sir

Q—About eighteen cents apiece? *A*—I think so, that is if you buy them in large quantities that is true

Q—Are those ampules that have the 1020 on them are they blue (showing witness instrument)? *A*—I don't know whether it was blue or what it was, I would have to see the color before I could tell you

Q—Those were your ampules? *A*—I don't know whether they were or not

Q—Look at them there *A*—I am looking at them I don't know whether they are my ampules or not

Q—Those labels are yours? *A*—I don't know, I have no way of identifying them the way they are there

Q—You can't tell whether they are yours or not, is that what you mean? *A*—No, sir

Q—Where did you have those labels printed? *A*—The labels that go on the ampules—we have the ampules manufactured in the laboratory at New York, and the manufacturing chemists label them in the laboratory

Q—Is there anything different in the labels that you see on there and used to be on your 1020 ampules? *A*—You know, it has been so long since I looked at one of those labels I don't know

Q—This hasn t got a cork in it but it comes up here with glass and is twisted around and is air tight *A*—Yes, sir, and if you want to get it out you have to break the top

Q—You have to break the top? *A*—Yes sir

Q—Now, what do you do with the 1020 blue when you give it to a patient? And how does he take it inside of the body how do you get it into his body? *A*—It is given into a vein

Q—You inject it into a vein? *A*—Yes sir

Q—You don t inject it into a muscle? *A*—No sir

Q—After you inject it into the vein what effect does it have on the patient? *A*—It increases the number of white blood cells

Q—Now, is this 1020 blue that you speak of, is that isotonic? *A*—I don t know whether it is or not

Q—Do you know what isotonic means? *A*—It escapes my mind for a moment, I don t grasp the meaning of it

Q—You don t know what isotonic means? *A*—It escapes me for the moment

Q—Do you know what hypertonic means? *A*—I can't frame a definition in my mind, no

Q—Would you read this please (handing the witness instrument), this is a piece that appeared in the Bureau of Investigation pamphlet of the American Medical Association a laboratory report, and see if that is a correct analysis of your 1020? *A*—Well I don't see anything in here saying anything about the presence of hydrochloric acid

Q—Well, you can turn it over there, it turns over, I believe Yes, sir, there it is (indicating) *A*—My solution contains methylene blue and hydrochloric acid, and I don't see that this says anything about the hydrochloric acid being in there

Q—All right now, you heard Dr Peterson yesterday describe in detail the way you performed the operation at the present time—it is Dr Petermeyer, I beg your pardon *A*—Yes sir

Q—You listened to that description? *A*—Yes, sir

Q—Was it correct, his description of the operation correct? *A*—In a general way, yes, sir

Q—How would you add to it or how do you want to change it? *A*—I would let it stand as it is If I was describing the operation, why, naturally, my description would be a little different

Q—I don t want to take the time— *A*—I will accept his explanation as satisfactory in order to stay out of all of that rehashing

Q—Now, tell us, please does a little goat gland have little nerves there when you take a little testicle out of a young goat, does it have nerves before it is taken out? *A*—Naturally, any living organism in an animal body has nerves and blood vessels

Q—Now explain to us, please, how you could make that little testicle of a little—how old were the goats ordinarily? *A*—About three weeks

Q—That little testicle of a young goat, you claim that that lived and grew after you implanted it in a human testicle? *A*—Some of them seemed to grow and enlarge and others, the majority of them, went through a process of absorption

Q—Absorption? *A*—Yes, sir, they were gradually absorbed

Q—How long did it take to absorb? *A*—I examined patients following the transplantation of them and some of them are gone in three months and some in six months, and I have seen evidence of remnants of them after even one and two years

Q—*You mean to say that little thing lived and was just like a part of* the human testicle and it was living in there after you put it in there? *A*—No, sir, I don't conceive of it that way, I don t conceive of it as being a part of the human testicle

Q—Why wouldn't it just get rotten in there? *A*—If it became infected it would, it would spoil

Q—Well, if you put that little piece of meat in there and it is not getting any blood or anything just laying in there— *A*—You see, the patient s blood naturally bleeds into the little pocket where the gland is placed

Q—Where is it coming from if there isn't a hole in the blood vessel of the human for it to get out? *A*—The gland itself is a sponge like tissue, just like a piece of sponge, and whenever you drop it in a patient where there is an open wound it immediately becomes filled with the blood from the patient, just like a sponge becomes filled with water from a drop of water

Q—You don't claim you connected up the nerves or any blood vessels? *A*—Oh, Lord, no

Q—You just took this little thing separate and put it in that slit in the testicle and sewed it up? *A*—Yes, sir

Q—And the blood in the body of that testicle would squeeze in there to keep that thing alive so it wouldn't rot in there, is that the idea—I may express it very crudely *A*—Naturally when that foreign matter was placed inside the patient's body it was surrounded by the patient s blood vessels, and that would be the first thing that would happen and the blood vessel—I mean the patient's white corpuscles would naturally rush in and in the process of inflammation that would be set up in there in some of these patients there would be a substance like a sac that would really form around this gland, I have opened them up later and seen them where it looked like nature herself had tried to put a capsule around this gland

Q—Now, Doctor, just a question aside here Now, up there in your country hospital, up there in Arkansas, the one out in the country, who now receives the patients there at the hospital, the doctor that admits them into the hospital? *A*—Dr Purcell

Q—How do you spell that? *A*—P u r c e l l

Q—Now, in your advertisements or talks do you tell the patients or the public that you treat prostate glands without surgery? *A*—No, sir

Q—You tell them you treat it without removing the prostate? *A*—Yes, sir, that is it yes, sir

Q—This part of your operation is that you take a tube and an electric needle and put it up there, and that is the surgery that cuts a part of the prostate off, isn t it? *A*—Yes, sir, trims off part of the prostate

Q—Just briefly, without describing the operation, what do you claim is the effect—take a man that is suffering with prostate trouble and you operate on him with the usual and normal operation, what do you claim is the effect of that operation? *A*—The prostate gland is reduced in size

Q—What is the effect that it has on the man? *A*—The man feels better and he becomes more energetic and he gains weight and his appetite becomes better and his outlook on life is better

Q—Does it have any effect on his sexual powers? *A*—Many of the patients say it has a good effect and the sexual powers are increased, yes sir

Q—Sometimes does the patient, after he leaves you, for a post operative treatment and he goes home, does he take along with him some of the tubes of 1020? *A*—No sir, we don t permit that, and we haven t in several years

Q—You used to do that? *A*—Several years ago we did but we do not do that any more

Q—Well now, when the patient took this 1020, when you used to let him take it home and let his own doctor treat him with it these six tubes how much did you charge him for it? *A*—We wouldn t charge him anything for that, sometimes the man had to go home before he could complete the amount that we wanted to give him, so we would send the supply home with him so his physician could complete the treatment

Q—Didn't Dr Petermeyer state that yesterday? *A*—Dr Petermeyer was confused there, we don t charge any patients a hundred dollars and we don t send any medicine to be given hypodermically or intravenously to any patient

Q—I notice on one piece of literature it say 'J R Brinkley, M D,' and what is that M D? *A*—Doctor of Medicine

Q—It says C M, and what is that? *A*—Master of Surgery

Q—Then it says Dr P H *A*—That is Doctor of Public Health

Q—Sc D *A*—Doctor of Science

Q—And then "Chief Surgeon" Now, where did you get all of those degrees from? *A*—Well, on this diploma I have, it says "Doctor of Medicine and Master of Surgery," and that entitles you to say M D and C M if you care to, the Doctor of Science degree was conferred on me by the Chicago Law School, an honorary degree and the Doctor of Public Health was conferred on me by the Eclectic Medical University of Kansas City, Missouri where I received my M D degree

Q.—Who was that that conferred the Doctor of Science? *A.*—The Chicago Law School, Chicago School of Law.

Q.—So, it was the Chicago Law School? *A.*—Yes, sir.

Q.—Do you also put on your names sometimes LL.D.? *A.*—I will declare, I don't know.

Q.—Do you ever claim you have had a degree of LL.D.? *A.*—I don't remember.

Mr. Brown:—That is all the questions we care to ask.

Mr. Morriss Sr.:—We expect to put him on later, but we will not ask any questions now, Your Honor.

THE COURT:—All right.

Witness excused.

Mr. Reynolds:—Your Honor, at this time we would like to introduce a few exhibits, marked Exhibits 39, 40, 41 and 42, inclusive. (Handing instruments to counsel for plaintiff.) While those exhibits are being inspected, we are going to offer these in evidence, it being the marriage license of John R. Brinkley—well, if you wish to inspect those first, (handing instruments to counsel for plaintiff).

Mr. Brown:—Excuse me, Your Honor, but there was a matter that I overlooked to ask Dr. Brinkley.

THE COURT:—Do you want him to resume the stand?

Mr. Brown:—Yes, sir.

THE COURT:—All right.

Dr. John R. Brinkley, recalled as a witness for further cross examination, having been previously duly sworn, testified as follows, to wit:

FURTHER CROSS EXAMINATION

Questions by Mr. Brown:

Q.—Doctor, did you write these letters? (Handing witness instruments.) *A.*—Yes, sir, those letters were written by me.

Mr. Brown:—I offer the letters in evidence (Exhibits 43, 44 and 45).

THE COURT:—What is your objection to this, Counsel?

Mr. Morriss Sr.:—To these and the others, Your Honor, there are quite a number of different documents and there are various different objections to them, and we don't want to encroach upon the rule of discussion of the matter in the presence of the jury, and it brings up the question of some matters about which it will be necessary to put on some evidence.

THE COURT:—Particularly, what are the grounds, without the argument? There is a difference between making the argument and just giving the technical objection.

Mr. Morriss Sr.:—I shall show that the letter of February 8, 1935, is a privileged communication, and that, among others, is the objection. Then, as to all of them that they are immaterial and irrelevant to any issue, and they relate to a wholly different collateral matter not involved in any way in this proceeding, and they are incompetent to establish any issue or any defense in this case.

THE COURT:—All right, I will hear from the other side. I will ask Counsel, without testifying in any way or without attempting to state the contents of these things, to tell me why you think they are admissible.

Mr. Brown:—Your Honor, there is one part that is alleged on here by the plaintiff as to the effect that the doctor continues to make money, not withstanding the efforts of the various governmental departments and agencies, and there is another portion of the article declared on which says he is still on the air in spite of many efforts to remove him from the air, and these letters are written by Dr. Brinkley to the radio station.

Q.—Dr. Brinkley, was Mr. Burke your attorney? *A.*—Yes, sir.

Q.—And did you have a contract and have some business with Radio Station KFEG in St. Joseph, Missouri? *A.*—Yes, sir, I was broadcasting over it by remote control.

At this point there was considerable discussion over the introduction of pamphlets, documents and evidence relative to various incidents which were associated with the career of Dr. Brinkley and as to the possibility of the introduction of such materials.

EVIDENCE OF JACK K. TINGLE

Jack K. Tingle, official court reporter from Dallas, Texas, introduced in evidence copies of broadcasts made by Dr. Brinkley from his station in Mexico in 1931.

TESTIMONY OF DR. EUGENE W. SCHOEFFEL

Dr. Eugene W. Schoeffel, chemist employed by the American Medical Association, testified as to his examination of the contents of ampules sent to the American Medical Association by physicians who had obtained them from patients of John R. Brinkley.

The evidence proceeded:

Q.—Now, Doctor, will you tell us what you determined from your analysis to be the contents of these ampules.

Mr. Morriss Jr.:—The Court notes that our objection goes to all of this.

THE COURT:—All right.

A.—First the material was measured out.

Q.—Just a minute, Doctor, don't tell me how it was all done, but tell the jury what your conclusions were, what your findings were after all of these tests were made, the stuff that was in it, that is what we want to know. *A.*—You want to have the conclusion of the tests?

Q.—That is right. *A.*—The conclusion was placed down that this ampule contained approximately 20 cc. of a bluish- sapphire-like liquid, which had a density—I will have to quote,—

THE COURT:—You may refresh your memory, and I told you that, but you must not read it to the jury, but you can refresh your memory and then testify.

A.—Which had a specific gravity of 0.9985 in respect to water, and at 25 degree solution, 0.9971.

Q.—What do you mean by that last statement, just in ordinary language so everybody can understand it. *A.*—By specific gravity is meant the weight of a measured solution at a certain temperature.

Q.—And does your statement mean that it is about the same as wate as to what you found as regards this specific gravity? *A.*—Somethin like it, very close to distilled water.

Q.—What else was found? *A.*—It was also found that the color o the solution is of the indigo type.

Q.—Will you explain just briefly why you use that term "indigo type"? *A.*—The color chemist knows approximately over 2,000 different blue colors.

Q.—And the indigo type? *A.*—The indigo type is a certain chemical formula by which various shades and hues of blue color can be made.

Q.—Is that the same coloring substance as one gets from methylene blue? *A.*—No, sir, it wouldn't be methylene blue, this is a different color type.

Q.—All right, now, what else was found? *A.*—Besides that, the spectroscopic analysis indicated the presence of several metal elements; however, these elements were found in traces only.

Q.—What do you mean by saying they were found in traces only? *A.*—From one of the tests we found that the solution contained approximately 0.004 of a per cent of dry material.

Q.—0.004? *A.*—0.004.

Q.—Is that in connection with these 20 cc. of material you say were in here after you had obtained that dry material in whatever process you used—could you see it with your own eyes? *A.*—It is an exceedingly small amount.

Q.—And what else was found? *A.*—Besides which we made tests for halogen, and that is the term for chlorine, iodine, fluorene and bromine.

Q.—What did you find? *A.*—0.2 cc. of the solution was tested with 1 cc. of diluted nitric acid and 1 cc. of silver nitrate test solution, and no detectable traces of chlorine could be found.

Q.—With that finding is it possible there was any hydrochloric acid in this solution, or not? *A.*—There is a remote possibility that chlorine could have been present if the entire 20 cc. would have been used.

Q.—And if chlorine were present that would mean hydrochloric acid, would it? *A.*—Not directly.

Q.—It might mean that? *A.*—It might mean.

Q.—From the sum of all of your tests were you able to determine whether or not, and have you a finding as to whether or not there was any hydrochloric acid in this solution? *A.*—I only can say that the tests produced on 0.2 cc. didn't give us a detectable trace of chlorine; however, it is known that a specialty ampule glass under certain conditions gives off traces of chlorine.

Q.—All right, now, Doctor, in making your analysis you spoke about finding dry substances, dry matters, dry materials, and how did you get that from this as it originally appeared? *A.*—The material was dried down in a platinum dish over a waterbath.

Q.—That is the same as boiling? *A.*—Boiling down.

Q.—And how large a speck did you find of dry material, the size of the head of a pin or the size of a pin point, or what—something we can understand. *A.*—Say, the point of a pin.

Q.—And it was from that dry material that all of your subsequent analysis was made. Is that right? *A.*—Yes, sir, after the acidity of the solution was stated.

Q.—What else did you find in the dry materials, if anything? *A.*—I have to refer back (looking at paper); the amount of hydrogen concentration we found to be of a very weak solution, and this led us to believe—

Mr. Morriss Sr.:—We object to what they would believe, Your Honor.

Mr. Reynolds:—I think he is going to—

THE COURT:—He can say what he believed himself, but he couldn't speak for anybody else. He used the term "us," and I don't know what he is talking about.

Q.—You made this analysis yourself, and that is what you are talking about? *A.*—Yes, sir, I do.

Q.—Well, what was it that you actually found, now, without regard to what you believed, at the time when you completed another test, just say what was it you found—I want to know what was in that pinpoint of matter.

THE COURT:—It seems to me the way you develop this is highly technical.

Mr. Reynolds:—It is very difficult.

THE COURT:—I don't know whether it is or not. State the technical proposition in order to get it into the record and then ask in terms of a, b and c what he is talking about. You asked Dr. Brinkley, or co-counsel did, and he said he had methylene blue and a little hydrochloric acid in it and outside of that it was water; now, you can take one of these chemists, one of these ten chemists, and he could probably talk to us about that for a week, take a little pinpoint of solid matter and break it down and talk about it a long time and nobody would understand it, and you are not getting anywhere.

Q.—The last question is to tell us, just enumerate the substances you found in that little point of a pin of matter, if you haven't named them all. *A.*—Traces of metallic elements, approximately 0.003 of a per cent of indigo type dye, and most of the indigo type dyes contain a small, practically immeasurable amount of sodium chloride, and the ampules also give off sodium chloride.

Q.—Did you find this substance to be an isotonic substance? *A.*—No, sir, the substance wasn't isotonic.

Q.—Will you explain to the jury, so that we can understand it, what we mean by isotonic? *A.*—Isotonic is understood to be a solution which is comparable with a 0.9 per cent sodium chloride solution, and it is generally called a physiological salt solution, and if the solution is below the content of 0.9 sodium chloride, the solution is called hypotonic, and if it is above 0.9 per cent sodium chloride it is called hypertonic.

THE COURT:—Now, wait a minute. The province of the Court in presiding over the trial is to proceed in order to get something out of it, and you asked him to explain that so we could understand it, and, after all, I suppose the purpose of putting the witness on was to find what he found in the ampules and say it so somebody besides a chemist can understand it, and if the ampule had medicine or chemical properties that had some significance, let him say so, and if it was nothing but colored water, let him say so, but a man can talk about H_2O and he may know what it is, but the general public wouldn't know it is water; so, let's talk in the terms of the Court and the Jury.

Mr. Reynolds:—He can't go into the therapeutic effects because it takes a doctor to do that, and we will tie that up later.

The cross examination brought out the fact that the ampules had been handed to the witness by Dr. P. N. Leech, director of the laboratory of the American Medical Association.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - : Eight dollars per annum in advance

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SATURDAY, MAY 13, 1939

THE WAGNER NATIONAL HEALTH BILL

In the Organization Section of this issue of THE JOURNAL appear statements of hearings held before the Senate Committee on Education and Labor last week, before which appeared Senator Wagner himself, Miss Josephine Roche and later Dr. Arthur W. Booth, representing the Board of Trustees of the American Medical Association. Previously representatives of many farm agencies had appeared before the Senate committee urging legislation to increase federal expenditure for health. At a subsequent date representatives of some of the various state medical societies will appear before the Senate committee, as will also a group of representatives of the American Medical Association.

Easily apparent thus far is the failure of the Interdepartmental Committee to Coordinate Health and Welfare Activities to be influenced to any considerable extent by the various agencies which appointed committees to consult with the committee. When the President of the United States sent the National Health Program to the Congress in January, recommending careful study rather than enactment, it was apparent that the National Health Program had not been modified in any appreciable manner as a result of such hearings. Moreover, in her statement before the Senate committee last week Miss Roche again emphasized the assertion that the statistics in the National Health Survey had not been challenged, notwithstanding the fact that in THE JOURNAL, as well as in many other publications, such challenges have been made. Especially notable, of course, are the considerations of the American Hospital Association and the Catholic Hospital Association, which certainly have challenged some of the statements relative to the needs in the hospital field. Indeed, the most significant challenge yet made appears in the words of Alphonse M. Schwitalla, S.J., who says "If all this is social security, if all this is necessary for the preservation of the national health, then justly a philosophy of health care must be restated, and medical practice and hospital practice as today understood must be razed to give way to overpowering structures of huge bureaus, national councils and state organizations founded not upon Christian inspiration but upon legal enactment." If any further challenge is needed, readers of THE JOURNAL are referred especially to the general statement presented by Dr. Arthur W. Booth, Chairman of the Board of Trustees, which appears on page 1972 of this issue.

The representatives of the American Medical Association who will appear before the Senate committee at a later date will present facts and documents which controvert absolutely some of the statistics and data on which many of the recommendations in the Wagner National Health Bill are based. The medical profession will do well to bear in mind that the House of Delegates of the American Medical Association at the session to take place in St. Louis next week no doubt will express clearly the point of view of the American Medical Association in this proposed legislation.

THE CALL FOR THE PHARMACOPEIAL CONVENTION OF 1940

The President of the U. S. Pharmacopeial Convention is authorized to issue a call for the decennial meeting on May 1 of the year preceding the meeting. By this time various medical societies and medical colleges, as well as various pharmaceutic groups, should have received the call and the request to send delegates. Before the Pharmacopeial Convention of 1930 the Council on Pharmacy and Chemistry[1] urged all organizations, medical, pharmaceutic, chemical and others, carefully to select delegates noted for high ideals, for breadth of vision and for sound judgment as well as for technical knowledge. The aims and purposes of the Pharmacopeia were admirably expressed by its principal founder, Lyman Spaulding, M.D., in the preface to the first edition.

In its editorial of ten years ago THE JOURNAL stated:

> Although federal laws concerned with the control of the purity of drugs provide for the enforcement of drug standards set forth by the Pharmacopeia, the book is not published by or under the control of the federal government. It is published by authority of the United States Pharmacopeial Convention. This body is composed of members who are sent as delegates by national or state associations of physicians, pharmacists and other groups concerned with medicine and drugs, by schools of medicine and of pharmacy, and by certain government services. The convention meets once every ten years, and its chief function is the selection of the Committee of Revision of the United States Pharmacopeia. To this committee is assigned the task of making any desired changes in the Pharmacopeia then in force and of issuing a revised edition of the book. The next Pharmacopeial Convention has been called for May 13, 1930, at which time the delegates appointed by the constituent bodies will meet in Washington, D. C., and inaugurate the preparation of the next, the eleventh, revision of the United States Pharmacopeia.

The convention of 1930 was in many respects unsatisfactory because its conduct was undemocratic and

1. The Call for the Appointment of Delegates to the United States Pharmacopeial Convention, J. A. M. A. 93:989 (Sept. 28) 1929.

unscientific. Astute and industrious interests overwhelmed the convention with their representatives. Fortunately, the Board of Trustees of the U. S. Pharmacopeia, the chairman and his helpers on the Revision Committee were able to carry out their work efficiently. As a result, the Pharmacopeia of 1930, which became official in 1936, was much better than might have been anticipated but it was produced without some assistance which might otherwise have been secured.

The entire method of developing the Pharmacopeial Convention requires radical revision. At present any organization entitled to representation may send three delegates. Medical organizations, unfortunately, do not feel in a position to pay the expenses of three delegates. Some schools of pharmacy and pharmaceutic organizations have full representation because commercial interests are willing to see that delegates participate in the convention. Thus in 1930 medical delegates were outvoted by this arrangement.

When the Pharmacopeia was first devised, distances were great and communications were difficult. It was therefore provided that no one could be a member of the Revision Committee unless he attended the Pharmacopeial Convention. The Revision Committee of 1930 was deprived of the services of many good men, had they been willing to serve, on no other ground than that they had not attended this haphazard, ill conducted convention. Medicine has asked either that it be given equal representation on the Revision Committee or that, as it requested in 1930, it be given one third representation, with the understanding that therapeutic scope shall be controlled entirely by the medical group and that questions of pharmaceutic necessity be decided by the pharmaceutic group. This was denied. If the cooperation of the medical profession is to continue, some effort must be made to meet the reasonable demands set forth in 1930.

In various meetings of the Council on Pharmacy and Chemistry, the Board of Trustees, and other bodies of physicians, the following principles have been formulated: To correct the evils of one-sided representation it would seem that only one vote should be accorded an organization. This would preclude the practice by some pharmaceutic interests of securing credentials from various organizations or schools and selecting delegates who will vote as they request in the convention. The rules should be corrected so that the most capable men in the country may serve on the Revision Committee, and the prerequisite that a man must attend the convention to serve on the committee should be removed. Until these amendments are made there should be restored the agreement of the 1920 Pharmacopeial Convention that medical men shall control therapeutic scope and pharmaceutic men shall control pharmaceutic scope.

During the past five years progressive leaders in the pharmaceutic field have shown commendable effort in trying to work out some method whereby a reasonable scheme of cooperation with physicians may be established. The Board of Trustees of the U. S. Pharmacopeia met recently with the Board of Trustees of the American Medical Association to discuss means of cooperation. Many physicians believe that the time has come when the Pharmacopeial Convention must decide on the general principles that have been mentioned before they will commit themselves to full participation on the various committees of revision. The medical profession has shown its desire to be cooperative. THE JOURNAL has published during the last year a series of articles on "The Pharmacopeia and the Physician." These articles were published at the request of the Pharmacopeia authorities and they have been received with much favor by both the medical and pharmaceutic professions. To the Pharmacopeial Convention of 1940 only those delegates, medical or pharmaceutic, should be sent who will come with broad-minded attitudes and with the serious wish to work harmoniously toward constructive policies.

Current Comment

SEX HORMONES HOLD THE STAGE

Today the desks of physicians are being flooded again with fantastic advertising claims for sex hormones. New heights have been reached with the publication of two pamphlets, "Perandren" (Ciba) and "Roche Review" (Roche-Organon). The recommendations reveal a policy with little regard for scientific evidence. The name of one of the Roche-Organon preparations, Neo-Hombreol (presumably new manhood oil), is significantly reminiscent of "Lost Manhood" exploitation. And most of the claims are apparently based on one or two experiences in which the reporter has neglected to discount for the power of suggestion. Ciba naively advises testosterone propionate for therapy on the basis of admitted "bits of evidence, published and unpublished." "Atonicity" and "mammary gland pathologies" are among the firm's recommended indications for androgenic therapy. But this is conservatism itself when compared to the opus of the "scientific staff" of Roche-Organon, who have prepared a chart and "dosage schedule" for sex hormones. Here are indications, dosage and everything except references to scientific literature urging androgenic therapy for many conditions, including epispadias, hypospadias (conditions which always have required and always will require surgery) and Graves' disease in women. Estrogenic therapy is prescribed for acne, alopecia, impetigo, Buerger's disease, iridocyclitis, polyarthritis and many another condition. And in the following effusion Mr. Elmer Bobst really "goes to town."

Dear Doctor:

No DOUBT young Juan was greatly admired by all the young ladies of Servas as he matured, for he was a fine looking lad, with a splendid physique and possessed a daring personality. His adventuresome spirit forced him at a very early age to

take a hand in the Moorish Wars, and he was only 33 years old when it led him again to persuade Columbus to let him go along on his second trip to the new world. But by the time the estimable Juan had conquered the Island of Porto Rico and had settled down to the rather soft and engaging life of its Governor, the first shadow of old age started to fall across his pathway. As his vigor began to wane, the Indian legends about the Land of Bimini and its wonderful spring of waters with their marvelous curative powers intrigued him more and more. And soon thereafter Juan Ponce de Leon—for it was none other than the famous Ponce de Leon—set forth on his memorable search for the so-called Fountain of Youth. When Ponce de Leon began his quest of the youth-restoring waters, he was just about fifty years of age. Yes, just about the period of man's life when the downhill journey becomes significant. Is it due to the rapid decrease of the male sex hormone secretion at middle life? More and more physiologists and endocrinologists are coming to that conclusion. A study of the clinical characteristics of the male climacteric, embracing physical, psychological, and functional changes, leads rather definitely to the conclusion that proper administration of testosterone propionate can play the same replacement role in man as does estrogen therapy in the menopause, or female climacteric. Testosterone propionate, which we are making available under the name of Neo-Hombreol, is the active, chemically pure, crystalline propionate salt of the male sex hormone, identical in every respect with the same substance derived from natural sources and with the added advantage of synthetic production. We suggest the experimental use of Neo-Hombreol for combating the annoying symptoms of the male climacteric. Treatment should be started with injections of Neo-Hombreol. For maintenance purpose we then suggest the use of Neo-Hombreol Ointment which is now available in a most accurate dosage form called the Dosule. We will gladly send you a 3-day supply of Neo-Hombreol Dosules if you will make use of the enclosed card.

Sincerely yours,

Elmer H. Bobst,
President.

This flamboyant exploitation obviously presupposes an extraordinary degree of ignorance on the part of the physician. It can do little more than delay the scientific use of these compounds, meanwhile classifying the concerns responsible with others who sponsor reckless claims. The report of the Council on Pharmacy and Chemistry on the Present Status of Testosterone Propionate and on rejection of Perandren, Oreton and Neo-Hombreol appears in this issue of THE JOURNAL, page 1949.

SULFANILAMIDE AND SMALLPOX

Elsewhere in this issue (page 1936) is a report of the treatment of four cases of smallpox with sulfanilamide. In three there was only an evanescent macular eruption which rapidly disappeared, and in the remaining case there were only three pustules. Three additional patients observed about the same time were treated only symptomatically and in all three the typical eruption of smallpox developed. All treated and untreated patients recovered. This interesting observation seems to indicate that sulfanilamide, when given early in the disease, has a beneficial effect on the cutaneous lesions and possibly on the disease itself. Although smallpox is increasing (there were 14,355 cases reported for the year 1938) the disease is now mild, as evidenced by only thirty-five deaths in 1936 out of 7,459 cases in that year. In the presence of such a low case fatality rate, conclusions as to the value of sulfanilamide in preventing mortality from smallpox cannot be drawn from the four cases thus treated.

ABSORBABILITY OF CATGUT

Two recent studies on the absorption of catgut are of much practical importance to surgery. Bates [1] made experiments on adult dogs, using various sizes and types of catgut. After varying intervals it was found that plain catgut excites a prompt and violent exudative foreign body reaction which delays the appearance of fibroblasts and therefore delays wound healing. Large, plain catgut however was absorbed about as fast as the smaller sizes, but no size held throughout the time during which wound support is needed. Chromic catgut was associated with a retarded and lessened exudative foreign body reaction and with the early appearance of fibroblasts and early healing. Further, Bates found that small chromic catgut functions longer than large chromic catgut and that wound support and healing were most satisfactory when the smallest chromic suture was employed. In experiments on human beings, Wolff and Priestley [2] reported tests of the rate of absorption of various types of catgut. On closure of the incision in an unselected series of abdominal operations an interrupted suture of the catgut to be tested was placed through the anterior fascia of the rectus muscle and tied round a loop of nonabsorbable suture material which was permitted to project from the skin. Gentle traction was made on the projecting suture material every day or two after operation until it came out, thus indicating that the catgut was absorbed. In many cases three and four of these test sutures were used simultaneously. Three hundred and fifty-eight strands of catgut were tested on 164 patients. It was found that small sizes of catgut remained unabsorbed as long as or longer than larger sizes. The average absorption time of 000 chromic catgut in one series of patients was fifteen days. In contrast, strands of chromic catgut 1 and 2 of the same brand were absorbed in the average time of 10.6 days. Single strands of catgut lasted as long as double strands. It might be concluded, therefore, that the only advantage in the use of double strands is to secure greater initial tensile strength. In certain cases chromic catgut was absorbed as fast as or faster than plain catgut, although as a rule the process of chromicizing catgut materially lengthens the time necessary for its absorption. Great individual variations in absorption time were found, the greatest when chromicized catgut was used. These investigators further concluded that labels which indicate the length of time necessary for absorption of catgut are entirely fallacious as far as the human being is concerned, that drainage and suppurating wounds do not cause early absorption of catgut, and that certain brands of catgut consistently last longer than other brands. The practical applications of these newer studies of the absorbability of catgut deserve early confirmation and wide attention.

1. Bates, Robert R.: Studies on the Absorbability of Catgut, Am. J. Surg. 43:702 (March) 1939.
2. Wolff, L. H., and Priestley, J. T.: The Absorption of Catgut in Human Beings, Proc. Staff Meet., Mayo Clin. 14:149 (March 8) 1939.

ORGANIZATION SECTION

HEARINGS ON SENATE BILL 1620, THE SO-CALLED WAGNER NATIONAL HEALTH BILL

On May 4, 1939, Senator Robert F. Wagner appeared before the Senate Committee on Education and Labor to present a statement on the National Health Bill. Briefly, Senator Wagner called attention to previous legislation for health, including the Sheppard-Towner Act, the Social Security Act and the legislation establishing the National Cancer Institute. He pointed out that the President had sent the National Health Program with its considerations to Congress for further study.

Senator Wagner pointed out that the costs of medical care have increased as our resources of medical skill, facilities and personnel have advanced, but that inequalities in the distribution of medical care have been widened. He also said that the National Health Bill was drafted in response to a plea from the people that our government take health from the list of luxuries to be bought only for money and added to the list containing the inalienable rights of every citizen.

Mr. Wagner stated that there is no intention to put the federal government into the business of furnishing medical care and that on all the phases of the bill the initiative will rest with the states. Further, that federal encouragement and cooperation will be effected through the traditional method of grants in aid. He then explained the various phases of the bill. In association with preventive measures is a new program, under title XIII, to enable the states to extend and improve existing provisions for the care of the sick and the treatment of disease. He said: "The Social Security Board, which is charged with the administration of this title, is not authorized to give or withhold grants at pleasure, or to require state plans to develop along any predetermined lines. I have said again and again that nothing in the bill requires the states to establish compulsory health insurance. Within the limits of certain necessary standards, the states are free to provide programs of medical care compatible with the needs and desires of their own people, and made effective through methods of their own choice. The state plan may apply merely to people on relief or extend to others higher in the economic scale. It may be financed by general taxation, by the contributions of the beneficiaries of the medical services, or by combinations of these methods. The scope of medical services and the manner of their provision will be for the individual state to decide, so long as the program is statewide or becomes such within five years, involves financial participation by the state, and complies with other standards prescribed by the bill."

Senator Wagner said that the bill does not propose to flood the country with hospitals and health centers, and that no money would be advanced until the submission of a careful state plan. He also defended the reorganization which places the United States Public Health Service under the Social Security administration with the following statement:

"The plan of reorganization recently submitted by the President properly conceives of health protection as an integral part of our efforts toward human security. By placing both the Social Security Board and the Public Health Service in the new Federal Security Agency, the reorganization plan establishes a sound nucleus for the coordination of federal health functions which is so essential to the efficient operation of a national health program."

It was his concept that the exactment of this program would result in the practice of economy, since sickness is responsible for one third of all dependence on public relief or private charity.

"In closing," he said, "I want to pay deserving tribute to the unselfish spirit, enterprise and generosity of the members of the medical profession for the splendid and self-sacrificing labors in alleviating sickness and promoting the people's health. A major purpose of this legislation is to help them to carry more effectively a burden which they have long carried alone. Both in the consideration of the bill and in its administration upon enactment, we bespeak, and we know we will have, the support and cooperation of the members of the noble profession which 'has for its prime object the service it can render to humanity.'"

STATEMENT BY JOSEPHINE ROCHE

Miss Josephine Roche, in her appearance before the Senate Committee on Education and Labor, recapitulated the development of the National Health Program and told the story of the National Health Conference. She emphasized also the deficiency of medical care among the poor and among people with small income, and some of the other statements made in the National Health Survey. In her statement on the National Health Conference she said "At the end of the first day's session, one of the participants asked the question 'Are there any members of this conference who seriously challenge the statements with reference to need which were made this morning?' This question was stated to the conference by the presiding officer. There were no challenges then and there have been none since." Obviously all readers of THE JOURNAL know that the figures of the National Health Survey as to medical care have been repeatedly challenged in many ways by many different agencies.

Miss Roche then proceeded to outline the National Health Program as developed by the Interdepartmental Committee to Coordinate Health and Welfare Activities of the United States government. She then pointed out that her committee did not recommend state medicine or a federally administered system of compulsory health insurance but that it did recommend the assistance of grants in aid. She stated that nineteen groups had met with her committee following the National Health Conference and that these groups were essentially in agreement as to the need for action and, "so far as there were any differences of opinion among some of these groups, they differed only as to how far and how fast such action should proceed." In her conclusion she said:

"May I emphasize that the committee's recommendations are not aimed merely at conditions as they exist today but, in the words of the President of the United States to the National Health Conference, 'we have before us a comprehensive, long-range program, providing for the most efficient cooperation of federal, state and local governments, voluntary agencies, professional groups, mediums of public information and individual citizens.' The committee does not visualize that it is practicable to put into effect immediately the maximum recommendations. It contemplates expansion along well planned lines with a view to achieving operation on a full scale within ten years. However great the difficulties, it must be realized that we shall learn only by doing. The committee therefore feels very strongly that the time has come to make a decision on a national health policy and a beginning on a national health program.

"The bill introduced by Senator Wagner, S. 1620, now under consideration by the Senate Committee on Education and Labor, would translate into reality the recommendations of the Interdepartmental Committee. In view of the importance of the nation's human resources, I trust that this legislation may be given serious and prompt consideration."

STATEMENT OF DR. ARTHUR W. BOOTH, CHAIRMAN OF THE BOARD OF TRUSTEES OF THE AMERICAN MEDICAL ASSOCIATION

On May 5, Dr. Arthur W. Booth, chairman of the Board of the Trustees of the American Medical Association, appeared in behalf of the Association and made the following statements:

I thank the committee for this opportunity to state the position of the American Medical Association with respect to some of the proposals set forth in the pending bill, S. 1620, and for the opportunity to be given later to introduce evidence in support of the Association's position. In order that the committee may better appraise what I say and the evidence to be presented hereafter by the Association, I submit for the record a memorandum showing briefly what the American Medical Association is and what its objectives are. Such information is particularly needed just now because of attacks on the Association, some made in good faith and some made apparently because of selfish interests.

It is sufficient at the present moment to say that the American Medical Association is a federation of state medical asso-

ciations. It is governed by a House of Delegates, made up of 154 delegates elected by the state medical associations of which the American Medical Association is composed; fifteen elected by the several sections into which the Scientific Assembly of the Association is divided, each devoted to a particular branch of medicine, such as surgery, obstetrics and internal medicine; and three appointed, one each by the Surgeon General of the Army, of the Navy and of the Public Health Service from the commissioned medical corps of those services. Of the 173,879 physicians lawfully authorized to practice medicine in the United States, 113,113 were on May 1 of this year members of the Association.

The House of Delegates of the American Medical Association fixes the policies of the organization. The House has not met, however, since the bill now under consideration was introduced. It will assemble on May 15 in St. Louis and will consider the bill, and representatives of the Association will report to your committee as promptly as practicable whatever action the House takes. They will lay before you, too, some of the many data that the Association has assembled during recent years, relative to the economics of medical service from the standpoint of the physician, of the hospital and of the people.

Although the House of Delegates has not had an opportunity to consider the pending bill, it did consider, at a special session in September last, the so-called National Health Program formulated by what is sometimes referred to as "The Technical Committee on Medical Care." This Technical Committee, it should be understood, was created by a committee appointed by the President and known as "The Interdepartmental Committee to Coordinate Health and Welfare Activities." The report of the Interdepartmental Committee to the President, including the report of its Technical Committee, was submitted to the Congress by the President [See H. R. Doc. 120, 76th Congress, 1st session], and S. 1620 proposes to make the recommendations of the Interdepartmental Committee, or some of them, effective. The conclusions of the House of Delegates of the American Medical Association, at its special session in September last, based on the report of the Technical Committee, are therefore relevant to the pending bill and to the deliberations of your committee, so far as the bill is founded on that report.

Judged by the principles laid down in the resolutions of the House of Delegates in September last, S. 1620, as a whole and in many of its details, is unsound, and its enactment would not be in the public interest. Its enactment, it is believed, would prove a costly mistake, jeopardizing the welfare of the people and seriously compromising the future development of the science and art of medicine in the United States. If the federal and state taxes that will have to be imposed to carry this bill into effect must be imposed, then at least a substantial part of the proceeds had better be devoted to providing for the needy adequate food, clothing and shelter. So far as this bill is concerned, hunger, nakedness, cold and storm are to be left to wreak their damage, the bill proposing only to provide medical, hospital and nursing service to cure the damage for a while after it has been done.

If the principles laid down by the House of Delegates are unsound, the Association will welcome enlightenment. Fortunately, the proponents of this legislation have the opportunity of presenting their evidence in support of it before the House of Delegates of the Association meets in St. Louis, May 15-19. That will make it possible for the House to have such evidence before it in the course of its deliberations. If the House that is about to convene finds that modifications of the conclusions of the House that met in September last are called for, it will make such modifications.

Coming now directly to a discussion of the pending bill, I call attention to the fact that it proposes to authorize the imposition on the people of annual federal appropriations of variable amounts, ranging from $98,250,000 upward to an indefinite skyward limit and to require the states that cooperate with the federal government under the act to impose on their people proportionate state appropriations. It may seem paradoxical to speak of "imposing" appropriations on the people, but since every appropriation has implicit in it the taxes that have been or must be levied to provide the money appropriated, every appropriation that is made is "imposed" on the people just as truly as are the taxes themselves. The fact that an appropriation is primarily for the benefit of one class of the population while the taxes necessary to cover the appropriation fall directly on another class, possibly even on future generations, does not alter the situation.

So far as I am informed, no evidence has ever been offered to show that any of the projects embodied in S. 1620 were devised by any of the people of the several states or that the enactment of this legislation is being promoted by them. On the contrary, it is understood that every project embodied in this bill was devised by appointive federal officials and employees, to be handed down to the people on a "take it or leave it" basis. If the bill is enacted, the federal government will levy on the people the taxes necessary to provide for the payment of the cost of all activities authorized under the act and will then say to the people "Unless you come in on this venture, we keep every cent we have taken from you." Propaganda has been and is being organized to advance the plans of the federal proponents of this legislation, but the federal origin and driving force back of all these projects must not be lost sight of. The origin of these projects need not damn them, but it certainly lays on their federal organizers and proponents an even heavier burden of justification than they would have if the projects had originated in the several states. In meeting that burden, inasmuch as the taxes that the bill requires will fall on the people of all the states, its proponents are called on to justify it for each and every state; not for Alabama or Mississippi or Nevada alone but for New York, Pennsylvania, Massachusetts, Illinois and every other state. The prime necessity for such a state by state justification of this bill lies in the fact that, if there are states whose people are destitute and in distress beyond the power of their respective states to aid them, the Congress may appropriate for their relief on such terms as it sees fit, but without using such destitution and suffering in one state as an excuse or justification for imposing tax burdens and federal guidance and control on states whose people are not destitute or suffering and that are able to manage their own affairs.

It has been claimed in support of universality for legislation of this type that the federal taxation and the federal guidance and control that go with it are necessary:

1. To stimulate the states,
2. To equalize the health opportunities in all the states, and
3. To procure uniformity in health activities throughout the United States.

To lay the heavy hand of federal guidance and control on a state may serve quite as well to destroy its initiative as to stimulate it, and to subject every state to federal control and thus to establish uniformity may deprive the federal government of stimuli from the states; and stimuli from the states and a critical attitude on their part are as necessary to federal efficiency as are federal stimuli and criticism needed to insure state efficiency.

The phrase "to equalize the health opportunities in all the states" is a seductive phrase, but what assurance have we that the increase in taxation and the establishment of federal supervision and control to bring health opportunities to a common level, while raising the opportunities in some states, will not degrade the opportunities that exist in others and thus procure equality, certainly, but an equality of doubtful advantage?

To bring about uniformity of health activities among all the states would certainly tend to delay and possibly to diminish and to destroy opportunities in health endeavors for variation and experimentation that is possible under state control alone, which, under our normal constitutional form of government, furnish advantages that are too little appreciated and taken advantage of. The House of Delegates of the American Medical Association, at its special session in September last, emphasized particularly the need for the promotion of local initiative, supported by state aid and guidance if necessary, and by federal aid, guidance and control only when rendered necessary by the destitution or incapacity of the state.

The fact that the authority granted certain federal officers and the money placed at their command, by the Social Security Act, have not already reduced illness and disability to the extent apparently anticipated by some of the proponents of that act seems to have led to the demand in this bill for enlarged authority and more money, as if authority and money were together all sufficient to work miracles in the field of health. If this bill is enacted, in all probability within a year or two we shall have a repetition of our present experience, a demand for more authority and more money, in the vain hope of hastening a millenium in the field of health. But there is no royal road to health, either of the people as a whole or of individuals. Time and effort are required over long periods of years, and, even after such long periods, time and effort will be found to have produced smaller returns in some communities than in others; for conditions over which we have but limited control, such as race, heredity and meteorological conditions, may be the chief determining factors in causing diseases and death.

If the federal government can, in the brief ten years that has elapsed since the Sheppard-Towner Maternity and Infancy

Act was expressly repealed by the Congress, June 30, 1929 [Public No. 566, 69th Congress; 44 Stat. L. p. 1024], go as far as is proposed in this bill in spreading itself over intrastate activities in the field of health and medical service, there would seem to be no limit on its right to expand. A federal subsidy for police service might well give the federal government supervision and control of all police service throughout the country. A federal subsidy for the operation of state systems of assessment and tax collection might be devised to give the federal government supervision over state activities now regarded strictly as state functions. Possibly a line might be drawn against federal encroachment on the legislative activities of a state, but one can readily envisage a federal subsidy for the aid of state legislatures that would lead to the federal direction and control of their functions.

Concerning the action of the House of Delegates of the American Medical Association in special session in September last, there has been some misunderstanding and some misrepresentation. To make clear what the House did, it is necessary to go at some length into its proceedings. In doing so it is necessary to emphasize again the fact that the action of the House of Delegates at that time had reference not to S. 1620 but to the recommendations of the Technical Committee on Medical Care, an agency of the Interdepartmental Committee to Coordinate Health and Welfare Activities created by the President on which that bill seems to rest. It is therefore only as S. 1620 undertakes to translate into organization and action the recommendations of the Technical Committee that the action of the House of Delegates in September 1938 is pertinent.

1. The House of Delegates in September 1938 recommended the establishment of a federal department of health with a secretary at its head, who should be a doctor of medicine and a member of the President's cabinet. S. 1620 provides for no such officer. In fact, it proposes to leave the preventive and curative medical services of the federal government scattered as widely as ever through the federal organization.

2. The House of Delegates proposed that expenditures for the expansion of public health and maternal and child health services should not include the treatment of disease except so far as it could not be successfully accomplished through the private practitioner. The pending legislation purposes to provide for the treatment of disease under various conditions, without in any way safeguarding the existence of the private practitioner.

3. The House of Delegates favored the expansion of general hospital facilities where need exists and emphasized its approval of the recommendation of the Technical Committee stressing the importance of the use of existing hospital facilities. The House of Delegates did not endorse the committee's recommendation for an increase in special hospitals and for what the Technical Committee calls "health and diagnostic centers." S. 1620 includes no provision for the increased use of existing hospital facilities. It does not limit the expansion of general hospital facilities to situations in which need exists. It does propose an extensive program in the field of special hospitals and health, diagnostic and treatment centers.

4. The House of Delegates advocated recognition of the principle that the complete medical care of the indigent is a responsibility of the community and of the medical and allied professions and that such care should be organized by local units and supported by tax funds. It recognized the necessity for state aid for medical care in poorer communities. It proposed the limitation of federal aid to cases in which the state was unable to provide assistance for local communities. S. 1620 proposes to make federal aid for medical care the rule rather than the exception. Nothing has been found in it to limit to persons in need the medical care provided by federal funds.

5. The House of Delegates urged the importance of well coordinated programs for the improvement of food, housing and other environmental conditions for the prevention of disease and the promotion of health. It urged the establishment of a definite and far reaching public health program for the education and information of all the people, to enable them to take advantage of the medical service now available. For these basic needs for the prevention of disease and the promotion of health, S. 1620 makes no provision.

6. The House of Delegates refused to foster any system of compulsory health insurance. S. 1620 proposes to pave the way for compulsory health insurance by leaving to the Social Security Board the determination of what constitutes "methods of administration" necessary for the efficient operation of state plans for medical service. The provisions of the bill for grants to states for temporary disability compensation squint in the same direction. The House of Delegates approved the provision of compensation for loss of wages during sickness, but S. 1620 proposes to provide not merely for loss of wages but to provide medical services also.

7. The provisions of S. 1620, authorizing the chief of the Children's Bureau and the Surgeon General of the Public Health Service to set up what are termed "demonstrations," the provisions for the training of personnel, the provisions for an indefinite number of ill defined "advisory councils" and the provisions for the promulgation by various agencies, federal and state, of rules and regulations are matters that have never come before the House of Delegates of the American Medical Association. Obviously, they are all of serious import and will require careful consideration.

The House of Delegates authorized the appointment of ten physicians, under the chairmanship of Dr. Irvin Abell, President of the American Medical Association, to confer and consult with the proper federal representatives relative to the proposed National Health Program. This committee was not consulted in the framing of the pending bill. Had it been consulted, it is possible that through joint studies and investigations and mutual endeavor a bill would have been produced containing an irreducible minimum of issues between the medical profession of the country on the one hand, so far as it is represented by the American Medical Association, and, on the other hand, the proponents of this legislation, a consummation for which your committee might well most devoutly wish.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—The President on April 25 submitted to Congress Plan No. 1 on government reorganization. He proposed, among other things, to set up a new agency to be known as the Federal Security Agency, in which will be grouped the Social Security Board, the United States Employment Service, the Office of Education, the Public Health Service, the National Youth Administration and the Civilian Conservation Corps. At the head of this new agency is to be appointed an administrator with a salary of $12,000 a year. Representative Taber of New York introduced a concurrent resolution in the House, H. Con. Res. 19, proposing that the Congress reject the President's plan. This resolution was defeated by the House of Representatives May 3, and the President's Plan will become effective on the expiration of sixty calendar days after the date of its submission. S. 685 has passed the Senate, proposing to establish in the United States Public Health Service a Division of Water Pollution Control. S. 1416 has passed the Senate, proposing to make the provisions of the United States Employees' Compensation Act applicable to civil officers of the United States. S. 1964 has been reported to the Senate, proposing to authorize national banking associations to make charitable contributions. H. R. 2987 has passed the House, proposing to compensate any employee of the United States government who shall furnish blood for transfusion to a member or former member of the military establishment who is a patient in a government hospital.

Bills Introduced.—H. R. 5763, introduced by Representative Barry, New York, proposes to authorize national banking associations to make charitable contributions. H. R. 6068, introduced by Representative Knutson, Minnesota, proposes that on all ethyl alcohol withdrawn and used for other than beverage purposes the tax shall be $1.10 per gallon. S. J. Res. 107, introduced by Senator Sheppard, Texas, proposes to authorize the President to award the Congressional Medal of Honor to Dr. Anita Newcomb McGee "in recognition of her splendid service to the United States in organizing a corps of trained nurses for the United States Army during the period of the Spanish-American War and the Philippine Insurrection." S. 2107, introduced by Senator Reynolds, North Carolina, proposes to authorize a pension of $50 a month to all persons who served seventy days or more in the military or naval service of the United States during the Spanish-American War who have reached the age of 65 years, including any woman who

served honorably as a nurse, chief nurse or superintendent of the Nurse Corps under contract. Contract surgeons of the Spanish-American War may not qualify for this pension if the bill is passed. S. 2134, introduced by Senator Schwellenbach, Washington, and H. R. 5727, introduced by Representative Coffee, Washington, propose to amend the Longshoremen's and Harbor Workers' Compensation Act to extend the benefits of it to boommen and raftmen employed in lumbering operations on navigable waters. S. 2138, introduced by Senator Capper, Kansas, proposes to establish in the United States Department of Agriculture a Division of Cooperatives to conduct research in cooperative problems and furnish advisory service to cooperatives. S. 2284, introduced by Senator Walsh, Massachusetts, proposes to authorize the President to appoint in the Navy 100 acting assistant surgeons for temporary service.

STATE MEDICAL LEGISLATION

California

Bill Introduced.—A. 2809 proposes that "All persons, having the ability to pay therefor, and the individuals authorized by the laws of this state to treat the physical and mental condition from which such persons are suffering, and for which hospital facilities are required, are entitled, without discrimination, to the full accommodations, advantages, facilities, services and privileges of any hospital" in the state.

Bills Amended in the Assembly.—A. 2764 was so amended April 28 as to make it the duty of any physician or other person attending a birth to treat both eyes of the infant within two hours after birth with a prophylactically efficient treatment. A. 2177, to amend the workmen's compensation act, was so amended April 25 as to permit chiropractors and osteopaths to render the "medical treatment" which must be furnished injured workmen.

Florida

Bills Introduced.—H. 392 proposes to repeal the present naturopathic practice act and to enact a new practice act for such practitioners. The bill proposes to define naturopathy as "that system or school of medicine which is taught and practiced in the standard schools and colleges of Naturopathy." Such licentiates apparently will have the right to use x-rays, electro-therapy, anesthesia, antiseptics, germicides, parasiticides, narcotics and antidotes. The bill states that "Physicians of the Naturopathic School of Medicine are to be of equal rank and grade as the physicians of the other schools of medicine designated as allopathic, homeopathic and eclectic, to have all rights, except to practice major surgery and to use materials not taught in the standard colleges or schools of Naturopathy." S. 263 proposes to make it the duty of any person attending a confinement case, within two hours after the birth of the child, to instil in each eye of the child a prophylactic solution prescribed by the State Board of Health for the prevention of ophthalmia neonatorum. S. 306 and H. 352 propose to establish at Avon Park, in Highlands County, a branch of the Florida State Hospital for the care of insane persons. H. 527 proposes, as a condition precedent to the issuance of a license to marry, that each party to the proposed marriage present a certificate from a licensed physician stating that the party has been given such examination, including a standard serologic test, as may be necessary for the discovery of syphilis, made not more than thirty days prior to the application, and that, in the opinion of the physician, the party is either not infected with syphilis or, if so infected, is not in a stage of that disease which is or may become communicable to the marital partner.

Illinois

Bills Introduced.—H. 876 proposes to enact a separate drugless therapy practice act and to establish a board of examiners to examine and license applicants for licenses to practice drugless therapy. The bill proposes to define drugless therapy as "a biological, physiological, chemical and material health science and as such employs physical, laboratory or other methods of diagnosis or analysis and such other procedures necessary to proper diagnosis and treat human ailments, diseases, defects, injuries, functions or dysfunctions, abilities or disabilities of the human body by or with manipulations or correction of any displaced tissue of any kind or nature and by or with the administration of, employment or performance of, diet, food, biological substances, vitamins, minerals, herbs or other substances normal to or necessary to the functions of the human body and including mechanotherapy, electrotherapy, obstetrics, phytotherapy, irradiation therapy, psychotherapy, hydrotherapy, thermotherapy, physiotherapy, and physical therapy." H. 922, to amend the motor traffic code, proposes that, on the trial of a defendant charged with driving while under the influence of intoxicating liquor, the court may admit evidence as to the amount of alcohol in the defendant's blood at the time of the alleged commission of the offense, as shown by a chemical analysis of his urine, saliva, breath or other body substance. Evidence that there was, at the time of the alleged commission of the offense, 5 hundredths of 1 per cent, or less, by weight of alcohol in the blood is prima facie evidence that the defendant was not under the influence of intoxicating liquor sufficiently to impair appreciably his driving ability. Evidence that there was at that time from 5 hundredths of 1 per cent to 15 hundredths of 1 per cent by weight of alcohol in the blood is to be relevant evidence but is not to be given prima facie effect in indicating that the defendant was under the influence of intoxicating liquor. Evidence that there was at that time 15 hundredths of 1 per cent or more by weight of alcohol in the blood is prima facie evidence that the defendant was under the influence of intoxicating liquor sufficiently to impair appreciably his driving ability. H. 978 proposes to grant to a hospital caring for a person injured through the negligence of another a lien on all rights of action, claims, judgments and compromises accruing to the injured person because of his injuries. The total amount of the hospital's lien, however, is not to exceed one third of the sum paid or due the injured person.

Massachusetts

Bill Introduced.—H. 2206 proposes to create a special committee to investigate the advisability of the commonwealth's furnishing oxygen tents to stated hospitals.

Michigan

Bills Introduced.—S. 419 proposes to enact a new workmen's compensation act and to provide compensation for workmen suffering disability because of injuries or diseases arising out of and in the course of employment. The employer must pay for such medical, surgical or other attendance or treatment, nurse and hospital service, medicine, crutches and apparatus for such period as the nature of injury or the process of recovery may require. An employee is to be permitted to select his own physician from a list compiled by the department of labor on the recommendation of the medical societies of the several counties. A. 785 proposes to enact a law to regulate the manufacture, distribution and advertising of foods, drugs, cosmetics and devices.

Missouri

Bill Introduced.—H. 717 proposes to condition the issuance of a license to marry on the presentation by both parties to the prospective marriage of certificates signed by the parties in the presence of and executed by a licensed physician or by the director of a laboratory approved by the Department of Health that the parties are free from all venereal diseases.

New York

Bill Introduced.—S. 2021 proposes to continue until March 15, 1940, the temporary state commission created by chapter 743, Laws, 1937, to examine, report on and recommend measures to improve facilities for care of hard of hearing and deaf children and children liable to become deaf.

Pennsylvania

Bills Introduced.—S. 545 proposes to prohibit the operation of a private nursing home or a private hospital without a license from the Department of Welfare. The present law requires licensure for private nursing homes or private hospitals operated for profit. H. 688 proposes to require all hospitals receiving appropriations from the commonwealth to pay each intern an annual salary of not less than $1,000.

H. 1409 proposes a procedure whereby hospitals may be reimbursed by the state for care and treatment rendered indigents injured in motor vehicle accidents. S. 677 proposes to authorize the board of commissioners of any county of the third class to enter into agreements with general hospitals within its boundaries for the care of indigents and part-pay patients afflicted with contagious diseases. S. 732 proposes to require every hospital receiving an appropriation from the state to conclude contracts with all nonprofit hospital service associations authorized to operate within its area. H. 1401 proposes to enact an occupational disease act to provide compensation to workers contracting occupational diseases, as defined in the act, in the course of their employment. The bill proposes to define "occupational disease" to mean only poisoning by arsenic, lead, mercury, manganese, phosphorus, methanol, carbon bisulfide, hydrocarbon distillates or halogenated hydrocarbons, benzol or nitro amido or amino derivatives of benzol; caisson disease; radium poisoning or disability due to radioactive properties of substances or to roentgen ray; poisoning by or ulceration from chromic acid or bichromate of ammonium, potassium or sodium; epitheliomatous cancer or ulceration due to tar, pitch, bitumen, mineral oil or paraffin; infection or inflammation of the skin due to oils, cutting compounds, lubricants, dust, liquids, fumes, gases or vapor; anthrax; silicosis or anthraco-silicosis; and asbestosis.

OFFICIAL NOTES

THE ST. LOUIS SESSION

Special Radio Programs

The following radio programs have been arranged in connection with the annual session of the American Medical Association in St. Louis:

Dr. Irvin Abell, President of the Association, will broadcast over the Blue network of the National Broadcasting Company Monday, May 15, from 4:15 to 4:30 p. m. central standard time. His subject will be "American Medicine Today." Dr. Rock Sleyster, President-Elect, will broadcast over the Columbia Broadcasting System Monday, May 15, from 3:45 to 4 p. m. Dr. Sleyster will be interviewed by Miss Jane Stafford of Science Service.

Dr. W. W. Bauer, Director of the Bureau of Health Education of the American Medical Association, will broadcast over the Blue network of the National Broadcasting Company Friday, May 19, from 4:15 to 4:30. He will present a summary of the scientific and sociological developments at the meeting.

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 1 p. m. eastern standard time (12 noon central standard time, 11 o'clock mountain time, 10 a. m. Pacific time).

Starting April 30, daylight saving time took effect in Chicago. The program is therefore being broadcast at the same hour Chicago daylight saving time, which means one hour earlier central standard time, two hours earlier mountain time and three hours earlier Pacific time. In communities where daylight saving time is in effect there is no change in the hour of the broadcast.

Owing to network conflicts the Chicago broadcast does not occur at 1 o'clock Wednesday but there is a rebroadcast from a recording over station WENR at 8 o'clock each Monday evening (8 o'clock Chicago daylight saving time, 7 o'clock central standard time). The program broadcast each Monday is identical with the network program of the preceding Wednesday.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

May 17. Healthier Babies.
May 24. No broadcast because of radio conflicts occasioned by visit of British sovereigns to the United States.
May 31. Checking Up on Health.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Dr. Vinsonhaler Resigns as Dean.—Dr. Frank Vinsonhaler, dean of the University of Arkansas School of Medicine, Little Rock, has announced his resignation, effective July 1. He will become dean emeritus.

Personal.—Dr. Oneal L. Atkinson has been appointed health officer of Hampton.——Dr. Ralph M. Sloan has been elected a director of the Jonesboro Chamber of Commerce.——Dr. Roy J. Turner has been appointed health officer of Fayetteville. ——Dr. Albert S. J. Clarke, formerly of Clarendon, has been transferred as health officer in charge of district number 16 at Ozark.

District Meetings.—The Fourth Councilor District Medical Society was addressed in Pine Bluff recently by Drs. William M. Adams and John Cash King, both of Memphis, Tenn., on "Acute Trauma of the Face" and "Cooperation Between the General Practitioner and the Roentgenologist." ——At a meeting of the Sixth Councilor District Medical Society in Hope April 6, the speakers included Drs. Thomas E. Strain, Shreveport, La., on "Hypoglycemia in Children"; Joseph E. Knighton Sr., Shreveport, "Chronic Duodenal Pathology"; Sidney J. Wolfermann, Fort Smith, "Socialized Medicine," and Thomas P. Foltz, Fort Smith, "Acute Traumatic Craniocerebral Injuries."——The Third Councilor District Medical Society was addressed at Forrest City April 13 by Drs. John C. Ayres, Memphis, Tenn., on "Anesthesia and Obstetrics"; Rudolph B. McCormick, Memphis, "Infectious Diarrheas in Children"; Sidney J. Wolfermann, "Duodenal Ulcer from the Medical and Surgical Standpoint," and William R. Brooksher, Fort Smith, "Compulsory Sickness Insurance."

CALIFORNIA

School Named in Honor of Dr. Widney.—The Crippled Children's High School, on the grounds of Polytechnic High School, Los Angeles, has been named the "Dr. Joseph Pomeroy Widney High School." The building was completed last year at a cost of $100,000. The late Dr. Widney was the founder of the old college of medicine of the University of Southern California and once served as dean and later president of the university.

COLORADO

Society News.—Dr. Jesse G. M. Bullowa, New York, discussed pneumonia before the Medical Society of the City and County of Denver April 4. Dr. Rudolf Schindler, Chicago, will discuss gastroscopy before the society June 6 and give a clinical demonstration.——At a meeting of the Northeast Colorado Medical Society in Sterling March 9, Dr. William R. Lipscomb, Denver, discussed "Hypertension and Its Surgical Treatment."——The Pueblo County Medical Society was addressed in Pueblo March 7 by Dr. Theodore E. Wade on "Industrial Minor Injuries." Dr. Guy H. Hopkins addressed the society recently on "Ocular Palsies." At the former meeting Dr. Frederic J. Peirce was elected to honorary membership.

CONNECTICUT

The Harvey Cushing Festschrift.—The March number of the *Acta cl* [illegible] is dedicated as a festschrift to Dr. Har[illegible] professor of neurology emeritus, Yale [illegible] Medicine, New Haven, and Moseley professor of surgery emeritus, Harvard Medical School, Boston. The issue contains twenty-five papers, all but two of which are in English.

Society News.—A symposium on cancer and its relation to public health was presented before the New Haven County Public Health Association March 2 by Dr. Matthew Griswold, chief of the cancer research division of the state department of health; Miss Elizabeth Fox, director, New Haven Visiting Nurse Association; Dr. Ashley W. Oughterson, director, tumor clinic, New Haven Hospital, and Dr. John Mendillo, director, tumor clinic, Grace Hospital.——*Dr. Charles H. Best, Toronto,* discussed "Heparin and Thrombosis" before the Yale Medical Society, New Haven, March 8.

State Medical Meeting in New Haven.—The one hundred and forty-seventh annual meeting of the Connecticut State Medical Society will be held at the Hotel Taft, New Haven, May 25-26, under the presidency of Dr. Hugh B. Campbell, Norwich. The speakers will include:

Dr. Roy D. McClure, Detroit, Modern Treatment of Burns—Reduction in Death Rate (movie).
Dr. Addison H. Bissell, Stamford, Treatment of Wounds.
Dr. Edward J. Ottenheimer, Willimantic, Factor of Delay in Recognition of Common Surgical Conditions.
Dr. James Leonard Vickers, Greenwich, Essentials in Fracture Treatment.
Dr. Claude C. Kelly, Hartford, Problem of Cleft Lip and Cleft Palate.
Dr. Chris H. Neuswanger, Waterbury, Urogenital Deformities.
Dr. Arthur S. Griswold, Bridgeport, Congenital Orthopedic Deformities.
Dr. William J. German, New Haven, Management of Congenital Defects of Nervous System.
Dr. Herbert Thoms, New Haven, Essentials of Pelvimetry (movie).
Dr. Carl H. Wies, New London, Rational Therapy.
Dr. Sidney S. Chipman, Norwalk, Vaccines of Value.
Dr. Berkley M. Parmelee, Bridgeport, X-Ray Fallacies.
Dr. Robert Glen Urquhart, Norwich, The Apical Cavity in Pulmonary Tuberculosis.
Dr. Francis G. Blake, New Haven, Sulfapyridine in the Treatment of Pneumonia.
Dr. James R. Miller, Hartford, Treatment Procedures for Cancer of the Uterus Advised by the Connecticut Tumor Clinics.
Dr. Carl E. Johnson, New Haven, Dysmenorrhea.

Among others who will discuss the papers will be Drs. Arthur W. Allen, Boston; Thomas H. Lanman, Boston; Chester S. Keefer, Boston, and John R. Fraser, Montreal.

DELAWARE

Dr. Morris to Direct Birth Control Federation.—Dr. Woodbridge E. Morris, Dover, director, division of maternal and child health and of the crippled children's division of the state board of health, has resigned to become director of the Birth Control Federation of America, with headquarters in New York. Dr. Morris graduated at Johns Hopkins University School of Medicine, Baltimore, in 1933. The federation was formed by the recent merger between the American Birth Control League and the Birth Control Clinical Research Bureau.

DISTRICT OF COLUMBIA

Cancer Campaign.—A cancer-control program was launched April 1. Speakers for lay audiences were provided by the speaker's bureau of the Medical Society of the District of Columbia. The campaign was to be concluded at the end of the month although the educational program is to be permanent.

Hospital News.—A department of syphilology will be established at Garfield Hospital to provide facilities for diagnosis, clinic treatment and hospitalization. To be known as department L, the new division will be in charge of Dr. William H. Hough, and Dr. Russell J. Fields will be director in charge of clinical work. There will also be a social service worker. Services and drugs will be free to those unable to pay.

Society News.—At a meeting of the Washington Ophthalmological Society March 6 Drs. Walter O. Teichmann and Edgar Leonard Goodman spoke on "Skin Lesions Around the Eye" and "Muscle Tendon Transplantation for Paralysis of External Rectus."——The George Martin Kober Medical Society was addressed recently by Dr. Frank M. Hand on "A General Reference to the Extremities of the Body" and Otto H. Wendt, D.D.S., "Eruption of Three Sets of Superior Central Incisor Teeth: Case Report."——Dr. William F. Rienhoff Jr., Baltimore, discussed "Peptic Ulcer" before a meeting of the naval medical and dental officers March 6.——A panel discussion on "Recent Advances in the Anemias" was presented before the Washington Society of Pathologists May 10; Dr. Elbert DeCoursey was the mediator and Dr. Roger M. Choisser the leader.

GEORGIA

Society News.—The Ware County Medical Society was addressed in Waycross April 5 by Dr. Thomas J. Ferrell, Waycross, on "Ruptured Peptic Ulcer."——At a meeting of the Colquitt County Medical Society in Moultrie March 17 Dr. James A. Redfearn, Albany, spoke on "The Nervous Patient."——A meeting of the Georgia Medical Society in Savannah March 28 was addressed by Dr. Richard F. Slaughter, Augusta, on "Cranial Cerebral Trauma." Dr. Samuel F. Rosen, Savannah, reported a case of Bazin's disease.——At a meeting of the Fulton County Medical Society April 20, among others, Drs. William Howard and Hugh E. Hailey discussed "Pruritus Ani et Vulvae and Its Relation to Other Allergic Conditions." Among others, Dr. John F. Denton, Atlanta, presented a paper before the society April 6 entitled "Radium and X-Ray in the Treatment of Gynecologic Conditions."

IDAHO

Changes in Health Officers.—Dr. George H. Bischoff, health officer of Bannock County, has been appointed director of the maternal and child welfare and crippled children's division of the state department of health. He will be succeeded by Dr. James V. Foley.

Society News.—A recent meeting of the North Idaho Medical Society was addressed in Lewiston by Drs. Jean D. Kindschi and Robert H. Southcombe, both of Spokane, Wash., on "Syphilis in Pregnancy" and "Newer Treatments in Psychiatry" respectively.——A special meeting of the Pocatello Medical Society was recently addressed by Drs. Cleveland J. White on skin diseases; James K. Stack, injuries of the wrist, and Stanley Gibson, treatment of respiratory diseases in children. The same speakers who are members of the staff of Northwestern University Medical School, Chicago, addressed the South Side Medical Society recently and the Southwestern Idaho District Medical Society.

ILLINOIS

Physician Honored.—Dr. William F. Scott, Maywood, for many years chief of staff of the Oak Park Hospital, was guest of honor at a dinner April 26 given by the Sisters of Misericorde in honor of his many years of service as chief of the staff of the hospital. Members of the staff presented to the hospital an oil portrait of Dr. Scott, which is to be hung in the hospital gallery, and Dr. Scott was presented with a memorial volume containing the signatures of his friends and associates. Dr. Austin A. Hayden, Chicago, was toastmaster.

Chicago

Dr. Szent-Gyorgyi Will Speak on Oxidation.—Dr. Albert Szent-Gyorgyi, professor of medical chemistry, Royal Hungarian Franz Josef University, Szeged, Hungary, will lecture in the Palmer House May 26 under the auspices of the Institute of Medicine of Chicago, on "The Mechanism of Biological Oxidation."

The Annual Hedblom Lecture.—*Dr. John Alexander*, professor of surgery, University of Michigan School of Medicine, Ann Arbor, will deliver the annual Hedblom lecture sponsored by the Phi Beta Pi Fraternity of the University of Illinois College of Medicine May 17. His subject will be "The Management of Bronchiectasis and Abscess of the Lung."

Personal.—Dr. Max Cutler, director of the Chicago Tumor Institute, recently returned from a cruise around South America in which he gave nine addresses before medical associations and universities. The Chicago Tumor Institute has granted one fellowship to each of the South American countries for graduate instruction in the field of cancer. The fellows will be selected by the deans of the medical schools and the ministers of health.

INDIANA

Society News.—Dr. James O. Ritchey discussed "Serum Treatment of Pneumonia" before the Indianapolis Medical Society April 25 and Drs. Kenneth G. Kohlstaedt and Irvine H. Page, "Sulfapyridine Treatment of Pneumonia." Dr. Andrew C. Ivy, Chicago, discussed "Practical Application of the Newer Concepts of the Physiology of the Digestive System" before the society recently. A symposium on gynecologic surgery was presented before the society March 28 by Drs. Carl Habich, Dudley A. Pfaff, John William Hofmann and Ross C. Ottinger.

IOWA

Instructors in First Aid.—Forty-nine persons received first aid proficiency certificates at the graduation exercises of a Red Cross first aid training course recently completed in Fremont County. Twelve physicians of the county medical society, under the direction of the president, Dr. Ralph Lovelady, Sidney, served as instructors for the group of sixty-two adults, who met each week from Oct. 31, 1938, to Feb. 6, 1939. Personal instruction in bandaging and splinting procedures was given and a demonstration of various resuscitation appliances was conducted. In addition, five minute talks on symptoms, home treatment and prevention of some of the communicable diseases were presented.

KENTUCKY

Home of Ephraim McDowell Restored.—The home of Dr. Ephraim McDowell at Danville has been restored as a memorial to him and to his patient, Mrs. Jane Todd Crawford, and will be formally dedicated May 20. The dedicatory address will be delivered by Dr. Irvin Abell, chairman of the memorial

committee, and President, American Medical Association, and Gov. A. B. Chandler will give the speech of acceptance. A dinner will be held in the evening. The restoration work was done by the WPA and the Commonwealth of Kentucky. The home was presented to the state by the Kentucky State Medical Association.

MAINE

Society News.—Dr. Thomas A. Foster, Portland, discussed "Pyuria in Infants and Children" before the Androscoggin County Medical Association, Auburn, March 16.——Dr. Richard H. Overholt, Brookline, discussed "Developments in the Management of Chest Lesions" before the Cumberland County Medical Society April 21 in Portland.——Dr. Samuel A. Levine, Boston, addressed the Kennebec County Medical Association, Gardiner, April 20, on "Auscultation of the Heart."——At a meeting of the Knox County Medical Association in Rockland, April 11, Dr. Siegfried J. Thannhauser, Boston, spoke on vitamin deficiencies.

MASSACHUSETTS

Health Week in Lynn.—A special program sponsored by the Lynn Young Men's Christian Association marked the twelfth annual "Greater Lynn Health Week" March 11-19. "Youth Health" was the theme of this year's observance. Lectures, radio broadcasts and exhibits were features of the program.

Society News.—Dr. Harry Goldblatt, Cleveland, discussed "Experimental Observations on the Pathogenesis and Treatment of Hypertension" before the New England Heart Association April 28.——Among others, Drs. Frank H. Lahey and Everett D. Kiefer, Boston, addressed the New England Roentgen Ray Society April 21 on "Carcinoma of the Thyroid" and "Lesions of the Small Bowel."——The speakers before the New England Pathological Society in Wrentham April 20 included Drs. Clemens E. Benda, Wrentham, on "The Bone Development in Mongoloid Deficiency"; Thomas G. Cogswell, Worcester, "Epidermoid Cysts"; Harry M. Zimmerman, New Haven, Conn., "Nervous System Lesions in Hyperinsulinism," and Milton C. Winternitz, New Haven, on "Arteriosclerosis."

MICHIGAN

The Hickey Lecture.—Dr. Byrl R. Kirklin, Rochester, Minn., delivered the third annual Hickey Memorial Lecture before the Wayne County Medical Society, Detroit, April 3 on "Bleeding Lesions of the Gastro-Intestinal Tract and Their Roentgenologic Diagnosis."

Portrait of Dr. McKean.—An oil painting by Roy Gamble of the late Dr. George E. McKean will, when completed, be placed permanently in the headquarters of the Wayne County Medical Society. It will be unveiled at the annual meeting of the county medical society. Dr. McKean was president of the society 1919-1920 and served on the board of trustees from 1921 to 1933.

Examination of Mexican Beet Field Workers.—A cooperative plan for protecting the health of Michigan communities from contagious diseases among imported Mexican beet field workers was announced March 10 by the state department of health. The four state associations of sugar beet growers have agreed to pay half the expense of health examinations of field workers before they are brought from Texas and to employ no worker who has not passed a physical examination showing that he is free from tuberculosis and syphilis in infectious stages. The state health department will provide the other half of the cost of the examinations with the aid of funds allotted from the U. S. Public Health Service. The examinations will be made in Texas before the workers are hired by the sugar beet growers' associations. About 10,000 Mexican beet field workers are imported into the state during each growing season and diseases found among these laborers in the past have been a danger to the health of several Michigan communities. According to the state department, an outbreak of Shiga dysentery in Shiawassee County last summer was attributed to this source.

MISSISSIPPI

Personal.—The Gulf Coast Medical Society recently gave a dinner in honor of Dr. Daniel J. Williams, Gulfport, who has been health officer of Harrison County for twenty-five years; he is also a past president of the state medical association.——Dr. William W. Reynolds, Meridian, was recently appointed superintendent of the Matty Hersee Hospital, a state-supported institution, succeeding Dr. George Lamar Arrington.

Society News.—The Delta Medical Society was addressed in Greenville April 12 by Drs. Ira B. Bright, Greenwood, on "Electrocardiogram as an Aid to Diagnosing Heart Conditions"; Joseph G. Peeler, Shaw, "Sulfanilamide—Its Use in General Practice"; Onnie P. Myers, Indianola, "The Management of Diabetes in Country Practice"; Earl T. White, Greenville, "Cancer of the Colon"; James R. Jackson, Belzoni, "Allergy," and Orren W. Hyman, Ph.D., Memphis, Tenn., "What the Present Trend Toward Socialized Medicine Is Going to Do to the General Practitioner."

MONTANA

A Pneumonia School.—According to the *Journal-Lancet* a pneumonia school available to physicians and laboratory technicians in western Montana was recently held at Montana State University, Missoula, under the auspices of the university and the state board of health. The speakers were Drs. Ernest D. Hitchcock, Great Falls; Meredith B. Hesdorffer, Missoula; Raymond F. Peterson, Butte; Burton K. Kilbourne, Helena, and Miss Edith Kuhns, Helena, director of the hygienic laboratory for the state board of health.

NEW JERSEY

New Committee to Control Cancer.—A New Jersey State Committee for the Control of Cancer has been organized to coordinate activities of lay and professional groups, under the auspices of the county medical societies and the American Society for the Control of Cancer. The committee aims to assist medical societies in securing facilities for the treatment of cancer as well as to carry on a campaign of educational publicity. Dr. Joseph H. Kler, New Brunswick, chairman for New Jersey of the American Society for the Control of Cancer, is also chairman of the new committee which is composed of representatives of both medical and non-medical groups.

NEW YORK

Smallpox Reported.—Smallpox has occurred in the village of Colonie, Albany County. The first case was in a man, never vaccinated, who conducts a gas station and trailer camp at stop 19 on the Albany-Schenectady Road. A systematic follow-up of all persons known to have been exposed to the gas station proprietor and his wife was carried out. Widespread publicity was given to the occurrence of these cases.

Personal.—Dr. George Emory Lochner, Albany, was guest of honor at a dinner March 15 given by the board of trustees of the Anthony N. Brady Maternity Home to celebrate his completion of fifty years in the practice of medicine. Dr. Lochner has been chief of staff of the Brady home since its establishment.——The Dutchess County Medical Society gave a dinner April 12 in Poughkeepsie in honor of Dr. Robert W. Andrews, who is moving to Texas after practicing in Poughkeepsie more than forty years. Dr. John C. McClintock, Albany, addressed the meeting of the society on thyroid problems.

New York City

Committee to Study Forensic Psychiatry.—The mayor has appointed a group of physicians and lawyers to serve as a committee to originate a plan of forensic psychiatry to pass on the mentality of persons under charges in New York courts, it is reported. The appointment was made when provision for pay for lunacy commissions was dropped in the city budget. The New York Academy of Medicine, the Bar Association of the City of New York and the New York County Lawyers Association will cooperate in the study which will be in charge of William B. Herlands, commissioner of investigation. Included on the committee will be Drs. John A. Hartwell and Israel Strauss, Mr. George Sylvester and Mr. Irving Brawer.

Another Physicians' Orchestra.—Announcement is made of the formation of the Doctors Orchestral Society of New York. Officers are Drs. Leopold Glushak, president; William S. Thomas, vice president; Charles Auer, treasurer, and Harold Belcher, secretary. Ignatz Waghalter is the conductor. The society plans to hold its premiere in the Town Hall May 26 with Ernest Schelling, American pianist-composer, as soloist. The proceeds of the affair will be donated to the Physicians' Home and the Loan and Relief Fund of the Medical Society of New York. The program will include:

Overture to "Oberon"	Weber
Symphony No. 5 in E minor "From the New World"	Dvořák
Concerto for Piano and Orchestra in A minor	Schumann
"Emperor" Waltz	Strauss

Personal.—Dr. Chrisman G. Scherf, medical superintendent of Metropolitan Hospital, has been named to a similar position at the new Hospital for Chronic Diseases on Welfare Island, according to a recent announcement by the commissioner of hospitals, Dr. Sigismund S. Goldwater. The new hospital will open about July 1, it was stated.——Dr. Victor G. Heiser received the gold medal of the Holland Society of New York April 6 in recognition of his "distinguished service to public health."——Dr. Alexis Carrel of the Rockefeller Institute for Medical Research was awarded the gold service medal of the Rotary Club of New York April 13 "in recognition of a life devoted to the amelioration of human suffering."——Dr. Shirley W. Wynne, former health commissioner, has been named commissioner of the Manhattan Council, Boy Scouts of America.——Dr. Thomas M. Rivers, director of the Hospital of the Rockefeller Institute for Medical Research, has been appointed to the New York City Board of Health by Mayor La Guardia to succeed the late Dr. Carl Boettiger.

NORTH CAROLINA

District Meetings.—Dr. Beverley R. Tucker, Richmond, Va., was the guest speaker at a meeting of the Second District Medical Society in Greenville April 13, on advancements in the treatment of the mentally ill.——The Fifth District Medical Society held a meeting in Lumberton April 6 with the following speakers, among others: Drs. David Henry Poer, Atlanta, on surgical management of goiter; James M. Ruffin, Durham, diagnosis and treatment of conditions causing bloody diarrhea, and Russell S. Beam, Lumberton, sulfapyridine in pneumococcic infections.——The Tenth District Medical Society met in Asheville March 31 in conjunction with the state board of health and the extension bureau of the University of North Carolina. Dr. Robert E. Seibels, Columbia, S. C., spoke on the care of pregnant women. Dr. Horton R. Casparis, Nashville, Tenn., spoke on care of children in infancy.

OHIO

Personal.—The John and Mary Markle Foundation, New York, has awarded a grant of $4,100 to Dr. Carl J. Wiggers, professor of physiology, Western Reserve University School of Medicine, Cleveland, to study the nature of ventricular fibrillation.——Dr. Harry Goldblatt, Cleveland, recently received the "grand scientific award" of the Phi Lambda Kappa fraternity in recognition of his work on essential hypertension.

The Rachford Lectures.—Dr. Ernest W. Goodpasture, professor of pathology, Vanderbilt University School of Medicine, Nashville, Tenn., delivered the Benjamin Knox Rachford Lectures at the University of Cincinnati April 13-14. His subjects were "Experimental Virus Infections of the Chick Embryo" and "Experimental Bacterial Infections of the Chick Embryo." The Rachford Lectureship was established in 1929 in memory of Dr. Rachford, who organized the department of pediatrics in the university.

PENNSYLVANIA

Narcotic Addicts and Epileptics Barred from Driving.—More than 28,000 known narcotic addicts have been barred from obtaining licenses and driving permits in Pennsylvania. They will not be allowed to drive until they can show on competent medical authority that they are cured. The report also said that 5,000 applicants known to be subject to epilepsy have been refused permits and 259 are waiting for special hearings.

Philadelphia

Sectional Meeting on Physical Therapy.—The spring session of the American Congress of Physical Therapy, under the auspices of the New York Physical Therapy Society and the Pennsylvania Physical Therapy Association, was held at Jefferson Medical College, Philadelphia, April 22. Among the speakers were:

Dr. John H. Willard, Abdominal Neuralgia.
Dr. Karl Harpuder, New York, Physical Therapy in Peripheral Vascular Disease.
Dr. Louis Kaplan, Physical Therapy in Fractures Treated with Unpadded Cast.
Dr. Kristian G. Hansson, New York, After-Treatment of Infantile Paralysis.
Dr. Abraham R. Hollender, Chicago, Controversial Problems in Nasal Iontophoresis.
Dr. Gustave Bucky, New York, New Developments in Grenz Rays.
Dr. Jean Saidman, director, Institute of Actinology, Paris, New Methods of Physical Diagnosis and Physical Therapy.
Dr. Joseph T. Beardwood Jr., Philadelphia, Newer Methods of Physical Therapy in the Treatment of Complications of Diabetes.

Pittsburgh

Second Renziehausen Lecture.—Frank G. Young, Ph.D., a member of the scientific research staff of the National Institute for Medical Research, London, England, delivered the second Renziehausen Memorial Lecture at the Mellon Institute April 24. His subject was "The Anterior Pituitary Gland Diabetes." These lectures were established recently by Miss Emilie Renziehausen in memory of her brothers.

SOUTH CAROLINA

Hospital News.—A new Oconee County hospital at Seneca was opened February 6 with accommodations for forty patients. Construction of the hospital was a WPA project representing an outlay of about $75,000.

Society News.—Dr. Frederic W. Schlutz, Chicago, addressed the Columbia Medical Society in Columbia April 10 on "Sulfanilamide Therapy in Pediatric Practice" and Dr. LeGrand Guerry, Columbia, "Reconstruction of Bile Passages Based on a Study of Fifteen Consecutive Cases."

VIRGINIA

Personal.—William T. Sanger, LL.D., president of the Medical College of Virginia, Richmond, received the honorary degree of doctor of humane letters, from Bridgewater College April 3, when he made a Founder's Day address. Dr. Sanger will receive the degree of doctor of laws from the University of Richmond at its June commencement.——Dr. James Brooke Pettis, recently on the staff of the New Jersey State Hospital, Marlboro, N. J., has been appointed director of clinical psychiatry.

Society News.—Dr. Tiffany J. Williams, Charlottesville, addressed the Danville-Pittsylvania Academy of Medicine, April 11, on "Toxemias of Pregnancy."——Dr. Hugh C. Henry, Richmond, has been elected president of the Neuropsychiatric Society of Virginia; Dr. Thomas N. Spessard, Norfolk, vice president, and Dr. Edward H. Williams, Richmond, secretary.——Dr. Edwin C. Hamblen, Durham, N. C., was the guest speaker at the spring meeting of the Southwestern Virginia Medical Society in Bristol April 13 on endocrinology.

WASHINGTON

Hospital News.—A new Shriners' Hospital was dedicated recently in Spokane adjacent to St. Luke's Hospital, where the original building was erected in 1924. Erected at a cost of $85,000, the new building will provide facilities for the care of crippled children.

Spokane Surgical Meeting.—Dr. Edward William Alton Ochsner, New Orleans, was the guest speaker at the annual meeting of the Spokane Surgical Society April 8. Dr. Ochsner gave the following addresses: "Peripheral Vascular Disease," "Thrombophlebitis" and "Surgical Significance of Amebiasis." Members of the society presented papers and conducted clinics.

Graduate Course.—The University of Washington announces its annual extension graduate medical course July 17-21. Instructors this year will include Drs. Andrew C. Ivy, Howard C. Ballenger, Newell C. Gilbert, George H. Gardner and Charles Marshall Davison, all of the staff of Northwestern University Medical School, Chicago. Clinics will be conducted at King County Hospital by local physicians.

WEST VIRGINIA

Personal.—Dr. Walter E. Vest, Huntington, will receive the honorary degree of doctor of science at the June commencement of the Medical College of Virginia, Richmond. Dr. Vest graduated from the college in 1909.

Society News.—Dr. Samuel Iglauer, Cincinnati, addressed the Ohio County Medical Society, Wheeling, April 21, on "Deep Infections of the Neck and Mediastinum."——Dr. Thomas E. Jones, Cleveland, addressed the Ohio County Medical Society April 7 on "Abdominoperineal Resection" and Dr. Leon Herman, Philadelphia, March 24, on "Urinary Infections in the Pregnant Woman."——Dr. Hugo Roesler, Philadelphia, addressed the Kanawha Medical Society, Charleston, April 11 on "Nonmechanical Diagnosis of Heart Lesions."

WISCONSIN

Society News.—Dr. John W. Harris, Madison, addressed the Milwaukee Society of Clinical Surgery March 28 on "An Evaluation of the Various Operative Procedures for the Correction of Uterine Prolapse" and Dr. Edmund H. Mensing,

Milwaukee, on "Prophylaxis of Peritonitis."——The Medical Society of Milwaukee County and the Milwaukee County Dental Society held a joint meeting March 10; the speakers were Dr. Elmer L. Sevringhaus, Madison, on "The General Features of Mineral Metabolism" and Isaac Schour, Ph.D., D.D.S., Chicago, "Calcification of the Tooth as an Index of the Constitutional Pattern of the Child."

GENERAL

American Board Examinations in Ophthalmology.—The American Board of Ophthalmology will conduct a written examination in various cities of the United States, in Honolulu, Puerto Rico and Canada August 5. Formal application for this examination must be received before July 1. General oral examination for successful candidates will be held in Chicago October 7. For information, write at once to the secretary, Dr. John Green, 6830 Waterman Avenue, St. Louis.

Awards for Chemical Research.—Among awards for research in chemistry for the academic year 1939-1940 by the Lalor Foundation, Wilmington, Del., are the following of medical significance: Otto Karl Behrens, Ph.D., Rockefeller Institute for Medical Research, New York, for work on chemistry of peptide metabolism; Andrew Calvin Bratton, Ph.D., instructor in pharmacology and experimental therapeutics, Johns Hopkins University School of Medicine, Baltimore, chemical aspects of chemotherapy of compounds of the sulfanilamide type.

Health Conference in Rio de Janeiro.—The eighth biennial conference of the Health Section of the World Federation of Education Associations will be held in connection with the congress of the federation in Rio de Janeiro, Brazil, August 6-11. A working conference is being developed in which all present will share experiences in health education, health services and physical education in the schools. Brief outlines of each paper will be read when the author, or a representative of his country, is present and before the close of each of the four sessions a summary of the papers and discussions will be presented and acted on by the group. Program and travel information can be obtained from the executive secretary, Health Section Secretariat, 200 Fifth Avenue, New York.

Association for the Study of Goiter.—The American Association for the Study of Goiter will hold its annual meeting in Cincinnati May 22-24. The tentative program includes the following speakers:

Dr. Willard O. Thompson, Chicago, Management of Severe Thyrotoxicosis.
Dr. Elmer C. Bartels, Boston, Coronary Disease in Myxedema.
Dr. Douglas U. McGregor, Hamilton, Ont., Tuberculosis of the Thyroid Gland.
Drs. Samuel F. Haines, Thomas B. Magath and Fred H. Powers, Rochester, Minn., The Hippuric Acid Test in Hyperthyroidism.
Drs. Brien T. King and Frederick Lemere, Seattle, A New and Function-Restoring Operation for Bilateral Abductor Cord Paralysis.
Dr. Warren H. Cole, Chicago, Anesthesia in Thyroidectomy with Special Reference to Avertin.
Drs. Elliott C. Cutler and Stanley O. Hoerr, Boston, Avertin Anesthesia for Thyrotoxicosis.

Awards in National Traffic Safety Contest.—New Jersey won the grand prize for states and Providence, R. I., the grand prize for cities in the annual national traffic safety contest sponsored by the National Safety Council. All states and 1,163 cities participated in the contest. Three other states won first place in their geographic divisions: Oklahoma, Iowa and Washington. Six cities won awards in their population groups: Cleveland and Milwaukee tied among cities with populations of 500,000 or more; Trenton, N. J., 100,000 to 250,000; Saginaw, Mich., 50,000 to 100,000; Waukegan, Ill., 25,000 to 50,000, and Mason City, Iowa, 10,000 to 25,000. Providence won first place in the 250,000-500,000 population group. In addition to these awards the judges gave prizes and honorable mention and named a special honor roll of 157 cities with populations between 5,000 and 10,000 which went through 1938 without a traffic death. New Jersey cut its traffic deaths in 1938 to 885 from 1,378 in 1937. Providence had sixteen traffic deaths in 1938 as compared with forty-one in 1937. The average death rate for all prize winning cities in the contest was 9.9 per hundred million miles traveled; the national average for cities was 14.5. Scoring of the contest was based on a maximum score of 100 possible points. The motor vehicle death rate counted for 50 points and the remaining fifty points were divided among accident reporting systems, traffic engineering and enforcement, child safety programs and public education. Bronze plaques were presented to the governors of the states and mayors of the cities were presented at a dinner at the Mayflower Hotel, Washington, D. C., April 13.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 15, 1939.

Sulfapyridine in the Treatment of Pneumonia

The use of sulfapyridine for pneumonia is the leading therapeutic topic of the day. At the Royal Society of Medicine Dr. L. E. H. Whitby said that the efficacy of this drug had been fully confirmed. Provided the patient could live for twenty-four hours and retain some 5 Gm. the chance of success was greatly increased, whatever the day of the disease on which the treatment was begun. The scheme of dosage of Gaisford and Evans, from 4 to 5 Gm. the first twenty-four hours and 3 Gm. daily thereafter to a total of 25 Gm., was the usual one followed. Stopping administration of the drug within four days was followed by an exacerbation, which in animals was difficult to control. Whether passive immunization with serum or active immunization with vaccine should be combined with the use of sulfapyridine was difficult to say. Patients treated on the fifth day and afterward required only 15 Gm. to produce a crisis and cure. The basic indication for the drug was a definite coccic infection. It had no action on influenza. Its chief disadvantage was gastric irritation and vomiting in about 30 per cent of cases.

Dr. W. F. Gaisford reported a year's hospital experience with sulfapyridine in which he had treated between 600 and 700 patients suffering from infections of the respiratory tract. Of these 400 had lobar pneumonia. Children under the age of 5 years and patients dying within twelve hours of admission to the hospital were not included in the statistics. The total mortality dropped from 23 per cent before the use of the drug to between 6 and 7 per cent. In patients over 50 the drop was from 50 to 24 per cent; in patients under 50, from 17 to 1.6 per cent. In nearly all cases the effect on the temperature was shown by a fall to normal within forty-eight hours of the beginning of treatment. Continuance of pyrexia indicated either a complication or an organism that was not the pneumococcus. There was no indication of any alteration in the rate of resolution. The general condition rapidly improved after the fall in temperature. Toxic effects of the drug were slight, rashes similar to but less severe than those produced by sulfanilamide. Cyanosis was observed in some cases, but it ceased to be a worrying sign. Vomiting sometimes occurred but was rarely so persistent as to prevent retention of a sufficient dose of the drug.

Prof. Alexander Fleming said that sulfapyridine did not seem to kill the pneumococcus, which presumably was killed by the natural defenses of the body. The mortality might be still further reduced if patients were immunized when the drug was given. There was not much time to develop active immunity, but animal experiments indicated that not much active immunity was required when combined with drug treatment.

Dr. Maurice Davidson sounded a note of warning against the indiscriminate way the sulfanilamides were being used by the junior members of the profession. We were not yet in a position to say that they did not cause damage. A drug so potent as to be able to deal effectively with a virulent organism might possibly damage renal epithelium or even the myocardium. The president, Dr. H. L. Tidy, said that the responsibility for the wild use of these drugs in general practice lay with the travelers of drug firms.

Operation for Paralyzed Muscles

The physiologist Prof. W. A. Osborne of Melbourne, in conjunction with Basil Kilvington, showed in 1907 that the regenerating fibers of the cut sciatic nerve of the dog do not travel down the original paths but even cross from one division

to another. The Australian surgeon N. D. Royle has ingeniously turned this pathologic fact to account in the treatment of paralysis (*M. J. Australia* **1**:227 [Feb. 11] 1939). He points out that in anterior poliomyelitis degeneration of a peripheral nerve may follow degeneration of the spinal neuron and that the nerve trunk may contain both normal fibers and sheaths with degenerated fibers. If the nerve is interrupted and allowed to regrow, some healthy fibers will grow into sheaths containing degenerated fibers and so reach the paralyzed muscles, which will regenerate, for Royle has obtained return of power in four successive cases. In one the tibialis anticus was paralyzed and in another all the muscles supplied by the median and ulnar nerves. In the latter case nerve suture and transplantation were performed, in addition to nerve section below the line of transplantation. Royle now adds another typical application.

A boy aged 4 had paralysis from injury of the brachial plexus at birth. There was loss of power in the hypothenar eminence and in the interosseus muscles of the left hand, but the muscles of the forearm supplied by the ulnar nerve had recovered. Royle exposed the ulnar nerve above the elbow and crushed it with strong artery forceps in several diameters so as to disorganize the axis cylinders. A year later the boy had regained power in the paralyzed muscles. The muscles considered by Royle suitable for this operation are the tibialis anticus, which in poliomyelitis often remains paralyzed when other muscles of the anterior tibial group recover, the intrinsic muscles of the thumb, the interossei, the peronei, individual muscles of the posterior peroneal group and any paralyzed muscle in an otherwise normal group. The crushing of the nerve must be done at some distance proximal to its first muscle supply. Thus in the common peroneal nerve it must be done at least 5 cm. above the origin of the supply of the muscles and in the ulnar nerve 1 inch or more above the elbow. The usual orthopedic practice is followed while recovery of the paralyzed muscles is being awaited.

PARIS

(From Our Regular Correspondent)

April 8, 1939.

Prevalence of Brucellosis in France

A report was presented at the February 21 meeting of the Académie de médecine of Paris by Drs. Dubois and Sollier on the incidence and prevention of brucellosis in France. More than 4,000 cases were reported last year, with a mortality of from 6 to 7 per cent. The disease is almost exclusively of animal origin. Of 100 cases, the infection originates in about eighty in sheep, in fifteen in goats and in only about five in cows. There is danger, however, of pigs acting as sources of infection. With the exception of certain portions of Brittany the disease has been reported from every department in France. The object of the report was to draw attention to the inefficacy of present sanitary laws against the disease and the necessity of vaccination of every person in an infected area. Experience has shown that only about one case in twenty or twenty-five is reported. Fortunately this does not have any serious results, because disinfection of the surroundings of the patients with brucellosis has been shown to be of little value. Interhuman contagion is exceptional. The chief value of a declaration of the disease is that it enables the authorities to discover new foci of animal brucellosis and thus enables human beings in that locality to be aware of the dangers surrounding them. Unfortunately, owing to the small number of cases reported by farmers, most of the centers of infection in sheep and goats remain undiscovered. The majority of the sanitary measures are inadequate because of certain circumstances, which include the fact that the mode of contagion is complex in animals; there are certain species which are specially susceptible and there is a possibility for the female to be apparently well and yet be a carrier to an unlimited degree.

VACCINATION

As to prophylaxis, efforts to vaccinate animals against the disease have given only negative results. In general only killed bacteria have been used, but Dr. Dubois has employed since 1934 living and virulent cultures of Brucella abortus suis. Sheep vaccinated by this method have resisted experimental brucellosis as well as a natural form of the disease. At the same time they have not been infectious for animals of the same species in spite of a contact of from one to two years. A study of 480 cases of undulant fever since 1930 shows that seven of eight persons were infected after direct or indirect contact with infected animals and only one of eight after ingestion of milk or cheese. It is impossible to avoid infection of persons whose daily work brings them into constant contact with infected animals. The only method of prophylaxis for human beings is the use of a polyvalent vaccine containing strains of Brucella melitensis of human, sheep and goat origin and also strains of Brucella abortus bovis and suis. The use of such vaccine was begun by the authors in 1929, and more than 5,000 persons have been vaccinated, of whom 3,800 were farmers and 1,200 persons engaged in slaughterhouses or veterinary work. The unquestionable value of this method of vaccination is shown by the fact that undulant fever was observed in numerous nonvaccinated persons, whereas those who had been equally exposed but previously vaccinated were immune.

BERLIN

(From Our Regular Correspondent)

March 27, 1939.

The New Wiener Medizinische Gesellschaft

In the train of events under the new régime in Austria the famous Gesellschaft der Aerzte, like many other time-honored organizations, has lately been dissolved. In 1937 the centenary of the society was celebrated in a manner befitting so illustrious a medical body. The greatest German names in the world of medicine enthusiastically participated in this celebration. The list of speakers and scientific lecturers was brilliant and in keeping with the accomplishments of the society and its reputation. But its continuance was not to be tolerated by the Nazi rulers of Vienna, and, like all other medical societies, it was disestablished, in the 101st year of its existence. In its stead a new Wiener medizinische Gesellschaft was created, designed to serve medical practitioners and scientific research. Naturally only Aryan doctors are admitted to membership and in addition foreigners who are unquestionably in sympathy with the régime. The plan of the new society includes sections for the various special disciplines to take the place of the former societies of specialists. There is also newly added a special section for military medicine. The president of the new society is no distinguished clinician; he is the Nazi district governor of Vienna, that is to say a politician who is also an official of the Nazi bureau of national health.

In his inaugural address, February 4, the new president himself stated that he was well aware that many representatives of science were not wholly in accord with the establishment of the new organization under political rather than under scientific auspices. The president is Dr. O. Planner-Plan. This political control has become necessary, he stated, because as district governor he is better informed about local public health affairs than any one else. Since he has the representatives of science at his beck and call, it is possible for him to draw on consultant opinion in any problem which may arise. As he put it, "Prominent representatives of the various specialties may be commissioned to give an opinion with regard to any questions, and thus their abundant knowledge will be made to serve the nation's health." Dr. Planner-Plan's address was embroidered with a wealth of detail, which may be briefly summarized: The present speedy tempo of the national work program in Germany

not only should be maintained but should be surpassed. This means that a maximal expenditure of energy will be demanded of all German workers and soldiers. A further objective is conservation of the prolonged efficiency of the nation's workers. In this connection the physicians have an important mission to fulfil. Specializing physicians, too, have their respective duties, which the president went on to enumerate.

At each session of the new society a lecture and demonstrations will be given. It is further planned to correct certain bad features of medical practice; above all, an endeavor will be made to effect better collaboration between directors of clinics and specialists active as consultants.

THE NAZI CREED WITH REGARD TO MEDICINE

The principal address at the inaugural session was delivered by Prof. Franz Hamburger, ordinarius in pediatrics (and successor of Pirquet), long known for his Nazi sympathies. He climaxed his talk with the following pronouncement: "National socialism means a revolution in every sphere of our civilization and culture. No phase of western culture is unaffected by it. Most noteworthy of all, and what must remain most noteworthy, is the revolution in the realm of medical science, in the field of public health." The speaker went on to say that, despite the achievements of natural science within the past 150 years, medicine had been on the wrong track. "Medicine has now progressed beyond its old frontiers and has broken out of its shell, thanks to the philosophy and deeds of the führer." The healing art of yesterday has become the planned hygiene of today, the medical knowledge of mankind. Thus pediatrics becomes the medical study of children, gynecology the medical study of women, and so on. "With admirable clarity and logic the führer points the way into these fields, "like a physician by the grace of God he shows us the path to health." The rubbish of which physicians must free themselves is the dross of misapplied science, that pseudoscience in medicine which opposes itself to the clearly ascertainable facts of everyday experience. Hamburger then assailed "that freedom from preconception" which has been such a source of pride. "A real renascence of medical science, on Nazi foundations, must take place." That which is taught by university professors must be completely founded on the tenets of the Nazi program of life and health. "This should be easier for him (the teacher) because national socialism rests on an absolutely sound biologic basis." The chief spokesmen of the various medical disciplines at the universities must be confirmed Nazis; this applies especially to clinicians. Hamburger went on to deprecate the "arrogance of physicians" and to put in a good word for "nature medicine," which, he said, ought not to be too lightly esteemed. "National socialism, unlike any other political philosophy or party program, is in accord with the natural history and biology of man. And because national socialism considers all known physiologic data from nature and from human behavior, it merely represents truths about man. It is accordingly well suited to the direction of the health of our people." Hamburger then turned his fire in succession on Catholicism, liberalism and socialism. He next entered into a discussion of several general problems, in the course of which he said that only a wrongly educated, intellectually biased patient would wish to know the diagnosis—and more along the same line.

Gain in Weight Among Soldiers

The status of body weight is a good measuring rod for the evaluation of the health of youthful persons. Interest therefore attaches to a recent report published by a ranking health officer, Colonel-Surgeon Dr. H. Müller of the sanitary corps of the army. All recruits are weighed during the first half year of their service monthy and later quarterly. The weight is recorded each time in the health statistics of the troops. To obtain an idea of the trends in body weight among young soldiers of the entire reich, statistics on the routine weighings have been compiled by the army health inspector (namely the highest officer in the medical corps in peace time). In the summer of 1938 separate reports were compiled on the recruits who had entered service in November 1937 and soldiers who had already served one year. For both groups the body weight at the time of enlistment was compared with the body weight in the summer of 1938. This represented the first time that such a complete record had been made. The observations were as follows: After the first half year of military training, 70 per cent of the recruits had gained weight, the weight of 10 per cent remained the same and 20 per cent had lost weight. The corresponding figures for men at the end of one year's service were: gained weight 73 per cent, weight stationary 9 per cent and lost weight 18 per cent. It was thus ascertained that in general the tendency to gain weight ends after the first half year. For the entire army the mean increase in weight during the first year amounted to around 3 Kg.

AUSTRALIA

(From Our Regular Correspondent)

March 29, 1939.

Another Plan Replaces National Health Insurance

Following the commonwealth government's decision to abandon its scheme for national health insurance as embodied in the National Insurance Act of 1938, it is intended to substitute a medical service plan. In view of the increased and increasing liabilities incurred on account of defense measures (£500,000 a week in Australia) and the prospective additional cost of liberalizing the national insurance plan as laid down in the act, together with a decreased ability on the part of the government and the people of Australia to meet the cost of maintenance of the scheme, the government has decided to repeal entirely the pension provisions of the act. There remains a system of health insurance and family medical benefit. Details of the scheme have not been determined, but the weekly contribution of 1 shilling sixpence each from employer and employee as provided in the present act is to be reduced approximately by half. It is intended to continue the approved society system and the cash health benefits on substantially the same scale as is now provided. But the whole question of medical benefit is to be discussed first with representatives of medical benefit organizations and of the medical profession and later with the consultative council of approved societies. The announcement that the health service is not to be abandoned makes the matter acute once more for general practitioners in Australia. Now, however, they are well organized to present a united front against governmental aggression and to press their arguments for control of medical services by a board composed mainly of medical men, for the reduction of the income limit for insurance patients, and for the acceptance of certificates and prescriptions from any registered practitioner. It is obvious from a survey of the legislative background in Australia that any hope of finality in the arrangements for "national" insurance is remote.

New Development in Maternity Service

To reduce further maternal mortality figures, the health department of New South Wales has made available better medical facilities for mothers during the puerperal period. Antepartum and postpartum facilities have been set up and are expanding. The scheme now propounded will cover the vital intermediate period. Arrangements include an agreement with the state branch of the British Medical Association whereby the services of accredited obstetric consultants will be made available in any abnormal maternity case, no matter what the financial circumstances of the patient may be, and the establishment of a mobile blood transfusion unit which

will be attached to one of the metropolitan hospitals. Blood donors will be paid at the rate of £5 for every pint of blood taken from them, and the whole of this cost, together with that of bringing in specialists, will be borne by the department of public health. Furthermore, any maternal death occurring will be reviewed within a reasonable time by a special committee, with a view to discovering any loopholes in the scheme and thus to reduce the rate of any similar happening in the future.

Extension of Pharmaceutic Training Suggested

With the advent of New Zealand's social security act of 1938, it becomes imperative that increased laboratory facilities for diagnosis and treatment be made readily available to medical practitioners throughout the country. Rather than bring into existence some new organization, it would be preferable if this were undertaken by an existing body having contact with both the physician and the patient, and for this reason it has been suggested that pharmacists suitably trained in the practice of biochemical analysis would be able to give this service to the state. Such an arrangement insures adequate laboratory services in a form easily available to physician and patient.

The first requisite in any such plan would be to insure an adequate standard among those pharmacists who undertook the work. A diploma of biochemical analysis would certify that the holder was qualified to carry out the work by virtue of his having passed examinations in the subject. Only those pharmacists who held such a diploma would be qualified to carry out this work, and the tests would be performed only on the order of a qualified medical practitioner. As the pharmacist already has the foundations of the required knowledge of general chemistry and of chemical analysis, it appears that he would be the logical person to train for the work.

The scope of the work would include (1) urinary tests and estimations (routine chemical examination, urea concentration test, quantitative analyses for sugar, albumin and chlorides, test of the diastatic activity and fermentative sugar test), (2) blood analyses (dextrose tolerance test, urea estimation and estimation of total nonprotein nitrogen), (3) serum analyses (test for calcium, cholesterol and phosphates, quantitative Van den Bergh test, qualitative Van den Bergh test and protein estimation), (4) fecal analyses (detection of occult blood and estimation of fats) and (5) fractional gastric analyses.

This suggestion has been greeted by various criticisms. While the scheme may look well on paper, practical laboratory experience suggests that there is an element of false security inherent in the proposal. The absence of immediate medical direction for this type of work and the lack of interpretative facilities may lead to error. The range of biochemical work also warrants a turnover, an equipment and a degree of application which are unlikely to be found in even a well equipped pharmacy. The tendency in Australia is to employ a technician of the caliber of a bachelor of science to do this type of work in conjunction with a technician or, sometimes, to combine the two positions when the turnover is limited. But in either case medical direction is given to the work. The suggestion also affects the future of the medical graduate who has specialized in pathology and biochemistry. While the "pathologic unit" working in a well equipped laboratory finds ample scope in towns of a population of about 100,000, a difficulty arises as to what type of unit is suitable for towns and districts of smaller population. Here a better solution of the problem would be the establishment of "pathologic units" at strategically selected centers: the problems of distance between the unit and the scattered practitioners being overcome by modern methods of communication and transport, including the airplane. The pharmaceutic chemist could still be used, but over a much more limited range of technical activities.

BELGIUM

(From Our Regular Correspondent)

Feb. 16, 1939.

Congress of Neurology and Psychiatry

The Congress of Neurology and Psychiatry, organized by neurologic and psychiatric societies of Belgium and the Netherlands, held its sessions at Ghent and at Brussels under the chairmanship of Prof. C. U. Ariëns Kappers. In the first paper the literature of dementia praecox and the encephalitides was reviewed. Dr. Guillaume Vermeylen said that numerous cases of psychoses and notably of dementia praecox have as their basis an encephalitis. These encephalitides often develop insidiously and their nature is as yet poorly defined. They may be the result of a direct influence of the virus or of a state of asthenia which permits a neurotropic virus to become virulent. Moreover, these divergent hypotheses assume a diminution of resistance in the hemato-encephalic barrier. The more highly developed the patient's psychosis, the more diffuse is the cerebral process; and the slower the development of the process, the greater the chances that organized psychoses will be observed to develop.

The second paper dealt with parenchymatous disorders of the cerebellum. Bernard Brouwer and Arie Biemond hold the opinion that the cerebellum is an organ of association for the proprioceptive system and consequently an organ of coordination, above all for the involuntary movements. The activity of the cerebellum renders the movements quicker and easier, since at the cerebellar level no associations of another order come to disturb its functioning, as happens at the level of the hemispheres. The latter may interfere at any time with the physiologic activity of the cerebellum and thus modify the mechanism of motility, but they cannot completely replace the cerebellum in this function.

Occupational Dermatoses

Dr. Henri Halkin has published in the *Liége médical* an article on occupational dermatoses. Certain dermatoses are truly based on the occupation proper, whereas the environment is of minor importance in their manifestation. The principal disorders are due to cement and lime in general, to chromium and the chromates, and to concentrated acids or alkalis, and to globules of oil. Nearly 80 per cent of cutaneous accidents are occupational dermatoses, cutaneous reactions in Brocq's sense of the term. However, in addition to an external cause, there usually is a general disturbed condition of the patient's equilibrium. This concept may be invalidated as soon as more information has been obtained with regard to the phenomena of sensitization.

Ernest Malvoz

Dr. Ernest Malvoz, the recently deceased professor of bacteriology at the University of Liége, was a pioneer in social medicine. For him the highest humanitarian duty was "to combat the three greatest scourges: ignorance, poverty and disease."

Marriages

MARION KEMPER HUMPHRIES JR., Charlottesville, Va., to Miss Zaida Pettit Thomas of Wytheville, April 15.

ARTHUR C. JOHNSON, Omaha, to Mrs. Lotus Hulsebus of Pasadena, Calif., at Las Vegas, Nev., February 17.

CLEMENT P. O'NEILL, Rock Island, Ill., to Miss Baptista Hummer of Davenport, Iowa, April 10.

RUSSELL LEE NORBURN to Mrs. Hope Robertson Colthup, both of Asheville, N. C., April 10.

CHARLES SCOTT MILLER to Miss Ethel Atkinson, both of Philadelphia, recently.

JACOB SALVATORE DIGATE to Miss Edith Alberts, both of Chicago, March 18.

HARRY SHUBIN to Miss Celia Fierman, both of Philadelphia, July 9, 1938.

Deaths

Arthur H. Harrington ⊕ Providence, R. I.; Jefferson Medical College of Philadelphia, 1882; an Affiliate Fellow of the American Medical Association, past president of the Rhode Island Medical Society; member of the American Psychiatric Association and the New England Society of Psychiatry; medical director of the Bridgewater (Mass.) State Hospital, 1894-1898, superintendent of the Danvers (Mass.) State Hospital, 1898-1903, New York Eye and Ear Infirmary, 1903-1907, and State Hospital for Mental Diseases, Howard, 1907-1926; aged 82; died, March 12, of arteriosclerosis and coronary occlusion.

John W. Burns ⊕ Cuero, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; member of the House of Delegates of the American Medical Association, 1922-1932, 1934-1938, and since 1937 member of the Judicial Council; past president of the State Medical Association of Texas and the De Witt County Medical Society; fellow of the American College of Surgeons; formerly member of the state board of health; medical director of a hospital bearing his name; aged 72; died, May 1.

Charles B. Barker, Guthrie, Okla.; Chicago College of Medicine and Surgery, 1912; member of the Oklahoma State Medical Association and the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; aged 54; died, February 12, in St. Anthony Hospital, Oklahoma City, of streptococcic septicemia.

Martin Donelson ⊕ Medical Inspector Commander, U. S. Navy, retired, Danville, Va.; University of Virginia Department of Medicine, Charlottesville, 1906; member of the American Urological Association; entered the navy in 1907 and retired in 1935 for incapacity incident to the service; aged 56; was found dead, February 9, of a bullet wound.

Jules Baechler, West New York, N. J.; Columbia University College of Physicians and Surgeons, New York, 1907; member of the Medical Society of New Jersey; for many years medical examiner for the public schools; aged 61; died, February 11, in the North Hudson Hospital, Weehawken, of cerebral hemorrhage and hypostatic pneumonia.

Lester Jarvis Benson, Lakewood, Ohio; Chicago Homeopathic Medical College, 1903; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; honorary member of the staff of the Lakewood City Hospital; aged 78; died, February 12, of acute pulmonary edema and osteoarthritis.

William Chestnut, Winnipeg, Man., Canada; Manitoba Medical College, Winnipeg, 1898; professor emeritus of medicine at his alma mater; for many years on the honorary attending staff and formerly medical superintendent of the Winnipeg General Hospital; aged 71; died, February 7, of coronary occlusion.

Cornelia Bernhardine Johanna Schorer ⊕ Foxboro, Mass.; Universität Zürich Medizinische Fakultät, Switzerland, 1897; an Affiliate Fellow of the American Medical Association; member of the American Psychiatric Association; formerly on the staff of the Foxboro State Hospital; died, January 9, in Berlin, Germany.

Reynolds May, Whitewright, Texas; University of Louisville (Ky.) Medical Department, 1878; member of the State Medical Association of Texas; past president of the Grayson County Medical Society; formerly member of the board of education; aged 87; died, January 2, in a hospital at Sherman of heart disease.

Reuben C. Burrow, Cunningham, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; Eclectic Medical Institute, Cincinnati, 1894; member of the Kentucky State Medical Association; past president and secretary of the Carlisle County Medical Society; aged 70; died, February 2, of pneumonia.

Walter Barwick Bruce, Helena, Ark.; University of the South Medical Department, Sewanee, Tenn., 1901; member of the Arkansas Medical Society; county health officer; for many years member of the board of trustees of the University of the South, Sewanee, Tenn.; aged 65; died, February 22, of cerebral hemorrhage.

Amos H. Caffee ⊕ Terre Haute, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1900; past president of the Vigo County Medical Society; secretary of the city board of health; served during the World War; on the staff of the Union Hospital; aged 73; died, February 1, of coronary thrombosis.

Frank Joseph Alessi, Niagara Falls, N. Y.; University of Buffalo School of Medicine, 1929; on the staffs of the Memorial Hospital and St. Mary's Hospital, Niagara Falls, and the Millard Fillmore Hospital, Buffalo; aged 34; died, January 10, in Saranac Lake of pulmonary tuberculosis.

Justin M. De Ford, Rossburg, Ohio; Cincinnati College of Medicine and Surgery, 1892; member of the Ohio State Medical Association; for many years member of the local board of education and at one time member of the county board of education; aged 82; died, March 4, of pneumonia.

William Heilman Hossler, Staten Island, N. Y.; Medical College of Ohio, Cincinnati, 1907; formerly acting assistant surgeon in the United States Public Health Service, Immigration Department; aged 59; died, January 13, in the United States Marine Hospital of diabetes mellitus.

Edward Homer Egbert, St. Simon Island, Ga.; Baltimore Medical College, 1905; member of the Medical Association of Georgia; served during the World War; formerly surgeon to the Huggins Hospital, Wolfeboro, N. H.; aged 57; died, February 27, of coronary thrombosis.

John H. Fletcher, Wichita Falls, Texas; St. Louis College of Physicians and Surgeons, 1905; veteran of the Spanish-American and World wars; city health officer and formerly county health officer; aged 60; died, January 29, in a local hospital of cirrhosis of the liver.

Robert Jasper Alexander ⊕ Waco, Texas; Memphis (Tenn.) Hospital Medical College, 1891; fellow of the American College of Surgeons; on the staffs of the Providence and Central Texas Baptist sanitariums; aged 72; died, February 20, of acute hypostatic pneumonia.

Philip James Reichmann, Oakwood, Mo.; St. Louis College of Physicians and Surgeons, 1911; member of the Missouri State Medical Association; aged 61; died, January 11, in St. Elizabeth's Hospital, Hannibal, of diabetes mellitus and gangrene of the left foot.

William Thomas Asher, Atlanta, Ga.; Atlanta Medical College, 1893; member of the Medical Association of Georgia; on the staffs of St. Joseph Infirmary and the Grady Hospital; aged 67; died, February 7, of cerebral thrombosis and cerebrovascular degeneration.

Alfred Mitchell Merriman ⊕ Bristol, R. I.; Medical School of Maine, Portland, 1895; at one time medical inspector of the public schools; formerly on the staff of the Rhode Island Soldiers' Home; aged 70; died, January 9, in the Jane Brown Hospital, Providence.

John Norris Doyle, Wausau, Wis.; Marquette University School of Medicine, Milwaukee, 1915; member of the State Medical Society of Wisconsin; served during the World War; aged 53; died, February 4, in a hospital at Temple, Texas, of pneumonia.

Charles Daligny, Troy, N. C.; Université de Paris Faculté de Médecine, France, 1878; member of the Medical Society of the State of North Carolina; served in the Franco-Prussian War; aged 85; died, January 8, of carcinoma of the prostate and uremia.

Howard Newell Baker, Pierson, Iowa; Hahnemann Medical College and Hospital, Chicago, 1905; member of the Iowa State Medical Society; formerly a member of the board of education; aged 57; died, February 8, of cerebral hemorrhage.

Charles Joseph King, Langdon, N. D.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; Dearborn Medical College, Chicago, 1906; aged 59; died, January 31, of coronary occlusion.

Chester Roy Brigham, Polo, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1905; member of the Illinois State Medical Society; served during the World War; aged 66; died, February 27, of coronary thrombosis.

Clarence Hathorne Staples, Malden, Mass.; Harvard University Medical School, Boston, 1904; member of the Massachusetts Medical Society; on the staff of the Malden Hospital; aged 60; died, January 17, of cerebral hemorrhage.

Marcus James Greenlee, Sewickley, Pa.; Howard University College of Medicine, Washington, D. C., 1937; aged 28; died, January 24, in the Suburban General Hospital, Bellevue, of skull fracture received in an automobile accident.

Lincoln Riegel Light, Lebanon, Pa.; Jefferson Medical College of Philadelphia, 1892; member of the Medical Society of the State of Pennsylvania; aged 71; died, January 12, of cerebral hemorrhage, arteriosclerosis and hypertension.

Archibald D. Campbell, Richland Center, Wis.; Louisville (Ky.) Medical College, 1896; aged 73; on the staff of the Richland Hospital, where he died, February 18, of bronchopneumonia, arteriosclerosis and chronic myocarditis.

John James Lindsay, Spartanburg, S. C.; University of Maryland School of Medicine, Baltimore, 1887; member of the South Carolina Medical Association; aged 73; died, January 5, at the Spartanburg General Hospital.

Edward Joseph Howland ⊕ Colchester, Conn.; University of Vermont College of Medicine, Burlington, 1911; served during the World War; for many years health officer; aged 58; died, January 25, of coronary thrombosis.

Lee H. Duguid, Michigan Center, Mich.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1898; served during the World War; aged 66; died, January 8, in the United States Marine Hospital, Detroit.

William Frederick Vilter, Cincinnati; Medical College of Ohio, Cincinnati, 1901; member of the Ohio State Medical Association; on the staff of the Deaconess Hospital; aged 62; died, January 21, of lymphatic leukemia.

Frank Edward Tompkins, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1899; aged 62; died, January 1, in the Boro Park General Hospital of chronic nephritis and uremia.

Thomas Francis Shinnick, Beloit, Wis.; Rush Medical College, Chicago, 1899; member of the State Medical Society of Wisconsin; served during the World War; aged 65; died, January 29, of heart disease.

John Stephen Thompson, Winterport, Maine; Georgetown University School of Medicine, Washington, 1895; aged 75; died, January 8, in Antigonish, N. S., of anemia and acute dilatation of the heart.

Charles Lewis Hawkins ⊕ Taft, Calif.; Jefferson Medical College of Philadelphia, 1900; member of the American Urological Association; aged 68; died, January 14, of abscess about the ampulla of Vater.

Ada Scott Conner Morton, Fall Brook, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; aged 59; died, January 11, of angina pectoris.

William Lincoln Shawk, Rockaway Beach, Calif.; Western Reserve University Medical Department, Cleveland, 1883; aged 78; died, January 7, of arteriosclerosis and cerebral hemorrhage.

Winfield Howard Ames, Milford, N. H.; Syracuse University College of Medicine, 1893; aged 70; died, January 25, of abscess of the axilla following injury by crutch, and hemophilia.

Ross David Long, Oklahoma City; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; aged 69; died in January of cerebral arteriosclerosis.

Joe Johnson Taylor, Riverside, Calif.; American Medical College, St. Louis, 1893; St. Louis College of Physicians and Surgeons, 1908; aged 72; died, January 6, of chronic myocarditis.

Jefferson Davis Duke, Heflin, Ala.; Southern Medical College, Atlanta, Ga., 1884; member of the Medical Association of the State of Alabama; aged 77; died, February 12, of hemiplegia.

William Patrick Brogan, Tyler, Texas (licensed in Texas, under the Act of 1907); member of the State Medical Association of Texas; aged 67; died, January 6, of arthritis deformans.

Charles Leona Badger, Indianapolis; Indiana University School of Medicine, Indianapolis, 1911; aged 60; died, February 5, in St. Vincent's Hospital of an overdose of a narcotic.

Kenneth Paul Hunter, Wapello, Iowa; State University of Iowa College of Medicine, Iowa City, 1927; served during the World War; aged 39; died, January 15, of heart disease.

Frank Milton Hamblin, Bristol, Conn.; New York Homeopathic Medical College and Hospital, 1899; aged 65; died, January 30, in a hospital at Middletown of arteriosclerosis.

James Johnson Ellis, Knoxville, Tenn.; Tennessee Medical College, Knoxville, 1899; member of the Tennessee State Medical Association; formerly state senator; aged 80; died, January 5.

John A. P. Shields, Hartford, Tenn.; Chattanooga Medical College, 1902; member of the Tennessee State Medical Association; formerly state senator; aged 69; died, January 17.

David C. Trach ⊕ Kresgeville, Pa.; College of Physicians and Surgeons, Baltimore, 1891; aged 71; died, January 8, in the University of Pennsylvania Hospital, Philadelphia.

Nelson Du Val Brecht, Washington, D. C.; George Washington University School of Medicine, Washington, 1906; aged 54; died, February 15, of a self-inflicted bullet wound.

Joseph McClanahan Cornett, Temple, Texas; Baylor University College of Medicine, Dallas, 1934; intern at the Scott and White Hospital; aged 24; died in January.

Edward Sax Drucks, Oakland, Calif.; College of Physicians and Surgeons of San Francisco, 1907; member of the California Medical Association; aged 55; died, January 9.

James Krauss, Boston; Boston University School of Medicine, 1889; fellow of the American College of Surgeons; aged 72; died, January 29, of bronchopneumonia.

Joseph Price Dancy, Detroit; Howard University College of Medicine, Washington, D. C., 1920; aged 44; died, February 13, in the Parkside Hospital of meningitis.

Frank Joseph Doyle, Baltimore; Georgetown University School of Medicine, Washington, D. C., 1901; aged 60; died, February 5, of valvular heart disease.

Ellis Reynolds Shipp, Salt Lake City; Woman's Medical College of Pennsylvania, Philadelphia, 1878; aged 92; died, January 31, of carcinoma of the neck.

William S. Manners, San Leandro, Calif.; Northwestern Ohio Medical College, Toledo, Ohio, 1888; aged 82; died, January 28, of chronic myocarditis.

James H. West, McCrory, Ark. (licensed in Arkansas in 1905); aged 59; died, January 29, in the Baptist Hospital, Memphis, Tenn., of heart disease.

Calvin S. De Voll, Fort Worth, Texas; Metropolitan Medical College, Chicago, 1900; aged 86; died, February 19, of uremia and cardiorenal disease.

Osborne Elliott Carr, Owen Sound, Ont., Canada; University of Toronto Faculty of Medicine, 1913; aged 52; died, February 23, of heart disease.

Julian Philip M. Johnson, Yuba City, Calif.; State University of Iowa College of Medicine, Iowa City, 1910; aged 65; died, January 25, in India.

Jacob Koronefsky ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1900; aged 69; died, January 16.

John Clemons Lancaster, Houston, Texas (licensed in Texas under the Act of 1907); aged 87; died, January 31, of bronchopneumonia.

Alice Maud Gray, Boston; Tufts College Medical School, Boston, 1900; member of the Massachusetts Medical Society; died, January 17.

Vincent Millasich, Fresno, Calif.; California Medical College, San Francisco, 1906; aged 81; died, January 28, of cerebral hemorrhage.

Ulysses S. Ammerman, Reynolds, Neb.; Keokuk (Iowa) Medical College, 1898; aged 74; died, January 19, of coronary thrombosis.

William Noble Nanney, Whittier, Calif.; Medical College of Evansville, Ind., 1878; aged 85; died, January 12, of chronic myocarditis.

George Henry Baker, Long Branch, N. J.; Albany (N. Y.) Medical College, 1886; aged 84; died, February 8, of bronchopneumonia.

Stuart Eccles Beech, Salmon Arm, B. C., Canada; Manitoba Medical College, Winnipeg, 1911; aged 54; died, January 29.

William O. Curlee, Lubbock, Texas (licensed in Texas, under the Act of 1907); aged 62; died, February 7, of coronary disease.

Stephen Sinclair Slauenwhite, Windsor, N. S., Canada; Halifax (N. S.) Medical College, 1896; aged 72; died, January 12.

Arthur E. Fraleigh, St. Mary's, Ont., Canada; Western University Faculty of Medicine, London, 1892; died, January 17.

Morton Lake Hooper, Goldsboro, N. C.; Baltimore Medical College, 1887; aged 81; died, January 22, of chronic myocarditis.

John W. J. Newman, Buchanan, Ga.; Atlanta Medical College, 1893; aged 73; died in January of heart disease.

Charles H. A. Meyer, Baltimore; Baltimore Medical College, 1888; aged 78; died, January 1, of heart disease.

Marjory Ward, Renfrew, Ont., Canada; Trinity Medical College, Toronto, 1894; aged 68; died, January 25.

Robert G. Turner, Nacogdoches, Texas (licensed in Texas, under the Act of 1907); aged 62; died, January 2.

Gardner Spring Chapin, Los Angeles; Rush Medical College, Chicago, 1903; aged 59; died, January 1.

Correspondence

A PROGRAM FOR THE REFUGEE PHYSICIAN

To the Editor:—The purpose of this statement is to inform the medical profession at large of the facts concerning refugee physicians in this country and to offer a just and reasonable program to resolve the existing problem to the mutual advantage of the communities in which they are seeking shelter and of the émigrés themselves.

Until recently current misconceptions about the facts and a lack of understanding of the nature of the situation have added needless difficulties and complications. The committee hopes that this statement will serve primarily to clarify the facts in order to provide a better spirit of understanding in terms of mutual responsibility.

THE FACTS

During the period from July 1, 1934, to Dec. 1, 1938, corresponding to the time of the National Socialist régime in Germany, 1,528 physicians have migrated to the United States from Greater Germany.

The official figures covering this period are the following:

July 1, 1934, to July 1, 1935	104
July 1, 1935, to July 1, 1936	253
July 1, 1936, to July 1, 1937	286
July 1, 1937, to July 1, 1938	365
July 1, to Dec. 1, 1938	520
	1,528

Of this number, approximately 25 per cent are Catholic or Protestant and 75 per cent are of Jewish or partly Jewish origin.

There are at present 170,000 physicians in the United States, and our own medical schools graduate 5,500 new physicians each year. Despite this, the number of physicians in relation to the general population has been steadily decreasing, from 1 to 662 in 1886 to 1 to 784 in 1934.

THE PROBLEM IS SELF LIMITED

On the basis of the situation abroad, there will be a substantial reduction in the number of refugee physicians entering this country in future years, since:

1. Those who now apply for admission to this country must wait three or four years for their quota numbers to become available.

2. An indication of the limited nature of the problem is furnished by official Berlin statistics, published in the Sept. 17, 1938, issue of THE JOURNAL, revealing that there were fewer than 2,500 Jewish doctors left in Germany proper on July 1, 1938. Of these some have since emigrated to all parts of the globe. Approximately 700 have permits to practice among the Jews left in Germany. It is estimated that there are hardly more than 1,000 potential medical emigrants in Germany itself. In this connection, an item in the New York *Times* of April 26, 1939, dealing with Jewish emigration from Germany, is of particular interest: "Significantly enough, the only Jews whose emigration is being discouraged are physicians, especially surgeons, who might prove useful in case of war."

The quotas for admission to the United States from Poland, Hungary, Rumania and Czechoslovakia are so small that in any one year not more than an aggregate of 200 to 300 physicians could possibly enter from these countries.

3. Many of the Jewish physicians remaining in Germany are advanced in years. Many are close to the age of retirement.

4. Students of the type who later might have to emigrate can no longer enter the medical schools in Greater Germany, Czechoslovakia, and so on. In the eastern European countries, restriction of entry for such students in medical schools has been in practice for years, and we need anticipate no significant immigration of physicians into the United States from these countries.

The peak load has clearly been passed. The concentration of the refugees on the Eastern Seaboard has created an exaggerated impression of their actual numbers, either present or future. Therefore the committee feels that the question has now become one of the proper selection and distribution of a limited number of physicians and that an adequate and practical solution can be found based on a carefully studied and administered plan.

THE STRUCTURE

The Committee for the Resettlement of Foreign Physicians has been organized under the egis of the nonsectarian National Coordinating Committee for Aid to Refugees. Since New York City is the port of entry for the large majority of immigrants the central office is located at 165 West Forty-Sixth Street. However, there is a national committee composed of representatives of members of the local committees, such as the Boston Committee on Medical Emigrés (Dr. David Edsall, chairman), the Baltimore committee (Dr. John M. T. Finney, chairman) and the Chicago committee (Dr. Dallas B. Phemister, chairman), as well as of the New Haven and New Jersey committees which are being formed. The New York committee works in close cooperation with these committees, but since the initial task of selection devolves on New York, the following organization has been set up:

Members of the General Advisory Council include Dr. George Baehr, Dr. Clarence G. Bandler, Dr. Ernst P. Boas, Dr. Louis Casamajor, Dr. Alfred E. Cohn, Dr. Lewis A. Conner, Dr. Haven Emerson, Dr. N. Chandler Foot, Dr. Frank Fremont-Smith, Dr. Irving Graef, Dr. Foster Kennedy, Dr. John D. Kernan, Dr. Lawrence S. Kubie, Dr. Emanuel Libman, Dr. Currier McEwen, Dr. Walter W. Palmer, Dr. Henry Asloy Riley, Dr. Peyton Rous, Dr. Charles Hendee Smith, Dr. J. Bentley Squier, Dr. Mills Sturtevant, Dr. Homer F. Swift, Dr. Howard C. Taylor Jr. and Dr. I. Ogden Woodruff.

There is a central office, where each refugee physician is registered for the detailed examination of his credentials. (Information about any foreign physician may be obtained by writing to Mr. Charles H. Jordan, Secretary.)

There are advisory boards in each of twenty medical specialties whose function it is to evaluate and examine the personal and scientific qualifications of every refugee. These boards make confidential reports on the qualifications of each individual physician, which are filed in the central office.

Those who are passed by the advisory board are then given material aid by the National Coordinating Committee while studying for state board examinations.

A curriculum committee arranges lectures in various departments of medicine. Emphasis is placed on the broad cultural requirements of American medicine as well as on the factual information required for the licensing examinations. A program for clinical retraining is being prepared to fit certain specialists for general practice.

The committee seeks to secure voluntary assistantships, supernumerary internships and temporary clinic appointments for eligible physicians to assist them in their studies.

After passing their examinations, physicians are resettled in communities where there is a known shortage of medical care. This is done only after consultation with the local authorities and with local representatives of the medical profession.

THE SOLUTION

Community needs must be considered as well as the needs of the physician. Resettlement of qualified physicians in areas most in need of medical service, and therefore best able to absorb the newcomers, is the solution proposed by the Committee for the Resettlement of Foreign Physicians. To this end the committee hopes that a change can be effected in the regulations in a majority of states, which now either bar foreign physicians from practice or make it unduly difficult for them to obtain a license until they become citizens (a period of five years). These local regulations have been largely responsible for the concentration of these physicians on the Atlantic seaboard.

Unquestionably certain foreign physicians cannot and should not be permitted to practice here until they are thoroughly qualified. A few will never be able to meet American requirements. These, obviously, must be retrained outside the medical field.

The committee proposes, through an examining board of qualified physicians, to pass upon the personal or scientific qualifications of the incoming physicians. It will give no support to those who are adjudged to be unfit to practice in this country.

In this connection it is important to quote here from a statement of the Boston Committee on Medical Emigrés, as follows:

> After some ten months of experience, this Committee has learned:
> 1. That a substantial proportion of the medical refugees here and abroad are among the most talented members of the profession, in research and in clinical fields.
> 2. That existing prejudices against them derive most often from lack of contact and from fear that as aliens they are somehow undesirable. When they are given an opportunity to present themselves in person and have their professional achievements properly scrutinized, preconceived objections to them frequently soften or entirely disappear.
> 3. It appears likely that, if a thoroughgoing search of this country's unfilled medical needs were made, all of these men who have arrived or may arrive here and whom we consider competent would be absorbed without difficulty and to the distinct advantage of institutions and communities which otherwise go without the services they can provide.

It is the hope of the Committee for the Resettlement of Foreign Physicians that all members of the medical profession will cooperate in its work, to the end that the refugee physicians, who have no desire to compete with American physicians in congested areas, may be given an opportunity to exercise their profession, their skill and their training in areas where their services are most needed.

DAVID L. EDSALL, M.D., Boston.
Honorary Chairman, National Committee for the Resettlement of Foreign Physicians.

EFFECT OF SUNLIGHT ON BONE AS REPORTED BY HERODOTUS IN 450 B. C.

To the Editor:—In book III of Herodotus's history, in which he describes some of his travels in Egypt and Libya, an account is given of the Persian invasion of Egypt under Cambyses. Near the mouth of the so-called Pelusian Nile, the forces of Cambyses met the Egyptians under King Psammenitus in 525 B. C. Herodotus viewed the battle field about seventy-five years later. His attention was called to the striking difference in thickness and strength of the Persian and Egyptian skulls which were still lying on the surface of the ground. His explanation of this difference is interesting, being so far as I know the earliest recorded definite proof offered of the effect of sunshine in thickening and strengthening bone tissue. A translation of chapter 12 of book III, in as nearly the simple style of the original Ionic Greek as I can make it, runs as follows:

"I saw a great marvel of which I had heard from the natives of the country. The bones of those who fell on either side in this battle lay scattered separately. The bones of the Persians lay in one part of the field and the bones of the Egyptians in another, as the two armies had separately stood. The skulls of the Persians were so fragile that a mere pebble thrown at them would penetrate them. But those of the Egyptians were so strong that you could hardly break them with a stone. The cause of this, so the people said, and I readily agreed, is that from childhood the Egyptians shave their heads, and the bone is thickened by exposure to the sun. For the same reason they do not become bald. Of all races of men bald heads are rarest among the Egyptians. Such then is the reason for their strong skulls. And the reason why the Persians have weak skulls is that they cover their heads all their lives with felt hoods, called tiaras by the Persians. Such are the facts of the case. I noticed the same condition at Papremis in the skulls of the Persians slain by Inaros the Libyan."

E. V. WILCOX, Chevy Chase, Md.

"DIAPHRAGMATIC FLUTTER WITH SYMPTOMS OF ANGINA PECTORIS"

To the Editor:—It may be of interest to your readers to add a note as to the peregrination of the medical curiosity reported in THE JOURNAL by Dr. W. B. Porter March 21, 1936, page 992, and by Drs. Whitehead, Burnett and Lagen April 1, 1939, page 1236, as a case of diaphragmatic flutter with symptoms of angina pectoris.

The patient was brought to the Massachusetts General Hospital Oct. 27, 1937, by police ambulance with the identical clinical picture as described by the previous writers. He lay doubled up on his right side, moaning in pain and in no respiratory distress, with a pulse of 80 and a blood pressure 130/80. He was not perspiring and his color was good. A rapid flutter could be felt and ausculted over the precordium and abdomen, and could be seen as a ripple over the latter. Fluoroscopy showed a normally beating heart and a diaphragm that oscillated with about a 1 cm. excursion at a very rapid rate. An electrocardiogram showed a regular oscillation of the base line of 1 mm. amplitude at a rate close to 300 per minute. His temperature was normal.

He gave his name as Frank Crowley and his age as 65. On entry he presented us with a reprint of Dr. Porter's article, so I presume that is why he listed his occupation as a deep-sea diver, as he did in Richmond, Va. Numerous puncture marks were noticed over both antecubital spaces and his speedy release from all pain on entry after one-fourth grain (0.016 Gm.) of morphine and his subsequent loud demands for more gave some support to the belief that he was addicted to drugs. He proved a very irascible patient and demanded release at daylight on the morning after entry, which was speedily granted after threats to nurses. A psychiatrist thought that he was "queer" but probably not psychotic.

The next day he was picked up from the side of the road by a passing mortorist and was last heard from at the Framingham Hospital.

He was an excellent raconteur and his stories of inspecting the battleship *Maine* and the *Lusitania*, and of crossing the floor of the Red Sea in search of chariots were greatly appreciated.

EDWARD HAMLIN JR., M.D., Boston.

"SYPHILIS IN NORTH CAROLINA"

To the Editor:—In THE JOURNAL April 1, page 1260, appears a short comment entitled "Syphilis in North Carolina." In this article you raise a doubt as to the accuracy of the statement to which you refer and intimate that this statement was made for the purpose of securing federal funds for the control of syphilis in this state.

It is felt in this department that you have placed your own interpretation on these figures and evidently have arrived at an erroneous conclusion. You have mistaken the prevalence of syphilis for the incidence of syphilis. The 48,000 "new cases of syphilis" reported each year are not cases of "new" syphilis in the sense that the disease was acquired within the year in which it was reported. These "new" cases mean simply that they have never been reported before to this department. Many of them are cases of latent and late syphilis, but from a reporting standpoint they are new in that they have never previously been brought to the attention of this department by case report. From your comments you evidently interpreted the 48,000 cases to be those of newly acquired syphilis, acquired within the year in which they were reported. By actual count since Jan. 1, 1936, to Dec. 31, 1938, we have had reported to this department 164,254 cases of syphilis, and you can readily see that this is in excess of 4,000 "new" cases per month.

CARL V. REYNOLDS, M.D., Raleigh, N. C.
Secretary, North Carolina State Board of Health, and State Health Officer.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

POSSIBLE ACUTE CARBON MONOXIDE POISONING

To the Editor:—I was called to attend a patient in coma. The man, aged 24, was apparently healthy with no history of previous serious illness. He states that prior to becoming unconscious he operated the motor of a large truck in a garage with the doors open. In about a half hour he went to the second floor of the same building and looked at the clock, he expected a telephone call and definitely recalled the time. He then attempted to open a window but fell to the floor and recalled nothing until an hour and twenty minutes later, when I saw him. His face appeared flushed with no cyanosis except slight cyanosis of the lobules of the ears. He seemed to recognize me but was unable to speak. There was a definite flaccid paralysis of the left arm and leg. The deep reflexes of both legs and arms were exaggerated. There was *no ankle clonus nor was the Babinski reflex present*. The tongue deviated slightly to the left, and the left corner of the mouth was slightly raised. The right pupil was somewhat larger than the left, and this condition persists. Both pupils reacted well to light. The heart rate was 84 and there was arrhythmia. On admission to the hospital the temperature was 100 F. Despite the fact that I noted automobile fumes in the room and had all the windows opened, I thought that the patient had suffered a cerebral embolus. The blood pressure was 120 systolic, 82 diastolic. Within four hours the patient apparently completely recovered. He spoke clearly and the foregoing history was elicited. He could use the left arm and leg well. The pulse rose to 120 and the temperature fell to 98 F. and then to 97 F. in twelve hours. On the third day the pulse fell to 60 and then on the following day to 52. The blood pressure rose to 136/88. The pulse rate one week later was 72. The patient complained of headache shortly after recovering consciousness, but this persisted for only three days. Urinalysis revealed dark green urine, alkaline in reaction, with a specific gravity of 1.032, it was negative for sugar and albumin but the specimen contained 1 plus pus cells. The Kahn test gave negative results; examination of the blood showed red blood cells 4,990,000, hemoglobin 100 per cent, leukocytes 13,100, polymorphonuclear neutrophils 94 per cent, basophils 1 per cent, small lymphocytes, 4 per cent, large lymphocytes 1 per cent. Repeated urinalyses were negative for sugar. I have thought that this patient was overcome by carbon monoxide and have so stated. Are the foregoing symptoms and signs, together with the history, in harmony with such a diagnosis? The patient seems perfectly well but is somewhat anxious about having a recurrence of such an attack if not due to carbon monoxide poisoning. M.D., Pa.

ANSWER.—On the basis of the data submitted, which contain no real evidence of exposure to carbon monoxide other than the operation of a motor in a large garage with open doors, one cannot make a definite diagnosis of carbon monoxide poisoning. There are no statements as to the effects on other men in the garage at the same time and no data as to possible concentrations of carbon monoxide in the air. Under the circumstances of this accident, the conditions could readily be duplicated and such information obtained. If it could be shown that the air contained from 600 to 800 parts of carbon monoxide per million parts (or from 0.06 to 0.08 per cent), it would probably be proper to assume quite definitely that the illness was due to carbon monoxide. At the present time, far too many conditions are attributed to carbon monoxide without proper reference to the circumstances of exposure, and these should and generally can be proved.

If the symptoms are considered alone and if it is assumed that there is definite evidence that carbon monoxide was in the atmosphere, it is quite fair to believe that this is a case of carbon monoxide asphyxia. Almost any variety of acute neurologic disturbance can occur in carbon monoxide poisoning, and it is frequent that unconsciousness or some serious neurologic symptom is experienced when the patient attempts to move about actively, even though he may move to an atmosphere which is free of carbon monoxide. A man poisoned by carbon monoxide has been brought to the limit of his power to supply his tissues with oxygen from the blood. "He can stand no extra strain of any sort and, even when he regains consciousness, as may be the case when the blood carbon monoxide reaches 50 per cent of saturation, he still has so slight a margin of oxygen tension as to be quite unequal to activity of any sort without suffering instantly from oxygen lack. As Stadie and Martin (1925-1926) remark: 'Despite the presence in the blood of two or three times the amount of oxygen necessary for normal tissue function, profound anoxemia results in CO poisoning. This is due to an alteration of the shape and position of the oxygen dissociation curve causing a marked lowering of the partial pressure at which oxygen is available for tissue metabolism'" (Drinker, C. K.: Carbon Monoxide Asphyxia, New York, Oxford University Press, 1938. Stadie, W. C., and Martin, K. A.: The Elimination of Carbon Monoxide from the Blood: A Theoretical and Experimental Study, *J. Clin. Investigation* **2**:77 [Oct.] 1925). It is the usual rule that those who have had acute experiences due to carbon monoxide such as this recover completely and there is, of course, no reason why the condition should leave any threat behind in terms of possible further trouble.

URTICARIA AND MENSTRUATION

To the Editor:—Please give me some information as to the cause, treatment and prognosis of menstrual urticaria. The patient is about 25 years of age and ten months ago she had a cesarean section. Her menstruations are sometimes from four to seven weeks apart, but the history of menstrual urticaria is of several years' duration and the condition lasts from three to five days. H. C. WIGER, M.D., Rice Lake, Wis.

ANSWER.—It is presumed that by "menstrual urticaria" the inquirer has reference to urticarial attacks of a generalized nature (not localized to lesions on the skin in the proximity of the genitalia) occurring particularly in the premenstrual or menstrual periods. A history of urticaria or other allergic manifestations appearing solely or more frequently at that time is a common part of the patient's story. A number of medical articles dealing with that subject have been published. Almost without exception they are all clinical and based on consulting room observation. Intensive studies of a laboratory and experimental nature which might throw light on the association of these two factors, allergy and endocrine, are still lacking. It may be mentioned that there are other associations of a possible relationship between allergy and the endocrines. Some of these are exemplified by the tendency of allergic symptoms to be improved at puberty in the boy and to be aggravated in the same period in the girl, by the likelihood for allergic symptoms to diminish or vanish altogether during pregnancy and by the frequent change in the course of clinical allergy at the menopause.

Until the indicated experimental and laboratory work in the future provides a basis for a more specific and definite correlation of allergic symptoms and the menstrual cycle, this relationship will be regarded as a general one. According to the latter conception allergic symptoms are more apt to occur around the menstrual period just as they are more apt to occur following other emotional upsets, infections, exertion and thermal, mechanical and chemical stimuli. They are usually the precipitating factors rather than the specific causes in a patient who has an ever present allergy but is capable of being in allergic balance most of the time. In the case cited and in similar types there are three main methods by which one may achieve results: One is, of course, by a search for the basic underlying allergy. Another is by the use of rest, sedation and such other measures as may counteract the excitability of the nervous system. Finally, results sometimes may be achieved by endocrine therapy. The prognosis is fair.

SILVER PREPARATIONS FOR SINUSITIS

To the Editor:—Please discuss the treatment of sinusitis by the insertion of colloid silver tampons. M.D., Massachusetts

ANSWER.—The use of colloidal silver tampons in the treatment of chronic sinusitis is practiced extensively by otorhinolaryngologists in this country. In a recent questionnaire it was shown that approximately 90 per cent of specialists used some silver salt in treating diseases of the ear, nose and throat. Although practically every silver preparation has been used, the favorite one is mild protein silver (argyrol) usually in 10 per cent strength.

Colloidal silver preparations are said to be bactericidal, sedative to inflamed mucous membranes and stimulating to reparative powers. These are debatable points. It is true, however, that the colloidal silver preparations are mildly astringent and it is partly due to this property that they give symptomatic relief. Moreover, because of their colloidal state and their astringent property they do incite a profuse watery secretion from the mucous membranes which depletes the nasal mucosa, thus supposedly helping rid the nose and sinuses of bacteria and pus.

The more ardent proponents of the silver tampon treatment have formulated a routine of tampon insertion, designating types of cotton, applicators and position of the tampon. The latter, the "sphenoid" and "infundibulum" direction, is said to bring

the medication into contact with most of the sinus ostiums and is considered by some to be absolutely indispensable to the full success of the procedure. The tampons are left in place from thirty minutes to an hour and after removal the nose is flushed with some cool irrigating fluid.

Despite the popularity of this form of treatment there are many capable rhinologists who feel that it has no peculiar advantages over many other conservative methods of treating chronic sinusitis.

The bacteriostatic and bactericidal power of mild protein silver as investigated by Hilding, Cannon and Walsh, is so slight as to be of little clinical importance. The astringent effects can be achieved by many other drugs without too elaborate a technic of medication. Though mild protein silver has not been shown to be harmful to ciliary activity, the possibility of argyria, local or general, even though infrequent, must be kept in mind when one is using silver salts extensively.

POSSIBLE HEAT STROKE WITH APHASIA

To the Editor:—The following is the summary of a case of mixed aphasia which suddenly occurred coincidentally with what was diagnosed as "heat stroke." A white man aged 50, large, well developed and muscular, was working digging a basement for a school house. The day was hot, there was no air circulating in the pit and the sun was beaming overhead. At 1 p. m. the patient suddenly got faint and collapsed unconscious. His fellow workmen first thought he had fainted, but when he failed to revive he was taken to the hospital, where he had a subnormal temperature and excessive sweating, and where he remained unconscious for four days. On regaining consciousness he was found to have a motor aphasia, apraxia, paragraphia and partial auditory aphasia but no alexia. Right hemiparesis and right hemiapraxia were present. The tendon jerks were hyperactive on the right side. The spinal fluid was normal, the gold curve 00000000, the Wassermann reaction of both the spinal fluid and the blood was negative. The pressure was 150 mm. initially and also after 10 cc. had been removed. The cranial nerves were entirely normal, there being no evidence of arteriosclerosis of the retinal vessels. The blood pressure was 140 systolic, 90 diastolic. The peripheral arteries were soft. The patient shows no clinical evidence of cardiac, renal or other organic disease. The patient is suing for compensation insurance, none of which has ever been paid since the onset of his illness. Now the question arises Can heat stroke cause aphasic symptoms such as the aforementioned and can you cite such cases on record? I might add that the signs and symptoms have remained unchanged during the past six months since the onset of the illness.

W. L. SHARP, M.D., Anderson, Ind.

ANSWER.—It is improbable that the patient is suffering from heat stroke per se unless it can be shown that he was entirely well without cardiac, renal or any other organic disease prior to the onset of his coma and that following the exposure he developed a deep coma with a temperature of from 104 to 108 F. as well as an increased cell count in the spinal fluid. If this can be done it will be possible to establish a causal relationship between the heat of the sun and the present symptoms. If he had these symptoms (heat stroke), this is one of the rare cases in which recovery occurs. Most all patients with heat stroke or apoplexy die because of the high temperatures and dehydration despite all therapy. It seems peculiar that the man showed only those signs of a large softening or hemorrhage (embolus, hemorrhage or multiple thrombi) on the left side of the brain. In heat stroke there is a widespread ganglion cell damage which produces not only hemiplegia, paraplegia, ataxia and aphasia but also convulsions and psychosis. The article by Shattuck and Hilferty (*Am. J. Trop. Med.* **12**:223 [May] 1932) is recommended for perusal.

NARCOTIC ADDICTION AND HEREDITY

To the Editor:—I should like information concerning the effect of the use of morphine by the father, for a number of years previous to and at the time of conception, on the offspring. I also wish the same information where the father discontinued the use of morphine a few months prior to conception. I would also appreciate general information concerning morphinism and reproduction, especially relating to its effect on the offspring.

WALTER G. KLUGH, M.D., Hot Springs National Park, Ark.

ANSWER.—The problems and underlying reasons for the excessive use of narcotics and alcohol are the same. It is an escape mechanism from life's conflicts. Chronic morphinism has no true demonstrable pathologic picture. The nature of the disorder is mostly psychologic and not physiologic or pathologic.

Drug addicts can be divided into three groups: 1. The accidental addict, about 10 per cent, composed of normal individuals who develop the habit after the narcotic had been administered for the relief of pain for a period long enough to develop true withdrawal symptoms and who, when the narcotic is discontinued, do not resort to it again, after a successful denarcotization treatment. 2. The recidivists, about 30 per cent, composed of potential narcotic addicts with underlying nervous instability who, after once experiencing narcotic relief and sensation, are unwilling or think they are unable to stand the mental or physical distress which normal persons accept without demanding narcotic relief. 3. The psychopathic personalities, about 60 per cent, recruited from the large class of inadequates with serious underlying defects of personality who find the drug a panacea for their lack of ability to adjust themselves to life's conflicts; the latter group includes the ne'er-do-well type made up of life's misfits who, as a rule, in spite of the exaggerated and sensational news and police reports, are not vicious or dangerous criminals. Addicts make poor criminals. They have no will power, their judgment is defective, they cannot be trusted and they commit, as a rule, only petty crimes and are ostracized and looked down on by the more capable and dangerous criminals.

There is no evidence that the excessive use of morphine affects the germ plasm of ova or spermatozoa or that the offspring are injured by morphinism in the father. However, where the nursing mother is an addict, cases have been reported that when feeding at the breast was discontinued the baby exhibited withdrawal symptoms which were promptly relieved by an opiate.

The danger lies in the descendant's inheriting the unstable nervous system and personality defect of the parent rather than the effect of chronic morphinism.

ESTROGENIC SUBSTANCE FOR ACNE AND FACIAL HYPERTRICHOSIS

To the Editor:—Somewhere I have read that acne vulgaris and facial hypertrichosis have been successfully treated with folliculin ointment. Please explain how it works and where one may procure the ointment?

M.D., Ohio.

ANSWER.—The theory of the use of estrogenic substance for the treatment of acne and hypertrichosis is that both these disorders are due to lack of the estrogenic substance. This is no doubt true for some cases of hypertrichosis and may be part of the basis of some cases of acne vulgaris. Most dermatologists are willing to state that some hormone disturbance is behind dyscrasia of the sebaceous glands which results in acne, but what this disturbance is they are not able to say. Theodore Rosenthal and Raphael Kurzrok (Excretion of Estrin in Acne, *Proc. Soc. Exper. Biol. & Med.* **30**:1150 [May] 1933) found the estrogenic principle regularly present in the urine of normal women but absent from the urine of twenty-seven of the thirty-three women with acne vulgaris whom they tested.

Practical application of this theory to the treatment of acne vulgaris has not been conspicuously successful.

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Michael, J. C.: Observations on the Treatment of Acne Vulgaris, THE JOURNAL, Aug. 3, 1935, p. 327.

McCarthy, Lee, and Hunter, O. B.: Failure of Therapy with Glandular Preparations in Acne Vulgaris, Arch. Dermat. & Syph. **35**: 211 (Feb.) 1937.

Templeton, H. J., and Truman, S. R.: Endocrine Therapy in Acne Vulgaris, *California & West. Med.* **48**: 337 (May) 1938.

In his discussion on the paper of Van Studdiford, C. Guy Lane cited a case of acne occurring at menstrual periods which had resisted x-rays but cleared up when amniotin was given for about seven months and remained clear without further medication. Earlier attempts to stop treatment had resulted in recurrence.

The results of the treatment of hypertrichosis in women is also unpredictable. In most cases no benefit is seen. Once in a while success is achieved for a while, but seldom is the result permanent. The chance of obtaining relief from the excessive growth of hair is much better when other symptoms of ovarian disturbance accompany the hypertrichosis.

While it seems that the use of estrogenic substance is justified in women with some signs of ovarian disturbance accompanied by hypertrichosis or acne vulgaris, especially the form which recurs at the menstrual period and clears up between the periods, it is certainly unwise to use such preparations indiscriminately. In view of the effect in young male rats, its use in boys with acne should be avoided. It is a drug with great and not fully explored potentialities. Its administration in ointment form has the disadvantage of indefinite dosage.

HYPERKERATOSES OF FEET

To the Editor —A woman aged 24, whose physical examination is otherwise negative, has had thick callosities of the soles, heels and toes of both feet for six years. A surgeon and a dermatologist in consultation agree that this is apparently a simple callosity. Various ointments, including cod liver oil and allantoin, as well as paring down, have been followed by prompt recurrence even when the patient was kept in bed for a month. Roentgen therapy (twelve treatments, details lacking) in a large New York hospital to the extent of producing a slough was otherwise ineffectual. Ultraviolet has been tried The patient has been saturated with vitamins A, B, C, D and G The roentgen necrosis is now healed Please help

JOSEPH M GROSS, M.D., Brooklyn

ANSWER.—Simple calluses are discrete overgrowths of the superficial part of the skin due to pressure or friction rub. Removal of the cause prevents recurrence of the callus. In view of the recurrence with the patient in bed, this would rule out the presence of a simple callus.

Hyperkeratosis, which corresponds to the description in this case, is an overgrowth of the outer layer of the skin which occurs on the plantar surface of the foot.

Hyperkeratosis is frequently a late stage of dermatomycosis. Treatment of the hyperkeratosis in such an instance would be the use of heliotherapy or Whitfield's ointment; 5 per cent salicylic acid in hydrous wool fat may be rubbed vigorously into the skin. Walking barefooted on dry sand is helpful if this is practical.

In addition, there is a hyperkeratotic condition of the skin which occurs in certain persons without known cause This type may be congenital. Inquiry should be made to ascertain whether arsenic has been used as medication, since this is sometimes a cause of hyperkeratosis. Roentgen treatment has been used in some cases with benefit, but most of these patients are best treated by thoroughly washing the foot with tincture of green soap, which softens the skin. This is followed by an application of 5 per cent salicylic acid in hydrous wool fat, which is rubbed vigorously into the skin several times a day.

HEMORRHAGE AND LEUKEMIA

To the Editor —In a case of lymphatic leukemia, with the patient in fair condition and of plethoric type, what would be the effect of removal of a large quantity of blood (blood letting)? How long is the time of blood restoration? Which constituents of the blood are first restored? Are the erythrocytes or leukocytes first regenerated? Has this been given any scientific study as to extent or location of faulty regenerative function of the hematopoietic cells?

A. G. LEE, M D , Texarkana, Ark.

ANSWER —Although there are no data available on the effect of venesection in leukemia, large spontaneous hemorrhages occur which produce the same effect. Following such an occurrence, red cell and hemoglobin regeneration is slow—often there is no regeneration, especially in the acute forms of the disease. This poor response is probably due to the fact that the red cell forming tissue is already overtaxed In several observed cases extensive hemorrhage did not affect the white cells appreciably.

No literature is available on the use of venesection as a test in leukemia. However, the cause of the anemia in leukemia is not settled, being variously thought to be due to malfunction of the marrow or to increased peripheral destruction.

POISONING FROM SELENIUM

To the Editor:—Kindly give me a brief description of so called poisoning by selenium fumes and the treatment.

M D., New York

ANSWER —Acute or chronic poisoning by selenium may be produced by inhalation of volatile selenium compounds or seleniferous dusts. In animals inhalation of moderately high concentrations of hydrogen selenide (H_2Se) produced fatty metamorphosis of the liver, accompanied later by hypertrophy of the spleen At lower concentrations of hydrogen selenide, animals show less marked liver and spleen damage. Numerous studies have shown the toxic properties of selenium on ingestion or injection of its compounds. In general the site of greatest injury from absorption of selenium compounds is the liver, spleen and kidneys.

In man the symptoms following prolonged absorption of selenium may include pallo [illegible] disturbances, garlic odor of the breath and [illegible] of the nose and throat (rose cold), coating of the tongue, and metallic taste in the mouth. Selenium in the urine is conclusive evidence that absorption of selenium has occurred. Analysis of a morning specimen of urine for selenium is suggested as a diagnostic procedure.

To prevent further absorption of selenium is the first step in the treatment of chronic selenium poisoning. The treatment is symptomatic; some authors suggest the use of a high carbohydrate diet, with increased water intake, as excretion is predominantly renal.

Selected general references:

Hamilton, Alice: Industrial Poisons in the United States, New York, Macmillan Company, 1925.

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TUBERCULOSIS AND CAISSON DISEASE

To the Editor —A man aged 38 suffered an attack of caisson disease in March 1936, from which he made an almost complete recovery Examination of his lungs at that time did not reveal any pathologic condition and no x-ray examination was made. In March 1937 a diagnosis of active pulmonary tuberculosis (positive sputum and roentgenograms) was made. He began to cough about a month before the roentgenograms were taken. Is there any possible connection between the tuberculosis and the caisson disease? Is there any literature on this subject?

M D , New Jersey

ANSWER.—There is no logical explanation of a relationship between the attack of caisson disease which the patient suffered in March 1936 and the presence of active pulmonary tuberculosis in March 1937. As pulmonary tuberculosis frequently is not detected by physical examination and since x-ray films were not made, it is possible that pulmonary disease was present in a presymptom stage at the time he had caisson disease. Often chronic pulmonary tuberculosis can be located by x-ray films several years before significant abnormal physical signs or symptoms make their appearance. Therefore it is possible that x-ray examination in March 1936 would have revealed evidence of the disease.

On the other hand, it is possible that tuberculosis was not present in March 1936 and that the patient became infected subsequently to that date, since many persons now contract their first infections in adult life. No mention is made of a tuberculin test having been administered at the time of or subsequent to the attack of caisson disease. If this was done, and the patient was a nonreactor at that time, there is excellent evidence that the tuberculosis is of recent origin Although the time is short for the development of chronic pulmonary tuberculosis from a recent infection there is occasionally such an occurrence. However, with the evidence presented there would not appear to be any association between caisson disease and tuberculosis.

RABIES PROPHYLAXIS

To the Editor —A recent outbreak of rabies resulted in scores of people presenting themselves for preventive treatment Their contacts varied from ordinary petting of rabid animals to actual bites One department in the area gave treatment to every one who had had any contact at all, whereas the other department required an actual bite of more than trivial extent before Pasteur treatment was started Must a skin wound from the bite of a rabid animal be of subcutaneous depth or more before Pasteur treatment is indicated? Do small, superficial breaks in the skin indicate treatment if the patient has had contact with a rabid animal?

JOHN M. COLLINS, M D , Seattle

ANSWER.—In the treatment of a person who may have been bitten by a rabid animal, the guiding principle is always safety first. Take no chances! The answer to the first question is No Any wound made by the bite of a rabid animal, no matter how insignificant, may admit the infection The answer to the second question is Yes in case it is possible that the break in the skin was made by the bite of a rabid animal.

COPPER IN DRINKING WATER

To the Editor.—Will you please advise me as to whether or not any toxic effects could result from using drinking water which contains 0.65 part of copper per million parts of water?

ARTHUR H. LONDON JR , M.D , Durham, N. C.

ANSWER.—The United States Treasury Department standard for water supplies to be furnished for drinking and culinary purposes by interstate carriers requires that the copper content of the water shall not exceed 0.2 part per million In recent years there has been some criticism of this standard by biochemists and physiologists, claiming that it is too low and that harmful effects may not result if the copper content is as high as 1 part per million. Experience with the physiologic effects of copper in the light of its more liberal use in water service connections and for control of algae in the public water supplies seems to indicate that the official standard is quite conservative.

GLASSES FOR PROTECTION AGAINST ULTRAVIOLET RAYS FROM A QUARTZ BURNER

To the Editor:—Do ordinary glass or polaroid glasses give adequate protection against ultraviolet rays directed into the face with the eyes open from a Hanovia mercury vapor quartz burner? What is the lens in the goggle furnished by the manufacturer? The representative is unable to tell me.

M.D., New York.

ANSWER.—Ordinary glass and polaroid glasses do give adequate protection against ultraviolet rays directed into the face with the eyes open with any quartz burner emitting ultraviolet rays. The polaroid glasses, however, are rather expensive and there is no point in using them for protection against ultraviolet rays, as ordinary winlow glass serves the same purpose.

Glass in goggles ordinarily used when taking ultraviolet radiation treatments are of various styles and usually are colored merely to soften the glare of the light. There are glass preparations on the market for protection against the effects of screening out infra-red radiation as well as ultraviolet radiation.

CHILDBIRTH AND OBESITY

To the Editor:—What would be the proper procedure for delivery in the following case? A negro woman 29 years old and weighing 325 pounds (147 Kg.) had one child after a difficult labor sixteen years ago and another stillborn child nine years ago. At both previous pregnancies her weight was under 200 pounds. She is at term. The question has arisen whether this woman should be delivered by cesarean section without previous test of labor or should be allowed to go into labor and the case handled from then on according to indication.

M.D., Indiana.

ANSWER.—A cesarean section in a patient weighing 325 pounds is a formidable procedure. It necessarily carries with it a considerable risk for the mother. The query does not state that the previous stillborn children were the result of difficult labors. The labors may not have contributed to the fetal deaths. Unless some unusual complication arises, the safest procedure is to allow the patient to go into labor and deliver her through the birth canal. The rapid increase in her weight need not necessarily contribute to a more difficult natural delivery.

ORAL IRON MEDICATION AND CONSTIPATION

To the Editor:—What method or methods may be used to prevent the constipation so frequently caused by oral iron medication?

E. N. MURRAY, M.D., Camden, N. J.

ANSWER.—Oral iron medication usually causes constipation in persons who already have such a tendency. Sometimes the constipating effect seems to be worse when small doses are given. Ferrous sulfate and iron and ammonium citrates given on an empty stomach between meals in 0.2 Gm. (3 grain) and 2 Gm. (30 grain) doses three times a day respectively are frequently less costive than other preparations. If this fails, the usual treatments for constipation must be tried.

SUPERNUMERARY FINGERS AND TOES

To the Editor:—Please state what you consider the best time in life to operate on supernumerary fingers and toes.

M.D., Ontario.

ANSWER.—In general it would be wise to remove supernumerary fingers and toes early in life, in fact as soon as the parts involved are well enough developed to make an accurate surgical removal possible after a careful study of the roentgenograms. Sometimes these extra digits are attached by separate joints, sometimes one joint suffices for both, and therefore the amputation must avoid impairment of the function of the adjacent finger or toe. In general this type of plastic surgery should be done about the end of the first year.

VAGINAL ABSORPTION

To the Editor:—On page 173 of the January 14 issue of THE JOURNAL the question "Is there any absorption from the vaginal mucosa?" is answered "There is no absorption from the intact vaginal mucosa. There can be absorption from a damaged mucosa. It is not probable that absorption in such a manner occurs often enough to be of practical importance." Absorption of the estrogens from the vaginal mucosa is well known. Serious poisoning and fatalities have been all too frequently reported after the use of mercury bichloride for vaginal douches. In addition there is the study by Macht (*J. Pharmacol. & Exper. Therap.* **10**: 509 [Jan.] 1918) in which it is stated in the conclusions: "It has been shown that a large number of drugs and poisons . . . alkaloids, inorganic salts, esters and antiseptics can be and are easily absorbed through the vaginal wall."

WALTER MODELL, M.D., New York.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 20-22. Sec., Dr. J. N. Baker, 517 Dexter Ave., Montgomery.

ARKANSAS: *Medical (Regular).* Little Rock, June 8-9. Sec., State Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, 317 State Line, Texarkana. *Medical (Eclectic).* Little Rock, June 8-9. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock. *Basic Science.* Little Rock, May 22. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock.

CALIFORNIA: *Written examinations.* San Francisco, July 10-13, Los Angeles, Aug. 7-10, and Sacramento, Oct. 16-19. *Oral examinations* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, August 7, and San Francisco, Nov. 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Basic Science.* New Haven, June 10. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Regular).* Hartford, July 11-12. *Endorsement.* Hartford, July 25. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, July 11-12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, July 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 26-27. *Medical.* Washington, July 10-11. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 19-20. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June 7-8. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

ILLINOIS: Chicago, June 20-22 and Oct. 17-19. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 20-22. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: Iowa City, June 6-8. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, State Department of Health, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 13-14. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, June 7-9. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Augusta, July 11-12. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical (Regular).* Baltimore, June 20-23. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, June 20-21. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 11-13. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Ann Arbor and Detroit, June 14-16. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, June 1-3. Sec., State Board of Health, Dr. Harry F. Parker, State Capitol Bldg., Jefferson City.

NEBRASKA: Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Board of Registration in Medicine, Dr. T. P. Burroughs, State House, Concord.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York, and Syracuse, June 26-29. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, State Education Department, Albany.

NORTH CAROLINA: Raleigh, June 19. Sec., Dr. William D. James, The Hamlet Hospital, Hamlet.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: Columbus, June 6-9. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: *Basic Science.* Oklahoma City, May 15. Sec. of State, Hon. C. C. Childress, State Capitol, Oklahoma City. *Medical.* Oklahoma City, June 14. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Medical.* Portland, June 20-22. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science.* Corvallis, July 8, and Portland, Oct. 28. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, 400 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 27. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 18-19. Director, Medical Licensure, Dr. G. J. Van Heuvelen, State Board of Health, Pierre.

TENNESSEE: Memphis, June 15-16. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Austin, June 21-23. Sec., Dr. T. J. Crowe, 918 Mercantile Bldg., Dallas.

UTAH: Salt Lake City, June 26-28. Dir., Department of Registration, Mr. G. V. Billings, 326 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 14-16. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 21-23. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WEST VIRGINIA: Bluefield, July 5. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Basic Science.* Milwaukee, June 3. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Milwaukee, June 27-30. Sec., Dr. Henry J. Gramling, 2203 S. Layton, Blvd., Milwaukee.
WYOMING: Cheyenne, May 31. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, May 6, page 1857.

Colorado January Report

Dr. Harvey W. Snyder, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, Jan. 4-6, 1939. The examination covered eight subjects and included 161 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. Four physicians were licensed by endorsement on January 3. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1938)	89
Osteopaths *			82, 86

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College		(1937)	N. B. M. Ex.
State University of Iowa College of Medicine		(1926)	Iowa
St. Louis University School of Medicine		(1936)	Illinois
Baylor University College of Medicine		(1926)	Texas

* Licensed to practice medicine and surgery.

Book Notices

The Treatment of Fractures. By Charles Locke Scudder, A.B., Ph.B., M.D., Consulting Surgeon to the Massachusetts General Hospital, Boston. Eleventh edition. Cloth. Price, $12. Pp. 1,208, with 1,717 illustrations. Philadelphia & London: W. B. Saunders Company, 1938.

The treatment of fractures forms a more important part of surgical practice today than ever before because of much reckless automobile driving and the ever increasing mechanization of industry. In the twelve years since the previous edition of this book there have been many advances in the diagnosis and treatment of fractures, making it necessary for the author to rewrite his material completely. He has deleted all obsolete methods of diagnosis and treatment and added hundreds of new illustrations. Dr. Scudder personally approves the opinions expressed by the twenty other contributors to the volume, men actually engaged in doing the procedures about which they have written. He recognizes the importance of adequate first aid treatment and proper transport, factors which the general practitioner must master. There are forty-seven chapters; however, the size of the book remains convenient. It closes with a chapter on the medicolegal aspects of fractures.

The Essentials of Modern Surgery. Edited by R. M. Handfield-Jones, M.C., M.S., F.R.C.S., Surgeon to Out-Patients, St. Mary's Hospital, London, and A. E. Porritt, M.A., M.Ch., F.R.C.S., Surgeon to His Majesty's Household. Cloth. Price, $9. Pp. 1,126, with 501 illustrations. Baltimore: William Wood & Company, 1938.

This book succeeds in its attempt to present the essentials of modern surgery in concise form for both students and practitioners. While it represents the work of fifteen authors, who are responsible for individual chapters, the chapters contributed by the senior author are especially fine. The numerous and instructive illustrations are unsurpassed in any similar volume. In arrangement the book resembles many current volumes in the same field, beginning with an entirely adequate treatment of the pathology of inflammation, infections and the principles of surgical technic and then passing on to regional surgery. The text is lucid, interesting and in general authoritative. However, an American reviewer is surprised to find in the chapter on anesthesia considerable discussion of chloroform but no mention of ethylene or of some of the more recent inhalation anesthetic agents. A more adequate discussion of diseases of the biliary tract and of cholecystography seems desirable. No mention is made of the use of the gastroscope and its place in the diagnosis of gastric lesions. More serious is the omission of any discussion of the problems of water balance, dehydration, and demineralization in preoperative and postoperative treatment and the significance of these factors in acute intestinal obstruction, acute dilatation of the stomach and high intestinal fistulas. These are minor criticisms, however, and both the authors and the publisher are to be highly commended for the production of this book.

Clinical and Experimental Investigations in Agranulocytosis with Special Reference to the Etiology. By Preben Plum. Denne Afhandling er af det lægevidenskabelige Fakultet antaget til offentlig at forsvares for den medicinske Doktorgrad, København. Paper. Pp. 410, with 125 illustrations. London: H. K. Lewis & Co., Ltd.; Copenhagen: NYT Nordisk Forlag, Arnold Busck, 1937.

Most of this volume is devoted to the etiology of granulocytopenia. It is the most comprehensive and accurate compilation of data concerning that disease which has yet appeared. There are twelve chapters, a section of photomicrographs and records of 114 cases of agranulocytosis and other leukopenic diseases, all of which were observed in Denmark by the author or his colleagues. These chapters are followed by a list of drugs incriminated in the production of the disease, a summary, a summary in Danish, and finally a bibliography of 422 references incorporating the literature of the world. As stated in the introduction, the author compiled this work under a fellowship from a Danish fund for medical research and was aided by financial grants from other scientific agencies of Denmark. Therefore it can be considered to be accurate and scientific.

The first chapter considers the history of the disease, and early sporadic cases are cited. Plum concludes that the disease probably did not exist before the report of Schultz in 1922. There is then a thorough discussion of the terminology, geographic distribution, seasonal incidence, sex and age incidence and occupational frequency. Just as in the United States, the disease in Denmark has occurred more frequently in physicians, nurses and others closely associated with the medical profession. In about fifty pages there is an excellent summing up of the clinical symptoms, hematologic signs, pathologic changes and results of laboratory studies. Data from the world literature are presented, and the reports of the ninety cases studied in Denmark are included. Nearly eighty pages is then devoted to the etiology of agranulocytosis, and in this section is found the most interesting material. The author considers the various etiologic concepts that have been presented, including the role of infections, the various predisposing factors, the influence of the menstrual cycle, the role of allergy, the effects of such agents as arsphenamine, benzene, arsenic, bismuth and gold preparations and, finally, the role of aminopyrine. There is then presented an accurate and chronologic record of the development of the theory of causation by drugs, beginning with the report of Kracke in the United States, who is given priority for the development of the concept. The author summarizes the cases reported of granulocytopenia occurring after the administration of aminopyrine, including experimental work with both human beings and animals, and includes his own extensive experiments. There is a brief discussion of the role of other drugs, including the barbituric acid preparations, novaldin, antipyrine, acetanilid, acetophenetidin, dinitrophenol, cinchophen, quinine, neostibosan and sulfanilamide. He states that since the probable etiologic significance of aminopyrine was recognized in Denmark the consumption of the drug has markedly decreased and that there has been a remarkable parallel between the incidence of the disease and the consumption of the drug to the extent that in 1936 the disease had practically disappeared. He concludes that it may be safely assumed that, as far as Denmark is concerned, aminopyrine is in all probability the main etiologic factor in agranulocytosis. He then discusses the pathogenesis, emphasizing the belief that the clinical symptoms are preceded by the hematologic changes and that the infectious processes result from loss of cellular resistance. The final four chapters deal with the diagnosis, differential diagnosis, course, prognosis and treatment. He discusses the merits of treatment with nucleic acid products including pentnucleotide, liver extract, transfusions, x-rays and other measures. A note of pessimism is sounded, for "according to our present knowledge of the etiology of agranulocystosis the therapeutic methods generally employed do not appear particularly expedient" and "the rational thing is to direct our therapeutic efforts against the provoking agent." He stresses the value of

prophylaxis and emphasizes that the most valuable measure in the control of the disease is to reduce the consumption of aminopyrine.

The twenty-six colored illustrations are excellent photomicrographic reproductions of the various mature and immature blood cells, and the black and white ones are mainly of the bone marrow in agranulocytosis. This work is available in both English and Danish. It has been executed with meticulous care and with a high degree of accuracy by one who obviously is a careful worker. It represents an authoritative source of material for all those interested in agranulocytosis and other leukopenic diseases.

Proceedings of the Fourth Conference on Psychiatric Education Undergraduate Instruction, Baltimore, Maryland, April 8-10, 1936. Paper. Pp. 345. New York City: The National Committee for Mental Hygiene, Inc., Division of Psychiatric Education, 1938.

In April 1936 the Fourth Conference on Psychiatric Education was held in Baltimore with Adolph Meyer in the chair. The present volume is a report of the proceedings of this conference and is an extremely comprehensive survey of the subject of psychiatric education. Many reports are included which discuss how much of the medical school schedule is devoted in various universities at the present time to the presenting of psychiatric material to the student. Papers were read in which the ideal curriculum in psychiatry for medical students was considered, and such features as the need of premedical psychology courses and the relationship of other parts of the medical curriculum to psychiatry were discussed in some detail. Considerable attention was devoted to the matter of how psychiatry should be taught, how the class work should be divided, the purpose of ward walks and the need for special training in the teaching of psychiatry. About a third of these proceedings is allotted to an appendix, which deals with the psychiatric course presented at the Johns Hopkins Hospital. There are classifications of mental disease along the lines of those in use at the Johns Hopkins University School of Medicine, and forms for history taking and recording are also shown. Also included in the appendix are several papers, chiefly by Dr. Meyer, which were not read at this conference but which treat of various aspects of psychiatry.

Traité de chirurgie orthopédique. Publié sous la direction de L. Ombrédanne et P. Mathieu. Secrétaires de la rédaction: M. Lance, G. Huc et P. Padovani. Tome I. Physiologie, pathologie et therapeutique. Cloth. Price, 300 francs. Pp. 902, with 433 illustrations. Tome II. Physiologie, pathologie et therapeutic générales (fin.) Rachis; membre supérieur. Half-cloth. Pp. 903-1921, with illustrations. Tome III. Deuxième partie: Rachis; membre supérieur (suite et fin). Cloth. Price, 300 francs. Pp. 1919-2875, with illustrations. Tome IV. Troisième partie: Bassin; membre inférieur. Half-cloth. Price, 300 francs. Pp. 2873-3778, with illustrations. Tome V. Troisième partie: Rachis; membre inférieur (suite et fin). Half-cloth. Price, 300 francs. Pp. 3777-4482, with illustrations. Paris: Masson & Cie, 1937.

This set of five volumes is the finest material on orthopedic surgery that has come from France. It reflects the knowledge of French orthopedic surgeons and general surgeons interested in bone and joint and related lesions. The contributors were chosen with great care, and they have done themselves, both individually and collectively, great honor. Some of the most notable are Ombredanne, Mathieu, Lance, Huc, Padovani, Calvé, Delahaye, Ducroquet, Fontaine, Ferdet, Inglerans, Lamy, Lasserre, LeDoux-Lebard, LeFort, Leriche, Leveuf, Mouchet, Nové-Josserand, Policard, Ponzet, Rendu, Rocher, Roederer, Sorrel, Sorrel-Dejerine and Tavernier. Volume I treats congenital malformation of the extremities, the skeletal system, lesions of bones, diseases of joint and surgical procedures on joints, diseases of muscles, tendons and aponeuroses, and lesions of the skin. Volume II deals with diseases of the nervous system, including spastic paralysis, infantile paralysis and wounds of nerves, as well as lesions of the blood vessels of interest to the orthopedic surgeon, diseases of the blood, diagnostic roentgenography in orthepedic surgery, apparatus, including splints and braces, plaster of paris and celluloid, treatment in general of wounds, kinesitherapy, physical therapy and climatotherapy. The second part of this volume discusses the spine and all its lesions. Volume III contains a discussion of tumors of the vertebra, unusual diseases, the shoulder girdle and all its lesions, the thorax, the scapula, the shoulder, the arm, the elbow, the forearm, the wrist and the hand. Volume IV deals with the pelvis, the hip, the thigh and the knee from the standpoint of congenital defects and infectious diseases. Volume V deals with the leg, the ankle joint and the foot, amputations, apparatus of all types, paralysis of the upper extremities, operative technic and apparatus for paralysis of the upper extremities and for the lower extremities, and the procedures for equalization of the length of the lower extremities. The text, composition and illustrations are excellent. The collaborators are unfamiliar with or unwilling to accept the work of surgeons in other countries. There is an occasional reference to Italian and German literature but few to that of the English speaking countries. The work is encyclopedic; it cannot be recommended to the individual English reading orthopedic surgeon but is a valuable reference work.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Röntgendiagnostik der Gelenke mittels Doppelkontrastmethode. Von Dr. J. Oberholzer, Chefarzt am Kantonalen Krankenhaus Wallenstadt. Mit Vorwort von Dr. med. E. Bircher, A. Spitaldirektor Aarau. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband LVI. Herausgeber: Prof. Grashey. Paper. Price, 23 marks. Pp. 128, with 134 illustrations. Leipzig: Georg Thieme, 1938.

The author discusses diagnostic roentgenography of joints by means of a double contrast method. The technic of the injection of various joints by the contrast method and the x-ray technic are effectively demonstrated. The discussions and illustrations, especially of the knee joint, are excellent and offer a fine method of precise diagnosis of interesting and often difficult problems.

Analysis of Parergasia. By Gladys C. Terry, Research Associate, Neurological Institute of New York, Columbia University, New York, and Thomas A. C. Rennie, M.D., Associate in Psychiatry, Phipps Psychiatric Clinic, Johns Hopkins University, Baltimore. With an introduction by Adolf Meyer, Henry Phipps Professor of Psychiatry, Johns Hopkins University, Baltimore. Nervous and Mental Disease Monograph Series No. 64. Boards. Price, $4. Pp. 202. New York: Nervous and Mental Disease Publishing Company, 1938.

Seventy-seven cases of parergasia or schizophrenia from the basis for the present volume. A mass of data is arranged according to the life experience chart of Adolph Meyer. A tremendous amount of material is presented and yet a purely descriptive use is made of it. The parergastic subject's life defeat is based on poor constitution and personality traits which cause failure in adaptation to life situations. However, to accept life situations which impinge on the individual even in the early years as dynamic factors is the great defect of the meyerian psychobiology. It gives, in other words, lip service to the term dynamic and treats it purely descriptively. The material is so organized in a summarized descriptive form that no truly dynamic reconstruction could be achieved. Life experiences are stressed as important to the individual's fate yet their meaning in terms of the individual is ignored. The earliest infantile situations are virtually overlooked and the patient is considered as crushed by relatively late experiences impinging on a psychobiologic unit poorly prepared for them. What makes him unable to live through the multifarious experiences which are not so specific for his life? In this regard the followers of Meyer ignore the earliest infantile experiences which in their effects on the personality may cause truly dynamic alterations and prepare the way for the future failure in adjustment. These earliest interactions are so completely overlooked in this book that a tremendous amount of work becomes valuable only in a descriptive sense.

The Functions of Human Voluntary Muscles. By Norman D. Royle, M.D., Ch.M., F.R.A.C.S., Senior Orthopaedic Surgeon, Lewisham Hospital, Sydney. Cloth. Price, 3s. 6d. Pp. 42, with 11 illustrations. Sydney & London: Angus & Robertson Limited, 1938.

Dr. Royle developed a remarkable control of the individual muscles of his own body, thus acquiring a unique knowledge of the actions of certain muscles. This knowledge was the basis of a series of lectures in the department of anatomy at the University of Sydney, Australia, which in turn were the basis of this book. He discusses the movements of the vertebral column, jaws, shoulder girdle, upper limbs and lower limbs and emphasizes the importance of a knowledge of the formation as well as of the attachments and nerve supply of a muscle in determining appropriate treatment. Various methods of approach in ascertaining the formation of muscles, namely

anatomic, pathologic, electrical and physiologic methods, are described, and the principal or prime mover, reverse action, fixation muscles and synergic action are discussed. At first thought this book seems elementary, but it is well worth the time of any physician and especially the orthopedic surgeon.

Röntgendiagnostik der Knochen- und Gelenkkrankheiten. Von Professor Dr. Robert Kienböck. Heft 5 (Abteilung Gelenkkrankheiten): Rheumatoide Gelenkstuberkulose. Paper. Price, 60 marks. Pp. 451-1049, with 610 Illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1938.

This elaborate and comprehensive book on rheumatoid tuberculosis of the joints, volume 5 in a series on the x-ray diagnosis of bone and joint diseases, is divided into chapters on tuberculosis of the joints of the hand, the shoulder, the foot, the knee, the hip, the sacro-iliac region and the vertebrae. The second part deals with multiple lesions, including diseases, Heberden's nodes and mono-articular infections. There are several excellent illustrations of rhizomelic spondylosis with the bamboo pole appearance involving the cervical thoracic and lumbar vertebrae. The author discusses 378 cases and presents an extensive bibliography under eighteen headings. This fine volume is chiefly a reference book, highly technical and of value to those who read German easily.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Disability from Displacement of Fifth Lumbar Vertebra. — Donker, a man weighing about 200 pounds (90.7 Kg.), in the course of his employment Jan. 3, 1936, fell on his back and could not continue working. His legs felt numb and he had pains in his legs and back. He was taken to a physician in Sioux City for treatment but the pains persisted after several weeks of treatment. The physician then removed the patient's coccyx. The last week in April the physician released the patient, although at the time the patient complained of a burning sensation up and down his spine and numbness in his legs. Another physician, consulted about May 20, prescribed a brace for the lower part of the body and rendered treatment until August 19, but the pains continued to grow worse. On the last date named the workman entered the Veterans' Hospital in Lincoln, Neb., where he was kept in a cast for five weeks and was given a brace, his tonsils were removed and some teeth were extracted. After his release from the hospital, November 3, he instituted proceedings under the workmen's compensation act of Nebraska. At the trial he testified that he had very little use of his legs and was forced to wear the brace continuously, that his legs were numb and that he suffered a burning sensation of the spine and hip pains. The trial court awarded compensation for temporary total disability and the employer and his insurance carrier appealed to the Supreme Court of Nebraska.

The only questions for determination by the Supreme Court were the extent of the injuries suffered by the workman and the nature of the resulting disabilities. A physician who personally supervised the treatment given the workman at the Veterans' Hospital and who examined him during the month preceding the trial testified that in his opinion Donker was permanently and totally disabled. As to the condition of the lower portion of Donker's spine, there was expert testimony that the fifth lumbar vertebra was displaced forward so as to be no longer in line with the sacrum and that the space between the two was wider than normal. That condition, the witness testified, might have been present before the injury, might have been aggravated by the injury or might have been caused entirely by the injury. Donker's family physician, who attended him after his release from the Veterans' Hospital, testified, from the results of examinations made including the use of roentgenograms and his previous knowledge of the patient's condition, that the fall on January 3 would be sufficient to cause the injuries from which he suffered, that in his opinion the workman's disability was due wholly and entirely to the fall and that the workman was totally and permanently disabled.

The Supreme Court concluded that the finding of the trial court that the workman was suffering from at least temporary total disability was clearly established by the evidence. It was undisputed that prior to January 3 Donker was an able bodied laborer, capable of continuously performing hard work without ill effects. After that date his condition changed markedly. The only explanation offered for that change by the defendant was that the workman was a malingerer. But the evidence, the court thought, preponderated against that conclusion.

Taking into consideration all the evidence, the Supreme Court concluded that the judgment of the trial court awarding compensation was justified. The judgment was therefore affirmed. —*Donker v. Central West Public Service Co. (Neb.), 280 N. W. 168.*

Society Proceedings

COMING MEETINGS

American Medical Association, St. Louis, May 15-19. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Academy of Tuberculosis Physicians, St. Louis, May 13-14. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.

American Association for the Study of Goiter, Cincinnati, May 22-24. Dr. W. Blair Mosser, 133 Biddle St., Kane, Pa., Secretary.

American Association for Thoracic Surgery, Los Angeles, July 5-7. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of Genito-Urinary Surgeons, Williamsburg, Va., May 24-26. Dr. Charles C. Higgins, 2050 East 93d St., Cleveland, Secretary.

American Association of Industrial Physicians and Surgeons, Cleveland, June 5-8. Dr. V. S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Bronchoscopic Society, Rye, N. Y., May 26. Dr. Lyman Richards, 319 Longwood Ave., Boston, Secretary.

American College of Chest Physicians, St. Louis, May 13-14. Dr. Robert B. Homan Jr., 109 North Oregon St., El Paso, Texas, Secretary.

American Dermatological Association, Montebello, Canada, May 31-June 3. Dr. Fred D. Weidman, University of Pennsylvania Medical Laboratories, Philadelphia, Secretary.

American Gynecological Society, White Sulphur Springs, W. Va., May 22-24. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.

American Laryngological Association, Rye, N. Y., May 24-26. Dr. James A. Babbitt, 1912 Spruce St., Philadelphia, Secretary.

American Neurological Association, Atlantic City, N. J., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Buffalo, N. Y., June 5-8. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Otological Society, New York, May 22-23. Dr. Thomas J. Harris, 104 East 40th St., New York, Secretary.

American Proctologic Society, Brooklyn, N. Y., June 25-27. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

American Radium Society, St. Louis, May 15-16. Dr. Frederick W. O'Brien, 465 Beacon St., Boston, Secretary.

American Rheumatism Association, St. Louis, May 15. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.

American Society for the Study of Allergy, St. Louis, May 15-16. Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Texas, Secretary.

American Urological Association, White Sulphur Springs, W. Va., May 29-June 1. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Associated Anesthetists of the United States and Canada, St. Louis, May 15. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary General.

Association for the Study of Internal Secretions, St. Louis, May 13-14. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Connecticut State Medical Society, New Haven, May 25-26. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Maine Medical Association, Poland Springs, June 25-27. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.

Massachusetts Medical Society, Worcester, June 6-8. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.

Medical Library Association, Newark, N. J., June 27-29. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Minnesota State Medical Association, Minneapolis, May 31-June 2. Dr. B. B. Souster, 11 West Summit Ave., St. Paul, Secretary.

[illegible] Association of. Butte, June 28-30. Dr. Thomas L. [illegible] elena, Secretary.

[illegible] iation, New York, June 1-2. Dr. G. [illegible] way, New York, Secretary.

[illegible] Boston, June 26-29. Dr. Charles J. [illegible] New York, Secretary.

[illegible] Manchester, June 8-9. Dr. Carleton R. [illegible] cord, Secretary.

[illegible] Atlantic City, June 6-8. Dr. Alfred [illegible] Secretary.

[illegible] Society, San Francisco, June 19-22. [illegible] St., San Francisco, Secretary.

[illegible] ion, Spokane, Wash., June 26-29. Dr. [illegible] le Avenue, Spokane, Wash., Secretary.

[illegible] idence, June 7-8. Dr. Guy W. Wells, Secretary.

Society of Surgeons of New Jersey, Elizabeth, May 25. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.

Vancouver Medical Association Summer School, Vancouver, B. C., June 6-9. Dr. W. W. Simpson, 203 Medical Dental Bldg., Vancouver, B. C., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

8: 273-304 (Feb.) 1939

Fallacies in the Conduct of Labor. J. R. Garber, Birmingham.—p. 273.
Diagnosis of Intracranial Tumor. W. A. Smith, Atlanta, Ga.—p. 276.
Diagnosis and Treatment of Pleural Effusions. K. N. Joseph, Birmingham.—p. 281.
Some Clinical Observations in Asthmatic Cases with Methods of Management. J. W. Boggess Jr., Guntersville.—p. 285.

American Heart Journal, St. Louis

17: 131-258 (Feb.) 1939

Reversible Cardiac Enlargement in a Case of Congenital Cavernous Hemangioma. R. Matas and B. R. Heninger, New Orleans.—p. 131.
Calcareous Disease of the Aortic Valve: Study of 228 Cases. T. J. Dry and F. A. Willius, Rochester, Minn.—p. 138.
Evaluation of Heart Volume Determinations by the Rohrer-Kahlstorf Formula as a Clinical Method of Measuring Heart Size. W. J. Comeau and P. D. White, Boston.—p. 158.
*Effects of Alkalosis and of Acidosis on the Human Electrocardiogram. P. S. Barker, Ann Arbor, Mich.; E. L. Shrader and Ethel Ronzoni, St. Louis.—p. 169.
Studies on Mercurial Diuresis: II. Immediate Effect on Venous Blood Pressure. I. F. Volini and R. O. Levitt, Chicago.—p. 187.
Plethysmographic Studies of Peripheral Blood Flow in Man: I. Criteria for Obtaining Accurate Plethysmographic Data. D. I. Abramson, H. Zazeela and J. Marrus, Cincinnati.—p. 194.
Id.: II. Physiologic Factors Affecting Resting Blood Flow in the Extremities. D. I. Abramson, H. Zazeela and J. Marrus, Cincinnati.—p. 206.
Use of Magnesium Sulfate in Measurement of Circulation Time. M. Bernstein and S. Simkins, Philadelphia.—p. 218.

Effects of Alkalosis and Acidosis on Electrocardiogram.—Barker and his co-workers observed pronounced flattening of the T waves in a patient with hysterical overventilation and tetany. This prompted an experimental investigation of the effects of alkalosis and acidosis on forty electrocardiograms of seven human volunteers. Alkalosis produced by voluntary overventilation or by the ingestion of sodium bicarbonate was accompanied by a reduction in the amplitude of the T wave. Acidosis produced by exercise or by the ingestion of ammonium chloride was accompanied by an increase in the amplitude of the T wave. While the clinical application of these observations is probably quite limited, they may offer an explanation for occasional electrocardiographic changes not otherwise understood.

American Journal of Cancer, New York

35: 159-326 (Feb.) 1939. Partial Index

Changes in the Nature of the Stroma in Vagina, Cervix and Uterus of the Mouse Produced by Long-Continued Injections of Estrogen and by Advancing Age. L. Loeb, V. Suntzeff and E. L. Burns, St. Louis.—p. 159.
Relative Potency of Carcinogenic Compounds. J. Iball, London, England.—p. 188.
Effect of Diet on Tumors Induced by Ultraviolet Light. C. A. Baumann and H. P. Rusch, Madison, Wis.—p. 213.
Blood Groups in Relation to the Agglutination of Human Red Blood Corpuscles by Heterologous (Rat) Serums. T. Lumsden, London, England.—p. 222.
Radioactivity of Potassium in Tumor Tissue. A. Lasnitzki, Manchester, England.—p. 225.
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American J. Obstetrics and Gynecology, St. Louis

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Occurrence and Significance of Nucleated Erythrocytes in Fetal Vessels of Placenta. C. T. Javert, New York.—p. 184.
*Effect of Calcium on Uterine Contractions and on Uterine Response to Intravenously Injected Oxytocics. D. N. Danforth and A. C. Ivy, Chicago.—p. 194.
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Critical Analysis of Blood Loss Following Delivery, with Special Reference to Value of Ergotrate. A. M. Reich, New York.—p. 224.
*Etiologic Factors in Sterility: Report of Study of 150 Cases. J. Kotz and Elizabeth Parker, Washington, D. C.—p. 233.
Neonatal Mortality at the Philadelphia Lying-in Hospital: A Seven Year Study. R. M. Tyson, Philadelphia.—p. 241.
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Inhibiting Effect of Pentavalent Arsenicals on Trichomonas: Comparative Efficacy and Toxicity of Acetarsone, Carbarsone and Aldarsone in Laboratory Studies. A. E. Rakoff, Philadelphia.—p. 265.
Treatment of Pelvic Inflammation by Iontophoresis of a Choline Compound. A. Jacoby, New York.—p. 272.
Comparative Study of Effectiveness of Two Antiseptics in Preventing Infection Following Delivery: Report on 1,000 Cases. J. E. Tritsch, New York.—p. 277.
Use of Blood Transfusions in Treatment of Pyelitis Complicating Pregnancy. L. H. Douglass and K. Laughlin, Baltimore.—p. 282.
Blood Sugar Changes in Labor and After Delivery. A. L. DeCamp, Fayetteville, N. C.—p. 285.
Relation Between Hydatid Moles, Relative Ischemia of the Gravid Uterus and the Placental Origin of Eclampsia. E. W. Page, Berkeley, Calif.—p. 291.
*Bartholinitis and Skeneitis Due to Trichomonas Vaginalis. H. A. Shelanski and S. P. Savitz, Philadelphia.—p. 294.
Tubal Pregnancy with Tuberculous Salpingitis. C. S. Stevenson and L. R. Wharton, Baltimore.—p. 303.
Successful Termination of Pregnancy Following Bilateral Sympathectomy. J. M. Melick, Worcester, Mass.—p. 334.

Effect of Calcium on Uterine Contractions.—Danforth and Ivy find that calcium is necessary for the maintenance of the tone, contractility and coordinated activity of the postpartum uterus of the dog and rabbit. When the available calcium is sufficiently reduced by the use of soluble sodium hexametaphosphate, uterine contractions do not occur. The oxytocic action of pitocin, ergonovine and histamine is potentiated by calcium. Doses of pitocin, ergonovine and histamine, which are normally adequate for a uterine response, are ineffective when the available calcium is diminished.

Etiologic Factors in Sterility.—During the last four years Kotz and Parker studied completely 150 patients with the primary complaint of sterility. The etiologic factors in sterility in the female are grouped as (1) constitutional abnormalities, (2) organic pelvic pathologic conditions, (3) closed tubes and (4) endocrine abnormalities. In the male sexual incompetence is usually the etiologic factor. In every sterile couple a multiplicity of factors were operative. Absolute sterility was always due primarily to a specific organic pelvic pathologic condition. Relative sterility was usually due to many less serious factors. The secondary sterilities, as judged from their past histories, had a lowered fertility irrespective of the factors operative at the time of the examination. In the relative sterilities, pathologic changes in the pelvis, closed tubes, endocrine factors and male incompetence were the causes of the sterility, the significance of each being dependent on the severity of the condition and its association with other factors. Sterility due to a single fault was rare. Constitutional factors were not found to be the cause of sterility in any case. Endocrine factors were found to be important in the production of sterility. Blood hormone tests are valuable in determining the etiology of ovarian failure. The endometrial biopsy is the most accurate method of determining the type and degree of ovarian failure. There is no specific routine treatment for sterility. The one aim is to correct as many faults as possible. Of the 120 patients with relative sterility, thirty received no treatment. Twelve patients did not follow the treatment for the prescribed time. Seventy-eight patients with relative sterility were treated. There have been forty-one pregnancies, thirty-five of which were normal, five were miscarriages and one was ectopic. There were no instances of fetal abnormalities. Thirteen cases were considered failures and twenty-four patients are still under treatment. Of the thirty cases of absolute sterility the specific causes were as follows: The tubes had been previously removed in four, a large fibroid uterus was present in four, there was one case of bilateral chocolate cysts of the ovaries and one of sclerotic

ovaries, there were thirteen instances of closed tubes which could not be opened, pelvic inflammatory disease with closed tubes accounted for five cases and there were two cases in which male incompetence was the only cause.

Trichomonas Bartholinitis and Skeneitis.—According to Shelanski and Savitz, Trichomonas vaginalis has been demonstrated in Bartholin and Skene's glands and is a specific factor in producing bartholinitis and skeneitis. The presence of Trichomonas vaginalis in these glands is the source for reinfestation in recurrent cases of Trichomonas vaginalis vaginitis. Injection of the glands with a 1 per cent solution of silver picrate has been found useful in treating this infestation.

American Journal of Public Health, New York

29: 95-196 (Feb.) 1939 Partial Index

Duration of Immunity Conferred by Typhoid Vaccine. Results of Revaccination by Intracutaneous Injection of Typhoid Vaccine. J. F. Silef and G. C. Dunham, Washington, D. C.—p. 95

Serologic Tests in Diagnosis of Syphilis. Elizabeth Maltaner, Albany, N. Y.—p. 104.

Studies on Trichinosis: XI. Epidemiology of Trichinella Spiralis Infestation and Measures Indicated for Control of Trichinosis. W. H. Wright, Washington, D. C.—p. 119

Preparation of Scarlet Fever Toxin. Mary E. Evans and R. Y. Gottschall, Lansing, Mich.—p. 139

Results of Venereal Disease Control in Canada. G. Bates, Toronto.—p. 143.

Industrial Hygiene Program in a State Health Department. C. A. Nau, Austin, Texas.—p. 151

Archives of Ophthalmology, Chicago

21: 409-576 (March) 1939

*Common Wart as Etiologic Factor in Certain Cases of Conjunctivitis and Keratitis. A. de Rötth, Chicago.—p. 409

*Ocular Importance of Sarcoid: Its Relation to Uveoparotid Fever. F. B. Walsh, Baltimore.—p. 421

Spatial Disorientation with Homonymous Defects of the Visual Field. M. Kanzer and M. B. Bender, New York.—p. 439

The Hughes Procedure for Rebuilding a Lower Lid. S. R. Gifford, Chicago.—p. 447.

Localizing Value of Incongruity in Defects in Visual Fields. D. O. Harrington, San Francisco.—p. 453

Syndrome of Tuberous Sclerosis: Report of Case. F. L. P. Koch and M. N. Walsh, Rochester, Minn.—p. 465

Operative Treatment of Radiation Cataract. A. B. Reese, New York.—p. 476

Fusional Movements: Role of Peripheral Retinal Stimuli. H. M. Burian, Hanover, N. H.—p. 486

Precocious Cataracts and Scleroderma (Rothmund's Syndrome, Werner's Syndrome). Report of Case. S. A. Agatston and S. Gartner, New York.—p. 492.

(*a*) Leiomyoma and (*b*) Hematoma of the Iris: Report of Cases. E. C. Ellett, Memphis, Tenn.—p. 497.

Fundus Oculi in Generalized Hypertension and Arteriosclerosis. R. Salus, Prague, Czechoslovakia, translated by E. Waldstein, New York.—p. 505.

Vertical Prism Imbalances in Bifocal Lenses Coexistent with Hyperphoria. S. L. Olsho, Philadelphia.—p. 515.

Diseases of the Choroid. M. Cohen, New York.—p. 522

Common Wart in Etiology of Conjunctivitis and Keratitis.—De Rotth summarizes his experience with ocular diseases caused by common warts of the eyelids, which he first described in 1933. He has encountered seven cases of unilateral conjunctivitis, mostly of the subacute form, and three cases of keratitis of different types in connection with these warts. An additional case of bilateral conjunctivitis is reported in which warts occurred on the lids of both eyes. The virus of the wart is considered to be the etiologic factor in these cases. This view is based on the conformity of the following facts: the unilateral appearance; the involvement of the superficial layers of the eye, which points to an exogenous factor; the resistance toward the usual treatment; the presence of one or several warts on the margin of the eyelid of the diseased eye; the quick recovery after the removal of the warts, and the analogy to molluscum conjunctivitis. On the basis of these facts, the author believes that all inclusion diseases of the skin are able to attack the eye.

Ocular Importance of Sarcoid.—Walsh cites several cases which give, he believes, further clinical and histologic evidence that uveoparotid fever and sarcoid are closely related diseases. The protean ocular manifestations of uveoparotid fever and sarcoid are exemplified by the case reports. Although ocular tissues were involved in all the cited cases, many cases of sarcoid occur in which the eyes are not affected. Therefore he believes that it is no longer necessary to labor the point that uveoparotid fever and sarcoid are similar diseases and may be different manifestations of the same disease. Sarcoid and uveoparotid fever are closely allied conditions for which the cause is not known, but it will probably be proved that they are due to tuberculosis.

Arkansas Medical Society Journal, Fort Smith

35: 187-208 (March) 1939

The Female Castrate: Postoperative Care from an Endocrine Standpoint for the General Practitioner. G. R. Siegel, Clarksville.—p. 187

Id. E. H. Hunt, Clarksville.—p. 189.

Immunology and Laboratory Diagnosis of Syphilis. M. J. Kilbury, Little Rock.—p. 191.

California and Western Medicine, San Francisco

50: 81-168 (Feb.) 1939

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Auscultation of the Abdomen. J. H. Woolsey, Woodland.—p. 105

California State Hospitals: The Problem of Overcrowding. A. J. Rosanoff, Sacramento.—p. 109

Immunization Procedures: Report of the Committee. E. B. Shaw, San Francisco, P. Hamilton, Alhambra, and H. E. Stafford, Oakland.—p. 112

Blind Laws of California: Some Comments. J. P. Lordan, Los Angeles.—p. 114.

Plea for Conservative Obstetrics. A. Bernstein, San Francisco.—p. 118

Delaware State Medical Journal, Wilmington

11: 17-34 (Feb.) 1939

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Florida Medical Association Journal, Jacksonville

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Disturbances of Cardiac Rhythm. S. M. Salley, Miami.—p. 387

Adolescent Turmoil. Agitated Depression with Panic Reaction. J. V. Cohn, Hollywood.—p. 393

Prostatic Calculi. P. D. Melvin, Miami.—p. 396

Acute Empyema Thoracectomy. C. D. Whitaker, Marianna.—p. 398

Georgia Medical Association Journal, Atlanta

28: 39-80 (Feb.) 1939

Crystalline Insulin. M. Sahyun, Detroit.—p. 39.

Georgia Degreed Physicians Previous to 1830. Cecelia C. Mettler, Augusta.—p. 43

Treatment of Varicose Veins: Recent Trends. M. M. Hagood, Marietta.—p. 47.

Diagnosis and Modern Handling of Patients with Cutaneous Syphilis. H. S. Alden and J. W. Jones, Atlanta.—p. 49.

*Symptoms Occurring with Sulfanilamide Relieved by Nicotinic Acid: Preliminary Report. A. P. McGinty, G. T. Lewis and M. R. Holtzclaw, Atlanta.—p. 54.

Contraception. M. O. Corbitt, Augusta.—p. 56

Operation for Rectal Prolapse: Report of Case. H. W. Long, Milledgeville.—p. 58.

Osteomyelitis and Compound Fractures: Treatment with Zinc Peroxide and Cod Liver Oil. P. B. Wright, Augusta.—p. 59.

Obstetrics in the Home. R. B. Crichton, Augusta.—p. 61.

Hypertrophic Pulmonary Osteo-Arthropathy: Report of Case. E. D. Hollar and E. B. Agnor, Atlanta.—p. 63

Nissl Substances in the Nerve Cells of Teratoma. J. Kratka Jr., Augusta.—p. 64

Sulfanilamide Reactions Relieved by Nicotinic Acid.—If the administration of nicotinic acid to patients suffering from pellagra or radiation sickness will ameliorate the symptoms and decrease or eliminate the excretion of abnormal porphyrin, McGinty and his colleagues wondered whether it would have the same desirable effect on patients ingesting sulfanilamide. They have given nicotinic acid to a number of Negro patients receiving large doses of sulfanilamide while they were confined to bed in the hospital. A control urine specimen was obtained before sulfanilamide was administered. During the period of observation, symptoms were carefully noted. On the fourth day of medication, in addition to the sulfanilamide, administration of nicotinic acid was begun in doses of 50 mg. three times a day. Throughout the period of this regimen twenty-four hour specimens of urine were collected and an oxalated specimen of blood was obtained daily. Quantitative determinations of sulfanilamide were made on the blood and urine specimens by the method of

Marshall and Litchfield. Urinary porphyrin was detected by ether extraction of an acidified sample of urine, concentration of the ether extract, acidification with 10 per cent hydrochloric acid and examination with the spectroscope. The response of the patients to the additional administration of nicotinic acid has been most gratifying The unpleasant symptoms and the porphyrinuria were decreased. The most definite clinical change observed was a clearing of mental apathy so often present with the ingestion of sulfanilamide.

Iowa State Medical Society Journal, Des Moines

29: 47-90 (Feb.) 1939

Brain Tumors in Children P C Buey, Chicago —p 47
Scientific Tests for Intoxication Further Studies H W. Morgan, Mason City —p 53
Latent Infections of the Mastoid C C Agnew, Independence —p 55.
Institutional Epidemic Mastoiditis S G Hands, Davenport —p 58
What Do We Mean by Antiseptic Surgery? H W Orr, Lincoln, Neb. —p 60

Journal of Bacteriology, Baltimore

37: 111-236 (Feb.) 1939

Precursors to the Formation of Creatinine by Bacteria C. H. Fish and T D Beckwith, Los Angeles —p 111
Comparative Study of Use of Varying Concentrations of Agar in Test Medium Used to Detect Contaminants in Biologic Products Carolyn R Falk, Helen Biemasz Bucca and Margaret P Simmons, New York. —p 121.
Double Zone Beta Hemolytic Streptococci Their Cultural Characteristics, Serologic Grouping, Occurrence and Pathogenic Significance J H. Brown, Baltimore —p 133.
Physiologic Youth as Important Factor in Adaptive Enzyme Formation C P. Hegarty, Ithaca, N Y —p 145
Method for Producing Increased Carbon Dioxide Tension in Individual Culture Tubes and Flasks. H. J Shaughnessy, Denver.—p 153.
Growth Factor Requirements of the Root Nodule Bacteria P M West and P. W. Wilson, Madison, Wis —p 161
Determination of Histamine in Bacterial Cultures A H Eggerth, R. J. Littwin and Joyce V Deutsch, Brooklyn.—p 187.
Production of Histamine in Bacterial Cultures. A. H Eggerth, Brooklyn. —p 205.

Journal of Immunology, Baltimore

36: 83 192 (Feb.) 1939

Anaphylaxis in the Rhesus Monkey I. Horse Serum as an Antigen. Lenore M. Kopeloff and N Kopeloff, New York —p 83.
Id II. Egg White as an Antigen Lenore M Kopeloff and N. Kopeloff, New York —p. 101
Study of Meningococcus Cultures from Horses Immunized Against Meningococci Sophia M Cohen, Albany, N. Y —p 129
Antigenic Relationships of Pneumococci to Erythrocytes and Organs of Men and Animals. A J Weil and C Sherman, Pearl River, N. Y. —p 139
Neutralization of Vaccine Virus by Serum of Vaccine-Immune Animals. R F Parker, Cleveland —p 147
Nonspecific Factors in Resistance I Capacity to Sustain Effective Circulation A Locke, Pittsburgh —p 159
Id II Ability to Withstand Shock A Locke and C R Main, Pittsburgh —p 173
Id III Capacity for Retarding Bacterial Proliferation A Locke, E R Main and R R Mellon, Pittsburgh —p 183

Laryngoscope, St. Louis

49: 69 134 (Feb.) 1939

Diseases of the Larynx Material Abstracted During the Year 1938 H. B Orton, Newark, N J —p 69
Indication for Surgery in Meningitis Secondary to Disease of the Middle Ear and of the Nasal Sinuses, Reservations in Early Surgical Intervention H M Goodyear, Cincinnati —p 102
Internal Jugular Vein Thrombosis Secondary to Lateral Pharyngeal Abscess Case Report G B Gilmore, New York —p 106
Observation on Behavior of Leukocytes in Nasal Mucus (Preliminary Report) H A Schatz, Philadelphia —p 111.
*Ionization for Control of Severe Hypertensive Epistaxis. A L Beck, New Rochelle, N Y —p 113
Adamantinoma of the Superior Maxilla with Intracranial Extension S Androp, Baltimore —p 119
Procaine Idiosyncrasy and Cervical Phlegmon as Complications Following Local Anesthesia for Tonsillectomy: Case Report. H. D Harlowe, Virginia, Minn —p 123

Ionization for Hypertensive Epistaxis.—Beck has controlled severe hypertensive epistaxis by ionization in three cases in which ligation of the external carotid was considered The ionization, or iontophoresis, as has been employed for vasomotor rhinitis and hay fever, brought about permanent control of the epistaxis The first was done nearly three years ago and there has been no epistaxis since in any of the patients All three patients have a well marked arteriosclerosis. The thick fibrinous membrane of coagulative necrosis that immediately forms on the surface seems to act as a perfect blanket or cover and seals the leaking vessels. Whatever undesirable changes are produced in the mucous membrane may be considered the lesser of two evils, for control of the bleeding is the immediate necessity. The resulting submucosal fibrosis probably prevents repetitions of the bleeding. In all the cases, packing had been inserted repeatedly in an endeavor to stop the bleeding. In carrying out the procedure the packing which has been placed in the nose to control bleeding is removed a little at a time and to the enlarging nasal surface cocaine and epinephrine solution is applied topically. It is advisable to anesthetize the opposite side of the septum when only one side is involved. The ionizing pack and incorporated electrode are then introduced in the customary manner and the current is applied. A current strength of 10 milliamperes for ten minutes produces a good surface membrane. After-treatment consists of deliberate nonintervention, particularly while the pseudomembrane is present. Sedatives or narcotics are usually necessary from the first twelve to twenty-four hours. After the membrane has come away an attempt at preventing the formation of adhesions which tend to form at places at which the space is very narrow is justified. They do no particular harm.

Mental Hygiene, Albany, N. Y.

23: 1-176 (Jan.) 1939. Partial Index

Significance of Research in Mental Disorders A. Gregg, New York. —p. 1
General Principles of Psychotherapy. E. G. Billings, Denver.—p. 25
The Child Reveals Himself Through Play: Method of Play Interview. J. H Conn, Baltimore.—p. 49.
Case Work in an Authoritarian Setting. J. Slawson, New York —p. 70.
Can the Alcoholic Become a Moderate Drinker? Anonymous.—p. 80
Results and Problems of Group Psychotherapy in Severe Neuroses P. Schilder, New York —p. 87.
Experiment in Training Nurses to Help Mothers in Preventive Mental Hygiene J. Levy, Trenton, N. J.—p. 99.

New England Journal of Medicine, Boston

220: 221-268 (Feb. 9) 1939

An Episode in Massachusetts in 1818 Related to the Teaching of Anatomy. C. C Waite, Cleveland —p 221.
*Cerebrospinal Fluid in Optic Neuritis, "Toxic Amblyopia" and Tumors Producing Central Scotomas A. L. Watkins, Boston —p. 227.
Regional Enteritis Study of Five Cases W. A R. Chapin, Springfield, Mass —p. 232.
Polyposis of the Small Intestine Report of Five Cases E. A Shaw, Providence, R. I.—p. 236
Gynecology. J. V. Meigs, Boston —p. 242.

Cerebrospinal Fluid and Vision.—From his examination of 120 patients who came to the hospital because of failing vision, the diagnosis in forty of whom was acute retrobulbar neuritis, Watkins concludes that the cerebrospinal fluid in acute cases is normal except in those caused by multiple sclerosis. In these, which form from 25 to 50 per cent of the group, the colloidal gold curve may show a strong first zone reaction. In thirty-nine cases of chronic retrobulbar optic neuritis the onset of the visual disturbance was slow and gradually progressive over a period of months rather than weeks. The average age (39) was somewhat higher than in the acute cases (33), with 62 per cent of patients more than 40 years of age. Both eyes were affected slightly more frequently (54 per cent) than one alone and the eyeballs were tender and painful in only 22 per cent Pallor of the optic disks was usually observed (72 per cent), but they were hyperemic in 21 and normal in 7 per cent. The characteristic field was a central scotoma, and the visual impairment showed progression to nearly complete blindness. Lumbar punctures revealed no abnormality in initial pressure, cellular content, total protein or colloidal gold curve. The etiology was unknown in 85 per cent of the cases and proved to be multiple sclerosis in 15 per cent The average age in the thirty cases diagnosed was 52. The course was one of slow progressive loss of vision in the two eyes, although not necessarily equally. The eyeballs were in no case tender and the optic disks were either normal or slightly pale. The diagnosis was made from visual field examinations, the characteristic field being a cecocentral scotoma, although in some cases it was made from a history of overindulgence in alcohol and tobacco and the presence of a central scotoma similar to retrobulbar neuritis, and 40 per cent of these patients improved after reducing or stopping the use of tobacco or alcohol. Cere-

brospinal fluid examinations showed initial pressures which were usually normal. The total protein averaged 33 mg. per hundred cubic centimeters, being distinctly abnormal in only two cases. The colloidal gold curve was negative in all cases. Five patients showed a diminution of vision, papillitis and a constricted field of vision. These five patients were between 4 and 44 years of age. There was tenderness of the eyeball in only one case. There was slight choking of the optic disks and peripheral constriction of the visual fields and some had only unilateral involvement. Lumbar punctures showed normal initial pressures. All cases were of fairly rapid onset, and normal vision was regained. A pansinusitis occurred coincidentally in two cases and hay fever in another. One patient had a definite lead intoxication which seemed of etiologic significance. Of six other patients with optic neuritis, three had transverse spinal cord lesions and retrobulbar neuritis which was thought to be on an unclassified infectious basis but fitted into the clinical syndrome of optical neuromyelitis. The other three had blindness with central scotomas and multiple peripheral neuritis. A necropsy in one of these cases revealed extensive periarteritis. In the three cases of optical neuromyelitis and the two of multiple peripheral neuritis with optic neuritis there was definite abnormality of the cerebrospinal fluid. In the case of periarteritis the fluid was normal. In an additional twenty-two tumor cases and failing vision the author found that the cerebrospinal fluid pressure, cellular content and colloidal gold curve may all frequently be within normal limits but that the total protein is usually increased from two to five times the normal when there is present a central scotoma from the pressure of tumors or aneurysms on the optic nerves or chiasm.

Public Health Reports, Washington, D. C.

54: 205-244 (Feb. 10) 1939

Epidemiologic Study of Poliomyelitis in the District of Columbia. C. C. Dauer.—p. 205.
*Mottled Enamel in South Dakota. H. T. Dean, E. Elvove and R. F. Poston.—p. 212.
Effect of Artificial Temperatures on Stability of Neoarsphenamine. T. F. Probey and W. T. Harrison.—p. 228.

Mottled Enamel in South Dakota.—Dean and his associates state that there are forty-one communities in South Dakota, divided among twenty counties, in which endemic mottled enamel has been demonstrated by survey. In addition there are thirty other places in which mottled enamel is probably endemic. The endemicity is seemingly limited to the smaller communities and rural districts in which the inhabitants obtain their domestic water from the Dakota sandstone, that is, users of artesian water.

Radiology, Syracuse, N. Y.

32: 131-260 (Feb.) 1939

Application of Sialography in Non-Neoplastic Diseases of the Parotid Gland. J. V. Blady and A. F. Hocker, New York.—p. 131.
Roentgen Therapy by the Method of Chaoul. E. P. Pendergrass, P. J. Hodes and C. J. Garrahan, Philadelphia.—p. 142.
Cholecystography: Single Dose versus Double Dose Methods of Administering the Dye. M. Feldman, Baltimore.—p. 155.
Influence of Ultraviolet Rays on Body Weight. F. Ellinger, Copenhagen, Denmark.—p. 157.
Treatment of Carcinoma of Breast: Technic, Complications and Results. Elizabeth Newcomer, Denver.—p. 161.
Paraplegia from Erosion of Vertebral Column by Large Thoracic Aneurysm. M. J. Hubeny and P. J. Delano, Chicago.—p. 171.
The Pulmonary Artery: Roentgenographic and Roentgen Kymographic Study. S. Brown, J. E. McCarthy and A. Fine, Cincinnati.—p. 175.
Cross Sectional Radiography of Heart. G. Danelius, Chicago.—p. 190.
*Treatment of Erysipelas with Ultraviolet Energy. M. E. Knapp, Minneapolis.—p. 195.
Diagnostic Pneumothorax. S. Schnur, New York.—p. 198.
Effect of Cable Length on Radiation Output of Shock-Proof X-Ray Tubes. T. H. Rogers, Springdale, Conn.—p. 202.
Use of Roentgen Therapy in Carotid Sinus Syndrome. C. A. Stevenson, Temple, Texas.—p. 209.
Median Rhomboid Glossitis. J. F. Sammet, Chicago.—p. 215.
Value of Assessing and Prescribing Dosage in Radiation Therapy in Simple Terms. R. Paterson, Manchester, England.—p. 221.

Treatment of Erysipelas with Ultraviolet Energy.—Knapp combines the reports of Titus and Jenkins (who treated eighty-one and fifty cases, respectively) with that of his own (510 cases) on the efficacy of ultraviolet radiation in the treatment of erysipelas. Experience shows that the dosage should be heavy so that the original dose suggested by Ude (twice the erythema dose) has now been increased to from ten to twenty times the erythema dose. A border of 3 or 4 inches of normal skin around the involved area is included in the treatment. If multiple exposures are necessary, the edges are allowed to overlap. If the eyelids are not involved the eyes are covered with black paper or cotton to prevent an ultraviolet conjunctivitis. If the eyelids are involved the patient is instructed to keep his eyes closed during the treatment. Moist packs are prohibited for from twelve to twenty-four hours after the treatment, as they interfere with the proper development of the erythema. Usually no packs are necessary. If the skin feels stiff after the erythema develops, a little petrolatum may be applied to relieve it. If the lesion spreads, the same or an even heavier dose of ultraviolet is given the next day. Most of the patients remark about the relief of pain, which often occurs while the lamp is still being applied. Later there is some increased edema of both the area of erysipelas and the surrounding normal skin. This subsides in from twenty-four to forty-eight hours, and if no further spread or complications occur the temperature drops rapidly to normal, the treated area wrinkles and then desquamates, and in five or six days the entire area is replaced with new skin. In the majority of cases only one treatment is necessary. A comparison of the three series shows that the average number of treatments per case (from 1.3 to 2.06) and the average number of days (from 3.13 to 4.58) from treatment to normal temperature are nearly the same in the three series. The percentage of deaths (7.4) is much greater in the Minneapolis series than in the others (2.4 and 2). It is probable that this can be explained by the fact that Titus and Jenkins' patients were largely private cases, while the author's series was composed entirely of charity patients, many of whom waited until the last moment before allowing themselves to be taken to a hospital. Eighteen of the deaths occurred in cases in which some factor other than erysipelas was the primary cause of death. The greatest value of ultraviolet is shown in the treatment of erysipelas in infants. Erysipelas has always been feared as an extremely fatal disease in small children. Of fifteen children less than 1 year of age treated with ultraviolet radiation, only two died. To this may be added three private cases without a death.

Rhode Island Medical Journal, Providence

22: 19-38 (Feb.) 1939

Hepatobiliary Syndromes. E. A. Field, Providence.—p. 19.
The Art of General Anesthesia. P. A. Kees, Springfield, Mass.—p. 27.

Southwestern Medicine, El Paso, Texas

23: 35-66 (Feb.) 1939

Treatment of Nephroptosis. C. H. Arnold and L. V. Gibson, Lincoln, Neb.—p. 35.
Perinephric Abscess with Ureteral Obstruction. K. D. Lynch and R. F. Thompson, El Paso, Texas.—p. 38.
Lateral Gastroduodenostomy in Surgical Treatment of Duodenal Ulcer. V. C. Hunt, Los Angeles.—p. 39.
Surgical Management of Acute Appendicitis. J. R. Phillips, Houston, Texas, and L. F. Knoepp, Beaumont, Texas.—p. 44.
Medical Care for Low Income Groups. J. R. Scott, Albuquerque, N. M.—p. 46.
*Presence of Coccidioidal Infection in Phoenix. E. W. Phillips, Phoenix, Ariz.—p. 48.

Coccidioidal Infection in Phoenix.—Phillips has encountered eight typical delayed positive reactions to coccidioidin in the district of Phoenix, Ariz. Two of these positively reacting patients have spent a summer in California within the last two or three years; another lived there for eight years and probably became infected there. Of the eight positive reactors, seven are known to be sensitized to foods, pollens or both. The remaining patient has symptoms and physical signs (including persistent eosinophilia) strongly suggesting the presence of atopic disease but the offending organism has not been found. In three of the allergic patients, prompt relief of symptoms followed the positive reaction. Another, with an excessive local reaction, suffered for three days from malaise, generalized aching and nausea, but no fever. This evidence justifies the suspicion that coccidioidomycosis is present in Phoenix, apparently in a chronic form not previously described. Unless the coccidioidin test is not specific, this organism is a factor in certain cases of asthma and chronic bronchial infection.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 257-312 (Feb. 11) 1939

Virus Diseases. G. M. Findlay.—p. 257.
Intra-Uterine Aspiration. B. Lorincz and A. Davis.—p. 261.
Direct Inguinal Hernia. W. G. Gill.—p. 263.
*Transmission of Syphilis by Blood Transfusion. J. A. W. McCluskie.—p. 264.
Suggested Skin Protective. P. B. Mumford.—p. 266.
Clinical and Social Survey of Male Linen Weavers. J. Deeny and H. S. Booker.—p. 267.

Transmission of Syphilis by Blood Transfusion.—McCluskie reports a case of syphilis transmitted by a blood transfusion. The disease did not show itself until two months after transfusion, unless a few reddish macules on the arm were early secondary manifestations—syphilis d'emblée. In both the donor and the recipient the disease responded to relatively small doses of arsenic and bismuth preparations. The Wassermann reactions of the donor and the patient were both tested at the time of the transfusion and were negative, and neither presented any sign of the disease. The donor had jaundice shortly after giving the blood, and the recipient two weeks after transfusion. Two other authentic cases are reviewed from which it is clear that syphilis can be transmitted from donors who are clinically and serologically negative. This fact should be explained to prospective donors, so that, by careful questioning, one may be able to rule out those who have been exposed to infection during the preceding two months. It has been suggested that the greatest safeguard against such accidental transmission of syphilis would be to employ cadaver blood obtained according to the technic of Yudin (1936). Apart from the natural prejudice which the general public in England might have to the practice, it would be possible only when conducted on a large scale with considerable laboratory facilities. It may in the future be practicable to add some innocuous antiseptic—for example, acriflavine—to the blood for a sufficient period before transfusion to ensure sterility. The author has added a small amount of neoarsphenamine (0.45 Gm.) to the transfused blood in emergency cases in which there has been doubt with no untoward effect. These measures were purely empirical, and he has no proof of their efficacy. In addition to the risk to the patient there is the possibility of an action for damages against the doctor who transmits syphilis by transfusion.

Lancet, London

1: 249-308 (Feb. 4) 1939

X-Ray Kymography of the Heart. F. G. Wood.—p. 249.
*Treatment of Pneumonia with Sulfapyridine. T. F. Anderson, with bacteriologic observations by R. M. Dowdeswell.—p. 252.
Chronic Constrictive Pericarditis. J. B. Hunter and T. East.—p. 255.
Ossification of the Vertebral Body. T. J. B. A. MacGowan.—p. 258.
Neoplastic Cysts Communicating with the Ventricular System: Report of Case. W. McKissock.—p. 259.
Metabolic Eczema in Idiopathic Steatorrhea. I. D. Riley.—p. 262.
Osteomalacia of the Spine Associated with Chronic Diarrhea. J. M. Holmes.—p. 264.
*Chemotherapy in Plague Infection. H. Schütze.—p. 266.

Sulfapyridine in Pneumonia.—Anderson and Dowdeswell compare the results in fifty cases of pneumonia treated with sulfapyridine with fifty cases in which nonspecific treatment was given. There were eight deaths in the latter series as compared to one in the series treated with sulfapyridine. The course of the disease was considerably modified by sulfapyridine and the pyrexial period was reduced. The drug appeared to be active against all types of pneumococci.

Chemotherapy in Plague Infection.—Schütze tested the efficacy of a benzylsulfanilamide derivative, sulfapyridine and a diaminodiphenylsulfone glucoside against infection (experimental) with Bacillus pestis in mice and rats. All three compounds produced a definite therapeutic effect; sulfapyridine was more potent than either in both rats and mice. The benzylsulfanilamide derivative protected rats but not mice and the diaminodiphenylsulfone glucoside protected mice but not rats. Antiplague serum injected subcutaneously at the same time as the test dose of Bacillus pestis produced results comparable with those of sulfapyridine. Future experiments may show whether a combination of the two treatments is superior to either alone.

Medical Journal of Australia, Sydney

1: 131-172 (Jan. 28) 1939

Eye, Ear and Fingertip. W. A. Osborne.—p. 131.
Alcoholism and Its Treatment. J. Bostock.—p. 136.
Notes on "Cardiazol" Therapy in Schizophrenia. C. R. D. Brothers and Isabel Williams.—p. 138.
The Stiff Joint. E. B. M. Vance.—p. 139.
Studies in the Urinary Excretion of Vitamin C in Certain Diseases of Children. S. Williams and Margaret Green.—p. 145.
Role of the Bandicoot in the Epidemiology of Q Fever: Preliminary Study. E. H. Derrick, D. J. W. Smith, H. E. Brown and Mavis Freeman.—p. 150.

Quarterly Journal of Medicine, Oxford

8: 1-78 (Jan.) 1939

Spontaneous Pneumothorax. K. M. A. Perry.—p. 1.
*Insulin Resistance and Diagnosis of Thyroid Disease. W. J. Griffiths.—p. 23.
Further Studies of Plasma Lipids in Toxic Goiter: Evidence Suggesting a Bimodal Distribution. E. M. Boyd and W. F. Connell.—p. 41.
Plasma Lipids in Anxiety States and Their Comparison with Lipopenia of Hyperthyroidism. E. M. Boyd, W. F. Connell and A. M. Doyle.—p. 47.
Obesity, Hypogenitalism, Mental Retardation, Polydactyly and Retinal Pigmentation: The Laurence-Moon-Biedl Syndrome. A. Sorsby, H. Avery and E. A. Cockayne.—p. 51.
Substitution Therapy in Hypopituitarism. A. W. Spence and L. J. Witts.—p. 69.

Insulin Resistance and Diagnosis of Thyroid Disease.—Griffiths describes an abnormality of carbohydrate metabolism in thyroid disease which can be detected even in the absence of any significant increase in the basal metabolic rate. This abnormality takes the form of a diminution in the sensitivity of the muscles to insulin. Thus, whereas in the normal subject the rate at which the muscles withdraw sugar from the blood is greatly increased by insulin, this effect is either diminished or abolished in thyrotoxic and in many nonthyrotoxic cases of goiter. The author bases his remarks on the data obtained from a study of thirty-five cases of thyroid disease. In toxic goiter the peripheral insulin response to the insulin-dextrose test is either poor or negligible, denoting an impairment of the power of the muscles to utilize carbohydrate; this is referred to as peripheral insulin resistance. A similar condition of resistance is found in many cases of nontoxic goiter in which, although the basal metabolic rate is not raised, other signs suggestive of thyroid disturbance, such as intermittent tachycardia, increased fatigability, nervousness and the like, are present. In some cases of goiter, both toxic and nontoxic, central resistance to insulin is present. This condition may be described as an enfeeblement of the normal action of insulin in promoting storage of sugar in the liver. With few exceptions, in both types of cases peripheral insulin resistance is considerably diminished by subtotal thyroidectomy. Central resistance is also in general abolished by thyroidectomy, but again it is occasionally unaffected. The possible relationship between peripheral insulin resistance and myasthenia is stressed. In this connection the creatinuria which is a common feature of thyroid disorders is of particular interest, more especially in view of the association of peripheral insulin resistance, creatinuria and myasthenia in other diseases such as diabetes, acromegaly and dermatomyositis. In view of the frequency with which the author has encountered peripheral insulin resistance in cases in which the nonthyrotoxic or psychoneurotic element of goiter enters, he suggests that estimation of this factor might prove to be a valuable method of detecting possible aberrations of thyroid function in patients who, while not thyrotoxic in the sense that they have a raised metabolism, nevertheless complain of weakness, increased fatigability and symptoms of a cardiac or nervous character.

South African Medical Journal, Cape Town

13: 37-78 (Jan. 28) 1939

National Health Insurance and an Improved Rural Medical Service. H. Gluckman.—p. 39.
State Medical Insurance in British Columbia. W. Wilson.—p. 41.
A Few Personal Thoughts on General Practice—Past and Present. C. E. L. Burman.—p. 44.
Laryngeal Diphtheria. P. Bayer.—p. 47.
Medical Practice Among Natives. D. D. Dunn.—p. 51.
The Future of Tuberculosis Control: The Papworth Demonstration. N. Mann.—p. 53.
The Transkeian Heart: Tuberculous Pericarditis. J. C. Downes.—p. 55.

Journal de Chirurgie, Paris

53: 305-448 (March) 1939

Tumors of Internal Theca of Ovary. P. Moulonguet and J. Varangot.—p. 305.
Abdominoperineal Amputation with *Hysterocolpectomy in Cancer of* Rectum. J. Charrier and Barraya.—p. 322.
Connections Between Staphylococcic Infections and Avitaminoses. J. Patel.—p. 344.
Technic of Ablation of Aorticorenal Ganglion. R. Fontaine and F. Bilger.—p. 352.
*Quincke's Edema of Viscera Simulating Acute Appendicitis. H. Redon. —p. 360.

Quincke's Edema Simulating Acute Appendicitis.—Redon reports the clinical history of a man who had severe pains on the right side of the abdomen. His physician observed that the abdomen was supple; moreover, the patient did not vomit; the temperature was 37.5 C. (99.5 F.) and the pulse was 80. The physician recommended the application of ice and decided to wait twelve hours before making a decision. When Redon saw the patient, the general symptoms were still the same. He rejected the diagnosis of appendicitis and in view of the paroxysmic character of the pains he considered the possibility of an acute invagination and decided to resort to a surgical intervention. On opening the peritoneum he was struck by the extraordinary appearance of the ileocecal region. There was a sparkling edematous mass and Quincke's edema was thought of, the more so since there were no other abnormalities; the appendix in particular presented no sign of inflammation, and the ileum and cecum were likewise normal. However, the appendix was removed and the microscopic examination verified that it was free from anatomic abnormalities. The postoperative recovery was uneventful. The patient was discharged from the clinic on the tenth day. Later investigations confirmed the author's first impression. The patient stated that he was subject to frequent urticarial crises, especially after ingestion of fish, and that before the attack in question he had eaten fish and mussels. Thus the case seems to represent a true attack of Quincke's edema or of "visceral urticaria," as Paul Chevallier proposes to designate the condition. The author regards this case as noteworthy because it proves the existence of a visceral form of Quincke's edema, which, although assumed by some, had not been proved as yet. For surgeons, this case explains certain obscure abdominal symptoms and thus diagnostic errors may be avoided.

Presse Médicale, Paris

47: 281-304 (Feb. 22) 1939

*Gonadotropic Secretion and Functional Placental Activity: Hormonal Characteristics of Insufficiency, of Normal Condition and of Hyperactivity of Placental Gland. A. Brindeau, H. Hinglais and M. Hinglais.—p. 281.
Question of Parakeratoses, Dermatoses of Sensitization: Is Psoriasis an *Ultravirus Disease?* A. Desaux and H. Prétet.—p. 283.

Gonadotropic Secretion.—Brindeau and his co-workers report studies on the quantitative estimation of the gonadotropic secretion. They used successively two methods of titration: first they employed male mice and later rabbits. The latter method is at the same time convenient, rapid and precise and it constitutes in practice a veritable functional test, a method of measurement of the activity of the placental gland. The activity of the placental gland can be insufficient, normal or exaggerated. The authors take up first the secretion of the gonadotropic hormone in nonpregnant women and demonstrate that in healthy, sexually mature women traces of the gonadotropic hormone are found. However, in certain pathologic conditions, such as amenorrhea, cancer of the cervix uteri and lutein cysts or after the menopause, considerable quantities of gonadotropic hormone may be found. In some of these cases 100 or more rabbit units may be detected per liter of urine. Quantities of about 150 units, the authors regard as uncertain in their diagnostic significance, because they overlap into the zone of those values that indicate a dead ovum. In the table, in which the authors list the quantitative values of gonadotropic secretion during gravidic states, they first mention the amounts that indicate placental insufficiency. In cases of placental insufficiency with certain death of the ovum, up to 500 rabbit units of gonadotropic hormone may be detected, whereas values between 500 and 2,000 units indicate weak placental action but not necessarily death of the ovum. In the presence of normal placental activity between 2,000 and 25,000 units is detected. Values that exceed 25,000 units are indicative of placental hyperactivity. In placental hyperactivity the authors differentiate two groups: 1. Values between 25,000 and 60,000 units are observed in the toxicoses of pregnancy. In hyperemesis gravidarum, for instance, values between 30,000 and 50,000 units have been detected. 2. Values of 60,000 units and higher indicate the presence of hydatidiform mole. The authors show further that gonadotropic titration is an important aid in the early diagnosis of malignant chorionepithelioma. After the evacuation of the hydatidiform mole, the gonadotropic hormone content of the blood should be determined at intervals of about ten days. If the values fall to zero, the woman may be regarded as out of danger. However, if the titer remounts again after temporary decrease, malignant degeneration is certain and operation is necessary.

Arquivo de Patologia, Lisbon

10: 125-380 (Dec.) 1938. Partial Index

*Cancer of Lung. Nunes d'Almeida.—p. 221.
Roentgen Therapy in Fibroma of Uterus. *Irene Nunes.*—p. 351.

Cancer of Lung.—Nunes d'Almeida reports sixteen cases of cancer of the lung. The greatest incidence of the disease was between the ages of 50 and 60 years. All patients but one were men. In the majority the disease developed in the right lung. The author found that the symptoms of cancer of the lung are not precise. Early in the development of the disease the patients are in apparently good health. However, they suffer from repeated hemoptysis, frequently from acute pain in the thorax and shoulder of the side in which cancer developed or from dyspnea. All patients report a progressive thinness and cough during which solid material is eliminated. Axillary and cervical metastases may develop in some cases in the absence of symptoms of diseases of the respiratory tract. The diagnosis is made from microscopic study of the material eliminated while coughing or from material taken by biopsy from grown ganglions and confirmed by x-ray examination of the thorax followed by bronchoscopy in the frontal and lateral postures. Pulmonary cancer may be of bronchial or parenchymal (including lobar) type. Bronchial cancer is the most common and acute form in the group. It develops in the wall of the main or large bronchi, partially (or completely) occludes the lumen of the bronchi, rapidly involves the hilar mediastinal and paravertebral ganglions and the lung parenchyma, and gives early metastases. It shows in the roentgenograms by opacities of the atelectatic lobe or lobes of the lung, and during bronchography by the stopping of the progress of the opaque substance at the occluded zones. Sometimes the tumor is not visible, but the stricture of the visible bronchi indicates the presence of cancer in distant bronchi. The parenchymal forms may be either primary, which are benign, or secondary to bronchial cancer, which are acute. Pure parenchymal forms show in the roentgenograms as isolated tumors at either one or various lobes. An early differential diagnosis between bronchial and parenchymal cancer is important because of the fact that parenchymal forms, especially lobar, are amenable to cure by an early operation (lobectomy or pneumonectomy). The earlier the operation and the better the preoperative and postoperative care of the patients, the better the results. Radium locally applied and roentgen treatments are palliative. They are indicated in early bronchial cancer and in advanced parenchymal cancer.

Brasil-Medico, Rio de Janeiro

53: 89-237 (Jan.) 1939. Partial Index

*Complement Fixation in Leishmanioses. A. Marques da Cunha and E. Dias.—p. 89.
Conservative Surgery in Calculous Cholecystitis. P. Cezar de Andrade. —p. 95.
Cerebral Symptoms in Course of Acute Rheumatic Fever. A. Sampaio Tavares.—p. 97.

Complement Fixation Reaction in Leishmanioses.—Marques da Cunha and Dias state that the complement fixation reaction is not resorted to for the diagnosis of leishmaniosis because there is no proper antigen available for the test. The authors prepared a stable alcoholic antigen from *Leishmania* cultures. They give in detail the technic for the preparation

of the antigen. The authors found that the antigen which they prepared induces (1) strongly positive complement fixation in the blood serum of rabbits which are hyperimmunized with various species of leishmania, (2) positive complement fixation in the blood serum of patients who are suffering from American, visceral and tegumentary leishmaniosis and in animals with experimental leishmaniosis and (3) moderate positive results in the blood serum of patients who have Chagas' disease. A differentiation of the various species of Leishmania which cause the various forms of clinical or experimental leishmaniosis cannot be made by the results of the test.

Beiträge zur klinischen Chirurgie, Berlin

169: 1-176 (Jan. 31) 1939. Partial Index

Lockjaw and Gibbus. R. Löhr.—p. 1.
Diagnosis of Strain as Cause of Fracture of Spinous Process of Vertebra. P. Rostock.—p. 15.
Permanent Result of Two Stage Operation on Biliary Passages. F. Bernhard.—p. 25.
Results with Nicolas Operation for Habitual Dislocation of Shoulder. E. Kreuter.—p. 32.
*Ureteronephrectomy for Renal Tuberculosis. C. van Gelderen.—p. 52.
*Results from Use of Filtered Ultraviolet Rays in Laparotomies. T. Marti, —p. 84.

Ureteronephrectomy for Renal Tuberculosis.—According to van Gelderen there were thirty-nine cases of renal tuberculosis in which ureteronephrectomy was performed at the surgical clinic of the University of Amsterdam between 1919 and 1938. The more extensive operation did not increase either the immediate operative mortality or the mortality of the later course. The ureteral incision healed in almost every instance by primary intention and remained healed. The renal incision presented about the same incidence of wound complications as is seen after a plain nephrectomy. Apparently these complications are not due to the ureter left behind. The removal of the ureter reduces the average duration of wound complications. Empyema of the ureter, cold abscesses and postoperative colics are absent. Even the unfavorable cases do well after ureteronephrectomy. There were three fatalities in this series. The operation presented no disadvantages. The anticipated advantages, however, did not justify themselves completely. The rapid and permanent recovery of the bladder, however, is apparently due to the removal of the ureter. The author recommends this combined operation in all except the early cases of renal tuberculosis.

Filtered Ultraviolet Rays in Laparotomies.—According to Marti, clinical observations on the effect of irradiation with ultraviolet rays in laparotomized patients established the effectiveness of the method in reducing postoperative pain. The therapy, however, was not successful in every case and recourse to analgesics was necessary. Ultraviolet irradiation during the operation had a definite effect in increasing peristalsis during the postoperative period. In various forms of abdominal operations, particularly after an operation for incarcerated hernia, the treatment reduced in some degree the mortality. In cases of diffuse suppurative peritonitis, the results were far from those claimed by Havlicek, who had obtained a 100 per cent cure. The incidence of postoperative thrombosis, embolism and pulmonary complications was reduced. This was particularly striking as far as the occurrence of pulmonary embolism after operation for incarcerated hernia was concerned. The results, however, are far from those claimed by Havlicek. The author feels that the employment of the laparophos lamp in abdominal operations is a valuable therapeutic agent, even though somewhat overrated by its originator.

Medizinische Welt, Berlin

13: 177-212 (Feb. 11) 1939. Partial Index

Occupational Diseases of Lungs. R. Schoen.—p. 177.
Acute Appearance of Multiple Small Tuberculous Cavities. E. Saupe.—p. 181.
*Genesis and Therapy of Hyperemesis Gravidarum. G. Guhr.—p. 182.
Organization of Blood Donors and Blood Transfusion. K. A. Seggel and H. Reiher.—p. 185.
Quinine in Influenza. E. Pawlowski.—p. 190.

Genesis and Therapy of Hyperemesis Gravidarum.—Regarding the genesis of hyperemesis gravidarum, Guhr says that the theories about it have undergone many changes but that recent advances in the research on hormones and vitamins have introduced new points of view regarding the pathologic-physiologic processes that are involved in this disorder, and the therapeutic measures that have been based on these new theories have produced considerable success. In order to explain the treatment with vitamin B_1 and a liver extract which is being used successfully at the author's clinic, he reviews the theoretical foundations that correspond to the present insight into the complicated metabolic processes, giving special attention to the hepatic impairment. Following this discussion he reports the results obtained in twelve cases of hyperemesis gravidarum which were treated with vitamin B_1 and a liver preparation. The patients are given intragluteal injections of ampules of liver extract (2.2 cc.) which contain 500 international units of vitamin B_1. At first one ampule of the preparation is injected daily and as soon as improvement is noticeable the injections are given every second day. The total number of injections varies in different cases, but from six to ten are usually sufficient. In especially severe cases more than one injection may be given daily. The diet should be rich in carbohydrates. Discussing the mode of action of the combined administration of vitamin B_1 and liver, the author suggests that it acts as a protective liver therapy, because investigations indicate that a primary hepatic disorder and the involved disturbance in the carbohydrate metabolism are decisive factors in the genesis of hyperemesis gravidarum. Dysfunction of the anterior lobe of the hypophysis is the eliciting cause. Deficiency in vitamin B_1 is not regarded as a causal factor of hyperemesis gravidarum; however, as an adjuvant vitamin B_1 supports the action of the liver extract in that it not only favors an increase in glycogen but also normalizes the disordered carbohydrate metabolism.

Strahlentherapie, Berlin

64: 1-200 (Jan. 25) 1939. Partial Index

Investigations on Dosimetry of Ultraviolet Rays. U. Henschke and R. Schulze.—p. 14.
Results of Irradiation in Sarcomas: Observations in Zurich from 1919 to 1936. O. Walther.—p. 59.
Preventing Secondary Effects on Urinary Bladder in Ray Therapy of Cancer of Uterus. T. C. Neeff and F. Hoff.—p. 113.
Rectal Complications in Patients with Uterine Cancer. F. Gál.—p. 125.
*New Method of Irradiation by Means of Moving Radium Preparations. K. Mayer.—p. 134.
Measurements in Roentgens on Telecurie Therapy Apparatus. A. Gunsett and G. F. Gardini.—p. 149.
Biophysical Foundations of Weak Radium Therapy. B. Rajewsky.—p. 158.

Irradiation by Means of Moving Radium Preparations.—Mayer points out that irradiation by means of moving x-ray tubes was suggested as early as 1913 by H. Meyer. In spite of the great importance of this technic, it was neglected until in recent years it was revived in the form of rotation therapy by Dessauer, René du Mesnil de Rochemont and others (see also *Strahlentherapie* **60**:645, 648, abstracted in THE JOURNAL April 2, 1938, p. 1152). In the present report the author describes his own efforts in adapting the moving principle to radium therapy, pointing out that he experimented with moving radium preparations for the first time in 1926 (report in "Nowiny Lekarskie," page 428) and that in 1933 he discussed the therapeutic application of moving radium preparations. He shows that the irradiation with moving radium involves less technical difficulties than does the employment of the moving principle in roentgen therapy. The small and free radium containers can be coupled easily with a driving mechanism consisting of a clockwork or of an electrical device. It is possible to employ various types of movements. The radium container may be moved in straight lines back and forth, or a rotatory or vibratory method may be employed. The author evaluates the mode of action and the distribution of the radium rays, if the moving technic is employed, pointing out that greater uniformity of ray perfusion of the tissues reduces the danger of relapse in case of tumors. Discussing the devices of application, he says that account must be taken of the available radium supply. This applies especially to the radium containers, not so much to the driving mechanism. The author shows in illustrations that the same motor can be used to produce straight-lined back and forth movements, oscillating arc movements or rotating movements. Regarding the determination of the dosage in the treatment with moving radium preparations, the author refers to studies by René du Mesnil de Rochemont on rotatory roentgen therapy.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

83: 377-476 (Jan. 28) 1939. Partial Index

Surgical Treatment of Pulmonary Tuberculosis. W. Bronkhorst.—p. 378.
*Investigations on Blood Circulation in Drumstick Fingers. W. H. D. De Haas.—p. 384.
Diagnosis and Treatment of Chronic Gonorrhea of Cervix. L. A. Falke.—p. 390.
Measuring of Light Projected Through Coagulating Blood, a Method to Determine Time and Duration of Coagulation. H. Festen.—p. 396.

Circulation in Drumstick Fingers.—De Haas says that many reports about the microscopy of drumstick fingers maintain that there is a strong overfilling of the capillaries. This is of practical significance in that it forms the anatomic basis for the widely accepted opinion that the pathogenesis of drumstick fingers is connected with stasis and cyanosis. However, there are also some investigators who found the capillaries normal or contracted. The author's own investigations aimed at determining possible differences in the brachial circulation of two groups of ten patients with bronchiectasis, in one of which drumstick fingers were present and in the other absent. The studies consisted in capillaroscopy and in the determination of the venous pressure and of the cutaneous temperature. The results of these investigations are recorded in tables. It was found that in drumstick fingers the smallest vessels are not dilated but contracted. The author thinks that this explains some of the peculiarities of drumstick fingers, for instance the localization of this symptom on the extremities that are most exposed to cold, that is, on the fingers rather than on the toes; moreover, the greater incidence in men than in women (in women the capillaries are dilated during menstruation). Regarding the cause of this vasoconstriction the author says that a detailed discussion is impossible in the scope of this article, but he suggests that the vasoconstrictive substances, of which it is known that the organism can produce them, are destroyed in the lungs. In some diseases of the lungs and in congenital heart diseases (among others in bronchiectasis) this filtrating action of the lung fails. The author thinks that it is the impairment, exclusion or overflowing of the pulmonary filter which is of decisive importance for the development of drumstick fingers.

83: 477-616 (Feb. 4) 1939. Partial Index

Treatment of So-Called Neuroses in Children. H. C. Rümke.—p. 483.
*Treatment of Uterine Prolapse in Old Women. F. C. van Tongeren.—p. 493.
Extraction of Cataract in Small Hospitals. G. Wiegersma.—p. 498.
Petrositis. P. G. Gerlings.—p. 504.

Uterine Prolapse in Old Women.—Van Tongeren shows that old women who have a uterine prolapse can often be relieved to a considerable extent by a pessary. Even in case of total prolapse the pessary may be helpful. However, if the treatment with the pessary fails, the operation according to Neugebauer-Le Fort is advisable. After this operation, relapses are less likely than is the case after the operation that has recently been recommended by Kahr. Kahr's operation is even more simple than that of Neugebauer-Le Fort. Kahr too does not counteract the prolapse as such but makes a blockage on the vulva. The author employed Kahr's operation in seven cases but in three of these a relapse resulted. To be sure, all of these women had a total descensus uteri. However, the results obtained with the operation of Neugebauer-Le Fort were more favorable, for of the twenty-five women who were operated on according to this method only three had a relapse and these could now be treated with a pessary, which had not been possible previously. Thus it seems that if relapses do follow the operation of Neugebauer-Le Fort they are usually less serious than those which develop after Kahr's operation.

83: 617-726 (Feb. 11) 1939. Partial Index

Chronic Cystic Mastitis and Carcinoma. S. M. Kropveld.—p. 626.
Treatment of Coxa Vara in Adolescents. C. P. van Nes.—p. 635.
*Amyloid Deposits in Islands of Langerhans in Diabetes Mellitus. C. van Beek.—p. 646.

Amyloid in Islands of Langerhans in Diabetes.—Van Beek was induced to make histologic studies on the islands of Langerhans of patients with diabetes mellitus by the detection of amyloid deposits in the islands of Langerhans of a woman aged 54 who died in diabetic coma. Reviewing the literature he found reports on hyaline degeneration of the islands of Langerhans in diabetic patients, but he questions that these deposits really are hyaline, for reactions in various staining tests indicate that the substance is amyloid. Studies on the pancreas of fifty-nine patients with diabetes mellitus, whose ages ranged from 5 to 85 years, disclosed amyloid in twenty-five, or 42.3 per cent. In classifying the patients according to age groups it was observed that the amyloid deposits are present only in those over 50 years of age and that with increasing age the incidence of these deposits becomes greater. The author shows that the question whether the amyloid precipitate in the islands of Langerhans is a partial manifestation of a generalized amyloidosis must be answered in the negative. However, the occurrence of occasional amyloid deposits in some pancreatic islands in aged persons, in the absence of clinical signs of diabetes, makes it difficult to decide whether amyloid deposits are the cause or the result of diabetes mellitus. A parallelism with arteriosclerosis, especially of the arterioles, could be demonstrated. The factors leading to the precipitation of amyloid are still unknown.

Ugeskrift for Læger, Copenhagen

101: 115-140 (Jan. 26) 1939

Substances in Phosphate Concrements of Urinary Tract (Chemical-Roentgenographic Study). A. T. Jensen and J. E. Thygesen.—p. 115.
*Vitamin P in Hemorrhagic Nephritis. T. Gimsing.—p. 117.
Thrombopenic Purpura After Treatment with Arsphenamine. A. Stigaard.—p. 118.
Harness for Abduction Splints. O. Raagaard.—p. 119.

Vitamin P in Hemorrhagic Nephritis.—Gimsing reports seven cases of hemorrhagic nephritis treated with injections of vitamin P. In no case were there results which could not have been attained as well by rest in bed and diet; in some cases the treatment was without effect, in others it seemed to exert a transitory irritating effect on the kidneys.

101: 141-172 (Feb. 2) 1939

*Family with Hereditary Epidermolysis Bullosa. E. D. Bartels.—p. 141.
Skin Transplantation with Film Bandage. M. Olesen.—p. 144.
Eczema Due to "White Ox-Eye" (Chrysanthemum Leucanthemum). P. V. Marcussen.—p. 147.

Hereditary Epidermolysis Bullosa.—Bartels says that in this disorder bullae appear in the parts of the skin exposed to mechanical action, most often on the hands and feet, but also, though rarely in the simple form, on other parts of the body and in the mucous membrane, as in the mouth and throat, and the nails. The content of the blisters is at first clear, later often becoming hemorrhagic. In the simple form the bullae heal completely in from one to two weeks, in the dystrophic form they are followed by more or less marked atrophy of the skin. The disorder as a rule sets in early, often shortly after birth. The prognosis for cure is unfavorable. A tendency to hyperhidrosis is often present; treatment of the hyperhidrosis leads to a not inconsiderable improvement. Of fifty-five members of the family in question twenty-five (eleven men, fourteen women) are known to have epidermolysis bullosa simplex. Transmission seems to be dominant and not connected with the X-chromosome, at least not exclusively. The author believes that ephedrine may be helpful for a definite limited time. The effect of ephedrine apparently supports the theory that there is in these cases a disturbance of the blood vessels or of the nerves and blood vessels.

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*Case of Streptococcic Infection After Injection for Protection Against Diphtheria. T. Madsen and E. J. Henningsen.—p. 203.
Investigations on H. Rotter's Intracutaneous Test in Man for Establishment of Vitamin C. E. Poulsen and H. Lieck.—p. 206.
Tetany in Breast-Fed Child on Basis of Latent Osteitis Fibrosa in Mother: Contribution to Function of Parathyroid Gland. C. Friderichsen.—p. 209.
Blocking and Forming of Nose in Child Aged 4. E. Dujardin.—p. 211.
Electrical "Phantom Heart." G. Rendtorff.—p. 212.

Streptococcic Infection After Diphtheria Immunization.—Madsen and Henningsen review the complications (abscesses and scarlatiniform exanthem) in thirty-four of 2,418 children given injection against diphtheria in January 1938. With one exception all were vaccinated by the same physician at the same time and place. Examination of pus from the abscesses in twenty-three cases revealed a hemolytic streptococcus belonging to group A, type II, in twenty-two cases. Investigation indicated that the anatoxin was contaminated by the assisting nurse, in whose throat and nasal secretion a streptococcus, type II, was established.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, NO. 20 — COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION — CHICAGO, ILLINOIS — MAY 20, 1939

THE MIND OF MAN AND HIS SECURITY

PRESIDENT'S ADDRESS

ROCK SLEYSTER, M.D.

WAUWATOSA, WIS.

One by one the great plagues that used to devastate mankind are being overcome. No longer does civilized man live in constant fear of cholera, smallpox and bubonic plague. Typhoid has become so rare that many a modern physician has never seen a case of this disease. Even diphtheria is being brought so certainly under man's control that last year twenty-four cities in the United States did not have a single death from diphtheria. Hardly a decade passes without some new announcement of a phenomenal discovery. In our own time we have seen arsphenamine for syphilis, insulin for diabetes, liver for pernicious anemia, biologic preparations for pneumonia and for scarlet fever, sulfanilamide and sulfapyridine for streptococcic and pneumococcic and similar infections. We have seen the rise of physical therapy and the growth of a new field called allergy. We have seen life expectancy rise from 40 years at birth to 62 years. What fields remain to be conquered?

Among the problems which yet confront us, mental defect and mental disease are increasingly significant. They are imposing in their scope. An understanding of the human mind and of human thinking may aid in the solution of problems of government.

On any day nearly 1 per cent of all of the people [1] in this country, actually 1,300,000 people, are incapacitated by epilepsy, by feeblemindedness and by various types of mental illness. The figure is obtained by adding to 550 of every hundred thousand of our population who have nervous and mental disease and who are not in hospitals the total number now being cared for in sanatoriums, hospitals and other institutions. Patients with mental disease occupy 47 per cent of the hospital beds in this country. For the country as a whole, the number of persons hospitalized for mental disease increased more than 40 per cent from 1926 to 1936. The estimated cost of maintenance of these beds is $230,865,000, with an additional cost of $18,178,000 for patients under private care. Three hundred Americans enter institutions for mental patients daily for the first time. In addition to hospitalized patients, several millions are more or less incapacitated because of mental illness or disturbances. In such states as Massachusetts and New York, where hospital facilities are most nearly adequate and where most reliable statistics are available, one out of 150 adults in the present general population is hospitalized because of mental disease. About 1 per cent of the adult population were under care in mental hospitals at some time during the past year. From 5 to 6 per cent of the general population will spend some time in mental hospitals during their lifetime. Including nonhospitalized persons with mental illness, 2 per cent are incapacitated some time of each year. At some time in their lives 10 per cent of the adult general population will be more or less incapacitated by mental illness. Accepting studies made in Massachusetts, fifty-seven of every thousand male infants and fifty-three of every thousand female infants will live to be committed to mental hospitals. It has been estimated that loss of earnings of hospitalized mental patients, plus the cost of maintenance, represents an annual economic loss in this country of $783,586,000. These figures, bluntly stated, define the scope of our problem. Let us see what hope exists in our attack on it.

CHIEF PROBLEMS IN NERVOUS AND MENTAL DISEASE

Epilepsy, or the falling sickness, has been recognized by the historians from Homer to those of today as the most frightening of human illnesses. The sudden loss of consciousness, the convulsions, the shocking accidents and the dependence associated with this condition make it outstanding as a pressing question. Surely intensified and expanded research on epilepsy is most needed. True, there are available in this country a number of research funds and endowments devoted to the study of this disease. We have learned much about the phenomena associated with it. Every new development in the study of the human body, including most recently the electric encephalograph, has been devoted to a study of this condition; yet our progress has been slight. New remedies for diminishing the threshold of excitation, diets and physical methods of treatment which aid in controlling the number of the attacks and which may diminish to some extent their intensity are announced from time to time. Yet there still remains to be found for this disease, as already is available for some other diseases, a method of control or of treatment that can be included in that magic word "cure," which is the inspiration of every true physician. Perhaps it may be found that there is no one epilepsy and that a variety of convulsive disorders concern us. Such a definition of the problem only enhances its importance.

THE SPASTIC CHILD

Again appealing to the physician for as prompt a solution as possible is the question of the spastic child. These children, who from injury at birth or from other

President's address before the American Medical Association at the Ninetieth Annual Session, St. Louis, May 16, 1939.

1. Zubin, Joseph: The Mentally Ill and Mentally Handicapped in Institutions, Pub. Health Rep., supp. 146, 1938, pp. 1-20.

cause develop disability associated with motion of the body and sometimes deterioration of the mental processes as well, command the interest and the pity of all of us. For many of them permanent care in the home or in an institution seems the only answer. The care of these children illustrates how modern medicine, including the knowledge and the work of many specialties, may be brought to bear for prevention and treatment, for reeducation and for complete control. In the prevention of this condition we must study not only the constitution and heredity but all of the toxic changes that may act on the germ cell as it develops within the mother's body. We need the finest control of the art of the obstetrician by whose assistance the child comes into the world. Once the handicap is recognized, the specialist in the care and feeding of children, the orthopedic surgeon, the child psychologist and the psychiatrist must combine in giving their utmost to enable the child to make the most of the functions that it possesses. Perhaps by the very nature of mankind the births of "spastic" children will never be wholly controlled, yet surely the incidence may be reduced to the irreducible minimum and rehabilitation employed to the utmost utilization.

FEEBLEMINDEDNESS

For the control of feeblemindedness, modern medicine must look to the investigators in genetics and heredity for advice in limiting the production of children incapacitated from birth to meet the mental needs of modern civilization. There is no panacea that we can offer for these fundamental problems of humanity and civilization. Certainly it has not yet been established that modern methods of the prevention of conception in their application to mankind as a whole can control the production of such specimens. Neither is there any evidence that laws regulating sterilization of the parents of the feebleminded will in any serious manner diminish the total number of feebleminded. The evidence that is available indicates that at least 10,000,000 people of 130,000,000 in this country bear within their bodies elements which may result occasionally in the production of a feebleminded child. Our nation is not unique in this regard; indeed, some other nations offer a far greater likelihood of increased mental deficiency. Apparently this is one of those problems of mankind in the mass which nature must eventually solve, as nature has settled many another problem of disease in the past. The laws of biology are more immutable than those of man. The fact that even with the best of education and nurture that we can give the feebleminded they still tend to die young and thus do not invariably reproduce is an indication of nature's long range technic in keeping multiplication of the unfit under control.

Let me emphasize again that most authorities are agreed that there has been no continuous increase in the number of the feebleminded, of the mentally defective and of those with mental disease. Such increase as has occurred is the result of the application to these human beings, among all of us, of what modern medicine has done to decrease disease as a whole and thus to prolong life for all of us.

DEMENTIA PARALYTICA

Research in the field of nervous and mental diseases has been particularly concerned in the past ten years with the problem of general paralysis, which the public calls paresis or softening of the brain and which the scientists call dementia paralytica. What great discoveries have led to possible control of general paresis? Foremost was the determination that the spirochetes of syphilis may invade the human brain and there produce this disease. This discovery, made by a Japanese of German training in an American institution, points again to the universality of medical science. Next came the knowledge that drugs used for the control of syphilis, properly applied, may be of great virtue in impeding the progress of this condition. More recently attention has centered on heat treatment or artificial fever produced by various methods. Now here is a disease of which we know the cause and for which we have certain methods of diagnosis and treatment. Are we ready to say that general paralysis can be completely eliminated? Unfortunately no! A great diminution in the total number of cases of syphilis will bring about a lessened number of cases of this disease. Once established in the brain, however, the spirochete seems inevitably to produce damage to the tissues of the nervous system. The most that treatment can do is apparently to stop the progress of such damage. It cannot restore tissue that has been destroyed and degenerated. Until the time comes when every invasion of the spirochete is recognized and controlled at the earliest possible moment, cases of dementia paralytica will continue to demand medical and institutional attention. Complete elimination of this or of any other disease the dissemination of which depends on intercourse between human beings would require a control of the actions and of the lives of men beyond the power of even the most rigid of governments to establish. Such control would involve changes in our methods of living which are inconceivable under any civilization. Men whose minds and wills are animated temporarily by some single motivation as of religion or nation or race, or who follow blindly after strange gods or strange leaders, may sacrifice freedom of thought and freedom of speech and freedom of action to seek a special goal. But eventually the mind awakens and biology triumphs.

DEMENTIA PRAECOX

Dementia praecox, or the so-called insanity of adolescence, now is responsible for at least 60,000 patients in our institutions and perhaps for another 30,000 persons who are in early or in controlled stages of the disease and not yet hospitalized. Indeed, there are some who insist that there may be far more of these people, including noted statesmen, poets and financiers, outside institutions than within. Manifestations of schizophrenia occur frequently in many hundreds of thousands of so-called normal people. The application of the insulin shock method and of the so-called metrazol shock treatment has given a new stimulus and new inspiration to physicians who are responsible for the care of these patients. Apparently these technics bring about fundamental constitutional changes in the bodies of those who are incapacitated. These changes are reflected in the brain. One of the greatest difficulties of the specialist in nervous and mental disease in the past has been the development of technics whereby treatment applied to the human body as a whole could be made effective on the tissue of the brain. Many authorities are convinced that the application of these new methods will enormously reduce the total number of cases of this type in our institutions. Yet every one who stops solemnly and carefully to consider the

knowledge thus far acquired and published would hesitate to evaluate the total progress that can be made. The diseases with which we are here concerned are diseases of a lifetime. Perhaps it may require a lifetime, or several lifetimes, before the physicians of the future will be able to measure in terms that are scientific what has actually been accomplished by these new technics.

EXPANSION OF THE FIELD OF NERVOUS AND MENTAL DISEASES

People in general, and even most physicians, seldom pause to consider the vast expansion that has occurred in the field of nervous and mental disease. New methods of diagnosis, new research in the pathologic changes that occur in the tissues, the science of the psychologist and the art of the psychoanalyst have broadened tremendously the work of the neuropsychiatrist. Most people know about the diseases that have already been mentioned. To the vast majority such terms as myasthenia gravis, apraxia, polioencephalitis, lenticular degeneration, cataplexy, disseminated sclerosis and myelitis represent words with a hazy or slight significance. The modern nomenclature of conditions affecting the nervous system comprises many hundreds of such terms indicating the intricate detail and multiplicity of signs, symptoms and manifestations with which the modern neurologist and psychiatrist must concern himself.

Increasingly the effects of the mind on the physical functions of the body become apparent. The actions of the heart, the stomach and intestines, the blood vessels and the skin may be intimately and seriously affected by mental processes. Yet this does not signify that relations of mind to body may be lumped into a single category or that closing of the mind to physical manifestations will remove them not only from consciousness but also from existence. It means instead that we must intensify our research into the mechanisms that are involved so that the knowing and understanding mind may be truly the master of the body in which it functions.

THE PSYCHIATRIST LOOKS AT THE FUTURE

Most significant among all the aspects of our civilization is not the increase in the number of the mentally afflicted. This, like many another of the problems with which statesmen and economists concern themselves, is a reflection of just one simple fact for which the sciences of medicine and public health must take the responsibility: Human beings tend to survive, to be more healthful, to live longer than they used to. This explains the fact that more people die now from cancer instead of dying from typhoid and from cholera and from smallpox. It explains why spastic children and the feebleminded and the epileptic survive instead of being included in the figures for infant mortality. It explains why heart disease and not tuberculosis is now captain of the men of death. It explains why a people who once troubled themselves little with the problems of old age now find the accumulation of economically dependent men and women past 65 and 70 years of age well nigh their chief concern. Man grown old is not efficient; he cannot labor with his body, and his mind is subject to loss of memory, slowness of action and occasionally queer aberrations.

The problem of the individual who is mentally afflicted is, of course, the concern of the individual psychiatrist much more than it is perhaps the concern of the world as a whole; our world has in these modern days so many concerns which demand its consideration. These concerns arise in most instances not out of individual thinking but out of the psychology of the mass of men, whose opinions are in many instances controlled by stimuli definitely planned to secure a certain result. Perhaps in a day when men were much more accustomed to thinking for themselves and to reasoning from the available knowledge, such influences might not be as effective as they are now. The citizen of the United States in Revolutionary times was a hardy pioneer who had fought the forces of men and of nature successfully and who knew where he wanted to go and what he wanted to do. Today the forces that have been developed by man as a result of modern invention in the field both of materials and of thought are so intricate and so great that frequently they are far beyond the ability of the average man to grasp. Hence bewildered, little men seek constantly for leadership without even sufficient data or background to determine whether or not that leadership is for good or for evil. The breakdown of the sense of individual responsibility is thus a menace not only to the individual but to the nation and to mankind.

Perhaps as a result of the belief of many a man that our civilization has failed, men seek increasingly for security. They wish to be protected against the hazards of unemployment, against the dependence of old age, against the pain and suffering associated with sickness. There has been no lack of self-anointed leaders ready to propose economic and governmental panaceas for meeting the difficulties in the situation. When the Congress of the United States first came to consider social security, the President of the United States warned them against charlatanism in the field of economics. That warning is as important today as it has ever been in the past. It is perhaps more important because of the increased complexity of the situation which confronts us and because of the fact that its long duration has apparently worn away the powers of resistance of many of those who did not at first succumb. But the medical profession, aware of the nature of men and the moral fiber of men, must oppose increasingly those forces which tend to sap vitality, to destroy initiative and to break down individual character. Ethnologists and sociologists know that the life of the race repeats the life of the individual and that the life of the individual repeats the life of the race. They know that nations are but masses of men and that national opinions are the reflections of individual thought. As men become increasingly willing to turn over to their statesmen or to the governments which those statesmen represent the individual responsibilities for which men in the past have fought and died, the vitality of the nation itself must become weakened. The loss of character and of individual initiative may not be pathologic in the sense that mental defect is pathologic. It may not be an illness in the sense that feeblemindedness is a disease, but its effects on the life of the nation as a whole are as weakening as would be a continued increase in the number of mentally defective among us.

These reflections lead to the inevitable conclusion that it is necessary for physicians and for the nation as well to weigh carefully the extent to which the responsibility of the individual for his own care in times of old age and of disease and of unemployment is to be turned over to the nation. In other words, how

great a price are we prepared to pay for what is called security? If national control over illness is to bring about a breakdown in the character of our people so that they will, like many a foreign nation, be ready to yield supinely to the wills of dictators and of dictator nations, the price will have been far too great. If protection against the hazards of illness and of old age is to include an unwillingness to battle against economic forces which bring about unemployment and national destitution, making the individual citizen ready to accept governmental gratuity on every conceivable occasion, again the price to be paid is far more than the goods are worth.

Today the American people stand before the world as a nation of free men where the processes of individual initiative, freedom of thought, controlled research and independent character have placed us in the very forefront of all the peoples in the world in science, in health, in our scale of living, in recreation and in the ability to enjoy life. It is true, as some of our statesmen have said, that not all the people are possessed of all these advantages, yet taken as a whole the statement is true of the vast majority of our people. By the same forces which have brought us to this high place we should be able to overcome the deficiencies of those who have not yet realized these great advantages and to give to them much of that which is enjoyed by the majority. To this purpose the American medical profession has repeatedly dedicated itself. The solutions of the problems of the nations so far as they concern medical care are the responsibility of the medical profession. That is a responsibility which a free medical profession has never avoided and to which it is at this very time giving its most serious consideration. The responsibility for restoring to this nation an economic status in which more and more independent citizens will be able through their own employment and through the returns coming from that employment to supply themselves with the necessities of life is a responsibility which must rest on the leaders of the nation in industry, in finance and in government. With these leaders also American medicine is ready and willing to cooperate in doing all that can be done to spread more widely the benefits of American life and living.

As President of the American Medical Association for the coming year it is to this task primarily that I propose to devote myself.

Lifeless Reports.—The physicians and surgeons of our great teaching hospitals become more and more dependent on technical experts. How easy, as the problems suggest themselves at the bedside, to accept the view that it is fitting that these highly trained and fully equipped men should undertake the investigation. But the result, so often is that from the first the reach is forced into a narrow channel of technicality from which it fails to emerge, and the work ends in one of those reports which, scientific though they may be in their cold logic, unfold no story, and remain uninspiring and lifeless. The fascination and importance of the problem in its wider and practical implications have been concealed, the inspiration that should drive to its solution has been lost, because the problem is no longer seen in its full perspective, a problem primarily concerning the living, in part concerning the dead, and in part deriving from the laboratory. It is just this integration that is of so much consequence to the vitality of medical research; and this integration is, and always must remain, chiefly within the special province of Clinical Science.—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

RESECTION OF THE LIVER

CONDITIONS FAVORABLE FOR OPERATION; METHODS; EXPERIMENTAL STUDIES

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Relatively few resections of the liver have been reported in surgical literature. Several recent textbooks and at least two modern systems of surgery do not even mention the operation. This is probably because so few cases occur in the individual surgeon's experience, no single surgeon having published reports of more than six cases; yet resections of the liver have been done successfully for many years. In the United States Keen [1] reported his first case forty-seven years ago and added his third case and tabulated seventy-six cases from the world literature forty years ago. Bastianelli,[2] one of the earliest operators, in addition to his original publication forty-three years ago has sent us a personal report of six cases. Garré [3] early stated that "no method can be introduced into general surgery unless it can be executed with simple means which every operator has at hand." More than thirty years ago he reported six successful operations in which hemorrhage was controlled by silk ligature of larger vessels and deep constricting catgut sutures. Growths requiring this procedure may confront any abdominal surgeon at any time and a knowledge of the methods that have been successfully used would make possible the saving of many lives. Fifty-nine instances of resection of the liver have been reported to us in correspondence with members and associates of members of the American Surgical Association and with twenty-four cases previously reported by members of the association it is evident that a large proportion of experienced abdominal surgeons encounter one or more hepatic conditions requiring resection at some time during many years of practice. A discussion of certain phases of this subject was given in an earlier paper.[4] We now repeat important considerations and add a report of experimental studies concerning hemorrhage and shock.

Favorable to safe liver resection are the following facts:

1. The lobes and subdivisions of the liver are supplied by independent arteries, so that one section can be removed without injury to the remaining sections.
2. Anastomoses between blood vessels of different lobes of the liver are free, insuring adequate circulation if a section is cut off from its normal blood supply.
3. Regeneration after removal of liver substance is rapid and quite complete.

The blood supply of the liver has been carefully studied by Martens.[5] His illustrations show that not only do the right and left lobes have each an independent artery but there are branches supplying smaller subdivisions, lobus quadratus and lobus caudatus. His injection and corrosion specimen also showed that if

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Read before the Section on General Surgery of the Pan American Medical Association, Havana, Cuba, Jan. 19, 1937.

1. Keen, W. W.: Boston M. & S. J. **126**, 1892; Ann. Surg. **25**: 267, 1899.
2. Bastianelli: Policlinico (sez. chir.) **2**, 1895.
3. Garré: Surg., Gynec. & Obst. **5**: 331, 1907.
4. Tinker, M. B.: Ann. Surg. **102**: 728-741 (Oct.) 1935.
5. Martens: Arch. f. klin. Chir. **114**: 1001, 1920.

the artery supplying one lobe was injected the free anastomoses would carry the injection to all parts of the uninjected lobe.

Regeneration was experimentally studied many years ago by Ponfick [6] and also by von Meister.[6] It was found that four fifths of the livers of rabbits, rats and dogs could be removed without fatal outcome and would grow back to approximately normal after such extensive excision. More recently Fishback [7] of the Mayo Clinic has carried out similar experiments with the same results. He found that four-fifths regeneration occurred in from six to eight weeks. These experimental results as regards extent of regeneration were confirmed clinically by Wendel,[8] who found it necessary to do an intestinal resection on a woman whose liver he had resected two years previously.

METHODS OF RESECTION

The most satisfactory exposure of the liver for the average resection is a modified transverse incision slanting slightly toward parallel to the costal border. This is essentially the incision used by Kocher of Bern for surgery of the biliary tract. Study in the dissecting room in Cornell University Medical College, through the courtesy of Drs. Kerr and Papez, showed us that the region under the dome of the diaphragm on the right can be exposed fairly satisfactorily by dividing the eighth, ninth and tenth ribs near the attachment of the costal cartilages. This permits extra upward retraction of from 2 to 4 inches. A vertical extension of the incision upward toward the ensiform cartilage also helps if needed.

The control of hemorrhage has been the problem to which all surgeons have given most attention. McDill [9] suggested compression of the blood vessels and other structures supplying the liver by compression of the hepatoduodenal ligament with a rubber padded clamp applied in the foramen of Winslow. Kirschner [10] also suggests compression by finger pressure or a rubber covered intestinal clamp; but Ravdin, translator and editor of Kirschner's English edition, adds a note to the effect that such a procedure is accompanied by a profound fall in blood pressure and should be used cautiously. Kirschner also mentions that compression should be restricted to the shortest possible time because the intestine cannot recover if the blood supply is shut off more than a quarter of an hour.

Animal experimentation in the physiologic laboratories at Cornell University to determine the effect of compressing the blood vessels, nerves and ducts in the hepatoduodenal ligament has been possible through the cooperation of Prof. Joseph F. Dye. It showed the fall of blood pressure graphically in several cases by tracings on smoked drums. Rapidity and extent of fall in blood pressure varies with each animal, fifteen minutes being apparently about the maximum time that pressure could be safely continued, considerably less in some cases, since the intestine may become alarmingly blue. The clamping might save life in case of violent, uncontrollable hemorrhage; it could be used for a few minutes until other measures could be applied; it seems unnecessary and undesirable as a routine.

Mattress or chain sutures passed with a blunt needle through the entire thickness of the liver before cutting have been found effective in preventing hemorrhage by a large number of surgeons. If a special needle is not available, as is frequently the case, a large probe with an eye may be used or a long needle with the eye end pushed through first. A blunt needle pushes vessels aside, avoiding injury to larger hepatic vessels. It is important that ligatures should not be pulled too tightly, lest they cut through the friable liver tissue if a great thickness is transfixed, requiring heavy tension. To prevent such cutting, catgut sutures through the liver have been tied over celluloid or magnesium plates, rubber tubing or strips of fascia. A mattress needle, small rod or uterine probe as suggested by Dr. Leonard Freeman [11] accomplishes the same result with material which would almost always be available and could be easily removed when it had served its purpose.

Electrosurgery.—Oozing, which is very active from every point of the surface when the liver is cut with a scalpel, was prevented by Keen [1] and others by use of the actual cautery in the days before the introduction of electrosurgery. The radio cutting knife I have found equally efficient for this purpose,[5] more rapid and far less destructive: also radio cutting was found more satisfactory than the spark gap apparatus. Electrosurgical cutting is recommended by Kirschner [10] and has also been successfully used by surgeons of the University of California Clinic, by Lilienthal,[12] by Kelly and Ward,[13] by Howard Gray [14] and by others. Removal of a V shape section in resection of smaller tumors is recommended, when possible, by several surgeons as favoring ready approximation of raw surfaces; this not only helps in controlling hemorrhage but favors smooth healing. Covering the wound in the liver by omentum in animals and man has also been found helpful by Boljarski [15] and others.

Autotransfusion.—Great loss of blood from ruptured cavernous hemangioma or from extensive wounds may give rise to profound and sometimes fatal shock. When these growths or injuries are located, as they are most frequently, near the margin of the liver away from the larger bile ducts, there is little admixture of bile with the blood. In our previous paper autotransfusion of such blood was suggested. The possibility of serious results following autotransfusion from toxic choline derivatives or other substances was suggested by Morton.[16] Kirschner [10] suggests that the blood should be tested to determine the absence of agglutination or hemolysis in cases of rupture occurring more than twenty-four hours previously. He suggests collecting the blood by a ladle or suction; also that it may be citrated and immediately returned into a vein by means of a gauze covered funnel. Our experimental studies at Cornell after autotransfusion of an animal's own blood from hemorrhage of the liver do not show evidence of any serious toxic effect; in fact the tracings on the smoked drums showed either no important change in blood pressure or in some animals a rapid and well maintained rise in blood pressure and improvement in the general condition of the animal. Professor Dye states that he has repeatedly injected acetylcholine into the blood stream of animals experimentally without harmful effects.

6. Cited by Ewing, James: Neoplastic Disease, ed. 2, Philadelphia, W. B. Saunders Company, 1922, p. 676.
7. Fishback: Collected Papers of the Mayo Clinic **21**: 98, 1929.
8. Wendel: Arch. f. klin. Chir. **114**: 982, 1920.
9. McDill, J. R.: Ann. Surg. **56**: 333, 1912; Bloodless Surgery of the Liver, J. A. M. A. **59**: 1283 (Oct. 5) 1912.
10. Kirschner, Martin: Operative Surgery (English edition), Philadelphia, J. B. Lippincott Company, 1933, p. 526.
11. Freeman, Leonard, in discussion on Tinker.[4]
12. Lilienthal, Howard, in discussion on Tinker.[4]
13. Kelly, H. A., and Ward, G. E.: Electrosurgery, page 167, Philadelphia, W. B. Saunders Company, 1932, p. 737.
14. Gray, H. K.: S. Clin. North America **14**: 717 (June) 1934.
15. Boljarski, N.: Arch. f. klin. Chir. **23**: 507, 1910.
16. Morton, J. S., in discussion on Tinker.[4]

Resection has been done for the following conditions:

Benign Growths: Hemangioma, ecchinococcus cysts, gummas, tuberculoma and destructive liver injuries. (Simpler measures are ordinarily available for the last three conditions.)

Malignant Growths: Carcinoma (including adenocarcinoma), sarcoma and hypernephroma.

Cavernous hemangiomas are relatively common tumors of the liver; they are frequently ruptured, giving rise to serious intra-abdominal hemorrhage and, because they are generally thin walled, the bleeding may start spontaneously. Our case, previously reported,[1] belongs in this class of growths. It is important in operating on these patients to excise wide of the growth, as hemorrhage even from a needle prick may be uncontrollable. Packing, actual cautery and even sutures are unavailing unless the stitches are placed in normal liver tissue. This is well shown by the following reports: Gray Turner[17] cites the case of a woman admitted to Guy's Hospital in collapse: a diagnosis of ruptured ectopic pregnancy was made; the abdomen was found to be full of blood; the pelvis was normal; hemorrhage from a hemangioma of the liver could not be controlled by suture or packing; the tumor was removed by cautery and the patient was given an infusion but died after one hour. Severe hemorrhage from a needle prick of a huge angioma of the right lobe is reported by Mantle[18] and quoted by Charles H. Peck.[19] The hemorrhage was uncontrollable by suture or packing and the patient died after two hours. Fatal hemorrhage was also reported by Borst and Chiari[20] and by a number of others. The fairly frequent pedunculated hemangiomas are much less difficult and dangerous. Peck[19] reported such a growth involving the entire left lobe, which was removed after the pedicle was clamped and the stump was closed with a continuous catgut suture; the tumor weighed 3 pounds 14 ounces (1,759 Gm.), the largest tumor removed in this country up to the time of this report. Clar[21] gives details of a successful operation by Schloffer, with a report of thirty others from the literature, an operative mortality slightly over one third of 1 per cent.

Malignant Tumors of the Liver.—As stated in our earlier paper,[4] many surgeons are pessimistic regarding resection of the liver for malignant growths. This has led others to abandon operation, although the experience of Keen,[1] McArthur[22] and Yeomans[23] among Americans and a number of foreign surgeons has shown the possibility of cures up to seven years' duration. Reliable pathologic diagnosis is indispensable. In Keen's[1] case the diagnosis of cylindric cell cancer by Coplin and Tinker was confirmed by William H. Welch and T. M. Prudden; in McArthur's[22] case the pathologic diagnosis of adenocarcinoma by Hektoen and Zeit was confirmed by Fenger; in Yeomans's[23] case the pathologic diagnosis of adenocarcinoma by Jefferies of the Philadelphia Polyclinic was confirmed by Ewing.[24]

Involvement of surrounding organs may offer special difficulties. In McArthur's[22] case the liver was involved by extension from cancer of the stomach, so that resection of the stomach as well as of the liver was required. Wendel[8] operated for carcinoma of the colon associated with cancer of the liver. Kellogg Speed[25] reported extensive involvement of the diaphragm and chest wall requiring resection, together with cancer of the liver. Cullen[26] reported nephrectomy for adenocarcinoma with a malignant condition involving the liver; the patient remained well for four years but eventually died of recurrence in the kidney region, the liver being entirely free from recurrence. All these patients recovered from operation and lived for several years.

Primary carcinomas of the liver sometimes seem favorable for operation because of the infrequency of metastases, slow growth and susceptibility to irradiation, as mentioned by McCallum,[27] Ewing[24] and Sternberg.[28] Adenocarcinomas, which are most frequent, respond well to irradiation. Several growths at first reported to be adenoma have later proved malignant, probably adenocarcinoma. In some cases operation has been repeated; in others postmortem examination or clinical symptoms have left no doubt as to the malignant nature of the growth. Sarcoma has been reported by Elliott[29] and a few others. Ewing[24] believes that there is difficulty in determining the character of the growth in these cases and questions the occurrence of sarcoma, also hypernephroma of the liver.

The unfavorable results following resection for cancer of the liver are based, to a considerable degree, on statistics of operations performed from twenty-five to forty years ago. Moreover Thoele,[30] publishing his report in 1913, overlooked two reports by Keen in 1899 in which the patients were living three years after the operation. Improvement in surgical technic and methods during the past twenty years should favorably influence the results in surgery of hepatic cancer. The combination of irradiation and surgery, which has added such remarkable improvement in the results of treatment of cancer of the thyroid, also a glandular organ, should be of help in similar hepatic conditions.

We have not noticed any report of experimental studies such as are described in this paper. Their important bearing in preventing hemorrhage and in preventing and combating postoperative shock seems to warrant the following summary:

RESULTS OF EXPERIMENTS IN LABORATORIES OF PHYSIOLOGY AT CORNELL UNIVERSITY

1. Clamping the hepatic artery and structures in the hepatoduodenal ligaments showed a gradual but at the end of fifteen minutes an extreme fall in blood pressure. Removal of the clamp is followed by a rapid rise in blood pressure to above normal, which is well maintained.

2. A fall in blood pressure occurs when sympathetic nerves are blocked with procaine hydrochloride and also when sympathetic nerves are stripped from the hepatic artery.

3. Autotransfusion of blood from wounds of the liver gives a prompt and well maintained rise in blood pressure and improvement in the animal's general condition. There is no apparent harmful effect from admixture of bile and other associated products with the blood from extensive lacerated wounds.

404 Savings Bank Building.

17. Turner, Gray: Proc. Roy. Soc. Med. (Sect. Surg.) **16**: 43 (June) 1923.
18. Mantle: Brit. M. J. **1**: *365, 1903.*
19. Peck, C. H.: Surg., Gynec. & Obst. **33**: 277 (Sept.) 280, 1921; Tr. South. S. & Gynec. A. **33**: 289, 1921.
20. Borst and Chiari, quoted by Garré: Handbuch der praktischen Chirurgie, ed. 5, Stuttgart, Ferdinand Enke **3**: *686, 1923.*
21. Clar, F.: Med. Klin. **24**: 1746 (Nov. 9) 1928.
22. McArthur, L. L.: Ann. Surg. **42**: *626, 1905.*
23. Yeomans, F. C.: Primary Carcinoma of the Liver, J. A. M. A. **64**: 1301 *(April 17) 1915.*
24. Ewing: Neoplastic Disease, p 679.
25. Speed, Kellogg: S. Clin. North America **10**: *213 (April) 1930.*
26. Cullen, T. S.: Surg., Gynec. & Obst. **4**: 573, 1907.
27. McCallum, W. G.: Text-Book of Pathology, ed. 5, Philadelphia, *1932, p. 1116.*
28. Sternberg, Carl: Lehrbuch der allgemeinen Pathologie und der pathologische Anatomie, Berlin, F. C. W. Vogel, 1928, p. 499.
29. Elliott: Tr. Am. Surg. A., 1897, p. 257.
30. *Thoele:* Neue deutsche Chir. **7**: 1913.

THE ANTIBACTERIAL EFFECTS OF THE ORGANIC MERCURIAL COMPOUNDS

WITH SPECIAL REFERENCE TO THEIR USE AS GERMICIDES FOR THE STERILIZATION OF SURGICAL AND DENTAL INSTRUMENTS

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A search of the literature has revealed no carefully controlled work showing that any organic mercurial compound can be relied on to kill the spores of anaerobic bacteria. Nevertheless, claims have been made that these compounds can be depended on for the sterilization of instruments, and vast quantities of them are sold to physicians and dentists for that purpose.

Mercury in its various forms has been used in medicine since the time of the early alchemists, but it remained for Robert Koch [1] to popularize its use as an antiseptic. Immediately after his famous string experiments with anthrax spores the medical world believed that it had in its hands an all powerful germicide which would destroy any disease-producing organism, because apparently Koch had shown that very great dilutions of mercury bichloride would kill the spores of the most resistant organisms. Only a few years after this idea had become thoroughly instilled in the current literature [2] Geppert [3] (1889-1891) with carefully controlled experiments showed that mercury bichloride is a poor germicide although it possesses an almost unbelievable antiseptic or, better, bacteriostatic ability. Mercury bichloride at its best possesses several disadvantages which were known to Koch: It corrodes metal instruments, its apparent killing effect is diminished in the presence of organic matter and it coagulates protein. Furthermore, mercury bichloride cannot be used on the skin over long periods of time without causing dermatitis; it is toxic when injected parenterally and therefore cannot be used in chemotherapy. In spite of these objections and the observations of Geppert and others that mercury bichloride cannot be depended on to kill the spores of anthrax bacilli, it continued to be used because of its great antiseptic action. Chemists throughout the world attempted to produce a mercurial compound which would not have these disadvantages and perhaps might kill the sporulating organisms as well. The first products of these researches possessed few advantages over mercury bichloride, but just at the close of the World War several compounds appeared on the open market in the form of organic mercurials. Some of these were apparently free from the disadvantages of mercury bichloride. With certain types of laboratory tests they seem to be more effective than mercury bichloride. Clinical results indicated that they could be relied on as antiseptics. Many claims were made for them, some rightfully and some without the slightest scientific foundation. Among these claims it was suggested that certain of the products could be used for the "cold sterilization" of surgical and dental instruments. In fact, several manufacturers placed on the market preparations especially designed for this purpose. Practically all the germicidal claims made for such products were based on phenol coefficient tests in which only Staphylococcus aureus and Eberthella typhi were used. No adequate tests were made with sporulating organisms such as Bacillus anthracis, Clostridium tetani or the group of organisms causing gangrene.

Claims for the cold sterilization of instruments and for sporicidal activity found their way into many journals, textbooks and standard references. Even as late as 1937 the Council on Pharmacy and Chemistry of the American Medical Association accepted the claim for one organic mercurial that it is "a potent germicide for the spore-bearing and non-spore-bearing bacteria." [4] No experiments with organic mercurial compounds have been found in the literature comparable to those of Geppert with mercury bichloride.

That sutures cannot be rendered sterile by the use of mercurial compounds was first brought to my attention in 1937 while making a survey of the sterility of catgut sutures for the Council on Pharmacy and Chemistry.[5] Bulloch,[6] Meleney and Chatfield [7] and later Clock [8] pointed out that sutures treated with mercurials are not actually sterile but that the mercurials merely exert a bacteriostatic action on the organisms present. In making this survey for the Council I obtained some sutures which were more than 10 years old. These sutures were "sterilized" by a mercury method and were suspended in 1:1,000 potassium mercuric iodide tubing fluid. When sterility tests were made on them, twelve of the fifty-two sutures were found to contain viable spores, seven of which were of anaerobic bacteria. These results led me to question the advisability of using mercurial compounds for sterilization of instruments, especially after learning that no carefully controlled work had been done in which anaerobic spores were used as the test organism.

DEFINITION OF TERMS DESCRIBING ANTIBACTERIAL ACTION OF THE MERCURIALS

In order to have no misunderstanding regarding the terms used throughout this work, certain words commonly used to describe the antibacterial action of the mercurials are defined.

The present uses of the terms sterile and sterilization are given in a report of the Council on Pharmacy and Chemistry: [9] "The Council on Pharmacy and Chemistry has formally gone on record as disapproving of the use of the terms "sterile," "sterilize" and "sterilization" in a bacteriologic sense other than in their correct scientific significance; i. e., meaning the absence or destruction of all micro-organisms. These terms are not relative and to permit their use in a relative sense not only is incorrect but opens the way to abuse and misunderstanding."

A dissertation submitted to the Board of University Studies of the Johns Hopkins University.

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Dr. J. Howard Brown helped the author in planning this work and gave almost daily guidance and valuable criticism; Dr. Warfield M. Firor gave assistance and suggestions relative to the surgical problems involved, and Drs. Lloyd Felton and Paul N. Leech gave helpful criticism. Miss Elizabeth King gave technical assistance. Various commercial firms supplied the mercurials tested.

1. Koch, Robert: Zur Untersuchung von pathogenen Organismen, Mitt. a. d. k. Gsndhtsamte. **1**: 1, 1881.

2. Flugge, C.: Mikroorganismen, Leipzig, F. C. W. Vogel, 1886, pp. 542-545.

3. Geppert, J.: Zur Lehre von den Antiseptics, Berl. klin. Wchnschr. **26**: 789, 819, 1889.

4. Merthiolate, New and Nonofficial Remedies, Chicago, American Medical Association, 1937, p. 293.

5. Brewer, J. H.: The Present Status of the Sterility of Catgut Sutures on the American Market, J. A. M. A. **108**: 722-727 (Feb. 27) 1937.

6. Bulloch, William: The Disinfection and Preparation of Catgut for Surgical Purposes, British Medical Research Council Special Report Series, No. 138, 1929, part 1, p. 7.

7. Meleney, F. L., and Chatfield, Mabel: The Sterility of Catgut in Relation to Hospital Infections, Surg., Gynec. & Obst. **52**: 430 (Feb., No. 2A) 1931.

8. Clock, R. O.: The Fallacy of Chemical Sterilization of Surgical Catgut Sutures, Surg., Gynec. & Obst. **56**: 149-161 (Feb.) 1933.

9. Report of the Council on Pharmacy and Chemistry: Use of the Terms "Sterile," "Sterilize" and "Sterilization," J. A. M. A. **107**: 38 (July 4) 1936.

The word antiseptic, around which much confusion has arisen in the past, should convey only one meaning: that which is carried in the word itself—the preventing of sepsis or putrefaction.

Regarding the words germicide and germicidal, there has been little difference of opinion among workers. The terms refer to anything that kills germs (microorganisms).

The words bactericide and bactericidal convey the same meaning as germicide, except that they apply to bacteria only.

The word disinfectant is commonly used to refer to substances used on inanimate objects. The meaning, as the word implies, is to render noninfectious. A disinfectant may be either an antiseptic or a germicide; that is, it may either prevent infection by preventing development of the organisms or destroy them outright.

Bacteriostatic or bacteriostasis refers to an agent or state which prevents the development of the organisms. An antiseptic which does not kill may be a bacteriostatic agent.

For a more detailed discussion of the true value of these words one is referred to Patterson's [10] "Meaning of Antiseptic, Disinfectant and Related Words." I am in thorough agreement with him that if one adheres to the strict denotation of these terms there will be no serious confusion among the laity or professional men.

Much confusion in medical literature has arisen because certain fundamental principles have not been taken into consideration. This is especially true concerning mercurial antiseptics or disinfectants. For instance, mercury bichloride, as Abbott [11] has pointed out, is capable, in strong concentration, of killing Staphylococcus aureus, while in very dilute solutions it is only bacteriostatic. Thus a compound may be antiseptic in concentrations too weak to be germicidal. Not only must the concentration of the active agent be considered but the following factors must also be considered in choosing the proper term to describe a particular action: the time of contact, chemical nature of the surrounding medium, the reaction (p_H), temperature, number of organisms present in proportion to the amount of chemical agent, the nature of the organism and the purpose for which the chemical is used.

PRELIMINARY EXPERIMENTS TO SHOW TO WHAT EXTENT ANAEROBES ARE ACTUALLY PRESENT ON INSTRUMENTS AFTER OPERATIONS

As a result of a review of the literature [12] it was decided to determine to what extent anaerobes were actually present on blades after operations. Arrangements were made with the Department of Surgery of the Johns Hopkins Hospital to secure blades used in a series of operations. The nurse in charge of operations had an attendant drop the blades into a sterile tube as the surgeon discarded them. Aseptic precautions were observed and there was very little chance of contamination. The blades from 120 operations were examined and 12 per cent were found to be contaminated with anaerobic spore-forming bacteria. Had these blades been "sterilized" by some inefficient chemical means and reused, there would have been the possibility of infecting other patients. Eight per cent of the contaminated blades were those used for incision of the skin, and this closely parallels the observations of Roberts, Johnson and Bruckner,[13] who found 8.5 per cent of the knives used for making the cutaneous incision to be contaminated with Clostridium welchii. These observations, together with the reports of infections in the literature, seem to indicate that the spore-forming anaerobes should also be used in determining whether a chemical agent is suitable for disinfecting instruments. For the experiments to follow it was decided that pathogenic anaerobes should be chosen on the basis of their mode of attack on the body and the frequency with which they occur in nature. Clostridium tetani, Clostridium septique and Clostridium welchii were chosen. Clostridium tetani remains localized in the tissues and kills entirely by virtue of its toxin. Clostridium welchii and Clostridium septique invade the tissues. Clostridium septique may be found in large numbers in the pericardial and peritoneal cavities after fatal infection, and these infections are always characterized by dark red muscles and edema. In infections caused by Clostridium welchii the muscles are pale and spongy as the result of gas formation. An important characteristic of the clostridia which is not often appreciated is that all the pathogenic members are able to form spores in the animal body (Topley and Wilson,[14] p. 672).

In order to check the technic used and to make the experiments comparable to those of other workers, several different kinds of bacteria have been used as controls. In certain instances Bacillus anthracis (a spore-forming aerobe), Staphylococcus aureus, Corynebacterium diphtheriae, Escherichia coli and Eberthella typhi were used. These include representatives of both the gram-positive and the gram-negative nonsporulating bacteria.

INTRODUCTION TO METHODS USED FOR TESTING THE MERCURIALS FOR THE STERILIZATION OF INSTRUMENTS

The opinion regarding the evaluation of disinfectants is divided into two more or less distinct groups: those who would place every confidence in the results of some laboratory tests and those who accept only clinical data; that is, whether the agent actually works in practice. A far greater number of physicians fall into the latter class and there is much to be said in favor of such an opinion. Garrod (1935) has well stated: *"It is customary to deride laboratory conditions as [being] too far removed from those of practice to afford significant results; the truth is that practical conditions can be imitated closely and in almost every particular. The virtue of a test may in fact be held to depend largely on how far it achieves this, and the whole art of devising it consists in securing the necessary conditions without sacrifice of uniformity."*

If one attempts to evaluate chemical agents for use on the skin or mucous membrane, to act as either antiseptics or disinfectants, many factors at once present themselves which tend to make it impossible to reproduce actual uniform conditions. Among these factors

10. Patterson, A. M.: Meaning of "Antiseptic," "Disinfectant" and Related Words, Am. J. Pub. Health **22**: 465 (May) 1932.

11. Abbott, A. C.: Corrosive Sublimate as a Disinfectant Against the Staphylococcus Pyogenes Aureus, Bull. Johns Hopkins Hosp. **2**: 50, 1891.

12. At this point, owing to lack of space, a section has been omitted containing a review of the literature concerning theories of the mechanism of killing by the mercurials, previous work on the antibacterial activity of mercurials and methods of testing their bactericidal action for the sterilization of instruments. A short review of the literature relative to the instances of anaerobic infection traceable directly to faulty sterilization of instruments is also included. These sections may be obtained from the author in a special reprint, together with a supplementary bibliography.

13. Roberts, Kingsley; Johnson, W. W., and Bruckner, Helen S.: The Aseptic Peritoneal Cavity—A Misnomer, Surg., Gynec. & Obst. **57**: 752 (Dec.) 1933.

14. Topley, W. W. C., and Wilson, G. S.: The Principles of Bacteriology and Immunity, ed. 2, Baltimore, William Wood & Co., 1936.

tissue permeability, individual variation in the animals, including resistance, drug sensitiveness and many other variants, become apparent if one attempts such tests. In testing these chemical agents for the sterilization of instruments, however, there is no reason why the actual conditions cannot be reproduced to the finest detail. The procedure is an entirely in vitro one with none of the variable elements of in vivo tests entering in. Since this is true there is no reason why the standard method for testing such chemicals should be based on any type of test other than one which exactly reproduces the condition under which the chemical is to be used.

In order to make the proper approach to the problem, it was thought wise to secure some reliable information concerning the actual use of these mercurials in the "cold sterilization" of instruments. Since the larger part of the surgery done by physicians is carried out in hospitals where steam sterilization is accessible, chemical solutions are not used to the extent that they are in the dental field, where very little surgery is done in hospitals. Practically every dental surgeon must provide for the sterilization of his own instruments.

DENTAL QUESTIONNAIRE TO DETERMINE ACTUAL CONDITIONS OF USE OF THE MERCURIALS

Before attempting a study of the antibacterial effects of the organic mercurials used for disinfection of instruments it was necessary to know to what extent these substances were used, the treatment of the instruments before and after attempting sterilization and how long they were left in the solution before being considered safe for use. With the aid of the secretary of the Council on Dental Therapeutics of the American Dental Association, a questionnaire was prepared and sent to all class A and B dental schools in this country and the following dental clinics: Mayo Clinic, Section on Dental Surgery, Rochester, Minn.; University of Chicago, Zeller Foundation Clinic, Chicago; the Forsyth Dental Infirmary for Children, Boston, and the Murray and Leonie Guggenheim Dental Clinic, New York.

In addition, the questionnaire was sent to a representative group of individual dentists over the country, some with very large practices and others with comparatively few patients. Although only sixty-five questionnaires were sent out, the answers represent a cross section of dental practices, since all of the dental schools are included.

Much thought was given to framing the questions in order that they might be clearly understood and so that the answers might be comparable. In view of the definitions given earlier in this paper, some question arose as to the proper word to be used in connection with the treatment of the instruments. Disinfection more adequately describes the actual accomplishment in most cases, but at the time this questionnaire was circulated practically all the commercial solutions carried the phrase "for the sterilization of instruments." A large number of the publications on the subject deal with the chemical sterilization, or chemical agents used for the sterilization, of instruments. Seventy-one per cent of the dentists advocated the use of chemical agents for the sterilization of some instruments. These were usually cutting instruments, scalpels, nerve broaches, tissue shears or instruments made of rubber or other material which would be damaged by boiling.

Sixty-three per cent of those making use of some chemical agent for sterilization use a mercurial. Metaphen, potassium mercuric iodide, merax, mercresin, mercarbolide and merthiolate were the mercurials used. Almost 50 per cent of those using a mercurial used metaphen germicidal solution (1:2,500).

Two of the factors known to influence the chemical disinfection of instruments are the preliminary treatment the instruments receive and the length of time they are allowed to remain in the solution. According to the replies, the time elapsing after the instrument was used until it was placed in the solution ranged from immediately after use to twenty-four hours or until the instrument was needed. The object of this question was to determine whether enough time elapsed for the blood and saliva to dry. In those instances the instruments would be much more difficult to disinfect. Practically all of those suggesting the use of any chemical agent thought it advisable to wash the instruments before placing them in the chemical solution. Several scrubbed with a brush or other scrubbing agent and a few used scrubbing with soap.

There was a great variation in the length of time the instruments were left in the solution, the time varying from one minute to four hours. Almost every minute up to thirty was suggested as the minimum before the instruments were considered safe to use. Sixty per cent of those answering this question considered a period between ten and thirty minutes as the minimum time for sterilization. At the completion of the sterilization 45 per cent suggested drying on a sterile towel and placing in cabinets before use. The other treatments suggested were rinses in various sterile solutions, saline solutions, boric acid, distilled water or alcohol and drying in air.

Regardless of the value of a questionnaire as a means of obtaining reliable information, this one served to furnish the names of the mercurials actually being used, fixed the maximum and minimum time limits and stated the condition of the instruments when placed in the solutions. This information was necessary in designing experiments to simulate actual conditions of use.

MERCURIALS USED IN THE EXPERIMENTAL WORK

The list of mercurials to be used in the experimental work was made up of all those mercurials named in the answers to the dental questionnaire together with those mentioned as agents which might be used as antiseptics or disinfectants in the 1937 edition of New and Nonofficial Remedies. Included are a few new ones which have not been submitted to the Council on Pharmacy and Chemistry or at least have not been accepted at the present date. Some of the mercurials, owing to their dye content or for other reasons, are not suitable for use on instruments and are not promoted for such purposes but have been included because they represent different types of the organic mercurial compounds. Several inorganic compounds have been included to act as controls and some because they are still being employed to a large extent for the disinfection of instruments.

The mercurials used are shown in table 1. The information in this table has been derived from various sources: manufacturers, publications and in some instances consulting chemists. The material will be of value to those unfamiliar with the trade names and to persons wishing to make chemical comparisons.

The chemicals for the most part were secured from the secretary of the Council on Pharmacy and Chem-

istry. In some cases the products were secured directly from the manufacturer and in others they were purchased on the open market.

Since it is not my purpose in this work to compare the efficiency of the various preparations except as to whether they are capable of accomplishing complete sterilization, no attempt has been made to keep the dilutions of the different mercurials constant. The rule generally followed was to use the dilution suggested for the sterilization of instruments or, if the product was not advocated for this purpose, the dilution used was that mentioned for disinfecting the skin or wounds.

In the case of the proprietary mercurials, the solutions were obtained in original packages, since in several instances other chemicals were incorporated to keep the mercurial in solution, to aid in penetration or to prevent rusting of the instruments. In certain instances they are obtainable only in solution form. The nonproprietary chemicals were made up in accordance with suggested directions for use. With some of these it was necessary to make fresh solutions often; with others, large amounts could be made up and kept in glass stoppered bottles in the dark. In every case more than one lot was tested with each organism.

Although it has been shown by Moll,[15] Joachimoglu [16] and others that the reaction (p_H) greatly affects the bactericidal action of the mercurials on spores, no attempt has been made in the experimental work to adjust the p_H. The stock solutions were used as they came from the manufacturer, since it was desired to test the solutions as obtainable by the physician. It was assumed that the solutions on the market would be of the optimal p_H for the maximum killing effect. In the few cases in which I made the solutions, unbuffered distilled water was used. The p_H of the various solutions was found to be between 3.5 and 10.5, and stock solutions of the different mercurials varied little from lot to lot.

EXPERIMENTAL

Method Used to Obtain Spores for the Experimental Work.—Before I began the actual experiments it was necessary for me to have spore suspensions of the various anaerobes in pure culture. One serious source of error in testing disinfectants with spore-forming organisms has been that the method of cultivation before the test has not been conducive to spore formation, with the result that the tests have simply been made on vegetative forms which were no more resistant than staphylococci or other vegetative organisms. An interesting example of this has been found in securing information on the organic mercurials from the manufacturers. A letter was sent to each of the manufacturers of mercurials asking for information on their product, with special regard to its efficiency as an agent for sterilizing instruments. One of the manufacturers in answer wrote a letter including protocols of experiments showing that its particular product was very effective for killing Clostridium welchii. The exact words were " . . . is very effective for the sterilization of instruments. This statement is based on experiments which showed that surgical instruments contaminated with blood and three representative organisms such as Staph. aureus, B. coli and the spore-bearing B. welchii were sterilized in 5 minutes or less."

On close examination of the protocols it was suspected that the organisms had been grown in beef infusion broth containing dextrose in order to get a heavy suspension for the test. Clostridium welchii does not form spores in the presence of this carbohydrate.[14] For confirmation, a culture of the strain used was obtained from the company and cultural tests showed no spores to be formed in the medium as used by the manufacturer. Thus it was necessary before the experiments were attempted to have a method of cultivation for each of the anaerobes used to insure adequate spore formation.[17]

Experiments with Dental Burs.—As a result of the information obtained in the dental questionnaire, the following experiments were made. They follow in every detail the methods used by the physician or dentist in "sterilizing" his instruments. These experiments were made to determine whether or not the mercurials under actual conditions of use were capable of sterilizing the instruments when spores of some of the pathogenic anaerobes were used as the test organism. I do not claim originality for this type of test. Practically every hospital in which infection has occurred and the instruments were suspected has called on its bacteriologic laboratory to make just such tests as these. The one object in this work has been to conduct the tests so that in case the organisms had not been killed they would have had the proper conditions for growth.

For the first series of experiments dental burs [18] were sterilized in a Petri dish in the hot air oven. These burs were removed with aseptic precautions and the serrated cutting edges dipped in defibrinated blood to which had been added spores of one of the test organisms. The burs were then placed upright in holes in a rack made to fit inside a Petri dish. The burs were covered by inverting a Spray dish over them. This whole assembly had previously been sterilized in the hot air oven. The transfer and dipping of the burs were accomplished with the aid of a pair of forceps previously sterilized and flamed between transfers.[19] The contaminated burs then represented the contaminated instruments as they came from a patient's mouth, provided there had been loss of blood and the contaminating organism had been present. The burs in the inverted Spray dish were left at room temperature for varying lengths of time before being placed in the chemical disinfectant. One set was washed immediately (five minutes) after being contaminated and placed in the disinfectant. Sets of burs, that is, one for each organism, were placed in the disinfectant after fifteen minutes, thirty minutes, one hour, four hours and twenty-four hours. This was to determine whether or not it made any difference at what time after use the instruments were placed in the disinfectant. It was thought that the drying of the blood might make mechanical cleansing more difficult and thus affect the sterilization.

Since most of the dentists thought it advisable to wash the instruments and some even to scrub with a brush before placing them in the "germicidal" solution, it was decided to vary this procedure. Some sets of instruments were not rinsed at all, others were rinsed

15. Moll, T.: Untersuchungen über die Wirksamkeit einiger chemischer Desinfektionsmitte[illegible] Centralbl. f. Bakt. **84**: 416, 1920.

16. Joachimoglu, [illegible] der Wasserstoffionenkonzentrationen auf die Sublimats, Biochem. Ztschr. **134**: 489-492, 1923.

17. The technic for obtaining spore suspensions of the several organisms is given in the special reprint.

18. Dental burs for this work were furnished by the Ransom and Randolph Company, Toledo, Ohio.

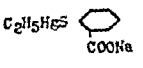
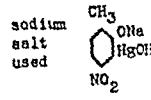
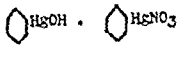
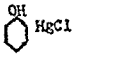
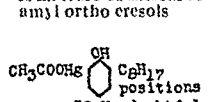
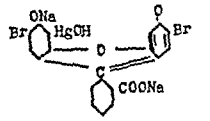
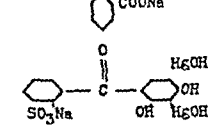
19. Hill, H. B.: Sterilizing Instruments During Bacteriological Autopsy Work, J. Applied Micr. **3**: 964, 1900.

in sterile tap water and still others were scrubbed until apparently clean with a sterile brush and water.

Although the answers to the questionnaire placed the time for sterilization in the chemical solutions from one minute to four hours, it was decided to use as the minimum time ten minutes. This was the minimum time suggested by some of the manufacturers for the sterilization of instruments. In addition, sets of contaminated burs were allowed to remain in the various solution of potassium mercuric iodide (Parke-Davis germicidal disks). This work was done in 1936, and these were the mercurials which were being or had been used for sterilization of instruments by dentists and dental clinics in Baltimore.

Although this work with dental burs represents seven months of experimental work and sixty complete experiments, a tabulation of the results would be of little value, for in each instance growth was obtained

TABLE 1.—*Mercurials Used in the Experimental Work*

Name	Manufacturer	Chemical Name	Mercury Content	Structural Formula*	Empirical Formula	Type	Comment	pH	Concentration of Type Used
Merthiolate	Eli Lilly & Co	Sodium salt of ethyl mercuri thiosalicylic acid	49%		$C_9H_9O_2S\ Hg\ Na$	$R_1Hg\ S\ R_2$	Where R_1 and R_2 are different organic radicals	9.8	1:1,000 isotonic solution
Metaphen	Abbott Laboratories	Anhydride of 4,nitro-5 hydroxy mercuri ortho cresol	56.57%	sodium salt used 	$C_7H_5O_4Hg\ N$	$R\ Hg\ X$	.	10.5	1:2,500 aqueous germicidal solution
Merphenyl nitrate	The Hamilton Laboratories	Phenyl mercuric nitrate (basic)	63%		C_6H_5HgOH, $C_6H_5HgNO_3$	$R\ Hg\ X$	Where R is an organic and X is an inorganic radical	4.2	1:1,500 boric acid solution
Mercarbolide	The Upjohn Co.	Ortho hydroxy phenyl mercury bichloride	60.95%		$C_6H_5O\ HgCl$	$R\ Hg\ X$		6.5	1:1,000 aqueous solution
Mercresin	The Upjohn Co.	Not a chemical entity		A mixture of mercarbolide and five isomeric amyl ortho cresols		$C_6H_3(CH_3)(OH)(C_5H_{11})$	.	7.4	Tincture (only form available)
Mertonol	McKesson & Robbins, Inc	Acetoxy mercuri 2 ethyl hexyl phenol sulfonic acid	40%		$C_{16}H_{24}O_6S\ Hg$	$R_1Hg\ O\ R_2$	. .	8.5	1:1,000 isotonic solution
Mercuro chrome	Hynson, Westcott & Dunning	Sodium salt of di brom hydroxy mercuri fluorescein	24.26%		$C_{20}H_8O_5Br_2HgNa_2$	$R_1Hg\ X$	. . .	9.1	1:50 aqueous solution
Meroxyl	Hynson, Westcott & Dunning	Sodium salt of 2-4 di hydroxy-3 5 di hydroxy mercury benzo phenone 2′ sulfonic acid	26.29%		$C_{13}H_9O_9Hg_2SNa$	$R_1(HgX)(HgX)$	. . .	7.1	1:200 stabilized aqueous
Mercury oxycyanide	Nonproprietary	. .	85.5%		$Hg(CN)_2\ HgO$	Inorganic	A basic mercuric salt of hydrocyanic acid	9.1	1:6,000 aqueous
Mercuric cyanide	Nonproprietary	. .	83.3%		$Hg(CN)_2$	Inorganic		6.2	1:1,000 aqueous
Potassium mercuric iodide	Nonproprietary	. . .	25.5%	. . .	$K_2Hg\ I_4$	Inorganic	A complex salt formed from 1 mole of HgI_2 and 2 moles of KI	9.2	1:1,000 aqueous
Mercury chloride	Nonproprietary	Mercuric chloride, "corrosive sublimate"	83.3%		$HgCl_2$	Inorganic	.	5.9	1:1,000 aqueous

* The positions of some of the groups are doubtful. For source of information see text

mercurials for periods of thirty minutes, one hour and twenty-four hours. Immediately after being removed from the sterilizing solutions the burs were placed in 40 cc. of 1 per cent sodium thiosulfate for twenty-four hours to neutralize any of the mercurial which might be present, as suggested by Meleney and Chatfield.[7] The burs were removed from this neutralizer, washed in 40 cc. of distilled water and transferred to infusion broth (40 cc.). They were then incubated in an anaerobe jar and removed when growth was noted. In instances in which growth was found, the organisms were identified to make sure that they were the same with which the bur had originally been contaminated.

The mercurials used were merthiolate 1:1,000, metaphen germicidal solution, mercresin and a 1:5,000 even after twenty-four hours' exposure to the disinfectant when the spores of any of the following organisms were used: Clostridium sporogenes, Clostridium septique, Clostridium tetani, Clostridium welchii and Bacillus anthracis.

The technic in these sixty experiments was varied so that some of the experiments simulated every possible combination suggested or actually used by the dentists.

The mixture of the organisms with blood approaches conditions which would be encountered in surgical practice.

Since in dental practice the instruments are not exposed to sodium thiosulfate, it was decided to repeat some of the experiments and omit this treatment.

The burs were rinsed in disilled water after remaining in the mercurials for one hour and for twenty-four hours respectively. They were placed in broth, and growth of the test organisms was obtained in every instance. Mead [20] found metaphen incapable of killing Bacillus anthracis and Bacillus subtilis spores in one hour. He failed, however, to obtain growth after one and one-half hours. His method was to inoculate agar plates from the instruments after rinsing off the excess germicide. He incubated his cultures only forty-eight hours before making readings. Burke, Sprague and Barnes [21] have shown that this incubation period is not sufficient. Meleney and Chatfield [7] have shown that organisms which have been treated with a disinfectant often do not grow out until the fifteenth day, with a maximum number growing out on the thirteenth day.

It is also to be expected that the practice of placing the instrument in the broth would yield a much higher percentage of positive results than that of simply dipping the instruments into melted agar. In actual practice the instruments might be forced into the tissues, and particles in crevices of the instrument would be removed which might not be dislodged by a simple dipping into agar.

EXPERIMENTS WITH DETACHABLE SURGICAL BLADES [22]

Dental burs with deep grooves and serrated edges were chosen because they presented lodging places for bacteria such as would also be found in joints of hinged instruments. This would make mechanical cleansing more difficult and would tax the germicide to a greater extent. The choice of these rough burs gave no idea what the value of such solutions might be in the case of smooth instruments such as scalpels. For this work detachable surgical blades were used. New blades from which the grease had been removed and those from which it had not been removed were used. These blades were used because they could be submerged in the medium and incubated for the duration of the test. The experiments with these instruments were made along with the dental burs, and in no instance were the results different. That is, growth was obtained in every instance. The conditions of testing and the mercurials used were the same as for the dental burs.

Two possible sources of error in this type of test are to be noted. In these experiments the contaminating blood mixture had been made with defibrinated blood. The contaminating mixture should have been made with whole blood, for the bacteria would then have been entangled in the fibrin and might have been more difficult to remove from the instruments. In actual practice the surgeons' blades are affixed in the handle and many crevices are formed which fill with pus, blood and exudate of various kinds, and, if actual conditions were to be approached, the blades should have been affixed to handles. Since positive results were obtained with the smooth blades and defibrinated blood, these factors are minimized; but had the organisms been killed in any instance these would have been very important factors and should be borne in mind in experiments of this type.

After studying the results of the experiments with burs and detachable blades it was realized that, although the experiments reproduced in detail the methods actually employed in chemically "sterilizing" instruments, certain bacteriologic technic was not above criticism for reasons to be described later, and perhaps a true picture of the ability of the mercurial disinfectants had not been obtained. The technic of a group of experiments was outlined so that the action of the mercurials on the spores of several organisms could be tested. These experiments were designed to determine the action of the mercurials not on spores entrapped in blood or dried in films in crevices surrounded by protein but naked spores in a large excess of the mercurial. The greatest attention was paid to bacteriologic technic, so that ideal conditions for killing and no chance of accidental contamination would exist.

DEVELOPMENT OF AN EFFICIENT CENTRIFUGE TECHNIC FOR TESTING MERCURIALS

Are the organic mercurials, under ideal conditions, capable of killing or rendering nonviable the spores of anaerobes? With this question in mind the following experimental work was undertaken. The technic was improved from time to time and these improvements are noted in the text.

Ditthorn and Bartel [23] described what they term a more exact method for evaluating disinfectants. Staphylococcus aureus was the only organism tested by these workers, and although *Chemical Abstracts* in reporting this work makes the statement that the authors used the method for "determining the value of the disinfectant in killing spore suspensions," no mention of any sporulating organism could be found in the original publication.

My first experiments using a centrifuge technic were made before I became familiar with the previously mentioned work of Ditthorn and Bartel, but the method used differed in only a few respects. Cultures of Clostridium sporogenes, Clostridium tetani, Clostridium welchii and Bacillus anthracis were grown on agar by previously described methods which insured spore formation. The spores were washed twice with distilled water, which left only a small sediment of bacteria on the bottom of a 15 cc. centrifuge tube. This washing was done to get rid of any toxin and soluble organic matter that might have been present. The tubes containing the spores were filled to the 15 cc. mark and, by means of a very fine capillary pipet, the organisms were mixed with the disinfectant. Metaphen germicidal solution and merthiolate were the only mercurials used in these preliminary experiments. The mercurial spore suspension was allowed to stand for fifty minutes and centrifuged ten minutes (one hour total). The disinfectant was decanted and the treated organisms were washed twice. The anaerobic organisms were transferred to cooked meat medium under petrolatum by a technic described by Brown [24] for preventing the organisms from becoming covered with petrolatum and thus preventing growth. The spores of Bacillus anthracis that had been treated by this method were streaked out on agar and planted into serum broth as suggested by Süpfle and Degeler [25] in order to insure growth of anthrax spores which had been treated with

20. Mead, S. V.: Sterilization for Surgery of the Mouth, Internat. J. Orthodontia **16**: 1097 (Oct.), 1215 (Nov.), 1317 (Dec.) 1930.

21. Burke, V.; Sprague, A., and Barnes, L.: Dormancy in Bacteria, J. Infect. Dis. **36**: 555-560 (June) 1925.

22. These blades were furnished for this work by the Surgical Blade Division of the American Safety Razor Corporation, Brooklyn.

23. Ditthorn, F., and Bartel, M.: Experiments to Determine a More Exact Method for the Valuation of Disinfectants, *Disinfektion* **8**: 62-66, 1923; abstr. Chem. Abstr. **18**: 1314, 1924.

24. Brown, J. H.: The Vaseline Tube and Syringe Method of Micro Gas Analysis of Bacterial Cultures, J. Exper. Med. **35**: 667 (May) 1922.

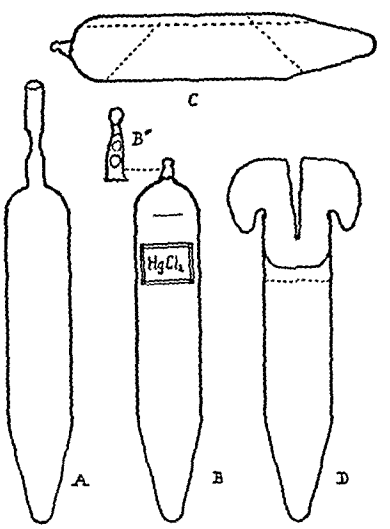
25. Süpfle, K., and Degeler, A.: Die Bedeutung optimaler Nährböden zur Nachkultur bei der Prüfung von *Desinfektionsverfahren*, Arch. f. Hyg. **85**: 189, 1916.

disinfectants. All of the cultures in cooked meat and also the serum broth contained viable spores. Since it was possible that the mercurials might have affected the organisms in such a way that although it was possible to recover them in culture mediums they might have no longer been capable of producing disease, guinea pigs were inoculated with 0.5 cc. of the final sediment diluted to 1 cc. at the same time the cooked meat and serum broth were inoculated. Since it was known that the strains of Clostridium welchii and Clostridium sporogenes were nonpathogenic for guinea pigs, these organisms were not used in the animal section of this experiment. One-tenth cc. of 1 : 20 lactic acid was injected along with the tetanus suspension to insure the proper necrosis for infection. The anthrax suspension was injected subcutaneously in the left thigh. The guinea pig inoculated with the untreated anthrax suspension (control) died on the second day; the metaphen and merthiolate treated spores caused death on the third day. The tetanus control and the two animals injected with treated organisms all died on the fourth day after injection.

At this point a critical study of the technic was made and several errors were found. No technic is satisfactory in which there is a possibility that some of the organisms or spores may escape the action of the disinfectant entirely or for even a part of the supposed period of action. In suspension experiments of any type in which the organisms are placed in the disinfectant by means of a pipet, or in the case of the foregoing experiment in which the organisms were already in the centrifuge tube, there are many chances that there will be some bacteria not touched by the chemical agent, or at least not covered by the disinfectant for the full length of the desired period of exposure. This is true even though the suspension is made in one tube and transferred to another tube. Although theoretically possible, I doubt whether one can transfer such a suspension without some of it reaching a point on the tube at which it will not be entirely covered for the duration of the test. The "ringing effect" is also to be considered. That is, the rings left on the test tube as the liquid evaporates may leave a ring of bacteria on the surface of the glass well out of reach of the chemical being tested. This is very important in experiments in which the mercurials are left for as long as twenty-four hours, as in the case of some of the previous tests. This ringing is very noticeable in testing tinctures or solutions containing alcohol such as mercresin. No suspension experiment in which this type of mercurial is being tested can be considered correct unless this ringing factor has been taken into consideration.

To eliminate this source of error, some type of tube which could be sealed off in the flame was sought. If the suspension could be sealed in the proper type of tube and rotated in such a manner that the entire surface would be wetted for the period of exposure to the chemical agent, then this error would have been eliminated. After attempting to seal test tubes off in the flame uniformly, I decided that probably some ampule already on the market might be satisfactory. After trying several types of tubes I found the Judd and Simon [26] modification of the Keidel tube. Tube *A* shown in the accompanying illustration offers several advantages. It has a capacity of 50 cc., which allows a large volume of disinfectant to be used with an insignificant volume of spores. The neck of the tube is already constricted and ready for sealing in the flame. The tube is so constructed that it has a centrifuge bottom and, by cutting the tube off with a hot wire and inserting a sterile cotton plug from a test tube of the same size, one has an ideal centrifuge tube for washing the bacteria. This eliminates another source of error in that it is not necessary to transfer the organisms from the time they are exposed to the disinfectant until they are planted into the medium. The point (bottom) of the tube is not sufficiently small to prevent free flow when the tube is rotated.

Since apparently none of the mercurials tested in the earlier work were capable of killing the spores on short contact, it was necessary to have a machine to rotate the tubes satisfactorily over long periods of time. An off-center cam arrangement was made so that when the tubes were placed on it horizontally they would be entirely wetted in going through each cycle. The dotted lines in *C* show the extremes reached by the meniscus in traveling this cycle. The speed of the motor was set so that eighty complete cycles a minute were made. This was fast enough so that there was no chance for drying in any section of the tube. The tubes were rotated for twenty-three hours. About thirty minutes was required to inoculate from eight to twelve tubes and seal them in the flame before placing them on the machine, and thirty minutes was required for the first centrifuging, so that a total of twenty-four hours elapsed from the time the mercurial came in contact with the spores until it was removed.[27]



A, Keidel tube (50 cc.) as described by Judd and Simon. *B*, tube *A* sealed off properly and ready to be placed on rocking machine. *B'*, improper way of sealing tube; allows collection of air in neck of tube. *C*, tube *B* in horizontal position as placed on rocking machine. Dotted lines show changing positions of meniscus as tube is rocked, demonstrating that the entire tube is wetted during each cycle of the machine. *D*, tube *B* with top removed. Note divided cotton plug.

The spore suspensions of the anaerobes are made to contain approximately 330,000,000 viable spores per cubic centimeter. One cc. of this suspension is placed in the Keidel tube with 40 cc. of the mercurial to be tested and the tube sealed and placed on the rocking machine. After the tubes had been removed from this machine and centrifuged, a filed line was made just above the label, as shown in *B*, and the tubes were opened by removing the top. All the mercurial but about 0.6 cc. can be decanted or pipetted off without disturbing the sediment. The remaining 0.6 cc. is thoroughly mixed with the sediment by means of a pipet, and about 0.2 cc. is removed for animal inoculation. One loop of the spore-mercurial mixture is planted in an appropriate medium and incubated. Forty cc. of

26. Judd, C. C. W., and Simon, C. E.: The Vacuum Tube of Keidel, as Applied to Blood Culture Work, J. A. M. A. 64: 822 (March 6) 1915.

27. The complete technic is available in the special reprint. Its great detail was considered inadvisable for a clinical publication of this work, and it has been condensed here.

sterile distilled water is added and the organisms are resuspended by washing up and down several times with a very fine capillary pipet. The tube is then plugged and centrifuged. This process is repeated three times, making a total of four washings. Although there is practically no turbidity in the final washing, when the sediment is diluted to 0.4 cc. a slight turbidity will remain, indicating the presence of organisms.

The technic in general has been to inoculate the proper recovery medium; that is, a medium which is ideal for the development of the spores if they have not been killed. In addition, mice have been inoculated to see whether or not the spores have been rendered noninfectious if they have not been killed. Representative results are given in table 2 and in most cases the protocols were repeated twice, making three sets of experiments.

The large amount of material in table 2 may appear quite complicated. It is hoped that this short explanation will obviate any difficulties:

As an example, Clostridium septique is considered under mercury bichloride. Spores of Clostridium septique were treated for twenty-four hours with mercury bichloride. The spores still suspended in the mercurial were used as an inoculum and were injected into mice and planted in a culture medium. Column 3 shows that the mice did not die even at the end of fourteen days, indicating that the spores were not capable of producing infection. Column 4 shows that the spores grew out in one day, indicating that the organisms were not killed. The results in column 5 and 6 are the same as those in 3 and 4; the inoculum, however, consisted of spores which had been washed four times to get rid of any mercurial present. The results in column 7 under "inoculum: treated spores in mercurial plus lactic acid" indicate that when the spores were injected along with lactic acid they were capable of producing infection and killing the mice. Column 8 shows that Clostridium septique could be recovered by cultural methods. Columns 9 and 10 show results similar to columns 7 and 8.

COMMENT ON THE CENTRIFUGE EXPERIMENTS

If these mercurials had been bactericidal, it would have been necessary to make many additional tests in order to prove the ability of the organic mercurials to disinfect instruments. Tests in the presence of various body fluids would have been made. Tests for organisms dried in pus, whole blood, saliva, bile or, in fact, any fluid which might be found about the body in operations would have been necessary. These tests would be of little value, since it was shown that the mercurials were unable to kill the spores even in twenty-four hours in the absence of body fluids and other factors which are known to decrease the bactericidal action of the mercurials.

One factor that may have influenced the results of these experiments is the production of sulfides in necrotic tissue. It is well known that sulfides are produced in decomposing tissue. Whether ammonium sulfide or hydrogen sulfide, it would tend to neutralize the mercurials on or about the spores. This will account for certain instances, not recorded in table 2, in which the animals died but no growth was obtained in the corresponding cultural experiments. The sulfide content of perspiration should be considered in experiments with mercurials. A polished coin will turn dark after being handled, owing to the action of sulfide from the skin. This may account for the failure of the mercurials to disinfect the skin in certain tests. Not all these mercurials are affected immediately by sulfides, but as the mercury ionizes the inactive sulfide is formed.

Topley and Wilson [14] (p. 698) state that the washed spores of Clostridium tetani are innocuous. Vaillard and Vincent [28] demonstrated that many millions of spores, when deprived of their toxin, could be introduced intramuscularly into guinea pigs without producing tetanus. Vaillard and Vincent found that if the tissues are injured in any way the spores will develop and tetanus will occur. A 22 gage needle was used for the injection in the present work and the mice usually struggled. This may account for tissue injury and subsequent tetanus infection in each instance with the washed spores. To preclude the possibility that the deaths were caused by the presence of a small quantity of tetanus toxin, as a control experiment some of the washed spores were further washed in an abundance of antitoxin and then in water. These were injected in the same manner as in the test, and death resulted. According to Topley and Wilson [14] (p. 698) tetanus toxin in a dose of 0.0001 cc. will kill a mouse. The design of this test makes it impossible for a toxin content of even 1:1,000,000,000 to be present. If the mercurial treatment is included, the spores were subjected to seven washings and dilution to 40 cc. It has also been shown by Van Ermengem [29] that salts of the heavy metals destroy some anaerobic toxins.

The observations of Moll [15] have been substantiated; that is, some of the mercurials are capable of affecting tetanus spores so that, although not actually killed, they are incapable of causing the death of the animals injected with them. In some instances it would seem that the washing process plays a greater role than the neutralizer in bringing about the recovery of the treated organisms.

Room temperature was used for all the experiments; it varied from 20 to 25 C. No experiments were made to determine the effect of a higher temperature for this is about average room temperature and these agents for "cold sterilization" are usually employed to avoid heating the instruments.

The twenty-four hour treatment period is about as long as could be conveniently employed and is much longer than is customarily used. A chemical agent which would require a longer period would not be practical, for many instruments are expensive and must be sterilized and reused several times in one day.

It is to be reiterated at this point that these experiments were not simply exposure experiments, made according to phenol coefficient methods or the string and bead technic, but were tests in which the organisms were sealed in with the disinfectant and constantly agitated to insure exposure of every organism to the disinfectant for the full period of twenty-four hours. The bacteriologic technic was designed to give accurate information on the one question Are the newer organic mercurials capable of killing the spores of anaerobes under the optimal conditions employed for sterilizing instruments? The answer, evident from a study of the tables, definitely indicates that none of the mercurials tested can be depended on to sterilize instruments in

28. *Vaillard, L., and Vincent, H.:* Contribution à l'étude du tétanos, Ann. Inst. Pasteur **5**: 1-39, 1891.

29. Van Ermengem, E.: Ueber einen neuen anaëroben Bacillus, Ztschr. f. Hyg. **26**: 34, 1897.

twenty-four hours even in the absence of organic matter and other factors known to decrease the activity of the mercurials.

SUMMARY

1. A review of the literature shows that claims are made that the various mercurials can be depended on to kill the spore-forming anaerobes.

2. A review of the various methods of testing indicates that in most instances bacteriologic technic has been violated or the tests used were not applicable to spore-forming organisms, so that the results cannot be depended on.

3. In a series of 120 surgical operations, bacteriologic examination of the cutting instruments after use revealed 12 per cent contaminated with spore-forming anaerobes. Eight per cent of the skin knives were found to be contaminated with Clostridium welchii or similar organisms.

4. A study of the mercurial solutions available, summarized in table 1, indicates that these mercurials are used in dilutions of from 1:50 to 1:6,000 and vary in p_H from 3.5 to 10.5. This work was not made for the purpose of comparing the different mercurials available but rather to determine their efficiency as germicides for sterilizing instruments. One cannot help noticing, however, that the commercial products with the highest and lowest p_H were in general the most active.

5. In a series of sixty experiments with dental burs and detachable surgical blades, none of the mercurials were found capable of sterilizing the instruments in twenty-four hours under actual conditions of use. Clostridium welchii, Clostridium tetani and Clostridium sporogenes were used as the test organisms.

6. In preliminary experiments according to the modified methods of Mueller and of Ditthorn and Bartel sources of error were found.

7. An improved centrifuge technic was developed to determine whether the mercurials under optimal conditions are capable of destroying spores of anaerobes. The outstanding features of this technic are as follows: A sealed tube is used in which the organisms are exposed to the chemical agent for twenty-four hours. During this time the mercurial spore mixture is agitated constantly to prevent evaporation "rings" and to insure complete wetting of the entire inner surface of the tube. Settling or layering of the organisms is also prevented. Animal inoculation as well as cultural tests were used to determine the efficiency of the various mercurials with this technic.

8. None of the mercurials were capable of killing the spores of Clostridium tetani or of making them innocuous. The work of Moll was substantiated, for in several instances typical symptoms of tetanus developed in the mice and the mice recovered. Contrary to the common belief, Clostridium tetani could be isolated from the site of injection in all the mice dying from tetanus.

9. In the majority of the cases the mercurials were incapable of killing the spores of Clostridium septique, Clostridium welchii or Bacillus anthracis, even in the

TABLE 2.—*Results of Mouse and Cultural Tests When Spores Treated with Mercurials Were Used*

Mercurials Tested	Organisms	Inoculum Treated Spores in Mercurial				Inoculum Treated Spores Washed Four Times				Inoculum Treated Spores in Mercurial + Lactic Acid				Inoculum Treated Spores Washed Four Times + Lactic Acid			
		Death*	Day	Growth†	Day	Death	Day	Growth	Day	Death	Day	Growth	Day	Death	Day	Growth	Day
Mercury bichloride 1:1,000	Clostridium tetani	+	2	+	2	+	2	+	2	+	2	+	2	+	2	+	2
	Cl. septique	—	14	+	1	—	14	+	1	+	1	+	1	+	1	+	1
	Cl. welchii	—	30	—	60	—	30	—	60	—	30	—	60	—	30	—	60
	Bacillus anthracis	—	30	+	1	—	30	+	10								
Merbromin 1:50	Cl. tetani	+	2	+	2	+	2	+	2	+	2	+	2	+	2	+	2
	Cl. septique	+	1	+	1	+	1	+	1	+	1	+	1	+	1	+	1
	Cl. welchii	—	30	+	1	—	30	+	1	—	30	+	1	—	30	+	1
	B. anthracis	+	3	+	1	+	3	+	6								
Merphenyl nitrate 1:1,500	Cl. tetani	+	1	+	2	+	1	+	2	Tetanus‡		+	2	Tetanus		+	2
	Cl. septique	—	14	+	1	—	14	+	1	+	1	+	1	+	1	+	1
	Cl. welchii	—	30	—	60	—	30	—	60	—	30	—	60	—	30	—	60
	B. anthracis	+	5	+	6	+	5	+	1								
Metaphen 1:2,500	Cl. tetani	Tetanus‡		+	2	Tetanus		+	2	+	4	+	2	+	3	+	2
	Cl. septique	—	14	+	1	—	14	+	1	+	1	+	1	+	1	+	1
	Cl. welchii	—	30	—	60	—	30	—	60	—	30	—	60	—	30	—	60
	B. anthracis	—	30	—	60	—	30	—	60								
Merthiolate 1:1,000	Cl. tetani	+	1	+	2	+	1	+	2	+	2	+	2	+	3	+	2
	Cl. septique	+	1	+	1	+	1	+	1	+	1	+	1	+	1	+	1
	Cl. welchii	—	30	+	2	—	30	+	2	—	30	+	2	—	30	+	2
	B. anthracis	+	4	+	6	+	3	+	1								
Mertoxol 1:1,000	Cl. tetani	+	3	+	2	+	3	+	2	Tetanus		+	2	Tetanus		+	2
	Cl. septique	—	14	+	1	—	14	+	1	+	2	+	1	+	2	+	1
	Cl. welchii	—	30	—	60	—	30	—	60	—	30	—	60	—	30	—	60
	B. anthracis	—	30	—	60	+	13	+	1								
Mercarbolide 1:1,000	Cl. tetani	+	1	+	2	+	1	+	2	+	2	+	2	+	3	+	2
	Cl. septique	—	14	+	1	—	14	+	1	+	2	+	1	+	1	+	1
	Cl. welchii	—	30	+	24	—	30	—	60	—	30	—	60	—	30	—	60
	B. anthracis	—	30	+	1	—	30	+	1								
Potassium mercuric iodide, 1:1,000	Cl. tetani	+	1	+	2	+	2	+	2	+	2	+	2	+	2	+	2
	Cl. septique	—	14	+	1	—	14	+	1	+	1	+	1	+	1	+	1
	Cl. welchii	—	30	+	2	—	30	+	2	—	30	+	2	—	30	+	2
	B. anthracis	—	30	+	1	—	30	+	1								
Meroxyl 1:200	Cl. tetani	+	1	+	2	+	1	+	2	+	1	+	2	+	2	+	2
	Cl. septique	+	1	+	1	+	1	+	1	+	1	+	1	+	1	+	1
	Cl. welchii	—	30	+	2	—	30	+	2	—	30	+	1	—	30	+	1
	B. anthracis	+	2	+	1	+	2	+	1								
Mercury cyanide 1:1,000	Cl. tetani	+	1	+	2	+	1	+	2	+	1	+	2	+	2	+	2
	Cl. septique	—	14	+	1	—	14	+	1	+	1	+	1	+	1	+	1
	Cl. welchii	—	30	+	2	—	30	+	2	—	30	+	2	—	30	+	2
	B. anthracis	—	30	+	1	—	30	+	1								

* + indicates not only death of the mouse but also characteristic autopsy results and positive cultures from the animal.

† + indicates not only growth but also identification of the organisms inoculated. The number indicates the day on which growth was first observed.

‡ In these instances the animals developed typical symptoms of tetanus but recovered.

absence of body fluids and under conditions optimal for the action of the chemical agents.

10. Cultural experiments indicate that some of the mercurials may affect the spores in such a way that, although not actually killed, they are no longer capable of producing infection.

11. The results of the cultural tests show that results based on a comparatively short incubation period are not reliable since, in some instances, the treated spores developed only after twenty-four days.

CONCLUSION

1. The conflicting reports in the literature regarding the germicidal efficiency of the mercurials may be explained by noting that the methods of testing, in most cases, are not applicable to spore-forming organisms, in particular those tests which do not differentiate between actual killing and bacteriostatic action.

2. It is to be concluded from the results of the tests described in this paper that none of the mercurials examined can be depended on to sterilize instruments when spore-forming organisms are present. The question of disinfection is quite another problem. In the case of Clostridium tetani none of the mercurials rendered these spores noninfectious after twenty-four hours of contact. The spores were still capable of infecting the mice and producing tetanus. The spores of Clostridium septique and Bacillus anthracis, however, could be rendered noninfectious in certain instances. That is, although it was possible to recover in these cases organisms in cultural experiments, they did not produce an infection when injected into animals.

3. To explain the ability of some of the mercurials to act as antiseptics is beyond the scope of this paper. However, their actual germicidal value for vegetative bacteria is questioned. After it was found that the mercurial solutions as commonly used are incapable of killing the spores of the pathogenic anaerobes in twenty-four hours, it was decided to determine their effect on some vegetative bacteria by the centrifuge method. Just as statements are made that some of these mercurials will kill spore-forming bacteria, some of the manufacturers claim that their particular product will kill vegetative bacteria in ten minutes. One of the mercurials used did not kill Staphylococcus aureus in thirty minutes, although no neutralizers or special recovery methods were used. Other vegetative bacteria were used and the results indicate that some method other than one based on phenol coefficient determination should be used to establish the ability of the mercurials to disinfect instruments.

4. Although it was found that the mercurials as available on the market are not germicidal for the pathogenic anaerobes, it is possible that one of the newer organic solvents, wetting agents or surface tension reductants might affect the spores in such a way that the mercurials would then be able to kill these organisms.

5. The method of testing used in the experimental work is not suggested as a standard method to be used for testing chemical agents for sterilizing instruments but is proposed as a method for determining the action of chemical agents on spores under the most favorable conditions. The object of the method is to eliminate all possible sources of error by insuring the action of the chemical on every spore for the full length of the period of exposure.

RECURRING ATLO-AXIAL DISLOCATION WITH REPEATED INVOLVEMENT OF THE CORD AND RECOVERY

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Between the atlas and the axis (first and second cervical vertebrae) there are three diarthroses. Two of these are lateral and have to do with articular processes, and the third is mesial. This mesial diarthrosis is between the posterior aspect of the anterior arch of the atlas (first cervical vertebra) and the anterior surface of the odontoid process of the axis (second cervical vertebra). Alinement between the atlas and the axis is maintained by the anterior and posterior atlo-axoid ligaments and by the transverse ligament of the atlas. This transverse ligament of the atlas is one of the most important structures in the body, for on its integrity one's life largely depends. It is attached on each end to a tubercle on the inner side of the lateral mass of the atlas, crosses the ring of this bone, dividing it into a small anterior portion for the odontoid process of the axis and a larger posterior portion for the spinal cord. If either the transverse ligament of the atlas or the odontoid process of the axis (dens) gives way, there is an anterior dislocation of the atlas on the axis. The pyramidal decussation lying just behind the odontoid process may be compressed with resulting paralysis of the extremities.

ATLO-AXIAL DISLOCATION

Dislocation of the atlas on the axis may be one of two types; spontaneous or traumatic.

Spontaneous Dislocation.—According to Watson Jones,[1] this condition is due to hyperemic decalcification of the atlas with loosening of the transverse ligament. This results from infections in the nasopharynx or elsewhere in the vicinity of the base of the skull. All cases have four features in common:

1. They occur most frequently during childhood.
2. They are preceded by inflammation anywhere in the upper cervical region.
3. There is a latent period of from seven to ten days between the time of the infection and the dislocation.
4. The part of the arch of the atlas nearest the infection is decalcified.

According to Woltman and Meyerding,[2] spontaneous atlo-axial dislocation may result in symptoms similar to those of cervical arthritis, pharyngeal abscess, meningitis, encephalitis, bulbar palsy, cerebellar tumor and myasthenia gravis.

Traumatic Dislocation.—Traumatic atlo-axial dislocation is usually due to a fracture of the odontoid process of the axis. This deprives the transverse ligament of the atlas of its anchorage and permits the atlas to slide anteriorly on the axis. The condition results from injuries to the neck, manipulative adjustments, convulsive seizures and birth injuries.

The symptoms of traumatic atlo-axial dislocation may be immediate or delayed. In cases in which the appearance of symptoms is delayed there may be a latent period of days, or even months or years. At the time of the injury the local symptoms may be absent or minimal and may disappear rapidly. Then, after the

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1. Jones, R. W.: J. Bone & Joint Surg. **16**: 30 (Jan.) 1934.
2. Woltman, H. W., and Meyerding, H. W.: S. Clin. North America **14**: 581 (June) 1934.

latent period, neurologic signs and symptoms develop. These frequently are obscure and progress very slowly. Cases reported by Schwarz and Wigton [3] show slowly developing symptoms, which usually are more pronounced on one side. In many cases both legs and one arm are involved (as in the case here reported) and the picture is one of a slowly developing spastic paralysis with or without sensory involvement. One patient presented himself with a spastic weakness of the legs. The cause of this was not suspected until several months later, when a roentgenogram of the spine showed a dislocation of the atlas on the axis. Careful interrogation of the patient disclosed the fact that many years previously he had injured his neck in a fall. At the time there were no immediate symptoms.

The reasons given by various authors for the appearance of symptoms after a prolonged latent period are redislocation, progressive dislocation, excessive callous formation, pachymeningitis and pressure myelitis, irritation of the cord due to abnormal motility, late developing osteomyelitis and adhesive arachnoiditis with calcification (arachnoiditis ossificans). Stookey [4] thought that the anchoring effect of the arachnoid on the spinal cord at one point and normal mobility of the rest of the cord produced chronic trauma of the cord with disturbance in cord conduction.

The only case found in the American literature that is similar to the one about to be reported is one described by Elliott and Sachs [5] in 1912:

A man aged 50 fell at the age of 18 and landed on the back of his head. For six months after this he was in bed and was unable to move his head from side to side. He recovered on rest and then served for five years in the army. A few years later he fell, striking his left shoulder, and four or five months after this he showed symptoms of a high transverse myelitis. These disappeared completely on rest. Five years later, following another minor injury, he had temporary paralysis of the legs, accompanied by urinary incontinence. Seven years later he sustained his fourth injury, which resulted in immediate paralysis of the right arm and leg, double incontinence, paresthesia of both legs and weakness of both arms. Roentgenograms showed marked displacement of the atlas on the axis. The patient lived for two years and died of sepsis and other complications. Postmortem examination showed atlo-axial dislocation with involvement of the cord.

REPORT OF CASE

This case, like the one just reviewed, is unusual in that the patient suffered numerous atlo-axial dislocations with consequent symptoms of involvement of the cord, followed each time by complete recovery:

K. R., a white man aged 34, was a periodic drinker to excess of beer. His family, past and medical histories were not relevant to this report. In 1925, while driving a car, he fell asleep and landed in a ditch, sustaining multiple lacerations about the chest, hands, face and head and an injury to the lower part of the back. As he remembers it, he was not able to move his arms or his legs for several days. He was told that he had a sprained back and he remained in bed for three weeks, after which he used crutches for six weeks. Recovery was complete.

About a year later the patient was in another automobile accident and the overturned car came to rest on his neck. His right arm and both legs were paralyzed for several weeks and it was necessary for him to be catheterized for some time after the accident. His neck was taped and he was told that he had torn some ligaments. In about two months he had completely recovered except that since then he has felt a twinge in the back of his neck and down the lower part of the spine every time he stumbles a bit or is jarred in any way.

In 1932 he again rolled over in a car and was unconscious for about fifteen minutes. When he came to he had some pain in the lower part of the back but was not hurt sufficiently to make it necessary for him to go to a hospital. He went to work as a farm hand but quit after two weeks because his back hurt him.

At 2 a. m., Oct. 22, 1936, the patient was admitted to the Ancker Hospital in St. Paul with an admitting room diagnosis of suspected tumor of the cervical cord. The notes are very sketchy, but it is stated that for two years he had been having bladder symptoms (nature not stated). October 21, after he retired a paralysis of the right arm and of both lower extremities developed. Superficial examination at the hospital showed hyperactivity of all tendon reflexes and bilateral ankle clonus but normal plantar responses. There was anesthesia of the right side of the body below the third cervical level and of both sides of the body from about the ninth dorsal segment down. The right arm and both lower extremities were paralyzed. At 5 p. m. October 22 the patient was able to move his left leg and close his right fist, the sensory pattern was the same as it had been on his admission to the hospital. The following day there was some return of motion in the paralyzed extremities. Roentgenograms of the lower part of the spine showed "negative lumbar spine and sacrum. Slight narrowing of the first lumbar vertebra, probably developmental unless due to an old slightly compressed fracture" (see first injury).

June 7, 1937, he was admitted to the Ancker Hospital in an intoxicated condition. He had been in an automobile accident but there had not been any serious injury so he did not remain for examination.

Some time later in June the patient was in another automobile accident and the front of his car was telescoped in such a way as to pin his neck against the back of the driver's seat. He was dazed but not unconscious. For about two days he bled from the mouth but at no time was he paralyzed.

October 12 the patient was feeling well until he stooped over to lock the door of his house before going to work. He felt a stinging sensation in the back of his neck and fell to the floor immediately. Whether or not he was unconscious cannot be determined. Three hours later his wife found him and reported that he could not move his legs or his right arm. He was put to bed and he vomited numerous times. The record shows that on the next day there was a spastic paraplegia with weakness of the right upper extremity. The chart does not indicate that a sensory examination was made at that time. I saw him in consultation October 24 and by that time some of the functions of the right arm had returned. There was sensory impairment below an indefinite level corresponding to about the second lumbar dermatome. The muscles of both lower extremities showed a slight spastic weakness, the tendon jerks were brisk and the plantar responses were not elicited. There was no involvement of the sphincters. Roentgenograms of the cervical spine showed an anterior dislocation of the atlas on the axis with fracture and some displacement of the odontoid process. One week later the right leg was stronger than the left, sensation was normal and both plantar responses had become flexor. A spinal tap was not performed because I wanted to avoid as much as possible all manipulation of the spine. Instead I advised orthopedic consultation and in November a fusion operation was done on the cervical spine by Dr. C. C. Chatterton of St. Paul. Aside from some minor episodes associated with his getting drunk and removing his orthopedic collar from time to time the patient has remained well and has not had a recurrence since the cervical spine became ankylosed.

SUMMARY

1. The transverse ligament of the atlas is one of the most important structures in the body because it maintains the alinement between the atlas and the axis. Dislocation of the atlas on the axis (atlo-axial dislocation) causes compression of the spinal cord with resulting symptoms.

3. Schwarz, G. A., and Wigton, R. S.: Fracture Dislocation in the Region of the Atlas and Axis with Consideration of Delayed Neurological Manifestations and Some Roentgenographic Features, Radiology **28**: 601-607 (May) 1937.

4. Stookey, Byron: Adhesive Spinal Arachnoiditis Simulating Cord Tumor, Tr. Am. Neurol. A., 1926, pp. 129-156; Arch. Neurol. & Psychiat. **17**: 153-178 (Feb.) 1927.

5. Elliott, G. R., and Sachs, Ernest: Observation on Fracture of the Odontoid Process of the Axis with Intermittent Pressure Paralysis, Ann. Surg. **56**: 876-882, 1912.

2. Atlo-axial dislocation may be spontaneous or traumatic.

(*a*) Spontaneous atlo-axial dislocation is due to hyperemic decalcification of the atlas with loosening of its transverse ligament. It follows infections about the nasopharynx and base of the skull.

(*b*) Traumatic atlo-axial dislocation may cause symptoms immediately or after a latent period of varying length.

3. In the case reported here the patient suffered a fracture of the odontoid process (dens) and subsequently had a number of atlo-axial dislocations with resulting symptoms of compression of the cord and recovery.

4. Only one similar case is found reported in the American literature.

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VESICULAR PHARYNGITIS AND STOMATITIS

AN UNUSUAL EPIDEMIC OF POSSIBLE HERPETIC ORIGIN

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During the months of July and August 1938 there was an epidemic of febrile vesicular pharyngitis and stomatitis in three of the summer camps located on the shores of a lake in central New Hampshire. The disease presented three distinctive clinical features: vesicular throat lesions, high infectivity and a benign, self-limited course. Since several consultants as well as ourselves had never encountered this disease, and a survey of the literature did not reveal a report of a similar epidemic, this presentation seems justified despite unavoidably meager laboratory studies. It is to be hoped that the disease may be more completely studied if and when it appears elsewhere.

COURSE OF THE EPIDEMIC

The camps involved in the epidemic will be designated as A, B and C. Camp A is a boys' camp with about 100 campers and thirty-five councilors and attendants. Camp B is a girls' camp and camp C a boys' camp: each accommodates about fifty campers and fifteen councilors and attendants.

In camp A the first cases appeared July 17 and the last case was diagnosed July 31. Although a self-imposed quarantine of the camp was instituted July 19 and all fresh cases were isolated as effectively as camp facilities permitted, the disease eventually developed in sixty-one campers, seven councilors, three Negro cooks and one white cook. The height of the epidemic was reached July 22, with thirteen new cases, and followed a week of almost continuous rainfall.

July 23 a councilor from nearby camp B presented characteristic throat lesions and was promptly isolated, and the camp was unofficially quarantined. Several evenings previously this councilor had visited an eating place frequented by councilors from camp A prior to their quarantine. August 1 three new cases were discovered; five others on August 14 brought the total in camp B to ten, as shown in the accompanying table. By this time the first case had appeared at camp C, at the opposite end of the lake; in the ensuing ten days prior to the close of this camp twenty-one cases in all developed. As in camp A, isolation of cases was ineffectual in checking the epidemic, which had not fully burned itself out by the close of the camp season.

There were 106 cases in the entire epidemic, including three cases outside the camps. So far as is known there were no cases resembling this infection in any of the other three boys' and three girls' camps bordering on the lake. The remaining population of the region consists of 5,000 inhabitants, approximately evenly divided between permanent and summer residents. One of our three outside cases occurred in a youth aged 19 who had had herpes zoster of the right lumbar region about three months previously. The second was in a girl aged 6 years living near camp C, and the third was in a woman aged 33 living near camp A. It is quite possible that there were additional outside cases which did not come to our attention; it is unlikely, however, that many cases in camps A, B and C were overlooked, since campers in whom the disease did not develop had their throats examined daily during the epidemic.

CLINICAL ASPECTS

The disease was characterized by a sudden onset with headache, malaise and a variable degree of sore throat and fever, but the most significant finding (present in all of the cases) was the appearance in the throat of one or more yellowish white, slightly raised vesicles 1 or 2 mm. in diameter, usually surrounded by an intense red areola. These lesions were most frequently found on the faucial pillars (anterior more often than posterior), on tonsillar tissue when present or on the soft palate. Many of the cases seen at camp C (but none in the other two camps) presented, as well, lesions on the buccal mucosa or on the gums near the dentogingival margins, and in one case on the under surface of the tongue. Only one or two lesions might appear in the entire course of the illness, or the entire visible pharynx might be studded with them. The lesions often occurred in small clusters, which later coalesced. In most instances the individual or coalescent vesicles ulcerated, leaving a shallow, punched out, grayish yellow crater measuring from 2 to 4 mm. in diameter; some lesions never ulcerated. The lesions disappeared in from five to ten days, usually outlasting the fever.

In a few of the earlier cases in camp A the mucosa adjacent to the vesicles became deeply injected and even hemorrhagic, with moderate edema, simulating the so-called streptococcic sore throat. In many cases there was swelling of lymphoid tissue in the tonsillar fossa. In a few cases in which the lesions were restricted to the tonsils the appearance resembled a follicular tonsillitis, but pus or caseous material could not be wiped from the tonsillar surface. In several cases marked edema caused the bulging of the fauces usually associated with peritonsillar abscess.

As already indicated, the usual complaints were headache, malaise, feverishness and sore throat. The soreness of the throat was usually not severe, and the symptom was more often brought out only on questioning. Moreover, there was no correlation between the appearance of the throat and the subjective complaints; several of the patients with marked ulceration had no soreness whatever. Dysphagia was rarely met, and no patient complained of hoarseness. The patients with lesions of the mouth as well as of the throat complained of soreness or burning of the mouth, tongue

or gums. In two or three cases the disease was ushered in with severe headache, which disappeared with the onset of fever; in one of these cases the headache lasted several days before fever and throat vesicles appeared.

The highest fever (not exceeding 104 F. in any of our cases) was usually attained on the first day of the illness but occasionally not until the second or third day. The throat lesions usually appeared with the rise in temperature, but occasionally there was no fever until a day or more after the lesions were detected. Conversely, in a few cases early in the epidemic fever preceded the appearance of vesicles by a day or two. The temperature typically remained elevated for from two to four days and then hovered slightly above normal for an additional three or four days. In a few cases the temperature returned promptly to normal after one or two days, only to show slight secondary rises on the fourth or fifth day but never equaling the previous febrile level. Some cases were afebrile throughout.

Physical examinations were consistently negative except for the condition in the throat. No cutaneous eruptions were noted. Rigidity of the neck or the Kernig sign was not elicited in any case. The spleen and liver were not felt nor was there any significant enlargement or abnormal tenderness of the lymph nodes. The ear drums were normal in all cases except two: one showed minimal injection of both drums, rapidly subsiding; the second showed marked injection of one drum, which also subsided rapidly. Atypical systolic cardiac murmurs were heard in three cases; these were said to have been noted before the boys entered camp. The highest pulse rate recorded was 120 beats per minute. In every case throughout the epidemic the lungs remained perfectly clear on physical examination. In two cases, moderate generalized abdominal pain was the initial complaint; abdominal examination, however, was negative and the pain disappeared within twenty-four hours.

EPIDEMIOLOGIC ASPECTS

Although the age incidence varied from 7 to 67 years, the disease appeared to have a predilection for the younger age groups, only fifteen of the 106 cases occurring in persons 18 years of age or over. These are roughly one fourth of the exposed adults, whereas the disease developed in about one half of the exposed campers. The adult members of the camp were probably exposed even more than the campers, since the care of the sick devolved on them. In general, the older the patient the milder was the constitutional reaction.

The maximum incubation period could be established on two patients at camp A. The first was a white youth aged 19, enlisted from the outside to help with the camp cooking; he had no contact with known active cases, but the infection developed five days after he entered camp. The second was a boy aged 10 years who was admitted as a camper (his parents fully aware of the risk) in the first week of the epidemic; the disease developed seven days later.

In view of the alleged relationship between certain herpetic infections and chickenpox, as well as the clinical resemblance of the vesicles to the enanthema of chickenpox, the previous histories of 157 campers were reviewed. The vesicular pharyngitis developed in seventy (or 56 per cent) of 124 campers who had had chickenpox and in eighteen (or 55 per cent) of the thirty-three who had not had chickenpox. Apparently previous infection with chickenpox bears no relationship to this type of pharyngitis

It is noteworthy that during and shortly after this epidemic four cases of herpes zoster auricularis were encountered. Only one of these was in a camper, a boy aged 14 years in camp C who had herpes zoster auricularis beginning August 9 and in whom vesicular pharyngitis developed August 21. Cases occurred in two 16 year old school girls and a third in a woman aged 45. All of the patients bathed in the lake almost daily, but there was no direct contact between any two of them.

Four cases of mild conjunctivitis (so-called pink eye) appeared in camp A and two in camp C. This is regarded as no more than the usual camp incidence. Bacteriologic study of these cases was not undertaken. One patient at camp A had had bronchopneumonia three weeks before the onset of the epidemic, but examination of his lungs gave negative results and he was

Calendar of New Admissions

Day of Month	July		August	
	Camp A	Camp B	Camp B	Camp C
1	.	.	3	..
2	..	.	..	..
3	.	.	1	..
4	..	.	.	..
5	.	..	..	
6	.	.	.	..
7		..		
8				..
9	.	.		
10	.	.		..
11				..
12		.		..
13		.		1
14			5	..
15		..	..	..
16	.	.	..	2
17	2	.	..	3
18	2	..	..	1
19	6		.	1
20	5	..	.	4
21	3	.	.	4
22	13		..	3
23	9	1	.	2
24	11		.	..
25	3	.	..	..
26	5	.	..	..
27	4			..
28	1			
29	4		.	.
30	3	.	.	..
31	1	.		.
Total cases	72		10	21

asymptomatic at least one week before the disease developed. There were no cases of anterior poliomyelitis or encephalitis in the neighborhood during or following this epidemic.

LABORATORY ASPECTS

Our laboratory studies were necessarily restricted. Leukocyte counts were made in twelve cases during the first three days of the disease and ranged between 5,500 and 11,000 cells per cubic millimeter. Urinalyses carried out in seventy-two cases during the height of the illness and two weeks after the cessation of symptoms were negative in respect to albuminuria, glycosuria and urinary sediment.

The local lesions in fifty-one cases were investigated bacteriologically with direct smears, cultures or both. In fifteen cases smears stained with gentian violet did not show sufficient numbers of spirochetes and fusiform bacilli to be diagnostic of Vincent's infection.[1] Seventeen of twenty cultures carried out in Loeffler's

1. Black, W. C.: Acute Infectious Gingivostomatitis ("Vincent's Stomatitis"), Am. J. Dis. Child. 56: 126 (July) 1938

blood serum, dextrose agar or hormone agar showed a preponderance of gram-positive diplococci surrounded by well marked capsules. In two cases Neufeld typing of these organisms showed capsular swelling with type III pneumococcus antiserum. In addition to the gram-positive diplococci there was the usual mixed growth of gram-positive and gram-negative staphylococci, streptococci and bacilli usually found in the normal mouth. No Klebs-Loeffler bacilli were identified. Direct smears in almost all the remaining cases investigated also showed a heavy preponderance of gram-positive diplococci. Two of the blood cultures made in three febrile cases shortly after the onset were negative, and the third was contaminated.

Cultures of the milk and water in two of the camps were submitted to the state board of health; no significant abnormality was reported.

For the purpose of demonstrating a possible virus etiology, an attempt was made to duplicate the experiments of Youmans,[2] Long [3] and Dodd, Johnston and Buddingh.[4] Material was obtained from the lesions in two cases—in one on the second day of the disease and in the other on the third day—and rubbed well into the scarified cornea of a rabbit. In neither case had a herpetic keratitis developed at the end of forty-eight hours.

COMMENT

The concurrence of four cases of herpes zoster auricularis, a disease rarely encountered in general practice, with these cases of vesicular pharyngitis raises the question of whether one may be an atypical manifestation of the other. The fact that the pharyngeal lesions in most of our cases were bilateral, that they had a predilection for the tonsils and pillars and that the distribution of the pain was local rather than trigeminal is against this possibility.[5] Furthermore, in no patient did a facial paralysis or a cutaneous eruption develop.

The luxuriant growth of encapsulated diplococci and their appearance in large numbers in direct smears from the lesions strongly suggested to us at first that they were etiologically significant. The lesions noted in our cases, however, did not resemble the glistening gray membrane described as typical of pneumococcic pharyngitis (which itself is not a commonly recognized clinical entity).[6] It is also recognized that the pneumococcus may be more easily cultured from the throat in the presence of any acute infection of the upper respiratory tract. Finally, the benign course of this pharyngitis contrasts with the severe consequences of pneumococcic infection as usually observed elsewhere in the body.

The question presents itself whether the buccal lesions in these cases might be the oral manifestation of foot and mouth disease ("aphthous fever" of the French literature).[7] The primary vesicular and secondary ulcerative nature of the lesion is similar in the two. Foot and mouth disease is transmissible from cattle to man.[8] No cases of this disease were reported in cattle in the neighborhood, however, and pasteurized milk was used in all the camps. None of the patients in the series showed lesions of the hand, foot, face or nose, and the rapid spread observed in the present epidemic has not been described in the human form of foot and mouth disease.[9]

Herpetic origin of the disease seems the most likely, although such a conclusion is suggested only by clinical evidence to be outlined later and is therefore open to serious objection. The herpetic nature of some cases of vesicular and ulcerative pharyngitis and stomatitis has been demonstrated.[10] The lesions seen in our cases correspond closely to those described in the literature as typical of herpetic pharyngitis and stomatitis (sometimes called aphthous stomatitis [11] in the English and German literature). The drawing reproduced in Youmans' [2] article, for example, shows lesions on the palate resembling those seen in many of our cases. We were fortunate in having Dr. Perrin Long [3] examine a number of the throat lesions; he has given us permission to quote his opinion that they were herpetic. We do not regard our failure to demonstrate a virus as significant, since the conditions under which the experiments were carried out were far from ideal, and technical difficulties could easily account for it.

Although a search of the literature fails to show a report of an epidemic with purely buccopharyngeal localization of the vesicular lesions, a few epidemics of herpes labialis (occasionally referred to in the older literature as "herpetic fever") have been reported, and in exceptional instances there was involvement as well of the throat, buccal mucosa or gums.[12] Dodd, Johnston and Buddingh [4] recently reported a series of twenty-eight cases of herpetic stomatitis with simultaneous involvement, in a few rare cases, of the soft palate, tonsils and posterior pharynx. The cases appeared in groups, but there were not enough at any one time to warrant the use of the word "epidemic."

SUMMARY

An epidemic of vesicular pharyngitis and stomatitis occurred in three New Hampshire summer camps. The disease, affecting 106 persons, was characterized by a high infectivity and ran a benign, uncomplicated course of four or five days. The chief signs were fever and the appearance of vesicles, which subsequently ulcerated, on the faucial pillars, soft palate and tonsillar tissue when present. The disease occurred in patients from 7 to 67 years of age but had a predilection for the young. The maximum incubation period in two controlled cases was five and seven days. Cultures and direct smears of the lesions showed a preponderance of pneumococci. A herpetic origin of the disease is favored on clinical grounds, although experimental proof is lacking.

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THE DISTRIBUTION OF SULFANILAMIDE IN THE EYE

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The widespread success enjoyed by sulfanilamide and its derivatives in the treatment of some infectious diseases has naturally called attention to possible applications in ophthalmology. Encouraging reports have already appeared in their use in trachoma by Kirk and his associates,[1] Loe[2] and others; in gonorrheal ophthalmia by Magitot and his associates,[3] Luis and Ricardo, Fernandez,[4] Willis[5] and others; in orbital cellulitis by Goldenburg[6] and Szinegh;[7] in abscess of the lid by Szinegh, and in herpetic corneal lesions by Kleefeld.[8] Experimentally, streptococcic infections in rabbits' eyes have been successfully treated with sulfanilamide by Rambo.[9] Little work has been done, however, on the penetration of this compound into the eye, although Marshall and his co-workers[10] demonstrated that it readily entered various tissues and fluids of the body. Rambo, on the basis of a single determination, concluded that it appears in the aqueous and vitreous humors and in the lens after oral administration. The other ocular tissues were not analyzed. The present investigation was undertaken in an attempt to secure information on the distribution of sulfanilamide in the eye under various conditions.

EXPERIMENTAL

1. *Penetration into the Eye After Single Massive Doses by Mouth.*—Sulfanilamide 0.2 Gm. per kilogram of body weight was suspended in approximately 25 to 30 cc. of water and partially dissolved by the addition of several drops of concentrated hydrochloric acid. This solution was then administered by stomach tube to dogs under pentobarbital sodium anesthesia. At specified time intervals, aqueous humor was aspirated and a blood sample drawn. This was followed immediately by the enucleation of the eyeball, which was dissected into the following components: lens, vitreous humor, corneoscleral layer and chorioretinal layer. These were weighed immediately and all tissues but the vitreous humor were transferred to mortars, where they were thoroughly ground with sand and a minimum volume of 15 per cent trichloroacetic acid. Each mixture was transferred quantitatively to a 15 cc. tube and centrifuged for from five to ten minutes. The supernatant liquid was decanted into a test tube calibrated at 10 cc. and the precipitate twice washed with 1 cc. portions of the trichloroacetic acid. The supernatant liquid and washings were combined and diluted to the mark with more of the acid. This solution was diazotized and coupled with dimethyl-alpha-naphthylamine[11] and compared with the properly prepared standards, according to the method of Marshall.[12] The vitreous humor was transferred to a centrifuge tube and deproteinized with 5 cc. of 15 per cent trichloroacetic acid. The remainder of the determination was carried out as already described. To determine the sulfanilamide in the aqueous humor, 7 volumes of water and 2 volumes of 15 per cent trichloroacetic acid were added to each volume of the aqueous. This was centrifuged and aliquot portions of the supernatant liquid were treated as before. Reproducible results could be obtained with as little as from 0.1 to 0.2 cc. of aqueous.

Sulfanilamide was found to penetrate into the eye with great rapidity. Within fifteen minutes after ingestion of the compound, traces could be detected in each of the ocular tissues and fluids. As shown in table 1,

TABLE 1.—*Sulfanilamide (Milligrams per Hundred Cubic Centimeters) in Tissues and Fluids After Large Single Dose (0.2 Gm. per Kilogram)*

	Hours							
	1	2	3	4	6	12	24	48
Blood	2.1	3.3	17.9	18.0	19.1	14.7	4.4	1.1
Aqueous humor	0.7*	1.5	10.1	10.9	11.6	9.2	4.1	0.6
Lens	0.3	0.7	1.8	2.7	8.6	9.5	5.4	2.5
Vitreous humor	0.3	0.7	7.6	8.4	8.6	8.2	5.2	0.4
Corneoscleral layer	1.2	1.8	11.6	13.4	12.3	11.7	3.8	0.7
Chorioretinal layer	2.4	3.3	15.0	15.2	15.0	15.4	4.5	0.7

* The mean of two determinations; all other values are the mean of three or more determinations.

with the exception of the lens all these attain their maximum concentration at about the sixth hour. In the crystalline lens the peak is reached at about the twelfth hour. By far the most rapid rise occurs between the second and the third hour. The ocular constituents and blood showed a five to ten fold increase during this period. Again the lens was the sole exception. Here the sharpest rise was between the fourth and the sixth hour. The concentration of sulfanilamide was found to be in the following order: blood, chorioretinal layer, corneoscleral layer, aqueous humor, crystalline lens and vitreous humor. Those tissues attaining the highest concentration fell the most precipitously. Thus the blood contained 19.1 mg. per hundred cubic centimeters after six hours but only 4.4 mg. per hundred cubic centimeters at the end of twenty-four hours. Similarly the chorioretinal value had fallen from 15 to 4.5 mg. per hundred cubic centimeters in this period and the corneoscleral from 13.4 to 3.8. On the other hand, the lens still contained 5.4 mg. per hundred cubic centimeters after twenty-four hours, although its peak was only 9.5 mg.[12a] The vitreous showed even less of a decrease, dropping only from 8.6 mg. at six hours to 5.2 mg. at twenty-four hours.

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The authors received suggestions and help from Profs. S. R. Gifford and C. J. Farmer.

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12a. This difference in the rate of depletion of sulfanilamide from the crystalline lens as compared to the aqueous and blood may cause an upset in osmotic equilibrium which manifests itself clinically as transient myopia.

After forty-eight hours the lens still possessed 2.5 mg. per hundred cubic centimeters of sulfanilamide—more than three times as much as any other ocular tissue.

2. *Penetration into the Eye After Divided Therapeutic Doses.*—In the previous experiment sulfanilamide was employed in large single doses—doses considerably higher than those recommended for clinical use.[13] The effect of the drug given in therapeutic doses was next investigated.

Sulfanilamide 0.075 Gm. per kilogram of body weight was administered daily in four divided doses. Gelatin capsules containing the required dose was given with the food (forcibly if necessary) at 8 a. m., noon, 6 p. m. and 10 p. m. Blood was drawn and eyes were removed under light ether anesthesia after one, two, four and six days, and the analyses performed as described in the preceding section.

The values thus obtained are summarized in table 2. A fairly uniform level was maintained during the experiment, although the values are far lower than those secured in the previous experiment. Since all analyses were made at 8 a. m. (ten hours after the previous feeding), the values reported represent the minimum concentration during the experiment.

To learn whether the amounts thus determined differed materially from the sulfanilamide concentration at other times during the day, blood was drawn immediately before each administration of the drug. Expressed in milligrams per hundred cubic centimeters, the following values were secured: at noon 2.1, at 6 p. m. 2.7, at 10 p. m. 3.5 and at 8 a. m. 1.4. These values are quite low when one remembers that a blood level of from 5 to 10 mg. per hundred cubic centimeters is advocated for optimum therapeutic action and that such a level can be maintained in man on doses comparable with those used in our experiment.

TABLE 2.—*Sulfanilamide (Milligrams per Hundred Cubic Centimeters) in Tissues After Therapeutic Divided Doses (0.075 Gm. per Kilogram Daily)*

	Dose	Days 1	2	4	6
Blood	0.037 Gm. per Kg. b.i.d.	2.6	2.2	2.7	1.4*
	0.019 Gm. per Kg. q.i.d.	2.1	1.2	3.2	2.3
Aqueous humor	0.037 Gm. per Kg. b.i.d.	1.8	1.5	1.6	1.1*
	0.019 Gm. per Kg. q.i.d.	1.8	1.1	..	2.6
Vitreous humor	0.037 Gm. per Kg. b.i.d.	1.2	1.0	1.6*	1.3*
	0.019 Gm. per Kg. q.i.d.	1.6	1.1	2.2	1.4
Lens	0.037 Gm. per Kg. q.i.d.	3.0	2.8	3.9	2.0†
	0.019 Gm. per Kg. q.i.d.	1.4	2.6	2.8	1.4
Chorioretinal layer	0.037 Gm. per Kg. b.i.d.	2.8	2.1	2.2	2.6*
	0.019 Gm. per Kg. q.i.d.	2.7	2.5	2.2	4.1
Corneoscleral layer	0.037 Gm. per Kg. q.i.d.	1.4*	1.4	4.3	1.4*
	0.019 Gm. per Kg. q.i.d.	1.7	1.7	2.6	2.7

* The mean of two determinations.
† Single determination; all other values are the mean of three or more determinations.

If the same amount of sulfanilamide was given in two doses (at 9 a. m. and 5 p. m.) instead of in four, very little difference was apparent in the tissue content. Table 2 illustrates this close agreement for periods of one, two, four and six days.

3. *Action of Heat and Chemicals on the Concentration in Aqueous Humor.*—In an attempt to increase the concentration of sulfanilamide in the eye on a given dose, the effect of heat and drugs on the eye was investigated. No significant difference in the amount of sulfanilamide could be detected between that found in the aqueous humor of an untreated eye and one to which heat had been applied for two hours. Negative results were also secured with ethylmorphine hydrochloride, atropine and physostigmine. Aqueous humors of eyes that were treated with acetyl-beta-methylcholine chloride (mecholyl), however, showed a distinct increase over the control values, as is evident from table 3.

TABLE 3.—*Effect of Heat, Paracentesis and Drugs on Sulfanilamide in Aqueous Humor*

	Time in Hours	Blood	Sulfanilamide, Mg. per 100 Cc. Aqueous Humor: Control Eye	Treated Eye
Heat	2	..	4.0	4.2
Ethylmorphine hydrochloride	2	..	9.5	9.3
Physostigmine	1½	..	3.8	4.0
Atropine	2¼	..	3.4	3.1
Mecholyl	2¼	..	9.2	9.8
Mecholyl	2¼	..	8.0	9.1
Mecholyl	2	..	5.6	8.3
Paracentesis	2½	18.4	8.4	12.7
Paracentesis	2½	22.3	11.4	12.8
Paracentesis	2½	21.1	15.0	17.2

4. *Effect of Paracentesis on Sulfanilamide in Aqueous Humor.*—The aqueous humor of each eye treated with mecholyl was rich in protein. This was evident from the turbidity of the solution, the volume of precipitate after addition of trichloroacetic acid and a marked tendency of the aqueous to clot. Mecholyl, therefore, appears to increase the permeability of the capillaries in the ciliary body, probably through their dilatation. This action is similar to that of paracentesis, which is known to produce a second aqueous whose constituents closely approximate that of blood. The effect of paracentesis on the sulfanilamide content of the aqueous humor was therefore investigated.

Three dogs under pentobarbital sodium anesthesia were given 0.2 Gm. of sulfanilamide per kilogram of body weight by stomach tube. Two hours after administration, the aqueous from the right eye of each animal was aspirated. Thirty minutes later aqueous humor was drawn from each eye and samples of blood were removed for analysis. The analyses, as reported in table 3, indicate that the sulfanilamide content of the second aqueous was increased, lying between the values found for the blood and that for the original aqueous.

5. *Local Applications of Sulfanilamide.*—If sulfanilamide can readily penetrate the conjunctival epithelium and through the cornea, a more effective method of therapy might be attained by local application than by oral administration. To test this possibility, sulfanilamide was dusted on the conjunctival sac and cornea of the animals and allowed to remain for two hours. This produced a moderate reaction, causing chemosis and staining of the corneal epithelium. After repeated irrigation and scraping of the epithelial layers of the conjunctiva and cornea, the underlying subconjunctival tissue and corneal stroma gave a positive test for sulfanilamide. However, one could not rule out contamination entirely. The aqueous and vitreous humors were aspirated by a posterior approach so as to avoid contamination from the conjunctival sac. Not a trace

13. Marshall, E. K., Jr., Emerson, Kendall, Jr., and Cutting, W. C.: Para-Aminobenzenesulfonamide, Absorption Excretion: Method of Determination in Urine and Blood, *J. A. M. A.* **108**: 953 (March 20) 1937.

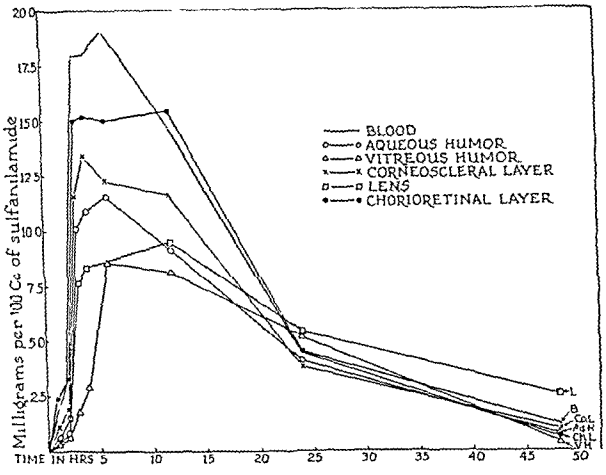
of sulfanilamide could be detected in either fluid despite the extreme delicacy of the test (sensitive to 1 part in 20,000,000).[13]

When 1 cc. of a saturated solution of sulfanilamide was injected subconjunctivally, a concentration of 0.3 mg. per hundred cubic centimeters was found in the aqueous, a value far lower than that obtained when sulfanilamide is given by mouth.

6. *Sulfanilamide in Tears.*—Tears were collected from two patients receiving 3 Gm. of sulfanilamide daily by mouth. They were analyzed by the method described for aqueous humor. The tears of the first patient, secured three hours after the administration of 1 Gm. of the drug, contained 1.5 mg. per hundred cubic centimeters. Those of the second patient, collected seventeen hours after an equal dose, contained 0.8 mg. per hundred cubic centimeters.

COMMENT

The ready permeability of all tissues thus far examined to sulfanilamide is undoubtedly an important factor in its therapeutic efficacy. The data here presented show that the tissues of the eye can be included



Concentration of sulfanilamide in the ocular tissues and fluids following a single large dose

in this group. The distribution of the sulfanilamide in the various ocular tissues is of interest. The chorioretinal layer possessed the highest concentration of the drug, very closely approximating that found in the blood. This layer is also the most vascular tissue of the eye. Next in order, both of vascularity and of sulfanilamide concentration, is the corneoscleral layer. Unfortunately, the cornea and sclera were not analyzed separately, so the value secured is the mean of an avascular tissue (cornea) and of a slightly vascular tissue (sclera). The aqueous humor possesses the next highest concentration, with the vitreous humor and the lens (an avascular tissue) bringing up the rear. These observations suggest that simple diffusion is the chief mechanism in operation and that the tissues do not act to concentrate the drug. The aqueous and vitreous humors obtain the compound by dialysis from the blood. The lens, having no blood supply, must secure its portion from the surrounding media. This indirect transfer plus the presence of a lenticular capsule results in the slower building up of the peak in the lens and conversely in a slower depletion.

The daily portion of sulfanilamide given in two divided doses maintained practically the same level in the eye as the same quantity administered four times a day. The chart shows that the drop in the various tissues and fluids from the sixth to the twelfth hour is slight; consequently ingestion of the drug every twelve hours should be almost as effective as every six hours. There is no apparent explanation for the difference between the values reported for man and the considerably lower levels obtained by us on dogs.

The action of mecholyl in the eye to produce an increase of the aqueous sulfanilamide may have some clinical significance. However, the increase, though definite, is relatively slight. The results obtained after local administration of sulfanilamide indicate that such procedures are valueless as well as irritating. Since the penetration into the eye of sulfanilamide taken by mouth is so rapid and the levels attained are so high, there is little purpose in administering it by any other route.

Its detection in tears was to be expected, since it has been found in every body fluid thus far analyzed. This is merely another indication of its widespread penetrability.

Since this work was undertaken, sulfapyridine (2- [para-aminobenzene sulfonamido] pyridine) has come into prominence as a possible substitute for sulfanilamide in certain infections. Experiments on this compound similar to those reported here are now under progress in this laboratory.

SUMMARY AND CONCLUSIONS

1. Sulfanilamide can be detected in all ocular tissues and fluids within fifteen minutes after its oral administration.

2. The concentration of sulfanilamide in the eye has been determined one, two, three, four, six, twenty-four and forty-eight hours after a single massive dose by mouth. The maximum is reached around the sixth hour. The concentration of the tissues and fluids examined, listed in decreasing order, were as follows: blood, chorioretinal layer, corneoscleral layer, aqueous humor, lens and vitreous humor.

3. Little difference could be detected in the tissues of dogs when therapeutic quantities were administered twice a day or four times a day.

4. Heat, atropine and physostigmine applied locally have no effect on the sulfanilamide concentration of the aqueous humor. Mecholyl, similarly applied, increases this value.

5. The second aqueous contains somewhat more sulfanilamide than does the original aqueous.

6. Sulfanilamide has been analyzed in tears.

720 North Michigan Avenue.

The Prophecy of Robert Boyle.—The way to our understanding of infectious disease was first clearly indicated by the studies of Pasteur on fermentation. In fulfilment of the prophecy of Robert Boyle made in the seventeenth century that the problem of infectious disease would be solved by him who elucidated the nature of fermentation, the investigations begun by Cagniard-Latour and by Schwann and carried to a brilliant culmination by Pasteur revealed the living and specific nature of the various micro-organisms which cause the several forms of fermentation and especially of putrefaction, and thus led by analogy first to logical speculation, then to experimental proof of the etiological relationship between certain of the minute forms of life and the communicable diseases.—Zinsser, Hans; Enders, John F., and Fothergill, LeRoy D.: Immunity Principles and Application in Medicine and Public Health, New York, Macmillan Company, 1939.

HEREDITARY DEFORMING CHONDRODYSPLASIA

REPORT OF TEN CASES IN ONE FAMILY

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We are all omnibuses in which our ancestors ride, and every now and then one of them sticks his head out and embarrasses us.
—*Oliver Wendell Holmes.*

My purpose in this paper is to report ten cases of such embarrassment; that is, ten cases of a relatively uncommon hereditary disease known as hereditary deforming chondrodysplasia.

Hereditary deforming chondrodysplasia is, as the name implies, a hereditary condition in which abnormal cartilaginous growth results in deformity. Although not all cases show deformities, the name used in this paper has become the accepted designation for this disease and is better and more descriptive than most of the synonymous terms, among which are Ollier's disease, hereditary multiple exostoses, diaphysial aclasis, hereditary multiple enchondromas, multiple cartilaginous exostoses and multiple exostoses.

HISTORY OF LITERATURE

Caesar Hawkins in 1837 is said to have been among the first to describe the condition as "laminated exostoses." However, the report of a typical case occurs in the *Lancet* for July 23, 1825, in the reports from Guy's Hospital.[1] The report discusses a case of Mr. Ashton Key's and the concise description will bear quotation:

> The subject of this affection is a healthy looking lad about sixteen years of age; the bone tumors, which are situated in different bones, first began to form about four years since; their progress has been attended with little or no pain; and it was only on account of their inconvenience that he came into the hospital for relief.
>
> The principal tumour is on the inside of the right tibia, just below the head, and as it were growing from the inner ridge or spine of the bone; the tumour is very firm and immoveable, about the size of an hen's egg, with its surface somewhat irregular; the integuments appear tense, but the tumour is not at all tender upon pressure, and there is no enlargement or irregularity to be detected upon any other part of the bone.
>
> In a similar situation to the preceding tumour, is one upon the opposite tibia, not, however, of such magnitude; upon the lower and outer part of the radius, just above the styloid process, is another bony tumour; and also another immediately above the head of the ulna. As we have before stated, these swellings are not attended with pain, and, from their particular situation, do not interfere much with the action of the muscles; no treatment has yet been had recourse to. The disposition to throw out an exuberance of bony matter is by no means an uncommon occurrence, and is, probably, connected with some peculiar state of the constitution.

The first reports in this country were written by Gibney[2] in 1875-1876 and there are few and scattered reports[3] in the literature until 1915-1917, when Ehrenfried[4] collected and reported all cases in American and foreign literature and wrote the outstanding paper on this disease. Since that time reports have been more numerous, although reports are confused, some authors reporting as hereditary deforming chondrodysplasia cases of Ollier's disease and achondroplasia and others reporting cases without any hereditary history. Two of the best recent papers are by Alley[5] and Mahorner.[6]

The cases here reported correspond in every respect to the syndrome known as hereditary deforming chondrodysplasia, which is defined by Alley as "a hereditary disturbance of bone growth beginning early in childhood and characterized by multiple cartilaginous and osteocartilaginous growths within or on the skeletal system. It is a retardation of normal transformation of cartilage into bone and not primarily a bone tumor."

Clinically patients with this condition may show visible or palpable bumps over the long bones and deformities, particularly in the bowing and shortening of the forearms. Many of them are below normal height, owing to shortening of the long bones. The symptoms that call for treatment are deformity, pressure on nerves or tendons or interference with the motion of joints. Malignant degeneration is said to occur in 5 per cent of cases, but the percentage is probably lower than that.

In diagnosis the hereditary factor, the symmetrical distribution of the exostoses, their multiplicity and the x-ray appearances are important. X-ray examination shows multiple exostosis of the long bones in the epiphysial region but springing from the diaphysial side and directed away from the epiphysis along the line of muscular pull. The exostoses vary from simple spikes to pedunculated and cauliflower types and from well ossified spurs to typical chondromas. The epiphyses may be misshapen or absent, although they do not produce any exostoses themselves.

The bones most frequently affected occur in this order: ulna, fibula, femur, humerus and phalanges. The carpus, tarsus, vertebrae, skull and sternum are not involved, since pure cartilaginous or membranous bone escapes this process.

PATHOLOGY

Microscopically these exostoses show an irregular arrangement of cartilage cells and apparently the cells on the metaphysial side of the epiphysial line are responsible for the growths. A report on case 1 of this series by Dr. Thibaudeau of the New York State Institute for the study of malignant disease reads as follows:

> Sections of tissue received in the case of H. O. C., June 14, 1932, showed a marked hyperplasia of cartilage with, in a few areas, some bone formation. The laying down of bone is irregular but offers no suggestion of malignancy. The cartilage in places shows degeneration with calcium deposits in these areas. In the portions where bone is being laid down, typical histology of growing bone is noted.
>
> Our diagnosis at that time was osteochondroma or chondroma. The histologic picture is not inconsistent with chondodysplasia.

Grossly, the appearance of these growths varies from single bony spurs to chondromas with a slim bony shell. They are not found in embryos or fetuses but cases have been recorded in patients at the age of 2 years, and when the lower end of the ulna is the seat of an exostosis the normal ossification of its epiphysis is

Dr. R. Plato Schwartz, professor of orthopedic surgery, of the Strong Memorial Hospital, Rochester, N. Y., placed at my disposal roentgenograms and records of two of the cases, which came under the observation of his department.

1. Guy's Hospital Report, Lancet **8**: 91 (July 23) 1825.
2. Gibney, V. P.: M. Rec., 1875; Am. J. M. Sc. **72**: 73, 1876; M. Rec. **15**: 589, 1879.
3. Wright, J. W.: D. Y. M. J. **45**: 358 (March 26) 1887. Davis, G. G.: Am. J. Orth. Surg. **3**: 234, 1905-1906. Oschner, E. H.: Ann. Surg. **46**: 608, 1907. Percy, N. M.: Surg., Gynec. & Obst. **20**: 619, 1915.
4. Ehrenfried, Albert: Hereditary Deforming Chondrodysplasia—Multiple Cartilagenous Exostoses, J. A. M. A. **68**: 502 (Feb. 17) 1917.
5. Alley, R. G.: *Radiology* **28**: 576 (May) 1937.
6. Mahorner, H. R.: J. Pediat. **10**: 1 (Jan.) 1937.

interfered with, indicating that the process is well established before the age of 3. Growth appears to stop when skeletal growth stops at the age of 20 or 22, and regression of the exostoses has been noted in some cases. There is apparently no relation to rickets or syphilis, but the disease is probably related to multiple enchondromas.

INCIDENCE

Ehrenfried in 1915 and 1917 found that the reported cases in the literature total about 700. Of those, ninety-nine cases were reported from the United States. Hale [7] in 1930 collected fifty more cases in the English literature since 1917. The percentage, according to nationality, is 60 per cent German, 27 per cent French, 8 per cent English and 5 per cent all other nationalities. Few Negroes are affected, and in this country Anglo-Americans predominate. The patients comprising this series are of Irish origin. The consensus of statistics shows that males are affected more frequently in the ratio of about 3 to 1. In this series there are eight males and seven females.

Reinicke in 1892 found 172 cases in thirty-six families; one family was followed through five generations; two families were followed through four generations, fifteen through three generations and twelve through two generations.

Ehrenfried in 1917 showed heredity as a factor in 176 of 234 cases, 174 occurring in forty-two families: in two through four generations, in fifteen through three and in twenty-one through two. In the family here reported there are fifteen cases in three generations. It is transmitted by males more frequently than by females · by fathers thirty-five and by mothers twenty times, according to Ehrenfried. Two mothers had affected children by different husbands and one father had affected children by two marriages. In two cases it was transmitted by unaffected mothers and in two instances it was seen to skip a generation. In this series it was transmitted by the mother in three instances and by the father twice. It is said that no cases have been reported of the condition being transmitted by an unaffected male, but there appears to be no reason why this should not be true.

Keith [8] believes the inheritance to be mendelian in character, but Oberndorf claims that there is no definite sequence to it.

ETIOLOGY

The etiology of this condition is obscure, and many theories of etiology and mechanism of its production have been advanced. The neoplastic theory is not tenable, as growth and development of exostoses stop at the age of 20 to 22 years with the attainment of skeletal maturity. It is apparently unrelated to rickets or vitamin deficiency; if it were, there should be no hereditary factor.

Kelly Hale,[7] in an attempt to test the question of infectious origin, fed blood and saliva from his patients to fifty pairs of white mice without the production of tumors in any of their progeny. It is unrelated to syphilis or tuberculosis. Kahn tests were done on three of this series and all gave negative results.

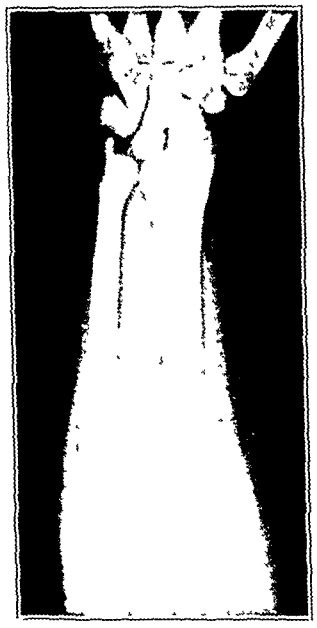


Fig. 1 (case 1).—Left forearm, showing pedunculated type of exostosis

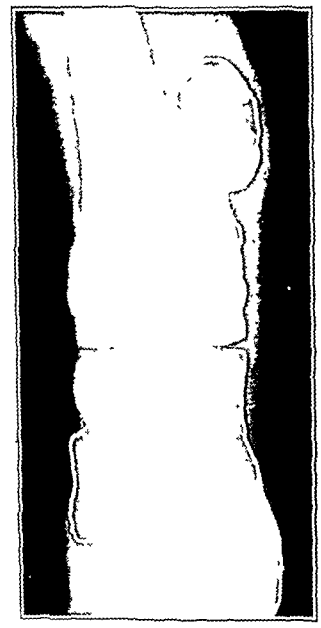


Fig. 2 (case 3).—Right knee, showing chondromatous type of exostoses of femur and tibia.

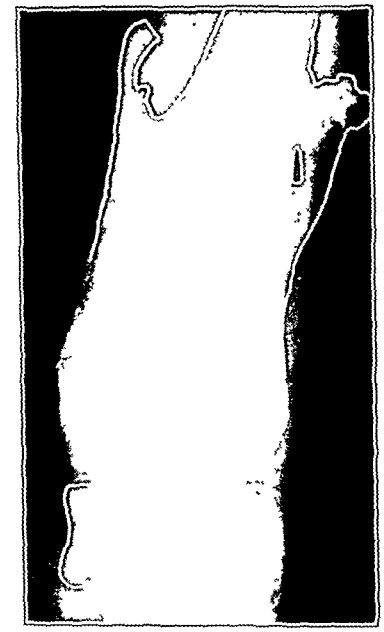


Fig. 3 (case 3).—Left knee, showing exostoses of femur and tibia.

The distribution of the disease is the same as that of thyroid deficiency, and the possibility of a glandular disturbance, as of the thyroid or pituitary, has been considered by some.

Keith and Janssen think that it is due to the failure of the process of breaking down of bone and shaping or modeling of the bone, as described by John Hunter.

Hale, working on the basis that the bones most frequently involved are those which are most frequently fractured and that the incidence is highest in those countries in which skeletal trauma is greatest, has advanced the interesting theory that it is produced by impressions made on the germ plasm, consequent to fractured bones and their complex healing process or that the patients "are made susceptible through transmission from past generations of various obnoxious environmental experiences."

7. Hale, Kelly: Ann. Surg. 91: 92 (July) 1930.

8. Keith, A.: J. Anat. 54: 101, 1919-1920.

Geschickter and Copeland[9] believe that a failure in adequate development of the periosteum results in (1) a failure of the cortex to attain full thickness and (2) the failure of an inadequate periosteum to limit the growth of bone.

Hume[10] believes that it is due to the abnormal behavior of the cells of the growth disk and a failure of subperiosteal bone to keep pace. He states that an abnormal stimulus to the center of the disk and failure of ossification results in enchondroma. Abnormal stimulus to a localized portion of the periphery of the disk results in single pedunculated exostoses and a more generalized stimulus of the growth disks of the long bone results in multiple exostoses. None of these theories are completely satisfying and it would be surprising if they were, as the question of the cause and method of production of this condition involves the highly complex and fundamental problems of heredity and of bony growth.

cases deformities are present. Seven of the cases were proved by x-ray evidence. Three others presented exostoses on examination. Four of the patients are dead, two of whom had been examined by Dr. Cole and Dr. Knoll and were known clinically to have had exostoses. The other patients are said by the family to have had definite exostoses. The other living patient I have not had an opportunity to examine because he lives at a distance.

REPORT OF CASES

CASE 1.—Miss H. O'C., aged 27, a nurse, was admitted to St. Jerome Hospital, April 7, 1931, for the excision of bony spurs from the right radius and ulna because of pain and interference with movements of the wrist. Unfortunately roentgenograms are not available. No pathologic examination was made on the excised specimens. The operative result was good.

June 14, 1932, the patient was again operated on, this time for pain in the left upper quadrant of the abdomen, and a tumor was excised from the ninth left rib. The operative result was good.

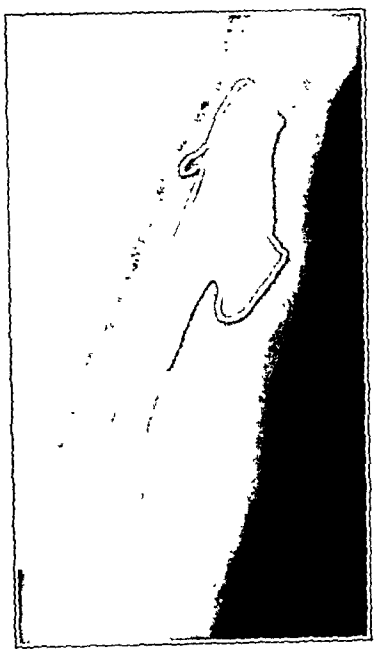


Fig. 4 (case 7).—Lateral view of left forearm, showing large exostosis of left radius.

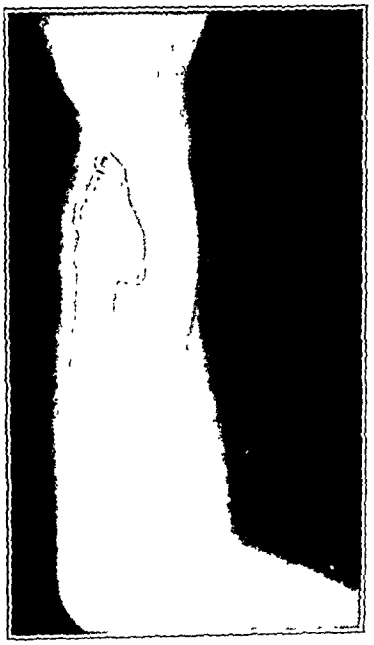


Fig. 5 (case 8).—Anteroposterior view of left forearm showing characteristic "arrow-head" deformity of lower end of ulna, with marked bowing of radius.

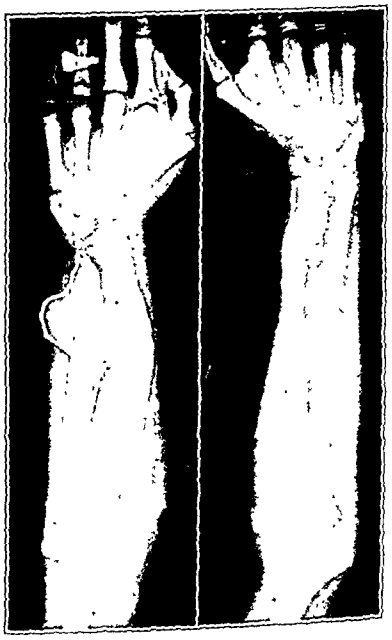


Fig. 6 (case 9).—Anteroposterior view April 7, 1931, of both forearms. Right side shows large exostosis of lower end of ulna with marked bowing of radius.

COMPLICATIONS

The commonest complications of this disease are due to pressure of the exostoses on nerves or interference with the function of muscles, tendons and joints. They are subject to trauma, since they may often project and strike against objects, particularly about the knee. Deformities, especially due to shortening of the ulna, may require correction. Five per cent are said to become malignant, but this percentage is probably too high. These conditions should remain untreated until after bony growth has stopped if possible. Indications for removal are deformity, interference with the function of joints, muscles or tendons, and evidence of a malignant condition or an increase in size after bony growth has stopped.

My series includes fifteen cases of this disease in three generations of one family. The reports illustrate well most of the points that have been discussed. The hereditary influence is well shown and in some of the

At the present time roentgenograms of both knees and both forearms show multiple exostoses of the lower ends of both femurs and upper ends of both tibias. The exostoses on the femurs are spikes, while those on the tibias are pedunculated. The left forearm shows a long pedunculated exostosis arising from the radius, lying between the radius and the ulna. The right forearm shows no tendency to recurrence of the spurs previously removed. A roentgenogram of the pelvis showed a small bony projection on the inner aspect of the neck of the right femur (fig. 1).

CASE 2.—A man aged 25, married, a chauffeur, has exostoses of both knees and of the right ankle, disclosed on examination. He has known about them for several years. Roentgenograms were not made. He is a brother of patient 1.

CASE 3.—A single man, aged 50, a laborer, 5 feet 4 inches (163 cm.) tall, has large, easily visible and palpable exostoses of the lower ends of both femurs and the upper ends of both tibias on the inside. The patient is in good health. He has had a perforated ulcer twice, about a year apart six or seven years ago. He has never been operated on for exostoses and has had no pain or inconvenience from them (figs. 2 and 3).

CASE 4.—A married man, aged 52, a printer, 5 feet 6 inches (168 cm.) tall, is a brother of patients 3 and 5 and father of

9. Geschickter, C. F., and Copeland, M. M.: Tumors of Bone. New York, American Journal of Cancer, 1936.
10. Hume, J. G.: Brit. J. Surg. 17: 236 (Oct.) 1929.

patients 7 and 8 (both girls) two unaffected sons and one affected son who died at the age of 9 years in 1918. At the age of about 20 the patient had an extosis removed from the right knee and at the present time he has small exostoses of the inner aspects of the heads of both tibias.

CASE 5.—A married man, aged 48, a foreman, 5 feet 7 inches (170 cm.) tall, a brother of patients 3 and 4 and the father of patients 9 and 10, has a small, well developed and unmistakable exostosis on the inner aspect of the upper end of the right tibia. His general health has always been good. He has experienced no inconvenience from exostoses. One daughter is unaffected.

CASE 6.—V. M. McL., a schoolgirl aged 13, has exostoses which were first noticed on the left arm at the age of 5 years. This has regressed so that there is at the present time only a slight irregularity over the lower end of the radius on the external aspect. There is a small easily palpable exostosis on the inner aspect of the upper end of the left tibia. The patient's mother, who is dead, was known to be affected and the mother's sister is patient 1.

CASE 7.—C. L., a schoolgirl aged 15, sister of patient 8 and daughter of patient 4, has exostoses on both knees which are troublesome; there is about 1 inch shortening of the right leg. There are also exostoses of the forearms (fig. 4).

CASE 8.—J. L., a schoolgirl aged 11, sister of patient 7, has marked deformity of the left forearm due to shortening of the ulna and bowing of the radius, similar to that of her cousin, patient 9. There is also deformity about both knees. Her general health is good (fig. 5).

CASE 9.—P. L., a girl aged 18, a student at business school, daughter of patient 5 and sister of patient 10, was first found to have exostoses on the left ankle at the age of 18 months. In April 1931 she was admitted to the Strong Memorial Hospital with a deformity of the right forearm and pain and swelling of the left ankle. Dr. W. W. Fray's report on the roentgenograms taken at that time is quoted at length because it illustrates many of the typical points in the x-ray examination (fig. 6).

The anteroposterior and lateral views of both knees showed numerous exostoses at the ends of the shafts of all the bones of this region. They were located at the upper end of the tibias and fibulas fairly close to the epiphysial lines but entirely on the diaphysial sides of these lines. Exostoses were also noted at the lower ends of the femur on the diaphysial side of the epiphysial line. In general, the larger and heavier exostoses were seen about the right knee. All these exostoses showed a broad, heavy base, and many of them were directed away from the joint. The epiphyses of this region showed no involvement of this type.

The anteroposterior and lateral views of both lower legs showed exostoses at the lower ends of both tibias, mostly on the lateral aspect of the bone. The adjacent portions of the tibias were deformed or modified by the pressure of these exostoses. The small bones of the ankle appeared normal except for a small excrescence on the plantar aspect of the left calcaneus.

The anteroposterior and lateral views of both forearms showed an extreme deformity with lateral bowing of the radius and marked stunting in length of the growth of the right ulna which resulted in an abnormally short right forearm. A large heavy exostosis was present at the lower end of the right ulna, which projected mainly on the medial aspect of the shaft, deforming the outlines of the adjacent bundles of muscle. The lower end of the diaphyses of this bone showed no distinction between cortex and medulla but appeared to be entirely replaced by the material in the exostoses. Owing to shortening of this bone the lower epiphysis of the ulna was at a considerable distance from the carpal bones of the wrist and did not appear to articulate with them. Only the lower end of the radius articulated with the carpal bones, producing a conspicuous anomaly of the right wrist, which produced a marked deformity. At the upper end of the ulna the articulation appeared atypical. The lower left radius showed a smaller exostosis projecting from the lower shaft. The ulna was not deformed and its lower epiphysis entered into articulation of the wrist.

Multiple cartilaginous exostoses of all regions were examined. A rather pronounced dystrophy of growth had occurred at the right lower forearm, owing undoubtedly to the failure of the lower epiphysial line of the ulna to carry on its normal function, resulting in a decreased length of bone. This was probably due to the fact that the exostoses in this region ran up to the epiphysial line itself.

April 29, 1931, the patient was operated on; the head of the right radius was excised to straighten the right forearm and several exostoses were removed from the lower end of the left tibia. The operative result was good in that the function of the arm was much better. The pathologic report on tissue from the tibia was "an irregular laying down of bone and cartilage with no evidence of tumor formation."

CASE 10.—J. L., a schoolboy aged 15, the brother of patient 9, was admitted to the Strong Memorial Hospital outpatient department Nov. 2, 1931, for x-ray examination. Exostoses had first been noted on the ribs as a small child and on the right knee at the age of 7.

A report on the x-ray examination of the long bones was exostoses in all regions examined.

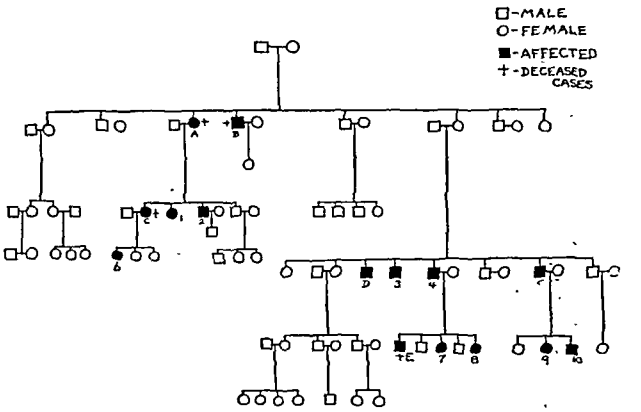


Fig. 7.—Distribution of cases in this family. Cases indicated by numerals proved by x-ray or clinical examination by author. Cases indicated by letters accepted on report of family and other physicians. The squares indicate males and the circles females; the solid black indicates affected members of the family, and the dagger indicates deceased members.

Figure 7 shows the relationship between the patients. The cases here reported are so indicated.

The patients who died or whom I have not examined but have included in the chart on testimony of the family or other physicians are indicated by letters:

CASE A.—A female patient of Dr. I. A. Cole's of Batavia had large exostoses of the knee.

CASE B.—A male patient of Dr. G. H. Knoll's of Le Roy, N. Y., had large exostoses of the ankle.

CASE C.—This woman was said by her sister and her husband to have had exostoses of the knees.

CASE D.—This man is said to have exostoses, according to his brothers; he lives at a distance and was not examined.

CASE E.—A boy aged 9 years, died in 1918 following an injury to the exostoses, operation and influenza. He was said by physicians to have had many exostoses, according to his father.

SUMMARY

1. Fifteen cases of hereditary deforming chondrodysplasia in three generations were observed. Nine of these were proved by x-ray and clinical examination by the author; the others are accepted on the strength of clinical examinations by other physicians in two cases and on the family history in the other three.

2. The ten cases reported illustrate the heredity factor. There are three brothers affected; two of them have two affected children each.

3. There are two cases of shortening and bowing of the forearm.

4. The multiplicity of exostoses is shown in all the cases. Only enough roentgenograms were taken in several of the cases to prove the diagnosis and not to show the distribution or number of exostoses. All plates have been retouched with white ink to bring out the outline of the bony growths.

41 Jackson Street.

THE MECHANISM OF FIXED DILATATION OF THE PUPIL

RESULTING FROM IPSILATERAL CEREBRAL COMPRESSION

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AND
WILLIAM V. CONE, M.D.
MONTREAL, CANADA

For many years it has been recognized that when a patient with evidence of increased intracranial pressure becomes suddenly comatose and shows one dilated and fixed pupil, a presumptive localization of an expanding lesion in the ipsilateral cerebral hemisphere is permissible. Macewen [1] suggested the possible diagnostic value of the sign, and the more recent works of Rand,[2] Holman and Scott,[3] Kaplan [4] and Hoessly [5] have proved its practical localizing value. The mechanism producing this phenomenon has not been clear. Various explanations have been suggested, the most common being that it is due to direct pressure on the third nerve.

A series of patients admitted to the neurosurgical service with unilateral expanding cerebral lesions at some distance from the midbrain have shown ipsilateral pupillary dilatation as a sudden near terminal or terminal sign. Of these, nine patients have been selected for this report because of their conditions and one patient has been included whom Dr. F. H. Mackay allowed us to study. Six of the group died and from the anatomic studies the only explanation for the dilated and fixed pupil has seemed to be direct pressure on the third nerve by the ipsilateral hippocampal gyrus, which had herniated over the free edge of the tentorium of the cerebellum (fig. 1). In three of these fatal cases there were recent infarctions in the ipsilateral occipital lobe due, it was concluded, to disturbance of blood flow through the posterior cerebral artery or its branches by the direct pressure of the herniated brain (fig. 2). Observations made on the four patients who recovered after operative removal of the ipsilateral expanding cerebral lesion also supported the explanation of the sign arrived at from postmortem studies.

To make the evidence for concluding that the sign was due to direct pressure on the third nerve more than circumstantial, experimental extradural compression was carried out, monkeys being used for the experiments. In five of fifteen Macacus rhesus monkeys the experiments went awry as the result of technical errors. Of the remaining ten animals, seven showed ipsilateral fixed dilatation of the pupil and ptosis and three showed dilatation and slight ptosis, but some reaction to light remained. Ipsilateral hippocampal herniations (fig. 3) similar to those in human beings were produced in the ten animals by extradural compressions but no infarctions of the occipital lobes or pontile hemorrhages were encountered. The herniations produced were acute and chronic. The acute herniations were made under anesthesia, while in the chronic ones the animals were allowed to recover from the anesthesia after operation and were carefully watched as the intracranial pressure increased and the third nerve signs developed.

The histories and examinations of three patients, together with the results of one of the acute experimental herniations and one of the chronic ones, will be given in some detail, since the observations recorded are representative and show the type of studies on which our conclusions are based.

In the majority of instances in which we have observed a dilated and fixed pupil as a localizing sign, the condition of the patients has been critical and they have been unable to cooperate sufficiently for us to recognize other signs of complete paralysis of the third nerve. In the following case of extradural hemorrhage from a torn middle meningeal artery, the patient was able to carry out the examiner's instructions and there proved to be a total paralysis of the third nerve.

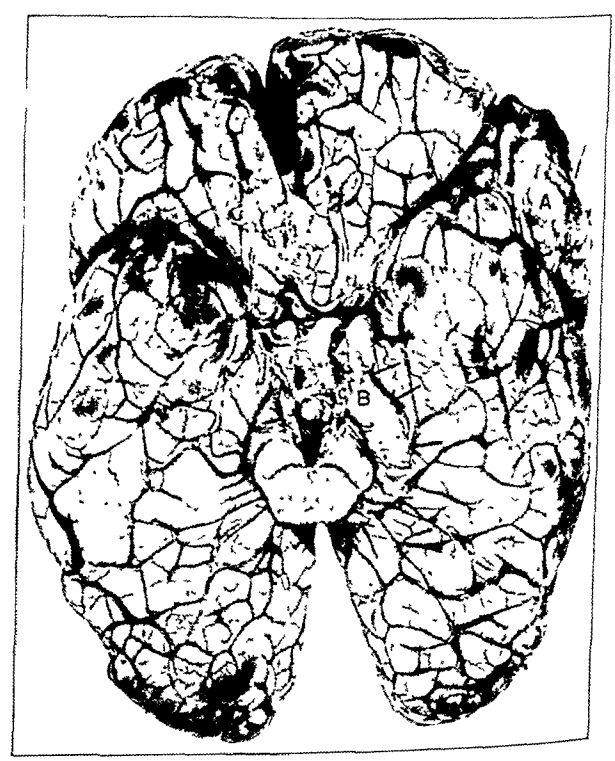


Fig. 1.—*A*, tumor in the left frontal lobe. The hippocampal gyrus on the left side shows marked herniation (*B*) directly over the third nerve (*C*). No infarction of the occipital lobe is present and there are no hemorrhages in the midbrain. Herniation outlined by arrows. This patient's left pupil was dilated and fixed at the time of admission and the left palpebral fissure was narrowed. She was clear mentally. After the history and examination were completed lumbar puncture was done. Gradually the usual headache became more intense, the blood pressure began to rise and she vomited. Stupor, coma, slowing respiration and finally cessation of breathing followed in sequence. She died fourteen hours after the lumbar puncture.

CASE 1.—G. N., a man aged 28, was referred by Dr. C. D. MacIntyre of Vankleek Hill, Ont. Twenty-four hours before admission the patient had suffered a blow to the right side of

From the Montreal Neurological Institute.

1. Macewen, William: The Pupil and Its Semiological Aspects, Am. J. M. Sc. **94**: 123, 1887.
2. Rand, C. W.: Significance of Dilated Pupil on Homolateral Hemiplegic Side in Cases of Intracranial Hemorrhage Following Head Injuries, Report of Seven Cases, Arch. Surg. **18**: 1176 (April) 1929.
3. Holman, Emile, and Scott, W. M. J.: Significance of Unilateral Dilatation and Fixation of Pupil in Severe Skull Injuries, J. A. M. A. **84**: 1329-1332 (May 2) 1925.
4. Kaplan, Abraham: Chronic Subdural Haematoma: A Study of Eight Cases with Special Reference to the State of the Pupil, Brain **54**: 430-459 (Dec.) 1931.
5. Hoessly, H.: Das Verhalten der Pupillen beim traumatischen Hirndrucke (Compressio cerebri), Mitt. a. d. Grenzgeb. d. Med. u. Chir. **30**: 1, 1918.

the head and was unconscious for five or ten minutes. After he regained consciousness there was an interval of about three hours, during which time he vomited twice and complained of severe headache. He then became restless and irritable.

The attending physician noted that the right pupil was slightly larger than the left and was sluggish in its reaction to light; he made a presumptive diagnosis of hemorrhage of the middle meningeal artery. On admission to the hospital the patient cooperated with the examiner, although he was dull and resented being disturbed. By this time the right pupil was fully dilated and fixed; there was ptosis of the right upper lid and the extra-ocular muscles supplied by the third nerve were paralyzed.

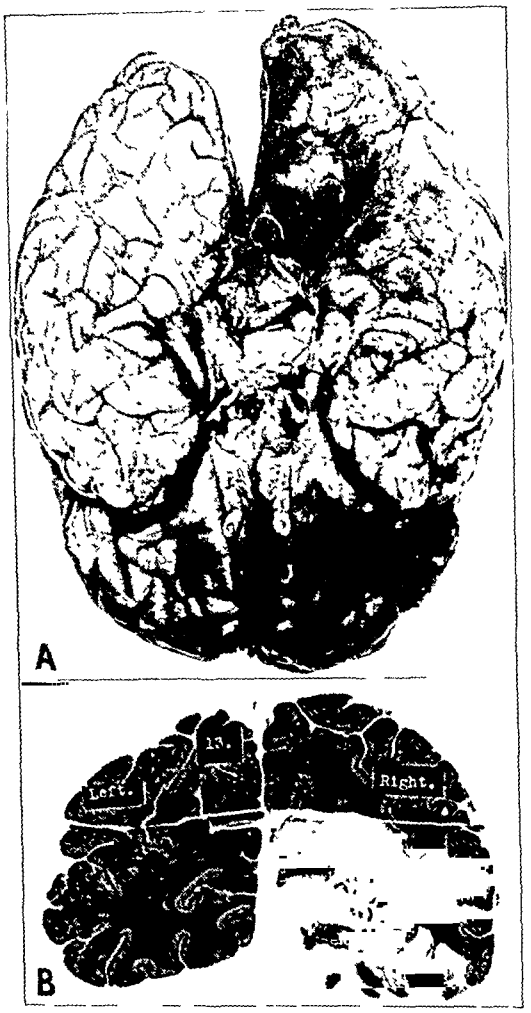


Fig. 2 (case 3).—Infarction of the mesial surface of the right occipital lobe *A* and *B*. The herniation of the hippocampal gyrus on the right side is shown in *A* at *X*. There was some herniation on the left side as well. There were no hemorrhages in the midbrain.

A right subtemporal decompression was carried out by Dr. Donald Coburn as an emergency procedure and a large extradural hematoma was removed. After operation the signs cleared rapidly. Within five hours the right pupil, although still dilated, reacted to light. The eye movements began to return and the patient complained of diplopia. He made a rapid recovery and on discharge the eye movements were normal but there remained slight ptosis and the right pupil was still slightly larger than the left, although both reacted to light and in accommodation.

The posterior cerebral artery passes lateral to and immediately above the oculomotor nerve, in close relation to the free edge of the tentorium. If the intracranial pressure is great enough to cause herniation sufficient to alter the blood flow in this artery or its branches, circulatory changes in the ipsilateral area of supply might also be expected. Infarction was found in three of the six fatal cases.

The second case, presenting late hemorrhage of the middle meningeal artery, first showed an ipsilateral dilated and fixed pupil, and then the contralateral pupil also became dilated and fixed. Although the large clot was removed and the bleeding point controlled, the patient did not recover, and both occipital lobes were found to be infarcted, the ipsilateral to a greater extent than the contralateral.

CASE 2.—E. C., a woman aged 29, referred by Dr. H. P. Macey of Frelighsburg, P. Q., with the diagnosis of hemorrhage of the middle meningeal artery, was brought to the hospital about sixteen hours after her accident. The evening preceding admission she had tripped going downstairs. She was momentarily unconscious and on recovering insisted that she felt no ill effects; after a few minutes she went to bed without assistance. The next morning she was found in deep coma, breathing irregularly, and the right pupil was dilated and fixed. She was transferred to the hospital by ambulance over a distance of 90 miles, and during the journey the left pupil also became dilated and fixed and generalized spasms, suggestive of decerebrate rigidity, occurred periodically.

An emergency operation was performed and a large extradural clot was removed from the right temporal region and the bleeding artery ligated. There was slight improvement immediately after the operation. She did not recover consciousness and died thirty-six hours later. At necropsy there was herniation of the hippocampal gyri over both free edges of the tentorium of the cerebellum. This was more marked on the right side. There were infarcted areas in both occipital lobes, also more marked in the ipsilateral hemisphere.

Hippocampal herniations causing palsy of the third nerve occur not only in head injuries but also in intracranial expanding lesions, and with these herniations the circulatory changes may occur in the areas supplied by the posterior cerebral artery. The following case resembles one described by Meyer:[6]

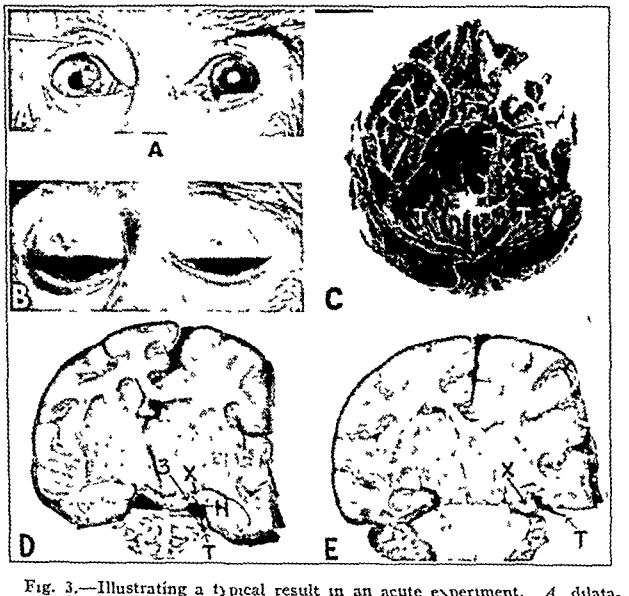


Fig. 3.—Illustrating a typical result in an acute experiment. *A*, dilatation and fixation of the left pupil and external strabismus of the left eye following ipsilateral extradural compression. *B*, later stage showing ptosis of the left upper lid. *C*, herniation of the ipsilateral hippocampal gyrus (*X*) over the free edge of the tentorium (*T*). The arrow heads outline the limits of the herniation. *D*, section showing the hippocampal gyrus (*H*) herniating over the anterior end of the free edge of the tentorium (*T*) at the point *X*, and pressing on the third nerve (*3*). *E*, section taken more posteriorly showing the herniation (*X*) forming a wedge between the free edge of the tentorium (*T*) and the midbrain.

6 Meyer, Adolf: Herniation of the Brain, Arch. Neurol. & Psychiat. 4: 387 (Oct.) 1920.

CASE 3.—N. D., a man aged 54, was referred by Dr. Philippe Panneton of Montreal as suspected of having an intracranial tumor For two months the patient had had right frontal headache and had vomited on three or four occasions, and over this period personality changes had developed He was very uncooperative on admission to the hospital. Early bilateral papilledema was present and there was a slight weakness of the left lower part of the face and some awkwardness of the left hand. A presumptive diagnosis of a right frontal expanding lesion was made During the evening prior to the day planned for operation he was given an enema As he was expelling this he fell back unconscious, and the right pupil gradually dilated and became fixed

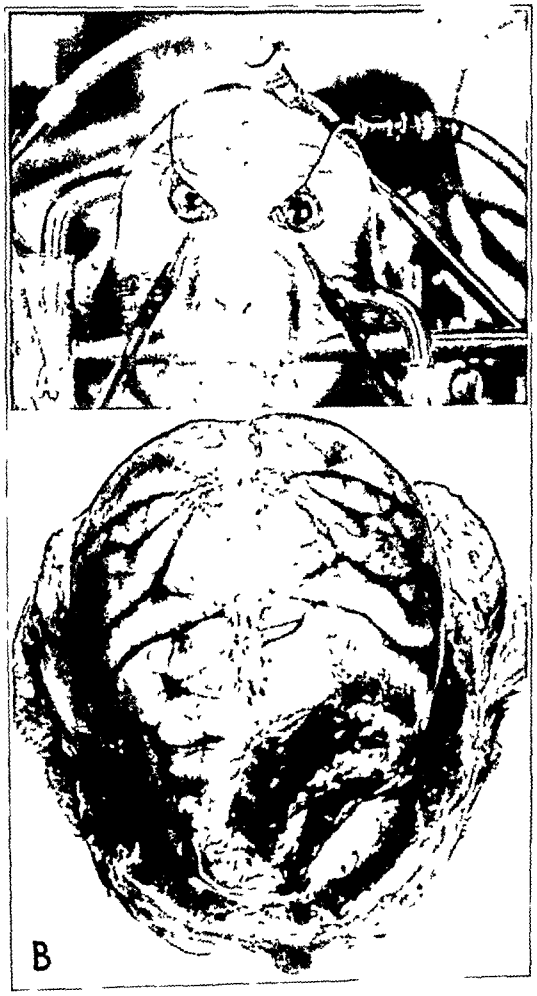


Fig 4.—The result in an experiment of acute compression *A* animal under anesthesia with head in Gage head holder and Forbes window in place As a result of extradural compression on the left side, the left pupil is dilated *B*, dissection to show the site of and the deformity caused by the compression in this animal

Operation was performed as an emergency measure about two hours after the pupil became dilated and fixed, and a compact mass composed of four heavily encapsulated abscesses was removed *en bloc* from the inferior portion of the right frontal lobe. Although there was slight general improvement following operation, the patient did not recover consciousness, and he died on the fifth postoperative day. During the postoperative period the right pupil remained semidilated, and it was noted that the right eye did not move as freely as the left.

At necropsy there was herniation of both hippocampal gyri over the free edges of the tentorium cerebelli. This was more marked on the right side, and the right oculomotor nerve was discolored at the point of compression. There was an area of infarction in the medial aspect of the right occipital lobe. In spite of the fact that one of the abscesses was opened and evacuated at the time of the operation, there was no evidence of meningitis or infection of the wound.

The extradural compression in the experimental acute herniations was obtained through the use of a Forbes window screwed tightly into a trephine hole in the skull, the position of which varied in different animals between the frontal, parietal and temporal regions. After the dura had been separated from the calvarium for a short distance around the trephine hole, Ringer's solution was allowed to flow in, and the pressure exerted could be altered and recorded at all times. The animals were under light dial anesthesia with the head held in the Gage head holder.

It was possible to produce at will ipsilateral pupillary dilatation and to watch the pupil return to normal on release of the pressure. After the pressure had been kept at a level sufficiently high to hold the pupil in complete dilatation and fixation, the animals were killed. Ipsilateral hippocampal herniation was found as a routine at necropsy. The herniation was great in the animals showing marked pupillary change and less extreme in those showing lesser degrees of involvement of the third nerve. The following is a representative result of an experiment in acute compression:



Fig 5.—A typical result in an experiment in chronic compression (experiment 2) *A*, dilated and fixed pupil in the conscious animal, the result of ipsilateral cerebral compression *B*, dilated and fixed pupil and ptosis at a later period when pressure had become greater *C*, dissection with accurate tracing below showing the artificial extradural expanding lesion (*S*), the herniation (*X*) of the hippocampal gyrus (*H*) over the free edge of the tentorium (*T*). More anteriorly the herniation was pressing on the third nerve (*3*).

EXPERIMENT 1.—A trephine hole was made in the left frontoparietal region and the Forbes window screwed in (fig. 4). The extradural pressure was started at 40 mm. of mercury and gradually raised to 90 mm. of mercury during the next hour. Three and one-half hours after the experiment was started the ipsilateral pupil began to dilate and soon became fully dilated and fixed. Whenever the pressure was lowered the pupil rapidly returned to normal and again dilated when the pressure was increased. This procedure was carried out many times with the same result. The pressure was then kept at 90 mm. of mercury for eight hours, at the end of which time the animal was killed. At necropsy a herniation of the hippocampal gyrus was found over the anterior end of the tentorium pressing on the third nerve.

In order to produce chronic extradural compression that would be progressive, the dura was stripped from the calvarium and a hygroscopic material, either recently moistened saraka seeds or gum tragacanth, was packed between the bone and the dura. The trephine opening was then closed by screwing a tight-fitting, threaded, flat metal disk into it. The scalp was sutured and the animal, after recovering from the anesthetic, was carefully observed. Again, when ipsilateral dilatation was present, hippocampal herniation was found and the degree of palsy of the third nerve was dependent on the amount of herniation present. In none of the experimental animals did we find infarctions or hemorrhages. The first signs of dilatation of the pupil developed in these animals in the group with chronic compression from seven to thirty-six hours after the extradural compression was started. The animal in experiment 2 showed the first pupillary changes twenty-six hours after operation.

EXPERIMENT 2.—The dura was stripped around a trephine hole over the left temporoparietal region and saraka seeds were packed into the space made (fig. 5). During the next twenty-four hours the left pupil varied in size and was erratic in its reaction. At twenty-six hours it had begun to dilate and at thirty-four hours it was fully dilated and fixed, and there was ptosis of the left upper lid. The animal died at the end of forty-nine hours and at necropsy there was a marked herniation of the ipsilateral hippocampal gyrus over the free edge of the tentorium. This herniation was pressing firmly on the third nerve and by displacing the midbrain to the right it had put the nerve on the stretch.

COMMENT

From a study of ten patients with unilateral expanding cerebral lesions, eight of these at autopsy and ten experiments on monkeys, we have concluded that herniation of the hippocampal gyrus over the free edge of the tentorium by its pressure on the third nerve as it crosses the greater wing of the sphenoid bone can cause paresis or complete paralysis of this nerve. As evidence of the amount of pressure which the herniation is capable of producing, we have cited the interference with circulation through the posterior cerebral artery with resulting infarction of the brain in the area supplied by it.

We recognize and have studied some of the other pathologic alterations that are associated with herniations through the incisura tentorii; ipsilateral hemiplegia reported by Kernohan and Woltman [7] and by Hoen [8] and midbrain hemorrhage,[9] conditions which were not present in the cases under discussion and were not produced in our experiments.

From the literature and in discussion with others, many valuable suggestions have been obtained, shaping our work and influencing the conclusions. Our experiments, it seems to us, are more precise and the results more conclusive than those reported by Hoessly.[5] Meyer [6] and Vincent, David and Thiébaut [10] have made hippocampal herniations familiar, but they have not pointed out the associated involvement of the third nerve that has been such a striking feature in the cases and experiments we report. Mr. Geoffrey Jefferson of Manchester, England, in a verbal communication stated that he had reached the conclusion that pupillary dilatation in ipsilateral expanding cerebral lesions was due to pressure on the third nerve by the herniated gyrus and that he had removed the gyrus and had seen palsy of the third nerve clear postoperatively.

With the herniation there is distortion of the midbrain, and the question arises as to whether or not disorders of the third nerve could result from nuclear disturbances. The work of Magoun, Atlas, Hare and Ranson [11] and of Crouch [12] has helped to localize the site of the lesion. The former group of investigators obtained bilateral pupillary constriction on stimulation of points around the central gray matter of the midbrain up to the nucleus of the third nerve, but ipsilateral pupillary constriction was obtained only when they stimulated points peripheral to the nucleus. From this they concluded that there was a final partial decussation of pupillary reflex fibers in the immediate vicinity of the nucleus of the third nerve. Crouch [12] showed that each third nerve receives the majority of its fibers from the nucleus of the same side but that it receives also a certain number of fibers from the opposite nucleus. From the evidence produced by these investigators it is clear that a lesion causing one dilated and fixed pupil must lie peripheral to the nucleus and the absence of other midbrain signs would place it in the peripheral part of the third nerve. Each clinical and experimental case that we have included has presented such a lesion in the form of a herniated hippocampal gyrus pressing on the third nerve. In some of our cases the nerve was flattened or stretched and in one instance discolored.

The amount of pressure necessary to produce the herniation in the normal animal may give some idea of the pressure in cases in human beings when these herniations occur. In some of the animals it was almost as high as the systolic blood pressure, and this may aid in the explanation of the infarctions that occur in cases in man. Thus, from the clinical standpoint, when ipsilateral fixed dilatation of the pupil is present, the situation is a very grave one. If the mechanism causing the herniation is allowed to continue to act or even if the herniation is not removed after the primary expanding lesion is corrected, cerebral infarctions, pontile hemorrhages, damage to the contralateral peduncle, distortion of the midbrain and aqueduct block may occur.

Why all cases in which death is caused by increased intracranial pressure due to a supratentorial expanding

7. Kernohan, J. W., and Woltman, H. W.: Incisura of the Crus Due to Contralateral Brain Tumor, Arch. Neurol. & Psychiat. **21**: 274 (Feb.) 1929.

8. Hoen, T. I.: Hémiplégie homolatérale avec lésions intracraniennes, Bull. Assoc. de méd. de langue française **1**: 353, 1935.

9. Moore, M. T., and Stern, Karl: Vascular Lesions in the Brain-Stem and Occipital Lobe Occurring in Association with Brain Tumours, Brain **61**: 70-98 (March) 1938.

10. Vincent, C.; David, M., and Thiébaut, F.: Le cône de pression temporal dans les tumeurs des hémisphères cérébraux: Sa symptomatologie; sa gravité; les traitements qu'il convient de lui opposer, Rev. neurol. **65**: 536 (March) 1936.

11. Magoun, H. W.; Atlas, D.; Hare, W. K., and Ranson, S. W.: The Afferent Path of the Pupillary Light Reflex in the Monkey, Brain **59**: 234 (June) 1936.

12. Crouch, R. L.: The Efferent Fibers of the Edinger-Westphal Nucleus, J. Comp. Neurol. **64**: 365 (Oct.) 1936.

lesion do not show herniation as a routine and one or even all of the complications which can result, we cannot say. Since we have become more familiar with the condition at the autopsy table and have been more on the alert for the clinical manifestations, both its clinical recognition, as the result of close watch of the dying patient, and its postmortem occurrence have been more frequently recorded.

CONCLUSIONS

Herniation of the hippocampal gyrus over the free edge of the tentorium due to an ipsilateral expanding cerebral lesion can cause pressure on the third nerve as it crosses the body of the sphenoid bone sufficient to paralyze this nerve partially or completely. The dilated and fixed pupil usually is the earliest clinical sign of the herniation. The involvement of the third nerve, however, may be but one of the manifestations of the herniation. It is a danger sign not only in intracerebral space-occupying lesions but in extradural and subdural ones as well. It is emphasized in this paper because, if its significance is appreciated early, treatment may prevent the other complications.

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THE INCIDENCE OF MAJOR ALLERGIC DISEASES IN COLORADO SPRINGS

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A survey of the city of Colorado Springs with regard to the incidence of the major allergic diseases was undertaken during the last twelve months. The general impression among the physicians of this city during the last few years has been that there was a decided increase in the prevalence of hay fever and asthma. Colorado Springs and its environs have long been a mecca for health seekers. This community is widely noted for its beautiful and comfortable homes, broad clean streets, supervised play grounds and well developed public utilities. It is a center of culture, education and recreation, as distinguished from a community characterized primarily by industrial, commercial or service factors.

The population is to a large extent native born, the chief foreign groups being English, German and Canadian. There is more than the average preponderance of females over males and a larger proportion of persons in the later age groups than is characteristic of the United States as a whole.

The climate is moderately cool, with low precipitation, low humidity and a high percentage of sunshine. The mean average temperature over a fourteen year period was 48.1 F. The mean relative humidity was 46.78 per cent, and there were 13.2 inches of precipitation and 60.6 per cent of sunshine.

The city has a population of 35,000 and is situated at the foothills of the Rampart range of the Rocky Mountains at an elevation of 6,000 feet above sea level. A botanic survey of this region with the pollination periods has been previously published.[1]

On the advice of the director of the Cowles Commission for Economic Research, the city was divided into five economic districts. This was done in order to obtain the most accurate cross section of the population. The districts selected gave about equal numbers of persons in each economic group. The survey was conducted through a house to house canvass by two men from the department of biology at Colorado College whom I trained. Whenever a questionable case was encountered I investigated it.

The investigation related to the occurrence of major allergies in the general population. The minor allergies, in which the subject had recognized an allergic reaction to a specific substance with which he came in contact only occasionally, were not tabulated. The persons with minor allergies had not found it necessary to seek medical relief for their symptoms, since by avoiding the specific substances they were able to obtain complete relief. All persons with major allergies had found it necessary to seek medical relief, although in many cases a complete diagnostic allergic study had not been undertaken.

The major allergic conditions investigated were grouped under the headings hay fever, asthma, eczema, migraine, urticaria and gastrointestinal allergy. One thousand families were investigated, 200 from each of the five economic districts. These comprised a total of 3,141 persons. In reviewing the available medical literature on the incidence of allergic diseases in the United States, Coca [2] estimated the incidence of hay fever to be less than 1 per cent in the general population. Scheppegrell [3] concluded that about 1.5 per cent of the general population suffered from hay fever. Cooke and Spain [4] said that from 3 to 5 per cent of the population of New York and its vicinity had hay fever and asthma. Piness and Miller [5] reported a study on two controlled communities; the incidence of hay fever was 4.4 per cent in one and was estimated at between 3 and 4 per cent in the other, although only 1.5 per cent of the population presented themselves for treatment. Cooke and Vander Vere [6] reported about 7 per cent of the population suffering from hypersensitiveness, including even the minor degrees of sensitization. Jimenez [7] reported that 11.9 per cent of the incoming students at the University of Michigan have had eczema, hay fever or asthma. An additional 22 per cent presented a history of allergic manifestations accompanied by a family history of sensitization. Rowe [8] reported that of 400 university students 35 per cent had a personal history of probable allergy. Vaughan [9] reported that upward of 10 per cent of the population have major allergic manifestations, usually subacute or chronic, and approximately 50 per cent give a history of minor episodic allergic manifestations. Pipes [10] reported that approximately 13 per cent of the population are subject to major allergic manifestations and that 36 per cent describe minor allergic reactions.

Because of the discrepancies in the reports encountered in the literature and a belief that a survey of a

Read before the Association for the Study of Allergy, San Francisco, June 10, 1938.

1. Service, W. C.: Hay Fever Flora of the Pikes Peak Region, Colorado Med. 31: 311 (Sept.) 1934.

2. Coca, Arthur F.; Walzer, Mathew, and Thommen, August A.: Asthma and Hay Fever in Theory and Practice, Springfield, Ill., Charles C. Thomas, Publisher, 1931.

3. Scheppegrell, William: Hay Fever and Asthma, Philadelphia, Lea & Febiger, 1922.

4. Spain, W. C., and Cooke, Robert A.: J. Immunol. 9: 521 (Nov.) 1924.

5. Piness, George, and Miller, Hyman: J. Allergy 1: 117 (Jan.) 1930.

6. Cooke, Robert A., and Vander Vere, H., Jr.: J. Immunol. 1: 201 (June) 1916.

7. Jimenez, B.: J. Michigan M. Soc. 33: 310 (June) 1934.

8. Rowe, Albert H.: Food Allergy, Philadelphia, Lea & Febiger, 1933.

9. Vaughan, Warren T.: J. Allergy 5: 184 (Jan.) 1934.

10. Pipes, David M.: South. M. J. 30: 1012-1015 (Oct.) 1937.

larger number of cases would justify more definite conclusions, this survey of Colorado Springs was undertaken.

SURVEY

One thousand families were investigated, and 505, or 50.5 per cent, had one or more members who evidenced major allergic manifestations. Among the 3,141 persons interviewed 711, or 22.6 per cent, presented 842 major allergic manifestations, approximately 16 per cent showing more than one. A series of studies was carried out in each of the six groups.

Hay Fever.—Of the 3,141 persons interviewed, 316 had hay fever. This is an incidence of 10.06 per cent for hay fever in the general population. Of this number forty-eight, or 15.2 per cent, had had hay fever before coming to Colorado, which leaves 8.5 per cent of the population who acquired it locally. Every person in this group had sought medical treatment for the relief of symptoms. However, only 30 per cent had received adequate allergic diagnosis and treatment. The remaining 70 per cent had sought relief in different ways, including local treatments of the nose, eyes and throat, nonspecific protein injections, cauterization, and mixed pollen injections without tests and without any adequate allergic program. Pollen was given as the cause of the trouble by 89 per cent, epidermals and dust by 3.5 per cent and food by 3.5 per cent; for the remaining 4 per cent the cause was unknown.

The ages of the hay fever patients varied from 1 to 65 years. The distribution according to the age of onset and the duration are reported in table 1 and chart 1.

TABLE 1.—*Distribution of Hay Fever*

Age, Years	No of Cases	Per Cent	Average Age at Onset, Years	Average Duration, Years	Per Cent Duration
0-10	98	31	5 6	14 3	45 5
10-20	83	26	13 4	16 3	30 1
20-30	59	19	24 4	14 0	16 0
30-40	49	15	33 8	12 9	7 0
40 50	23	8	42 9	12 3	1 4
50-60	3	1	52 2	7 6	. .
60-70	1		65 0	5 0	. ..

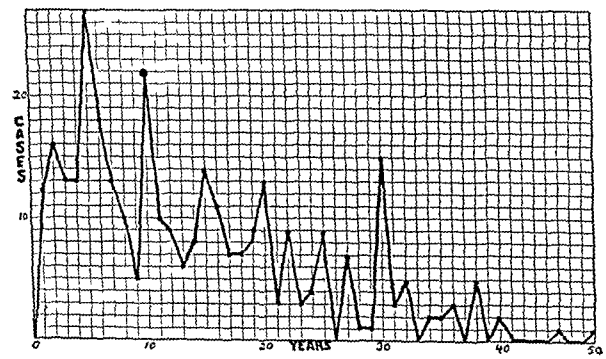


Chart 1.—Duration of hay fever.

The figures indicate that hay fever tends to manifest itself in childhood, almost 60 per cent of the patients having acquired the condition before the age of 20. There is a fall in the occurrence and in the duration in each decade. The average duration for each of the ten year periods is practically the same. Of the hay fever sufferers, 58 per cent were males and 42 per cent females.

Asthma.—Among the 3,141 persons investigated 114 had asthma. This represents an incidence of asthma in the general population of 3.6 per cent. Forty-eight had come to Colorado because of asthma. This leaves sixty-six, or 2.1 per cent, with asthma of native origin. Food was given as the cause of asthma by 39 per cent, pollen by 21 per cent, bacteria or infection by 11 per cent and dust or epidermals by 7 per cent; for the remaining 22 per cent the cause was not definitely known. All the subjects had sought medical diagnosis and treatment, although less than 30 per cent had received specific allergic diagnosis and treatment. In table 2 and chart 2 their cases are summarized as to the age at onset and the duration.

TABLE 2.—*Distribution of Asthma*

Age, Years	No of Cases	Per Cent	Average Age at Onset, Years	Average Duration, Years	Per Cent Duration
0-10 ..	32	28 0	4 6	17 6	43 0
10-20 .	24	21.2	12 9	19 2	31 6
20 30	27	23 7	22 4	15 4	15 0
30-40 .	19	16 7	33.2	11 4	4 4
40-50	7	6 1	44 0	15 7	2.5
50 60	3	2 6	52 7	14 3	2 5
60 70	2	1 7	67 1	7 0	1 0

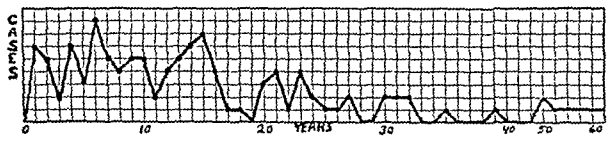


Chart 2.—Duration of asthma.

An analysis of the asthmatic group reveals that asthma is most prone to develop in the first three decades, over 80 per cent of the subjects having had it before the thirtieth year. The average duration is a little higher in the asthmatic group than in the hay fever group. There is a decline in the duration of the disease in each decade. Fifty-one per cent of the subjects were males and 49 per cent females.

Migraine.—One hundred and sixteen persons had migraine considered to be allergic in origin. In this group it was necessary to exercise considerable care in selecting the cases. Approximately 15 per cent of the subjects had been observed in the office. The remaining 85 per cent either had other allergic manifestations or presented a strong family history of migraine. Seventy-one per cent were aware that specific foods would either precipitate or aggravate an attack, although the known specific substances were not entirely responsible for the symptoms. The remaining 29 per cent were convinced that food was a factor in causing their migraine. These 116 subjects represent approximately 3 7 per cent of the general population. Twenty-one, or 0.7 per cent, had migraine before coming to Colorado, so that 3 per cent had acquired an allergy in residence. Their cases are summarized in table 3 and chart 3 according to age and the duration of the condition.

The figures indicate that migraine is most prone to develop in the second, third and fourth decades. The average duration of this condition was found to be considerably longer in persons in whom it developed between the ages of 10 and 20, although 43 per cent of the subjects were found to have had it for less than ten years and approximately 75 per cent for less than twenty years. Of the subjects 68 per cent were females and 32 per cent males.

Eczema.—Ninety-one persons had eczema of allergic origin, an incidence of 2.9 per cent in the population at large. Twelve had eczema before coming to Colorado, so that the incidence of eczema of native origin was 2.5 per cent. Food was either known or considered to be a factor with all but seven for whom pollen was found to be the cause. Twenty-two per cent had been studied from an allergic standpoint, with adequate food tests, and practically all were children under 5 years of age. Forty-one per cent were males and 59 per cent females. A large percentage had received local treatment, either by a dermatologist or under the direction of their own physician, and usually the history revealed that the patient improved under local treatment for a time, only to suffer an exacerbation as soon as it was discontinued. Older subjects frequently gave a history of childhood eczema. Eczema was frequently associated with other allergic conditions. The ages at onset and the duration are reported in table 4 and chart 4.

TABLE 3.—*Distribution of Migraine*

Age, Years	No. of Cases	Per Cent	Average Age at Onset, Years	Average Duration, Years	Per Cent Duration
0-10..	8	7.0	7.7	13.1	48.3
10-20.	32	27.6	14.2	22.0	25.0
20-30 .	27	23.3	22.8	14.8	16.1
30-40..	33	28.4	34.2	9.0	4.3
40-50..	12	10.3	46.2	8.7	4.3
50-60.	4	3.4	51.2	12.0	....

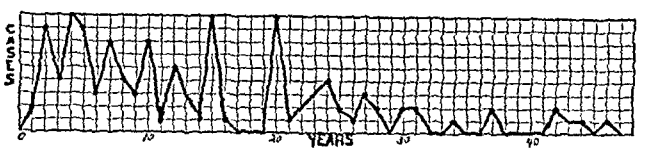


Chart 3.—Duration of migraine

In 56 per cent of the subjects eczema had developed in childhood, and in 71 per cent it had had a duration of less than ten years. There is a progressive decline in each decade in the percentage of patients acquiring eczema. The average duration of eczema in every age group except one was less than ten years. However, in going over the individual histories it was found that the duration varied from a few months to forty-one years. This group of subjects, I feel, represents the minimum number of persons with eczema of allergic origin in the general population.

TABLE 4.—*Distribution of Eczema*

Age, Years	No. of Cases	Per Cent	Average Age at Onset, Years	Average Duration, Years	Per Cent Duration
0-10.	51	56.0	3.8	9.9	71.5
10-20	14	15.4	14.3	6.0	16.4
20-30	10	11.0	22.7	12.3	8.8
30-40 . .	7	7.7	32.7	8.0	2.2
40-50.	5	5.5	45.6	6.6	1.1
50-60	4	4.4	52.5	7.5	.

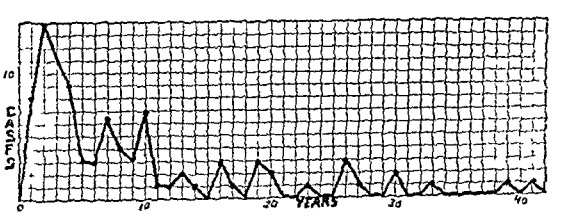


Chart 4.—Duration of eczema

Urticaria.—The fifth group is composed of patients presenting either urticaria or angioneurotic edema. None with minor allergy are included. It was very striking the number of times that urticaria was encountered as a minor allergy. Almost 100 per cent of the persons having urticaria as a major allergy were aware of specific foods that would produce their symptoms, so that almost all those with major allergies also suffered from minor allergies. This group is composed of 103 subjects, the incidence thus being 3.2 per cent in the general population. Of these, 2.5 per cent had urticaria of native origin and 0.7 per cent had had their symptoms before coming to Colorado. Their cases are summarized in table 5 and chart 5.

Almost 50 per cent of the subjects had acquired urticaria in the first decade, and the average duration of the condition was under six years. These children did not have just an occasional rash; the attacks would usually last several weeks, and in the intervals between exacerbations as a rule they would not be completely free. Approximately 20 per cent had received allergic diagnosis and treatment. Food was listed as the predominating cause in every case. In ninety-two cases it was given as the only factor involved; in three cases epidermals and foods were blamed, and in eight the cause was listed as unknown although the patient suspected that food was a factor. Sixty-two per cent of the group were females and 38 per cent males.

TABLE 5.—*Distribution of Urticaria*

Age, Years	No. of Cases	Per Cent	Average Age at Onset, Years	Average Duration, Years	Per Cent Duration
0-10.	48	46.6	5.2	6.6	67.9
10-20	28	27.2	14.3	15.0	19.5
20-30	12	11.6	24.2	12.7	9.7
30-40.	11	10.6	33.0	10.3	2.9
40-50 . . .	4	4.0	45.5	14.2	
50-60 . . .		. .	.		

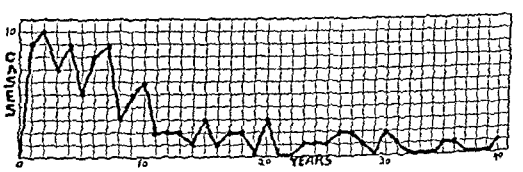


Chart 5.—Duration of urticaria

Gastrointestinal Allergy.—Without exception food was given as the cause of this condition. None of the persons in whom inhalants were found to cause symptoms are included, although a few were encountered among the persons with hay fever. All the subjects could name one or more foods that would precipitate the symptoms, but the elimination of the known substances was not sufficient to relieve the condition. With children in the first decade, the parents were able to eliminate one or more foods from the diet because symptoms would follow their ingestion. This group is composed of 106 persons, the incidence in the general population thus being 3.3 per cent. Their cases are summarized in table 6 and chart 6.

Heredity.—The influence of heredity in allergic diseases has been the subject of investigation by a great many writers. The tendency to become hypersensitive

may be transmitted from the mother, from the father or from both parents. In this survey it was found that a history of major allergy in the first degree (father, mother, brother, sister) was obtained in 16.2 per cent of the cases from the maternal side, in 10.3 per cent of the cases from the paternal side and in 4.6 per cent of the cases from both sides. This gives a total incidence of the inheritance factor of 35.7 per cent. If the inheritance was transmitted from parent to child as a dominant mendelian characteristic, one would expect to find an inheritance factor of 50 per cent in the case of unilateral inheritance and of 75 per cent in the case of bilateral inheritance. If a comprehensive survey was to be made which would include the history of both major and minor allergy as inheritance factors, I feel certain that a factor considerably higher than 35.7 per cent would be obtained for the parents. An analysis of the 2,430 nonallergic persons showed an allergic heredity for 9.3 per cent.

COMMENT

This survey indicates that major allergy is manifested by over one fifth of the general population, and, if one combines this result with the results of Vaughan [9] and Pipes [10] on the occurrence of minor allergy, it is evident that at least three fourths of the population manifest allergy to a greater or lesser degree. Allergy then, as has been pointed out, is no longer the exception but the rule.

It will be noted that in this series the duration of allergy in each of the age groups was usually between ten and fourteen years. The duration was considerably less in cases of adequate diagnosis and treatment than in those of inadequate treatment.

In the cases of food allergy the frequency with which the elimination diet had been used was noted. Some of the patients could alleviate their symptoms by its use but as a rule it was ineffective in greatly relieving the condition. The fact that persons with major allergies

TABLE 6.—*Distribution of Gastroinstestinal Allergy*

Age, Years	No. of Cases	Per Cent	Average Age at Onset, Years	Average Duration, Years	Per Cent Duration
0-10	27	25.5	4.4	14.7	42.4
10-20	15	14.1	14.0	13.5	36.0
20-30	28	26.6	23.8	12.9	14.1
30-40	19	18.0	33.7	12.3	7.5
40-50	12	11.3	43.6	11.7	....
50-60	5	4.7	54.0	14.2	....

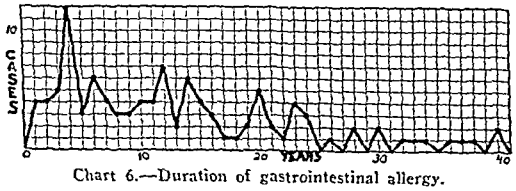


Chart 6.—Duration of gastrointestinal allergy.

are usually sensitized to a number of foods and do not manifest an immediate reaction argues against the effectiveness and reliability of the elimination diet in major allergy.

This survey revealed that 35.7 per cent of the allergic subjects had a family history of major allergy, while of the nonallergic subjects only 9.3 per cent had such a history. Vaughan [9] has hypothesized that the natural tendency of allergy is toward recovery, toward a gradual loss of sensitization. Perhaps this will be borne out by future reports; however, present reports indicate that major allergy is becoming more frequent in the general population. The various allergies when classified by age groups appear to have a limitation as to duration, and certainly with treatment the tendency is toward recovery.

CONCLUSIONS

1. A survey of the city of Colorado Springs reveals that 22.6 per cent of the general population have one or more major allergic manifestations.

2. The incidence of hay fever was 10.06 per cent, of asthma 3.6 per cent, of eczema 2.9 per cent, of migraine 3.7 per cent, of urticaria 3.2 per cent and of gastrointestinal allergy 3.3 per cent.

3. A positive family history of major allergy was obtained for 35.7 per cent of the subjects with major allergy and for 9.3 per cent of the nonallergic subjects.

4. Approximately 16 per cent of the allergic persons presented more than one major allergic manifestation.

THE LEVER AT THE TOP OF THE FEMUR AND ITS SURGICAL ELONGATION

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If one were to inquire of the average practitioner the function of the olecranon process at the elbow, I am certain one would in a large percentage of instances receive essentially the correct answer, namely that active extension of the elbow joint is produced from the pull of the triceps muscle on this lever acting purely as a lever. I feel that there would be little confusion as to the importance of the leverage of the olecranon process in the movements of the elbow and arm. The influence of function on the lever at the top of the femur (head-neck-great trochanter) is of equal importance and identical in mechanical principle with that of the olecranon process, and yet few practitioners specializing in surgery of the joints have appreciated the importance of this action and its tremendous influence on the structure and function of the hip joint; at least no suggestions have ever been made to *modify its length* surgically when the necessity was evident.

In a newly surgically made hip joint a postoperative dislocation may occur because of the inadequate length of this lever. The pelvis may tip upward or the femur pull inward in adduction, with varying resultant practical shortening of the limb, or weight-bearing weakness with marked limp. Such limp has often been mistaken for that of shortening of the limb, and many patients have been brought to me with a request that the limb be lengthened when there was little or no actual bony shortening.

The contrast in favor of the importance of the lever at the top of the femur is even greater, in that the olecranon process functions only to enable active extension whereas the lever at the top of the femur not only is the essential element in providing a mechanism for abduction and inward and outward rotation of the lower limb at the hip but is essential to the stabilization of the

From the Florida Medical Center.

hip joint and the active control of the weight-bearing relation between the femur and the pelvis. One muscle is inserted into the olecranon process and seven are inserted into the outer end of the lever at the top of the femur, namely the gluteus medius, gluteus minimus, obturator externus, piriformis, gemellus superior, obturator internus and gemellus inferior.

With the sole exception of adduction, all movements at the tip have to do to a greater or less degree with the pull of certain muscles on the outer end of this lever.

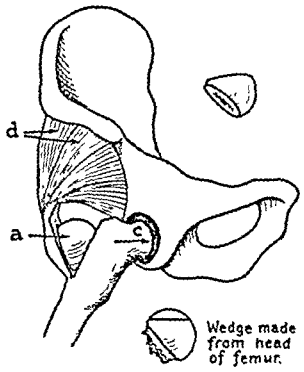


Fig. 1.—Method of elongating the lever at the top of the femur in cases of ununited fracture of the neck of the femur in which much absorption of bone has occurred because of an inadequate blood supply. The removed femoral head is transformed into a wedge and placed at *a*. It serves three purposes: (1) it holds the newly formed head firmly in the acetabulum at *c* and prevents dislocation; (2) it restores active weight bearing, and (3) it restores abduction by providing a longer lever for the gluteal muscles (*d*) to pull on.

In industry or in everyday life, if the force available to be directed on the end of a lever is inadequate and it cannot be increased, the only recourse is to elongate the lever so that the same available force will be adequate to the lifting of the corner of a building or a rock. This principle I have applied in the case of both the olecranon process and the lever at the top of the femur. That is, I have lengthened these structures to the anatomic dimension when they have been shortened by disease, by trauma or by inadequate development. In such instances it is assumed that the muscular force is physiologically normal. On the other hand, when the muscular forces which normally activate these levers have been weakened from any cause whatever, particularly infantile paralysis, it follows by the same token that the elongation of these lever structures beyond their anatomic normal dimension is equally indicated. The results obtained by such surgical procedures have been most gratifying. This principle was first applied by me over twenty years ago to ununited fractures of the neck of the femur with extensive absorption of bone in my so-called reconstruction operation (fig. 1).

A shell of bone about 3½ inches long obtained from the superior and outer surface of the great trochanter is turned outward with the muscle insertions undisturbed, and into the crotch thus made fragmented grafts are packed, the purpose being to afford a longer lever for these muscles to pull on, thus preventing postoperative dislocation and restoring abduction and active weight bearing.

Other conditions for which this technic has been applied are shortening of the neck of the femur from destructive lesions such as tuberculosis, when the disease has been cured, leaving marked shortening of the neck of the femur, and old reduced congenital dislocation of the hip with the same result. In many cases there have been marked adduction deformities with resultant practical shortening, and particularly in the case of the healed tuberculous hip the teaching has been in the past either to correct the adduction by Gant's osteotomy or to correct it at the hip joint, with a supplementary fusion operation. In most instances the latter destructive operation, with loss of motion, was found necessary because repeatedly the adduction would slowly recur. The reasons why this was so have not been explained. The outstanding feature of these cases has been the shortening of the lever at the top of the femur. The adductor muscles function with their normal mechanical advantage at the same time that their antagonistic muscles are markedly handicapped in that they are pulling on a bony lever which may be less than one half its anatomic length. Is it surprising, under these conditions, that the correction of an adduction deformity by osteotomy at the lesser trochanter should recur? The indications as I see them now in such cases are to correct the deformity and then restore the abductor bone lever to its normal dimension or even to greater length. With some of these conditions, either of congenital or of pathologic origin, there has remained a bone block at the superior periphery of the hip joint which had to be removed when the lever was lengthened in order to allow freedom of motion of the hip joint.

Another important indication for surgical reconstruction occurs in cases of arthroplasty to restore motion to a bony stiff hip joint when this lever has been shortened both by the destructive lesion which produced the ankylosis and by the necessary removal of bone by the surgeon in modeling the new joint. In this instance, in the discretion of the surgeon, the lever may be lengthened at the primary arthroplastic operation to restore motion, or this procedure may be deferred to a later date. In borderline cases in which there is doubt as to whether the lever is sufficiently long it is urged that the secondary procedure be deferred until the defective function of the joint proves this necessity.

My last application of this kinesiologic principle has been demonstrated in cases of infantile paralysis in which there has been a weakening of the group of muscles attached to the tip and outside of the great trochanter. In this instance one would immediately reason that the lever is of normal physiologic length, but this has not been found to be the case at all. The weakening of the trochanter muscles has resulted, as one might expect, in the general lack of development of the whole upper end of the femur, and this has caused a diminution in the longitudinal dimensions of this lever. Therefore the indications for its elongation are double; namely, the muscular force which activates it has been lessened below functional capacity, and at the same time the lever has become shortened. The surgical results from reconstructing this lever, as might be anticipated, have in many cases been brilliant.

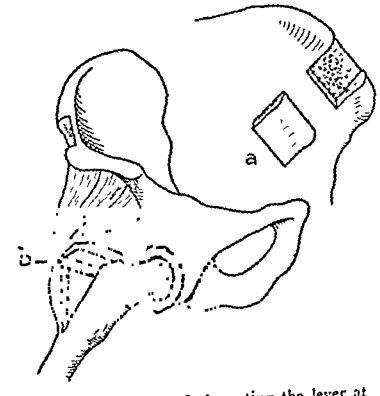


Fig. 2.—Method of elongating the lever at the top of the femur in cases of weakness of the abductor or weight-bearing muscles, whether from infantile paralysis or other cause. A rectangular graft is obtained from the outer crest of the ilium, including as much of the outer table of the ilium as is found desirable (*a*). This is placed at *b* and firmly holds the bony structures in the elongated position. Care should be taken in freeing the top and outer portion of the great trochanter not to sever or unnecessarily damage any of the short trochanteric muscles.

TECHNIC

1. For many years following the introduction of my reconstruction operation of the neck of the femur, described in 1919, I have devoted myself intensively to

the development of the simplest surgical technic for all occasions in lengthening this lever. The availability of bone graft material is almost a determining element in the design of the special technic. The object is to have a massive graft which not only will serve eventually to fuse in place and reconstruct the lever but will immediately elongate the lever by its mass support. In the instance of ununited fracture of the neck of the femur, the removed head of the femur serves this purpose admirably. Formerly I always threw this away and used numerous small fragmented bone grafts, but during the past ten years or more I have been able to shape it quickly into the form of a wedge, using a motor saw and osteotome for this purpose. This massive wedge, when properly placed, immediately supports the lever in its elongated state and serves forthwith to prevent the dislocation of the newly formed femoral head from the acetabulum. Because of its extensive mass, it allows ample leeway in shaping a wedge of the desired size, and only three weeks of postoperative immobilization has been necessary. Because of this, free motion of the joint is much more easily restored. When fragmented grafts were used, it was even necessary to immobilize by double plaster of paris spica cast for a long period, at least eight weeks, in order to allow time for the grafts to unite firmly and consolidate the new lever, so that postoperative dislocation of the newly made hip joint would not occur (fig. 1).

2. In cases of shortening of the neck of the femur from ancient cured disease, from congenital malformation or from former arthroplasty in which this lever has been shortened, both by the destructive lesion that produced the osseous tuberculosis and by the removal of bone by the surgeon made necessary in modeling a new joint, the bone graft material can be obtained from the side of the ilium, always high up at the crest so as not to disturb either the muscular structure or its elevation. It can also be obtained from the anterior internal surface of the tibia, the most satisfactory store house of bone graft material. At the discretion of the surgeon this lever may be elongated during the primary operation to produce motion in a bony stiff joint. In this instance the side of the ilium has been already laid bare and therefore the material for the elongation of the lever can be easily obtained.

Formerly I obtained the grafts from the side and crest of the ilium in the form of two "pieces of pie" (segments of a circle) consisting of the outer half of the crest and the outer iliac table, of proper shape and size to fill in the bony wedge cavity which is produced by the turning out of the shell bone from the tip and side of the great trochanter. These may be fastened together with a bone graft peg.

The technic, however, which I employ at present is to obtain the graft in the shape of a square or a rectangle from the outer table of the ilium, including the outer half of the crest. This is placed in accordance with and immediately supports firmly the lever in the elongated state (fig. 2).

The technic in cases of infantile paralysis is precisely the same. However, one caution should be firmly adhered to; that is, if the graft is obtained from the outer surface of the ilium it should be from the extreme upper anterior border, including a portion of the crest, so that the weakened muscles will not be disturbed more than is absolutely necessary.

Clinical Notes, Suggestions and New Instruments

AN IMPROVED METHOD OF APPLYING MOIST HEAT TO INFECTED EXTREMITIES

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It is customary in the treatment of infections of the extremities to utilize the beneficial effects of moist heat. The routine at St. Luke's Hospital has consisted in wrapping the arm or leg in double folded blankets which have been heated in the steam sterilizer, encasing them with a sheet of oiled silk and wrapping both with a bath towel. The blanket is applied at the highest temperature that the patient can tolerate and is allowed to remain for two hours. Thus in the application of continuous moist heat the fomentations are changed by the nurses from eight to twelve times a day.

For several reasons this method, which is not unlike that used in many other hospitals, is inconvenient and unpractical and, as will be shown, fails to maintain an atmosphere of moist heat for more than a fraction of the total time applied. More specifically, it is next to impossible for the nursing staff to maintain the two hour schedule of changing the foments on the busy surgical floors. It is also common to find the bedding around the foment soaked after several changes, owing to the fact that the oiled silk becomes cracked with use and also because of the haphazard method of wrapping. In practice it was observed that the constant changing of the fomentations defeated the attempts at immobilization of the infected extremity, a factor considered most important in the therapy of infections. But most important of all the objections was that voiced by numerous patients, particularly by members of the staff who at various times have been under treatment for infected hands; namely, that the foments failed to keep the part warm for the duration of the application.

To test the validity of some of these observations, temperature recordings were taken on a group of patients by placing a mercury bulb thermometer in the fomentations in such a way as to record the mean temperature of the foment layers. In an attempt to evaluate the results, an arbitrary base line of 100 F. was selected, this temperature being several degrees above the average temperature of the skin and therefore suitable for elevating the temperature of the cutaneous layers and also low enough to obviate burns. The results of our readings have indicated that the routine being used failed to maintain the temperature above the base line for more than from 10 to 15 per cent of the two hour period and that in twenty-four hours of continuous therapy the infected area was actually heated about three hours. At the end of one hour the temperature averaged 93 F., and at the end of two hours 90 F.

An alternative method occasionally used here was then tested out. This consisted in placing a light cradle or electric baker over the fomentations. Readings on a series of four patients receiving repeated fomentations showed that with two 60 watt bulbs the temperature never reached the base line, while with three 60 watt bulbs the temperature could be raised to 100 and no further. Likewise, during each two hour period approximately 25 per cent of the heating effect was lost while the nurse changed the blankets with the cradle removed. The patients complained of aching of the part during the latter part of each treatment when the blanket had dried.

It was then decided that the latter method might be improved by applying the fomentations in a different manner designed to obviate the objections outlined. After several trials the following method was adopted:

The extremity is first covered with petrolatum or preferably with the antiseptic oil used in the nursery. This serves to prevent excess damage of tissue and to hinder the seeding of infection to adjacent hair follicles. The extremity is then wrapped completely around twice with double thickness hot foment blankets. Into the more superior portion of the blankets

are incorporated two rubber tubes perforated at intervals of about 1 inch. These tubes are connected to a 2 foot tube by a Y connection, and the single tube is attached to a funnel strapped to the light cradle. The extremity is arranged so that the proximal part of the tube is higher. The spacing of the perforations and the inclination of the tube serve to distribute the water evenly throughout the foment. Two thicknesses of oiled silk are then wrapped round the blanket and the edges turned on themselves and clipped with large spring paper clips. The ends are carefully folded in to make it water-tight. By means of careful wrapping the bed can be kept dry and comfortable all day. A light cradle is then put over the extremity and covered with a blanket to insulate it against loss of heat.

Temperature recordings taken in more than twenty cases indicate that it is possible to maintain a temperature slightly over 100 F. over long periods of time with one 60 watt bulb. With two 60 watt bulbs temperatures went as high as 112 F. It is inadvisable to use more than 100 watts of energy for fear of burning the patient.

In practice the majority of patients are allowed to moisten their own fomentations as they see fit. Otherwise the nurses pour between 30 and 50 cc. of water into the funnel every hour. The foments are changed only as desired for inspection of the infected area. The extremity is therefore immobilized for long periods.

St. Luke's Hospital.

A CASE OF LEAD ENCEPHALOPATHY IN A BREAST-FED INFANT DUE TO THE USE OF LEAD NIPPLE SHIELDS BY THE MOTHER

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Since the report by Wilcox and Caffey in 1926 [1] of two cases of lead poisoning in nursing infants due to the use of lead nipple shields by the mothers, the potential danger of these devices as a source of plumbism in the nursing infant has been noted. Although lead poisoning is being recognized with increasing frequency in infancy, being due to the ingestion of paint, the use of lead-containing cosmetics by the nursing mothers (Japan), the burning of storage battery boxes and the like, we have found no cases reported attributable to nipple shields since the report of Wilcox and Caffey.

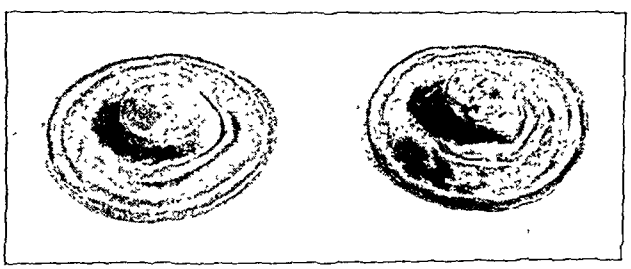


Fig. 1.—Lead nipple shields used by mother of patient.

However, when one considers the fact that the lead nipple shield must be in fairly common use, since it is recommended as a remedy for fissured nipples by many of the standard textbooks of obstetrics,[2] it is quite possible that there are unrecognized cases of lead poisoning in infants due to the use of such shields.

It is interesting to note that the harmlessness of the lead nipple shield to the infant is stressed in the circular found in the container of the lead nipple shields sold in this country. This circular read as follows:

Dr. Wansbrough's
CELEBRATED
Metallic Shields
For the Prevention and Cure of SORE NIPPLES

Highly recommended by Dr. Laycock and the most eminent medical men throughout the United Kingdom

The merit of the invention is now so fully understood, and the good results from its application so well established by the experience, both of the Medical Profession, and of numerous Mothers who have been afflicted with Sore Nipples, that the Manufacturer feels he is doing a duty to society by giving as much publicity as possible to a discovery which has proved so great a blessing in these distressing cases.

The attention of the Medical Profession was first drawn to this subject by DR. WANSBROUGH (the inventor), in a paper published in the *Lancet*, July, 1842; and he afterward brought it before the Society of Arts, in 1843, when he read a paper to that Society entering fully into the nature of the above malady, and the philosophy of this instrument, both as a preventive and a cure.

The following is an extract from the above Paper, which he then delivered and which is published in their transactions:

"Among all the various remedial means that have been proposed for *this painfully distressing affection, none have hitherto proved sufficiently* effectual, either as a preventive or cure. The subject has occupied the attention of Medical Men for a considerable period, and numerous have been the remedies recommended and applied; but they have failed in the desired result. Now, Gentlemen, *this little Apparatus which I have the honor to submit to your notice possesses these great desiderata.* As a preventive, it is requisite only to say, that it effectually accomplishes the desired end by being applied immediately after delivery. Its curative character consists *in the nipple being immersed in a solution of Lactate of Lead, formed by the Lactic Acid in the milk acting upon the metal;* the whole contained in a reservoir, as it were, in the cavity of the Shield, which prevents pressure, and by adhering closely, may be worn with the dress. I have used these Sheilds in the most severe cases, in a somewhat extensive practice, for upwards of a quarter of a century, *even where the Nipple has suppurated and sloughed to the extent of half its volume, threatening the destruction of the whole,* AND I HAVE NEVER EXPERIENCED A FAILURE! Yes, Gentlemen, this little, apparently trifling, and intrinsically valueless article, because formed of a material in the lowest scale of metallurgy, possesses, nevertheless, most powerful properties when put to the proof."

DIRECTIONS

For the prevention and cure of Sore Nipples, these Shields *should be applied as soon after delivery as possible, and in using them the only* attention required is to wipe the Nipple previously to nursing, and apply *the Shield again immediately afterwards. They are in no way likely to be injurious to the infant.*

Should the edge of the Shield become inverted, it may be instantly restored by being laid on a flat surface, and rubbed round with the finger.

In this report we are presenting the case of a 3½ months old breast-fed infant in whom a severe lead encephalopathy developed as a result of the use of lead nipple shields by his mother.

History.—N. V., a white male infant, aged 3½ months, was admitted to the wards of the Children's Hospital Dec. 19, 1936, with a provisional diagnosis of meningitis.

The family history was inconsequential, the patient being the only offspring of young and healthy Italian parents. He was born in a Philadelphia hospital after an uneventful full term pregnancy and normal labor. The birth weight was 7 pounds 13 ounces (3,545 Gm.).

The past history showed a normal gain of weight until the onset of the illness leading to admission. About one month prior to admission a mild infection of the upper respiratory tract developed, which subsided within a few days. Feeding presented no difficulty, the child having been fed solely on breast feedings every three hours. Orange juice and cod liver oil supplements were added at the age of 1 month and continued in adequate amounts.

The illness leading to admission to the hospital began abruptly on the afternoon of the day prior to entry, being ushered in by projectile vomiting. The vomiting recurred several times that day, and the following morning generalized clonic convulsions developed. He was seen twice that day by a physician, who prescribed for an "upset stomach" and ordered the infant to have two enemas and a mustard bath. His condition remained unchanged, the clonic convulsive seizures recurring at frequent intervals, and between the convulsive episodes he remained tonic and unconscious. He was seen that evening by one of us (M. R.) and a tentative diagnosis of meningitis was made. Following the visit he was referred to the hospital for admission.

From the Department of Pediatrics, University of Pennsylvania School of Medicine, and the Children's Hospital of Philadelphia.

1. Wilcox, H. B., and Caffey, J. P.: Lead Poisoning in Nursing Infants: Report of Two Cases Due to Use of Lead Nipple Shields, J. A. M. A. 86: 1514 (May 15) 1926.

2. De Lee, J. B.: The Principles and Practice of Obstetrics, ed. 6, Philadelphia, W. B. Saunders Company, 1933, chapter 67, p. 964. Edgar, J. C.: Practice of Obstetrics, ed. 6, Philadelphia, P. Blakiston's Son & Co., 1926, part VII, p. 528. Schumann, E. A.: A Textbook of Obstetrics, Philadelphia, W. B. Saunders Company, 1936, chapter 39, p. 633.

Physical Examination.—The temperature was 97.8 F., respirations ranged between 48 and 60 and the heart rate was 120.

The patient was well developed and well nourished and weighed 12 pounds 3½ ounces (5,543 Gm.). His length was 55 cm. and the circumferences of his head, chest and abdomen were 40, 41, and 43 cm. respectively. At the time of the examination he was undergoing a generalized clonic convulsive seizure of moderate severity. Breathing was rapid and stertorous. The skin was pale and the extremities were cold and clammy.

The contour of the head was normal. The anterior fontanel was patent and tense but not bulging. There was no retraction of the head, and no definite nuchal rigidity was present. Tonic reflexes of the neck were elicited.

Pandy's reagent showed a moderate increase in globulin; the cell count totaled 5 per cubic millimeter—all lymphocytes. A stained smear and later culture both proved to be negative. Another tap done five days later showed exactly the same changes.

Because of our failure to detect any evidences of infection, and because of the increased amount of globulin in the spinal fluid, lead poisoning was suspected. The mother was recalled the following morning for further questioning as to a possible source of the ingestion of lead. She stated that during the puerperium her nipples had cracked and on leaving the hospital she had been advised to use lead nipple shields. Her husband had obtained these after a prolonged search among at least a dozen drugstores. They were worn constantly between nursings, the nipples being cleansed with boric acid solution before and after each feeding.

Results of Analysis of Patient's Blood During Stay in Hospital

Dates	Red Blood Cells, Millions	Hemoglobin (Sahli) per Cent	Reticulocytes, per Cent	Stippled Cells, per Cent	White Blood Count	Differential Counts: Polymorphonuclears	Lymphocytes	Monocytes	Eosinophils	Basophils	Transfusions	Comment
12/20/36	3.00	55	...	6.0	21,000	59	39	2	..	..	.....	Day after admission
12/21/36	....	..	4.0	...	.....	..	..	..	..	..	.....	Convulsions stopped
12/22/36	....	55	7.6	8.0	.....	..	..	..	..	..	.....	Diarrhea developed
12/23/36	....	..	11.0	8.6	.....	..	..	..	..	..	.....	
12/24/36	2.96	53	...	5.0	5,500	62	30	8	..	..	.....	Diarrhea stopped
12/25/36	....	54	...	...	.....	..	..	..	..	..	.....	Nasopharyngitis, convulsions recurred
12/26/36	....	45	7.0	5.0	.....	..	..	..	..	..	.....	
12/27/36	....	..	6.0	4.2	.....	..	..	..	..	..	60 cc.	Convulsions stopped
12/28/36	....	62	5.0	3.1	.....	..	..	..	..	..	90 cc.	
12/29/36	....	75	4.0	2.8	.....	..	..	..	..	..	.....	
12/30/36	...	70	2.4	3.1	.....	..	..	..	..	..	.....	
12/31/36	....	78	2.0	1.1	.....	..	..	..	..	..	.....	
1/ 1/37	4.4	72	...	...	18,400	42	58	..	..	..	.....	Bilateral otitis developed
1/ 5/37	....	85	1.4	0.3	.....	..	..	..	..	..	.....	
1/ 6/37	....	86	0.3	0.0	.....	..	..	..	..	..	.....	
1/ 7/37	....	..	0.3	0.0	.....	..	..	..	..	..	.....	
1/ 8/37	....	..	0.5	0.0	.....	..	..	..	..	..	.....	
1/ 9/37	....	..	0.7	0.0	.....	..	..	..	..	..	.....	
1/10/37	....	68	...	...	.....	..	..	..	..	..	.....	
1/11/37	....	..	0.6	0.0	.....	..	..	..	..	..	.....	
1/12/37	....	..	1.0	0.0	.....	..	..	..	..	..	.....	
1/13/37	....	..	2.4	0.8	.....	..	..	..	..	..	.....	Direct van den Bergh test positive
1/14/37	....	..	1.8	0.3	.....	..	..	..	..	..	.....	
1/15/37	....	..	2.2	0.3	.....	..	..	..	..	..	.....	
1/16/37	....	..	0.6	0.0	.....	..	..	..	..	..	.....	
1/17/37	....	75	...	...	.....	..	..	..	..	..	.....	
1/18 37	....	..	2.2	0.4	.....	..	..	..	..	..	.....	
1/19/37	....	..	2.2	0.3	.....	..	..	..	..	..	.....	
1/24/37	....	68	...	...	.....	..	..	..	..	..	.....	
1/25/37	....	..	1.6	0.3	.....	..	..	..	..	..	.....	
1/28/37	....	..	2.8	0.4	.....	..	..	..	..	..	.....	
1/30/37	....	..	2.2	0.3	.....	..	..	..	..	..	.....	
1/31/37	....	62	...	...	.....	..	..	..	..	..	.....	
2/ 2/37	....	..	3.0	0.0	.....	..	..	..	..	..	.....	
2/ 3/37	4.2	70	3.2	0.0	13,700	31	60	2	4	3	.....	Platelets 370,000
2/ 5/37	....	..	3.0	0.0	.....	..	..	..	..	..	.....	
2/ 8/37	....	..	1.6	0.0	.....	..	..	..	..	..	.....	
2/10/37	....	..	4.4	0.0	.....	..	..	..	..	..	.....	Icteric index 34; indirect van den Bergh test 2.1 units per liter
2/12/37	....	..	2.0	0.0	.....	..	..	..	..	..	.....	
2/28/37	4.3	70	...	0.0	10,950	37	60	3	..	..	.....	

The pupils were equal in size and were dilated. They responded sluggishly to light. A rapid horizontal nystagmus was present, with the quick component to the left. Opthalmoscopic examination revealed normal fundi.

The ears and ear drums were entirely normal. The nose was normal. The mouth was firmly closed and could be opened only with force. No teeth were present. The tongue, mucous membranes, tonsils and pharynx were entirely normal.

The chest was symmetrical and the heart and lungs were normal.

The abdomen was moderately distended; the liver edge was palpable 1.5 cm. below the right costal margin, and the spleen 2 cm. below the left costal margin. The kidneys were not palpable.

The arms were flexed and rigid; the hands were tightly clenched. The legs were extended and rigid. A right talipes equinus was present which had first been noted at birth.

The tendon reflexes (achilles, patellar, biceps and triceps) as well as the abdominal reflexes were hyperactive. A marked ankle clonus was elicited on the right. The Kernig sign was present in both lower extremities.

Immediately following examination a lumbar puncture was done. The pressure was found to read 18 mm. of mercury;

Routine examination showed an erythrocyte count of 3,000,000; the leukocyte count was 21,000 and the hemoglobin content 55 per cent (Sahli). Considerable coarse basophilic stippling of the red cells was found in the smear. X-ray examination showed wide dense zones of temporary calcification in all the long bones (fig. 2).

In view of the established source of the ingestion of lead, and the hematologic and radiologic changes, a definite diagnosis of lead encephalopathy was made.

Treatment and Progress.—The convulsions were controlled by the rectal administration of 2½ grains (0.16 Gm.) each of sodium bromide and chloral hydrate every six hours. In addition one-half grain (0.032 Gm.) doses of sodium phenobarbital were given hypodermically twice a day. By the second hospital day the convulsions and vomiting had ceased entirely. However, the infant continued to be hypertonic and showed a generalized hyperreflexia. At this time diarrhea developed and he passed about four loose greenish stools daily. This was treated by dietary means, a dilute skim milk mixture being fed to which had been added 5 per cent rice flour. The diarrhea

subsided after three days. During the interval the administration of sedatives was continued.

At this time there was a recurrence of the convulsive seizures, and evidence of a nasopharyngitis was found. A second lumbar puncture was done, revealing a similar amount of globulin. It

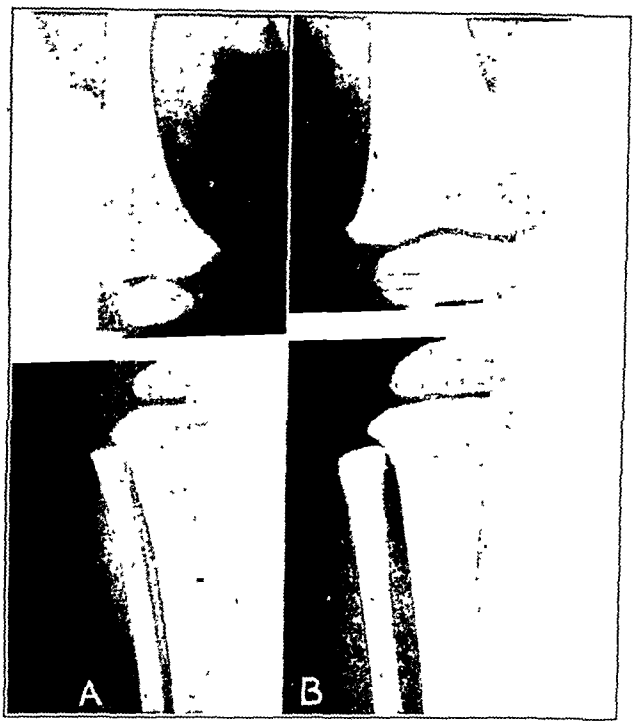


Fig. 2.—Appearance of tibia: *A*, on admission of patient to hospital (at the age of 3½ months), showing line of increased density of end of bone. *B*, at 22 months of age, showing vestige of lead line about 2 cm. from the metaphysial end.

was assumed that the diarrhea and nasopharyngitis were responsible for the return of the encephalopathic symptoms, the acidosis so frequently encountered in diarrhea probably pro-

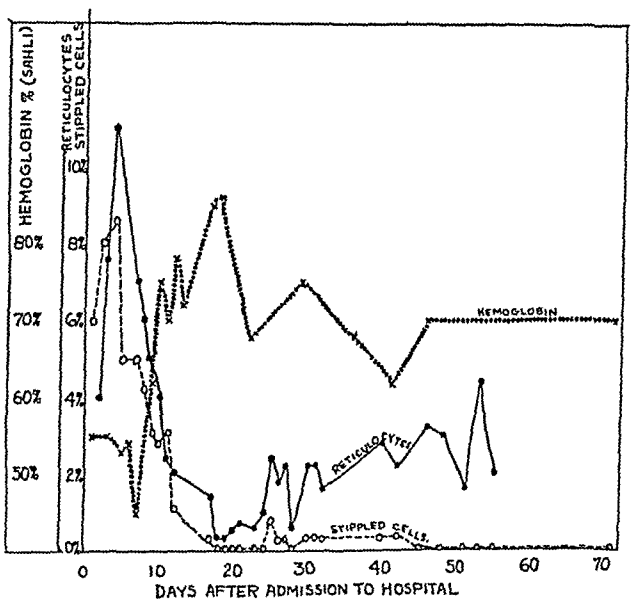


Fig. 3.—Fluctuations and relationships of hemoglobin, reticulocytes and stippled cells.

ducing a mobilization of lead from the bones and increasing the amount in the general circulation.

Measures were now employed in an attempt to deposit the circulating lead in the bones. To this end, 40 grains (2.6 Gm.) of disodium phosphate and 20 drops of viosterol were given daily in divided doses. In addition two blood transfusions of 60 and 90 cc. were given on successive days to correct the anemia. Twenty-four hours after the institution of this therapy the convulsions had ceased and did not recur for the remainder of the infant's stay in the hospital. The disodium phosphate was discontinued after fifteen days. The viosterol was continued during the entire hospital stay. An acute suppurative bilateral otitis media, which developed on the twelfth day and which required a bilateral myringotomy, produced no exacerbation of his symptoms, the ears healing uneventfully after a period of three weeks.

In the accompanying table are summarized the results of examination of the infant's blood during his stay in the hospital. The numerous reticulocyte counts and counts of stippled cells were made to determine whether there was any relationship between the two (fig. 3). During the height of acute symptoms when the hemoglobin was low and there were fairly numerous reticulocytes, there were numerous cells showing basophilic stippling. When the hemoglobin had been raised to 86 per cent the number of reticulocytes declined and no stippled cells were seen. As the number of reticulocytes increased, presumably in response to a fall in hemoglobin, stippled cells were again seen. Even though the number of reticulocytes continued to be increased, the stippled cells disappeared from the blood. This last event was interpreted as an indication that lead had been driven from the blood stream and deposited in the bones, so that it could not produce basophilic stippling. This sequence of quantitative changes in reticulocytes, stippled cells and anemia is graphically shown in figure 3.

The inference that was drawn from these blood studies was that in the presence of lead circulating in the blood stream there was an apparent direct correlation between the number of reticulocytes and the number of stippled cells.

The infant remained in the hospital for a total period of eleven weeks and on discharge appeared to be in good condition. His weight at that time was 16 pounds 2 ounces (7,314 Gm.). He was active and happy, could sit with a little support and reacted normally to his environment. Both liver and spleen remained palpable to the same extent as on admission.



Fig. 4.—Patient at 22 months of age, June 1938.

Following his discharge from the hospital, the infant continued to grow and develop in normal fashion. On reexamination at 11 months of age the infant was very well nourished and well developed, weighing 22¾ pounds (10.3 Kg.). He was 29 inches (73.7 cm.) tall, had four teeth and was able to walk by himself. He had mumps at 8 months, measles at 10 months and whooping cough at 14 months, from all of which he recovered uneventfully.

In June 1938 at 22 months of age he was entirely normal physically and mentally (figure 4). Roentgenograms taken at this time showed that the vestiges of old lead lines were still visible (figure 5). At no time following his discharge from the hospital did he manifest any symptoms or stigmas which could be attributed to his lead poisoning.

SUMMARY

1. A case of lead encephalopathy in a 3½ months old breast-fed infant in which there was complete recovery, was caused by the use of lead nipple shields by the mother.

2. There is an apparent correlation between the number of reticulocytes and the number of cells showing basophilic stippling.

Bainbridge, Eighteenth and Fitzwater streets.

Special Article

DIPHTHERIA MORTALITY IN LARGE CITIES OF THE UNITED STATES IN 1938

SIXTEENTH ANNUAL REPORT

The means employed for obtaining the data for this review have been outlined in the report on typhoid deaths.[1] As has been the practice in all previous annual reviews of diphtheria and typhoid, statistics have been obtained from local health officers. As the time of the 1940 census approaches, local estimates of population become less trustworthy. They provide, however, the best available data. The rates must be readjusted in light of the facts obtained at the time of the next federal census.

As has been the case in previous articles, the local health departments report not only the total number of diphtheria deaths that actually occur in the community but also the number of such deaths occurring among nonresidents.

The fourteen New England cities (table 1) report a continued downward trend in the death rate for the twenty-one in 1937 to seventeen in 1938 (table 16). The death rate fell from 0.79 to 0.64. In 1937, of the nine cities with the highest diphtheria death rate, two were in the New England group. In 1938 none are in this group.

The eighteen cities in the Middle Atlantic states (table 2) continue to hold first place. The group rate of 0.48 is significantly lower than that of 1937 (0.71)

TABLE 1.—*Death Rates of Fourteen Cities in New England States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1938	1937	1936	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Springfield	0.0	0.0	1.3*	2.1	10.3	15.4	24.9	19.1	31.3	29.6	51.3	63.2
Lynn	0.0	0.0	2.0	4.7	13.5	17.0	17.8	17.2	21.7	38.0	44.0	49.0
Lowell	0.0	0.0	8.0	9.4	10.6	16.7	23.5	20.6	31.0	59.3	44.3	36.4
New Bedford	0.0	0.9	0.9	4.8	10.9	16.5	17.0	20.9	22.6	25.1	53.6	20.0
Providence	0.0	1.2*	0.4	5.0	9.5	15.8	29.3	26.8	30.7	41.2	53.5	55.3
New Haven	0.0	1.8*	0.0	0.5	1.6	7.1	14.2	14.9	22.7	15.6	54.8	74.5
Boston	0.2*	0.5	0.9	3.2	8.3	20.2	26.3	20.0	26.2	53.7	83.9	112.2
Cambridge	0.8	0.0	0.0	1.2	3.2	8.9	12.9	23.8	25.3	46.7	71.9	58.0
Waterbury	0.9	4.8	1.0	2.4	2.6	17.9	23.0	29.6	....	....	....	....
Somerville	1.0	0.0	0.0	0.0	5.7	19.7	20.2	21.4	21.5	40.5	57.8	37.4
Hartford	1.1*	0.0	1.1	1.1	5.3	11.9	13.8	25.3	28.1	38.8	47.8	120.9
Worcester	1.6†	0.0	0.5*	2.9	8.6	15.5	14.1	21.3	32.2	16.5	50.3	47.8
Bridgeport	2.0†	0.0	0.7*	1.0	11.8	19.6	23.4	23.3	26.8	34.2	63.9	79.3
Fall River	3.5	4.3	1.7	3.9	12.0	25.5	23.6	24.0	34.4	50.1	43.3	46.9

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

group as a whole but have been unable to approach the record of the Middle Atlantic cities, which continue to hold first place (table 16). While there were eight cities in the New England group which recorded no deaths in 1937, there were only six such cities in 1938 (Springfield, Lynn, Lowell, New Bedford, Providence, New Haven). There has occurred no death among residents in Springfield and New Haven during the past four years; none in Lynn, Lowell and Providence during the past two years. No death from diphtheria or typhoid has occurred in Lynn in two years. Lowell, New Bedford and Providence report no death from either diphtheria or typhoid in 1938. Four years has passed without a death among residents from diphtheria or typhoid in Springfield. Boston and Hartford each report two diphtheria deaths, all in nonresidents. The excellent records in Cambridge and Somerville were marred by one death among residents in each city. The total number of deaths in the area decreased from

TABLE 2.—*Death Rates of Eighteen Cities in Middle Atlantic States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1938	1937	1936	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Rochester	0.0	0.0	0.0	0.7	7.5	16.9	12.7	22.1	32.4	32.3	45.9	96.6
Utica	0.0	0.0	0.0	1.2	13.4#	....	....	....	....	....	....	....
Erie	0.0	0.0	0.0	3.5	5.8	16.8	15.1	17.7	27.1	42.3	23.1	....
Elizabeth	0.0	0.0	0.0	4.5	13.2	19.2	19.3	14.8	51.7	42.4	60.5	79.3
Syracuse	0.0	0.5*	0.0	0.4	2.0	22.9	12.9	16.6	17.4	17.7	31.1	55.4
Albany	0.0	0.7*	0.0	2.9	7.5	12.8	10.4	20.0	31.6	26.9	....	....
Yonkers	0.0	0.7	0.7°	0.6	10.4	17.0	17.7	25.3	....	....	....	....
Paterson	0.0	1.4†	0.7	0.3	9.1	18.5	13.5	16.1	25.5	52.9	111.8	145.4
Newark	0.2	0.2	0.0	3.0	14.5	9.7	14.6	23.3	30.1	46.7	79.1	110.4
Buffalo	0.3	0.5†	1.7†	4.8	9.1	24.0	27.3	22.0	18.4	24.8	53.5	60.9
New York	0.3	0.8	0.5	2.2	10.7	14.0	21.8	23.0	40.0	58.0	85.8	134.4
Philadelphia	0.5¶	0.3	0.5	1.3	11.8	16.7	22.7	24.6	34.1	50.0	100.6	119.4
Scranton	0.7¶	2.0¶	0.7¶	1.3	11.7	12.3	22.1	23.4	....	....	77.8‖	48.6‖
Pittsburgh	0.9†	1.1	2.3	5.0	11.5	20.1	22.3	29.3	20.4	36.9	32.9	86.4
Trenton	1.6†	0.0	0.0	2.7	4.4	7.3	8.8	12.8	15.8	23.6	92.7‖	89.7‖
Jersey City	1.8	2.1	1.2	6.0	11.5	18.4	21.0	23.2	32.6	57.9	85.4	108.6
Camden	2.5†	2.5†	0.8	7.7	21.9	20.3	23.2	38.8	48.9	52.6	93.8	194.0
Reading	5.3¶	0.0	0.9	3.8	7.3	21.1	16.9	35.7	29.2	70.1	72.0	94.1

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‖ Diphtheria deaths from Chapin's Municipal Sanitation.
Incomplete data.
¶ Diphtheria data furnished by Pennsylvania Department of Health, Harrisburg.
° Corrected rate. In review for 1936, Yonkers reported cases instead of deaths.

and 1936 (0.65). The new rate represents a new all-time low. In 1937 there were ninety-five deaths, in 1938 but sixty-four. This group of cities, which reported the lowest quinquennial average for 1930-1934 (2.50), has maintained the lowest group rate for the past four years. There are two cities in this group with a rate above 2.0 (Camden, Reading). Eight cities (Rochester, Utica, Erie, Elizabeth, Syracuse, Albany, Yonkers, Paterson) appear in the select list (table 11) with no diphtheria death in 1938. Utica reports no death in five years; Rochester and Erie report none in four years; Elizabeth reports none in three years. Utica records no diphtheria or typhoid death in three

TABLE 3.—*Death Rates of Nine Cities in South Atlantic States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1938	1937	1936	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Baltimore	0.7†	1.3	1.2	1.7	7.6	11.4	13.5	14.2	16.1	33.0	68.1	70.0
Richmond	1.1*	1.1†	2.7†	3.6	6.9	9.8	5.8	7.0	9.8	24.4	17.6	59.7
Washington	1.1	2.2	4.3†	3.9	7.1	10.5	11.9	6.9	11.2	23.5	50.9	77.9
Wilmington	1.8	0.9	0.0	5.3	10.9	11.6	15.2	18.0	27.8	50.9	84.9	83.8
Miami	2.1†	3.1†	0.8*	3.8	5.4#	....	....	....	....	....	....	....
Norfolk	2.3	2.3†	3.1	4.6	4.1	4.3	4.1	6.7	17.0	....	....	....
Jacksonville	2.6	2.0†	4.7	5.4	6.6#	...	...	...	...	....	....	....
Tampa	3.0†	2.0†	1.0*	4.8	4.6	5.2	9.5#	...	...	....	....	....
Atlanta	4.0†	4.1†	3.8	5.7	7.0	13.3	10.1	12.5	14.2	11.1	10.5	8.8

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Incomplete data.

years; Elizabeth and Erie record none in 1938. There has occurred no death among residents from diphtheria or typhoid in Erie during the past four years, and no death in Syracuse in three years. New York reports twenty-six deaths (fifty-eight in 1937), two among nonresidents. In 1937 there were no deaths among nonresidents. In contrast to the experience in New York, five of six deaths in Pittsburgh were among

The preceding articles were published in THE JOURNAL Sept. 20, 1924, p. 918; April 25, 1925, p. 1269; April 3, 1926, p. 1005; April 30, 1927, p. 1396; May 19, 1928, p. 1621; May 25, 1929, p. 1759; June 7, 1930, p. 1838; May 23, 1931, p. 1768; May 7, 1932, p. 1644; May 20, 1933, p. 1595; May 26, 1934, p. 1758; June 15, 1935, p. 2182; June 13, 1936, p. 2060; June 26, 1937, p. 2200, and Aug. 6, 1938, p. 524.

1. Typhoid in the Large Cities of the United States in 1938, J. A. M. A. 112: 1941 (May 13) 1939.

nonresidents. These deaths occurred in Pittsburgh hospitals among sporadic cases from western Pennsylvania. In Reading there were five deaths among residents and the state health department has charged one nonresident back against this city. Of the five

TABLE 4.—*Death Rates of Eighteen Cities in East North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1938	1937	1936	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Grand Rapids	0.0	0.6	0.0	0.3	2.9	19.6	13.5	20.0	26.6	17.2	32.4	99.2
Fort Wayne..	0.0	0.8	2.4†	3.3	5.1	13.1	6.3	....	....	....	....	....
South Bend...	0.0	0.9	0.9	1.3	....	....	....	....	....	....	....	....
Youngstown..	0.0	1.7†	1.1	3.3	10.5	18.5	11.9	40.5	33.5	28.0	17.6	28.4#
Peoria.....	*0.0*	*1.7*	*2.6**	*5.3*	*4.9*	*7.4*	*10.8*	*10.6*	*10.9#*	*14.0*	*14.6*	*68.0*
Akron.....	0.0	2.8	1.6	2.7	4.9	10.4	18.9	27.8	21.8#	....	....	....
Milwaukee....	0.3	0.6	0.3*	2.0	8.5	11.4	19.8	27.8	26.4	22.7	51.7	116.2
Cleveland.....	0.5	0.6	1.1	2.5	15.3	14.7	20.0	24.6	20.8	42.6	45.3	95.7
Toledo.....	0.6*	2.5	1.0	2.8	7.2	22.4	14.1	25.4	20.4	56.3	34.6	89.3
Canton.....	0.9	0.9	1.0*	1.7	2.9	17.5	15.1#	....	....	....	....	....
Evansville....	0.9	6.3†	2.8	3.2	3.7	13.9	14.9	16.1	21.2	13.8	18.1	69.7
Detroit.....	1.0	2.0	1.1	4.8	19.7	24.3	32.2	33.3	22.6	38.5	62.9	132.9
Columbus.....	1.8	1.9†	1.2†	3.2	4.6	8.5	7.6	12.1	10.5	11.6	28.5	56.9
Flint.....	1.9†	1.8	1.2	2.7	4.5	29.9	25.5	12.7	11.9	16.8	6.9	69.2
Chicago.....	1.9	2.3	2.5	4.3	11.7	17.5	31.2	37.9	27.0	33.9	69.7	117.3
Cincinnati....	3.2†	1.1†	1.7†	3.2	5.2	10.6	13.2	13.9	17.0	17.3	37.3	103.7
Indianapolis..	4.8†	2.7	3.0	3.1	6.6	11.7	21.4	13.5	13.3	15.9	36.4‖	97.3#
Dayton.....	5.7	1.4†	2.7	3.5	4.6	9.4	9.3	22.1	13.3	17.2	27.4	82.9

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‖ Diphtheria deaths from Chapin's Municipal Sanitation.
Incomplete data.

patients who died, one was 14 years of age, two were 11, one was 9 and one was 6. A rechecking of the protection status of school children has been instituted.

The nine cities in the South Atlantic states (table 3) report forty-three deaths in 1938, in contrast to fifty-three in 1937 and sixty-seven in 1936 (table 16). The death rate has fallen from a quinquennial average of 3.54 for 1930-1934 to 1.63 in 1938. There is no city in the area without a death during the past two years; Richmond, however, reports only two deaths in 1938, both among nonresidents. Of the nine cities in the group, five (six in 1937) report that one third or more of the deaths occurred among nonresidents. Atlanta remains the only city with a rate as high as 4.0. There is a total of eight such cities (table 9) and Atlanta records the lowest rate in the group of eight. It must be emphasized however that, of thirteen deaths in Atlanta, six were among nonresidents. Of six deaths

TABLE 5.—*Death Rates of Six Cities in East South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1938	1937	1936	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Memphis.....	1.7†	3.8†	2.2†	6.0	5.8	9.5	11.2	11.9	13.4	6.9	10.0	28.5
Louisville....	2.5	0.3*	1.4†	6.3	4.6	10.4	9.5	9.0	....	....	39.0‖	48.6‖#
Birmingham.	*2.7†*	*4.2†*	*2.5†*	*4.2*	*5.4*	*5.3*	*7.2*	*8.3*	*6.2*	*13.4*	*16.5*	*26.3*
Chattanooga	3.3	3.3	3.3	6.8	5.9	8.7	8.9	....	....	....	....	....
Nashville.....	4.3†	3.7†	3.8†	8.2	11.8	8.0	8.9	7.3	10.3	13.9	30.1	28.4
Knoxville.....	8.6†	6.4†	6.5†	9.6	6.3	11.2	...	...	....	....	....	....

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‖ Diphtheria deaths from Chapin's Municipal Sanitation.
Incomplete data.

in Baltimore, three occurred among residents. During 1938 there was some modification in Baltimore of the previous program for securing protection of children against diphtheria through preventive inoculation of alum-precipitated toxoid. Diphtheria prevention clinics were established in all schools with at least one session a month and mothers were urged to bring preschool children to these clinics as well as to promote immunization among children of school age. In addition, a reply post card was enclosed in the usual literature sent to mothers of babies on their six months birthday for the convenience of the physician in reporting inoculations done in private practice. One result has been an increase in the number of such immunizations reported by physicians during 1938. There were 19,325 inoculations against diphtheria in 1938 as compared with 17,934 for 1937. Somewhat similar cooperation of family physicians has been obtained in many places throughout the country, especially in Michigan (Detroit), New York (Albany, Rochester), Connecticut (Hartford) and Indiana (Fort Wayne). Washington reports seven deaths, all in residents.

The eighteen cities in the East North Central states (table 4) report a decrease in the number of deaths from 186 in 1937 to 153 in 1938. The rate has decreased from 1.88 to 1.54 (table 16). While in 1937

TABLE 6.—*Death Rates of Nine Cities in West North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1938	1937	1936	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Duluth.....	0.0	0.0	0.0	0.4	2.0	6.0	10.2	8.8	38.2	29.1	7.6	49.5
Des Moines.....	0.0	0.0	3.5†	4.3	5.2	15.1	16.6	15.1	23.8#	....	....	....
St. Paul.....	0.3	0.7	0.0	1.1	5.2	17.5	20.7	31.4	31.1	27.9	43.3	75.4
Omaha.....	0.4	0.0	2.7	4.7	6.4	22.9	35.8	15.8	24.5	20.5	28.2	82.9
Minneapolis.....	*0.4*	*0.2**	*1.6*	*1.7*	*11.0*	*18.4*	*19.0*	*28.3*	*24.4*	*44.6*	*34.0*	*55.0*
Kansas City, Mo.	*1.4*	*0.5**	*0.0*	*3.2*	*4.7*	*14.4*	*22.8*	*15.7#*	....	....	....	....
Wichita.....	1.9†	0.0	1.0	4.6	4.2	....	....	....	....	....	....	....
St. Louis.....	1.9†	3.2†	2.0	4.3	10.3	16.1	24.4	23.7	19.4	43.3	62.9	67.7
Kansas City, Kan.	2.3	2.3	0.8	3.7	4.6	9.8	23.1	12.4#	....	....	....	....

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Incomplete data.

TABLE 7.—*Death Rates of Eight Cities in West South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1938	1937	1936	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Oklahoma City.	*1.3*	*1.8*	*3.8*	*5.7*	*10.9*	....	....	....	....	....	....	....
San Antonio....	1.9†	2.7	5.0	5.6	10.3	7.7	8.7	6.7	7.6	17.1	20.6	4.4
Dallas.....	2.0†	4.3	7.3	9.7	9.8	8.3	7.4	6.9	8.1	16.9	16.0	21.8
Tulsa.....	2.5	1.4	2.1	6.8	12.5	8.3#	....	....	....	....	....	....
Houston.....	2.5	1.7	4.1	5.6	8.2	6.4	6.1	7.8	10.5	4.2#	2.4	1.8
Fort Worth.....	3.3	4.4	3.9	7.2	10.8	1.7#	2.6#	2.6	2.8	5.4	....	....
New Orleans.....	3.6†	3.9	3.9†	5.5	8.5	6.5	11.6	19.6	10.2	11.5	17.1	51.3
El Paso.....	*4.9*	*6.5*	*3.9*	*8.0*	*7.3*	*20.0*	*17.6*	*29.2*	....	....	....	....

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Incomplete data.

there was no city on the honor roll, in 1938 (table 4) there were six such cities (Grand Rapids, Fort Wayne, South Bend, Youngstown, Peoria, Akron). Toledo reports two deaths, both among nonresidents. The single typhoid death in this city was also in a nonresident. Of the thirteen cities (table 12) with no diphtheria or typhoid death in 1938, five (Fort Wayne, Grand Rapids, Peoria, South Bend, Youngstown) are in the East North Central group. There are two cities (Indianapolis, Dayton) with rates in excess of 4.0. Of eighteen deaths in Indianapolis, seven were stated to be in nonresidents; of thirteen in Dayton, four were in nonresidents. Detroit reports seventeen deaths, two in nonresidents; Flint reports three deaths, two in nonresidents; Chicago reports seventy deaths, two in nonresidents. Detroit and Chicago report localized-area outbreaks in districts where the protection status was unsatisfactory. In Cincinnati the proportion of deaths among nonresidents was unusually high, ten out of fifteen deaths.

The cities in the East South Central states (table 5) report a rate of 3.25, compared with 3.16 in 1937 and

2.96 in 1936 (forty-four deaths in 1938, forty-two deaths in 1937, thirty-eight in 1936). The rate in these cities is the highest for all groups. There is no city with a rate below 1.0, and Knoxville has the highest of all rates for 1938. This is due to the fact that eight deaths among nonresidents are charged to a total of eleven. The hospital facilities in the city draw a large number of nonresidents from the surrounding area. Most of the deaths occurred among residents of Knox County, in which Knoxville is situated. Four cities in this group of six report one third or more of diphtheria deaths to be in nonresidents. Of five deaths in Memphis, two were of residents. Five of the eight deaths in Birmingham were among nonresidents. Nashville reports three among residents in a total of seven. After passing through 1937 with no resident death, Louisville records nine deaths in 1938, seven of residents.

TABLE 8.—*Death Rates of Eleven Cities in Mountain and Pacific States from Diphtheria (Including Croup) per Hundred Thousand of Population*

	1938	1937	1936	1930-1934	1925-1929	1920-1924	1915-1919	1910-1914	1905-1909	1900-1904	1895-1899	1890-1894
Long Beach	0.0	0.0	1.3	0.8	2.6	10.4#	....	....	....	....	....	....
Tacoma	0.0	0.0*	0.0	3.9	9.3	12.4	7.7#	....	....	....	....	....
Seattle	0.3	0.8	0.8	0.4	1.4	6.6	5.5	5.2	12.5	13.4#	27.2‖	....
Salt Lake City	0.7*	2.0*	0.0	0.3	10.1	12.5	14.5	15.1	34.2	46.0	14.8	56..#
Spokane	0.8	0.0	0.0	0.7	7.5	11.3	4.2	7.6	25.8	....	59.5‖	18.1
Portland	0.9	0.6†	0.3	1.3	6.4	11.3	6.0	12.3	12.2	20.2	....	....
San Francisco	1.3	1.2	0.6	1.2	4.6	23.0	17.0	9.2	14.4	44.2	21.6	54.8
Oakland	1.9†	2.6	1.0	2.0	7.4	18.8	8.1	10.3	16.1	29.1	....	....
Los Angeles	2.2†	2.3†	3.5†	4.8	7.0	14.4	7.1	7.5	15.3	25.4	35.8	46.0
San Diego	3.7†	3.2	2.3	2.9	6.6	12.2	10.5	8.0	5.8	2.4	....	....
Denver	4.5	2.0	2.7	3.9	8.9	23.2	6.7	10.2	20.8	29.6	27.3	130.2

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‖ Diphtheria deaths from Chapin's Municipal Sanitation.
Incomplete data.

TABLE 9.—*Eight Cities with Highest Diphtheria Rate for 1938*

Atlanta	4.0†	El Paso	4.9
Nashville	4.3†	Reading	5.3
Denver	4.5	Dayton	5.7
Indianapolis	4.8†	Knoxville	8.6†

† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

TABLE 10.—*Ten Cities with No Diphtheria Deaths in 1937 and 1938*

Des Moines	Long Beach	Rochester†
Duluth‖	Lowell	Springfield
Elizabeth‖	Lynn	Utica*
Erie†		

* No diphtheria deaths in five years.
† No diphtheria deaths in four years.
‖ No diphtheria deaths in three years.

The nine cities in the West North Central states (table 6) report a continued decrease in rate (1.37 in 1936, 1.26 in 1937, 1.11 in 1938). The diphtheria deaths decreased from thirty-five in 1937 to thirty-one in 1938. Although there were four cities on the honor roll in 1937, only two (Duluth, Des Moines) remain on this list in 1938. Duluth reports no diphtheria death in three years, Des Moines none in two years. Allocations have not, however, been completed by the Iowa state health department. There is but one city in the group with a death rate in excess of 2.0. Of sixteen deaths reported in St. Louis, twelve occurred among nonresidents. In 1937 there were eleven among nonresidents in a total of twenty-seven. In 1938 three fourths of the deaths in St. Louis were in nonresidents. The influence of hospitalization policies is very evident. After two years with no death among residents, Kansas City, Mo., reports five such deaths in 1938 in addition to one death among nonresidents.

TABLE 11.—*Twenty-Four Cities with No Diphtheria Deaths in 1938*

Akron	Long Beach	Rochester
Albany	Lowell	South Bend
Des Moines	Lynn	Springfield
Duluth	New Bedford	Syracuse
Elizabeth	New Haven	Tacoma
Erie	Paterson	Utica
Fort Wayne	Peoria	Yonkers
Grand Rapids	Providence	Youngstown

TABLE 12.—*Thirteen Cities with No Diphtheria and Typhoid Deaths in 1938*

Elizabeth	Lynn*	South Bend
Erie	New Bedford	Tacoma
Fort Wayne	Peoria	Utica**
Grand Rapids	Providence	Youngstown
Lowell		

* No diphtheria or typhoid deaths in two years.
** No diphtheria or typhoid deaths in three years.

The eight cities in the West South Central group (table 7) have relinquished their unenviable position of having the highest group rate. The East South Central cities have succeeded to this position. The Southwestern cities have a rate of 2.69 for 1938, which compares favorably with the highest quinquennial average for 1930-1934 (6.55). The diphtheria deaths decreased from sixty-seven in 1937 to fifty-seven in 1938. There is no city without a death and but one city with a rate in excess of 4.0. El Paso recorded the highest rate for all cities in all groups in 1937. In 1938 there are three cities with higher rates. With six deaths in Dallas, two were among nonresidents. Of nineteen deaths in New Orleans, eleven were among residents.

TABLE 13.—*Five Cities in Which All Diphtheria Deaths in 1938 Were Stated to Be in Nonresidents*

Boston	Salt Lake City**
Hartford*	Toledo*
Richmond	

* All typhoid deaths in 1938 were stated to be in nonresidents.
** No typhoid deaths in 1938.

TABLE 14.—*Number of Cities with Various Diphtheria Death Rates*

	No. of Cities	40 and Over	20 and Over	10 and Over	5 and Over	Under 5	0.0
1890-1894	64	52	60	61	62	2	0
1895-1899	66	34	53	63	65	1	0
1900-1904	68	22	46	64	66	2	0
1905-1909	72	3	43	66	71	1	0
1910-1914	70	1	36	63	78	1	0
1915-1919	84	0	25	62	81	3	0
1920-1924	88	0	14	65	86	2	0
1925-1929	92	0	1	22	67	25	0
1930-1934	93	0	0	0	24	69	0
1935	93	0	0	2	17	76	19
1936	93	0	0	0	5	69	19
1937	93	0	0	0	3	70	20
1938	93	0	0	0	3	66	24

The Mountain and Pacific states (table 8) report seventy-four deaths in 1938, an increase over the fifty-nine deaths recorded in 1937. The rate has increased from 1.43 to 1.75, approximately the same as for 1936 (1.78). There are two cities with no death in 1938

(Long Beach, Tacoma). There has occurred no diphtheria death among residents of Tacoma in four years; none in Salt Lake City in three years. Spokane, after remaining on the honor list for two consecutive years, reports one death among residents in 1938. The nine recorded deaths in San Francisco are among residents. It is reported that, in Los Angeles, thirteen of the thirty-two deaths occurred among nonresidents. The figures are identical with those for the preceding year. Denver reports fourteen deaths among residents, no record being kept for nonresidents.

Of the entire ninety-three cities there remain three with a rate of 5.0 and over (table 14). The number

TABLE 15.—*Total Diphtheria Death Rates for Eighty-Eight Cities, 1923-1938* *

	Population	Diphtheria Deaths	Diphtheria Death Rate per 100,000 of Population
1923	31,060,848	4,076†	13 13
1924	31,722,841	3,439	10.84
1925	32,384,834	3,133	9 67
1926	33,046,827	3,106	9 40
1927	33,708,820	3,493	10 36
1928	34,370,813	3,176	9.24
1929	35,032,806	2,738	7.82
1930	35,694,802	1,827	5 12
1931	36,303,412	1,366	3 74
1932	37,084,712	1,191	3 21
1933	37,084,712	861	2 32
1934	36,777,112	821	2 23‡
1935	36,777,112	764	2 08‡
1936	37,575,107	561	1 50
1937	38,169,704	536	1.46#
1938	38,410,545	473	1 .3‡#

* The five following cities are omitted from this summary because data for the full period are not available: Jacksonville, Miami, Oklahoma City, South Bend and Utica.

† Data from Fort Worth lacking

‡ The rate for the ninety three cities in 1935 is 2 09 (population 37,437,812, diphtheria deaths 782) The corresponding rate for 1934 was 2.26 and the average for 1930 1934 was 3 34 The rate for ninety three cities in 1936 is 1 51, population 38,249,094, diphtheria deaths 577.

Rate for ninety three cities in 1937 was 1 46 (total population 38,885,435, diphtheria deaths 568)

Rate for ninety-three cities in 1938 was 1 23 (total population 39,141,576, diphtheria deaths 483)

Special Note.—Deaths for 1936 have been corrected, as Yonkers originally reported eight deaths and later corrected report to one death

of cities with no deaths from diphtheria has increased by four; that is, from twenty to twenty-four. A most significant gain has been made by the cities in the East North Central states (table 4).

TABLE 16.—*Total Diphtheria Death Rates per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Dimensions*

	Population	Diphtheria Deaths 1938	Diphtheria Deaths 1937	Diphtheria Death Rates 1938	Diphtheria Death Rates 1937	Diphtheria Death Rates 1930-1934	Diphtheria Death Rates 1925-1929
New England	2,645,438	17	21	0 64	0 79	3 38	8 34
Middle Atlantic	13,469,996	64	95	0 48	0 71	2 50	9 97
South Atlantic	2,638,626	43	53	1 63	2 04	3 54	7 37*
East North Central	9,907,440	153	186	1 54	1 88	3 66	11 21†
East South Central	1,355,080	44	42	3 25	3 16	6 36	6 34
West North Central	2,785,688	31	35	1 11	1 26	3 22	7 82
West South Central	2,120,573	57	67	2 69	3 21	6 55	9 24‡
Mountain and Pacific	4,220,735	74	39	1 75	1 43	2 69	6 28

* Lacks data for 1925 for Jacksonville and Miami

† Lacks data for South Bend

‡ Lacks data for Oklahoma City for 1925 and 1926.

For the entire group of ninety-three cities the diphtheria death rate in 1938 was 1.23, compared with a rate of 1.46 for 1937 and 1.51 for 1936. The actual number of diphtheria deaths has decreased by eighty-five (from 568 to 483).

The remarks from the various public health administrators indicate that intensive programs are being carried on in many parts of the country. The family physician is teaming up more frequently with the health department and medical society and dispensing more preventive services in his own office. The evidence at hand indicates that the protection programs so extensively maintained throughout the country are resulting in a lower death rate from diphtheria.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE AND REPORTS

HOWARD A. CARTER, Secretary

MEDICAL DIATHERMY

Medical diathermy is the therapeutic use of heat generated in the body tissues by a high frequency current which has insufficient local intensity to produce temperatures high enough to destroy the tissues or impair their vitality. Such currents are applied locally by three methods: (1) conventional long wave diathermy, contact metal electrodes being used, (2) short wave diathermy with an electric field, air-spaced or insulated electrodes being used, and (3) short wave diathermy with an electromagnetic field method, a cable being used.

In conventional or long wave diathermy the frequency of oscillation is usually from one-half million to three million cycles a second. In short wave diathermy the frequency of oscillations may be from ten million to 100 million cycles a second.

PHYSIOLOGIC EFFECTS OF LOCAL MEDICAL DIATHERMY

The effects of electric current when applied to body tissues may be thermal, chemical or mechanical, depending on the physical characteristics of the current. The fundamental reason for using high frequency currents for heating is that the body heat may be raised without injury or electrical stimulation.

With regard to short wave diathermy, there has arisen considerable controversy as to whether it produces specific effects other than that of heat. In the light of present observations, the consensus seems to be that no definite physiologic effects other than those attributable to heat have been substantiated. The physiologic effects of heat have been considered by Pemberton [1] and by Gill [2] and will not be discussed here

SHORT WAVE DIATHERMY VS. CONVENTIONAL DIATHERMY

The consensus seems to be that there is no great difference in the effects produced by short wave diathermy and conventional diathermy except that the former apparently produces deeper, more uniform heating and is more readily applied.

DOSAGE

The regulation of doses in medical diathermy is empirical. In short wave diathermy the only recognized method of measuring doses is the comfortable heat sensation of the patient's skin. The milliammeter on the high frequency apparatus does not measure the electrical energy passing through the patient. In high frequency apparatus the milliammeter indicates the amount of current passing through it but does not measure the electrical energy passing through the patient. The patient's tolerance is the most important guide for the final dose to be used. If it is suspected that the sensibility to heat may be deficient in the skin over which the electrodes are placed, it is advisable to

1. Pemberton, Ralph: Physiologic Effects of Heat, Handbook of Physical Therapy, 1939.

2. Gill, A. Bruce: Heat in Surgical and Orthopedic Conditions, Handbook of Physical Therapy, 1939.

test the skin with hot water in a test tube, using the operator's skin sensation as a control.

It is to be emphasized that in short wave diathermy there should be no clothing between the electrode and the skin. A burn received from a treatment by short wave diathermy when the clothes have not been removed might readily provoke a medicolegal situation. After the treatment it is important to inspect the skin of the part treated.

The regulation of dosage with short wave diathermy is an even more empirical procedure than with conventional diathermy. The milliammeter is connected to the oscillatory circuit of the apparatus and serves chiefly as an indicator that electrical energy is passing. It will also indicate that in a certain position of the controls, when the patient's circuit is tuned to the oscillator circuit, there is a maximum flow of energy in the treatment field.

CONTRAINDICATIONS

It is important to keep the contraindications for diathermy in mind. The local application of high frequency currents is contraindicated in the case of certain acute inflammatory processes, such as acute nondraining cellulitis and acute infectious arthritis, or any condition in which there is a tendency to hemorrhage, such as a gastric ulcer; over areas in which the appreciation of heat has been impaired or lost, as in the case of certain peripheral nerve injuries; through the abdomen, pelvis or lower part of the back during pregnancy; during menstruation or thirty-six hours before or after menstruation, and over areas where a malignant growth is suspected.

INDICATIONS

Contusions.—The early application of cold by compresses or ice bag will reduce ecchymosis, swelling, pain, tenderness and limitation of motion. After the first twenty-four hours, infra-red radiation and medical diathermy may be applied to increase activity of the circulation.

Muscle Strains.—These are treated like contusions with regard to the application of cold and heat. For muscle strains, diathermy must be applied for only a short time and at a low intensity for the first treatment, as it may cause an increase in the swelling.

Myositis Ossificans.—With muscle injuries there is always the possibility of the development of myositis ossificans, which tends to progress unless the affected area is properly treated. The treatment consists primarily in rest and increase of local circulation by various means, especially diathermy.

Sprains and Dislocations.—There are various degrees of sprains, and treatment varies in direct proportion to the damage done to the soft tissues. Immediate walking may be advised in cases of slight sprain of the ankle, while rest in bed may be indicated in cases of severe sprain.

A mild sprain of the ankle can be satisfactorily treated by strapping to prevent lateral motion but not plantar and dorsal flexion. The efficacy of this method depends on the efficiency of the strapping. It is thought that plantar and dorsal flexion have a direct effect in promoting return of circulation and prevention of adhesions.

In the treatment of some sprains and dislocations, fixation by a removable plaster splint and the daily application of heat and massage may be preferred. In sprains or dislocations, ligaments are torn and muscles, blood vessels, nerves, tendons and the synovial membranes of the joint are injured; there are hemorrhage from the torn vessels, swelling and muscle spasm. Inflammatory action is noted with heightened local metabolism and elevation of temperature. For immediate treatment, therefore, local applications of cold with rest, proper compression, bandaging and elevation are indicated. After the first twenty-four to forty-eight hours, there are local edema and decreased local metabolism. Then the treatment should consist in removal of the splint and bandage followed by the application of external heat or diathermy, and this is usually succeeded by massage and exercise to produce a free flow of blood through the part. One must not forget, however, that other methods of applying external heat are available, such as those described in other chapters of the Handbook of Physical Therapy concerning heat. Among other important measures following the heating of these parts is the stimulation of circulation by massage and exercise.

Bursitis.—The first attack of bursitis can usually be relieved by physical therapy in about two weeks. The part should be placed at rest. For acute bursitis, infra-red radiation from a luminous source is given for thirty minutes at least twice daily and short wave diathermy is applied for twenty minutes once daily. As the pain diminishes, careful massage and relaxed motion should be employed; later, active exercise is started. Acute subacromial, radiohumeral, olecranon and prepatellar bursitis are treated in this manner. In a few cases, diathermy may aggravate the pain. In these cases it may be necessary to put the patient to bed and apply continuous moist heat.

For chronic subacromial bursitis, conservative measures, such as rest, infra-red irradiation, short wave diathermy, massage and exercise should be tried before operation is considered. In some cases of chronic involvement with severe pain the shoulder should be immobilized in an airplane splint. In this form of bursitis, calcified deposits may form without any apparent cause, are often fragmented and may disappear spontaneously. It is believed that diathermy may aid in the absorption of such deposits. When conservative measures fail, operative removal of the bursa and its calcified deposit is advised.

Tenosynovitis.—Traumatic tenosynovitis most commonly affects the tendons of the wrist, the achilles tendon and the long head of the biceps. The treatment is to immobilize the joints whose motion causes pain in the tendons. The splint is removed and short wave diathermy is applied for twenty minutes once daily, followed by radiant heat once or twice daily for twenty minute periods. It may be advisable to use motion in a whirlpool bath to prevent adhesions.

Rheumatic, gouty and gonorrheal tenosynovitis are treated in the same manner as the traumatic form. Pyogenic tenosynovitis is a surgical problem and diathermy is not used in its treatment.

Chronic Arthritis.—This is not a disease of certain joints but rather a systemic illness, in which there may be disturbances of the circulation, general metabolism, gastrointestinal tract and nervous system. The syndrome of chronic arthritis includes the nerve, muscle and joint diseases called neuritis, myositis, fascitis and arthritis, according to the part affected. Local and general applications of heat have perhaps their most extensive varied usage in the treatment of chronic arthritis. In chronic arthritis the circulation in the more narrow vessels, especially at the periphery, is usually diminished. The involved areas may be cold and clammy, but they may also present rubor, dolor and color. In any event, local heat may prove of great value, as may systemic applications, because of the

alteration and improvement in the circulation brought about. Great care should be exercised in the application of heat in cases of hypertrophic arthritis, since heat may constitute a form of trauma which aggravates the conditions already present. When indicated, however, local application of heat should be made from two to four times a day in the patient's room to produce an adequate increase in circulation, and, if medical diathermy is used, it may be supplemented with the former treatment. When medical diathermy is used for chronic arthritis it should be used for a short period with low intensity for the first few doses, because sometimes it causes an aggravation of the local symptoms. Clinical benefit, however, has been observed so often from diathermy that one should always give it a trial.

Myositis and Myofascitis.—These conditions are inflammations of the muscles characterized by pain on motion, spasm and tenderness on pressure. When the inflammation involves the lumbar muscles, it is known as lumbago; the intercostal spaces, pleurodynia, and the neck muscles, torticollis. In the local treatment of acute forms, rest and the application of heat are recommended. This heat may be applied by hot compresses, continuous moist heat, infra-red radiation from a luminous source or medical diathermy.

Fibrositis.—This has been defined as a swelling and proliferation of the white fibrous tissue anywhere in the body in response to injury or very toxic infection, with a secondary effect of pressure on arterioles and nerve filaments. Many American clinicians have been loath to recognize fibrositis because its morphologic lesions are ill defined and its symptoms subjective. Those who do recognize it by its nodules in the muscles classify most forms of muscular rheumatism as fibrositis and treat the condition with deep massage. Heat, massage and exercise are used as adjuncts in the treatment, and diathermy may be used as one of the methods of giving heat.

Fractures.—The principles of fracture treatment are restoration of anatomic form, maintenance of alinement and fixation of the fracture during the period of union, and maintenance and development of function. (For a more complete discussion, see "Physical Therapy in the Treatment of Fractures," by Dr. Frank D. Dickson, included in the Handbook of Physical Therapy.) Heat, massage and mobilization are important physical therapy measures, the object of which is to increase the activity of the circulation, to prevent adhesions in muscles and joints, to prevent muscular atrophy and later to increase muscle strength. The heat, of which one method of production is medical diathermy, is used mainly as an adjunct to massage and exercise.

Genito-Urinary Conditions.—Medical diathermy is used by a few clinicians as one of the methods of applying heat for the treatment of epididymitis and prostatitis.

Pelvic Infections.—Some gynecologists use medical diathermy as one of the methods of applying heat in cases of pelvic infection, although most gynecologists believe that a low degree of heat usually suffices.

Respiratory Diseases.—The chest compress is used by some clinicians to apply heat in the treatment of bronchitis. If the patient is in the hospital, it is believed that medical diathermy is more effective and easier to apply. With bronchitis, this method relieves the pain and soreness in the chest, reduces the viscosity of the secretions and thus makes expectoration easier; it also relieves the coughing.

It has been observed that, in the management of pneumonia, medical diathermy does seem to be of definite benefit in reducing the severity of thoracic pain. This symptomatic relief is important. The main factors concerned in the production of anoxemia are the passage of blood through the unaerated portion of the lung and shallow breathing. The shallow breathing may be due to pleuritic pain restricting the respiratory excursions. The relief of this pain by diathermy increases the respiratory excursions and this may be the explanation for the decrease in cyanosis that is usually noticed. There is no evidence that medical diathermy has a specific action on the pneumonic process.

Gastrointestinal Diseases.—For such conditions as acute enteritis, spastic colitis and simple catarrhal jaundice, abdominal warmth is suggested as an aid in treatment. An electric heating pad or a hot water bag kept on the abdomen for hours at a time is useful therapeutically. Infra-red irradiation is a convenient way of applying heat; diathermy, if mild and properly applied, is also of benefit.

Inflammation of the Peripheral Nerves.—With the various forms of neuritis, radiculitis and neuralgia, applications of heat may allay the inflammation and the pain. For deep penetration of heat into the tissues, medical diathermy may be used as a method of applying heat as an adjunct in general treatment. In the case of acute neuritis or acute radiculitis, it is believed that the first two treatments should be given at half the patient's tolerance for about ten minutes to see whether there is any aggravation of the symptoms.

Acute and Chronic Sinusitis.—Infra-red irradiation and medical diathermy are useful adjuncts to other treatment after adequate drainage has been established. Medical diathermy is of value as an aid in the relief of pain; the frontal and maxillary sinuses are the ones most suitable for treatment.

Eye Diseases.—The indications for medical diathermy are by no means well established. It is believed that this treatment may be used to relieve pain from chronic keratitis, neuralgia, herpes zoster and iritis.

Suppurative Processes.—Short wave diathermy has been advocated in the treatment of suppurative lesions with external drainage and doubtless will be of aid in this treatment. However, sufficient comparative study is not available to determine whether short wave diathermy is more effective than the simpler forms of heating.

SUMMARY AND CONCLUSIONS

While there appears to be no great difference between the effects produced by conventional and short wave diathermy, short wave diathermy seems to produce deeper, more uniform heating and is more readily applied, although the control of dosage is more difficult than with conventional diathermy. Nevertheless, burns are less likely to be produced in short wave diathermy.

So far as competent investigators have been able to determine, there is no demonstrable selective thermal action in the living body. The Council has accepted certain short wave apparatus, which are listed in a booklet "Apparatus Accepted by the Council on Physical Therapy of the American Medical Association." Physicians are urged to read this booklet before purchasing an apparatus. The Council requires certain definite tests for deep heating before accepting an apparatus, and its survey of the machine gives the results of these tests as well as the efficiency and accepted technics for use of the machine.

Clinical observations, however, have not indicated that the penetration of heat induced by short wave diathermy presents advantages not obtained by con-

ventional diathermy. In the light of present observations, no specific physiologic effects other than those attributable to heating have been substantiated.

The consensus (particularly of those who have performed careful experiments) would seem to be that the effect of various wavelengths between 3 and 30 meters is approximately the same. There are apparently no specific bactericidal effects other than those attributable to heat, either in vitro or in vivo. There is no reason to believe that treatments of five minutes or less have any marked action other than a psychic one.

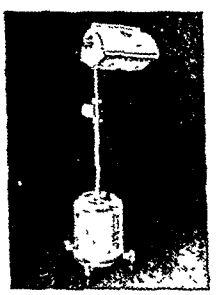
The chief advantages of short wave diathermy over conventional long wave diathermy are its ease of application and the lessened danger of burns.

LUXOR PROFESSIONAL MODEL ALPINE LAMP ACCEPTABLE

Manufacturer: Hanovia Chemical and Manufacturing Company, Chestnut Street and N. J. R. R. Avenue, Newark, N. J.

The Luxor Professional Model Alpine Lamp contains a high pressure, low voltage quartz mercury arc burner and is designed for therapeutic use in hospitals or offices. It is available for operation on alternating current (Model S) and direct current (Model E). The burner is placed inside a processed aluminum reflector so designed as to keep the hood temperature cool. Hinged doors on the hood intercept light and control, within limits, the size of the area irradiated. By rotating the hood, the angle of projection of light may be altered. A steel tape measure is attached to the side of the hood to measure distance from burner to patient.

The hood is mounted on a four-pod base resting on four rubber-tired ball-bearing casters and is adjustable within limits of 53 inches and 68 inches from the floor. When fully telescoped, the overall height of the lamp is 57 inches. The shipping weight of the entire unit is approximately 130 pounds. It is finished in ivory-colored enamel.



Luxor Professional Model Alpine Lamp.

Burners for both alternating and direct current are similar to an extent. Each comprises a transparent fused quartz tubular vessel provided with metal lead-ins for the electric current which are sealed vacuum tight directly to the quartz. The alternating current burner has solid, self-heating electrodes. The burner for the direct current has a mercury pool cathode and a solid incandescent anode. In both models the radiant energy is generated by means of an electric discharge through mercury vapor. The spectrum of radiant energy is that of mercury vapor and the spectral energy distribution of both lamps is that of the high pressure mercury arc in quartz. The load wattage for Model S (alternating current) is 450, for Model E (direct current) is 310. Electric current is supplied to the burner in Model S from a transformer through a reactor; in Model E through a rheostat.

The intensity of the ultraviolet radiant energy at 30 inches from the burner for wavelength 3,130 angstroms and shorter is 1,200 microwatts per square centimeter. This energy will produce a first degree erythema (mild reddening) on the average person after an exposure of one minute. The alternating and direct current lamps are equal in intensity and erythema production.

Reports from clinics indicate that intensities lower than those produced by this lamp are effective in the protection and cure of rickets and infantile tetany in children.

The unit was tried out in a clinic acceptable to the Council and reported to give satisfactory clinical service. The minimal erythema time at 30 inches was three quarters of a minute. The burner lighted instantaneously and the warm-up period was short as compared to older types of ultraviolet units.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Luxor Professional Model Alpine Lamp for inclusion in its list of accepted devices.

HIGH TENSION SHORT WAVE APPARATUS, MODEL RF-1, ACCEPTABLE

Manufacturer: High Tension Electric Corporation, 118 West Twenty-Second Street, New York.

The High Tension Model RF-1 Short Wave Apparatus is recommended for medical and surgical diathermy. It is a portable model, equipped with pad and cuff electrodes and electrosurgical accessories. The unit proper is 19 inches long by 12¼ inches high by 11½ inches deep. The total weight of the unit and subcabinet is 92½ pounds and the weight of the unit alone, without subcabinet, is 41½ pounds.



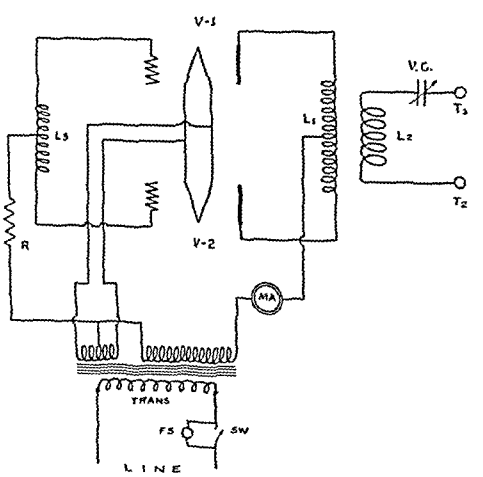
High Tension Short Wave Apparatus, Model RF-1.

Two self-rectifying tubes are utilized in a push-pull oscillator circuit of modified design. The wavelength is between 15 and 15.6 meters. The patient's circuit is inductively coupled to the oscillating circuit. Current to the patient is regulated through a tuning condenser.

The maximum power required to operate the RF-1 Model is approximately 750 watts. The output power is about 275 watts as determined by the lamp load method.

The final transformer temperature of the unit after operation at full load for two hours was 71 C. The final temperature at the top of the cabinet over the transformer was 57.5 C. The final temperature at the bottom of the cabinet was 49 C. These temperatures are within the limits of safety.

Evidence was submitted by the firm to substantiate tissue heating claims made for the Model RF-1 Short Wave Diathermy Apparatus as applied to the living human thigh. Three male subjects were used in these tests. Temperatures before and after the twenty minute applications were taken by means of a hypodermic thermocouple calibrated against a thermometer standardized by the National Bureau of Standards. The skin surface temperatures and the muscle temperatures were observed. The electrodes were 21½ inches long and 2¼ inches wide. The average distance from center to center of the cuffs was 8.6 inches.



Schematic diagram.

The cuffs were operated from the skin by means of felt pads and towels to 1 1/10 inches. The average thigh circumference was 18.7 inches. The average room temperature was 70 F. and the humidity was 51 per cent.

Averages of Six Observations, Cuff Technic

Deep Muscle		Rectal	
Initial	Final	Initial	Final
97.8	106.1	99.1	99.3

Using the cuff technic only, the Council on Physical Therapy voted to include the High Tension Short Wave Apparatus, Model RF-1, in its list of accepted devices.

THE CASE OF BRINKLEY VS. FISHBEIN

PROCEEDINGS OF A LIBEL SUIT BASED ON AN ARTICLE PUBLISHED IN *HYGEIA*

(Continued from page 1968)

TESTIMONY OF DR. MORRIS FISHBEIN

Dr. Morris Fishbein stated his qualifications as a physician and as a writer. He then described the work of the American Medical Association, including the work of the various councils, bureaus and departments. He then described fully THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and its distribution; next, how a physician becomes a member of the American Medical Association, and the nature of membership; then the foundation of *Hygeia*, its purposes, circulation, income and loss.

The evidence then proceeded:

Q.—Doctor, referring to the article upon which this suit is based, you were the author of that article, weren't you? *A.*—Yes, sir.

Q.—Will you tell us from what source or sources you procured the information and material for that information? *A.*—Most of the material was secured from the files of the American Medical Association, which are maintained constantly, which I have described, by the Bureau of Investigation; the Bureau of Investigation, which was established in 1905, maintains permanent files containing the records of all persons, devices, drugs and similar promotions which come under its attention. Most of the material regarding the plaintiff was on file in the records of the Bureau of Investigation; there were also on file in that record the complete reports having to do with the work of the plaintiff issued by him from time to time at his various addresses; there were also on file the records of various hearings that had been held in various states relative to revocation of license.

Mr. Morriss Jr.:—We object to the witness's statement of these various matters as his conclusion and opinion of what they might be.

THE COURT:—Isn't it the rule of evidence that if the party writing the article honestly believes it to be so, why, it may be tendered to mitigate damages?

Mr. Morriss Jr.:—But he can't tell what is in some instrument or letter that he doesn't produce.

THE COURT:—I shouldn't think so, not as proof of the truth of those facts, but he can testify as to the sources from which he got the information he put in the article.

Mr. Morriss Jr.:—He can't tell what he got, and he has now been stating that, and we move to exclude it. We agree with the Court that he is entitled to state where he got it from, but not the contents of the written matter.

THE COURT:—I didn't understand that he had stated the contents; he said he got it from certain records of hearings where the matter was regarding the revocation of license.

Mr. Morriss Jr.:—That is stating the import of the information.

THE COURT:—I think this is quibbling; the plaintiff was interrogated in regard to that. I will overrule the objection.

Mr. Morriss Jr.:—Note our exception. It calls for a conclusion and opinion of the witness.

A.—I had also available letters sent to headquarters office by persons relative to the plaintiff; I had also records of conversations and reports with persons relative to the plaintiff.

Q.—Now, Doctor, it is alleged in the complaint that this article was printed in the *Hygeia* of February 1938, and was that an original article for the February number of *Hygeia*? *A.*—The article appeared in two parts, the first part in January and the second part in February.

Q.—Now, we notice that the article in the January issue is headed, as counsel has shown, "Modern Medical Charlatans"; is the article declared upon and which is published in *Hygeia* for the following month, February 1938, a continuation of that series of articles on that subject? *A.*—It is.

Q.—Doctor, do you know John R. Brinkley in person? *A.*—No, sir.

Q.—Have you ever met Dr. John R. Brinkley before this trial? *A.*—No, sir.

Q.—Of course, you had never had any dealings with him? *A.*—No, sir.

Q.—What was your feeling toward John R. Brinkley before writing the article? *A.*—It is a part of my duty as editor of THE JOURNAL and of *Hygeia* that—

Mr. Morriss Sr.:—Just a moment, may it please the Court, that is argumentative.

THE COURT:—It is not responsive to the question.

Mr. Morriss Sr.:—Yes, but it is an attempted argument.

THE COURT:—Well, I sustain it. You will have to start over and answer the question. He asked you what was your feeling toward him. You are entitled to explain that, if you want to.

A.—My feelings would be, from a scientific point of view, quite negative; in other words, for a period of approximately about twenty-five years, week after week, month after month, we have published articles describing various patent medicines, nostrums, charlatans and promotions in the field of health, and in the course of that work there came to our attention the performances of the plaintiff, and in accordance with the usual carrying out of the work it becomes necessary then to discuss the performances of the plaintiff along with others in the same field.

Q.—Well, did you have any personal animosity toward Dr. Brinkley? *A.*—No, sir.

Q.—Well, now, Doctor, there has been something said during this trial about eclectic physicians and what is an eclectic physician? *A.*—There have been from time to time in the practice of medicine various fields of medical practice devoted to special—

Mr. Morriss Sr.:—There may be some limitation, but the answer as it starts out is not responsive, it is just a continuation of the answer.

THE COURT:—Everybody can't speak in absolute terms of definition, and if he wants to tell us in his own way what eclectic is, he can do it.

A.—I might point out there was one school of eclectic physicians that existed 1,500 years ago, and that school of eclectics is, obviously, obsolete; more recently a school of eclectic was established about the time of the Revolutionary War of the United States, and it reached its height about 1850, and from that time on eclectic medicine began to decline, representing eventually a certain group of doctors that believed primarily in plant remedies and believing that for each disease there was a plant remedy; certain schools remain that teach that belief.

Q.—And one of those schools was the Kansas City Eclectic Medical College, is that right? *A.*—Yes, sir.

. . . . . .

Q.—In this article there is some mention made by you of the plaintiff's activities in performing operations by the transplantation or implantation of goat glands in a human being, and from what sources did you obtain that information? *A.*—Most of the information from the pamphlets issued by the plaintiff himself, some of the information through personal visits to the state of Kansas and occasional conversations with persons who had been directly familiar with such transplants.

Q.—Now, there is also some mention made in the article of the plaintiff conducting the so-called medical question books, and from what source or sources did you receive that information? *A.*—I heard the plaintiff repeatedly as he made his radio broadcasts, and I had also opportunity to see transcripts of his broadcasts, and I was familiar also with the record of the appearances before the Federal Radio Commission.

Q.—That was in connection with the revoking of the plaintiff's radio broadcasting license? *A.*—That was in connection with the Federal Radio Commission's decision not to renew the license.

Q.—Now, there is a statement in the article declared upon in regard to the plaintiff's license to practice medicine in Kansas being revoked. *A.*—Yes, sir.

Q.—From what source did you receive that information? *A.*—The records of the Bureau of Investigation contain a complete statement relative to the revocation of the license in Kansas; I obtained information also regarding that from Dr. C. C. Nesselrode, who investigated the work of the plaintiff at first hand and also from Dr. J. F. Hassig, who is a member of the Kansas Board.

Q.—Who is Dr. Nesselrode? *A.*—Dr. Nesselrode is a physician in Kansas City, Kansas, who has himself for the Kansas Board witnessed an operation by the plaintiff in Milford, Kansas.

Mr. Morriss Sr.:—That is obviously the merest, rankest hearsay, and we move to exclude the statement.

THE COURT:—It may be that you know something more about it than I do, but it is my understanding that in these kind of cases the law is that a party accused of libel is entitled to state the sources where he got the information and what it was. I don't admit the statements of third persons for the purpose of proving the statements, but I admit it for showing that he received it from third persons, and if he wants to testify that he believed them and acted on them, I think it is proper evidence.

Mr. Morriss Sr.:—He testified he received it from Dr. so and so, who witnessed—

THE COURT:—It may be that he ought to say that Dr. Nesselrode told him.

Mr. Morriss Sr.:—Then, we have no objection to that.

A.—I will revise the statement that I received the statement from Dr. Nesselrode, who said he had witnessed the operation.

Q.—You believed that statement, did you, Doctor? *A.*—Yes, sir.

Q.—Now, I notice that in the article there is the statement in regard to the compound prostate operation of the plaintiff, and I will ask you from what source or sources you received that information? *A.*—I have read the records in which the Kansas State Board of Medical Registration received the report from Dr. Nesselrode on which basis that Kansas State Medical Board revoked the license, and the report of Dr. Nesselrode describing the four phase compound operation as given to Dr. Nesselrode, according to his statement, at the time when he watched the plaintiff perform the procedure on two patients.

Q.—Now, it is said here, as part of the article that I am referring to, that Dr. Brinkley has a high pressure man in his front office to make sure that those who come to the hospital will have the money to pay in advance for the work, and from what source or sources did you receive that information? *A.*—In the first place from a patient who, having submitted himself to a procedure by the plaintiff, later visited the Mayo Clinic in Rochester, Minnesota, and made a direct statement of his financial relationship at the time when he visited the plaintiff; second, from the repeated statements of the plaintiff in broadcasts as to the financial ability of those requested to come to his hospital.

Q.—Now, it says here, Doctor, "they are able to develop mortgages, loans, and conversion of securities in order to permit the patient to pay on the nail for what he is going to get," and from what source or sources did you obtain that? *A.*—From the statements of the patient already mentioned, and also from the statement of the business manager, I believe, who was here yesterday, for the present time; prior to that time from the statement made by this patient and the statements made on the radio as to the financial ability of those coming to the hospital.

Q.—And you believed those statements, did you, Doctor? *A.*—I believed that the plaintiff meant what he said when he said that he wanted them to be financially able.

Q.—Now, it says "most of the business, however, seems to come by way of the mail, and it is time for the Post Office Department to do something in regard to the use of the United States mails by John R. Brinkley in his defrauding of the public," and from what source or sources did you receive that information? *A.*—From listening to the broadcasts of the plaintiff on many occasions, and on one occasion in which the plaintiff said in my own hearing to the people to send him merely a bill with their name on a sheet of paper mentioning the broadcast, but not to describe the symptoms, merely send the name on a piece of paper with a bill; in fact, if I can remember the exact words, he didn't have time to go into the symptoms and that he would send a bottle of medicine that would be of help to them.

Q.—Now, it says here, Doctor, in your article "another of the Brinkley schemes is to sell to the patient who comes to his lair five ampules of his remedy for postoperative treatment at a cost of $100. These the patient is supposed to take home in order that the contents may be injected into him by his selected doctor. When an analysis of the selected ampules was made, it revealed that they contained a solution of approximately 1 drop of indigo to 100,000 parts of water—about what you would get by throwing a bottle of bluing into Lake Michigan." from what source or sources did you receive that information? *A.*—Letters, as

I have said, come in many thousands to the headquarters of the Association from physicians and from the public inquiring about all medical matters in the public eye, and in the course of our work there came letters from several physicians indicating patients had returned to their home town bringing along—

Mr. Morriss Jr.:—We object to the statement of the letters as not being the best evidence.

THE COURT:—Overruled.

Mr. Morriss Jr.:—Note our exception. It is hearsay.

A.—Letters had come from physicians indicating their patients had returned home bringing along certain ampules, these patients requesting the doctor to inject the material into the patient as a part of the post-operative treatment; one physician stated definitely that his patient had said to him that he had paid $100 for this material. These letters were sent to the Division of Drugs, Foods and Physical Therapy where Dr. Leech, as a previous witness has described, is director, and Dr. Leech requested the physicians to send the ampules, which have been produced in court, and these ampules were turned over by Dr. Leech to Dr. Schoeffel, who then made, as he has described, a series of tests to determine the content of the ampules; then, to describe the matter in such form that any one might understand the relative value of the contents of this ampule the description was made as reported in the statement.

Q.—Doctor, how did you conclude that this solution, which has been analyzed in the Chemical Laboratory and known as 1020, is about what you would get by throwing a bottle of bluing into Lake Michigan, as you stated in this statement? *A.*—The report was made by Dr. Schoeffel to Dr. Leech, who is the director of the laboratory and also a chemist, and Dr. Leech conferred with the director of the Bureau of Investigation, and the article published, as a majority of contributions are, many of our articles are, several of the authorities in the headquarters office contributing; and Dr. Schoeffel has shown that the amount of material in the ampule of a solid character was so infinitesimal as hardly to have any appreciable effect. Now, I didn't personally throw a bottle of indigo into Lake Michigan, but the analogy, I believe, is clear.

Q.—Now, Doctor, what is meant by the medical term "isotonic?" *A.*—An isotonic solution is a solution of essentially the same concentration in solid terms as the human blood, and hypertonic is one of greater concentration of solid materials than is the human blood, and hypotonic is one of lesser. If there is any further question, it is customary to inject isotonic solutions into the blood in order to avoid serious reactions. Hypertonics will produce a reaction in the blood, as will also hypotonics.

Q.—What result will hypotonic produce as compared with hypertonic? *A.*—It is associated with an inflammatory reaction of the blood vessel wall.

Q.—Do I understand you to mean that a solution that is injected intravenously should be isotonic? *A.*—Unless for some specific purpose the physician wishes to produce an inflammatory reaction, as he might, for example, in obliterating a blood vessel.

Q.—Now, it is said here in this article, Doctor, "the evidence assembled indicates that at various times Brinkley has made as much as $55,000 a week from his various quackeries. He has been the possessor of three fine yachts," from what source or sources did you obtain that information, Doctor? *A.*—It evidently was brought out in the hearing before the Federal Radio Commission, and at that time there was a failure to renew the license, and there was something with reference to the annual income of the plaintiff; the question of yachts, and so forth, that is a matter of general knowledge, and it has been reported from time to time by various reporters and written up and described by them.

Q.—It says in this article, "he travels abroad and returns to this country in the finest suites on the finest boats, accompanied by his family and the little boy's tutor. On the vessel going and coming neither he nor Mrs. Brinkley engage in conversation with the passengers," and from what source or sources did you obtain that information? *A.*—From two sources: in the biography the statement is made definitely that in a previous visit abroad the plaintiff was shunned.

Q.—Is that the trip to China that was referred to here this morning? *A.*—That was here this morning, and the second source was the personal observation when I returned myself from abroad in August 1937.

Q.—You were on the same boat as Dr. Brinkley? *A.*—I was.

Q.—And that was on the *Normandie* was it? *A.*—Yes, sir, it was.

Q.—And that was about along in August 1937? *A.*—Yes, sir, it was.

Q.—Now, Doctor, in preparing this article for publication in the magazine *Hygeia*, did any one assist you? *A.*—The material was supplied to me by the Bureau of Investigation, by the Division of Drugs, Foods and Physical Therapy, by various divisions of our library department, where material is accumulated, the records having to do with medical licensure and the Council on Medical Education and Hospitals; the article once written, as all articles are, was then sent to an assistant editor or manuscript editor who reread and in spots re-edited the article; then the article went to the proof room where it was read in proof and returned, then, the article went to three associate editors, each of whom also read the article and made various suggestions, and the final article represents, therefore, an item written on my own responsibility, but, to that extent, with the assistance of others in the office.

Q.—And by article, you mean, Doctor, this entire series of articles in both the January and the February 1938 issues of *Hygeia*, do you? *A.*—Yes, sir.

Q.—And, of course, that series of articles, Doctor, refers to various people other than Dr. Brinkley, isn't that right? *A.*—Yes, sir.

Q.—What I mean by that, Dr. Brinkley is just one subject of a series of articles on a series of subjects; that is, he is one person? *A.*—Yes, sir.

Q.—Now, Doctor, it said in the article here at the beginning, "Without anything resembling a real medical education, with licenses purchased and secured through extraordinary manipulations of political appointees, and with consummate gall beyond anything ever revealed by any other charlatan, Brinkley has achieved an enormous success financially," and from what source or sources did you obtain that information for the article? *A.*—The sentence in question refers to several points. First, the point "without anything resembling a real medical education," an accomplished medical education as of the period 1910 or 1911 or 1912 included a year or two of college education, four years of medical education in a recognized medical school, what Mr. Petermeyer described, I believe, as a class A school. Next, the internship in a hospital recognized as suitable for giving an intern a reasonable amount of education and experience; the plaintiff had no such medical education, according to any records that are anywhere available. As to the enormous financial success, the records of the hearing before the Federal Radio Commission indicated the income of the plaintiff at that time, and he, himself, has testified as to his income during 1937—

Mr. Morriss Sr.:—Evidently that, now, must be an argument, because he didn't have that testimony before him when he wrote the article.

THE COURT:—Yes, sir.

A.—According to the admitted ownership of three yachts and a hospital and the living habits of the plaintiff, it was apparent that his financial competence was considerable, at least as compared with that of the average physician, so that he might be said in comparison with the average physician to have made an enormous financial success.

Q.—What do you consider the average amount earned by a physician, as you have stated here?

Mr. Morriss Jr.:—That would be incompetent and a conclusion and an opinion.

THE COURT:—Overruled

Mr. Morriss Jr.:—Note our exception.

A.—There have been reports as to the average income of a physician in the United States, at least three such reports, one made by the United States Government, one made by a committee on the costs of medical care and one made by the Bureau of Medical Economics by the American Medical Association, and all three reports agree that the approximate average income of a specialist in the United States is between $6,500 and $7,000 per year, and the average income of a general practitioner between $3,000 and $3,500 per year.

Q.—Now, while we are on the subject of specialists, what is a specialist in medicine? *A.*—A specialist in medicine is a physician who limits his practice exclusively to a single system of the body or to a single form of medical procedure.

Q.—What qualifications does a specialist ordinarily have? *A.*—A specialist usually has taken special studies in recognized clinics or institutions having to do with the special branch of medicine which he pursues; he is usually a member of recognized scientific societies which are voluntary organizations of the men devoting their attention to such work; he may be the possessor of the certificate of an examining board in the specialty, because there are examining boards which examine men who claim special competency, and they certify to the fact that these men are qualified as specialists.

Q.—How would I determine whether or not a doctor is a specialist? *A.*—If you were to consult the directory of the American Medical Association you would find the schools of graduation, the membership in various special medical societies and also a statement as to whether or not he possessed the certificate of the examining board in his specialty.

Q.—What are some of these specialists' societies that you have referred to, name them, please. *A.*—There are approximately 200 such specialist societies. Concerning the specialties which the plaintiff states to be his specialty, there are the American Urological Association and the American Association of Genito-Urinary Surgeons.

Q.—What is the American Urological Association? *A.*—The American Urological Association is a voluntary organization of some hundreds of specialists who specialize in diseases of the kidneys, bladder, prostate and in various genital urinary diseases.

Q.—And what is the other society that you named, the American Association of Genito-Urinary Surgeons? *A.*—That is an organization consisting of men who specialize in surgical operations on the genital urinary tract.

Q.—Now, Doctor, will you tell us, if you know, whether or not men, that is physicians who specialize in these particular branches of medicine, are ordinarily members of such societies?

Mr. Morriss Jr.:—That is incompetent, irrelevant and immaterial to establish any issue in the case, and we object to it for those reasons, and it would be hearsay, and as to this plaintiff there is not the proper criterion.

THE COURT:—Overruled.

Mr. Morriss Jr.:—Note our exception.

A.—I would say that men recognized in the United States by their colleagues as competent in the field of urology and in the field of genital urinary surgery are usually members of these organizations.

Q.—Well, assume, Doctor, that the medical man holds himself out as being a specialist or a great urologist, would he ordinarily be a member of one or more of these societies that you mentioned?

Mr. Morriss Jr.:—We object to that as going over into a field of speculation, and for all of the other reasons.

THE COURT:—Overruled.

Mr. Morriss Jr.:—Note our exception.

A.—I would say that a man who has achieved prominence in the field of urology and in the field of genital urinary surgery is, in practically every instance, a member of one or the other, or both of these organizations.

Q.—All right, Doctor, now, this medical directory that you have mentioned as being printed and published by the American Medical Association, does that directory show by sign or symbol or in some manner the societies to which the medical men listed ordinarily belong? *A.*—It does.

Q.—So that a specialist or a man who holds himself out as a great urologist or a specialist, whose name is listed in that directory, if he belonged to either one of these societies it would be shown in that directory, wouldn't it? *A.*—It would.

Q.—So, in that manner you could obtain information as to any physician or surgeon as to the societies he belongs to? *A.*—I could.

Q.—By referring to the medical directory? *A.*—I could.

Q.—Now, Doctor, what proportion of the material used in compiling this article was received by you from the Bureau of Investigation, approximately what portion? *A.*—I would say approximately 70 to 75 per cent, three fourths of it.

Q.—Now, that bureau or department deals directly, doesn't it, with inquiries from people that write in regarding physicians? *A.*—Yes, sir.

Q.—That is, among other things, physicians? *A.*—Yes, sir.

Q.—And does the bureau keep a separate file for each of these physicians from whom—that is, of whom they have received inquiries? *A.*—It does.

Q.—Have you had a file on John R. Brinkley in that department for some time? *A.*—We have.

Q.—And is that department or bureau under your jurisdiction as editor of THE JOURNAL and as editor of *Hygeia*? *A.*—Not directly.

Q.—Well, is it connected in any way with the editorial department of these two magazines? *A.*—Yes, sir.

Q.—And in what way is it connected?

The witness then described the work of the Bureau of Investigation. The evidence proceeded:

Q.—Well, Doctor, before compiling this article, you didn't go out and investigate—

Mr. Morriss Sr.:—Don't lead the witness.

Q.—I will ask you did you go out and investigate John R. Brinkley to obtain this material for this article? *A.*—I had at various times been in the state of Kansas, I had at various times been in contact with investigations of the plaintiff in Kansas, and to that extent my knowledge was personal.

Q.—But what I mean is, most of this information came to the Bureau voluntarily? *A.*—By far most of this material came to the Bureau voluntarily from people who were inquiring and who sent along the material on which they based their inquiry.

Q.—Now, before compiling the—that is, when assembling that information and before compiling this statement did you or did you not believe the facts that you incorporated in this statement to be true? *A.*—I believed them to be true and I do believe them to be true.

Q.—Did you or did you not believe at that time the facts that are incorporated in this statement, believe it was a fair and impartial report of the information you had available at that time? *A.*—I do.

Q.—And by that you mean in your official capacity as editor of the *Hygeia* magazine? *A.*—I write always in my official capacity.

Q.—Doctor, we have offered and there has been received in evidence various and sundry exhibits, and I believe you looked at them at the table and are familiar with them? *A.*—Yes, sir.

Q.—Are those exhibits, that is, those pamphlets introduced in evidence here today, exhibits 9 to 38, do they contain the information or some of the information that you incorporated in this alleged libelous statement? *A.*—Yes, sir.

Q.—And did you base the statements that you made, either in whole or in part, upon the information that is contained in those pamphlets and other documents introduced in evidence here today? *A.*—Yes, all information which is contained in the article which I didn't personally see or take part in is based on documents which were available at the time the article was written.

Q.—Now, tell us what is meant by the word "quack"? *A.*—A quack is a person who makes extravagant and blatant claims.

Mr. Morriss Jr.:—That is what he means by it, but that is a matter for the Court to charge the jury as to what is meant by a quack, and it is a question of law.

THE COURT:—There are a great many definitions of "quack," and inasmuch as this man's motive is under question here, he is being sued for an amount for malicious libel, I think he is entitled to say what he meant by saying that.

Mr. Morriss Jr.:—The test is not what he meant.

THE COURT:—No, sir, but the test is what the average person in reading the article thinks; and I will so instruct the jury.

Mr. Morriss Jr.:—Note our exception.

A.—It is my own conception of a quack that a quack is a person who makes extravagant or blatant claims as to his ability in the field of medical science and in taking care of the sick.

Q.—Is that all? *A.*—That is the common, accepted definition, according to my knowledge of a quack.

Q.—Now, tell us what your definition of a "charlatan" is. *A.*—My knowledge of the word "charlatan" would take it to be in the vast majority of instances synonymous with the word "quack," and it means exactly the same thing.

Mr. Morriss Jr.:—The same objection.

THE COURT:—Yes, sir.

The witness described his interpretation of the term "recognized medical school" and the manner in which the American Medical Association investigates and lists hospitals.

The evidence proceeded:

Q.—How many lists of hospitals are published? *A.*—Three in the United States; one by the American Hospital Association, one by the American College of Surgeons and one by the American Medical Association.

Q.—By "lists of hospitals" what do you mean—describe it? *A.*—Hospital lists include what the American College of Surgeons calls acceptable hospitals; and the American Medical Association lists include registered hospitals and hospitals suitable for the training of an intern, and the American Hospital Association hospital list includes those holding membership in the American Hospital Association.

Q.—Do you know if the Brinkley hospitals are on the hospital lists that you refer to? *A.*—The Brinkley hospitals aren't on any of the lists.

Q.—Do you know if they have ever been on that list? *A.*—To my knowledge they have never been on any of the lists.

The jury was then excused from the court room, and the Court discussed with the attorneys the question of the admissibility of evidence as to the Brinkley marriage and divorce.

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Dr. Fishbein resumed the stand, and there was offered in evidence a deposition by Dr. Nesselrode, having to do with his witnessing an operation performed by Brinkley in Kansas. Dr. Fishbein stated the extent to which he remembered the statements made by Dr. Nesselrode and also the deposition.

The evidence then proceeded:

Q.—Now, Doctor, you heard the testimony yesterday of the chemist here in regard to his analysis of form 1020? *A.*—I did, yes, sir.

Q.—And were you previously familiar with that analysis, doctor? *A.*—I was.

Q.—And for how long a time have you been familiar with that? With that analysis made by this chemist? *A.*—Since the time when it was completed.

Q.—Well, did you read his analysis or consider it? *A.*—I did.

Mr. Morriss Jr.:—We object to that, and we ask that all of the testimony be stricken because it appears from something in writing, and we object to it as not being the best evidence.

THE COURT:—He simply asked him if he read it. The chemist testified yesterday to his analysis and the fact that it was given to Dr. Fishbein.

Mr. Morriss Jr.:—But we are now getting at it, sir, and the doctor is attempting to testify what information he had before him and that was by a report in writing.

THE COURT:—I will overrule that portion of it. I think it is too technical.

Mr. Morriss Jr.:—Note our exception.

Q.—Now, Doctor, will you tell us in plain words so that we can all understand it what ingredients of one of these ampules or the ampules, the contents of which were analyzed by the chemist, just tell us in plain words what they were.

Mr. Morriss Jr.:—He couldn't do that. At most he can say what the other man told him and inasmuch as the report is in writing, and it is the best evidence—

THE COURT:—The chemist sat up here and told us what he found in the ampule and the doctor heard him do it, and any doctor could be asked to state in plain words what it was, if he knew.

Mr. Morriss Sr.:—If he was asked if he knew.

THE COURT:—You heard the chemist say what was in it and Dr. Fishbein heard him say it, and he could ask him that way, assuming that the ampule had in it what Dr. Schoeffel said in plain words, what it is. The testimony of Dr. Schoeffel was so highly technical it was difficult for the Court or the jury to get it.

Mr. Morriss Sr.:—But the witness's testimony must stand for itself and it must not be explained by anybody else, that is the usual rule.

THE COURT:—Whenever a witness gives evidence of a highly technical nature other witnesses can tell what it is in plain words so the jury can understand it. I will overrule the objection.

Mr. Morriss Sr.:—Note our exception.

A.—The analysis indicated that the contents of the ampule, which was the little glass bottle, was essentially 20 cc. of fluid, and 1,000 cc. makes a liter, and a liter is about a quart, and it contained approximately 20 cc., which is, as you can see, one fiftieth, or less, of a quart. This was essentially of the character of distilled water, except for an infinitesimal, a very tiny amount of coloring matter, very small indeed, in fact, so small it was necessary to have the services of a microchemist, which is a chemist that deals in very small materials, of which Dr. Schoeffel is one of ten, to make an analysis of small materials that were said to be in the solution, and he also found traces, as shown by the use of spectroscopic technic which is a technic in which one burns a certain amount of solid matter and causes the light to pass through a prism and then it distributes a colored scale on a chart, and on that technic he discovered a very small amount of halogen, and this was chlorine, about the same as common table salt, which is a contamination of the dye substances in the indigo field; and inasmuch as it was indicated that the ampule was said to contain a very minute amount of hydrochloric acid a search was made for that substance, but the indication of the presence of that substance was so minute that the explanation was offered that the walls of the glass had absorbed, perhaps, most of that substance, so that what the patient got exactly was a solution of the distilled water with an infinitesimal amount of dye substance and halogen or chlorine substance. Is that clear?

Q.—Yes, sir. Doctor, there have been many questions asked here the information to cover which has been taken from a book entitled "The Life of a Man," and I think it is by Clement Wood; in other words, a biography of John R. Brinkley, and I will ask you if before preparing this article you read the book "The Life of a Man"? *A.*—I read a copy of the book which was sent to me inscribed by the author as a presentation.

Q.—Now, Doctor, will you tell us what the common custom and practice among physicians in the United States is with regard to advertising, and I will say advertising in the field of medicine? *A.*—It is the common custom of physicians in the United States not to advertise their qualifications, their services or the price of those services in any way to the public.

Q.—And why is that, Doctor.

Mr. Morriss Jr.:—That would be a conclusion, if the Court please, on the part of the witness.

THE COURT:—He can state his opinion.

Mr. Morriss Jr.:—We think it is an improper conclusion and an opinion, and we object to it as such.

Mr. Harrell:—I submit, your honor, the witness has already testified and qualified as an author on medicine.

THE COURT:—I will overrule the objection.

A.—The common custom among physicians almost since time immemorial is to abstain from advertising, as described in the innumerable books, as well as in my own opinion, for the protection of the people, since it should be apparent at once that the physician who advertises and states in his advertising exceptional qualifications which he may or may not possess, and since there is no regulation of advertising of this character, the step would be to bring to the physician's consideration numbers of people who would come, not because of merit of his work, but primarily because they believed his own statement as to his special qualifications or to the fees which he charged and said to be more or less, for example, than the fees of other physicians, or as to the results he had secured, which, of course, the public would have no way of knowing had actually been secured or hadn't been secured, and, then, the custom established by use of practice among physicians is that the relationship of the doctor to the patient is such that the doctor must not vaunt his special qualifications, the fees he charges, the nature of his services, in any way to the public.

Q.—Doctor, what is the custom and practice among the physicians and in the medical fraternity in the United States with reference to new discoveries of medical science or new discoveries in surgery and surgical technic in the performing of operations?

Mr. Morriss Jr.:—We object to that as immaterial and irrelevant to any issue in this case.

THE COURT:—Overruled.

Mr. Morriss Jr.:—Note our exception.

A.—It is a precedent among physicians which has existed since time immemorial, that inasmuch as the public health is of the greatest importance for the advancement of the people and the nation, a doctor shall give freely of his new discoveries or of his operations or of his knowledge to all of the medical profession the moment such discoveries are established in order that as many people as possible may be benefited by the discovery, and with the definite understanding that the doctor shall not personally derive a profit from his discoveries or from his inventions; thus physicians publish descriptions of new drugs, new operations and new discoveries in the field of medicine as soon as they are established in order that other physicians may know of these methods and be able to duplicate them for the benefit of the sick.

Q.—Doctor, can you tell us if Dr. Brinkley has ever revealed or has published for the benefit of the medical profession his surgical technic of this new operation he refers to, or has it been submitted to the profession for criticism? *A.*—As far as I know it has never been published in any medical periodical, nor has it been generally submitted to the criticism of the medical profession.

Q —Doctor, would you tell us, if you know, how many states of the union recognize graduates in medicine from eclectic colleges? A —At the last report, which was officially published, the particular college in Kansas City, the Eclectic—the College of Eclectic Medicine and Osteopathy, wasn't to my knowledge recognized by forty seven of the forty eight states in the union; in other words, there was only one state which recognized that diploma

Q —What state was that? A —The state of Arkansas

The cross examination follows

CROSS EXAMINATION

By Mr. Morriss Sr

Q —But, of course, that didn't mean that if they were licensed to practice they couldn't practice in those states, notwithstanding that they had taken that course of study among others? A —It meant they couldn't practice in any state of original jurisdiction over the first examination, in some instances

Q —I didn't ask you that, and will you please make it a practice instead of going into the long answers just answer my questions yes or no, as far as possible A —Yes sir

Q —I say that didn't mean if they had a license be it that they had made a study of that as well as other systems, they couldn't practice anywhere and the fact that they got a license or diploma from the Eclectic College didn't bar them from practice otherwise? A —It would bar them from practice in some states

Q —Regardless of whether they qualified otherwise? A —It would bar them

Q —Notwithstanding the fact they passed the other qualifications for getting a license, the mere fact they got a diploma in the Eclectic College would bar them, is that your testimony? A —The question is not clear

Q —Supposing they studied other systems and qualified themselves and could take the examinations and pass the tests, the mere fact that they had gone to the Eclectic School at one time would bar them, is that your idea? A —A license requires—

Q —Answer the question yes or no A —It can't be answered that way

Q —The mere fact that they had once studied at this eclectic school, would that bar them? Answer that yes or no A —It might bar them

Q —Would it bar them? A —It would bar them in many states

Q —Necessarily, the mere fact they had studied that system? A —Not the system, the school

Q —Suppose that some doctor had studied at various schools and the various systems approved in those states—

THE COURT —Counsel, in order to bring this matter before us, why suppose all of those things if there is no evidence to support it? Dr Brinkley's testimony is that he studied for three years at a school in Chicago and then he quit for several years, and then went back and took a year's course in the Eclectic School Is it the claim that he went anywhere else?

Mr Morriss Sr —Yes, sir

THE COURT —He never said so in the evidence

Mr Morriss Sr —It could be shown that he studied elsewhere

THE COURT —Why suppose the things if there is no evidence to suppose it?

Mr Morriss Sr —I am getting the viewpoint of the witness, is all

THE COURT —I know, but it would take too wide a range and I want to confine it to the evidence

Mr Morriss Sr —I am not going to take a wide range

Q —Would the mere fact that some doctor had studied at other schools and could pass any examination, would the fact, in the interest of science, that he had gone down and taken a course there, would that bar him in other states? A —It would bar him in some states

Q —That is your idea? A —That is the truth

Q —Have you ever practiced medicine? A —Yes, sir

Q —When? A —I have practiced medicine for the period from the time of my licensure—

Q —When was that? A —In late June 1912, until the time when I became assistant to the editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Q —When was that? A —Which was in late August 1913

Q —You mean you practiced medicine, then, how long? A —Slightly over one year

Q —You practiced medicine slightly over a year where? A —In the city of Chicago

Q —Whom did you office with? A —I was at that time—do you want my program day by day?

Q —No sir, just whom you were officing with? A —Dr Hektoen, and I was also associated with Dr George H Weaver and Dr George F Dick

Q —Now then, as a beginner you practiced about a year? A —That is about all

Q —And that is all the medical practice you have ever had? A —No, sir

Q —You have never been an active practitioner from that time on? A —You mean offering my services for pay?

Q —Yes sir A —No, sir

Q —You have never done that since then? A —No, sir

Q —That was from 1912 until some time in 1913? A —Exactly

Q —That you were offering to practice medicine? A —Yes, sir

Q —And, then, you became an employee with the Medical Association? A —I became assistant to the editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Q —That was employment, wasn't it? A —Yes, sir

Q —And, then, you have been with the Medical Association ever since then, is that right? A —Yes, sir

Q —And you have been editing this *Hygeia* how long? A —Approximately fifteen years

Q —And THE JOURNAL about the same time? A —No sir longer on THE JOURNAL because as assistant to the editor I began taking control of THE JOURNAL somewhat longer ago than that

Q —And who was President of the Medical Association when you began with it? A —The Medical Association elects a new president elect every year, but the presidents change every year and I would have difficulty in remembering exactly who was president each year, but I can give you a list of many of the presidents

Q —I asked you the question who was the President when you started with the Medical Association, and if you don't know, say so? A —I don't remember exactly, that year

Q —When was Dr Simmons President? A —Dr Simmons was never President

Q —What was his connection? A —Dr Simmons was editor and general manager of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and of the work of the association

Q —What Simmons is that? A —George H Simmons

Q —He, I believe, had been an advertising doctor? A —I don't know

Q —Well, you have seen many of his advertisements, haven't you? A —No, sir

Mr Harrell —I object to this line of testimony; I don't see where it has any place in this case Dr Simmons is not on trial here, and it has nothing to do with this case

THE COURT —This is cross examination, and it was brought out by you on direct examination that ordinarily ethical doctors don't advertise, and they can test him out on that if they want to

Q —You have read this book, "Medical Mussolini" A —I have seen it, yes, sir

Q —You have noticed the advertisements on page 22? A —I have noticed what purports to be an advertisement

Q —You don't deny those are copies of Dr Simmons' advertisements? A —I merely state that purports to be a copy That is the only one I have seen

Q —You don't deny those are some of the advertisements of Dr Simmons? A —I don't know of my own knowledge

Q —You do find it in a published book? A —Yes, sir

Q —And, by the way, Doctor, you wrote a book and advertised it, Doctor, a book of home remedies, you wrote a book yourself and advertised that in the Chicago *Tribune*, didn't you? A —No, sir

Q —You didn't? A —No, sir

Q —Didn't you publish a book? A —I wrote a book, but I didn't publish or advertise it

Q —You mean to say there wasn't an advertisement in the Chicago papers A —There may have been advertisements, but I didn't pay for or issue the advertisements

Q —You know there was an advertisement for the sales for "Home Remedies" in the Chicago papers? A —Not for "Home Remedies"

Q —You know there was considerable furor and criticism among some of the American Medical Association doctors about that very episode? A —There was some excitement, yes, sir

Q —Now, Doctor, when you wrote that article about Dr Brinkley you say you had never met him? A —I had never met him to my knowledge, no, sir

Q —Do you know whether he had gone to the same school you went to? A —I never to my knowledge went to any school that he went to

Q —Do you know whether he did—you don't know that, whether he did or didn't? A —To which school do you refer?

Q —Either one of the schools that you went to? A —To my knowledge he never at any time was enrolled as a pupil in the University of Chicago or the Rush Medical College

Q —Do you know whether you had ever had opportunity to meet him and know him before you wrote this article? A —I don't know that I had ever had any opportunity to meet him, certainly not to my seeking

Q —You are quite positive you had not, so far as you know, had any opportunity to meet him? A —No opportunity of my seeking

Q —I didn't ask you that, I asked if you know whether you have ever been thrown in the same place he was? A —I wouldn't know of it. I don't know

Q —You know that just a few months before you wrote this article you came over on the boat from Europe, on the same boat with him and had quarters on the same deck, I mean the same floor of the boat? A —As far as I know there was no opportunity for me to meet Dr. Brinkley on the boat

Q —So far as you know? A —Yes, sir

Q —Isn't it true that Dr Brinkley made an effort to meet you, and you were out on the deck and you were sitting there reading a book and he walked around in front of you and you looked up and then you dodged back in the book and refused to recognize him or know him or meet him? A —The question was did I have opportunity to meet him, and the answer is I didn't have any opportunity to my knowledge to meet Dr Brinkley

Q —That is not the question A —Define the word "meet"

Q —I asked if he and Mrs Brinkley didn't come around to where you were sitting in a chair reading, and you refused to look up and notice him? A —To my knowledge on one occasion he walked by the place.

Q —Answer the question

THE COURT —I think he was answering it

A —I am answering the question directly and completely

Mr Morriss Sr —I asked didn't he walk by, and I asked that he answer it yes or no

THE COURT —I think he is answering the question and you stopped him

Mr Morriss Sr —I asked him to answer it yes or no, and I have that right to have him answer it that way

THE COURT —I don't think so, I think some questions can be explained

Mr Morriss Sr —Well, he can explain it later

THE COURT —I don't think you can fairly conduct that examination in that way

Mr Morriss Sr —I will ask it in another way

Q —Did they walk in front of you and stop in front of you as if to meet you? A —They walked in front of me, but I don't recollect that they stopped

Q —You don't recollect? A —That they stopped

Q —Who are they? A —Dr and Mrs Brinkley

Q —Do you know it was them? A —Yes, sir

Q —You did? A —Yes, sir

Q —You knew they were on the boat? A —Yes, sir

Q —You were on the boat, then, with them, how many days? A —I think slightly over four days

Q —And did you know that your daughter, who was on the boat, had been playing games with Mr Brown, the witness who testified, did you learn that at the time? A —At the time my daughter stated to me that while she was practicing golf in the golf net—

Q —I am not asking what she told you A —My only information is what she told

Q —Answer this question yes or no Did you learn they were playing together? A —My daughter said to me—

Q —Answer the question yes or no Did you know they were playing together? A —My daughter didn't say they were playing together

Q —Answer the question—

THE COURT —He said his daughter—

Mr Morriss Sr —I asked him to answer the question yes or no There is no need for the witness to be stubborn in answering the question yes or no, and I have that right to that answer

A —If the question is "did I learn they were playing together," then the answer is "no"

Q —Did you learn she had met him or had been associated with him on the boat? A —I learned that he had approached her

Q —Did you learn that there had been anything more than just his approaching her? A —Some conversation

Q —Some conversation? A —Yes, sir

Q —On her part or his? A —*Apparently mostly on his*

Q —Apparently mostly on his? A —Yes, sir

Q —Did you learn at the same time that he—or at a later day on the boat—that he was a tutor of Dr Brinkley's son? A —I learned that

Q —You did? A —Yes, sir, I did

Q —Then did you learn that Dr Brinkley's son had been playing games with her, with your daughter? A —I didn't

Q —With the boy, I mean, your boy? A —I did not

Q —Did you learn that Dr Brinkley's son was on the boat? A —I did

Q —You did know that Dr Brinkley *and his family and the tutor were* on the boat, did you? A —I did

Q —And how many days did you say you were on the boat with him? A —Slightly over four days

Q —Was there another instance when you met them face to face and turned back and turned away? A —Possibly on the day when the boat was docking

Q —Was there another instance after you got off of the boat when you came upon them and turned and went away? A —I believe at the Hotel Waldorf

Q —So, you didn't only not seek him, but you avoided him and evaded any opportunity to meet them or any opportunity for them to meet you? A —Yes, sir

Q —You had years previously published in one of these magazines an article about the doctor? A —Yes, sir

Q —And that was an article similar in many respects to the present article, wasn't it? A —Yes, sir

Q —And then you had published in January 1938 the article, I mean the publication mentioned, of Dr Brinkley, hadn't you? A —*Yes, sir*

Q —This was what you told your counsel was a part of a series of articles, wasn't it? A —Yes, sir

Q —Under the large caption "Modern Medical Charlatans"? A —Yes, sir

Q —Now, in January of *1938*, you published this about Dr Brinkley "In the obscure Kansas village of Milford, a blatant quack, one John R Brinkley, whose professional record reeks with charlatanism of the crudest type, has for some years been demonstrating the commercial possibilities of goat gland grafting for alleged sexual rejuvenation," didn't you? A —Yes, sir

Q —In that article you inveighed against those beliefs and practices that you oppose, is that right? A —Yes, sir

Q —Among other things, you stated in that article this, did you not "*The chronic invalid, weak, despairing, eager for comfort responds more* readily to the laying on of hands"? A —Yes, sir

Q —"As a result, there are legends in every religious history not only of healing but of raising from the dead by such procedures In ancient days, men were not sufficiently familiar with the scientific tests of death to ascertain with certainty that people in a comatose state were not actually dead but living It is quite possible for the hysteric to imitate the signs of death It is also quite possible for the power of suggestion to cause such a hysteric to discontinue the symptoms and apparently to rise from the dead," you published that, too, didn't you? A —Yes, sir

Q —In order words, among other things, that was a part of your belief, wasn't it? A —Yes, sir

Q —And then, in the February issue you hadn't had any word from Doctor about your January issue, had you, when you published the February issue? A —Not that I know of

Q —Then you published in the February issue this account, which has been read to the jury, is that right? A —Yes, sir

Q —Do you remember when you wrote it? A —I wrote the article, I believe, in the previous September or October or possibly November, I would have to verify my records on that

Q —When was it after you got back off the boat trip? A —I reached my office about the second week in September; the article was written to read before the Chicago Literary Club in November

Q —We are not asking about that, and *don't go off on irresponsive* matters that you know necessarily extends this record You got back about the middle of September, is that right, from the boat? A —In my office about the first week of September, I believe

Q —Then, it was a few days later that you began writing this article? A —Much later.

Q —How much later? A —I believe about the third or fourth week in October

Q —Just within a few weeks after you got back, at any rate, you began writing these articles about Dr Brinkley? A —Yes, sir Not about Dr Brinkley but about modern charlatans

Q —He is in there? A —He is included

Q —You began writing about Dr. Brinkley a few weeks after you got back off of the boat, A —Six or seven

Q —You had had some days to discuss with Dr Brinkley his methods, had you wanted to? A —Had I wanted to, yes, sir

Q —Had you ever come to Del Rio in the years from 1933 to 1938 to get first hand information and first hand knowledge of Dr Brinkley's operations and practices and hospital? A —No, sir

Q —You had never made any investigation at all? A —Personally, no

Q —Had you ever made any request of him for information? A —Personally, no

Q —In other words, you had never even been to Del Rio before you wrote this article? A —No, sir

Q —Never made any effort to contact Dr Brinkley? A —Personally, no, sir

Q —You had never made any effort to learn of him about his practice and his operations or his reasons for it, or anything about that, had you? A —I made no *personal effort*

Q.—Did you ever consult any of these doctors who had worked for him and operated with him here—did you ever consult Dr. Petermeyer? A —No, sir He is an osteopath

Q —Did you ever consult Dr Petermeyer? A —No, sir.

Q —Dr Davis, did you ever consult *him*? A —*No*, sir

Q —Did you ever consult Dr. Osburn? A —No, sir.

Q —Dr. Conn? A —No sir

Q —Dr. Harris? A —No, sir

Q —Dr Kline? A —No, sir

Q —You said Dr Petermeyer was an osteopath? A —Yes, sir

Q —You referred to him on the stand yesterday as "Mister," instead of "Doctor"? A —Yes sir

Q —You don't recognize him even as a doctor? A —I, personally, do *not*

Q —And you say you never wrote a letter to any of these men, never interviewed them, never made any effort to interrogate them or learn anything from them about Doctor? A —Not that I know of

Q —Tell us whether you did? A —I don't remember that I did

Q —If you did, you would remember, and would you tell us whether or not, in your best judgment, you made any direct effort to ascertain any facts from any of those men? A —No, sir

Q —Nor from Doctor? A —No, sir

Q —Nor any employee or nurse of his hospital? A —Not personally

Q —You say not *personally*, but did you send somebody here to Del Rio to ascertain about him? A —Various investigations have been made

Q —I didn't ask you that A —If I personally sent—no

Q —Did you personally *have anybody come* to Del Rio to make any investigation about it? A —No, sir

Q —And did you ever ask an opportunity to witness one of these many operations that have been shown that he performed here on people? A —No, sir

Q —And you told us yesterday that the information you got, so far as any patient was concerned, was a second hand report about some one patient who had gone to Mayo? A —That had to do with financial matters not the operation

Q —That is the only patient you contacted, wasn't it? A —Personally?

Q —Yes, sir A —Yes sir

Q —So you never made any inquiry from any patient whether he was satisfied or helped or benefited or cured or injured, did you? A —Some of the patients wrote to me

Q —*I am* asking you if you made any personal contact with or any investigation of any patient? A —No sir

Q —You didn't make any effort to, did you? A —Personally?

Q —Yes, sir A —No, sir

Q —And did you have anybody make any investigation here in Del Rio about what he was doing in reference to the literature that he was sending or receiving or the letters he was sending or receiving, did you send anybody to Del Rio for that purpose? A —Personally?

Q —Yes, sir A —No, sir

Q —*You didn't do it* yourself or have anybody do it, did you? A —Not personally

Q —And, yet, in this article you charge him with being the arch quack of all quacks, the arch charlatan and charging him with using the mails to defraud didn't you? A —All investigations—

Q —Answer the question yes or no A —All investigations—

Q —Answer my question You charged him with that, didn't you? Answer that question yes or no A —I charged him with that yes, sir

Q —Without any character of investigation? A —No, sir, that is not true

Q —Do you disclaim malice? A —Yes, sir

Q —You disclaim it, do you? A —Yes sir

Q —You just had the very kindliest feeling for him, didn't you? A —I had no feeling for him at all, one way or the other

Q —Why did you decline the opportunity time after time— A —In some twenty six years of investigations of charlatans, I have never met personally or sought the acquaintance of any charlatan

Q —In other words, you are now asserting to this jury that he is a charlatan, in your opinion, is that right? A —Yes, sir

Q —And in your answer you alleged the truth of the publication? A —Yes, sir

Q —On the stand you are claiming the truth of the publication, aren't you? A —Yes, sir

Q —Now, are you in any way committed by any authority, governmental or other authority with the power to say who may practice medicine in the United States and who may not? A —No, sir

Q —You are not? A —No, sir

Q —Do you set yourself up to? A —No, sir

Q —When did you first read this article which charged you—the book which charged you with attempting to be the Mussolini of Medicine in America? A —I read that about, I think, the first time a month ago maybe

Q —And shortly before that there was great *controversy* and furor in the medical profession about a good many of your methods wasn't there? A —No sir

Q —Hadn't there been a great deal of dissension about it so much so that you have had some trouble up at Washington lately that is due to some of your practices? A —No, sir

Q —I am going to ask the question, and I don't want you to answer it until counsel makes the objection You were recently indicted in the Federal Court in Washington, and you are under indictment now? A —*Yes, sir*

Q —And that was due to your methods, what the many doctors called your high handed methods in dealing with and trying to control the medical profession? A —No, sir

Q —You disclaim that? A —Yes, sir

Q —The indictment was against yourself and the *Medical Association* for violation of the anti trust laws, wasn't it? A —No, sir

Q —What was it? A —The indictment involved twenty physicians practicing in the District of Columbia, and five employees of the American Medical Association, there was no indictment of the Association as such

Q —What about you? A —I was one of the five employees of the Association

Q —You were indicted? A —Yes, sir.

Q —And what was that indictment for, against you? A —The indictment had to do with the fact that *certain hospitals* in the District of Columbia—

Q —Answer the question, what was the charge made?

THE COURT —He was answering the question I very much doubt the admissibility of this line of evidence, anyhow

Mr Morriss Sr —I gave counsel opportunity to object

THE COURT —He didn't object because he didn't mind it, but from the Court's standpoint the evidence is inadmissible, I think it is prejudical and if any objection was made I would sustain it

Mr Morriss Sr —I gave *him* the opportunity.

THE COURT —You give opportunity to object to all questions *that are* improper We can't try the case in Washington

Mr Morriss Sr —I realize that, but—

THE COURT —I think you better discontinue this line of testimony

Mr Morriss Sr—My thought was only with *reference* to his activities

THE COURT —He is not being tried in regard to that I have no doubt that he has his side of that thing in Washington Gentlemen of the Jury, you will disregard all of that with regard to this indictment, it has *nothing* to do with this case and is a collateral issue, and you have no business to try to try it out, and you must discard it *from* your mind and I mean for the jury to do that, because otherwise I owe it to Dr Fishbein the duty of letting him explain his side of it to you, the imputation has been cast, and I have no doubt that he has a side, but it *isn't material and you are not* interested in it, so you will not discuss that matter in regard to the indictment or refer to it or *carry* it in your minds, just discard it from your minds

Q.—What I want to bring out, Doctor, is that there is existing an element of opposition and rebellion against your methods in the American Medical Association, is there not? *A.*—The only way I would have of knowing that would be a breaking off of some part of the membership; as I explained yesterday the membership has increased by 8,000, and no one of those said to be in rebellion has resigned.

Q.—And, yet, there are many, many thousands of physicians throughout the United States who have been members in the past and who are not now? *A.*—No, sir.

Q.—You don't mean to say there are many thousands? *A.*—No, sir, cerainly not.

Q.—On the first of January 1938, after you had written and before you had published this article, there w[illegible] 50,000 physicians in the United States that were not [illegible] Association, weren't they? *A.*—No, sir, not [illegible] licensed to practice or in practice? I can give you the exact figures.

Q.—Physicians licensed to practice? *A.*—165,000 physicians in the United States licensed to practice.

Q.—And you said yesterday there were 111,000 members now? *A.*—Yes, sir.

Q.—But there were 8,000 less the year before? *A.*—No, sir; that was in June 1937.

Q.—So, there are approximately 50,000 licensed physicians not members of the Association? *A.*—Yes, sir.

Q.—And you know that at one time Dr. Brinkley was a member of the Medical Association, don't you? *A.*—I haven't personally investigated that point, so I wouldn't want to say yes or no.

Q.—Do you attempt to deny that Dr. Brinkley was for some years? *A.*—I don't attempt to deny it, I merely say I do not know of my personal knowledge.

Q.—You told us yesterday of the investigation, rigid rules and investigation as to qualifications to become a member? *A.*—Yes, sir.

Q.—Then, if Dr. Brinkley was a member for some years, then, that investigation had been made of him and he had been passed, hadn't he? *A.*—I would have to verify that, and, I can verify it if you wish, by telegram.

Q.—I am asking if Doctor had been a member for some years, why, he had passed that investigation and been approved? *A.*—If he had been, why, he had, yes, sir, probably.

Q.—Now, do you not know it was only after his experimentation and his operations and his work in the attempted use of glands that the medical profession raised a furor and he was expelled from the Association? *A.*—I don't know that of my personal knowledge.

Q.—Well, you would know it from the information because you were there, connected with the American Medical Association, weren't you? *A.*—I don't keep in my mind the personal lives of the entire 111,000.

Q.—Then, you wrote this article charging Doctor with being a quack and unqualified and so forth, without looking up to know whether he had even been a member for years of the American Medical Association, or not? *A.*—For every statement made in the article, I had—

Q.—Just a moment, please, just answer the question, and don't argue the matter with me, just answer the question. *A.*—What is the question?

Q.—You wrote that article without any investigation to see whether for years he had been a member of the Medical Association, or not? *A.*—That information I didn't have before me.

Q.—And you didn't look it up? *A.*—I did not.

Q.—And, now, with reference to the matter of Doctor having been earnestly seeking to put his new ideas and his new experiments in medical—his new research and the results of it to the medical profession —you told us that when a man has a new idea that he thinks is beneficial he tries to give it to the public, is that right? *A.*—He submits it to scientific periodicals.

Q.—Doesn't he give it to doctors and call them in, noted doctors? *A.*—Yes, sir.

Q.—You did know he had, among his early operations, called Dr. Nesselrode? *A.*—Yes, sir.

Q.—He had called Dr. Nesselrode in to witness the operation, hadn't he invited him in, and you learned from the doctor that he had been invited in to witness the operation? *A.*—He invited him in connection with the revocation of the license, that is all I know.

Q.—Didn't he invite him to witness the operation? *A.*—In connection with the revocation of the license.

Q.—That is the qualification you are putting on it now? *A.*—That has always been the qualification.

Q.—Did you say anything about that a while ago? *A.*—Yes, sir.

Q.—You testified in answer to that to your counsel? *A.*—Yes, sir.

Q.—You testified that it was in connection with some matter of investigation or in revoking the license? *A.*—Yes, sir.

Q.—You had already told that, had you? *A.*—Yes, sir.

Q.—At any rate, you know that when the matter was questioned why, then, at least, at that time, if not before, he invited that doctor in to witness his operation? *A.*—Yes, sir.

Q.—You do, as a matter of fact, from common report, know that he called many doctors in to witness the operation, don't you? *A.*—I do not.

Q.—You know he traveled far and near to perform the operation and demonstrate it to the public and doctors? *A.*—No, sir.

Q.—Did you know from information that he performed it in many places? *A.*—No, sir.

Q.—Or various places? *A.*—No, sir.

Q.—You don't know about that? *A.*—No, sir.

Q.—You didn't consult Doctor before you wrote this article to learn whether or not it was his earnest desire to help ailing humanity when he did that experimentation? *A.*—I heard him say that on the radio.

Q.—You didn't consult him about it to find out anything about his views on it? *A.*—No, sir.

Q.—With reference to the operations that he performs now in the main, which is this prostate operation, you never wrote him nor questioned him nor interviewed him to find out his views, his own personal views about the benefit and the need of that, did you? *A.*—No, sir.

Q.—Nor the good of it, and you have told us as to those operations —and neither did you talk to any patients of his? *A.*—No, sir.

Q.—Are you prepared to say, then, you never witnessed that operation? *A.*—I never witnessed the operation.

Q.—Either by him or anybody else? *A.*—No one else does it, I believe.

Q.—You don't deny that many doctors perform that operation that he performs now days, do you? *A.*—I don't know of any doctor who transplants goat glands.

Q.—I didn't ask you that. *A.*—That is what the article says.

Q.—In the article you say he discontinued that? *A.*—Yes, sir.

Q.—You knew at the time he discontinued that operation years before? *A.*—Yes, sir.

Q.—All right, now, I am talking about the operation that he principally performs now on sick men, the prostate operation? *A.*—Which prostate operation?

Q.—The prostate operation which you heard Dr. Petermeyer describe. *A.*—May I ask if you refer to the operation involving the injection of mercurochrome or the prostatic resection by the introduction of the tube into the urethra?

Q.—I refer to both, but primarily the first. *A.*—I know few, if any, doctors who practice the operation that involves cutting the vas or tube and injecting mercurochrome.

Q.—Don't you know that doctors throughout Texas are doing that operation? *A.*—I don't know of any well recognized urologist who does that operation.

Q.—Do you know any of the doctors of San Antonio? *A.*—I know quite a few doctors in San Antonio.

Q.—Do you know whether any of the doctors in this region, any doctor in this region performs that operation? *A.*—In Del Rio?

Q.—Yes, sir. *A.*—I know very little about the operations done in Del Rio in general.

Q.—In other words, you don't know, then, whether doctors who have had the best opportunity to investigate and to see and talk with patients and learn the results, and so forth, have gone to performing that operation or not, do you? *A.*—Will you restate the question?

Q.—In other words, you don't know, then, whether doctors who have had the best opportunity to investigate and see and talk with the patients and learn the results, and so forth, have gone to performing that operation or not, do you? *A.*—That is a complicated question. In general, I know very little about whom the patients of Dr. Brinkley have gone to next.

Q.—Do you know anything—have you read anything, I will put it, in the medical journals about this type of operation? *A.*—I have read about various types of operations on the vas.

Q.—Now, then, do you not know that the second operation where, as Dr. Petermeyer said, the condition is so bad as to preclude the probable benefit by the first operation, that is, the urethral operation, that is commonly performed by many doctors all over the country, isn't it? *A.*—I didn't understand from Dr. Brinkley's broadcasts that he performed that operation.

Q.—I didn't ask you that. *A.*—You mean the operations performed by Dr. Petermeyer?

Q.—You heard Dr. Petermeyer describe Dr. Brinkley's operation by the urethral method? *A.*—You mean the resection operation—that is a very common operation.

Q.—That is a very common operation where they have a very bad condition? *A.*—It is an operation for the enlargement of the prostate, and that is surgical.

Q.—That is what they call the second operation? *A.*—That is a surgical operation.

Q.—That is the second operation? *A.*—I don't know what he calls it, but it is called a surgical operation.

Q.—If the condition is bad, but not absolutely desperate, they try that operation, don't they, that is, the urethral method, isn't that true? *A.*—That operation is performed for simple enlargements of the prostate without any evidence of a malignancy.

Q.—Then, the only thing they can do, if that can't cure them, is remove the gland entirely? *A.*—By surgery.

Q.—Remove the gland? *A.*—Yes, sir.

Q.—And they couldn't very well remove it without surgery? *A.*—The doctor states he doesn't do any surgery on the prostate, and it occurs to me that that is very radical surgery.

Q.—Do you know of any method by which anybody could remove it without surgery? *A.*—No, sir, and that is the reason I was surprised to hear it.

Q.—I am asking about the entire removal. *A.*—That is surgery.

Q.—That is the last and desperate operation? *A.*—It is not too desperate.

Q.—That is the last operation? *A.*—It is a difficult operation.

Q.—That formerly was the only method, that is, in any recent years, up until the last decade or so, that was the only operation? *A.*—Surgical removal was the adopted operation until the development of the transurethral prostate resection.

Q.—That involves the cutting away of a considerable portion of the prostate? *A.*—Yes, sir.

Q.—I mean of the gland. *A.*—Yes, sir.

Q.—And that is by a process of going up there with the instruments and cutting it away and taking it out? *A.*—Just slight portions are removed at times, yes, sir.

Q.—And have you ever performed that operation? *A.*—No, sir.

Q.—Have you ever performed an operation of the removal of the prostate entirely? *A.*—No, sir.

Q.—Have you ever performed or attempted to perform this operation, what Doctor calls his technic? *A.*—He has so many technics, but if you refer to the injection of the mercurochrome in the vas, I have not.

Q.—He has many? *A.*—He seems to have many technics.

Q.—You heard Doctor testify, Dr. Petermeyer and him both, as to the name of the operation that he calls the new technic? *A.*—Dr. Petermeyer called it—he said it used to be called one thing, and now it is called the surgical technic.

Q.—Have you ever performed that operation? *A.*—No, sir.

Q.—Have you ever witnessed it? *A.*—The injection of the mercurochrome in the vas?

Q.—I asked if you ever witnessed that operation? *A.*—No, sir.

Q.—Are you meaning now to say that all they do is inject mercurochrome, is that the meaning you want to convey to the jury? *A.*—I merely wish to convey to the jury that I merely understood Dr. Petermeyer to describe several technics, and among those technics there was the injection, the cutting of the vas and the injection of mercurochrome; and that seemed to be one.

Q.—Did you learn from Dr. Petermeyer, or gather from him, that that was all he did, just cut the vas? *A.*—There were many combinations; apparently Dr. Petermeyer was wishing to say they do various combinations of all of these technics.

Q.—Didn't he tell about the ligation there, and all of that? *A.*—No physician—

Q.—Answer the question. *A.*—No. You do not seem to understand the surgical technic.

Q.—Didn't he say he didn't cut but tie? *A.*—Sometimes they cut and sometimes they tie.

Q.—The ligation is tying? *A.*—Yes, sir.

Q.—And he told you they don't ordinarily cut but tie them off? *A.*—I think the evidence shows what he testified.

Q.—Are you trying to convey that you have the impression that he only just opened and put in the mercurocrome, and that is all? *A.*—Certainly not, and I didn't say that.

Q —Are you trying to minimize or belittle the operation when you speak about the method of injecting mercurochrome? A —I wouldn't minimize any attacks on the human body of that type

Q —What do you mean by attack on the body A —Any opening of the human body is referred to sometimes as an attack on the body

Q —Are you trying to convey the idea that in your opinion that operation is not beneficial? A —In my opinion there is no evidence scientifically collected and established that that operation is beneficial

Q —And, yet, while the evidence shows that he has operated on many thousands of people for that, you never talked to one of them, is that right? A —The patients?

Q —Yes, sir A —His patients?

Q —Yes sir—and you say you never performed it or seen it performed and you never talked to a man that had it performed on him, have you? A —No, sir May I correct that? One man I did see who had that operation performed on him by another surgeon, and I would like to correct that statement in that manner He just came to my mind

Q —How did you know it was the same operation? A —The man described it to me, described to me the operation he had performed upon him by this surgeon

Q —The man himself described it? A —Yes, sir

Q —The surgeon didn't? A —No sir

Q —Now, Doctor, you say you did publish and offer for sale a family doctor book? A —No sir

Q —Telling people how to treat themselves at home? A —No sir

Q —Do you have a copy of that book with you? A —No, sir, I don't carry it with me

Q —Do you have it? A —Yes, sir, but I don't carry it

Q —What is it? A —"Modern Home Medical Adviser"

Q —And how long ago was it gotten out? A —It was gotten out approximately four years ago, four or five years ago

Q —That was for home use? A —That was a book of advice

Q —Was it for home use? A —Yes sir

Q —And you don't deny that the book was advertised in the Chicago *Tribune* do you? A —It is now advertised in many newspapers in the United States

Q —You don't deny it was advertised in the Chicago *Tribune*? A —The ads in the *Tribune* were small

Q —Do you deny it was advertised in the Chicago *Tribune*? A —I don't recollect any advertisements in the Chicago *Tribune* until the last two weeks

Q —Do you deny it was advertised in the Chicago *Tribune*? A —Recently?

Q —I have asked you seven or eight times if you deny it was advertised in the Chicago *Tribune* A —No sir

Q —Don't you know it was? A —Yes, sir

Q —Don't you know that the complaints piled in from doctors about your advertising the book? A —No, sir

Q —You don't know that? A —I know there were complaints, but they didn't pile in

Q —They didn't pile in? A —No, sir

Q —But the members of your association complained about the advertisements of your book? A —I think a total of six members

Q —Six members? A —Yes, sir

Q —How about the other practitioners who weren't members, how about that was there some of them? A —I don't know

Q —Now, what does it cost a year for a doctor to be a member of the Medical Association? A —*Eight dollars in the American Medical* Association for Fellowship in the Association, and in each county and state society the dues vary according to the county and the state society

Q —I asked about the American Medical Association A —To become a Fellow of the American Medical Association a member pays his $8 and subscribes for THE JOURNAL, and that is included in the $8

Q —There are many sources of income which the American Medical Association has besides the mere matter of the doctors' dues and fees? A —Outside of THE JOURNAL it is all outgo, there is nothing else coming in and it is all expenditure

Q —You have THE JOURNAL and the *Hygeia*? A —Everything else loses money except THE JOURNAL

Q —I didn't ask you that A —You said income—net income or gross

Q —I am asking about the income? A —Gross income from subscriptions?

Q —What is the subscription to the *Hygeia* per year? A —It varies as to whether one subscriber takes it for one year or two years or five years or in groups from $1 25 a year up to $3

Q —What is one person a year? A —One person a year is $3

Q —And it carries advertisements all of the time? A —Yes, sir

Q —Many advertisements of all sorts? A —Not enough

Q —In other words, it sells space to advertisers? A —Yes, sir

Q —And in addition to that, you spoke of the 125,000 subscribers, and do you admit there are that many? A —Yes, sir

Q —And in addition to that it sells on all of the newsstands, practically, of account, doesn't it? A —No, sir

Q —It doesn't? A —Not on all by far It sells on approximately a thousand newsstands

Q —Does it sell on newsstands in all of the large cities? A —On some, probably.

Q —You heard the testimony that it sold at several different places? A —I can tell you how many copies are sold on the newsstands

Q —You heard the testimony that it was sold and carried in several different places on the newsstands in Del Rio, you heard that? A —Yes, sir

Q —And would that be true generally of a town the size of Del Rio? A —Yes, sir, all towns of approximately this size, I imagine, at least one newsstand would have the magazine

Q —And it is sold by news butchers on the train and is always carried by them on the trains? A —No, sir, not that I know of

Q —You won't say that it isn't? A —I never say it on the train, and I don't know that our circulation department has made such an arrangement

Q —Is there any state in the union where it does not sell? A —No, sir; it sells in practically every state

Q —You said you could tell us how many copies are issued for general sale aside from the subscriptions? A —The newsstands sale would approximate about 2,000 copies or more per month

Q —And the magazine is subscribed to by most of the doctors, isn't it—by many doctors? A —No, sir.

Q —By many doctors? A —Seventeen thousand

Q —Seventeen thousand doctors? A —Yes sir

Q —Now, those magazines are left in their waiting rooms for their patients to read A —The doctors complain that the patients take them away

Q —They are put on the table to read? A —Yes, sir.

Q —And, of course, you couldn't estimate—you have no way of estimating how many persons read the one magazine, we will say, just the one copy? A —I wouldn't know

Q —You would say that generally speaking quite a number of persons read each magazine, would you not? A —I hope so

Q —You would think so? A —Yes, sir

Q —Especially where it is left in a doctor's office? A —Yes, sir

Q —And patients call day by day? A —Yes, sir

Q —And they are left there many months? A —Yes, sir

Q —And many people throughout the United States have an opportunity to read that article? A.—Yes sir

Q —And that paper? A —Yes, sir

Q —And that magazine? A —Yes, sir

THE COURT —We will take our mid morning recess, gentlemen

At this time a recess was taken, after which the following proceedings were had, in the presence of the jury

Questions by Mr. Morriss Sr.:

Q —Doctor, concerning the circulation of the *Hygeia*, do you not make periodic reports to the authorities as to the amount of circulation? A —Yes sir

Q —Do you remember when the last one was made? A —We make a report each year to the House of Delegates

Q —Do you remember when the last one—I am talking about the governmental authorities? A —No, sir, no report is made on circulation to any governmental authority

Q —You make no report on circulation to state authorities? A —No sir

Q —Not to the federal agencies? A —No, sir

Q —But you made it to whom? A —The House of Delegates of the American Medical Association

Q —Do you remember when you made it last? A —One was made last June in San Francisco, and another is about ready to be made now

Q —Do you remember what the reports showed last June in San Francisco? A —Exactly how much loss was sustained during the year?

Q —I am not asking that. How many copies of *Hygeia* were published? A —I believe approximately 125,000 monthly

Q —Is that as near as you can give it to us? A —Yes, sir I am not directly in charge of circulation

Q —But as editor and as having been editor all of the years, you do not know? A —Approximately

Q —You don't know exactly? A —No, sir

Q —That was subscribers? A —I don't know exactly

Q —I say there was that many subscribers? A —No, sir; I believe the number of copies issued, and that would be separated from the subscribers

Q —You don't know how many number of subscribers—if you don't know, why, say so? A —I don't know exactly

Q —You said something yesterday about your having heard Dr Brinkley on the radio offering some pills for a bill or a dollar, or something of that kind, you say you heard that? A —I heard him offer a solution in a broadcast asking people to send him a bill, and not—

Q —I didn't ask you that A —I am repeating the testimony.

Q —I say, didn't you hear him offer a bottle of pills for a dollar? A —I never said a bottle of pills

Q —You said in your article, you spoke about a bottle of *pills that* he sold over the radio? A —The article stated, I believe, the word "pill"

Q —I believe it did A —Yes, sir

Q —Your counsel didn't ask you about that Whom did you get that information from, that he sells pills over the radio? A —I had before me the accumulated material from the Bureau of Investigation

Q —That is your answer as to why you made that statement? A —I probably made the statement for that reason I might have had some material of that sort

Q —I am asking you if that is the best excuse you can give to that statement? A —I don't conceive of it as an excuse

Q —I am asking you if that is the best excuse for publishing that? A —I don't conceive of it as an excuse

Q —I didn't ask you that? A —Yes you did

THE COURT —The way you frame the question the witness is not going to answer it without an argument

Q —You have no justification for that save and except you had before you some material of some sort? A —And that I heard him on the radio relative to a solution

Q —And as to a solution? A —Yes, sir

Q —And that is all you have on that? A —Yes, sir

Q —When was it, by the way, that you heard him, claim you heard him on the radio and heard him speak of the solution bottle? A —Some years ago

Q —How long ago? A —I would say approximately four or five years ago, but I wouldn't be sure exactly

Q —Where from? A —I believe from the station in Mexico

Q —The station here? A —In Mexico

Q —That is the best that you can give us on that, is it? A —Yes sir.

Q —Doctor, you spoke about these hospitals that are investigated and so forth, and did you not know that the Brinkley Hospital in Milford, Kansas, was for several years a member of the American Hospitals in good standing? A —I did not

Q —The American Hospital Association? A —I did not

Q —Do you deny it? A —I can't deny it if I didn't know it

Q —You just don't know whether that is true or not? A —That is right

Q —You told us yesterday that what the requirements are for a hospital to be a member, that is to say, they are investigated by investigators, and they are investigated before they become members of the American Hospital Association? A —I didn't make that statement

Q —What is the statement about the investigation before they become a member? A —I referred only to the investigation made by the Council on Medical Education and Hospitals by the American Medical Association, it having to do with two lists, a list of acceptable hospitals or registered hospitals and a list of hospitals approved for interns

Q —But, at any rate, they are investigated before they become members? A —Before they are registered by the American Medical Association

Q —Doctor, do you know it to be historically true that the medical profession has always been very slow to accept innovations, do you know that? A —Historically true?

Q —Yes, sir A —Some innovations, and others very promptly

Q —Say, for instance when Wise discovered the childbed fever A —You refer not to Wise but to Semmelweis

Q.—Yes, sir. There was great opposition against it a long time? *A.*—The discovery was made simultaneously by Oliver Wendell Holmes in this country, it was suggested by Holmes in this country, and by Semmelweis, and neither submitted proof but merely made the suggestion, and until the proof was established the medical profession delayed the acceptance of the concept.

Q.—Didn't they run him out of the country? *A.*—Who do you mean by they?

Q.—The medical profession. *A.*—Of this country?

Q.—Where he was. *A.*—Where was he?

Q.—If you know? *A.*—I know the life of Semmelweis, and he wasn't, to use good language, he wasn't forced out of the country in which he was, but he departed.

Q.—He departed? *A.*—Yes, sir.

Q.—Because of the furor raised among the doctors for what he claimed? *A.*—Because of his inability to gain acceptance of his concepts.

Q.—I wonder if you know whether Harvey's circulation of the blood, when he discovered it, was accepted very readily? *A.*—The medical profession of his time, which was approximately 311 years ago, failed to accept his theory until it had been established by him by evidence.

Q.—Until he had established it? *A.*—The burden is always on the innovator to establish his concepts.

Q.—Don't you know generations went by and condemned him very bitterly? *A.*—I didn't know that.

Q.—You didn't know that? *A.*—No, sir.

Q.—What about the vaccinations, were they slow to accept that, or did the medical profession accept it readily? *A.*—I didn't conceive of vaccination as a theory. When Edward Jenner established vaccination, he first made the statement based on the study of a dairy maid—

Q.—I am asking you was it accepted readily or slowly? *A.*—You seem to ask for history, and I am giving the history to you.

Q.—I am asking if it was accepted readily.

THE COURT:—If you are going into that line of examination the Doctor is entitled to make his explanation; but I doubt the pertinency; it is, of course, very interesting and it is of interest to me and I am sure the jury, but you can't compress it down into any narrow limits, and if you ask those questions you have to let him answer it in his own words.

Mr. Morriss Sr.:—I think the question is apparently in reference to innovations, which the doctor here has, and the question of their acceptance.

THE COURT:—That is a matter of argument. If you want to go into it I will let you, and there is nobody objecting to it, and I won't object to it, but if you ask the questions you will have to let him answer.

Q.—Jenner's vaccination against smallpox was very slow in acceptance? *A.*—Not for those times, but it would be slow now.

Q.—Pasteur's dog vaccine for hydrophobia, that was slow in acceptance? *A.*—Not for those times.

Q.—He was very seriously condemned about the fool theory? *A.*—By some physicians.

Q.—And the tuberculosis bacilli, that was by Koch, wasn't it? *A.*—Yes, sir, the discovery by Koch of the germ of tuberculosis.

Q.—And they condemned him for a long time for that? *A.*—No, sir.

Q.—They didn't? *A.*—No, sir.

Q.—Is it true or not that the medical profession has appeared to be slow to accept and disposed to condemn any new thing or innovation in medicine? *A.*—Within the last twenty years the medical profession has accepted almost immediately insulin for diabetes, liver extract for pernicious anemia; the prostate operation is accepted by scientific urology. I would say that they accept them nowadays too rapidly; so rapidly, in fact, that the government has passed a law, and asked them not to be too rapid, and has tests for the drugs before they are accepted, and that applies to therapeutic devices and foods.

Q.—Have you noticed throughout the history of the medical profession that they were rather slow and critical of innovations? *A.*—They never accept without evidence.

Q.—And they have bitterly condemned for some generations many—or for many years, many innovations that proved to be of great benefit to mankind? *A.*—I can't answer the question without the definition of the word "they."

Q.—The medical profession, many members of the medical profession, the body of the medical profession, the body of the members of the medical profession? *A.*—I would say in general the statement is not fair.

Q.—You would say that as to those various things I asked you about? *A.*—You haven't been quite fair.

Q.—I haven't been fair, is that it? *A.*—Yes, sir.

Q.—And wherein, then, have I not been fair in asking you the questions? *A.*—The nature of the question was such as to attempt to throw disrepute upon the medical profession for their delay in accepting new announcements of discoveries until the investigator or introducer of the discovery had established by scientific evidence the real worth of his proposed innovation or technic.

Q.—That is your argument on that matter, is it? *A.*—That is no argument, it is a simple statement of truth.

Q.—Do you deny now that Dr. Brinkley is licensed today in at least four states to practice medicine? *A.*—To my knowledge he is licensed at present in Texas and Arkansas, and his license was revoked in Connecticut.

Q.—I didn't ask you anything about that, whether his license was revoked.

Mr. Morriss Sr.:—This witness, I think, has mentioned that perhaps fifty times in his testimony here, but wholly without being asked about that, and I will ask the Court to instruct the witness to answer my question.

THE COURT:—I think there is evidence in regard to the matter. The way you frame your questions, Counsel, invites an argument; instead of asking a question you say "Do you deny that," and that is a signal of combat immediately; you ask for an argument in the way you frame the question.

Q.—I will ask you, yes or no, if you deny that today he is licensed in Tennessee?

THE COURT:—You can't require him to answer yes or no every time.

Q.—Do you deny he is today licensed to practice medicine in the state of Tennessee? *A.* I don't know about Tennesse.

Q.—Do you know whether he is licensed in the state of Missouri today? *A.*—I don't know.

Q.—So, you can't deny that Dr. Brinkley today has licenses to practice medicine in as many as four states of the union? *A.*—I know he is licensed in Arkansas and Texas, and I do not know of any other licenses.

Q.—Do you know whether he was ever licensed in Tennessee? *A.*—I don't know.

Q.—Do you know whether he was ever licensed in Missouri? *A.*—I could not tell you without verifying it, but I can verify it.

REDIRECT EXAMINATION

By Mr. Harrell:

Q.—Now, Doctor, regarding meeting Dr. Brinkley on the *Normandie* on this return trip from Europe in 1937, will you tell us what reason, if any, you had, that is, when you saw Dr. Brinkley, for not pursuing him and making his acquaintance? *A.*—In the first place, I had never been introduced to Dr. Brinkley by any one in whom I would have confidence; and, frankly, because of my position I am constantly sought by many people and I must find out the nature and character of the people before I make their acquaintance, and, in the second place, having recognized Dr. Brinkley from his pictures, primarily, I remembered that at various times Dr. Brinkley had brought suit against me and against the American Medical Association and against various other publications for various amounts of money, and I didn't conceive that it would be the proper part for me to perform in order to seek out the acquaintance of any one who had at various times brought suit against me and against the American Medical Association and various publications for damages and for other reasons.

Q.—Now, Doctor, regarding your medical practice and study, will you tell us—I don't believe it was brought out—if you attended any clinics during the period of time since you graduated from medical school? *A.*—My position is such that I am constantly visiting all the important clinics and hospitals of the United States in order to obtain at first hand information concerning any discoveries which seem to be of importance and well established in the field of medicine; I visit the Mayo Clinic at least once each year, making rounds with Dr. Will Mayo and seeing patients and operations; within the past three weeks I visited the New York Hospital, where I saw Dr. Du Bois and Dr. Cattell in an investigation having to do with the detection of pain associated with surgical procedures; I have visited within the past year, and every year, at least four or five leading hospitals and institutions of research such as the Rockefeller Institute, the Nelson Morris Institute, recently the Cincinnati General Hospital where I learned at first hand about the use of nicotinic acid in pellagra, and sulfapyridine in the treatment of pneumonia; I have frequently seen operations on prostate glands performed by surgeons of repute who were members of the American Urological Association.

Q.—Doctor, there is some mention made here of a certain book this morning, "Medical Mussolini," and do you know anything about this book? *A.*—Well, I have characterized the book as a scandalous work, and the author has published it and circulated it; I may say in advance that I never answer any personal attacks made upon me; I believe my record stands for itself.

Q.—The author of this book is the same Morris A. Bealle who was formerly the editor of a certain magazine entitled *Plain Talk* magazine, is that right? *A.*—Yes, sir.

Q.—Doctor, will you tell us if Dr. Brinkley, to your knowledge, has ever submitted his technic for his operation for reduction of the prostate to recognized medical journals of the United States? *A.*—Not to my knowledge; I could say it has not been printed in any recognized medical journal.

Q.—Now, there is mention made here, Doctor, of a certain book of which you were the author, "Modern Home Medical Adviser," and will you tell us the circumstances under which that book was published and any explanation you have regarding the publicity. *A.*—The publishers asked me to prepare for them a book of advice to the public as to the nature of most diseases and the best methods of preventing such diseases and asked me also to discuss such things as the average family could use in a family chest without any danger of harm to them; not wishing to take the entire responsibility on myself, I asked twenty-six of the leading specialists in the United States, including Dr. Joslin, the leading authority on diabetes, and Dr. Russell Wilder, specialist on vitamins and diet, and including many others, to write articles describing the various diseases of the human body and the best methods of preventing them, and that was prepared by having the men write an article in a scientific manner; and since many weren't capable of writing so that the public could understand, and since it is a part of my accomplishment to rewrite material in a form that the public understands easily, these articles were edited and rewritten and sent to the men for their approval and then published in the book, and then the book was offered for sale in the ordinary book stores. I may say that I write the books and do not sell them and do not advertise them; in ordinary publication one submits a book, after it is written, to the publisher, and the publisher then publishes it and promotes the book. The book has been sold in various ways, and it has been used as a premium with such leading newspapers as the New York *Post* and the Chicago *Times* and the Philadelphia *Record*, and has also been used as a premium by *Colliers' Weekly*; the book has a recognized status in the field of public health education.

Q.—Now, when you said in this article, Doctor, in substance or in exact words, "You send your dollar and you get your pill" with reference to Dr. Brinkley selling this medicine over the radio, or answering these letters, what did you mean by that? *A.*—I may say that in writing an author—

Mr. Morriss Jr.:—We desire to object to that; the language is plain and not ambiguous, and it is not a subject of his testimony as to what he intended by it.

THE COURT:—I think it would be admissible. I will overrule the objection.

Mr. Morriss Jr.:—Note our exception.

Q.—There are certain terms in all languages known as idioms, like "you pays your money and you takes your choice," and this is "you send your dollar and you get your pill," and the word "pill" is used as "remedy"; and that might be used and applied to any sort of figurative language used in that way; and when I testified I stated specifically that I had in mind the solution offered over the radio with the statement that the patient need not describe the symptoms, merely put the name on a piece of paper and send it with a bill, after which the remedy would be sent.

RE-CROSS EXAMINATION

By Mr. Morriss Jr.:

Q.—About your book, did you mean to convey the idea that you weren't responsible for it being advertised, that it was left to the publisher, and you mean to say you didn't get anything out of the sales? *A.*—I derive income from writing; that is my profession.

Q.—From that book? *A.*—Yes, sir.

Q.—You didn't mean to convey that you didn't get any benefit out of it being advertised? *A.*—I don't pay for the advertising or the promoting.

Q.—And you got an income for your writing? *A.*—Yes, sir.

Court then recessed.

TESTIMONY OF A I FOLSOM

Dr. A I Folsom testified that he is a physician, residing in Dallas, Texas, practicing thirty-one years, specializing in urology, a member of various medical societies and of the American Board of Urology The evidence then proceeded

Q—Do you know who Dr Brinkley is, Dr John R Brinkley? *A*—I know him by reputation only

Q—Is he a member of any of those boards or associations which you have mentioned? *A*—Not that I know of I think he is not

Q—Do you know whether or not in the past Dr Brinkley has advertised himself as a goat gland specialist? *A*—He has

Q—Now, Doctor, I will ask you if in your opinion it is physically possible to transplant the testis of a three weeks old goat into the testis of a human and have that goat gland live I—It is not

Mr Morriss Sr—Just a moment We object to that, may it please the court The testimony definitely shows the fact that the doctor has not even performed that operation since 1932 or 1933, and that his work has been in the prostate work prostate gland, ever since that time, and was when this article was written The article itself takes notice of the fact that it wasn't any longer his practice, and the defendant has testified that he understood that and knew that long before he wrote this article, and therefore that is just building up a straw man to try to knock down That has nothing to do with the case We admit of course the fact that the article mentioned the past practice, but we think it has no probative force here and that it would be irrelevant and immaterial and incompetent to establish any issue or defense in this case, and I have stated about the time, it is too remote and shows a practice that—that the doctor himself, the plaintiff, explained how long and why it had been discontinued and we would say too that no predicate has been laid and this witness is not shown to be qualified on that question Unless he has shown himself to be qualified on that matter it would be speculative on his part

THE COURT—I think that the sweep of this article that is declared on here is broad enough to put into issue Dr Brinkley's entire professional activities, and I don't think that it could be fairly limited to just what he has been doing in the last few years, so I will overrule your objection on that ground Now, with regard to the qualification of the witness I think his testimony as to his training and experience is amply sufficient to warrant the court admitting his evidence The weight to be given to it, of course, is to be determined by the jury Overrule the objection

Mr Morriss Sr—Note the exception

Q—Will you answer the question, Doctor, or did you? *A*—I think I did

THE COURT—He answered it could not be done

Q—Now, Doctor, in connection with your practice in the field of urology, have you ever dissected and examined and made a study of human testicles? *A*—I have

Q—Have you—well, upon how many such occasions? *A*—That would be difficult to estimate I taught anatomy for three years and dissected anywhere from twenty to forty bodies every year, and in addition to that during thirty years or more I have been practicing medicine I have operated on many of them It would be rather difficult for me to say just how many

Q—Have you kept up with any literature on the subject regarding the nature and construction of the human testicle? *A*—I have

Q—Now, Doctor, as a result of that will you please explain to the jury why, in your opinion, the goat gland cannot live after transplantation into the human? *A*—The principal reason is because of the fact that the blood supply of the piece of tissue that is transplanted—in other words, the vessels from the patient into whom the piece of tissue is transplanted—does not have a chance or time to form blood vessels into this piece of tissue The testicular tissue is a rather delicate tissue, and for that reason it dies before the blood vessels can make their way into the piece of tissue

Q—What would you say as to the fact that when a pocket is prepared into which the goat gland is inserted, that human blood rushes forth and could then be absorbed into the goat gland, causing it to have a blood supply? *A*—The blood itself which would rush into there as a result of the pocket being prepared is purely a temporary thing, that is simply the hemorrhage incident to the operation The blood supply upon which the piece of testis would have to depend for its living would have to be as a result of the slow, gradual growth of small blood vessels from the testicle into the piece of tissue

Q—Would that rushing forth of the human blood provide a temporary blood supply that would sustain life of the goat gland? *A*—No, it would not The more blood that rushed in there at the time of the operation would rather hinder the thing rather than help it because it would tend to kill it quicker than it would otherwise

Q—Now, Doctor, in your opinion is it possible ever successfully to transplant glands from one animal to another? *A*—It has not been found successful, no, sir

Q—Do you know that it has been found unsuccessful? *A*—It has been found unsuccessful It has been done experimentally many different times, and it has never been found successful

Q—Now, Doctor, for the benefit of all of us here concerned with this, will you explain just briefly and in language that we can understand the construction and operation, in general, of the male genital system *A*—Well, the principal—you want principally the testis and prostate?

Q—Beginning with where the sperm is produced to when it leaves the body *A*—The sperm is produced by the testis or testicle, which is a gland made up of a large number of secreting tubules, little small tubes that are wound in and around each other and in a mass and are held together by a membrane bone outside, which gives the testis its form, and then at the upper end of the testicle these tubules are collected together in a few small tubules, and they pass from the testicle out into a structure known as the epididymis Then there comes off a little duct known as the vas deferens or a little tube known as the vas deferens, and it is through this tube that the sperms which are manufactured in the testicle are carried, through this little tubule in the epididymis, and they are finally carried up this little duct through the groin and into the abdomen, and at the base of the bladder this duct expands, gets a little larger, and then there is a little by pass off into a place known as the seminal vesicles That is a little hollow structure about the size of a little glove finger that is irregularly arranged, and the sperms are stored in this seminal vesicle Then coming off from the seminal vesicles is a much smaller tube known as the duct, and that opens into the floor of the prostate gland, and that is where the semen, which is manufactured in the testicle and transported through the vas deferens and up into the seminal vesicles, is finally delivered into the channel of the urethra The prostate gland itself is a gland structure which is about the size of an average sized English walnut It is made up of five groups of glands or groups of tubules or lobes, the principal ones are the two lateral ones and the middle one, and some textbooks in describing them only describe three, but in some textbooks they are described as five, an anterior and posterior, and this structure, the prostate gland, is a little structure very much like a sponge It has a large number of little cavities in it and the secretion of the prostate is manufactured in the prostate gland

Q—Now, will you tell us just where the prostate gland is located in the body with reference to the seminal vesicles? *A*—The prostate gland lies just in front of the seminal vesicles and it surrounds the beginning of the urethra and at the base of the bladder, and it lies just in front of the rectum

Q—Tell us what the urethra is *A*—A channel through which the urine runs after it leaves the bladder

Q—And it is that same channel through which the sperm leaves the body? *A*—It is

Q—The sperm never passed from the seminal vesicles into the prostate direct? *A*—No, sir

Q—Well, what is the function of the prostate gland, then? *A*—The prostate gland is largely the sexual center It is a very richly supplied gland with nerve endings and it has one of the principal roles in the sexual function In addition to that the secretion of the prostate gland has the power When it comes in contact with the sperms, the sperms are little cells very much like a wiggletail they are quiet, they have no motion as long as they are in the testis or in the seminal vesicle or in the vas, but in sexual intercourse the secretion from the prostate mixes with the sperm from the seminal vesicles and the secretion of the prostate has the power to activate or motivate or make them so they move around They become very active, and that is one of the functions of the prostate gland

Q—Now, Doctor, I will ask you what if anything, is the actual effect on a human of transplanting this goat gland in the manner that has been described? *A*—I don't think it would have any effect at all

Q—Well, by that you mean it would have no functional effect? *A*—No

Q—What would happen to it? *A*—I think it would die

Q—What happens when it dies? *A*—It either is sloughed out immediately, or rather soon after the operation, or if it doesn't do that then it becomes filled with scar tissue, fibrous tissue, and simply becomes a scar in the testis

Q—When it becomes a scar, would that be a hard substance or soft, or what? *A*—Scar tissue is always more or less firm or hard

Q—In other words, it would just leave a little bump there? *A*—That is right

Q—Now, this transplanting of the goat gland, whether accompanied by any other surgical or medical technic or not, would the mere transplanting of that goat gland have any effect, in your opinion, upon an enlarged prostate? *A*—Not a particle

Q—Would it have any effect whatsoever upon reducing high blood pressure? *A*—None at all

Q—Would it have any effect on treatment, or in treating hardening of the arteries? *A*—It would not

Q—Would it have any effect in creating energy in a man? *A*—No I don't think so

Q—Or in curing epilepsy? *A*—No

Q—Locomotor ataxia? *A*—No, sir

Q—Neurasthenia? *A*—No, sir

Q—The insanity of the type known as dementia praecox? *A*—No

Q—Diseases of the stomach? *A*—No

Q—Bowels or kidneys? *A*—No, sir

Q—Well, would it have any effect in relieving constipation? *A*—None at all

Q—Would it have any effect in curing sterility caused by mumps? *A*—None at all

Q—As a matter of fact, Doctor, can sterility caused by mumps be cured in any manner? *A*—No

Q—Why is that? *A*—Because of the fact in mumps the involvement of the testis or testicle is what it is, it is an involvement of the testicle itself It is an inflammatory process that results in the destruction of the testis and it is never regenerated

Q—Now, Doctor, how many types do you urologists recognize of prostatic trouble? How do you classify prostatic disorders? *A*—Well, the infections

Q—What do you call that? *A*—Is one

Q—What is that? *A*—That is prostatitis Enlargement of the prostate, we speak of it medically as hyperplasia or enlargement, as it becomes grossly overgrown and obstructs into the channel through which the urine passes, and in about 20 per cent of the cases of enlargement of the prostate the change is a cancerous change In other words, carcinoma occurs in about one out of five

Q—Doctor, you speak of the large prostate closing the channel through which the urine passes How does that happen, just what does it do? *A*—What does the prostate do?

Q—Yes, to close that channel? *A*—Well, the prostate surrounds the neck of the bladder or beginning of the channel, the beginning of the urethra, and just like a horse collar does a horse's neck, and if you can imagine that you suddenly enlarge the horse collar four or five times you can see the pressure on the horse's neck, it might choke him, and the same thing happens in the urethra, the urethra simply becomes choked off so the urine has difficulty in getting through

Q—Now, Doctor, with regard to these little ducts, little tubes you call them, the efferent ducts between the testicle and the epididymis that lies right on it, say like a finger, as you say? *A*—Yes, sir

Q—How large are those little ducts? *A*—They are very small

Q—Well can you give us any more definite idea? *A*—Well, they are almost microscopic in size You can't see them hardly at all You can feel them, that is, the individual ones

Q—And assume that there are somewhere between twelve and twenty of those, in how confined a space are they located? *A*—In a manner I should say about a quarter of an inch square

Q—Now, Doctor, what does palpate mean? *A*—Feel

Q—Is it physiologically—I will change that Is it possible for you in drawing the testicle out of the enclosure that it is in the scrotum to then feel those little ducts between the testicle and the epididymis? *A*—No at all, you couldn't feel them at all to save your life

Q—Is it possible, in your opinion, to select out any one of those little ducts and tie it off with a piece of linen thread? *A*—It could not be done

Q—Now, Doctor, I will ask you, assume that it could be done and I assume that a man was stated to have prostatic enlargement who was treated in the following manner that a part or all of these little tubes, say half of them, were tied off with linen thread, and that a portion of this other tube leading from there, the larger tube you have described as the vas deferens, may or may not have been taken out and cut away, and assume that the vas deferens is injected with a 2 per cent mercurochrome

solution, and assume that after that operative treatment there is a follow-up postoperative treatment during which approximately six ampules containing 20 cc. of a solution composed of one thousand parts of water to one part of hydrochloric acid and a small amount of blue coloring matter were injected into a man's veins, that covering a period of several days, have you an opinion as to whether or not that procedure might or could in any way affect prostatic enlargement? *A.*—I do have an opinion.

Q.—What is your opinion? *A.*—I don't think it could.

Q.—Will you tell us why? *A.*—Well, that is a pretty big order to tell you why. In the first place, the prostatic hypertrophy does not depend in any way on any change in the testicle itself or in the vas deferens. It is an intrinsic thing, that is, a thing that is inherent in the prostate itself, and I don't think anything that would be done to the testicle or vas would in any way affect the size of the prostate, and I do not think that the solution which you have described could by any remote stretch of your imagination have any effect on it whatever.

Q.—All right. Now, Doctor, have you an opinion—or what would be your opinion as to whether that procedure we have described, we will call it a surgical technic, could have any difference at all, or have any effect at all upon blood pressure? *A.*—None at all, I think.

Q.—Any effect at all upon hardening of the arteries? *A.*—None at all.

Q.—Or upon sexual rejuvenation; improving sexual power? *A.*—None at all.

Q.—Have you ever seen a patient on whom part or all of this procedure had been done? *A.*—Yes, sir.

Q.—And what part of the procedure was done, or was it all done? *A.*—I have seen some patients in whom I was told that they had the compound operation. Now, if that is what—if the questions you have asked me constituted the compound operation, then that is what they have had.

Q.—Well, have you ever seen a patient actually have any part of this operation done? *A.*—Yes. You mean see them have it done?

Q.—Yes. *A.*—No.

Q.—Not even part of it? *A.*—No.

Q.—Did you see those patients before the technic was done? *A.*—I saw some of them before, yes.

Q.—Then did you examine them after it was done? *A.*—I did.

Mr. Morriss Jr.:—We are going to make an objection to anything along this line, because there is no proof at all that they had received the operation from Dr. Brinkley.

Mr. Reynolds:—I withdraw the line of questioning.

THE COURT:—He withdraws the question.

Mr. Morriss Jr.:—We ask all questions with reference to that matter and what questions have gone in be excluded. I don't think he has given any testimony. He said he saw some; he hasn't given any testimony about it.

Q.—All right. Now, Doctor, will you tell us what is the meaning of the word isotonic? *A.*—Isotonic is a chemical term used to represent a solution which is as nearly as possible the same specific gravity and the same structure as the blood stream.

Q.—Now, Doctor, this solution that I have described to you before, a thousand parts of distilled water to one part of hydrochloric acid, with a little blue coloring in it, is that what is known as an isotonic solution? *A.*—No.

Q.—What is it known as? *A.*—I don't know just what you would call it.

Q.—Is it hypo? *A.*—What?

Q.—Is it hypo? *A.*—It is hypotonic.

Q.—What does that mean? *A.*—Below the specific gravity of blood.

Q.—In every day language does that mean weaker? *A.*—Yes, sir.

Q.—Now, then, Doctor, in your opinion what would be the effect of injecting that kind of solution into a man's veins? *A.*—I don't think it would have any effect if it was carefully injected and sterile.

Q.—Would it have any functional effect at all? *A.*—I don't think so.

Q.—Would it have any more effect than distilled water itself? *A.*—I doubt it; I doubt if it would at all.

Q.—Well, is there any reservation on that? *A.*—I don't think it would.

Q.—If there is we want to know. *A.*—No, I don't think it would.

Q.—Is there any point in injecting distilled water into the blood stream or into the veins? *A.*—Not that I know of.

Q.—Is there any point in injecting large amounts of distilled water? *A.*—Well, in surgical practice we frequently inject large quantities, large quantities of that, of an isotonic solution of salt or a glucose solution, that is a recognized—

Q.—I was asking, Doctor, about the distilled water. *A.*—Oh, no; distilled water is considered a bad thing to inject by itself into the blood stream, for the reason that because of the fact that it is a weaker solution it tends to absorb out of the blood cells certain substances which are necessary for their proper functioning, and therefore the distilled water is considered not only not a beneficial but an actively harmful thing.

Q.—Well, now, Doctor, in connection with your general knowledge, not especially confined to the field of urinology, you understand the affliction commonly known of as rickets, do you? *A.*—I do.

Q.—What would you say as to advice to a patient that thyroid extract be used for rickets? *A.*—For rickets?

Q.—Yes. *A.*—There would be no basis for that.

Q.—Well, would there be any good or bad effect, or just purposeless, or what? *A.*—Well, it might be purposeless. On the other hand it might be quite harmful if the patient to whom the thyroid was given was receiving a sufficient supply of thyroid substance from his own gland, then the administration of an excess or an additional amount of thyroid might be definitely harmful.

Q.—Would, in your opinion, would it be good advice to advise a patient to do that without the control and administration of that substance by a physician? *A.*—Thyroid should never be given without a preliminary estimation of the basal metabolism rate, that is, the rate to determine how rapidly the varying functions are going on in the body, which is a qualitative—I mean quantitative—estimate of the amount of thyroid going into the blood stream. If that is low it is given, and if it is not low no thyroid should be given. No thyroid should be given before having that test.

Q.—Would you say a qualified and reputable physician would advise a person to take thyroid extract without designating how, when or where, after merely having been told that a person has rickets, without performing the tests? *A.*—I don't quite get your question.

Q.—Would you say that it is the general custom and practice among qualified and reputable members of the medical profession, after merely having been told by a patient whom he had never seen, that the patient had rickets, that he would then advise the use of some thyroid extract, without indicating how, when, what or under what conditions? *A.*—No, not at all.

Q.—Doctor, do you know Dr. Brinkley's general reputation in the medical profession? *A.*—I do.

Q.—What is that reputation?

Mr. Morriss Jr.:—Now, just a moment. We object to that as not being competent to establish any issue in the case, being improper, irrelevant, immaterial, and not the proper predicate, and not confined to the question; the reputation of any man is the general reputation in the community where he resides and his reputation not among any given body of men or anything of that sort, and we object for the reasons stated.

THE COURT:—Overrule the objection.

Mr. Morriss Jr.:—Note the exception.

Q.—What is his general reputation among medical men? *A.*—He has a reputation of being a quack.

Q.—What do you mean by that? *A.*—We mean by that a man who practices medicine without regard to the standards, traditional ethical practices and customs of the profession.

Q.—Now, would you say that means merely because he advertises, is that it? *A.*—That is one of the things.

Q.—Is that the only one? *A.*—No.

Q.—What else? *A.*—Because of the fact we think—

Mr. Morriss Jr.:—Just a minute. We object to the testimony because it would call for a conclusion and opinion of the witness, and is not a proper subject of inquiry, not a matter of general reputation.

THE COURT:—This is a case where the man puts his reputation in issue here and says it has been damaged. They have a right to inquire into what his reputation is. Not only inquire as to what it is among doctors, but you can inquire as to what it is among people generally. Overrule the objection.

Q.—Will you answer the question?

Mr. Morriss Jr.:—It isn't a question of his reputation—

THE COURT:—I heard you once on it, counsel. If you want to change the time to what is his reputation in 1938, when the article was published, then I would sustain it to that extent.

Mr. Morriss Jr.:—Note the exception.

Q.—Well, confine the question to prior to February 1938.

THE COURT:—All right.

Q.—Was the advertising that he does the only feature that entered into your statement?

THE COURT:—Let's get that date straightened out as to the reputation before the publication of the article.

Q.—Was he considered by—strike that. Was his general reputation among medical men prior to February 1939 that of a quack? *A.*—It was.

Mr. Morriss Jr.:—Just a moment. We object to that as not being confined to the proper time nor the proper place.

THE COURT:—Overrule the objection.

Mr. Morriss Jr.:—And it calls for a question which is not properly—

THE COURT:—All right. I overrule the objection.

Mr. Morriss Jr.:—Note the exception.

Q.—Answer the question. *A.*—It was that.

Q.—I will ask you that same question and say in February 1938? *A.*—It was.

Q.—Now, Doctor, will you state what we were trying to get at there, whether or not the advertising is the only thing that entered into that, if you know? *A.*—No, it was not. It was the fact that he was advertising to do a procedure for the relief of a certain condition which everybody who knew anything about the prostatic enlargement knew could have no effect whatever on the condition.

Mr. Morriss Jr.:—Now, we move that that statement be excluded as stating a matter of medical opinion as a matter of his knowledge, and that the question is a conclusion and an improper one and one that he is not qualified to draw and one of course that could only be expressed as a mere matter of opinion.

THE COURT:—Overrule the objection.

Q.—Now, doctor, if I had asked you the same questions regarding his reputation among genital-urinologists, we will say, would your answer be any different? *A.*—No.

Mr. Morriss Jr.:—Just a moment. We make the same objection to that. It is not general reputation. For instance, if the court please, there are many authorities which hold that you may not inquire as to what his reputation is among a part of the community, but it is his general reputation and not his reputation among any particular set and we object for the reasons stated.

THE COURT:—Overrule the objection.

Mr. Morriss Jr.:—Note the exception.

Q.—Doctor, I will ask you whether or not Dr. Brinkley, either generally in the medical profession or among urinologists, had the reputation of being a specialist in prostate treatments? *A.*—He did not.

Q.—I will ask you whether or not—

Mr. Morriss Sr.:—Of course, we make the same objection to all this, your honor.

Mr. Morriss Jr.:—Is it understood our objection goes to all this in these various forms of questions?

THE COURT:—I don't know, counsel.

Mr. Morriss Jr.:—Well, we do object to the question that has been stated.

THE COURT:—Overrule the objection.

Mr. Morriss Jr.:—Note the exception.

Q.—Do you know whether or not Dr. Brinkley had any standing in the circles made up of urinologists? *A.*—He did not.

Mr. Morriss Jr.:—Now, just a moment. Don't answer the question, please, sir, until we have an opportunity to object; and we object to that as not any proper—not founded on his general reputation, that the proper predicate has not been laid as to whether he knows his general reputation, and it is merely a conclusion and opinion of the witness.

THE COURT:—Well, counsel, it is necessarily pertinent evidence what doctors generally think of other doctors, if they were in a position to find out about it and know. It would be pertinent to find out what a lawyer was generally thought of by other lawyers or judges, or how architects were regarded by other architects. They are people who are in a better position to know about them than anybody else, and one of the component elements of Dr. Brinkley's damages, if he has been damaged here, would be the lowering of his standing in the opinion of his fellow doctors. If it happens he had no standing in the opinion of his fellow doctors, it follows naturally he hasn't been damaged. So I think the evidence is pertinent and admissible.

Mr. Morriss Sr.:—I want to call attention to the fact that no such allegation as that is made in the petition itself. It is the standing generally.

THE COURT:—Doctors are part of the general public. Doctors refer work to one another, and it is a very valuable asset to a doctor to stand well with other doctors, so I think that is one of the elements that can be considered. I would let him inquire as to his standing with the public generally and I don't think the public generally is in as good a

position to pass on his qualifications as a doctor, but after all it is a question whether his reputation has been injured generally Overrule the objection

Mr Morriss Jr —Note the exception

Q —Doctor, do you know whether or not Dr Brinkley had any standing—and the time is February 1938 or prior thereto—as a genital urinary surgeon?

Mr Morriss Jr —Is it understood those objections go to that?

THE COURT —Yes

The Witness —Shall I answer

THE COURT —Go ahead, Doctor, answer the question *A* —He did not

Q —I ask you, Doctor, whether or not either in the medical profession generally or in the circles of urologists and genital urinary surgeons, Dr Brinkley on that date or before or after at any time had or has the reputation as being the greatest prostatic specialist in the world?

Mr Morriss Jr —Now, just a moment We object to that as not being confined to the proper time The question is duplicitous, asks with reference to several groups, asks with reference to several different times, and it is not confined to the place of residence, and not a competent manner to prove reputation by a question of his standing but it calls for a conclusion and opinion of the witness, and is irrelevant and immaterial, and no predicate has been laid as to his knowledge

THE COURT —I think there is some claim made in that book that he published and gave away that he is the greatest prostate surgeon in the world, is that what it is?

Mr Reynolds —Your honor the reason I asked it at the present time, the evidence yesterday showed night before last he broadcast over the radio a contest for people to write in—it was right here on the stand—they were to write a contest on that phase

THE COURT —Overrule the objection

Mr Morris Jr —Note the exception

Q —Do you remember the question, Doctor? *A* —He did not

The cross examination followed

CROSS EXAMINATION

Questions by Mr Morriss Sr

Q —Doctor, you say you are a member of the American Medical Association? *A* —I am

Q —For how long? *A* —Oh, I have been a member since 1909

Q —Did you know when Dr Brinkley was a member of the American Medical Association or for how long? *A* —No

Mr Reynolds —I object to the form of that question They are assuming he has been a member There is no proof of that

THE COURT —Dr Brinkley testified he had been a member and was put out when he started to advertising

Mr Reynolds —We withdraw the objection

Q —Did you know him when he was a member of the American Medical Association? *A* —I did not

Q —Did you know if he had been? *A* —I did not

Q —Or for how long? *A* —I did not

Q —You didn't know that? *A* —No, sir

Q —In other words, Doctor, the profession, the American Medical Association, those members of the profession who are members of that association decry advertising, don't they? *A* —Well, every reputable—

Q —I am just asking you that question Answer yes or no *A* —No

Q —They don't decry— *A* —I misunderstood your question

Q —I say they decry advertising by a doctor? *A* —Yes, sir

Q —And you don't know whether it was by reason of Doctor's advertising that he either withdrew or was expelled by the American Medical Association or not, you don't know anything about that, do you? *A* —No, sir

Q —Now, Doctor, personally have you performed this operation, the technic of which you spoke about? *A* —I have not

Q —You have never performed it? *A* —No, sir

Q —Have you ever been present at the performance of that operation? *A* —No, sir

Q —You have not? *A* —(No answer)

Q —You have no experience in that operation? *A* —Not in the operation that he described

Q —Yes, sir That is either of their operations, I mean, the last operation he spoke of, nor of the human—or the human or animal gland operation? You never had any experience with either of those, did you? *A* —I have done some experimental work in the transplantation of glands

Q.—Was that human or animal glands? *A* —With dogs

Q —Animal? *A* —Yes, sir

Q —You were never present and saw Dr Brinkley's operation, of either sort, were you? *A* —No, sir

Q —You have never seen nor known personally, had any personal contact or observation of the operation he has performed now for the past number of years on patients? *A* —I have never seen him or his assistants do this operation, no, sir

Q —The prostate gland operation which I would call a minor operation, in other words, not the urethral but the one where counsel have attempted to describe to you the ligating of the tubes and so forth, you never—you have never seen that operation performed by anybody? *A* —No, not for this thing, no

Q —Now, Doctor, there are several stages of the enlargement of the prostate gland, are there not? *A* —Oh, we—

Q —You speak of it in three stages? *A* —Three or four It is variously estimated at three or four

Q —That generally happens at what age in men? *A* —It generally begins to happen in the fifties and gradually increases in the sixties and seventies, *maybe*

Q —Sometimes it happens earlier? *A* —Sometimes it happens earlier, yes, sir

Q —Now, that enlargement, when it gets to what you call the third stage, is likely to entirely cut off the flow of the urine? *A* —The size of the gland apparently doesn't have anything to do with the actual obstruction Sometimes small glands cause much more obstruction

Q —Depending on what gland grows? *A* —No, sir

Q —It has to choke the neck of the bladder, doesn't it? *A* —It has to produce some result which we do not actually and entirely know about

Q —This gland ordinarily and normally in a human being is about how long? *A* —About the size of an English walnut

Q —An English walnut may be large or small? *A* —It is about 5 cm across and about 4 cm deep and about 3 cm thick

Q —Give it to us in inches *A* —An inch and a quarter or an inch and a half across

Q —I asked you that— *A* —About that

Q —That is the question I asked you first *A* —Now, the enlargement, as it becomes diseased or disordered, it becomes larger until it some times gets to what size, maximum? *A* —Oh, I have seen them some times where they are larger than a big grapefruit

Q —Well, would you say four inches? *A* —Four or five or six inches I have seen them that much across

Q —When they get enlarged and diseased that way what is the effect upon the urinary power? *A* —The first effect is obstruction to the passage of the urine from the bladder

Q —What effect does that have in reference to pain and bother, trouble with the patient? *A* —Sometimes it doesn't give them any discomfort or pain at all

Q —Well, as it progresses and gets bad or diseased what are the symptoms of pain they suffer, if you know? *A* —The symptoms of pain?

Q —Yes *A* —I don't know what you mean by that Pain is a symptom

Q —What are the symptoms that are expressed that cause pain what are the symptoms of the trouble or disease that causes the pain? *A* —Pain is a symptom Your question, I don t know how to answer it

Q —What causes the pain, can you understand that? *A* —Yes, sir

Q —Tell us then *A* —Because they can't pass their water

Q —Is that the only reason? *A* —The principal reason, yes, sir

Q —Is it the mere cutting off of the water, is that the only cause of the pain? *A* —That is the principal reason

Q —Well, what others are there? *A* —Infections sometimes, sometimes stones form behind the prostate, sometimes cancer, and there is metastasis that is the cancer going outside the prostate and into the bone of the spine That produces pain There are many causes of pain in the prostate

Q —Now, ordinarily one of the operations is the urethral operation, isn t it, the transurethral? *A* —That is one That is the most recent advance

Q —By that you mean that is just a reaming process up there, you ream out that gland isn't that right? *A* —You go in and actually do a removal of all of the gland

Q —The whole gland? *A* —Yes sir

Q —Well, you mean in the transurethral? *A* —Yes sir

Q —You don't ream it out and remove part of it? *A* —We remove all of it, practically all

Q —Is it commonly done and called the *reaming out process*? *A* —I guess that is what you mean by the prostatic resection

Q —And now do you mean that in every instance of the reaming out process they remove the entire gland? *A* —We try to

Q —You try to? *A* —Yes, sir

Q —Well, would you say you did? *A* —Well, we practically succeed

Q —What is the other method? *A* —The two older methods of removing the prostate gland one was what was known as the suprapubic where the incision is made in the lower part of the abdomen and the bladder is opened and the gland removed through the abdominal wall The other is one in which an incision is made just in front of the rectum, a section is made through to the prostate and the prostate is removed through that direction

Q —Well, both of those contemplate the removal completely of the gland? *A* —Of the gland yes sir

Q —Those both contemplate the complete removal of the gland? *A* —In neither one is there ever a complete removal of the gland There is a portion of compressed gland tissue that is always left *no matter* whether you use the suprapubic or the perineal, where the incision is *made just in front of the rectum*

Q —It is what you commonly call the removal of the gland? *A* —Yes

Q —What are the effects that are likely to flow, what are found to be the effects that commonly flowed from that which you tried to relieve by the *transurethral method*? *A* —What effect?

Q —Yes, what was the bad effect on the patient of that old process of removing the gland? *A* —The bad effect?

Q —Yes *A* —As a rule the results were good They were removed of their obstruction and able to urinate

Q —Could they control it? *A* —Yes

Q —Just the same, as well? *A* —Yes, sir

Q —You mean that in the older days, back we will say a decade or more ago where that was about the only method used, was it not? *A* —Those two methods

Q —All right In many, many instances it was found that it did have a very bad effect in the way of shortening the life of the patient didn't it? Would you admit that? *A* —Well I don't know how to answer your question other than to say this, that in the early days of the operation, of course, the mortality rate in prostatic surgery whether perineal or suprapubic, was rather high but in the last twenty five years that has been reduced to around 4 to 6 per cent *so the good* results in those cases whether done one way or another, amounted to 94 to 96 per cent cure

Q —How long do you say it has been if you know, since the removal of the prostate gland became a practice? *A* —Oh, thirty years

Q —In other words, it has only been within the last thirty years that they learned to do that? *A* —To any great extent, yes sir

Q —Before that do you know what they did? Did they know anything about the enlarged prostate gland? *A* —Before the removal of the gland, as a matter of fact, a hundred years ago a man named Guthrie in England attempted to do what is now being done by the transurethral resection, and prior to that time a Frenchman attempted with another instrument to remove the obstruction through the urethra and some time along in 1870 or 1880 Bottini an Italian attempted to remove the obstruction by a cautery, so the thing extends over a long period of time

Q —But you say the operation hasn't been being performed and removed over about thirty years? *A* —Yes

Q —I am talking about among the American profession what did they do before that for it? *A* —They usually didn't do anything for it or else they put a tube in the bladder above and let the urine drain out that way The patients were allowed to continue to carry that tube the remainder of their lives

Q —Didn't they sometimes practice castration? *A* —That has been used from time immemorial

Q —To try to relieve that trouble? *A* —With no effect

Q —But they practiced that? *A* —Many different efforts were made to do it

Q —Within the past slightly more than a decade the transurethral method has become into rather common use hasn't it? *A* —Yes

Q —And that is recognized as one of the methods isn't it? *A* —It is

Q —It is of course, a rather severe surgical operation, isn t it? *A* —No

Q —It is a surgical operation? *A* —You said a severe one

Q —I am not speaking about mortal but isn't it? Please answer, is it Doctor *A* —It is not unpleasant They have no pain whatever with it

Q —Well, you would say the same thing of any other abdominal operation wouldn't you of any abdominal operation? A —No, I would not

Q —At any rate, if there is a way, if medical science and skill and research can find a way to lighten that operation it would be a great boon to humanity, wouldn't it to perform an easier operation that would cause the patient less loss of time and less likelihood of danger and all that it would be a boon to humanity, wouldn't it? A —Yes, sir

Q —You don't deny that there are the elements of hemorrhage and infection and shock that are in the transurethral operation? A —No sir I do not

Q —You mean you say you don't deny it, or there is none? A —We don t deny it

Q —So of course if that alone could be avoided in an operation where the trouble has not progressed too far, that would be a great boon to suffering humanity, wouldn't it? A —Yes, sir

Q —Now Doctor, when did you first get into the matter of this case? When were you connected in any way with any investigation against Dr Brinkley? A —I haven't been connected with any investigation of Dr Brinkley at all

Q —When were you connected with or talked to first with reference to this case? A —Last Saturday

Q —Last Saturday? A —Yes, sir

Q —In other words, Dr Fishbein had not consulted or seen you with reference to the matter until just last Saturday? A —He didn't see me then

Q —Well somebody did for him? A —If you want to know how—

Q —Was it an investigator? A —No

Q —By some doctor? A —Yes sir

Q —You mean a local doctor up there in your town? A —No sir

Q —By some one else? A —Yes, sir

Q —And by— A —If you want to know, it was by Dr Holman Taylor of Fort Worth

Q —Is he also a member of the American Medical Association? A —Yes sir he is

Q —Do you know anything about his connection in the past with any opposition to Dr Brinkley? A —I do not

Q —You don't know anything about that? A —No

Q —And when did you come down here? A —I came down yesterday morning

Q —From— A —Dallas

Q —From Dallas, at the instance of the defendant? A —Dr Holman Taylor asked me to come down here as a witness in this case

Q —Well did he do that at the instance of the defendant? A —I don't know

Q —You don't know? A —No, sir

Q —You don't know, in other words, whether it was at the instance of Dr Fishbein or of the American Medical Association? A —I do not I don't know where the request originated

Q —Now, you say that you are a member of the American Medical Association I want to ask you do you know whether in cases of this character the members are assessed for expense items or they pay or contribute? A —I don't understand your question

Q —In suits against the American Medical Association or Dr Fishbein do you know whether the American Medical Association, or the members rather are assessed something or charged something? A —No, they are not

Q —Don't you know that—do you remember or did you know about the instance of the publication by Dr Fishbein against Dr Brinkley about ten years ago? A —I don't recall it if I did

Q —You don t remember that Dr Brinkley, then, published an article largely along the same line as this one?

Mr Reynolds —Dr Fishbein

Q —Dr Fishbein I mean, published an article about Dr Brinkley along the same line? A —The one ten years ago I don't remember

Q —Did you know anything about this suit at that time? A —Oh I knew in a general way about it

Q —You knew there was a suit filed against him by Dr Brinkley? A —I have a hazy recollection of it I don't remember any of the details

Q —You remember about the suit having been dismissed by Doctor when he moved off down here, don't you? A —I don't remember

Q —Do you remember whether or not you paid at that time anything made any contribution toward the expense of that suit on the part of the American Medical Association? A —I did not I have never been assessed any special assessment by the American Medical Association

Q —Do you know whether you were requested to? A —No

Q —Were you at that time a member? A —I was

Q —Do you know anything about whether or not all members or what members were asked to contribute at that time? A —I don't think any of them were

Q —You just don't know about that, is that right? A —I don't know

Q —And in this instance, of course, this Dr Hood, you say it was? A —Dr Taylor, Holman Taylor

Q —Dr Taylor having asked you to come, you volunteered to come, didn't you? A —I did

Q —Paid your own expenses? A —Yes

Q —And you weren't of course subpoenaed or under a legal process, but you came down here voluntarily to testify in this case for Dr Fishbein is that right? A —Yes sir

Q —I say at your own expense? A —Yes, sir, I guess it is my own expense so far it is

Q —Well don't you know? A —No, I do not

Q —Well did you— A —The matter has not been discussed with me by anybody

Q —Well did you expect to get your expenses paid? A —I don't expect anything out of it at all

Q —Have you ever talked to any of the patients in this region at all who have been treated or operated on by Dr Brinkley? A —Yes

Q —As to the effect of their operation? Here, that is here, any patient in this county or in any adjoining county, we will say, as to what their condition was and what it has been since Dr Brinkley operated on them? A —I don t think in this county I have had numbers of them from other parts of the state

Q —Have you ever been to talk to anybody in this region? A —This county?

Q —This county or adjoining counties, this district? A —I don't know how big this district is

Q —It takes in the adjoining counties A —Just simply the adjoining counties?

Q —Yes A —The majority of my practice comes from the central and eastern and northern portions of the state I don't think I have talked to anybody from here

Q —Have you ever been down here to Del Rio? A —This is the first time I have ever been to Del Rio

Q —You weren't here during all the time that Dr Brinkley had his hospital here? A —No, I didn't come down

Q —You never saw Dr Brinkley's hospital, either here or in Little Rock? A —No

THE COURT —Counsel, if he has never been here before it necessarily follows he couldn't have seen it

Mr Morriss Sr —I said here or Little Rock

THE COURT —All right

Q —You have never talked to the various doctors who serve his hospital? A —I have never seen one

RE-DIRECT EXAMINATION

Questions by Mr Reynolds

Q —Have you ever been assessed for anything by the American Medical Association? A —No, sir

Q —To your knowledge has there ever been an assessment for any thing? A —No, sir

Q —Any purpose at all? A —No, sir

Q —Who is Dr Holman Taylor, at whose request you say you came down here? A —He is secretary of the Texas State Medical Association

Q —And when and where did you talk to him? A —He called me over long distance telephone last Sunday—I mean last Saturday—and asked me if I would come down here yesterday, and I told him that I would look over my schedule and see if I could rearrange my work and see if I could, and I did, and I phoned him and told him I would

Q —Prior to the time you arrived here had you discussed Dr Brinkley or the method of his operation with any one connected with this lawsuit, lawyers or otherwise? A —You mean this immediate situation?

Q —Yes A —No, sir

Q —Doctor, you say that you never performed this operation which was described to you regarding the cutting off of the small ducts between the testicle and the epididymis Why not? A —Well, I have never seen any indication or reason to I have operated on many testicles and have removed the testicle or the epididymis entirely, or the vas deferens for tuberculosis of the epididymis, but this operation I have never done at all, this particular operation

Q —Have you ever done anything like this for the purpose of reducing the size of the prostate? A —No, sir

Q —Is there the slightest indication, in your opinion, that this opera tion has anything to do with that sort of situation?

THE COURT —I think that has been gone over

Q —Doctor, I would like to ask you if one of these patients that they have mentioned to you came to you and told you that as a result of that operation he told you he had been sexually improved, to what would you attribute that feeling on his part?

THE COURT —I don't know how far you propose to go with that but you may open up a field there that I don t think is proper I don't think individual patients could be brought in here to testify to this and that and the other results

Mr Reynolds —I withdraw that question and all others like it

Mr Morriss Sr —We expect to give counsel the benefit of that We expect to produce many of these patients for the purpose of proving by circumstantial evidence the results obtained by the patient

THE COURT —I will hear you on that later

RE-CROSS EXAMINATION

Questions by Mr Morriss Sr

Q —Doctor, could you before you leave, couldn't you detail to us the symptoms of prostatic trouble in the patient, what the symptoms are?

Mr Reynolds —Just a minute May we ask counsel to confine that to some type of prostatic condition, because all of these various types, the Doctor could talk at great length on them

THE COURT —I haven't found the Doctor very verbose so far

Q —Can you give us what are all of the symptoms of prostatic trouble? A —Prostatic enlargement?

Q —Yes, trouble with the prostate A —There are many different kinds of trouble with the prostate

Q —That is what I want you to do, give us the symptoms of any disease or trouble with the prostate That is, the symptoms the patient feels A —Am I at liberty to choose the type of trouble I describe?

Q —I want you to, as briefly as you can— A —The symptoms of all the prostatic diseases?

Q —All the symptoms that the patient feels in diseases of the prostate A —You are going to be here a long time if you are going to give me that

Mr Reynolds —Your honor, that is the point of my objection If he wants to confine it to prostate enlargement, prostatitis or cancer, that is all right, but the subject he asks covers whole books

Mr Morriss Sr —We don't want it confined

THE COURT —What is the purpose of it?

Mr Morriss Sr —We need to know what this doctor claims are the symptoms of prostatic trouble It is, of course, a matter of proof First, it is quite material if one comes here and says "I have certain—I feel certain symptoms," and if that man then shows the symptoms which are this particular trouble, if this operation is performed and if afterward all those symptoms are relieved through a long period, of course, those are circumstances of a sort to see whether or not he has—whether or not that operation has helped him

THE COURT —It seems to me that if that is admissible it is affirmative proof and not admissible on cross examination They didn't ask him anything about that

At this time the court and counsel conferred

THE COURT —All right

Q —All right, state briefly some of the symptoms, how he suffered? A —Enlargement of the prostate, one of the earliest symptoms is the fact the patient notices he has to get up at night more often than formerly to urinate, two, three, four, five times That gradually increases and he begins to notice he has a loss of force to his stream, he doesn't urinate as freely and forcefully as he did He begins to notice he has some discomfort on urinating, and at the end of urinating and then quite a lot of discomfort, and sometimes the pain will be almost unbear able and they have to be relieved one way or another Those are in brief the main symptoms of enlarged prostate

Q —Is that where the abdomen—in the region of the abdomen? A —Yes, the bladder and lower part of the abdomen

Q —You spoke of—that is the hypertrophy or enlargement? A —That is right

Q —Now, then give us the symptoms of the prostatitis A —That is a much more difficult thing to do Sometimes it is a vague discomfort in the perineum, or what is commonly known as the crotch, in front of the rectum between the rectum and the scrotum, a discomfort discomfort in the groins, low down here and the inner side of the thigh, backaches of various kinds frequency of urination and painful urination and various types of things like that

Q —And, Doctor, those—of course, that condition after some duration or progress may cause a general involvement of the system so far as the strength is concerned? A —When you get into that you get into a tremendous field I would be glad to go into it—

Q —I am just asking you A —Sure, the patient then is a sick individual he becomes uremic, the urine backs up into his kidneys—

Q —I was trying to ask you, it involves a general condition of the patient's health? A —Yes, sir

Q —Weaker? A —Yes, sir

Q —Unable to do his work as usual? A —Yes, sir

Q —And such as that? A —Yes, sir

RE-DIRECT EXAMINATION

Questions by Mr Reynolds:

Q —This last statement made by Mr Morriss involving the general health weakness, inability to do work, isn't it a fact that there are many, many physical conditions to which you would give the same answer that have nothing to do with the prostate? A —Surely

Q —And you wouldn't diagnose prostatic enlargement on the brief explanation of symptoms which you just told about, would you? A —No

Q —There are many, many other things that you have to consider, that have to be confined with it? A —Yes, sir

Q —And you wouldn't diagnose prostatitis from the brief description you gave of it? A —No

Q —There are many, many other things besides that? A —Yes

Q —Tell us some other things that might cause—other than prostatic condition—that might cause the urinary trouble? A —Tumor of the bladder can cause it diverticulum of the bladder That is a pouch off from the bladder wall which holds a large amount of urine ordinarily Inflammation of the bladder, ulceration of the bladder and tuberculosis of the kidney, a stone in the urethra, which is the tube that runs from the kidney to the bladder

Q —That is sufficient In connection with these other conditions a patient might have a backache? A —He might have all of the symptoms we have described except just the difficulty

Q —I would like to know if prostatic enlargement could be connected with or cause in any way epilepsy? A —I don't think so

Q —Dementia praecox? A —No

Q —Hardening of the arteries? A —No

RE-CROSS EXAMINATION

Questions by Mr Morriss Sr.

Q —If you have those different symptoms you speak of that might be caused by different conditions correct and efficient clinical examination, pathology, would disclose whether it is—and, of course, a physical examination would disclose to the experienced surgeon or physician whether he had the prostatic trouble wouldn't it? A —Yes, sir

Witness excused

TESTIMONY OF DR BENJAMIN WEEMS TURNER

Dr Benjamin Weems Turner stated that he had graduated in medicine, that he had served an internship, that he had done postgraduate study and that he is a member of various special societies

The testimony then proceeded

Q —Now, Doctor, you know of John R Brinkley, the plaintiff in this case, do you? A —Yes sir

Q —And for how long would you say you have known of him? A —Well, since the World War, I would say about 1918 or 1919

Q —Well, now, Doctor, during the time that you have known of him have you ever known him to be a member of any of these organizations you have mentioned to which you belong? A —No

Q —Did you know Dr Brinkley—did you know of Dr Brinkley having advertised himself for some time as a goat gland specialist? A —Yes, sir

Mr Morriss Sr —Of course, your honor, the same objection is made to that as to the other witness

THE COURT —Yes Overrule the objection

Q —Now, Doctor, we would like to know your opinion as to whether or not it is physiologically possible to transplant the gland of a goat, the testis of a goat into the testicle of a man by making a pocket in which it is inserted, or in any manner, and have it still live? A —I would say it is not

Q —Why not, Doctor? A —Because there would be no way for nature to anastomose the blood and nerve supply

Q —Now, Doctor, as I understood your answer, it was impossible to anastomose What does that mean? A —Well, for nature to grow together the ends of the vessels and nerves

Q —That is what you meant by that? A —By anastomosis, yes, sir

Q —Why would you say that is impossible? A —Well, for the first reason, that there is no evidence of any of us—no evidence of such ever having been done

Q —Well, suppose we forget that there is no evidence that it has never been done and say from a scientific and medical standpoint just why, or why it wouldn't be possible? A —Well, the minute vessels that supply this tissue, upon removal, are severed and there is no way to unite them Therefore the tissue would die

Q —Well, now, assume that inserting this goat gland into the human gland—an incision is made, from which human blood spurts or comes, anyway, into contact with the goat testicle Would or would not that fact keep the goat testicle alive for any time? A —It would not

Q —Further assume, Doctor, that there was some possible method of providing a blood supply, is there any method of providing a nerve supply? A —No

Q —Well, would the goat gland live in the absence of nerve supply? A —Well, it is possible, I would say

Q —Would it have any functional activity? A —No

Q —Now Doctor, I guess you have answered that there has never been any recorded successful transplantation of any gland of any kind is that right? A —Yes sir

Q —In your opinion, would the transplantation, as we have been talking about here, have any effect, any functional effect whatsoever? A —It would not

Q —Would it have any effect at all upon an enlarged prostate? A —No

Q —Upon prostatic or other types of cancer? A —It would not

Q —Upon sexual rejuvenation? A —It would not

Q —Would it have any effect in treating or curing the type of insanity known as dementia praecox? A —No

Q —High blood pressure? A —No

Q —Hardening of the arteries? A —No

Q —Create energy in a man? A —No

Q —Would the treatment in any way help or cure epilepsy? A —No

Q —Locomotor ataxia? A —No

Q —Neurasthenia? A —No

Q —Diseases of the stomach, bowels or kidneys? A —No

Q —Constipation? A —No

Q —Would it have any effect at all in attempting to cure sterility caused by mumps? A —No

Q —Can sterility caused by mumps be cured? A —It cannot

Q —Why not? A —Because the active function of the organ is destroyed by a sclerosis or fibrous tissue

Q —Now Doctor, as a result of your questions what then would you say would happen to this goat gland? A —I would say it would die and form a foreign body of scar tissue and would probably incapsulate by nature's healing effort

Q —Just leave a hard bump? A —That is all

Q —Is there any process of nature that would lead you to an opinion as to whether that would finally disappear? A —I would think the larger portion would There would be a certain amount of scar that would remain

Q —Now, Doctor, as I understand it in between this space between the testicle and the epididymis, there is contained some twelve to twenty minute tubes that we call efferent ducts is that correct? A —Yes sir

Q —How long are those, generally? A —Well, they are quite small they are barely visible barely detected by the eye

Q —Can you feel them with your fingers? A —No

Q —Would it be humanly possible to separate one of those out and tie a piece of linen thread around it? A —No

Q —Now, I will ask you if tying off all or part of those has ever been—ever been used by you as part of the treatment for prostatic enlargement? A —No

Q —Or by any other man, that is, a urinologist, if you know?

Mr Morriss Sr —Just a minute

THE COURT —By any one he knows, he asked

A —Not to my knowledge

Q —Now, then, Doctor, assume an operation upon an individual who is said to have prostatic enlargement wherein approximately half of these efferent ducts are tied off, wherein a section of the vas deferens the tube leading from the epididymis up into the seminal vesicles may or may not be cut out and removed out, and assume that a 2 per cent mercurochrome solution is injected into the vas deferens that after this operation has been completed, of course, assume that all incisions made are then fixed back together again, sewed up, and postoperative treatment consisting of the intravenous injection of approximately six ampules containing 20 cc each of a substance composed of 1,000 parts of distilled water to one part of hydrochloric acid and also containing a minute amount of blue coloring matter, and that this material is injected into the veins over a period of several days, have you an opinion based upon reasonable medical and surgical certainty, as to whether or not that technic might or could have any effect in relieving prostatic enlargement? A —I would say it would not

Q —Would there be any purpose in your mind to such an operation, medically and scientifically? A —Not to my knowledge

Q —Now, Doctor, would that operation in your opinion have any effect on restoring sexual vitality? A —Not to my knowledge.

Q —In your opinion? A —No, no

Q —And would it have any effect in reducing high blood pressure? A —No

Q —Hardening of the arteries? A —No

Q —Would it tend to create energy in men? A —No

Q —Would it have any effect, in your opinion, on any of these various diseases I named over before? A —No

Q —All right, Doctor, now, would you say that that method was—strike that Doctor, this solution about which I spoke, a thousand parts of distilled to one part of hydrochloric acid and also a minute amount of blue coloring in that, is that type of solution considered an isotonic solution? A —That is hypotonic

Q —Which means what? A —It means less than the concentration level of the blood

Q —It means weaker? A —Weaker

Q —Is there any reason in your opinion why a solution such as that—I will change that question Is there any functional effect in your opinion from injecting a solution such as that into the human veins? A —Well of course, experimentally it was used a number of years back, four or five years ago, but it was discarded as being an inadequate agent

Q —That occasion you are referring to was it or was it not of the same proportion I have given you here? A —No, it was a stronger solution

Q —As a matter of fact, it was about one to five hundred or one to two or three hundred? A —Yes

Q —But never one to a thousand? A —No

Q —Have there ever been any indications even with that concentration that it has an effect of combating infection? A —I think it has been disproved in later years

Q —Incidentally, would an injection of that material have any effect on sexual rejuvenation? A —It would not

Q —Or on any of these other things I have spoken of? A —No

Q —Would it have any effect, injecting distilled water into a person?

A —Not in that dilution

Q —Now, Doctor, do you know Dr John R Brinkley, do you know his general reputation among men, members of the medical profession?

Mr Morriss Sr —The same objection

THE COURT —Why don't you fix the time, counsel?

Q —Do you know the general reputation of Dr John R Brinkley among members of the medical profession in February 1938?

Mr Morriss Jr —Now, we object to that because it isn't confined to the place of the defendant's residence and for all of the reasons stated before May that be understood without our restating that?

THE COURT:—You want to take the same objection you took to it before, the other doctor, Dr. Folsom?

Mr. Morriss Jr.:—Yes, may we have that?

THE COURT:—I will give you that.

Mr. Morriss Jr.:—To all of these questions, unless there is some different line of interrogation, may it be understood that the same objection goes to all of these questions, the same objection goes as was made?

THE COURT:—I understand you are objecting to me allowing them to ask him questions and receive answers with regard to the doctor's general reputation?

Mr. Morriss Jr.:—Yes, sir, and to—well, we think that many of the questions which they asked were not questions of general reputation and no proper foundation.

THE COURT:—I am going to overrule the objection you are making now and let him answer.

Q.—Doctor, the question was his general reputation among members of the medical profession in February 1938. Do you know? *A.*—Well, I don't know just how to answer that question. You mean in regard to—

Q.—As a medical man? *A.*—Well, it was generally not good.

Mr. Morriss Jr.:—The answer was not responsive.

THE COURT:—He wanted to know if you knew his general reputation. If you do, then he will ask you what it is.

A.—Yes.

Q.—Now, what was that general reputation? Don't say "not good," but tell us what it was.

THE COURT:—I think you had better let him answer the question himself.

Mr. Reynolds:—All right, I am sorry.

A.—Well, do you want to put me another question? I mean I don't know just how to answer that.

Q.—Can't you explain to us what you said you knew his general reputation was at that time as a physician and surgeon?

Mr. Morriss Sr.:—Ask if it was good or otherwise, that will be all right.

Q.—If the gentlemen will allow a conclusion, good or bad, then. *A.*—I would say it was bad.

Q.—Do you know his general reputation at that date in circles more particularly confined to urinologists and genital urinologists?

Mr. Morriss Jr.:—The same objection as before. Now, it wouldn't be necessary, and we don't care to interrupt the line of interrogation, if it may be understood we have the same objection which we made to the questions before.

THE COURT:—I think you have indicated, counsel, to the court your objection to this line of procedure. The new rules say all you have to do is to do that to preserve your record. If you want to keep on bobbing up you have the right to do it.

Mr. Morriss Jr.:—We said we didn't want to do it.

THE COURT:—You said you didn't want to do it, but you keep doing it. I think you have a record on that.

Mr. Morriss Jr.:—Well, your honor, if the court will—

THE COURT:—I am not making any agreements with counsel, that is not my province.

Mr. Morriss Jr.:—All we want is that it may be understood that the same objections go, or otherwise it is our opinion, we may be in error, but it is our opinion that in order to properly preserve our record we must object.

THE COURT:—Well, counsel, you had better preserve your record as you want to. I am not objecting to your objecting.

Q.—Doctor, the last question was confined to the same date, but confined also to urinologists and genital urinary surgeons. *A.*—I would say generally unethical or bad.

Q.—What do you mean by unethical? *A.*—Well, there are certain ethics in religions and medicine and ethics are standards by which we are mutually controlled. We call that the ethics.

Q.—Are you referring only to advertising in that connection? *A.*—No, I would say in general.

Q.—Did Dr. Brinkley have a reputation, either among the medical profession or these more confined groups, at that time as being a prostatic specialist?

Mr. Morriss Jr.:—We object to that as leading and suggestive and not being properly confined to the place of the residence and as being confined to a particular group rather than his general reputation, and as being duplicitous as it inquires as to several groups.

THE COURT:—Do you think his reputation would have to be confined to Val Verde County?

Mr. Morriss Jr.:—We think that is the proper test, yes, sir.

THE COURTS—He has testified himself that he has been licensed to practice all over the country and he has issued literature that he has performed operations all over the world and he is known internationally, and I don't think you can tie that down just to Val Verde County.

Mr. Morriss Jr.:—That is our view.

THE COURT:—Overrule the objection.

Mr. Morriss Jr.:—Either that or where he has lived or practiced his profession, in that community.

THE COURT:—He sketched here yesterday that by advertising over the radio he drew patronage from a portion of the country he delineated here that goes up to the Great Lakes and portions of Pennsylvania, and I don't believe you can limit that.

Mr. Morriss Jr.:—We also object also to being confined to a particular portion or group in any given locality and not confined to his general reputation in that respect, but only as among a particular group. You might ask if some member was in bad repute with a club or something like that.

THE COURT:—I don't think that is analogous. Overrule the objection.

Q.—Doctor, the question was if at that time and in those circles, the medical profession generally, he had a reputation of being a prostatic specialist? *A.*—You say did he have?

Q.—That is right, did he have? *A.*—In our association?

Q.—In medical—in the medical profession generally or in the circles confined to urinologists and genito-urinary surgeons, during February 1938? *A.*—No.

Q.—Did he have a reputation of being a genito-urinary surgeon or specialist in that?

Mr. Morriss Jr.:—The same objection to that.

A.—No.

Q.—Did he have the reputation, if you know, of being the greatest prostatic specialist in the world? *A.*—No.

Mr. Morriss Jr.:—The same objection.

Q.—Does he have that reputation now? *A.*—No.

Mr. Morriss Jr.:—Now, we object to the last question as being irrelevant and immaterial to any issue in the case.

THE COURT:—All right.

Mr. Morriss Jr.:—Not confined to the proper time.

CROSS EXAMINATION

Questions by Mr. Morriss Sr.:

Q.—Doctor, you have been practicing in Houston how long? *A.*—Twenty-six years.

Q.—And you have been a member of the American Medical Association how long? *A.*—Twenty-seven years.

Q.—Who asked you to come here, Doctor? *A.*—Who asked me to come?

Q.—Yes. *A.*—The secretary of the State Medical Association of Texas.

Q.—What is his name? *A.*—Holman Taylor.

Q.—In other words, he telephoned you? *A.*—Yes, sir.

Q.—And now, Doctor, you have spoken about the gland operation. What experience have you had in that particular operation, observing it or performing it yourself, that counsel asked you about? *A.*—Well, I haven't done any of the performing of the operations, but I have observed some that have been performed.

Q.—But I am asking you if you have had any particular observation yourself of the operation or in performing it yourself, you have never performed it or been present at it? *A.*—I have not.

Q.—Now, Doctor, there has been a very great advancement in the profession in the past thirty to forty years through all manner of experimentation, has there not? *A.*—Yes.

Q.—You would say that there has been more advancements in the profession of medicine and surgery in the past thirty or forty years than all the history we have record of before, wouldn't you? *A.*—That is very true.

Q.—And, Doctor, they have been doing a great deal of transplanting in late years? For instance, transplanting skin and bone and such as that, haven't they? There has been a great deal of that, and flesh? *A.*—It isn't transplanted, it is grafting.

Q.—Grafting it is the same thing? *A.*—No.

Q.—You cut it off one person or place and transplant it to the other part on the other person and it successfully attaches and grows on there, doesn't it? *A.*—It does in instances in which it is possible to perform.

Q.—That is what I mean, and there has been a vast deal accomplished to the human in that respect, to the human good, in later years, hasn't there doctor? *A.*—There has been no instance of tissue like that being transplanted.

Q.—I am asking you about transplantation. *A.*—Yes, of skin and bone.

Q.—And, Doctor, in reference to the operation—operations for or treatment of the prostate gland, there has been a great advance made throughout the period of the last thirty years in that, hasn't there? *A.*—Yes.

Q.—A little bit back of that time or just behind that time, about the first thing they usually would do was castrate, and that wasn't satisfactory, was it? *A.*—That dates back a hundred years.

Q.—How far back would you say the practice, the common practice, I mean the practice among specialists of that line, the practice of the complete removal of the gland dates back? *A.*—The early fifties.

Q.—Well, it wasn't practiced in our region here with any degree of generality until the last thirty-five or forty years, was it, Doctor? *A.*—Well, fifty, maybe, or sixty or seventy.

Q.—And many, many now perform what is called the transurethric operation, the transurethral operation? *A.*—Yes.

Q.—In severe cases of prostatic trouble? *A.*—Yes.

Q.—Those operations are rather common, aren't they? *A.*—Yes, they are.

Q.—That is where you go through the urethra and you cut away or whittle away—in other words, what is called a reaming operation, isn't it? *A.*—Yes, you might call it that.

Q.—And, of course, when it is bad enough the only way yet is to take it out, isn't it? *A.*—I didn't get that.

Q.—When it is bad enough you can't do it that way, the only method then generally is to take out the entire—that is, the abdominal operation which removes the gland entirely? *A.*—Well, of course, there are a number of methods that are accepted as treatment for prostatic enlargement, and transurethral is only one of three accepted and approved methods. That is limited to a certain group.

Q.—And then the removal, the complete removal by the abdominal process? *A.*—It is impossible to completely remove the prostate by any method.

Q.—You say that you remove all you can get if it is diseased? *A.*—The hypertrophy portion.

Q.—In the transurethral you don't remove it all, do you? *A.*—No.

Q.—Then, Doctor, of course, any method for relief of that very common trouble which would spare the necessity of the operation, even the transurethral, would be a great boon to humanity, wouldn't it? *A.*—It certainly would.

Q.—And, Doctor, any experimentation and finding out a way for human relief, you accomplish it by trying the operations and noting the results, don't you? *A.*—You do.

Q.—And of course if you operate some method upon a large number of persons and you find a very high per cent of satisfactory results, then that is about the best way to know that that operation is successful, isn't it? *A.*—That is the way we all judge ourselves, of course, by statistical data which is compiled by the group.

Q.—Now, Doctor, what is it that causes prostate enlargement? *A.*—That is something that none of us know.

Q.—You just don't know what does cause it, but it is very common, isn't it? *A.*—We think, we have our ideas.

Q.—It is very common, isn't it? *A.*—It is in certain stages of life.

Q.—Well, be more specific, Doctor, what stages? *A.*—Well, the fifties, sixty and seventy years.

Q.—Well, what are your ideas about what causes it? You spoke about your ideas. *A.*—Well, you have to go into the usual accepted principles that are written in our books. It is a tumorous hypertrophy or enlargement or increase in the elements of the prostate in which it grows as a tumor.

Q.—Well, but does that get back to the question of what causes, what causes the growth? *A.*—I don't believe there is anybody that has ever written a positive statement on it.

Q.—I thought you said you had your ideas, aside from whether— *A.*—Well, my idea wouldn't be worth much individually, except what I can prove.

Q.—In other words, you wouldn't be able to express any opinion of your own as to what does cause it? *A.*—Well, it is analogous in life to the change in the female. It is ordained by nature, which we haven't solved. It is the change of life.

Q.—That is your idea of the only cause? *A.*—That is the accepted cause.

Q.—All right. Now, then, Doctor, is that some unbalancing of the male and female sexual hormones which might cause it, is that what it is? *A.*—It isn't all. *It is one of the many hundreds of theories that have been propounded.* It is not an accepted theory.

Q.—You mean there are many hundreds of theories that have been advanced as to what causes it? *A.*—Well, they have in due course of time.

Q.—So it is a matter the profession is largely in the dark about yet, is that it, Doctor? *A.*—*I think that the accepted present status is due* to the so-called change of life in the male.

Q.—*Would that be akin to the unbalancing of the sex hormones in* the male? In other words, the male and female sex hormones in the individual, that is what you mean by that? *A.*—Not necessarily. As I just stated, there is one theory, that is one theory that has been advanced by a certain group of physicians, and hasn't been accepted.

Q.—*You wouldn't say that isn't it? A.*—It never has been proven.

Q.—Now, Doctor, you have been pretty closely connected with the medical associations, the American Medical Association and these other associations, for a good many years? *A.*—Yes.

Q.—I assume you have had business dealings with the association, the American Medical Association? *A.*—Yes.

Q.—And *communication and association in that association with* Dr. Fishbein, known him? *A.*—Yes.

Q.—And, Doctor, you don't know, or did you know, whether Dr. Brinkley was ever a member of the American Medical Association or not? *A.*—Yes, I think he was.

Q.—Do you know how long? *A.*—Well, I never had occasion to check up on it. I think up until some time when he was at Milford, Kansas. *I don't know what the dates were.*

Q.—Well, it was about the time he began radio announcements of his operations, wasn't it? *A.*—Those dates I don't recall.

Q.—Now, Doctor, did you or not have any personal acquaintance with him then or at any time have you ever had any personal acquaintance with him? *A.*—No, sir.

Q.—Have you ever been to his hospital while it was at Milford, Kansas, to go through it or to see anything *about his work? A.*—No.

Q.—It is in evidence that he had his hospital here from 1933 up to last year. Did you ever have occasion to visit *his hospital here? A.*—No.

Q.—Or to talk with him? *A.*—No.

Q.—Or with any of his physicians or nurses or employees of the hospital, *as to the nature of his operation and the work? A.*—No.

Q.—You have, then, no first hand information or knowledge whatsoever about the work or about his operations? *A.*—Oh, yes.

Q.—I say you have no first hand information, all you know is what somebody away who didn't do the work or wasn't present has told you, *is that all? A.*—*Well, the first time that I ever learned of his procedure* was through a group of physicians at Wichita, Kansas, at the *time Dr. Brinkley* was in Milford, Kansas.

Q.—I am talking about you never had any contact with *his hospital or him* or any of his co-operators or anything of that kind? *A.*—No.

Q.—You are a supporter and member of the American Medical Association, you say? *A.*—Yes, sir.

Q.—And of Dr. Fishbein's faction, we might call it, in that organization? *A.*—I didn't know there were any factions.

Q.—Well, you do know that there are many factions, that is to say, there are many controversies inside the medical association about policies and matters of that kind, you know that, don't you? *A.*—Oh, there might be on minor points, *but the general setup, of course, is well* organized.

Q.—Well, you do know that there has also been very considerable discussion and controversy inside the association and out about some of Dr. Fishbein's *operations?* I don't mean physical operations on people, I am talking about his policies, in the last year or so, you know that, don't you? *A.*—I do not.

Q.—You have read about those protests, haven't you? *A.*—I haven't.

Q.—You are acquainted with them? *A.*—No.

Q.—Had you read the book that—

THE COURT:—Counsel, *I think that is entirely collateral matter.*

Mr. Morriss Sr.:—I beg your pardon.

THE COURT:—I think those are collateral matters.

Mr. Morriss Sr.:—Yes, sir, I think it is unnecessary, your honor. That is all

RE-DIRECT EXAMINATION

Questions by Mr. Reynolds:

Q.—You testified here regarding a certain type of operation in which these little ducts were tied off and so forth. In your opinion is that operation, does that operation have anything about it at all that indicates that it could or might be this great boon to humanity that Mr. Morriss asked you about?

Mr. Morriss Jr.:—Just a moment. That question is improper, argumentative, leading and suggestive. We object to it for all those reasons.

THE COURT:—Overrule *the objection.*

Mr. Morriss Jr.:—Note the exception.

Q.—Will you answer the question? *A.*—I would say it could not.

Q.—After hearing about that operation have you yourself any particular desire to pursue its study further?

Mr. Morriss Sr.:—I didn't get *that.*

Mr. Reynolds:—I asked him if he had any desire to pursue that study.

A.—(No answer.)

Q.—Now, Doctor, several things here were said about grafting skin and bone. *Is there any difference between the theories and physical structures underlying the grafting of skin and bone and that of glands* such as the testes? *A.*—It is a very marked difference.

Q.—Will you explain that just in a general way, in common language so we can get an idea of it? *A.*—Well, of course, skin and bone is known as structural nonfunctioning, relatively. Of course, you get out in deep water when you go to describe any of these structures. But the grafting of skin and bone by transplantation, that can be done, but if you attempt to remove an organ you destroy its blood supply and nerve supply, and it is humanly impossible to unite, anastomose or join together these life giving properties which come through the blood supply and nerve supply.

Q.—*Do you know of any recorded case of successfully transplanting* any gland or any organ? *A.*—Not on record.

RE-CROSS EXAMINATION

Questions by Mr. Morriss Sr.:

Q.—Doctor, what about the grafting of the cornea of the eye? *A.*—That is analogous to the skin.

Q.—I say they are doing that? *A.*—Oh, yes.

Q.—Is that skin? *A.*—It is analogous to it.

Q.—What is the cornea composed of? *A.*—It is composed of an epithelium cover. It is analogous to a covering of skin.

Q.—And they do perform the operation very frequently now, removing the eye and operating on it and putting it back, don't they? That is a common operation? *A.*—No.

Mr. Reynolds:—*I object to that.* That has nothing to do with it. It is just prolonging it, whether you pull out an eye and operate on it.

THE COURT:—Just a minute. Maybe he is about through. Is that all, counsel?

Mr. Morriss Sr.:—Yes, sir.

Q.—You know that Dr. Stailey of San Quentin *is a member of the* A. M. A., you know of him and know who he is? *A.*—Yes, sir, the penitentiary physician.

Q.—I will ask you if he hasn't reported *some 10,000 goat gland operations?* A.—No.

Q.—Do you know that? *A.*—He reported some 10,000 vasectomy operations. That has nothing to do with goat glands.

Q.—Just what are the 10,000 operations he speaks of? *A.*—It consists of removing a portion of the vas, which is the tube that carries the sperm from the testicle, and sterilizes the inmates of the *penitentiary.*

Q.—Have you ever attempted or done that operation, Doctor? *A.*—I have.

Q.—And has he done that operation with success, this doctor, is he reported to have done that operation with success? *A.*—Yes, sir.

Q.—*In other words, Doctor, there is a vast amount of experimentation* going on and constantly being carried forward in the interest of medical science, some of which after a time are abandoned and some of which are carried forward successfully, isn't that true? *A.*—Yes, to some degree.

Q.—And in that connection, as you said, the greatest amount of *experimentation* and greatest amount of advancement has come within the past thirty or forty years? *A.*—Yes.

Q.—And now, with reference to that and in recent years, the animal secretions or the secretions of the animal glands have played a very large *part, haven't they? A.*—Gland extracts, *you mean?*

Q.—Yes. For instance, you speak of the thyroid. That has been learned in late years, and you may by reason of the thyroid secretion, that is adding more or less—you learn how to make the stout person thin and the thin person stout by the same medicine, don't you, Doctor? *A.*—*Yes.*

Q.—You have learned that, haven't you, Doctor? *A.*—Yes.

Q.—What is the thyroid gland secretion, what is it they use, what is that, the thyroid medicine, what is it an extract of? *A.*—It is extracts of the thyroid gland dried, desiccated.

Q.—What animal? *A.*—Various animals. *I think mostly Mr. Armour* handles it through his plant.

Q.—What animals, Doctor? *A.*—I don't know for sure.

THE COURT:—What is the relevancy of that?

Mr. Morriss Sr.:—I will just ask this further question.

THE COURT:—I know, but I have been in hopes counsel would turn *loose some time.* I believe you are a long way afield.

Mr. Morriss Sr.:—I will be through with this one *question.*

Q.—The same thing with reference to the sex glands, they have used that a great deal in the last few years, haven't they, and the *hormones? A.*—The thyroid is the only successful gland to date. There are some other glands that have been used.

Q.—Been used by many, many of the very best recognized physicians, too, aren't they, Doctor? *A.*—With limitations, and it depends on which *ones are used.* Some of which have been proved to be no good.

Q.—Yes, but many of them are accepted now and are being used by the best physicians? *A.*—Yes.

RE-DIRECT EXAMINATION

Questions by Mr. Reynolds:

Q.—Doctor, what is it that Dr. Sterling did and was that experimental in any way, or Dr. Stailey, at the penitentiary? *A.*—It was not experi*mental at all,* it was a resection of a portion, of a portion of the vas, which was done by physicians seventy-five years ago and a hundred years ago.

Witness excused.

At this time a short recess was had, at the conclusion of which the following proceedings were had, in the presence of the jury:

TESTIMONY OF JOHN MANNING VENABLE

Dr. John Manning Venable testified as to his qualifications by stating his medical education, including graduate work and his membership in various medical organizations and on hospital staffs. The testimony then proceeded:

Q.—Do you know of John R. Brinkley, Dr. John R. Brinkley, the plaintiff in this case? *A.*—I have heard of him.

Q.—Has he, to your knowledge, ever been a member of any of those organizations you have named? *A.*—No, sir.

Q.—Now, you know Dr. Brinkley used to advertise himself as a goat gland specialist, *do you? A.*—Yes, sir.

Q.—In your opinion, Doctor, is it possible to transplant—

Mr. Morriss Jr.:—Your Honor understands the same objections go to this.

THE COURT:—Yes.

Q.—*In your opinion is it possible to transplant the gland of a goat, the testis into the testis of a man by inserting it in a pocket or by any other method? A.*—No, sir.

Q.—And that is have it still live, I mean to say? *A.*—I understand you, sir.

Q.—Why is that your opinion? *A.*—Because it is unsuitable ground for a graft or *transplanting.*

Q.—*Now, will you explain a little more specifically the fact that it is unsuitable ground. A.*—*Because the place in which it is put in the testicle,* the testicular tissue, is not such to afford adequate blood and nerve supply to a graft to make it live.

Q.—What kind of cells are testicles of goats composed of? *A.*—I beg pardon, sir?

Q.—Of what kind of cells are testicles of goats or the testes of goats composed? *A.*—Epithelial cells.

Q.—Is that the same kind of cells of which human skin is composed? *A.*—No, sir.

Q.—Or human bone? *A.*—Not—no, I wouldn't say it was.

Q.—Now, Doctor, assume that in the transplanting process a pocket is cut into the human testicle and as a result human blood comes into that pocket into which the goat gland has been inserted. Wouldn't that furnish a blood supply to keep the goat gland alive? *A.*—No, sir.

Q.—Why not? *A.*—Because that is blood that is from cut vessels. That is not going to stay in there.

Q.—Would it even furnish temporary life? *A.*—No, sir.

Q.—In transplanting the goat gland in that method is it possible for the goat gland—the goat gland nerves to function? *A.*—No, sir.

Q.—Is there any way in which they can be connected, either—

Mr. Morriss Sr.:—I would suggest that counsel not lead the witness altogether.

THE COURT:—Counsel, inasmuch as this evidence is more or less cumulative, I think it desirable to lead him unless you object seriously.

Mr. Morriss Sr.:—I just wondered if you couldn't avoid leading him.

THE COURT:—I think this is repetition, and I think this is about the last evidence of this kind that the Court will allow.

Mr. Reynolds:—This is the last witness we intend to put on this.

THE COURT:—All right, go ahead.

Q.—Doctor, is there any way that the nerve in the testicle can be attached to the human nerve, either artificially or naturally? *A.*—Please frame that again.

Q.—I am asking if there is either natural or artificial methods whereby the nerve in the testicle of the goat can be connected with the nerve in the testicle of a man? *A.*—No, sir.

Q.—What is it that makes tissue live? *A.*—Nourishment from the blood and nerve supply.

Q.—And it is a fact, isn't it, that the blood has to circulate through the tissue? *A.*—Yes, sir.

Q.—The mere presence of it doesn't help? *A.*—No, sir.

Q.—To your knowledge, Doctor, has there ever been a recorded successful transplantation of any gland from animal to man or man to man? *A.*—No, sir.

Q.—Now, Doctor, in your opinion would the transplantation of this goat gland as described, whether or not accompanied by any other technic, would that transplantation itself, have any effect at all on reducing an enlarged prostate? *A.*—No, sir.

Q.—Would it have any effect upon any of the following diseases or dysfunctions; high blood pressure, hardening of the arteries, impotency, that is sexual inability; would it create energy, have an effect on epilepsy, *locomotor ataxia, constipation, diseases of the stomach, bowels and kidney*, insanity of the type known as dementia praecox, neurasthenia or sterility in man caused by mumps? *A.*—No, sir.

Q.—As a matter of fact, can sterility caused by mumps be cured in any way? *A.*—No, sir.

Q.—And that is because the organ is dead, is that right? *A.*—Yes, sir.

Q.—Would that or not have any effect on cancer? *A.*—No, sir.

Q.—On any type of insanity? *A.*—No, sir.

Q.—What would be the results or effect of the transplanting of that goat gland, what would happen to it? *A.*—Nothing.

Q.—Well, would it just stay there, or what? *A.*—It might be—it would be absorbed, in the event there was no infection it would be absorbed, gradually would become converted into fibrous tissues and be gradually more or less absorbed. There might be a little fibrous tissue left, but not much, where the transplant was placed.

Q.—You said providing there was no infection. Could that gland cause infection? *A.*—Not if it was aseptic technic.

Q.—By that you mean a sterile operation? *A.*—Yes, sir.

Q.—Now, Doctor, regarding the little ducts or tubes between the testicles and the testes and the epididymis that lies along the top of it like a finger, how large are those? *A.*—I would say about the size of a thread or smaller. They vary in size.

Q.—In the ordinary individual can you feel them with your hands? *A.*—No, sir.

Q.—Is it reasonably possible that you can tie off any one of those with a piece of linen thread? *A.*—No, sir.

Q.—Assuming, however, this could be done, would the tying off of part of them in itself have any effect upon an enlarged prostate? *A.*—No, sir.

Q.—What would be the effect of tying off all of them? *A.*—On one side?

Q.—Assume *just one testicle, yes, tie off all those.* *A.*—That side would get no more sperm around it, around to the urethra.

Q.—The same thing as a sterilization operation? *A.*—Yes.

Q.—A sterilization operation, as one is quite commonly done, is done higher up by taking out a section of the vas deferens, is that right? *A.*—Yes, sir.

Q.—Now, Doctor, assume an operation upon a patient who is said to have a prostate enlargement, where half or more of these little ducts on each side are tied off and where a part of the vas may or may not be cut out or removed, where there is an injection of 2 per cent mercurochrome solution into the vas deferens; that after that operation the postoperative treatment included the injection in the vein of a man over a period of several days the contents of 720—six ampules containing about 20 cc., composed of a thousand parts of distilled water to one part of hydrochloric acid and also a minute amount of blue coloring matter, have you an opinion as to whether or not that entire technic might or could have any effect upon an enlarged prostate? *A.*—It would not.

Q.—Is there any indication in any of those steps there that it is directed toward reducing an enlarged prostate? *A.*—No, sir.

Q.—Now, Doctor, this solution of 1,000: 1 distilled water-hydrochloric acid, and a minute amount of blue coloring material, is that what is known as an isotonic solution? *A.*—No, sir.

Q.—It is hypotonic? *A.*—Yes.

Q.—Which means it is much weaker than isotonic? *A.*—Yes, sir.

Q.—As a matter of fact, is there any appreciable difference between that solution and distilled water? *A.*—No, sir.

Q.—Is there any point, therapeutically, that is directed toward the treatment of healing, in your opinion, of injecting a solution of that kind into a man's veins? *A.*—No, sir.

Q.—Would that have, in your opinion, any effect upon restoring sexual vitality? *A.*—No, sir.

Q.—Well, Doctor, I will ask you this question again, now. That operation I described where the ducts were tied off and so on, in your opinion would that operation have any effect on high blood pressure, hardening of the arteries, impotency, epilepsy, locomotor ataxia, constipation, diseases of the stomach, bowels and kidneys, neurasthenia, or any of them? *A.*—This is the injection of this liquid?

Q.—No, it is the whole technic. *A.*—No, it would have no effect.

Q.—Would it have any effect in remedying sterility caused by mumps? *A.*—No, sir.

Q.—As a matter of fact, that sterility caused by mumps cannot be restored at all, can it?

THE COURT:—That has been gone over.

Mr. Reynolds:—I am sorry.

Q.—All right. Now, Doctor, do you know Dr. John R. Brinkley's general reputation among members of the medical profession as a whole in the United States, in February 1938?

Mr. Morriss Sr.:—Just a moment. There is a new objection now. The same objection, by the way, but he says does he know. He can only know that if he knows the medical profession. He said among the medical profession as a whole.

Mr. Reynolds:—Perhaps my language is bad.

THE COURT:—Counsel wants to reframe his question.

Q.—Do you know Dr. Brinkley's general reputation among the members of the medical profession of the United States during February 1938? *A.*—Yes, sir.

Mr. Morriss Jr.:—Just a minute. The same objection to that as heretofore.

THE COURT:—All right, overrule the objection.

Q.—Answer the question yes or no, Doctor. *A.*—I do know it.

Q.—What is that reputation? *A.*—The reputation of making claims that are not substantiated by results.

Q.—Do you know his general reputation among urinologists and genito-urinary surgeons for that same time? *A.*—Yes, sir.

Q.—What is that? *A.*—The same.

Q.—Does he have a reputation among either of those groups, or did he on that date, or does he now, as the greatest prostatic specialist in the world? *A.*—No, sir.

Q.—Does he have a reputation as a prostatic specialist at all? *A.*—No, sir.

Q.—Does he have a reputation of a genito-urinary surgeon at all? *A.*—No, sir.

Q.—Doctor, what in your opinion—no, strike that. Doctor, do you know what in the medical circles and the public generally is usually and customarily and usually understood by the word quack?

Mr. Morriss Jr.:—Now, we object to that, if the Court please, on the ground that what is usually and customarily understood among the medical profession wouldn't govern at all.

THE COURT:—He asked if he knew what was understood by the medical profession and the public generally by the word quack.

Mr. Morriss Jr.:—As we understand it, it is the province of the Court to instruct the jury what quack means.

THE COURT:—What quack means?

Mr. Morriss Jr.:—Yes, sir.

THE COURT:—I don't think so.

Mr. Morriss Jr.:—We have authority for that.

THE COURT:—It may be, but I think the common significance of the word, the idea that it would carry to the public generally, is what governs it. For instance, if I said you were a bum the public generally has an idea what it means. You might get four or five definitions of that from different people, but in the last analysis it is what the public generally and reasonably would think the word meant, the significance that is carried by the word to them. You can go to the dictionaries, I think, and get five or six definitions of the word quack, depending on what dictionary you go to. You could go to the law books and get definitions. You could get different definitions from the doctors. I am subject to correction if you can show me. It is my idea what would the general public get from the language. If you said a doctor was a quack just as if you were speaking of a lawyer if you said a lawyer is a shyster, what would the significance of that be? Ten lawyers might give you ten different definitions of a shyster, but the general public has an idea what it means.

Mr. Morriss Jr.:—Where a term is colloquial and has no established definition I think the Court is incorrect.

THE COURT:—I might be wrong, but I am going to let him testify. I think the public in general and the medical profession think a quack is what they think it is. Go ahead.

A.—What a quack means. A quack is one who presents claims that cannot be substantiated by facts nor results.

Q.—Doctor, in your understanding is it usual and customary for members of the medical profession, if you know, to advertise their remedies and treatments? *A.*—Commercial advertising?

Q.—Yes. *A.*—No, sir.

Q.—You know that Dr. Brinkley does do that? *A.*—Yes, sir.

Q.—Does that in any way enter into your definition of the word quack? *A.*—Not necessarily, no, sir.

CROSS EXAMINATION

Questions by Mr. Morriss Sr.:

Q.—Doctor, who got you to come out here? *A.*—I beg pardon, sir?

Q.—Who got you to come out here? *A.*—The American Medical Association.

RE-DIRECT EXAMINATION

Questions by Mr. Reynolds:

Q.—Did you have any correspondence or instructions or communications of any kind from the American Medical Association? *A.*—No, sir.

Q.—Do you expect to be compensated in any way from the American Medical Association for coming here? *A.*—No, sir.

RE-CROSS EXAMINATION

Questions by Mr. Morriss Sr.:

Q.—Doctor, when did you learn about this matter of this doctor being present to witness the gland operation up in Kansas? *A.*—When did I learn about it?

Q.—Yes. You must have learned about that today, didn't you? *A.*—It was yesterday, sir.

Q.—Whom did you learn that from yesterday, Doctor? *A.*—I saw that in the report from Mr. Harrell.

Q.—Doctor, did you say you just came today at the instance of the American Medical Association? You are coming out here at your own expense, is that right? *A.*—Yes, sir.

Witness Excused.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 20, 1939

"THE CHALLENGE OF APPENDICITIS"

A "challenge" is what Reginald Fitz [1] calls appendicitis. His father [2] in 1886 first emphasized in this country the importance of early removal of the inflamed appendix in order to lower the mortality which follows perforation with its resultant peritonitis. In the more than fifty years that has elapsed, the teachings of the earlier Fitz have been abundantly verified and confirmed by countless clinical observations. The way seemed clear to remove the inflamed appendix from our mortality records as a common cause of death, particularly since, with the development of modern surgery, appendectomy in itself is associated with a mortality which is practically nil. Still true today as it was fifty years ago, however, the deaths which occur from acute appendicitis are found only in those patients who have developed a peritonitis from perforation.

The mortality from acute appendicitis has risen sharply during the past few decades. This constitutes the "challenge of appendicitis." The data illustrating this increasing mortality are not difficult to find. The experience of individual states has been particularly striking. For Massachusetts, Fitz [1] presents data which show a sharply increasing mortality curve from 1908 to 1932. He states that, whereas in 1900 only 243 patients died of acute appendicitis, by 1936 it had risen to 490; there was a higher peak in 1930, when the deaths totaled 610. Horsley [3] for the state of Virginia quotes similar statistics; he noted that the death rate from appendicitis rose from 6.4 per hundred thousand in 1913 to 11 in 1930; it was 10.1 in 1935. Startling data have recently been reported by Krech,[4] who points out that in six large American cities the mortality rate from appendicitis has increased in one year from 14.3 per hundred thousand in 1935 to 17 in 1936. In one metropolis the rise was more pronounced, from 14.5 to 23.5 deaths per hundred thousand. These figures are from cities having ample hospital facilities and grade A medical schools; obviously these advantages are not being fully utilized. Hudson [5] has pointed out that, of every twenty children who die, one dies of acute appendicitis. Indeed, the large proportion of the deaths in his disease unfortunately occur in children and young, healthy adults, a factor which makes the challenge even more alarming. In the entire United States more than 16,000 deaths are recorded as produced by appendicitis in 1936; this is a total 50 per cent greater than all deaths due to pregnancy and childbirth in the same period.[4] In several communities the problem has been considered important from the public health point of view and vigorous educational campaigns and propaganda have been instituted in order to educate the public to help meet this challenge.

Education of the public about appendicitis applies to the most important two factors responsible for the increasing mortality, i. e. the increasing use of cathartics for abdominal pain and the delay in the diagnosis and treatment of acute appendicitis. Both factors are associated when any one goes to a drug store for relief from a "belly ache" and indulges in catharsis. This point must be repeatedly emphasized; those with abdominal pain must be warned repeatedly against the dangers of the great American habit of purgation.

Early diagnosis, once the public is educated, lies of course in the hands of the general practitioner. Early diagnosis is not particularly difficult and if followed by prompt appendectomy results in an almost 100 per cent recovery. Unfortunately, this teaching in recent years has received a setback by the resurrection of the 40 year old Ochsner or delayed operative therapy. This swing of the pendulum has been initiated by surgeons; they have done so, however, only as a method of reducing the high mortality in patients past the stage of early diagnosis and who are already suffering from peritonitis. Unfortunately, this teaching, though applied by surgeons to a relatively limited group of patients, has produced in the minds of many physicians a change of attitude toward treatment of all types of acute appendicitis. There has been a tendency to postpone operative therapy in all cases instead of urging appendectomy promptly after the onset of the disease. As expressed by F. A. Coller,[6] "There is one great drawback to advocating any type of delay in the operative treatment of the complications of appendicitis. . . . The bare mention of conservatism in any connection with appendicitis is often misconstrued to mean medical treatment for all appendicitis." A. O. Whipple [7] says "During the past year I have seen four patients . . . with peritonitis" due to appendicitis which the physicians had treated medically because they had "read a good

1. Fitz, Reginald: The Challenge of Appendicitis, Ann. Int. Med. **12**: 1442 (March) 1939.
2. Fitz, Reginald: Perforating Inflammation of the Vermiform Appendix with Special Reference to Its Early Diagnosis and Treatment, Am. J. M. Sc. **92**: 321, 1886.
3. Horsley, J. S., in discussion on Appendical Abscess, Tr. Am. S. A. **56**: 362 1938.
4. Krech, Shepard: Appendicitis as a Public Health Problem, S. Clin. North America **19**: 273 (April) 1939.
5. Hudson, H. W., Jr.: Acute Appendicitis in Children: The Challenge of Its Continuing High Mortality, New England J. Med. **212**: 670 (April 11) 1935.
6. Coller, F. A., in discussion on Appendical Abscess, Tr. Am. S. A. **56**: 361, 1938.
7. Whipple, A. O., in discussion on Appendical Abscess, Tr. Am. S. A. **56**: 366, 1938.

deal of literature recently about conservative treatment of appendicitis." Birnie [8] finds that this change in point of view has even reached the medical schools; he says "I have been extremely shocked and disturbed at the state of mind of a good many of the interns . . . high-class men . . . [who] seem to think that in all cases of acute appendicitis there are two courses open: you can operate at once or you can use the deferred treatment. . . . Something is radically wrong with the teaching of today if medical students are sent out with the idea that in these cases of appendicitis it is perfectly safe to wait."

From these expressions it seems that there is a growing failure to realize the importance of the old teachings of Fitz.[2] As stated succinctly by William Osler,[9] "There is no medicinal treatment of acute appendicitis." That the situation at present is actually contrary to this teaching is shown for example by Hudson,[5] whose observations are particularly distressing; he found in 100 consecutive admissions for acute appendicitis at the Boston Children's Hospital that only twenty-eight patients were sent to the hospital within twenty-four hours of the onset of pain; significantly all but one recovered rapidly after appendectomy. It was entirely among the remaining seventy-two who entered the hospital more than twenty-four hours after the onset that complications and death occurred. Elman,[10] in a study of peritonitis from ruptured acute appendicitis at the St. Louis Children's Hospital, has emphasized that the delayed operation should be reserved for a small group of patients. In children admitted in good general condition prompt appendectomy is followed by the lowest mortality "whether the appendix is actually ruptured or not." He further emphasizes the difficulty of deciding in many cases whether or not the appendix is ruptured. From the practical point of view this decision in itself is not important.

Reports in surgical literature as reviewed by Ransom [11] do not change but really reinforce the significance of this teaching. The surgeon when he writes of delayed operation in cases of appendicitis refers only to those with peritonitis, cases in which peritonitis should really never have been permitted to develop. The challenge of appendicitis does not concern the treatment in this group; indeed, it concerns the problem of eliminating this group. When all cases of acute appendicitis are recognized early and operation is performed early, no one need die of the results of this disease. Fitz [1] concludes his current paper before the American College of Physicians with this statement:

> Appendicitis, in spite of being a fashionable and well studied disease for more than fifty years, continues to slap our faces insultingly. It is easily recognized. Its treatment, on the whole, is satisfactory, yet it continues to kill each year an unnecessary number of people. May concerted action soon be taken by the American medical profession to meet the challenge of appendicitis and relegate it to the ranks where it belongs: a disease easily diagnosed, of no great danger and, when recognized early and submitted to proper treatment, readily amenable to cure.

8. Birnie, J. M., in discussion on Appendicitis, New England J. Med. **219**: 338 (Sept. 8) 1938.
9. Osler, William: The Principles and Practice of Medicine, ed. 8, New York, D. Appleton & Co., 1919, p. 538.
10. Elman, Robert: Peritonitis Due to Ruptured Acute Appendicitis in Children: Influence of Delay in the Operative Mortality, Am. J. Digest. Dis. **5**: 804 (Feb.) 1939.
11. Ransom, H. K.: Delayed Intervention in Appendical Abscess and Spreading Peritonitis Due to Appendicitis, Internat. Abst. Surg., in Surg., Gynec. & Obst. **68**: 359 (April) 1939.

ASBESTOSIS

Asbestosis, a definite form of pneumoconiosis, is now generally recognized as an industrial hazard. The first fatal case of asbestosis was apparently described in 1900 by Montague Murray in the Charing Cross Hospital *Gazette*. Cooke's [1] short note in 1924 on the case of a woman dying of asbestosis, and a later paper published in 1927, established asbestosis as a distinct variety of pneumoconiosis.

Asbestos is a fibrous mineral that can be carded, spun and woven. It is a silicate associated most commonly with chrome iron and magnetite. Microscopically asbestos fiber, according to Cooke, is seen to consist of two elements: the bulk of the fiber is translucent and glistening, with here and there black, opaque, angular particles and minute black granules. The dust generated during manufacture consists of these sharp, angular particles and minute granules. Analysis of the dust reveals that the latter are the iron-containing portions of asbestos. These particles, Cooke states, are the "bugbear of the manufacturer, the cause of dust, and a danger to the health of workers in the process of manufacture."

Microscopic sections of the lung in Cooke's case showed an enormous amount of fine granular pigment in the peribronchial fibrous tissue, in the walls of the alveoli, and large, solid, angular particles, which he felt sure were the heavy, brittle, iron-containing fragments of asbestos. McDonald,[2] in his report on the microscopic appearances of pulmonary tissue in Cooke's case, describes peculiar foreign bodies in the alveoli, bronchioles and interstitial fibrotic areas, to which he refers as "asbestosis bodies." Stewart and Haddow,[3] of Leeds and Lynch and Smith [4] of Charleston, S. C., demonstrated asbestosis bodies in the sputum of asbestos workers.

In a recent paper Sayers and Dreessen [5] of the U. S. Public Health Service report the results of an engineering and medical study of the health hazards in the asbestos textile industry in North Carolina. They found pulmonary asbestosis to be the principal physical defect in 541 workers whom they examined. The clinical symptoms included progressive dyspnea, variable cough, substernal chest pain, blood streaked

1. Cooke, W. E.: Pulmonary Asbestosis, Brit. M. J. **2**: 1024 (Dec. 3) 1927.
2. McDonald, S.: Histology of Pulmonary Asbestosis, Brit. M. J. **2**: 1025 (Dec. 3) 1927.
3. Stewart, M. J., and Haddow, A. C.: Demonstration of Peculiar Bodies ("Asbestosis Bodies") in Material Obtained by Lung Puncture and in the Sputum, J. Path. & Bact. **32**: 172 (Jan.) 1929.
4. Lynch, K. M., and Smith, W. A.: Asbestosis Bodies in Sputum and Lung, J. A. M. A. **95**: 659 (Aug. 30) 1930.
5. Sayers, R. R., and Dreessen, W. C.: Asbestosis, Am. J. Pub. Health **29**: 205 (March) 1939.

sputum, decreased chest expansion, emaciation, weakness, clubbed fingers or curved nails. Late in the disease the dyspnea becomes distressing, cyanosis may occur and there may be paroxysms of coughing productive of tenacious sputum. The characteristic roentgenographic appearances of the chest indicate granular or ground glass markings, with more or less obliteration of linear pulmonic markings, localized in the midlung and the bases. Single sputum specimen analysis in each case revealed increased incidence of asbestos bodies with increasing dust exposure. Such bodies were found in the sputum of 46.9 per cent of persons whose condition was diagnosed as asbestosis, whereas 24.3 per cent of normal asbestos-exposed persons had these bodies in the sputum. They were not observed in any of the persons surveyed with less than three months' exposure. The more serious forms of the disease were observed in carders, spinners, weavers, twisters, willowers and pickers. Exposures range from 0.10 to 76 million particles per cubic foot. Thirty-nine persons exposed to the concentration below 2.5 million particles per cubic foot did not have asbestosis. The authors felt that if asbestos dust concentrations in the air are kept below 5 million, new cases of asbestosis will not appear. An engineering study by Page and Bloomfield [6] demonstrated that means are already available for reducing the dust exposure of a majority of asbestos textile workers to less than this amount. The basis of this control is exhaust ventilation near the source of dust.

6. Page, R. T., and Bloomfield, J. J.: A Study of Dust Control Methods in an Asbestos Fabricating Plant, Pub. Health Rep. 52: 1713 (Nov. 26) 1937.

CARBOHYDRATES AS CONSTITUENTS OF PROTEINS

The first suggestion that carbohydrates may be components of all proteins was made by Claude Bernard, although the basis for this idea was an erroneous interpretation of experimental data. Early in the course of his brilliant studies on the physiology of glycogen, Bernard observed that the feeding of protein to dogs led to an increased deposition of glycogen in the livers of the experimental animals. As this work was done at a time when information regarding either the structure of proteins or the mode of synthesis of sugars in the organism or in the laboratory did not exist, Bernard assumed that the sugar molecule was preformed in the protein and postulated a glucosidic theory of protein structure. However, when the investigations of Lusk and his pupils demonstrated the synthesis of sugar from amino acids, the physiologic basis for the glucosidic structure of proteins disappeared. The presence of carbohydrates in proteins was believed to be limited to a small group of conjugated proteins, the so-called glucoproteins. Despite this view a general lack of agreement prevails as to whether or not the simpler proteins, particularly albumins or globulins, possess carbohydrate constituents. Early sporadic reports of the isolation of carbohydrates or carbohydrate derivatives from the breakdown of proteins were interpreted as indicating an impure starting material contaminated with carbohydrate. Indeed, investigators of protein chemistry frequently used a negative carbohydrate test as a criterion of the purity of their protein preparations.

Within relatively recent times, investigators have reopened the question as to whether carbohydrates may actually be components of the simpler proteins or are present as impurities in the various preparations. The increasing evidence of the important role of carbohydrates in the determination of immunologic specificity has stimulated interest in the possible role of such groups in influencing the antigenic capacity of proteins. Suggestive indication of the presence of carbohydrate in crystalline egg albumin was presented by Fränkel and Jellinek,[1] who confirmed earlier reports of the presence of a polysaccharide in this protein. Considerable interest was added to this investigation because of the identification of mannose among the hydrolytic products of the polysaccharide, thus making available the first definite evidence for the occurrence of this particular monosaccharide in animal tissues. Repetition of this work by other investigators [2] led to essentially confirmatory results, with the conclusion, however, that the carbohydrate is not derived from the egg albumin itself but rather from ovomucoid, present in small amounts. Considerable light was thrown on this controversial subject by the introduction of a colorimetric technic, which led to the quantitative detection of carbohydrates in almost all proteins examined.[3] This striking announcement of the ubiquitous distribution in nature of carbohydrate components of proteins was received with skepticism. Nevertheless, investigations of the composition of various proteins [4] have included reports of the actual isolation of carbohydrate constituents. The carbohydrates that have been identified are mannose, galactose and glucosamine, and the amounts of each of these appear to differ in the various proteins. In some, e. g. certain of the serum proteins, the polysaccharide present has been reported to be composed of units having the composition galactose-mannose-glucosamine, while in other proteins, e. g. egg albumin, only mannose and glucosamine are present. The carbohydrate component of egg albumin was critically examined recently by Neuberger,[5] who demonstrated the integral position of the carbohydrate in egg albumin by a failure to separate the carbohydrate from the protein by denaturation or ultrafiltration. This observation, taken together with the constancy of carbohydrate content on repeated recrystallization of the protein, establishes definitely the firm attachment

1. Fränkel, S., and Jellinek, C.: Biochem. Ztschr. 185: 392, 1927.
2. Levene, P. A., and Mori, T.: J. Biol. Chem. 84: 49 (Oct.) 1929.
3. Sorensen, M.: Compt. rend. Lab. Carlsberg 20: 3, 1934.
4. Rimmington, Claude: Biochem J. 23: 430 (No. 3) 1929; 25: 1062 (No. 4) 1931. Hewitt, L. F., ibid. 32: 1554 (Sept.) 1938.
5. Neuberger, A.: Biochem. J. 32: 1435 (Sept.) 1938.

between the carbohydrate and the protein. By the use of a newly developed technic, it is reported possible to isolate in almost quantitative yield the carbohydrate group of crystalline egg albumin. The properties of the isolated polysaccharide are described in detail. It is shown to have a molecular weight of about 1,200 and to be composed of four molecules of mannose and two of glucosamine, together with an unidentified nitrogenous constituent.

Although the mode of combination of the carbohydrate with the rest of the molecule remains unexplained, the concept of carbohydrates as constituents of proteins must be considered in connection with theories of protein configuration. The application of similar technic to other proteins may aid in determining to what extent the carbohydrate components of physiologically important proteins determine their immunologic properties and biologic specificity.

Current Comment

A SKIN TEST FOR TOLERANCE TO ALCOHOL

About a year has passed since Nagle [1] proposed an endermic test for tolerance to alcohol. This test, developed in the state psychiatric clinic at Agnew, Calif., consists of an intracutaneous injection of 0.03 cc. of 60 per cent ethyl alcohol (U. S. P.) in the deltoid region with a control injection of the same volume of physiologic solution of sodium chloride in the opposite arm. A wheal about 9 mm. in diameter almost immediately forms, is common in all instances, and has no diagnostic significance. Surrounding the wheal a zone of erythema soon develops, varying in size and intensity in different persons. The maximum reaction is reached by the end of thirty minutes. In about 20 per cent of the 250 patients thus far tested by Nagle the surrounding erythema was of maximum intensity and about 3 inches (38 cm.) in diameter. These persons were classified by Nagle as + + + + intolerant or allergic to ethyl alcohol. At the other end of his arbitrary allergic scale about 10 per cent of his tested group failed to exhibit peripheral erythemic reaction to his arbitrary test dose. These he classified as belonging to the alcohol tolerant or alcohol immune group. Four intermediary groups are recognized on his arbitrary scale. From a study of the personal histories of these patients, supplemented by determinations of the minimum intoxicating dose of ingested alcohol with about fifty volunteers, Nagle concludes that the relative tolerance or susceptibility to ethyl alcohol as determined by the size and intensity of the skin reaction is a direct quantitative index of individual tolerance or susceptibility to ingested alcohol. Volunteers with negative skin reactions, for example, required in the neighborhood of 2½ ounces (75 cc.) of alcohol taken on an empty stomach before showing signs of intoxication. Only one-fourth ounce (7.5 cc.), or a tenth of this amount of ingested alcohol, is sufficient to cause demonstrable speech defects in volunteers whose skin is + + + + allergic to injected alcohol. Skepticism has been expressed by immunologists [2] as to the logical basis for this alleged parallelism. It is interesting to note, however, that the percentage distribution of alcohol tolerance or susceptibility in the general population as determined by the Nagle skin test is approximately the same as the percentage distribution recently reported by German investigators [3] as a result of quantitative blood analyses. Both sets of data show about 20 per cent of the population hypersensitive to alcoholic beverages and about 10 per cent relatively immune.

1. Nagle, J. M.: J. Allergy **10**: 179 (Jan.) 1939.

IMPORTATION OF RADIUM

Only a few hundred grams of radium has been produced since this element was first discovered in pitchblende by Pierre and Marie Curie in 1898. A large proportion has been used for therapeutic purposes. Although radium is also utilized extensively as an activating agent in the preparation of luminous paints and is employed by metallurgists to inspect flaws in metal castings, as much as nine tenths of the radium mined each year finds a use in medicine, particularly for the treatment of cancer. Many hospitals in the United States have accumulated sizable amounts of the metal. Last year it was reported that the combined radium stores of three institutions, Memorial Hospital in New York, Bellevue Hospital in the same city and the State Institute for the Study of Malignant Disease in Buffalo, amounted to almost an ounce. Almost no radium has been produced in the United States since 1923, when richer and larger deposits became productive elsewhere. After that year this country, although it is still the world's largest consumer, has met its needs by importation. In view of this circumstance the amount of radium imported is of interest particularly as it reflects the use of the metal in medicine. The imports of radium into the United States in 1938 established a new high record and the price paid was the lowest ever recorded, according to the Bureau of Foreign and Domestic Commerce.[1] The United States received from foreign countries a total of 598 grains of radium during 1938, compared with 236 grains imported in 1937 and 339 grains in 1934. The value of the imports in 1938 was $787,000, or approximately $1,316 per grain, compared with a valuation of $377,000 for 1937 or $1,600 per grain and $1,082,500 in 1934 or about $3,193 per grain. In 1929 the import invoice value of radium was approximately $3,500 per grain. An important factor in the reduction of the price of radium was the discovery in Canada a few years ago of radium-bearing ore and subsequent exploitation of these deposits. The reduction in price has fortunately made radium more available. Although the field of the use of radium has been invaded by high voltage x-ray machines, the increasing intensity of the struggle against cancer has more than offset any tendency toward substitution; for internal radiation, in particular, radium therapy possesses unique advantages.

2. Manwaring, W. H., ibid., p. 180.
3. Alcohol and Safe Driving, Berlin Letter, J. A. M. A. **110**: 1617 (May 7) 1938.
1. J. Indust. & Engin. Chem. **17**: 207 (March 20) 1939.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Society News.—The Calhoun County Medical Society was recently addressed, among others, by Drs. Howard R. Mahorner and Warren H. J. Hebert, both of New Orleans, on "Appendicitis and Its Complications" and "Strictures of the Rectum" respectively.

Personal.—Dr. George L. Gresham, Andalusia, was recently appointed chief physician at the Speigner State Prison.——Dr. Nathaniel G. Clark, Birmingham, has been appointed chief medical advisory officer of the department of correction and institutions of the state of Alabama, succeeding Dr. Henry G. Camp, Montgomery, resigned.

State Medical Election.—Dr. Mercer S. Davie, Dothan, was elected president of the Medical Association of the State of Alabama at its annual meeting in Montgomery April 20, succeeding Dr. Seale Harris, Birmingham. Other officers include Drs. John S. Tillman, Clio, and John Paul Jones, Camden, vice presidents of the southeastern and southwestern divisions respectively. Dr. Douglas L. Cannon, Montgomery, was reelected secretary. The association will meet in Birmingham in 1940.

CALIFORNIA

Personal.—Dr. Jacob M. Furstman, health officer of the Monrovia district, has been named administrative head of the Pomona health district.——Dr. Stacy R. Mettier, associate professor of medicine, University of California Medical School, San Francisco, is carrying on a six months' study on hematology and the leukemias at Oxford University, London, under the Nuffield Foundation.

Society News.—The San Francisco County Medical Society devoted its meeting May 9 to a panel discussion of peptic ulcer with the following speakers: Drs. William Dock, chairman; LeRoy H. Briggs, Julian M. Wolfsohn, Leo Henry Garland, Emile F. Holman and George K. Rhodes.——Dr. William D. Sansum, Santa Barbara, discussed "The Problem of the Underweight Patient" before the Hollywood Academy of Medicine April 13.——Dr. Hans Lisser, San Francisco, discussed "Recent Advances in Clinical Endocrinology" before the San Diego County Medical Society May 9.

CONNECTICUT

Dr. Cowdry Lectures at Yale.—Edmund V. Cowdry, Ph.D., professor of cytology, Washington University School of Medicine, St. Louis, will deliver the Woodward lecture at the Sterling Hall of Medicine, May 24, under the auspices of the department of anatomy, Yale University School of Medicine, New Haven. His subject will be "Problems of Ageing."

Grant for Child Research.—The General Education Board of the Rockefeller Foundation has made a grant-in-aid of $85,000 to be distributed over a period of five years, and the Carnegie Corporation has appropriated the amount of $10,000 a year for three years in support of the clinic of child development at the Yale University School of Medicine, New Haven. Under the direction of Dr. Arnold L. Gesell, New Haven, the clinic is continuing its systematic studies of the behavior of infants. A new program which these grants make possible will give special attention to the medical aspects and clinical applications of research in child development, it was announced.

Society News.—Dr. Louis S. Goodman, New Haven, addressed the Hartford County Medical Association April 4 on "Recent Developments in the Therapeutics of Pain."——The Middlesex County Medical Society was addressed in Cromwell April 13 by Dr. Lewis W. Brown, Newark, N. J., on "Allergy in General Practice" and George M. Dutcher, Ph.D., Middletown, "Since Horse and Buggy Days."——At a meeting of the New London County Medical Association, New London, April 6 Dr. Samuel J. Kopetzky, New York, discussed socialized medicine.——Dr. James Raglan Miller, Hartford, addressed the Tolland County Medical Association April 18 in Somers on office gynecology.

ILLINOIS

Personal.—Dr. Walter C. Earl, Cuernavaca, Morelos, Mexico, has been appointed director of the Champaign-Urbana health district, it was recently reported.——Dr. Julius B. Stokes has resigned as superintendent of the Livingston County Sanatorium, Pontiac, effective April 1.

State Medical Election.—Dr. James S. Templeton, Pinckneyville, was chosen president-elect of the Illinois State Medical Society at its annual meeting in Rockford May 4. Dr. James H. Hutton, Chicago, was inducted into the presidency. Dr. Joseph S. Lundholm, Rockford, was elected first vice president, and Dr. Harold M. Camp, Monmouth, and Dr. A. J. Markley, Garden Prairie, were reelected secretary and treasurer respectively. The next annual meeting will be in Peoria.

Chicago

Dr. Taliaferro Made Distinguished Service Professor.—William H. Taliaferro, Ph.D., dean of the division of biological sciences and professor of parasitology, University of Chicago, was awarded the Eliakim H. Moore Distinguished Service Professorship May 4. Dr. Taliaferro received the award in recognition for his work in tropical diseases. The Moore professorship was established in 1927 in recognition of Dr. Moore, professor of mathematics at the university from 1896 to 1931.

Society News.—The Chicago Pathological Society was addressed at its annual meeting May 8, among others, by Drs. Edwin F. Hirsch and Russell H. Morgan on "The Causal Significance to Traumatic Ossification of the Fibrocartilage in Tendon Insertions."——At a meeting of the Chicago Ophthalmological Society May 8, the speakers were Drs. Harry S. Gradle and Daniel Snydacker on "Report of Three Cases of Retinal Detachment Occurring in Glaucoma"; Arthur Weil and Leo L. Mayer, "Attempts to Produce Experimental Tumors of the Eyeball," and Stephan van Wien, "The Leland Refractor: A Method for Refraction Under Binocular Conditions."——Dr. Albert Graeme Mitchell, Cincinnati, will speak on "What I Don't Know About Endocrines" before the Chicago Pediatric Society May 23.

IOWA

Annual Renewal Fees Due Before June 1.—All licenses to practice medicine and surgery in Iowa expire annually on June 30. To renew such a license a licentiate must make a written application to the state department of health before June 1, enclosing the renewal fee of $1. If a license expires by reason of the licentiate's failure to renew it, it can be reinstated without reexamination only on the recommendation of the state department of health and the payment of the overdue fees.

KANSAS

Library for Sedgwick County.—At a meeting of the Sedgwick County Medical Society, Wichita, February 7, the members voted unanimously to establish a medical library. New quarters taken by the society will provide space for the library reading room, the executive secretary's office, the medical service bureau office and a large reception room allowing space for library shelves. A librarian will be employed to catalogue and index material and assist in reference work, according to the *Medical Bulletin*.

MICHIGAN

University News.—A grant of $2,000 from Parke Davis & Co. will provide for a year's research at the Wayne University College of Medicine into the cause and treatment of peptic ulcer. Dr. David Sandweiss, instructor in clinical medicine, and M. H. F. Friedman, Ph.D., research associate in physiology, with rank of instructor, will be in direct charge of the work, while Thomas L. Patterson, Ph.D., will supervise the research. General investigations of peptic ulcer conducted during the past two years by the department of surgery will be continued in collaboration with the new work.

Personal.—Dr. Alexander W. Blain, Detroit, formerly president of the Wayne County Medical Society, has been appointed to the state commission of conservation.——Governor Dickinson has appointed Dr. Henry Allen Moyer, Charlotte, his personal physician, to the state service in the capacity of medical secretary, it was reported.——Dr. Charles R. Smith, formerly on the staff of the William H. Maybury Sanatorium, Northville, has been appointed medical superintendent of the Cooper Country Sanatorium, Houghton, succeeding Dr. George

McL. Waldie, resigned.——The library of the late Dr. Stephen H. Knight, Detroit, has been donated to the Wayne County Medical Society by his son Rufus.

Outbreak of Smallpox.—Newspapers reported April 12 that sixteen basketball teams were involved in an outbreak of smallpox while playing in a tournament in Mount Pleasant recently. The sixteen competing teams represented schools at Flushing, Alma, Sandusky, Evart, Perrinton, Gladwin, Lake City, West Branch, Carson City, Mecosta, Alabaster, Roscommon, Weidman, Crystal, Fowler and Mount Pleasant. In addition to the areas threatened by outbreaks directly related to the Mount Pleasant tournament, many other counties have been reporting smallpox cases, it was reported. Up to April 12, 192 cases had been reported throughout the state, constituting one of the greatest smallpox threats in recent years. For one month prior to this report seventeen counties reported seventy-one cases; these counties included Roscommon, Gratiot, Mecosta, Montcalm, Osceola, Muskegon, Allegan, Isabella, Cass, Genesee, Gladwin, Hillsdale, Midland, Missaukee, Ottawa, Presque Isle and Shiawassee. The state department of health secured six graduate physicians from the University of Michigan School of Hygiene and Public Health to assist local authorities in those counties having no full time health departments, it was stated.

MINNESOTA

Personal.—Dr. Gerald Taylor Evans, assistant professor of physiological chemistry, Yale University, New Haven, Conn., has been appointed associate professor of medicine and director of chemical and metabolic laboratories at the University Hospital, University of Minnesota. Dr. Evans graduated at McGill University Faculty of Medicine, Montreal, in 1932; he received his degree of doctor of philosophy from the University of Pennsylvania in 1937.

Society News.—Dr. Jesse G. M. Bullowa, New York, delivered the annual address before the Minnesota Pathological Society April 18 on "Specific Treatment of the Pneumococcic Pneumonias." The society was recently addressed by Drs. James S. McCartney, Minneapolis, on "Relation of Age and Site of Operation to Postoperative Pulmonary Embolism" and Fred G. Kolouch, Schuyler, Neb., "Role of the Lymphocytes in Acute Inflammation."——Recent meetings of the Scott-Carver County Medical Society were addressed in Shakopee and Minneapolis respectively by Drs. Edgar W. Bedford, Minneapolis, on "Clinical Aspects of Gallbladder Disease"; Ames W. Naslund, St. Paul, on "X-Ray Diagnosis in Gallbladder Disease"; Carl O. Rice, Minneapolis, "Indications for Surgery of the Thyroid Gland" and Chauncey N. Borman, Minneapolis, "X-Ray Measurements of the Female Pelvis."——Dr. Kenneth A. Phelps, Minneapolis, presented a paper before the Minnesota Academy of Medicine, St. Paul, April 12 entitled "Early Cancer of the Larynx."

MISSOURI

Society News.—Dr. Harold E. Petersen, St. Joseph, discussed pyelitis before the Buchanan County Medical Society recently.——The St. Louis Medical Society held a round table discussion on arthritis April 21 with Dr. Ralph A. Kinsella as the leader; one on delayed operation in acute peritonitis following ruptured appendicitis was held May 5 with Dr. Robert Elman as the leader.

Medal to Dr. Jacobsen.—Carlyle F. Jacobsen, Ph.D., professor of medical psychology, Washington University School of Medicine, St. Louis, was presented with the Howard Crosby Warren Medal at the annual dinner of the Society of Experimental Psychologists in Princeton, N. J., April 2. According to the New York *Times*, the medal was awarded for Dr. Jacobsen's "Description of the Functions of the Frontal Lobes of the Brain."

Personal.—Dr. William F. McCarthy has been appointed health officer of Jackson County, according to the *Weekly Bulletin* of the Jackson County Medical Society. Dr. McCarthy is attending the Graduate School of Public Health Administration of the University of Michigan, Ann Arbor.——Dr. Felix Deutsch, a member of the faculty of the University of Vienna from 1919 to 1935, has been made associate professor of psychosomatic medicine at the Washington University School of Medicine, St. Louis.

Health Department to Reorganize.—Full authority was given to Dr. Edwin H. Schorer, director of the Kansas City Health Department, April 27, "to clean out politics from the city health department," according to the Kansas City *Star*. Mayor Smith at the same time recognized the leadership of the Jackson County Medical Society in any move to revamp the health department. He asked Dr. Schorer to assemble a committee of doctors from the society at once to work with the health director "in reorganizing the health department 'along efficient lines and with no political strings attached—none whatsoever.'"

NEW JERSEY

New Officers of State Medical Board.—New appointments to the New Jersey State Board of Medical Examiners include those of Dr. Samuel Barbash, Atlantic City, A. Stanley Myers, D.C., Jersey City, and Dr. John H. Rowland, New Brunswick, succeeding Dr. Henry B. Diverty, Woodbury, Walter Seth Kipnis, Ph.D., West New York, and the late Dr. William E. Darnall, Atlantic City.

NEW YORK

State Medical Election.—Dr. James H. Borrell, Buffalo, was chosen president-elect of the Medical Society of the State of New York at its annual meeting in Syracuse April 25, and Dr. Terry M. Townsend, New York, was installed as president. Other officers include Drs. Aaron Sobel, Poughkeepsie, second vice president, and Peter Irving, New York, secretary. The 1940 annual session will be held in Buffalo.

Hospital Named in Honor of Physician.—Dedication ceremonies were held April 20 to mark the renaming of the Buffalo City Hospital as the Edward J. Meyer Memorial Hospital. The late Dr. Meyer was for many years president of the hospital board. Kenneth Goodner, Ph.D., of the Rockefeller Institute for Medical Research, New York, was the guest speaker, discussing newer aspects of pneumonia. Other speakers included Drs. Carlton E. Wertz, who reviewed the life of Dr. Meyer; Dr. Abraham H. Aaron on the relationship between the hospital and the University of Buffalo; Chancellor Samuel P. Capen of the university, Dr. Herbert H. Bauckus and Commissioner Thomas W. H. Jeacock of the county department of social welfare. The ceremonies were under the auspices of the Medical Society of the County of Erie, the Buffalo Academy of Medicine and the consulting, visiting and resident staffs of the hospital.

New York City

Eighth Harvey Lecture.—Dr. Albert Szent-Gyorgyi, professor of medical chemistry, University of Szeged, Hungary, delivered the eighth Harvey Lecture of the current series at the New York Academy of Medicine May 18. His subject was "Biological Oxidation and Vitamins."

Goat's Milk.—About 150 milch goats are supplying the demand for goat's milk in the city, according to New York *Medical Week*. The three dairies furnishing the milk operate under a permit from the city department of health. Although goat's milk is popular in Europe, only approximately 250 quarts of it are consumed in the city every day, it was stated. Each of the three goat dairies produces certified milk, and one of them also produced pasteurized milk.

Retiring Members of Rockefeller Staff.—Five members of the Rockefeller Institute for Medical Research are retiring from active work, having reached or passed the age of 65 years. They are Drs. Alexis Carrel, who announced his retirement last year, Florence R. Sabin, who retired early this year; Karl Landsteiner, Phoebus A. Levene and Winthrop J. V. Osterhout, Ph.D. According to *Science*, the mandatory retirement rule is being enforced in all organizations with which the Rockefeller foundations are connected. It is stated that pensions will be given and that every laboratory facility will be provided to enable those who retire to continue their research work on their own responsibility if they care to do so.

Exhibit Presented to Army Museum.—The anatomical collection assembled by the late Dr. George Sumner Huntington, for many years professor of anatomy at Columbia University College of Physicians and Surgeons, has been presented by the medical school to the Army Medical Museum, Washington, D. C. This is said to be the largest collection in the United States and was formerly used in teaching. When the medical school was in its old location at Fifty-Ninth Street, the collection was viewed by many visitors, but in recent years lack of space at the new Medical Center has made an exhibit impossible, it was said. For this reason it was decided to transfer it to the Army museum, where it will be available for students from all parts of the world.

Society News.—At a joint meeting of the Medical Society of the County of Kings and Academy of Medicine of Brooklyn, April 18, Murray J. Shear, Ph.D., and Dr. Stanley P. Reimann, Philadelphia, discussed "Experimental Aspects of Carcinogenic Substances" and tumor grading, respectively.—— The Brooklyn Thoracic Society was addressed April 21 by Drs. Edgar Mayer on diagnosis of early pulmonary tuberculosis and Paul Geary, "The Operation of Extrapleural Pneumothorax."—— A symposium on the treatment of peripheral vascular disease was presented at a meeting of the New York Academy of Medicine May 4 by Drs. Irving Sherwood Wright, Edgar V. Allen, Rochester, Minn., and Reginald H. Smithwick, Boston. Drs. James C. White, Boston, and Beverly Chew Smith discussed the papers.—— Dr. Smiley Blanton, among others, addressed the New York Neurological Society at a joint meeting with the section of neurology and psychiatry May 2 on "Psychiatric Study of Some Miraculous Cures at Lourdes."

NORTH CAROLINA

Plaque in Honor of Dr. McBrayer.—A plaque was unveiled April 19 in the auditorium of the state tuberculosis sanatorium, Sanatorium, in honor of the late Dr. Louis B. McBrayer. Dr. Paul H. Ringer, Asheville, was the principal speaker. Dr. McBrayer served for twenty-one years as secretary of the Medical Society of the State of North Carolina and at one time as president; he was president of the Southern Conference on Tuberculosis 1925-1926, managing director of the North Carolina Tuberculosis Association, 1915-1937, and superintendent of the state tuberculosis sanatorium at Sanatorium, 1914-1924.

OHIO

Dr. Krogh Gives Hanna Lecture.—Dr. August Krogh, professor and director of the Zoophysiological Laboratory, University of Copenhagen, Denmark, delivered the forty-fourth Hanna Lecture at the Institute of Pathology, Cleveland, May 5. His subject was "The Regulation of the Circulation as Observed in Changes of Posture in Man."

Director of Social Hygiene Society Appointed.—Dr. Richard W. Weiser, medical director of public schools in Kenmore, N. Y., has been appointed executive secretary of the Cincinnati Social Hygiene Society to succeed Dr. Carl A. Wilzbach, who recently became city health commissioner. Dr. Weiser received his medical degree at the University of Pennsylvania School of Medicine, Philadelphia, in 1927. He has been with the Kenmore school system for six years.

Society News.—Dr. Charles E. Kiely, Cincinnati, among others, addressed the Adams County Medical Society April 19 in West Union on "Dementia Praecox and Its Treatment."——Drs. Frederick G. Maurer and Melvin A. Mulvania, Lima, addressed the Henry County Medical Society April 11 in Napoleon on "Clinical Aspects of the Common Cardiac Arrhythmias" and "Hemorrhage in Pregnancy" respectively.——Dr. John A. Malcolm, Pittsburgh, addressed the Columbiana County Medical Society in Lisbon April 11 on "Neurasthenia and Recent Advances in Neurology."

PENNSYLVANIA

Society News.—Drs. Russell L. Haden and James A. Dickson, Cleveland, discussed medical and surgical aspects, respectively, of arthritis at a meeting of the Westmoreland County Medical Society April 27 at the Mountain View Hotel near Greensburg.——Dr. John A. Kolmer, Philadelphia, addressed the Blair County Medical Society, Altoona, April 25, on "Immunology of Anterior Poliomyelitis."—— Dr. Joseph A. Hepp, Pittsburgh, addressed the Fayette County Medical Society in Uniontown May 4 on "Endocrine Treatment of Menstrual Disorders."

Philadelphia

Portrait Presented.—The senior class of Jefferson Medical College presented a portrait of Dr. Frank Crozer Knowles, professor of dermatology, to the college April 28. The portrait was painted by Frederick Gill, Philadelphia artist. Dr. Knowles, who graduated from the University of Pennsylvania in 1902, has been professor of dermatology at Jefferson since 1919.

Course in Internal Medicine.—The Pennsylvania Hospital announces a general course in internal medicine for graduate physicians to be given June 5-23. Lecturers will be Drs. William D. Stroud, on cardiology; Lawrence S. Carey, gastroenterology; David L. Farley, hematology; Burgess L. Gordon, diseases of the lung; Norman P. Shumway, diseases of the kidney; Garfield G. Duncan, metabolism; John T. Bauer will conduct pathologic conferences and Paul A. Bishop, roentgen ray conferences. The fee is $100.

WEST VIRGINIA

Interstate Meeting.—The Greenbrier Interstate Medical and Surgical Society held its first meeting at the Greenbrier Hotel, White Sulphur Springs, April 17. The speakers were Drs. Marvin Pierce Rucker, Richmond, on "Further Experience with Knotless Sutures in Immediate Perineorrhaphy"; John M. T. Finney Jr., Baltimore, "Developments in the Study and Care of Patients Suffering with Appendicitis," and Louis George Herrmann, "Practical Aspects of Circulatory Disturbances in Extremities." This meeting was the first of neighboring medical societies in Virginia and West Virginia.

WYOMING

Lectures on Pediatrics.—A series of postgraduate lectures on pediatrics will be presented throughout Wyoming May 22-June 9 by Dr. Clifford D. Sweet, chief of staff at the Children's Hospital of the East Bay, Oakland. The series is part of a plan for postgraduate work for Wyoming physicians in obstetrics and pediatrics, approved at the annual meeting of the Wyoming State Medical Society in August 1938.

GENERAL

Prize Awarded for Pellagra Cure.—Conrad Arnold Elvehjem, Ph.D., since 1936 professor of agricultural chemistry, University of Wisconsin, Madison, was awarded a prize of $1,000 at the closing meeting of the American Institute of Nutrition in Toronto April 26 for his discovery that nicotinic acid would cure pellagra. Dr. Elvehjem was born in McFarland, Wis., in 1901.

Meeting of Surgeons.—The third annual assembly of the International College of Surgeons will be held at the Hotel Roosevelt, New York, May 21-25. The program includes many speakers from the United States and other countries. At the banquet, Tuesday evening, the speakers will include Gen. Dr. F. C. Najera, ambassador from Mexico to the United States, Major Vouvier, and Dr. Max Thorek, Chicago.

Rheumatism and Arthritis.—An editorial committee of the American Rheumatism Association, headed by Dr. Philip S. Hench, Mayo Clinic, Rochester, Minn., has published the fifth rheumatism review of American and English literature on "rheumatism." This review assembles in one place most of the references on the subject and contains numerous editorial and critical comments by its compilers. The review appeared in the January and February issues of the *Annals of Internal Medicine* and is also available in reprint form from the secretary of the American Rheumatism Association, Dr. Loring T. Swaim, Boston.

Society News.—The eleventh annual meeting of the Aero Medical Association will be held at the Hollywood Beach Hotel, Miami, November 3-5.—— The twenty-second annual meeting of the American Dietetic Association will be held at the Hotel Ambassador in Los Angeles August 27-31; the speakers will include Agnes Faye Morgan, Ph.D., University of California, on "The Dietitian's Place in the Hospital Research Program"; E. Neige Todhunter, Ph.D., State College of Washington, "The Newer Knowledge of Vitamin C in Health and Diseases," and Dr. Albert H. Rowe, Oakland, "Allergy."——The American Society of X-Ray Technicians will hold its fourteenth annual meeting at the McAlpin Hotel, New York, June 27-30.

Special Society Elections.—Mr. John O. Steel, Pine Bluff, Ark., was installed as president of the Mid-West Hospital Association at its annual meeting in Hot Springs National Park. Dr. Herbert A. Black, Pueblo, Colo., was chosen president-elect. The association includes the states of Arkansas, Colorado, Kansas, Missouri and Oklahoma.——Frank B. Jewett, Ph.D., president, Bell Telephone Laboratories, New York, was elected president of the National Academy of Sciences at its annual meeting in Washington April 26, succeeding Frank R. Lillie, Ph.D., Chicago. Frederick E. Wright, Ph.D., of the geophysical laboratory of the Carnegie Institu-

tion, Washington, was reelected home secretary.——Dr. Fred Kuhlman, St. Paul, Minn., was elected president of the American Association on Mental Deficiency at its annual meeting at the Palmer House May 6. Other officers include Meta A. Post, Ph.D., Newark, N. J., vice president, and Dr. E. Arthur Whitney, Elwyn, Pa., secretary-treasurer. The 1940 meeting will be held in May in Atlantic City.

Research on Problems of Alcohol.—The recently organized Research Council on Problems of Alcohol has issued a report outlining its program of research as it has been developed at present. It will be the policy of the council to conduct research, to arrive at conclusions based on research, to present the facts in suitable form to interested groups and to encourage intelligent discussion of the facts, according to the statement. It will not arrive at conclusions based on unscientific assumptions, engage in propaganda, lobby for liquor control laws or participate in political campaigns. The following problems have been selected for study and some of them assigned as indicated:

A critical survey of the conclusions to date of all significant studies regarding the effects of alcohol on the individual

Polyneuritis and Korsakoff's psychosis in the alcohol addict, to be conducted by Bellevue Hospital, New York

Toxic factors in alcoholism, to be conducted by the New York Psychiatric Institute

A critical survey of all studies completed and under way which deal with the relation of alcohol to traffic accidents.

The role of alcohol in liver cirrhosis, to be conducted by Bellevue Hospital

Psychological factors in deterioration and recovery in cases of acute alcoholism and alcoholic psychosis

Research will be conducted in three fields: the effects of alcohol on the individual, the effects of alcohol on society and the effectiveness of industrial and legal control. Accompanying the research program will be a program of education in four fields; schools and colleges, community leaders and the adult population, manufacturers and distributors of alcoholic beverages, law enactment and law enforcement agencies. Harry H. Moore, Ph D, is director of the council, which has headquarters in the R C. A. Building, New York.

Osteopathy Vetoed in New York.—On May 10, Governor Herbert H. Lehman of New York vetoed a bill which would have permitted licensed osteopaths to use instruments for minor surgical work, as well as use anesthetics, antiseptics, narcotics and biologic products. In a message explaining his action, the governor wrote:

To the Assembly

There has been great misunderstanding with regard to this bill Many people apparently believe that the practice of osteopathy as now carried on depends on my approval of the bill This, of course, is completely contrary to the facts

Any persons now licensed or hereafter licensed as doctors of osteopathy are, regardless of my action on the bill, permitted to render exactly the same services as in the past Their authority to carry on the functions now performed is in no way curtailed or abridged

VALUE OF OSTEOPATHY CONCEDED

There is no question as to the substantial value and usefulness of osteopathy. This is generally conceded and recognized This bill would, however, give all licensed osteopaths broad additional powers. It would permit all licensed osteopaths to use instruments for minor surgical procedures, to administer anesthetics and antiseptics, and to prescribe narcotics and biological products

The additional authority now asked by the osteopaths may be far-reaching in its effect A minor operation, if not properly performed, I am advised, may be more serious in its effect upon the patient than some of the so called important operations

The administering of drugs and biologicals where there is not sufficient training and experience with regard to their effect on the patients may lead to serious ill effects

Undoubtedly many of the persons now licensed to practice osteopathy in this State have had broad training and experience in matters relating to medicine and surgery. On the other hand, many of the osteopaths practicing in this State were licensed prior to the setting of the present high standards of training and have had little or no later experience in medicine or surgery.

LICENSING METHODS RECALLED

In addition, a very substantial number of the osteopaths now practicing in this State receive their licenses not through examinations within the State but by endorsement of licenses granted to them in other States Some of them are graduates of osteopathic schools which are no longer recognized by our board.

In my opinion legislation should provide that applicants for licenses and those who already hold licenses as osteopaths but who now desire additional powers should be required to satisfy the Board of Regents either by submitted credentials or by examination that they have had the proper instruction and training in surgical procedure and drug therapy to justify the granting of the additional powers set forth in this bill

In this way the Regents would be able to determine those who are actually qualified to use instruments for minor surgical procedures, to administer anesthetics and antiseptics and to prescribe narcotics and biological products. The difficulty of providing for such determination by the Board of Regents does not seem to me great

The bill is disapproved

HERBERT H. LEHMAN.

CANADA

Society News.—Dr. Ralph M. Waters, Madison, Wis., addressed the Academy of Medicine of Toronto April 4 on "The Development of Anesthesiology." Dr. Joseph Brennemann, Chicago, addressed the academy recently on "Acute Abdominal Conditions in Childhood." Dr. Eric Miles Atkinson, New York, addressed a combined meeting of the sections on otolaryngology and neurology and psychiatry recently on "Localized Nonsuppurative Encephalitis Resulting from an Adjacent Focus of Infection—Some Pathological and Clinical Considerations."——Dr. John H. MacDermot, Vancouver, delivered the annual Osler Lecture of the Vancouver Medical Association March 7 on "The Layman and the Doctors."

Summer School Clinics.—The Vancouver Medical Association will hold its annual summer school clinics June 6-9; participants will include:

Dr. Leighton C. Conn, professor of obstetrics and gynecology, University of Alberta Faculty of Medicine, Edmonton.

Dr. Emile F. Holman, professor of surgery, Stanford University School of Medicine, San Francisco.

Dr. Charles P. L. Mathe, San Francisco.

Dr. Frank R. Menne, professor of pathology, University of Oregon Medical School, Portland.

Dr. Dwight L. Wilbur, associate clinical professor of medicine, Stanford University School of Medicine, San Francisco.

Further information may be obtained from Dr. William W. Simpson, secretary, 203 Medical-Dental Building, Vancouver, B. C.

Medical Research Facilities in Canada.—The National Research Council of Canada recently made a survey of medical research facilities in the Dominion. A conclusion was reached that immediate attention should be given to tuberculosis and rheumatic diseases. Projects are to be initiated in a number of institutions. In the field of cancer research the committee decided to aid the work on standardization of dosage which has been undertaken in cooperation with the National Physical Laboratory in England and the National Bureau of Standards in Washington, D. C., making use of high voltage equipment in the National Research Laboratories at Ottawa. The committee also proposed to aid in developing research in various institutions throughout Canada, and these institutions have been invited to undertake work under the auspices of the committee of which Sir Frederick Banting, Toronto, is chairman.

FOREIGN

Congress on Medical Hydrology.—The sixteenth International Congress on Medical Hydrology, Climatology and Geology will be held at the Strasbourg Faculty of Medicine October 8-11. Information may be obtained from M. le Prof. Vaucher, Institut d'Hydrologie et de Climatologie, 1 place de l'Hôpital, Strasbourg.

Societies Merge to Form Faculty of Radiologists.—The British Association of Radiologists and the Society of Radiotherapists of Great Britain have joined to form the Faculty of Radiologists, according to *Radiology*. The work of the new organization will be carried on at the old office of the British Association of Radiologists, 32 Welbeck Street, London, W.1.

Society News.—The National Association for the Prevention of Tuberculosis of Great Britain will be held in Belfast, Ireland, June 29 to July 1. The subjects for discussion will be "Problems of Organization and Local Administration of Tuberculosis Schemes"; "Tuberculosis in the Adolescent" and "Architectural Problems in Connection with Tuberculosis Institutions."——The German Roentgen Society will hold its annual meeting in Stuttgart May 24-27.

Congress on Industrial Medicine.—The second "Journées Internationales de Pathologie et d'Organisation du Travail" is to be held in Paris under the patronage of government officials and with the cooperation of various medical and industrial organizations. The program lists the following subjects of reports to be presented: "Hygienic Conditions in Soldering Works"; "Etiology and Pathogenesis of Occupational Dermatitis"; "Various Systems of Compensation for Occupational Disease" and "Toxicologic Study of the Principal Constituents of Special Kinds of Steel." There will be many visits to industrial plants and to hospitals. The languages of the congress will be German, English, Spanish, French and Italian. All correspondence should be addressed to the president of the congress at the Institut Medico-Legal, Place Mazas, Paris XII. Dr. Guy Hausser is the secretary in charge of organizing the congress.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 22, 1939.

Thomas's Splint in War Surgery

In lectures on the treatment of war wounds, delivered at the British Postgraduate Medical School, Col. J. M. Weddell of the Army Medical Corps stated that the army relied on the large-ringed Thomas splint in the evacuation of the majority of fracture patients from the front line to the casualty clearing station. The splint is applied over the boot and clothing, and the ring is packed anteriorly and laterally with tow or wool to retain it against the tuber ischii. The fracture is supported with Gooch splinting or Cramer's wire. Extension is obtained by means of a skewer through the waist of the boot or a clove-hitch, around the ankle, tied to the distal end of the splint. The splint is suspended to a bar fitting over the stretcher. Many modifications of Thomas's splint have been suggested, such as collapsible splints and half-ringed splints. Colonel Weddell had the opportunity of discussing a number of points with a committee composed of four members of the council of the Royal College of Surgeons. It was agreed that for the evacuation of casualties the original Thomas model was the most satisfactory. As one member said, "A Thomas splint altered is a Thomas splint spoiled."

It was agreed that internal traction by pins and wires was unsafe unless first class asepsis could be assured. Thus skeletal traction in dressing stations was ruled out and probably also in casualty clearing stations from which patients are evacuated by train. Plaster of paris in the form of supporting slabs would be of great use in casualty clearing stations, but encircling compound fractures with circular plaster bandages was dangerous in the early stages. Extensive use should be made of blood transfusions, and blood stored in refrigerators should be used in dressing stations. Drip transfusion would be of great use in casualty clearing stations. Advanced operating units were not advised, as it would be better to get the patients to the casualty clearing stations, where they could be operated on and nursed under better conditions. Patients would not stand evacuation well after serious operations. Gas and oxygen was the best anesthetic for serious operations, but it involved the use of heavy, cumbersome cylinders, to supply which might be difficult. For many operations ether should be the standard anesthetic. Barbiturates and spinal anesthesia were dangerous for patients already in a condition of shock.

In the great war the introduction by Sir Robert Jones of the use of Thomas's splint for the transport of patients with gunshot fractures of the femur greatly reduced the mortality from these fractures. The observation made that Thomas's splints are so perfect that attempts to improve them have only the opposite effect is not new. The passage of time has only increased Thomas's reputation, while it almost uniformly dims the reputation of men famous in their day. During his life Thomas received little recognition. When the American orthopedist John Ridlon visited the English clinics he found that the surgeons did not have a good word for Thomas, but of him he wrote the great epitaph "He did more good new things for orthopedics than all the rest since Hippocrates."

Prolapsed Intervertebral Disk

At the Royal Society of Medicine Dr. J. Grafton Love of the Mayo Clinic opened a discussion of prolapsed intervertebral disk. The typical finding at operation was edema of the posterior nerve root in the affected segment. The prolapse was relatively uncommon, though Dr. Love was able to give statistics of 300 cases. It was three times commoner in men than in women and the average age at the time of operation was 40 years, but this was no true indication of the age of onset of symptoms, of which there was a long history in many cases. The greatest incidence was in the lumbar region, the fourth and fifth disks being those liable to be affected, thus accounting for the dominant symptom, sciatica. Thirty-seven per cent of the patients gave a history of injury immediately preceding the onset of symptoms. Nocturnal pain was an important symptom, as were exacerbations on coughing and sneezing. The achilles jerk was absent. Examination showed spasm of the erector spinae and obliteration of the lumbar curve. The total protein in the cerebrospinal fluid was increased, and in two thirds of the cases radiographic examination with iodized oil revealed narrowing of the canal. The treatment was laminectomy with removal of the protruding cartilage, which gave gratifying results.

The neurologist Dr. C. P. Symonds had experience of twenty-two cases, in which the pressure was on the cord in fifteen and on the cauda equina in seven. He discussed the differential diagnosis from other conditions, such as tumors. Important features were the relation of the pain to injury and its exacerbation by coughing and spinal movements. Remission of symptoms was noteworthy. Patients in whom the lumbar part of the spine was affected showed pain in the lower part of the back, related to effort and posture. Elsberg had stated that the posterior columns were spared in the sensory loss that might ensue, but Symonds had found that this did not hold in seven of his cases. Spinal tumors were distinguished by the fact that on the whole the sequence of events suggested anterior compression, while prolapsed disk caused posterior compression. Disseminated sclerosis, with its well known remission of symptoms, might give rise to difficulty of differential diagnosis. The question of sciatica presented difficulty, for his experience of sciatica was that patients eventually recovered, whatever the treatment. How many sciatic patients with prolapsed disk recovered with rest alone before the days of diagnosis of the cause?

Mr. Julian Taylor said that three types of pain were caused by prolapsed disk: (1) pain in the vertebrae, (2) pain referred from the vertebrae and (3) pain referred from the nerve pinched. The last was the most persistent. From his operative experience he rejected the theory of hernia of the nucleus pulposus. The substance removed was white necrotic material. One of his patients, a heavy man, hurt his back in a turn with professional acrobats. They threw him in the air and caught him at their feet. Extreme kyphosis developed.

Evacuation of the London School Children

If the latest development of "civilized warfare," the bombing of crowded cities, should occur in this country, it has been arranged to spare children as far as possible. Plans complete to the last detail for the stupendous task of evacuating the school children of London have been issued to the heads of the schools in a circular of 5,000 words. As many as 1,300,000 children and the persons accompanying them will need to be moved out in organized parties in a short time. The children will be accompanied by their teachers and when under 5 years by their mothers or other responsible persons. Blind persons and expectant mothers will be removed at the same time. The government has made a survey of the accommodations available in the reception areas, which shows that there will be no scarcity of homes where the householders are willing to look after the children. In an emergency two messages will be sent to the schools. When the first, "Get ready for evacuation," is received head teachers will notify all assistant teachers and helpers. The second message will give the date of evacuation, and each school will then form a unit or school party. The children will march to the train in squads of fifty. Divisional officers have been appointed for the quick settlement of local problems. They will be responsible for the local planning of routes to the

entraining stations and arranging the order in which schools will be entrained. The children will carry a change of clothing, night attire, toilet requisites, sufficient food for the day and their gas masks. It will not be possible to take at the same time children who are sick at home or who are so crippled that they cannot walk.

PARIS

(From a Special Correspondent)

April 15, 1939.

Alcoholism

It is estimated that the annual expenditure by the French on their apéritifs and small drinks is 6 billion francs. A committee of the Académie de médecine has been charged to formulate recommendations and to submit to the public authorities the resolutions that sociologists, biologists and physicians regard as indispensable. Strict enforcement of existing laws is demanded, especially those which concern the number of drinking shops and the hours during which alcohol may be sold. Moreover, an important reduction of their number and their closing under certain circumstances such as strikes and elections are asked. These representations allow one to understand the role that politics plays in the spread of alcoholism.

The Société médicale des hôpitaux of Lyons insists on the prohibition of drinks of high alcoholic content and the sale of alcohol in glasses. It believes that tax reductions should be allowed drink shops that do not sell alcohol, that habitual drunkards should be denied permits to manage such places and the benefit of insurance protection and that drunkenness should no longer be regarded as an attenuating circumstance by courts; in short, that an intensive campaign should be undertaken against this social danger.

The French Population

France had 36,000,000 inhabitants in 1850. She has 42,000,000 today, but one must deduct 2,500,000 aliens. In 1850 there were only 400,000 aliens. Italy, England and Germany have doubled their population while France has grown by only one tenth. In 1851 three Frenchmen lived in the country to one in the city. Today more people live in the city than in the country and one eighth of the French population lives in Paris and its outskirts.

This exodus from country to town coincided with the lowering of the birth rate. Although the number of marriages remains stationary, that of children per marriage is rapidly falling. The difficulty is that French women either no longer can or no longer want to bear children. German family life faced the same situation for twenty-five years, until Hitler ordered economic measures, which have fully succeeded. At present German families in which the mother's age ranges from 20 to 24 years have twice as many living children as French families in similar situations.

The remedies proposed by Moine, who presented extensive evidence of this situation before the Académie de médecine, aim at establishing an economic and financial equilibrium between large families, homes without children and single men and women, since half of the French homes entrust to the others the care of maintaining the population level. It is not a question of penalties but solely of establishing a reasonable balance between those who rear children and those who do not.

Vitamins in the Prevention of Pellagra

The pathogenesis of aphthae is unknown. Professor Cachera at a reunion of the Société médicale des hôpitaux of Paris reported satisfactory results from the administration of nicotinic amines and nicotinic acid in the treatment of this disease. Cure took place in a few days in several cases in which the condition had been refractory to other treatments. The speaker wondered whether aphthae is an atypical form of pellagra. It is possible that the satisfactory results induced by administering liver extract in the treatment of aphthae may be due to the nicotinic acid amines present in the extract. Boule reported satisfactory results from the administration of nicotinic acid in a case of coproporphyrinuria. The patient was suffering from cirrhosis without ascites, hepatic insufficiency, local melanoderma, cerebral symptoms and colic spasm. Nicotinic acid induces rapid improvement of the general condition of the patient and rapid disappearance of porphyrinuria. This case suggests a possible connection between aphthae and pellagra in their relation to avitaminosis.

Electrofluoroscopy

Lian and Minot presented at the Société médicale des hôpitaux of Paris a fluoroscopic electrocardiograph which solves the difficulty of taking a film through the photographic tray and waiting for the negative before seeing how the heart functions. This apparatus makes it possible to see electrocardiograms and electrokymograms instantaneously. There remain some distortions to suppress, caused by the powerful amplifier used for transmission.

Lian and Minot used a cylindric screen, moved at uniform speed, in front of the oscillograph. Besides, the use of a mechanical oscillator, instead of a cathodic oscillograph, permits the use of an amplifier of small power. The recording consequently is continuous and regular and the period of phosphorescence long enough for observation. The apparatus consists of a large cylinder, its evolution measuring 1 meter, with the time marked on it. This cylinder turns in front of the luminous spot or spots and thus are made the electrocardiographic and kymographic tracings. The frequencies and amplitudes are faithfully reproduced. An interesting phase of the tracing may be preserved either by diverting the current toward the regular electrocardiogram or else by placing a piece of sensitized paper over the place of interest on the screen; the remaining light will be strong enough to leave an impression of the image on the emulsion.

The apparatus is simple and inexpensive. Its uses are manifold. It is possible to get an electrocardiogram for guidance in diagnosing at the bedside of the patient and to follow on the fluorescent screen the immediate effects of a medicament or to keep a patient during narcosis or childbirth under constant control. It may be most useful for psychologic experiments; the encephalographic tracing is drawn at will before the eye of the experimenter.

Anniversary of the Pasteur Institute

At the fiftieth anniversary of the founding of the Pasteur Institute most of the speakers preferred to arrange a program in which the students and former associates of Pasteur exhibited the results of their activity. Among these, Prof. M. L. Martin, present director of the institute, described Pasteur's methods and technics, in which he had been a direct collaborator. Prof. Gaston Ramon gave a summary of a fifty year old achievement of Pasteur, the fight against diphtheria. This was an occasion to defend anatoxin against recent attacks. Prof. Pasteur Vallery-Radot concluded the commemoration by reviewing the activity of Pasteur institutes in the struggle against social scourges, not only in French colonies but in many other countries.

Spanish Refugees

After Franco's victory, 200,000 Republican soldiers, of whom 12,000 were wounded, and 160,000 civilians took refuge in France, crossing the Pyrenees by eastern mountain passes. It was necessary to distribute this population quickly in different regions of France but, first of all, to isolate the infectious.

Delousing, cleaning and vaccination were done for this throng, which arrived like a rushing tide in complete disorder. A large number had been exposed to typhus.

Besides government and army physicians, many civilian physicians offered their services, as did the infirmaries of the Red Cross. Packets were requisitioned and transformed into floating hospitals. Three hundred of the 12,000 wounded died. The duty of according refuge was discharged in a satisfactory manner.

BERLIN

(From Our Regular Correspondent)

March 27, 1939.

News of the Universities

Of significance since the report on the universities in THE JOURNAL January 28, page 347, was the first conference of university presidents of Greater Germany, held early in March in Berlin at the invitation of the department of education for the reich. It is significant that the presidents of the German university at Prague, of the technical schools in Brünn and Danzig and of the Herder Institute at Riga participated. Minister of State Dr. Wacker, of the department of education, said that the time has arrived for the carrying out of all the reforms necessary to the organization of a common German university. Statewide unity has at last been attained in building up the German university system and German scholarship. Especially important are student enrolment in the universities, teaching personnel and plans for the German university system.

STUDENT ENROLMENT

The student enrolment for professions requiring an academic education is scarcely smaller than, for example, in 1911-1914 (68,000 students today compared with 72,000 at that time). However, the question assumes a different slant if the economic and military demands are taken into consideration. The decrease in the birth rate, the losses incurred in the World War and the elimination of Jews from the academic professions will become noticeable. There will be a shortage of about 30,000 engineers in 1942. Now there is need of 15,000 enrolments for callings that require an academic training. In the next few years an annual shortage of at least 8,000 graduates will have to be reckoned with. The number of college graduates eligible for university studies will fall from 36,000 in the current year to 32,000 in 1940 and probably to 27,000 in 1941. Specific data regarding the enrolment of medical students have not become known. Remedies must be sought. However, the quality of German students and of German scholarship may not be lowered.

TEACHING PERSONNEL

The law just passed regarding the salaries of university teachers establishes the economic security of those of the rank of instructor (dozent). This was a national necessity, for thereby scholarship, which is the greatest asset of German culture, can be furthered. It is hoped that in this way the danger of losing potential university material has been removed. The type of instructor who has no definite income in spite of reaching his fortieth year must disappear forever. Stipends and teaching assignments are not sufficient to insure a steady succession of teachers at the universities. To promote academic scholarship, university teachers must be relieved of financial worries.

PLANS FOR THE GERMAN UNIVERSITY

With the rise of new branches of learning the universities have largely lost the university concept and ideal of "universitas litterarum" that was valid in the last century. Born of specialized needs, specialized schools of higher learning have arisen. However, it is necessary to limit the number of training centers for specialized sciences and to concentrate them in a few universities. Furthermore, the assignment of functions among the individual universities is to be carried out according to a plan, the tradition of the individual university being taken into consideration. In Berlin a model university is being planned, in which the unity of German scholarship characteristic of the third reich is to be comprehensively represented. However, not even in Berlin are all the specialized sciences to be taught, but rather the fundamental subjects which compose the "universitas," namely, the humanities, jurisprudence and political science, medicine and the pure and applied sciences. These are the subjects that belong to the corporate whole of a university and to that of a technical school of higher learning.

UNIVERSITY SALARIES

The new law on the salaries of university teachers gives an insight into university life. It is the first governmental law of its kind. Until now the administration of the universities was subject to the individual German states. Although the incomes of teachers were fairly uniform, there were differences which frequently provided inducements when positions were to be filled. The basic salaries of full professors ranged between 6,900 and 14,000 marks, the average being about 11,000 marks. To this was added money for rent and various other items. Associate professors received a minimum salary of from 4,400 to 6,000 marks and a maximum of about 7,800 to 10,500 marks. Salaries in Prussia were somewhat higher. Special regulations governed the incomes in special cases for directors of institutes. Some states reserved the right to make exceptions in behalf of distinguished men whom they wanted to secure.

The new law creates a uniform basis for the entire country, inclusive of Austria and the Sudetenland. Full professors are to receive a basic salary of from 7,500 to 11,600 marks and, in special cases, as much as 13,600 marks; associate professors, from 5,700 to 9,000 marks, with a maximum of 11,600. Besides, both classes of teachers are to receive a share of the fees paid for their lectures. A definite income from course fees is guaranteed, the minimum being 1,000 and the maximum 7,000 marks. Provision has been made to grant further additions in special cases "to secure and retain excellent teaching ability." Presidents and deans receive special grants.

A new feature of the law is that now young instructors receive a definite salary of from 3,400 to 7,500 marks from the time of their appointment, together with compensation for rent. Previously "assistance" was granted only for two years and had to be accompanied by a statement of productive scholarship and also of financial circumstances. Besides, the leader of the instructors' club, whose position was political, had to give his opinion. "Assistance" could be withdrawn whenever this local officer regarded it fitting. The provisional phases of the salary system are now removed. Young instructors are thoroughly examined as to their political belief before they are admitted. The new law is a step toward the goal of a uniform law governing the university teachers of the country.

POLITICAL VERSUS ACADEMIC EDUCATION

Studentenführer Dr. Scheel said in February that nothing is more senseless than to assume that a political education is a hindrance to specialized academic training. Any one who thinks so neither has learned from history nor understands the nature of the present constructive program in Germany. The teacher who has no interest in politics is not wanted, for only by basing his specialized knowledge on the unity of Nazi philosophy can he attain his highest professional success. Great importance is attached to working together with the academic youth of other countries. For this reason efforts are made to enable every student to study abroad. The leadership of the universities must constitute a bridge to carry German ideas to other nations.

FOREIGN STUDY

Last year the question of studying abroad led to diplomatic inquiries. The foreign bureau of the student leadership requested students to consider Swiss universities for the summer semester of 1939, advising that two semesters spent in Switzerland would receive full credit. Aid was available to needy students and to those especially willing to volunteer. The condition attached to the offer required these students to take part first in Germany in the "labor association Switzerland," a special form of a Nazi training course for students who go abroad. The words "especially willing to volunteer" led to diplomatic steps by the Swiss government, with a request for elucidation, and an explanation was given.

GERMAN CLINICS IN PRAGUE

What happened in the German clinics in Prague was reported in THE JOURNAL January 7, page 72. For a time the plan was to remove the German schools of higher learning in Prague to the Sudetenland. This plan was not carried out. The winter semester was opened at the German university in Prague January 11, after a delay of two months caused by political events, under the leadership of the Nazi student body. Almost all Jewish students have been removed. The number of students at the German university (there is also a Czech university in Prague) is 3,000 instead of the former 5,000. The decrease is due in part to the elimination of Jews and in part to labor conscription and military service, which young Sudeten Germans must now undergo as members of the German reich. In the summer semester the complete reorganization of these two schools of higher learning after the pattern of the German universities is to become effective.

PALESTINE

(From Our Regular Correspondent)

Tel-Aviv, April 21, 1939.

Medical Refugees in Palestine

The rise of Hitlerism produced profound repercussions on the status of Jewish physicians in Germany. Their exodus, however, was by no means as sudden as that of their colleagues in Austria after its annexation to the German reich. When the great wave of German doctors came to Palestine in 1933 the Workers' Health Insurance Fund, like the rest of the Jewish community, enjoyed comparative prosperity. From 1933 to 1939 the number of physicians was increased from eighty to 312, of whom 138 were of German origin, twenty-nine from Austria and sixty-five from various other countries.

The Austrian physicians arriving during the past year have found the country in a disturbed rather than in a prosperous state. The highly specialized character of their training and the impossibility of transferring their capital have made their rehabilitation in a new country difficult. As but few new openings were available, physicians were sent temporarily to posts hitherto held by laymen, for which medical training is desirable but not necessary, such as those of assistants in laboratories and x-ray institutes and inspectors of sanitation in rural settlements.

Docent Rudolph Strisower has been appointed consultant to the Diagnostic Committee, which examines difficult cases at the Tel-Aviv Central Dispensary. Dr. Strisower was awarded many honors for his services as bacteriologist and epidemiologist in the Austrian army during the World War. After the armistice he entered the Vienna Infirmary and General Hospital as assistant to the specialist for diseases of the heart and blood vessels Professor Pal and later worked with Professor Wenckebach.

Docent Robert Lenk is in charge of x-ray work in the Kupat-Holim Hospital at Afoula and in its central dispensary in Haifa. He has published eighty-seven scientific papers and was director of the Roentgen Institute of the Vienna Workers' Sick Fund from 1928 to 1938.

Dr. Ernest Spira, who has had wide experience in orthopedic surgery in Prague, Vienna and Leipzig, is now working as orthopedic surgeon in the Tel-Aviv Central Dispensary.

Dr. Aria Rappaport, chemist and bacteriologist of the Vienna Hygiene Institute, has been added to the staff of the Beilinson Hospital.

Dr. Erich Nassau has been appointed chief of the pediatrics department at the Emek Hospital and inspector of children's institutions in the Valley of Jezreel. He is joint author with Prof. L. F. Mayer of a textbook on children's nutrition, was in charge of the pediatrics department of the Berlin Municipal Hospital and was director of a sanatorium for children with chronic diseases.

Dr. Karl Kawalek, who has been appointed resident gynecologist at the Emek Hospital, has had wide experience in this field as assistant to Professor Lorenz, Professor Novak and Docent Hidler.

Dr. Otto Tetzner, now consultant in pediatrics in the Tel-Aviv Central Dispensary, was first assistant in Professor Knoepfelmacher's children's clinic from 1920 to 1927 and thereafter pediatrician for the Vienna Workers' Sick Fund.

Prof. Walter Strauss was formerly professor of hygiene at the Berlin University and permanent adviser to the Hygiene Section of the League of Nations. In this capacity he was sent to various countries to investigate the effect of climatic conditions on work and fatigue. He has already been of inestimable assistance to Kupat Holim in the investigation of rural hygiene and sanitation problems. During an epidemic of typhoid in the Jordan Valley at Afikim a committee of experts, including Professor Strauss, was able by immediate action to check its spread. The committee flew by plane, as the roads were not safe for travel, and laboratory equipment was immediately sent to them. Invaluable aid was rendered by the government department of health, which made room for all patients in the government hospital at Haifa. Professor Strauss has recently been appointed hygienic adviser to the Industrial Hygiene Committee of the General Federation of Labor (Histadruth) in Palestine.

Prof. Bernhard Gottlieb, professor of dentistry of Vienna, is now consultant to the Tel-Aviv Dental Dispensaries. He is an honorary member of the British Royal Society, of the Allied Dental Council of America and of many other honorary societies in various countries. He has made important contributions to the etiology and treatment of pyorrhea, root canal work and other fields. He has already published the first part of his forthcoming book on dentistry in individual phases, the treatment of root canals.

Physicians entering the Kupat-Holim service regardless of their previous merits and standards have shown a willingness to adapt themselves to conditions in the country. They have been ready to supplement their European medical education by a special study of local endemic diseases. They have been ready to acquire a new language as well as to understand the physician-patient relationship in a workers' cooperative medical organization. This specific training has been provided in the clinics and hospitals of the organization, and their first appointment frequently finds them in rural dispensaries and even in labor camps in dangerous sections of the country.

The Hadassah Medical Organization has extended similar aid both by direct appointments and by offering facilities for study, observation and training in its hospitals and clinics.

During the past three years twenty-four physicians from Germany, Austria and latterly Italy have been appointed by Hadassah to its hospitals and affiliated departments. Among these is Prof. Enrico Emilio Franco, formerly head of the department of anatomy and histologic pathology at the Royal University of Pisa. Another recent appointment is that of Docent F. Mandel, author of 183 scientific papers, former assis-

tant in the Vienna General Infirmary and latterly head of the surgery department of the Canning-Childs Hospital.

New refugees are daily appearing. Among those who are known for their scientific work abroad and are not yet affiliated with medical institutions is the biochemist Prof. Harry Schaeffer, professor of internal medicine at the University of Breslau until 1933 and thereafter head of the department of internal medicine of the Breslau Jewish Hospital.

The following eminent physicians have taken up their residence in Palestine: the gynecologist Prof. Bernhard Zondek, the internists Prof. Hermann Zondek, Prof. S. G. Zondek, Docent Kleberg, Dr. Heller, Dr. Lewkowitz, Professor Citron and Professor Minz, the entomologist and helminthologist Prof. S. Adler, the pediatricians Prof. L. F. Mayer and Professor Rosenbaum, the radiologist Professor Halberstatter, the neurologist Professor Pappenheim and the gynecologist Professor Schonholtz.

The problem of assisting medical refugees is daily assuming larger proportions as letters continue to pour in from Jewish physicians in Italy and Czechoslovakia, Poland and Rumania.

The New Haifa Government Hospital

The new government hospital was officially opened by High Commissioner Sir Harold McMichael Dec. 22, 1938. This hospital, of 230 beds, is one of the largest in the country. The buildings are beautifully located on a site overlooking the Haifa Bay and the Carmel Range. They comprise (1) a main block of six stories containing wards and nurses' quarters, medical officers' quarters and kitchen and dining rooms, all facing the prevailing summer winds from the northwest but avoiding the sun's rays in the summer; (2) an operation, outpatient x-ray and laboratory block of three stories, also facing northwest but separated from the main building by a causeway to enhance free circulation of air from north to west; (3) an admission block, containing first aid rooms, offices and a pharmacy under the causeway; (4) a service block at ground level and a basement containing laundry, disinfection quarters, mortuary, chapel, garages and staff quarters, and (5) five one story isolation pavilions, separated from the main hospital, for patients with infectious diseases.

The hospital is open to all communities to the limit of its capacity. In addition to surgical, medical and maternity patients, it provides for all patients with the more serious infectious diseases from the town and districts of Haifa, Acre and Nazareth and in case of need even further north.

Medical Department of the Jewish National and University Library

The Jewish National and University Library, the largest in the Near East, with 350,000 volumes, owes its existence to the Russian physician Dr. Chasanowitch, who more than forty years ago conceived the idea of a Jewish National Library in Jerusalem. His collection formed the nucleus of the present university library.

It was the insight and the devotion of the American physician Dr. Julius Jarcho which transformed the medical department of the university library into an institution of vital importance for the medical progress of the country. For fifteen years Dr. Jarcho has not only been devoting himself to the development of the library but has succeeded in enlisting the aid and interest of a wide circle of friends and colleagues in America. Since 1925 hundreds of the most important periodicals and thousands of recent medical works have been sent to the library by the American Jewish Physicians' Committee, under the presidency of Dr. Nathan Ratnoff and with the active support of Dr. Emanuel Libman.

Apart from these extensive contributions, mention should be made of the large ophthalmic library donated by Professor Deutschmann, the collection of the Nobel Prize winner Barani, the collections of dental works sent by Drs. Wachtel, Misch and Kantorowitsch and the works on the history of medicine donated by Professor Libman and Dr. Friedenwald. The medical department now contains approximately 36,000 volumes and some 3,000 antiquated or less important works. Two hundred and fifty current periodicals are displayed in its reading room, and five branch libraries are being maintained by it in various parts of the country.

In 1929, the collections of the library were transferred to the new library building on Mount Scopus. In order to meet the requirements of physicians practicing in town, a reading room for periodicals and a reference library of some 1,200 volumes was established in the Nathan Straus Health Center and later in the Hadassah Hospital. Branch libraries have been opened by the medical department in Tel-Aviv, Haifa, Afoula, Tiberias and Petah-Tikva.

THE NETHERLANDS

(From Our Regular Correspondent)

Feb. 16, 1939.

International Congress of Malariology

At the International Congress of Malariology, held in the grand auditorium of the Institut Colonial, the minister of colonies and a representative of Queen Wilhelmina were present. Inaugural addresses were delivered by Professors Snyders, Grijns and Swellengrebel and Minister Welter. Some 500 physicians from Europe, Africa, America, the British Indies and the Netherlands Indies attended. The program included 114 reports on deficiency diseases, filarioses, yellow fever, antiplague vaccination, Leptospira, Trypanosoma, Glossina, Rickettsia, rabies and paludism.

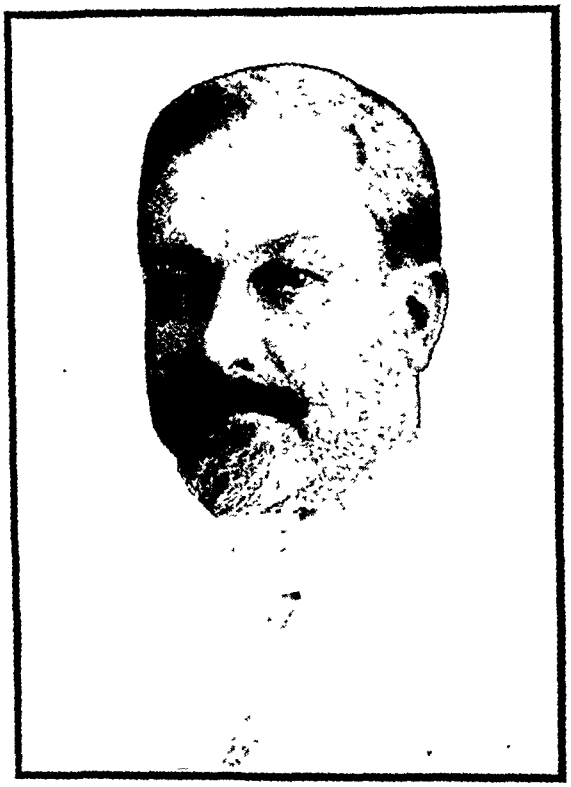
The pathogenesis of filarioses was discussed by J. Rodhain. The penetration of the human organism by infectious larval filariae does not seem to be accompanied by any appreciable reaction, general or local. The eosinophilia of the blood which usually ensues seems to be independent of external clinical manifestations. The pathogenesis of the clinical symptoms remains obscure. Some of the morbid signs related to filariosis may be attributed to local irritation provoked by adult filariae, others to indirect reactions of an allergic or toxic nature, and still others to the presence of larval filariae. G. F. Stefanopoulo discussed recent advances in yellow fever research. The diagnosis of yellow fever has become possible through the application of serologic methods (the protection test), histopathologic methods (viscerotomy) and observation of the virus (inoculation of the monkey and the white mouse). The homogeneity of the amaril virus has been established. An exact delimitation of the zones of yellow fever on both continents has been made and, what is more, the presence of the virus, in the absence of Stegomyia, has been demonstrated in the South American jungle. The methods of prophylaxis have become more numerous. Anti-amaril vaccination can now be considered an effective preventive measure; the discovery of the attenuated virus by culture of embryonal tissues has made possible mass immunizations of populations which could not be protected by any other known means. The systematic fight against Stegomyia has produced such favorable results that campaigns of this sort are now felt to be imperative for the protection of urban populations.

Georges Lavier, discussing the antiglossina campaign, said that an effective campaign against Glossina in a particular region cannot be initiated without a sound knowledge of the character and biology of the local species. Major measures are directed against the vegetation considered to be the breeding place of Glossina. Minor measures include the capture of the flies by means of nets or traps. Biologic prophylaxis envisages the utilization as parasites on the pupa of creatures that prey on Glossina.

Deaths

Alexander Lambert ⊕ President of the American Medical Association 1919-1920, died in New York at the Doctors' Hospital May 9, aged 77. Dr. Lambert was born in New York Dec. 15, 1861, the son of Dr. Edward W. and Martha W. Lambert. He received his bachelor of arts degree from Yale University in 1884, the bachelor of philosophy degree in 1885 and the M.D. degree from the College of Physicians and Surgeons of Columbia University in 1888. The bachelor of philosophy degree was in association with research under Dr. Russell H. Chittenden. After two years of study in Europe, Dr. Lambert was associated with Dr. T. Mitchell Prudden and Dr. William H. Park in the investigation of tetanus and diphtheria antitoxin. Early in his career he began teaching, becoming professor of clinical medicine at Cornell University Medical College, holding that position from 1898 to 1931. He was also assistant bacteriologist in the New York Department of Health from 1894 to 1901 and attending physician in Bellevue Hospital from 1894 to 1933.

Throughout his career Dr. Lambert took great interest in the work of organized medicine, serving as president of the Medical Society of the State of New York, as a member of the House of Delegates of the American Medical Association in 1911, third vice president in 1909. He was appointed a member of the Judicial Council in 1911 and became chairman in 1912, holding that position until his election to the position of President-Elect in 1918. He was also chairman of the Section on Practice of Medicine 1903-1904. He served in New York City on the Mayor's Committee on Narcotic Addiction in 1927 and as a member of a state commission on the same subject. His memberships in medical societies included the Association of American Physicians, the Harvey Society, the American Association for the Advancement of Science, the American Heart Association and several other local medical bodies. In 1917 he was appointed a Major in the Medical Corps and sent to France, where he remained until the Armistice, serving in France also as medical head of the American Red Cross.



ALEXANDER LAMBERT, M.D., 1861-1939

Early in his career he became closely associated with former President Theodore Roosevelt, acting for many years as his personal physician and also accompanying him on hunting and fishing trips. In 1919, following the death of Theodore Roosevelt, Dr. Lambert became the director of the Roosevelt Memorial Association. Dr. Lambert is also credited with having been instrumental in maintaining Gen. William C. Gorgas as director of the sanitary work during the building of the Panama Canal after an attack had been made on the work of General Gorgas by some of the lay officials in charge of the building of the Canal.

Throughout his career Dr. Lambert gave special attention to problems of alcoholic and narcotic addiction and to diseases of the heart. He was the author of numerous contributions to medical periodical literature dealing with these subjects. Dr. Lambert was widely known as a distinguished leader in the field of medicine, as an inspiring organizer and as an influential physician.

Richard Clarke Cabot ⊕ widely known as a physician, teacher and author, died in Boston, May 8, after a long illness. Dr. Cabot was born in Brookline, Mass., the son of James Elliott Cabot and Elizabeth Dwight Cabot, on May 21, 1868. His father was an overseer of Harvard University and was noted as the biographer of Ralph Waldo Emerson. After graduation from Harvard in 1889, where he won honors in the classics and in philosophy and election to Phi Beta Kappa, Dr. Cabot continued his studies in Harvard Medical School and graduated in 1892. He became assistant in medicine in Harvard Medical School in 1899, instructor in 1903, assistant professor in 1908, professor in 1918 and, since 1933, has been professor emeritus.

Dr. Cabot's interest in ethics and philosophy persisted throughout his life; he lectured on logic in Harvard in 1903, and was appointed professor of social ethics in 1920, holding that position until 1934.

As part of his medical career, Dr. Cabot became physician to the Outpatient Department of the Massachusetts General Hospital in 1898, and was also consultant in the Massachusetts General Hospital, New England Hospital for Women, the Westboro School for Boys, the Lancaster School for Girls, the Brockton Hospital and the Sturdy Memorial Hospital of Attleboro. He was also a former visiting physician to the Channing Home, consulting physician to the Massachusetts Eye and Ear Infirmary and chief of staff at the Mount Sinai Hospital.

During the World War, Dr. Cabot served as a major in the Medical Corps at a Bordeaux base hospital, remaining there from July 1917 to February 1919, except for a period of five months when he was associated with the Red Cross Service in Paris. He was commissioned Lieutenant Colonel Nov. 6, 1918, and honorably discharged in February 1919.

As for the social side of his interests, he was president of the National Conference of Social Work in 1931 and president of the Massachusetts Anti-Saloon League in 1931-1933; he was awarded the gold medal by the National Institute of Social Science in 1931.

The University of Rochester bestowed on him the LL.D. degree in 1930, and Syracuse University awarded him the L.H.D. degree in 1934.

In the American Medical Association, Dr. Cabot was chairman of the Section on Practice of Medicine from 1904 to 1905 and a member of the House of Delegates in 1907 and in 1915.

Early in his career, Dr. Cabot attracted wide public attention by his attitudes in relationship to the social aspects of medical care. In 1913, he pointed out that there were far too many doctors, and urged reorganization of medicine for group practice, with the suggestion that, since the University of California had been able to provide students with medical care for $5 a year, it should be possible to do the same for all people. He was also widely noted for the statement that out of 400 diseases only seven were curable by drugs and five by inoculations. Moreover, his statement to the effect that the vast majority of diagnoses were wrong as based on the results of postmortem examinations, made many years ago, was repeatedly quoted in the press.

Perhaps Dr. Cabot was most widely known for writings, particularly in the field of social welfare. These publications included "Social Service and the Art of Healing," 1909; "What Men Live By," 1914; "The Rewards and Training of a Physician," 1917; "Social Work," 1919; "Adventures on the Borderlands of Ethics," 1926; "The Meaning of Right and Wrong," 1933, and "Christianity and Sex," 1937. Particularly known to the medical profession are his writings in medicine, including "Clinical Examination of the Blood," 1896, of which five editions were issued, and his work on "Physical Diagnosis," 1901, of which ten editions were issued. Well known also were his books on "Case Teaching in Medicine," 1906, reprinted in more recent years in a special series in the *New England Journal of Medicine*, and "Differential Diagnosis," 1911. His last public appearance was in the New York Herald Tribune Forum, 1938.

Dr. Cabot will long be remembered for his philosophy and as a leader in stimulating social habits of thought.

Frank Parsons Norbury ⊕ Jacksonville, Ill.; Long Island College Hospital, Brooklyn, 1888; secretary of the Section of Neurology and Medical Jurisprudence, 1893-1894, and member of the House of Delegates of the American Medical Association in 1904; past president of the Morgan County Medical Society; fellow of the American College of Physicians and member of the American Psychiatric Association; past president and secretary of the Mississippi Valley Medical Association; professor of internal medicine, St. Louis College of Physicians and Surgeons, 1895-1896, and professor of nervous and mental diseases, Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1904-1908; alienist, state board of administration, 1911-1913; superintendent of the Kankakee (Ill.) State Hospital, 1909-1911; acting medical director of the National Committee for Mental Hygiene during the World War; president and medical director of the Norbury Sanitarium; aged 75; died, March 14, of coronary thrombosis.

Noble Murray Eberhart ⊕ Chicago; Bennett Medical College, Chicago, 1894; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; director of the x-ray laboratory and head of the department of physiological therapeutics, Loyola University School of Medicine, 1911-1913, and professor of electrophysics, Post-Graduate Medical School, 1902-1905; at various times professor and head of the department of electrotherapy, American College of Medicine and Surgery, Medical Department of Valparaiso University, and Chicago College of Medicine and Surgery, Medical Department of Valparaiso University; president of the North Shore Branch, 1912-1913, and member of the Council, Chicago Medical Society, 1913-1915; author of "Manual of High Frequency Currents," which passed through eight editions; aged 68; died, February 9, of epithelioma of the left hand with metastasis.

Jose Guillermo Lewis, Colon, Republic of Panama; Georgetown University School of Medicine, Washington, D. C., 1923; member of the Medical Association of the Isthmian Canal Zone; fellow of the American College of Surgeons; at one time instructor of surgery at his alma mater; formerly chief surgeon and chief of staff, Eastern Dispensary and Casualty Hospital; chief of the surgical service, including obstetrics and gynecology, Amador Guerrero Hospital; aged 40; died, February 12.

Samuel Robert Slaymaker ⊕ Chicago; Rush Medical College, Chicago, 1892; clinical professor of medicine at his alma mater; past president of the Chicago Society of Internal Medicine; president and attending physician to the Washington Boulevard Hospital; associate attending physician to the Presbyterian Hospital; for many years on the attending staff of the Cook County Hospital; served during the World War; aged 74; died, May 3, of carcinoma of the pancreas.

George Charles Kreutz, Detroit; Washington University School of Medicine, St. Louis, 1924; member of the Michigan State Medical Society and American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; surgeon in charge, division of otolaryngology, Henry Ford Hospital; aged 42; died, February 1, of pulmonary embolus following an operation for hernia.

Joseph Thompson McKinney ⊕ Roanoke, Va.; Medical College of Virginia, Richmond, 1912; member of the American Roentgen Ray Society, Radiological Society of North America and the American College of Radiology; served during the World War; on the staff of the Lewis-Gale Hospital; aged 49; died, February 3, of carcinoma of the prostate with metastasis to the liver and lungs.

Paul Eugene Lineback, Emory University, Ga.; Drake University Medical Department, Des Moines, Iowa, 1911; professor of micro-anatomy and neuro-anatomy at the Emory University School of Medicine; fellow of the American College of Physicians; member of the American Association of Anatomists; co-author of "Anatomy of the Rhesus Monkey"; aged 59; died, February 28.

George Goodhue ⊕ Dayton, Ohio; Dartmouth Medical School, Hanover, N. H., 1880; University of the City of New York Medical Department, 1880; past president of the Montgomery County Medical Society; fellow of the American College of Surgeons; formerly health officer; consulting surgeon to the Miami Valley Hospital; aged 85; died, February 25.

Stephen H. Knight ⊕ Detroit; New York Homeopathic Medical College, New York, 1886; fellow of the American College of Surgeons; at one time assistant professor of surgery at the Detroit College of Medicine and Surgery; for many years on the staff of the Grace Hospital; aged 76; died, February 9, of arteriosclerotic heart disease.

Page D. Barlow, McMechen, W. Va.; Baltimore Medical College, 1895; member of the West Virginia State Medical Association; past president of the Marshall County Medical Society; aged 65; on the staff of the Reynolds Memorial Hospital, Glendale, where he died, February 23, of diabetes mellitus and lobar pneumonia.

Frank Wallace Curtis, Stewartsville, N. J.; Long Island College Hospital, Brooklyn, 1892; member of the Medical Society of New Jersey; on the staff of the Easton (Pa.) Hospital; aged 73; died, February 9, in the King's Daughters' Hospital, Portsmouth, Va., of cerebral hemorrhage and hemiplegia.

Thomas J. Farley, Amherstdale, W. Va.; University of Louisville (Ky.) Medical Department, 1913; member of the West Virginia State Medical Association; formerly county health officer; aged 54; died, February 18, in the Mercy Hospital, Logan, following an operation for a ruptured appendix.

Harry Cullen Kariher, Champaign, Ill.; Rush Medical College, Chicago, 1903; member of the Illinois State Medical Society; past president of the Champaign County Medical Society; served during the World War; aged 59; on the staff of the Burnham City Hospital, where he died, February 5.

Robert Caldwell McChord, Lebanon, Ky.; Louisville (Ky.) Medical College, 1875; member of the Kentucky State Medical Association; fellow of the American College of Surgeons; formerly president of the board of education and bank president; aged 87; died, February 19, of arteriosclerosis.

Robert Christie Kemp, Baton Rouge, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1900; fellow of the American College of Surgeons; visiting surgeon to the Baton Rouge Hospital and Our Lady of the Lake Sanitarium; aged 65; died, February 19, of pneumonia.

Gaston Louis Gaudet, Lutcher, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1904; member of the Louisiana State Medical Society; aged 59; died, February 7, in the Hotel Dieu, Sisters' Hospital, New Orleans, of auricular fibrillation and pleurisy with effusion.

James McFaddin Dick ⊕ Salisbury, Md.; University of Maryland School of Medicine, Baltimore, 1895; fellow of the American College of Surgeons; on the staff of the Peninsula General Hospital; aged 67; died, February 17, of cerebral hemorrhage and arteriosclerosis.

Edwin Archer Gerhart, Seattle; Hahnemann Medical College and Hospital of Philadelphia, 1901; member of the Washington State Medical Association; served during the World War; aged 60; died, February 28, in a local hospital of carcinoma of the liver.

Vernon Sylvester Fildes, Olney, Ill.; Washington University School of Medicine, St. Louis, 1905; member of the Illinois State Medical Society; aged 57; died, February 4, in the Olney Sanitarium, of bronchopneumonia and cerebral hemorrhage.

Walter Pearre, Waynesboro, Pa.; Bellevue Hospital Medical College, New York, 1884; Hahnemann Medical College and Hospital of Philadelphia, 1885; aged 77; died, January 16, at the Waynesboro Hospital, of gastric ulcer with pyloric stenosis.

Richard Lodwick Gray, Clayton, N. Y.; Bellevue Hospital Medical College, New York, 1898; member of the Medical Society of the State of New York; aged 68; died, January 28, of carcinoma of the urinary bladder with metastases to the breast.

James M. Fenton, Baltimore; University of Virginia Department of Medicine, Charlottesville, 1894; member of the Medical Society of Virginia; formerly coroner of the central district; aged 70; died, February 17, of cardiac decompensation.

Frederick Yingling Allen, St. Petersburg, Fla.; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1898; formerly associate professor of histology at his alma mater; aged 65; died, February 26.

Francis Earle Briggs, Ludlow, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; member of the Illinois State Medical Society; aged 56; died, February 2, of carcinoma of the stomach.

William Clarkson Waggoner, New York; Miami Medical College, Cincinnati, 1903; formerly on the faculty of the Long Island College Hospital, Brooklyn; served during the World War; aged 57; died, January 27, in Ossining.

Daniel James Leo Harrington ⊕ Boston; Tufts College Medical School, Boston, 1910; on the staffs of the Boston City Hospital and the Carney Hospital; aged 52; died, February 20, in St. Francis Hospital, Miami Beach, Fla.

Martin Cole, Hainesville, N. J.; Harvard University Medical School, Boston, 1873; aged 89; died, February 25, in the Newton (N. J.) Memorial Hospital, of chronic myocarditis and fracture of the hip received in a fall on the grass.

William Edgar Fahrney ⊕ Broadway, Va.; University of Maryland School of Medicine, Baltimore, 1897; aged 65; died, February 13, at the University Hospital, Charlottesville, of arteriosclerosis, cerebral thrombosis and pneumonia.

Clarence Kelsay, Evansville, Ind.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; on the staff of the Protestant Deaconess Hospital; aged 62; died, February 8, of pneumonia with hypertension.

Joseph Hall Jones, Baltimore; University of Alabama School of Medicine, 1912; served during the World War; acting assistant surgeon, U. S. Public Health Service; aged 52; died, February 20, of coronary thrombosis.

James Francis Bowen, Hinsdale, Mass.; University of Vermont College of Medicine, Burlington, 1911; served during the World War; aged 60; died, February 21, in St. Luke's Hospital, Pittsfield, of cerebral hemorrhage.

Edward Daniel Hartnett, Boston; Harvard University Medical School, Boston, 1898; member of the Massachusetts Medical Society; served during the World War; aged 64; died, February 13, of cerebral hemorrhage.

James Asbury Harper ⊕ Greenfield, Iowa; Bellevue Hospital Medical College, New York, 1896; formerly secretary of the Adair County Medical Society; aged 71; died, February 9, of arteriosclerosis and coronary occlusion.

Thomas Archibold McIntyre, Colorado Springs, Colo.; Gross Medical College, Denver, 1902; member of the Colorado State Medical Society; on the staff of St. Francis Hospital; aged 52; died, January 24, of diphtheria.

Marcus S. Lemlich, Brooklyn; New York Medical College and Flower Hospital, New York, 1914; on the staffs of the Unity Hospital and the Cumberland Hospital; aged 52; died, January 18, in the Mount Sinai Hospital.

Frank G. Emerson, Wellington, Kan.; State University of Iowa College of Medicine, Iowa City, 1885; member of the Kansas Medical Society; aged 78; died, February 12, of an injury received in a fall in a bathtub.

Alfred M. Houston ⊕ Joliet, Ill.; Hahnemann Medical College and Hospital, Chicago, 1904; on the staffs of the Silver Cross Hospital and St. Joseph's Hospital; aged 63; died, February 9, of sarcoma of the maxilla.

Mecislaus Stanley Kreda, National Military Home, Ohio; Wayne University College of Medicine, Detroit, 1933; on the staff of the Veterans Administration Facility; aged 35; died, February 21, of pulmonary embolism.

Rudolph J. Maas ⊕ Houghton, Mich.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1880; formerly on the staff of St. Joseph's Hospital, Hancock; aged 83; died, February 7, of acute coronary disease.

John I. McCormick, Yazoo City, Miss.; Jefferson Medical College of Philadelphia, 1899; member of the Mississippi State Medical Association; on the staff of the King's Daughters Hospital; aged 67; died, January 23.

Joseph H. McGauhey ⊕ White Cloud, Kan.; Missouri Medical College, St. Louis, 1888; bank president; formerly member of the school board; aged 77; died, February 8, in St. Joseph's Hospital, St. Joseph, Mo.

Ira Lincoln Fetterhoff, Baltimore; University of Maryland School of Medicine, Baltimore, 1885; Hahnemann Medical College and Hospital of Philadelphia, 1886; aged 74; died, February 25, of diabetes mellitus.

Sheldon S. De Lancey, Williamsport, Ind.; Hahnemann Medical College and Hospital, Chicago, 1882; member of the Indiana State Medical Association; county health officer; aged 78; died, February 7, of senility.

Bruce D. Campbell, Dearborn, Mich.; Detroit College of Medicine and Surgery, 1915; chief physician and surgeon of hospitals of the Ford Motor Company's plants; aged 45; died, March 20, of heart disease.

George Benjamin Hulburd, Jericho, Vt.; University of Vermont College of Medicine, Burlington, 1885; member of the Vermont State Medical Society; aged 77; died, February 4, of carcinoma of the rectum.

Earle McEwen ⊕ Mason City, Iowa; Hahnemann Medical College and Hospital, Chicago, 1881; past president of the Cerro Gordo County Medical Society; aged 81; died, February 17, of coronary thrombosis.

Christopher C. Gray, Batesville, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1888; member of the Arkansas Medical Society; aged 79; died, February 17, of hypostatic pneumonia.

Joseph B. Kepler Evans, McGuffey, Ohio; American Eclectic Medical College, Cincinnati, 1889; member of the Ohio State Medical Association; aged 74; died, February 10, of pulmonary tuberculosis.

Alford Comer Knight, Jacksonville, Fla.; Medical College of the State of South Carolina, Charleston, 1911; member of the Florida Medical Association; formerly a pharmacist; aged 63; died, February 11.

Willard Blossom Segur ⊕ Ware, Mass.; Dartmouth Medical School, Hanover, N. H., 1892; on the staff of the Mary Lane Hospital; aged 73; died, January 27, in the Deaconess Hospital, Boston.

Oscar Newton Lightner, Laredo, Texas; Washington University School of Medicine, St. Louis, 1905; served during the World War; aged 57; died, February 13, in the Nix Hospital, San Antonio.

Wladimir Feodor de Niedman, Los Altos, Calif.; Howard University College of Medicine, Washington, D. C., 1884; veteran of the Spanish-American War; aged 84; died in January in San Francisco.

James Perry Houston, Traverse City, Mich.; Chicago Medical College, 1889; member of the Michigan State Medical Society; aged 78; died, February 27, in the Grand Traverse County Hospital.

Silas Offen Witherbee, Middletown, Ky.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1867; formerly bank president; aged 92; died, January 2.

Septimus Jordan, Richburg, S. C.; Medical College of the State of South Carolina, Charleston, 1911; member of the South Carolina Medical Association; aged 51; died, February 15, of arthritis.

James Thomas Justice, Kernersville, N. C.; North Carolina Medical College, Davidson, 1904; for many years member of the school board; aged 65; died, February 15, of carcinoma of the prostate.

Henry Eben Hunt, Roodhouse, Ill.; Northwestern University Medical School, Chicago, 1896; aged 66; died, February 8, in Our Saviour's Hospital, Jacksonville, of carcinoma of the rectum.

Charles Holt Forbes, Athol, Mass.; New York Homeopathic Medical College, New York, 1883; aged 79; died, February 7, in the Massachusetts Masonic Hospital, Shrewsbury, of myocarditis.

B. Clinton Marsh, Livingston, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1886; member of the State Medical Association of Texas; aged 78; died, February 22.

Joseph Anton Denkinger, Brookline, Mass.; Vermont Medical College, Rutland, 1889; aged 76; died, February 27, in Boston of diabetes mellitus, cerebral arteriosclerosis and chronic myocarditis.

Marriages

EDWARD DUNNER, Brooklyn, to Miss Reichel Connor of Pittston, Pa., March 19.

JAMES L. SEIBOLD to Miss Margareate Stewart, both of Birmingham, Ala., April 29.

THOMAS E. BRADLEY to Miss Evelyn Mashburn, both of Fitzgerald, Ga., in April.

JOSEPH A. HESCH, Aldan, Pa., to Miss Marie B. McGowan of Philadelphia, April 29.

THOMAS Y. DORWART to Miss Ellen Vaughn, both of Lexington, Neb., February 14.

BENJAMIN HARTWELL BOYD JR. to Miss Margaret McCarty, both of Atlanta, Ga., April 29.

JOSEPH HELMS FARROW, New York, to Miss Florence Skinner of Kansas City, Mo., April 28.

JOHN GOODRICH SMITH, Rocky Mount, N. C., to Miss Mary Lillian Wagner of Warrenton, April 25.

WILLIAM EDGAR WADDELL, Lexington, Va., to Miss Joan Thompson of St. Johns, Newfoundland, recently.

DANIEL O'CONNELL SAYERS, Waterbury, Conn., to Miss Mary Adams Oliver of Mount Olive, N. C., in Goldsboro, N. C., in April.

Bureau of Investigation

SIXTH LABEL FOR LYDIA E. PINKHAM'S VEGETABLE COMPOUND FINALLY BARES FORMULA

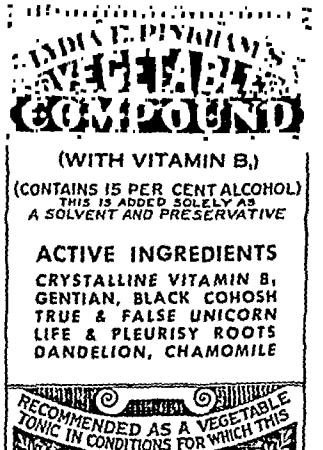
Actual Ingredients Exposed for the First Time

The Bureau of Investigation called attention to a new label for "Lydia E. Pinkham's Vegetable Compound" in THE JOURNAL Dec. 17, 1938. The label which was discussed at that time indicated that a new ingredient—vitamin B_1—had been added and that the name of the preparation had been changed to "Lydia E. Pinkham's Vegetable Compound (With Vitamin B_1)." This label is reproduced here, along with an even newer label on which the active ingredients are listed.

The previous article discussed whether or not vitamin B_1 was indicated in any appreciable percentage of those who took this preparation. At the same time attention was called to the fact that there was probably nothing harmful in its addition to the Compound. Nevertheless it is a question whether or not a preparation containing 15 per cent alcohol would be useful to persons deficient in vitamin B_1 and who might take this remedy for the purpose of obtaining additional vitamin B_1.

In the previous article four older labels for this preparation were reproduced. The first label appeared before the enactment of the Food and Drugs Act of 1906, as amended, on which the preparation was claimed to be "A Sure Cure for Prolapsus Uteri, or Falling of the Womb, and All Female Weaknesses." The next three labels comprised modifications of this claim in accordance with the act of 1906. In the first of these the phrase "A Sure Cure" was deleted. In the second this wording was replaced by the phrase "Recommended for the Treatment of Non-Surgical Cases of Weaknesses and Disorders of the Female Generative Organs, Catarrhal Leucorrhea and Irritation." The final label which was issued under the act of 1906 merely contained the statement that the preparation was "Recommended as a Vegetable Tonic in Conditions for Which This Preparation is Adapted." As Dr. Arthur J. Cramp pointed out in an article in *Hygeia* "This statement is about as informative as it would be to say that 'For Those Who Like This Sort of Thing, This Is the Sort of Thing That Those People Like.'"





The label which is reproduced above appeared on a bottle purchased in the early part of 1939. The label reproduced at the right is even more recent, and declares all of the active ingredients, in accordance with the Federal Food, Drug and Cosmetic Act.

According to Section 502(e) of the Federal Food, Drug and Cosmetic Act a drug shall be deemed to be misbranded:

"If it is a drug and not designated solely by a name recognized in an official compendium unless its label bears (1) the common or usual name of the drug, if such there be; and (2) *in case it is fabricated from two or more ingredients, the common or usual name of each active ingredient,* including the quantity, kind, and proportion of any alcohol, and also including whether active or not, the name and quantity or proportion of any bromides, ether, chloroform, acetanilid, acetphenetidin, amidopyrine, antipyrine, atropine, hyoscine, hyoscyamine, arsenic, digitalis, digitalis glucosides, mercury, ouabain, strophanthin, strychnine, thyroid, or any derivative or preparation of any such substances, contained therein: Provided, That to the extent that compliance *with the requirements of clause (2)* of this paragraph is impracticable, exemptions shall be established by *regulations promulgated by the Secretary.*"

The second label reproduced in this article appears on the product as it is purchased over the counter today. In accordance with the stipulations quoted above, this label includes a list of the active ingredients. Thus, for the first time in the many years that this preparation has been on the American market, a purchaser is informed as to the nature of the product. Granted that the meaning of these various names of drugs is not particularly informative to the general public, nevertheless the ingredients are actually disclosed. Now agencies interested in keeping the public informed can call attention to the ingredients and their significance in modern therapeutics. There follows herewith a brief consideration of the ingredients listed on the label of Lydia Pinkham's Compound. The phrases which appear in quotation marks in the paragraphs below are taken from the present edition (or previous editions, in cases of those drugs which are no longer included in the present edition of the U. S. P. or N. F.) of the "Epitome of the U. S. P. and N. F." (A. M. A. Press).[1]

Crystalline vitamin B_1 is admittedly useful in cases in which there is a deficiency of this vitamin. Since the public buys the Pinkham preparation without consulting a physician, it is difficult to know just how people are able to determine that they have a need for this vitamin. Even granting such a need, there is no occasion for taking this drug, which is available in pure form and which is available in many foods, in a solution containing 15 per cent alcohol.

Gentian. The latest edition of the United States Pharmacopeia includes this item. It is "probably the most widely used of the simple bitters."

Black cohosh. This drug appears in the most recent edition of the National Formulary under the name Cimicifuga. It is "a 'domestic medicine' that has been tried as a stomachic, antispasmodic, aphrodisiac, diaphoretic, diuretic and expectorant, but which *has not been found to possess definite value.*"

True unicorn. This drug appears in the latest edition of the National Formulary under the name Aletris and is a root which is "used in proprietary 'female remedies' *without evidence of value.*"

False unicorn. This drug appears in the latest edition of the National Formulary under the name Helonias and has been stated to be an "ingredient of 'female remedies'; *without established value.*"

Liferoot. This drug no longer appears in the official compendiums but was included in the 1926 edition of the National Formulary under the name Senecio and has been said to have been used by the North American Indians for healing wounds. "It has been used in a variety of conditions, but *it is entirely superfluous.*"

Pleurisy root. This drug was also last heard of officially in the 1926 edition of the National Formulary and has been described as "an obsolete domestic remedy for pleurisy, also used as a diaphoretic. *Probably without value.*"

Dandelion. This appears in the present edition of the National Formulary under the title Taraxacum. It "has been used as a bitter tonic (without advantage over gentian) and is a mild laxative in habitual constipation (inferior to drugs like cascara sagrada); has no specific action on the liver."

Chamomile. This drug appears in the latest edition of the National Formulary under the title Matricaria and is said to be "popularly used as a bitter, an aromatic tea or a *poultice;* effects, if any, are due mainly to *hot water.*"

With the exception of the crystalline vitamin B_1, therefore, it is not even necessary to know the quantity of the ingredients to surmise that the Compound is not of any established value beyond whatever virtures may be attributed to the various bitters.

The failure to establish any value scientifically, however, does not seem to have much effect on the current advertising for this preparation. Here reproduced is a recent advertisement entitled "Women in Your 40's Need Not Lose Charm!" The implica-

1. Italics ours.

tion is that this Compound will prevent, or at least alleviate, the symptoms of the menopause. Scientifically the modern effective method of treating such symptoms is to supply the deficient hormone, which, of course, is not contained in this Compound.

WOMEN IN YOUR 40's

Need Not Lose Charm!

Here's good advice for a woman during her change (usually from 38 to 52), who fears she'll lose her appeal to men, who worries about hot flashes, loss of pep, dizzy spells, upset nerves and moody spells.

Just get more fresh air, 8 hrs. sleep and if you need a reliable "WOMAN'S" tonic take Lydia E. Pinkham's Vegetable Compound, made *especially for women*. It helps Nature build up physical resistance, thus helps give more vivacity to enjoy life and assist calming jittery nerves and those disturbing symptoms that often accompany change of life.

For free trial bottle tear this out and *send with* name and address to Lydia E. Pinkham Medicine Co., 973 Cleveland St., Lynn, Mass.

Pinkham's is WELL WORTH trying.

Lydia E. Pinkham's

VEGETABLE COMPOUND

There is not an iota of scientific evidence to support the recommendation of this mixture for the treatment of the symptoms of the menopause. It remains to be seen just what limits will be placed on this type of advertising in the near future. Progress has been made, but still more progress is necessary if the public is to be protected against the blandishments of "patent medicine" promoters.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DIAGNOSIS AND TREATMENT OF TABES

To the Editor:—1. What are the minimal manifestations on which a diagnosis of tabes dorsalis can be made? 2. Is an untreated tabes with negative spinal fluid a burned out tabes that requires no treatment? 3. What are the criteria for cessation of treatment in a case of tabes?

M.D., New York.

ANSWER.—1. It is difficult to say what are the minimal manifestations which would justify a diagnosis of tabes dorsalis. It would be well to have a positive spinal fluid associated with some pupillary changes and diminution of the deep tendon reflexes of the lower extremities. In the absence of a positive spinal fluid there should certainly be definite evidence to physical examination of disease of the posterior nerve roots in a patient diagnosed as having syphilis. The Cooperative Clinical Group (*Arch. Dermat. & Syph.* **38**:692 [Nov.] 1938) lists the following subjective and objective symptoms as of diagnostic value: diplopia, neuritic pain, reduced libido and potentia, gastrointestinal or laryngeal crises, paresthesia of the hands and feet, headache, dizziness, vertigo, ataxia, failing vision, incontinence, girdle sensation, Argyll Robertson pupils, fixed pupils, irregular pupils, anisocoria, reduction of the deep reflexes, reduction of pain sense, hyperesthesia, heat and cold changes, ataxia and incoordination.

2. It would be unwise to consider an untreated tabes with a negative spinal fluid as a burned out tabes. Such a patient should be submitted to at least the minimum standard treatment for the cure of syphilis, as advised by the Cooperative Clinical Group, provided age and physical condition will permit.

3. The age of the patient, his symptoms and the benefits derived from treatment should be used as criteria in determining the duration of treatment for tabes. The Cooperative Clinical Group survey mentioned has shown that routine therapy in the form of at least two courses of arsphenamine of eight injections and from twelve to fifteen injections of a bismuth preparation will reverse the reaction of the spinal fluid in many cases of tabes dorsalis. When examination of the spinal fluid shows that treatment as just described has not made any material change in the spinal fluid and where there is no material improvement in the clinical aspects of the disease, the patient should be given the advantage of supplemental or auxiliary treatment. If the routine is to produce the most satisfactory result, it must consist of more than twenty injections of arsphenamine and twice as much of a bismuth preparation. Intraspinal therapy is most efficient when a minimum of seven intraspinal treatments is given in conjunction with the routine treatment. When tryparsamide is employed, at least thirty injections of tryparsamide and thirty injections of a bismuth preparation should be given to a course, although the most satisfactory results are noted among patients who receive 100 or more injections each of tryparsamide and of bismuth preparations. If malaria therapy is used, a patient should undergo not less than eight "chills" or satisfactory rises of temperature.

NEPHRITIS AND PREGNANCY

To the Editor:—A primipara aged 28 was first seen in January 1938 with a three and one-half months gestation and no abnormalities on physical examination. The blood pressure was 125/75. In February it was 155/85 and in April 194/110 with 2 plus albumin in the urine, no casts, but occasional white cells. With bed rest and sedatives the blood pressure dropped to 165/90 but soon rose again. Finally the urine showed 4 plus albumin (end of May) and she was brought to a hospital and labor was induced by insertion of a Vorhees bag. While the bag was expelled, the cord prolapsed. Version and extraction of a 5½ pound (2,500 Gm.) baby could not save its life. The patient had a thrombophlebitis with uneventful recovery. Two months after delivery her blood pressure was 140/90, the urine was normal and she felt fine. At no time was there headache or precordial distress—only edema of the face and legs. She is anxious to know whether she could have another baby and when. Would two years' waiting have any bearing on a recurrence during the next pregnancy? Provided the blood chemistry is negative at present and kidney function tests (Mosenthal and phenolsulfonphthalein) good, could pregnancy be contemplated at once or never at all? M.D., Minnesota.

ANSWER.—The clinical history presented is typical of preexistent renal disease exacerbated by pregnancy. A true "low reserve kidney," such as this case presents, is perhaps the most significant of all the forms of renal and hypertensive disorders found in obstetric medicine. It is the type most frequently ignored until irreparable damage is done. The nephritides as they occur in pregnancy are best classified under four groups: type A, the simple nephrosis of pregnancy; type B, eclampsia or eclamptic intoxication; type C, preexistent renal and/or hypertensive disease exacerbated by pregnancy, and type D, coincident nephritis. Type A is characterized by a relatively late onset, profuse proteinuria, moderate hypertension, a good immediate prognosis and remarkably rapid and complete recovery after the termination of pregnancy. Eclampsia need not be discussed here. Coincident nephritis includes that small group of cases in which nephritis occurs in pregnant women for etiologic reasons wholly independent of the pregnant state: acute infective nephritis, mercury bichloride nephrosis, and so on (Adair, F. L., and Stieglitz, E. J.: Obstetric Medicine, Philadelphia, Lea & Febiger, 1934, chapter XXVIII).

Preexistent nephritis, such as unquestionably existed in the present case, is frequently unrecognized and silent until the increasing stresses and renal burden of pregnancy precipitate evidences of renal incompetence. The term "low reserve kidney," if strictly applied, obviously described just such a situation. The renal functional capacity is adequate for the ordinary load of renal work, but there is depletion of the reserve for the extra effort involved in the secretion of the greatly augmented metabolic débris of pregnancy. These stresses and other factors then incite an exacerbation of the renal injury. It is most important to keep in mind that much of the exacerbation of the renal injury persists permanently after the pregnancy in these cases. The renal functional reserve is usually notably lower after such an experience than before. Thus the risk in future pregnancies becomes increasingly great and the likelihood of obtaining a living infant increasingly remote.

Characteristic of this type of nephritis is the onset of hypertension early in the pregnancy. A useful and practical axiom is that the earlier in pregnancy hypertension and/or proteinuria appear the lower is the renal reserve. The longer such pregnancies continue, the greater the irrevocable renal damage and the poorer the ultimate prognosis for the patient. In those carried to fetal viability, or as long as possible, the future course

is usually downhill. Rapidly progressive hypertensive arterial disease is frequently initiated by pregnancy in these women. In such the prognosis is poor. Fetal mortality is close to 60 per cent even with the most conservative management.

It is notable that two months post partum this patient still has a borderline hypertension of 140/90 (age 28). The absence of protein from the urine is an utterly worthless criterion of her renal functional capacity. So also would be a present "negative blood chemistry" (blood constitutents at normal concentration). Increases in the concentration of the nonprotein nitrogenous metabolites in the blood occur only when actual renal decompensation exists. The patient's renal function appears to be adequate at present (under the present loads) but the depleted reserve would permit of renal failure if and when the load is increased, as with another pregnancy. Only careful evaluation of the patient's renal function reserve can tell what her margin of safety is. Stress tests such as the concentration procedure are of greater value here than the phenolsulfonphthalein or urea clearance tests.

The decision to deprive a woman of the privilege of bearing children must never be taken lightly. Therefore great care and thorough study are required before such questions can be adequately answered. In the present instance the following suggestions appear warranted: 1. Careful evaluation of the patient's renal functional reserve at the present time. 2. Frequent observation of her arterial tension for a year or more. It may rise gradually. If so, future pregnancies would be of suicidal precariousness. 3. Attention to foci of infection, general health, nutrition, and especially to the hemoglobin content of the blood. Anemia, even of minor degree, is a potent factor in retarding the rehabilitation of injured tissues and especially damaged kidneys. 4. A cold pressor test to determine the patient's arteriolar excitability. Such a test may give valuable prognostic information. 5. Reevaluation of the renal function after twelve to eighteen months. 6. Frequent antepartum observation. If a second pregnancy does occur, this is imperative from the beginning. Should the arterial tension again rise and proteinuria appear, particularly if these occur earlier in the second pregnancy than in the first, therapeutic termination of pregnancy would be justified. After that, further attempts must be urgently discouraged.

TREATMENT OF TAPEWORM

To the Editor:—Will you please give me information regarding any recent, or the best, method and technic in the management of a patient with a tapeworm. I should like to have this information in connection with both the drug and the method of use. A girl aged 5 years, first observed almost a year ago, had been underweight for several months and just prior to that time her mother had noticed several large segments of tapeworm in her stool. She was admitted to the hospital and given routine treatment for tapeworm, the standard amount of oleoresin of aspidium being given for her age. Each time she expelled large sections of the worm—approximately 20 feet with each treatment. The head of the worm was never found in the stool but twice segments of the worm were identified which must have been immediately at the head. The third and last treatment was given about four months ago. As after each of the other treatments she improved for about three months. A few days ago after the administration of a mild purgative she expelled large segments of tapeworm.

J. S. HOLBROOK, M.D., Statesville, N. C.

ANSWER.—Oleoresin of aspidium is the drug of choice for treatment of the beef tapeworm (Taenia saginata) and the pork tapeworm (Taenia solium). The lengths of worm evacuated by the patient after medication and the relative rarity of the pork tapeworm in the United States indicate that one is here dealing with Taenia saginata. For effective treatment the drug must be fresh and must be preceded and followed (or accompanied) by saline purgation.

On the day before treatment the patient should be placed on a semiliquid diet and before retiring should be given one-half ounce (15 Gm.) of sodium sulfate or magnesium sulfate dissolved in a glass of water. Sodium sulfate is preferred because it dissolves mucus away from the head of the worm and thus allows the anthelmintic to act more efficiently. The disagreeable taste of the purgative may be partly disguised by adding to it the juice of half a lemon. On the morning of treatment the patient remains in bed and takes no food. The oleoresin of aspidium is prescribed in three divided doses, to be taken half an hour apart. Each of the three doses should not exceed 20 minims (1.3 cc.) for an adult or 10 minims (0.65 cc.) for a child of 5 years. This medication is followed in one or two hours by saline purgation, similar to that taken the night before treatment. The patient may have food as soon as copious bowel movements have been obtained.

A satisfactory alternative treatment consists in transduodenal intubation of the anthelmintic. The patient is prepared for treatment as indicated. On the morning of treatment the tube is directed into the duodenum under a fluoroscope, after which an emulsion of the following composition (calculated for a child of 5 years), is slowly introduced: oleoresin of aspidium 40 minims (2.6 cc.), mucilage of acacia 20 cc., saturated solution of sodium sulfate 20 cc. No post-treatment purgation is required.

Both of the prescriptions mentioned are usually successful in dislodging and evacuating the heads of tapeworms.

GRANULOCYTOPENIA AND MALARIA

To the Editor:—I should appreciate your assistance in securing some information about the occurrence of agranulocytosis in malaria. I found two references in the German literature. Both refer to cases of malaria which followed malarial therapy for dementia paralytica. Here, however, the picture is slightly obscured by the prior administration of arsenicals and bismuth. Do you know of any reports of agranulocytosis in malaria?

SIDNEY LEIBOWITZ, M.D., New York.

ANSWER.—There are no well authenticated instances of agranulocytosis developing during the course of untreated malaria. Although malaria in some patients may be accompanied by a mild or moderate temporary leukopenia, usually the differential count is unaffected. More often there may be a leukocytosis, especially in the more acute forms of the disease.

It should be pointed out, however, that agranulocytosis has been reported after the administration of certain antimalarial therapeutic agents. Thus quinine has been reported to be causative in several instances (Vitug, W.; Chavez, A., and Austria, G. F.: *J. Philippine Islands M. A.* **15**:464 [Sept.] 1935. Groen, J., and Gelderman, C. J.: *Nederl. tijdschr. v. geneesk.* **78**:3444 [July 28] 1934. Dassen, R., and Fongi, E.: *Rev. Asoc. méd. argent.* **49**:1077 [Aug.] 1935. Corelli, F.: *Hematologica* **15**:663, 1934) while plasmochin apparently produced complete disappearance of granulocytes in one patient (Knighton, J. E., Jr.: *New Orleans M. & S. J.*, p. 755, 1935).

In instances of malarial therapy for dementia paralytica in which arsenical compounds have been administered previously, it would be quite difficult to assume the leukocyte depression to be caused by the malaria, since it is well established that the arsenicals may produce agranulocytosis in occasional instances, Plum having summarized fourteen such cases (Plum, Preben: Clinical and Experimental Investigations in Agranulocytosis, London, H. K. Lewis & Co., 1937, p. 101). Furthermore, in occasional instances the action of the arsenicals on the bone marrow may be delayed and apparently cumulative.

In order to assume the development of agranulocytosis after infection with malaria, it would be necessary to rule out the use of therapeutic agents such as those mentioned, and if such agents have been used in the immediate past prior to development of agranulocytosis the disease most likely would have resulted from them rather than from the malaria.

EPISTAXIS

To the Editor:—Acting as an interpreter at a series of Red Cross first aid lectures, the lecturer spoke on epistaxis. He stated that when one sees bleeding from the right side, the base of the left ring finger should be bound tightly with a string for a while, and vice versa for bleeding from the left side. The next evening an opportunity to prove his statement was presented. The patient was bleeding from the left side. On tying the right ring finger at its proximal portion of the phalanx, I controlled the epistaxis easily and promptly. Can you suggest any basic reason for this? Is there any literature on this subject?

M. PAUL SUZUKI, M.D., Seattle.

ANSWER.—Cases of epistaxis may be conveniently divided into three groups. There is the extremely severe case encountered in surgery of the nose, in malignant growths or as an accompaniment of certain cardiovascular conditions. This group is characterized by a single, profuse hemorrhage. The second class would be cases that are characterized by repeated, moderately severe hemorrhages. These patients frequently have been treated by all the popular home remedies and by at least a half a dozen surgical procedures. Because of a slight ulceration in the nose or of some unusual permeability of the blood vessels, bleeding occurs with every slight trauma. The third group is by far the largest in number of cases. Ordinarily the hemorrhage is slight and is self limited. The popular home remedies for the control of epistaxis of this character are almost as numerous as the procedures treasured by the public for the removal of the common wart. The self-limiting character of this group of cases gives an apparently high incidence of cures to any of the popular methods. There is no known basis of an anatomic or physiologic character that would explain the cessation of the epistaxis as described in the query.

The therapeutic scheme here described seems to be a recrudescence with slight modification of "zone therapy," which had a vogue from about 1915 to 1920. Popular articles appeared in *Everybody's Magazine, Associated Sunday Magazines* and *Every*

Week. In the latter publication, Bruce Barton spoke approvingly of the method. Fitzgerald seems to have been the prominent exponent of this so-called system. In "Zone Therapy or Relieving Pain and Disease" by Drs. William H. Fitzgerald and Edwin F. Bowers (Columbus, Ohio, I. W. Long, 1918) the physician is advised for epistaxis to apply strong constriction to the base of the thumb and index finger of the affected side or in severe cases to apply constriction about all the digits of both hands. Special rubber and metal constricting rings were available in this work. An alphabetical therapeutic index is furnished which tells how to relieve angina pectoris, produce anesthesia, cure asthma, lower blood pressure, raise blood pressure, cure bronchitis, cure brachial neuritis, relieve constipation and so on through the alphabet to writers' cramp and wry neck—all by constricting or pinching the proper fingers and toes. *American Medicine* (November 1921) carried an article by Dr. Fitzgerald on "Zone or Pressure Therapy." In the editorial column it was pointed out that only time would tell the value of this procedure. Time has established its worthlessness.

NURSE AS CARRIER OF AMEBAS

To the Editor:—1. Is it compatible with safety for a nurse having a stool positive for Endamoeba histolytica (cysts) to be on duty in a general hospital? 2. If excluded from duty, how long should the stool and symptoms be free before it is safe for her to return? 3. Are there any other suggestions?

M.D., Oklahoma.

ANSWER.—1. It is safe for a nurse having a stool positive for Endamoeba histolytica to be on duty in the general hospital if she has the knowledge to care for her hands competently so as to prevent any possibility of transfer of the infection to others. This entails keeping the nails well trimmed and careful washing of the hands with soap and water immediately after going to the toilet, as well as at any other time when they may have become contaminated.

2. If the nurse is excluded from duty, she should have three negative stool examinations and be free from symptoms for a week before she is allowed to return. As a rule, however, with the proper care, exclusion of a nurse who is an Endamoeba histolytica carrier from duty is not required.

3. The same regulations should apply to a nurse as to a food handler infested with Endamoeba histolytica.

DETERMINATION OF VITAMIN B_1 BY FLUORESCENCE

To the Editor:—A few weeks ago I saw a clipping to the effect that some one had invented an instrument for the detection and determination of amounts of vitamin B_1 in substances. The principle of the instrument as I recall, was based on the use of the photoelectric cell in some manner. I would greatly appreciate any information concerning such an invention.

M.D., Missouri.

ANSWER.—Presumably the method to which reference is made is that of converting vitamin B_1 (thiamin) into thiochrome by oxidation with alkaline potassium ferricyanide, as originally suggested by Jansen. The resulting thiochrome is extracted from the aqueous solution with isobutanol and quantitatively estimated by the blue fluorescence which its solution exhibits in ultraviolet light. Several other workers have endeavored to perfect the method, so that at the present moment it promises a somewhat higher precision than any other chemical test.

D. J. Hennessy and L. R. Cerecedo published in the January 1939 issue of the *Journal of the American Chemical Society* some modifications of the method tending to adapt it for use in the assay of a variety of biologic fluids and tissues. They also provide for distinguishing free thiamin from its pyrophosphate (cocarboxylase) and give complete references to the earlier literature.

LEUKOPLAKIA IN YOUNG WOMAN

To the Editor:—A woman about 24 years of age has a rather extensive case of leukoplakia. The dentist and I are doing everything possible to correct any possible cause. It seems stationary but is certainly persistent. Is there anything new that can be recommended? The patient appealed to me recently pleading for cure. She is engaged to be married in May.

WARREN T. MCNEIL, M.D., Stockton, Calif.

ANSWER.—In the majority of cases of leukoplakia buccalis no ill effects occur. While leukoplakia is regarded as precancerous, a malignant change need not necessarily follow even after many years. Therefore in most instances no radical treatment need be considered. Of course, the patient's mouth should be inspected at intervals of six months to apprehend any unfavorable changes in the lesions.

There should be an investigation as to the presence of syphilis, which should receive standard treatment if present. Some investigators state that in fully 50 per cent of patients with leukoplakia there is a background of syphilis. Otherwise the patient should not smoke at all. The food should not be highly spiced, very hot or cold. Soothing applications may be made to the lesions, such as tincture of myrrh. Silver nitrate crayons may be used on fissures and erosions, but great care should be taken not to stimulate an already present epithelioma by such superficial caustic applications. Acid mercuric nitrate has been much used, but its action must be strictly confined to the lesions. For local thickenings and irregularities the cautery is best. If a malignant change takes place in any of the lesions, it is treated the same as cancer of the mouth otherwise.

In a patient as young as this woman, leukoplakia is unusual. One should use care to make sure that she does not have lichen planus limited to the mucous membranes, instead of leukoplakia.

TRAUMA AND PAIN UNDER RIBS

To the Editor:—An employee of an oil company fell against a pipe, striking the left lower part of the chest. He complained of intense pain located deep in and under about the ninth and tenth ribs in front. X-ray examination showed that no ribs had been fractured. The pain lasted for about one month but gradually became less intense and finally subsided entirely. There were no abdominal symptoms. Please advise as to the possible causes of this pain. What is the most probable cause? I have been unable to find anything in any books which I have regarding injury of the spleen except rupture. Could a congestion or swelling of the spleen put tension on its capsule and account for such a pain?

C. L. PEARCY, M.D., Salem, W. Va.

ANSWER.—Several possibilities present themselves as explanations of the pain in this case. The contusion of the spleen without actual rupture of the capsule is certainly a strong possibility. It is certainly likely that minor ruptures or tears in the capsule with a small amount of bleeding do occur and heal without anything further being done. Second, rupture of the diaphragm has to be considered; third, a minor injury to the left lobe of the liver with a crack in the capsule and a small amount of bleeding or a localized contusion without bleeding. Fourth, a contusion of the lung on the left side has to be considered; fifth, a contusion involving the heart with effusion of blood in the pericardium with gradual absorption. The fact that the pain has gradually disappeared would seem to indicate that no further treatment is necessary. However, the literature contains many cases of ruptures of the spleen coming on secondarily a month or more after the primary injury has weakened the capsule.

SPINAL FLUID WASSERMANN FAST NOT DESIRABLE TERM

To the Editor:—It is well known that in some cases of syphilis that have had adequate treatment, the blood may be "Wasserman fast." In a case presenting a 4 plus Wassermann (blood) reaction and 4 plus spinal fluid Wassermann reaction and a negative colloidal gold test with no increase in spinal fluid globulin or cell count, is it possible to consider the patient as being "spinal fluid Wassermann fast"? He has had two years of continuous treatment alternating bismuth compounds and neoarsphenamine. Since the spinal fluid was examined six months ago he has received twenty injections (3 Gm.) of tryparsamide and ten malaria chills with no effect on the spinal fluid Wassermann reaction. Clinically he is asymptomatic, and careful systemic and neurologic examinations on several occasions have been completely negative. Can one speak of "spinal fluid Wassermann fast" as well as "blood Wassermann fast"? If so, what is the relative frequency? I would appreciate any information that you can give me.

M.D., New York.

ANSWER.—The use of the term "Wassermann fastness" is deprecated because it implies a clinical state, whereas in reality it is nothing but a group of serologic reports. In practically all patients who have "Wassermann fast" blood tests some explanation can be found for the Wassermann fastness in the fact that the patient either has neurosyphilis or cardiovascular syphilis and only in a few is there no definite explanation to be offered as a result of thorough clinical examination or examination of the spinal fluid. Occasional patients with neurosyphilis are seen in whom the flocculation or complement fixation test on the spinal fluid will remain positive while all other tests on the spinal fluid are negative. This type of report may or may not be of significance as it is frequently seen in patients who, when treatment is stopped, will immediately relapse in the spinal fluid to strongly positive in all factors. On the other hand, it is frequently seen in patients with tabes dorsalis in whom the fixation or complement fixation on the spinal fluid will be positive for years while all other factors on the spinal fluid will remain persistently negative. In the case under discussion, sufficient time has not as yet elapsed to make deductions with regard to the significance of the positive flocculation test on the spinal fluid, as the last spinal fluid test was done only six months ago. As a rule significant changes in the spinal fluid will not be noted for at least two years following the fever course. In the interim it would seem advisable to continue with treatment and in the case under discussion tryparsamide and a bismuth compound or arsphenamine and a bismuth compound

should be given approximately at the rate of two courses a year for the two ensuing years, at least. This implies, of course, that the term "spinal fluid Wassermann fast" should not be adopted because, although experience with spinal fluids is not great enough as yet to attach concrete significance to such a finding, it would appear that several years of observation after intensive treatment has been stopped should be employed before endeavoring to make any deductions as to the significance of this type of spinal fluid.

DERMATITIS FROM CARBON DISULFIDE

To the Editor:—Will you kindly state whether or not it is possible to develop a skin lesion when one has been mildly poisoned by the fumes of carbon disulfide? If this should be possible, what kind of a lesion would develop? I have a patient who says that he became quite ill while handling the chemical and developed patches on the arms and body which were about the size of a silver dollar and are of a brownish color and slightly scaly. Could this chemical produce such a lesion?

H. W. JONES, M.D., Bakersfield, Calif.

ANSWER.—Carbon disulfide (CS_2) usually causes dermatitis at the point of contact. The lesions usually are characterized by erythema, vesicles and degenerative changes in the local peripheral nerves resulting in impaired sensation. Carbon disulfide is a vesicating agent acting chiefly as a fat solvent. Prolonged contact with the skin will cause manifestations characteristic of second and third degree chemical burns. Exposure of the skin to dilute solutions or vapors may cause a drying of the skin as a result of the solvent action on the fats and the cooling effects of evaporation. These lesions may affect whatever parts come in contact with the vapors or fumes. As the lesions heal there may be a residual pigmentation.

Splashes of the chemical on the clothes of the patient may have caused lesions which after healing may have resulted in such patches as those described. If the patches were not the result of healed eczematous lesions, it can be said that they were not caused by carbon disulfide. Pityriasis rosea, fixed drug eruptions such as may be caused by phenolphthalein, patches of parapsoriasis and other similar cutaneous conditions must be considered.

UNDESCENDED TESTIS

To the Editor:—A boy aged 5 years has one testis in the scrotum and the other still in the inguinal canal, though it can be brought down with mild traction. The testis that is in the inguinal canal is considerably smaller than the one that has descended. Would treatment with anterior pituitary-like substance be indicated?

M.D., Illinois.

ANSWER.—The probabilities are that if the testis can be brought down into the scrotum by mild traction it will descend before or at puberty. The whole question involved is therefore whether or not it would be better to have the testis constantly in the scrotum at an earlier period than it would be by "watchful waiting." From experimental evidence it would appear that, the earlier the testes are brought into the scrotum after birth, the more normal they are likely to be. Therefore it would perhaps be best to give this particular boy a short period of treatment using 200 to 300 rat units of gonadotropic substance four times a week for a period of from five to six weeks. If there is any indication of an increase in the size of the external genitalia, the treatment should be discontinued as soon as this is recognized.

HEAT PROSTRATION AND SINUSITIS

To the Editor:—Are there any reports of sinusitis (especially maxillary) following heat prostration? If there are please give me some information on the cases and if possible some literature to read on the subject.

E. H. COACHMAN, M.D., Muskogee, Okla.

ANSWER.—A search of the literature for the past ten years and standard textbooks on rhinology fails to reveal any information on sinusitis following heat prostration.

ANTITYPHOID VACCINE

To the Editor:—Some time ago I noticed that the army had discontinued using paratyphoid A and B for vaccine, using simply Bacillus typhosus. Is this a generally accepted plan? I note that the majority of the biologic companies are still using the old formula which contains paratyphoid A and B.

W. S. CRAWFORD, M.D., Tulsa, Okla.

ANSWER.—The antityphoid vaccine now used by the army is being used more and more widely, but vaccine made according to the old formula is used also. All antityphoid vaccines on the market are tested for antigenic values and are approved by the U. S. Public Health Service.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, May 13, page 1991.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Medical centers having five or more candidates desiring to take the examination, June 19-21 and Sept. 11-13. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. *Written.* Various places throughout the United States, Sept. 9. Applications must be filed by July 11. *Oral.* Part II. Philadelphia, Oct. 14-15. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Philadelphia, Oct. 30-Nov. 1. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various sections of the United States, Oct. 16 and Feb. 19. Formal application must be received before Aug. 20 for the Oct. examination and on or before Jan. 1 for the Feb. examination. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various cities of the United States, Puerto Rico and Canada and in Honolulu, Aug. 5. *Application must be received before July 1. General Oral.* Chicago, Oct. 7. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Boston, January. Sec. Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 6-7. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: *Cincinnati, Nov. 15.* Appointments must be made before July 15. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF UROLOGY: White Sulphur Springs, W. Va., May 26-28. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Alabama January Examination

Dr. J. N. Baker, secretary, Alabama State Board of Medical Examiners, reports the written examination held at *Montgomery*, Jan. 3-5, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. The following school was represented:

School	PASSED	Year Grad.	Per Cent
Tulane University of Louisiana School of Medicine		(1938)	85.2

Nevada Reciprocity and Endorsement Report

Dr. John E. Worden, secretary, Nevada State Board of Medical Examiners, reports three physicians licensed by reciprocity and one physician licensed by endorsement after an oral examination held at Carson City, Feb. 6, 1939. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of California Medical School		(1927)	California
State University of Iowa College of Medicine		(1926)	Minnesota
Jefferson Medical College of Philadelphia		(1920)	California

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Stanford University School of Medicine		(1938)	N. B. M. Ex.

Hawaii January Examination

Dr. James A. Morgan, secretary, Board of Medical Examiners, Territory of Hawaii, reports the oral and written examination held at Honolulu, Jan. 9-12, 1939. The examination covered ten subjects and included eighty questions. An average of 75 per cent was required to pass. Four candidates were examined, three of whom passed and one failed. Four physicians were licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of California Medical School		(1934)	83.1
University of Colorado School of Medicine		(1931)	82.4
Washington University School of Medicine		(1937)	80.8

School	FAILED	Year Grad.	Per Cent
Nippon Ika Daigaku, Tokyo		(1937)	59

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Medicine		(1931),	(1935) N. B. M. Ex.
Northwestern University Medical School		(1937)	N. B. M. Ex.
Johns Hopkins University School of Medicine		(1935)	N. B. M. Ex.

Book Notices

Scarlet Fever. By George F. Dick, M.D., D.Sc., Professor of Medicine, University of Chicago, and Gladys Henry Dick, M.D., D.Sc. Cloth. Price, $2. Pp. 149, with 8 plates. Chicago, Illinois: Year Book Publishers, Inc., 1938.

Containing a concise account of the application of the investigations of the authors to the prevention and treatment of scarlet fever, this book summarizes their articles on these matters during the past twenty years or more. The demonstration by human experiments on the part of the authors that scarlet fever may be caused by hemolytic streptococci was followed by the discovery of a specific streptococcic scarlet fever toxin, which in turn led to the Dick test for susceptibility to scarlet fever, to successful active immunization against scarlet fever and to the use in treatment of a specific antitoxin. The book describes the practical use of these measures and the results obtainable. The preparation of the scarlet fever toxin and the technic of testing its potency are described in detail. The book is a landmark in the history of scarlet fever.

Pyrétothérapie. Par Charles Richet, professeur agrégé à la Faculté de médecine de Paris, Jean Surmont, médecin électro-radiologiste des hôpitaux de Paris, et Pierre Le Gô, électro-radiologiste des Asiles de la Seine. Paper. Price, 50 francs. Pp. 195, with 28 illustrations. Paris: Masson & Cie, 1938.

This is the first monograph on pyretotherapy, or artificial fever, to appear in French. The authors divide their thesis into five main chapters entitled biologic principles, technic, clinical results, pathogenesis of pyretotherapy and conclusions. They conclude that there is a direct relationship between body temperature and inhibition of the growth of certain microorganisms, especially the gonococcus and Spirochaeta pallida. This bactericidal action of heat can be demonstrated in vitro and in vivo, though it is more pronounced in vivo. They state that this may be due to the well known acceleration of most chemical reactions under the stimulating influence of heat. They further conclude that the source of the fever makes little difference, that the micro-organisms are destroyed in vivo at temperatures compatible with life and that fever modifies human physiologic reactions to a profound degree.

The second and longest chapter of the book discusses the production of fever. Inoculation with malaria and the production of relapsing fever and of sodoku, or rat bite fever, are described, with their advantages and disadvantages. In the section on the use of suspensions of killed micro-organisms, the action of dmelcos vaccine, consisting of an emulsion of the Ducrey bacillus, which is more widely used in France than in the United States, is described in detail. The authors conclude that this vaccine presents the advantages of a quick rise of the febrile curve and the possibility of predetermining the amount of fever, since the dose is proportional to the amount of the vaccine injected. They are less pleased with typhoid, gonococcus, paracoli and yeast emulsions as well as bacterial proteins, such as tuberculin. Chemicals for producing fever are also mentioned, such as milk, sodium nucleinate, nucleoprotein, turpentine and benzine. The authors conclude that colloidal solutions of silver and suspensions of sulfur in oil are the only chemicals that are really practical. The rest of the chapter is devoted to a thorough discussion of the physical methods of elevating the temperature. An error is the statement that it is difficult to raise the temperature of the human body above 40 C. (104 F.) by means of damped diathermy waves. The discussion on external heating contains a brief description of the various wavelengths and their frequency, clarified by a useful chart. The section dealing with the machines used for producing short radio waves is comprehensive and clear. Naturally French machines occupy the foreground, but this is to be expected in a book intended for French physicians. A new pyrometer constructed by Le Gô seems to be better than the instruments in common use in the United States. Accidents such as burns, heat stroke and involvement of the cardiovascular system are dealt with in detail. The authors distinguish between the effect of active and of passive pyretotherapy. The former is produced by the body itself as a result of inoculations or injections and the latter by transferring energy into the body. They liken active pyretotherapy to shock. Finally the contraindications of treatment are ably discussed in detail.

The third chapter, dealing with the clinical results of pyretotherapy, is clear and comprehensive and illustrated with frequent case reports. The results achieved in the treatment of gonorrhea and all its complications, primary and secondary syphilis, syphilitic optic atrophy, tabes, cerebrospinal syphilis and dementia paralytica are discussed in detail. The authors then describe the treatment of chorea minor, encephalitis, Parkinson's syndrome, multiple sclerosis, poliomyelitis, psychoses and other psychiatric conditions, cardiovascular diseases, gout, arthritis, articular rheumatism, neuritis, asthma, soft chancre, diseases of the ears, nose and throat, staphylococcic infections, tuberculosis, ocular diseases, renal diseases, undulant fever, meningococcic meningitis, diseases of the lungs, dermatoses, obesity, carcinoma and mycosis fungoides. It is a great credit to the book that this widely divergent material dealing with therapeutic results is carefully analyzed and classified. The point of view is always conservative and no overstatement is made. Whenever the clinical results are doubtful or valueless the authors state this fact frankly and openly.

The two short final chapters contain the authors' theories on the reasons for the benign action of fever, either active or passive, on diseases as well as their own conclusions about the application of this therapy. Finally there is a bibliography of less than 150 references, which is not nearly complete, since the world literature on artificial fever alone now comprises more than 500 contributions. There is no index.

In spite of the minor defects mentioned the book is an excellent contribution to pyretotherapy. It fills a real need as a volume for reference, from which the physician can learn the technic of fever production as practiced in the United States and abroad.

Textbook of Neuro-Anatomy and the Sense Organs. By O. Larsell, Ph.D., Professor of Anatomy, University of Oregon Medical School, Portland. Cloth. Price, $6. Pp. 343, with 232 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1939.

Olof Larsell has presented a well organized, orthodox discussion of the structure, both gross and microscopic, of the central, peripheral somatic and sympathetic nervous systems. Sufficient physiologic and clinical data have been appended to enhance the student's interest in the subject and to indicate the more important correlations between structure and function. Although the "book has been written primarily for the first year medical student" and is accordingly not encyclopedic, it will prove of value and interest to many more advanced students. This is particularly true of the chapter dealing with the cerebellum and pons, a subject to which the author has been a noteworthy contributor. The discussion of the various end organs, cutaneous, tendinous and muscular, as well as the organs subserving specialized sensations, such as the taste buds, the olfactory epithelium, the retina, the vestibular apparatus and the cochlea, is a valuable addition to the discussion of the nervous system.

Unfortunately the text is neither always clear nor easily read; there are not a few errors which it is hoped will be corrected in future editions. On page 259 in the second paragraph from the bottom the statement of fact is literally correct but the meaning implied is false. One would conclude that, whereas Poljak and Brouwer found no optic fibers from the pulvinar to the calcarine cortex, Walker and Le Gros Clark did. This is not correct. The fibers found by Walker and Le Gros Clark were not to the calcarine cortex (area 17) but to other parts of the occipital lobe and were not regarded as optic fibers. The statement on page 97 that "special visceral efferent fibers arise from the motor VII nucleus and pass through the motor branches of the VII nerve to the mimetic muscles, derived from the musculature of the hyoid arch" is hardly designed to inform first year medical students that the seventh cranial nerve innervates the muscles of the face. The discussions, principally on pages 76 to 81, relative to the pathways subserving the sensations of touch and of pain are confused and even contradictory. On page 78 one finds the implication that the ventral spinothalamic tract alone carries the sensations of touch and pressure in the statement that destruction of that pathway abolishes the perception of such stimuli. There are other pathways for touch and pressure sensibilities in the posterior and lateral columns accord-

ing to page 80 and in the posterior and ventral columns according to page 90, and the further contradictory statement that the posterior columns have to do only with joint and position sense and with two point discrimination appears on page 79. On page 80 is found the erroneous statement that the destruction of the anterior white commissure of the spinal cord results "in loss of pain and temperature sensation on the opposite side of the body below the level of the lesion." The omission of the important spinothalamic tract from figures 90, 92 and 94, as well as others, is noteworthy. In the discussion of the afferent components of the glossopharyngeal nerve (page 95) all mention of the fibers of the carotid sinus nerve and of the tympanic nerve has been omitted, and the statement that the general somatic afferent fibers of this nerve are "distributed to the skin of the back of the ear and mastoid region" is at least open to question. In the legend to figure 19 the letters b and l have surely been interchanged. The statement on page 81 that the spinotectal tract is "apparently a correlation pathway" is meaningless and needs clarification. In spite of evidence (Stern) that the rubrospinal tract is little more than vestigial in man, this tract is illustrated and discussed as though it occupied a position of size and importance in man comparable to that in lower mammals.

The numerous illustrations, which are both original and selected from the literature, are well chosen and beautifully reproduced. The salient features of the descending and ascending tracts of the spinal cord are listed in table I and the principal visceral efferent or autonomic pathways in table II, which will prove most useful to the prospective student. The type has been well chosen. There is a brief bibliography appended to each chapter and a satisfactory index.

Experimentelle Untersuchungen über Farbengleichungen im zentralen und parazentralen Sehen. Von G. F. Olsson. Inauguraldissertation. Medizinische Fakultät zu Uppsala. Paper. Pp. 153, with 11 illustrations. Upsala, 1938.

This study of color equations was submitted as an inaugural dissertation. Because of its highly technical nature and limited scope it takes on the aspect of a thesis which in America might be submitted for a degree of doctor of philosophy. There is a frank and complete discussion, introductory to the problem, concerning previous investigations in this and kindred fields. The present work was accomplished with the aid of Gullstrand's color mixing apparatus, and the author used his own practically emmetropic eyes for all his investigations. He reaffirmed that the curves for complementary colors for central and paracentral vision diverge from one another and cross in the blue-yellow sector. In a consideration of color equations and their influence by the yellow macular substance Olsson concludes that, as far as the study of central and paracentral vision is concerned, such a theory is untenable. The pamphlet includes a picture and interpolation table for the Gullstrand color mixing apparatus, protocols of the experiments and a fairly complete bibliography.

Midwifery. By Ten Teachers. Under the direction of Clifford White, M.D., B.S., F.R.C.P. Edited by Sir Comyns Berkeley, Clifford White and Frank Cook. Sixth edition. Cloth. Price, $6. Pp. 676, with 262 illustrations. Baltimore: William Wood & Company, 1938.

In the preparation of this edition the aid of a number of new obstetricians was enlisted to replace the teachers who resigned. Some new material has been added and many of the old illustrations have been replaced with more instructive ones. In the discussion of the toxemias of pregnancy there is a peculiar division under the headings vomiting of pregnancy, the toxemias of pregnancy, albuminuria of pregnancy, preeclampsia and eclampsia, and icterus gravis gravidarum and toxic hyperemesis. The subject of chronic nephritis is included in the chapter on albuminuria. In the treatment of septic abortion the authors advocate removal of the contents of the uterus by means of the finger. However, this procedure may be just as dangerous as the use of a curet, against which the authors warn. In the discussion of pelves there is no mention of the recent important contributions made by Thoms and by Caldwell, Moloy and D'Esopo. The authors believe that paraldehyde is probably the best analgesic and that chloroform is the anesthetic of choice during labor. Mention is omitted of local infiltration anesthesia, although a paragraph is devoted to spinal anesthesia in spite of the fact that this form of anesthesia is particularly dangerous for pregnant women. This is the first edition in which illustrations of the low cervical cesarean section appear. The book is well written and in a uniform style notwithstanding that ten men collaborated in its preparation. The great wealth of material should permit it to retain its leadership among English textbooks on obstetrics.

Atlas de phonocardiographie clinique. Par A. Calô, assistant étranger à la Faculté de médecine de Paris. Préface du Professeur A. Clerc. Paper. Price, 60 francs. Pp. 104, with 150 illustrations. Paris: Masson & Cie, 1938.

Modern medicine is in search of precision instruments capable not only of rendering dependable service in the routine examination but also of opening new avenues of approach to unexplored regions of physiology and pathology. The importance of the analysis of heart sounds in the diagnosis of various cardiopathies induced Einthoven, Weiss, Wiggers and many others to construct ingenious sound recording apparatus, which however remained confined to a few laboratories on account of their imperfections, cost, bulk and fragility. Only in recent years, especially since the advent of radio, has the progress in this field been great, and heart sound recording devices can now be used not only for the study of the genesis and mechanism of normal sounds but also for the diagnosis of murmurs and pathologic rhythms. After a brief description of the apparatus the author devotes some space to a discussion of the graphic characteristics of normal and pathologic sounds, offers their classification, points out the advantages and limitations of the method and submits reproductions of thirty-seven phonocardiograms. In each instance the sound record is accompanied by an electrocardiogram, sphygmogram and orthodiagram, thus facilitating the interpretation of the observations. It is interesting that the phonocardiogram is able to detect certain acoustic phenomena not perceptible with the unaided ear, e. g., auricular murmurs in the course of an auriculoventricular dissociation and certain incipient forms of the gallop rhythm.

Bacteriology for Medical Students and Practitioners. By A. D. Gardner, D.M., F.R.C.S., Professor in Bacteriology, University of Oxford, Oxford. Second edition. Cloth. Price, $2.25. Pp. 274, with 32 illustrations. New York & London: Oxford University Press, 1938.

This pocket size book is well written and is in accordance with current thought in the field of bacteriology. A systematic and rational nomenclature has been followed which arranges the various kinds of bacteria in as many broad groups of genera as there are clear and constant group differences. In place of the indefinite names, such as Bacillus welchii and Bacillus melitensis, the author uses Clostridium welchii, Brucella melitensis, Pasteurella pestis and so on, names which differentiate and place each of the species in a definite group. Numerous tables separate species of like organisms. Particular attention is given to the practical interpretation of laboratory tests. The author feels that a knowledge of the contents of his book, supplemented by practical work and lectures, will sufficiently equip a student for the bacteriologic aspect of medical practice, although wider reading is advocated, especially on parts of the subject the student finds most interesting. This practical little book can be heartily recommended for the physician and as a help to the medical student in his course in bacteriology.

The Physiology of Anesthesia. By Henry K. Beecher, A.B., A.M., M.D., Instructor in Anesthesia, the Harvard Medical School, Boston. Cloth. Price, $3.75. Pp. 388. New York, Toronto & London: Oxford University Press, 1938.

At last a physiologist has reviewed the literature concerning the physiology of anesthesia and has presented a splendid bibliography, arranging the available data on the basis of both general and local anesthesia and also according to the various systems such as the respiratory and circulatory systems and according to the effect of anesthetic agents on each of the vital organs. It was the author's hope that this book might be used in medical teaching and reference work and more particularly that it should stimulate research. It should do each of these things and without doubt will speed the already rapid development of the specialty of anesthesia.

Refraction of the Human Eye and Methods of Estimating the Refraction Including a Section on the Fitting of Spectacles and Eye-Glasses. By James Thorington, A.M., M.D., F.A.C.S. Revised and edited by J. Monroe Thorington, B.S., A.M., M.D., Associate Ophthalmologist, Presbyterian Hospital, Philadelphia. Third edition. Cloth. Price, $3.50. Pp. 412, with 283 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1939.

The third edition of this useful little volume, in which a new format appears, extends Thorington's contributions to the subject over a period of forty years. As in the previous editions, important contributions are the simplicity and lucidness with which the subject is treated and the freedom from advanced mathematical formulas, which only confuse the beginner. Sections on the muscular insufficiencies and orthoptic training have been added, and, while these are not extensive, they give the important facts. A few typographical errors occur, such as the spelling of color on page 31 and the notation on page 118 that vision of the 60 line at 6 meters is recorded 4/60. This edition is accepted as one of the notable works in the introduction to refraction of the eye.

Die Gesetze des normalen Träumens. Von Dozent K. Leonhard, Oberharzt der Nervenklinik Frankfurt a. M. Boards. Price, 5.40 marks. Pp. 124. Leipzig: Georg Thieme, 1939.

In the author's introduction he states that the literature concerning dreams contains little except psychoanalytic concepts with their fantastic dream symbols, and that in Germany they now know that it was the racially foreign psyche that was responsible for the one-sided relating of dreams and sexuality. After this characteristic beginning he proceeds to describe dreams and states of sleep in a most superficial manner, completely ignoring the literature. He gives no clue to any scientific knowledge. The wishful basis of dreams he refutes with the ancient, many times considered, argument that anxiety dreams cannot express a wish. The author proudly concludes that the dream mirrors the varying need for rest of the nervous system; the contents have no significance. The book is not worth reading.

Vital Energetics: A Study in Comparative Basal Metabolism. By Francis G. Benedict, Director, Nutrition Laboratory, Carnegie Institution. Carnegie Institution of Washington Publication No. 503. Paper. Pp. 215, with 46 illustrations. Washington, D. C.: Carnegie Institution of Washington, 1938.

This is a comparative survey embracing basal metabolism measurements of all adult animal species studied at the Nutrition Laboratory. Considerable space is devoted to a painstaking consideration of the conditions necessary for comparative measurements of heat production, both intraspecific and interspecific, with analyses of the difficulties involved and the criteria employed. Data are presented for the various warm-blooded species on the basis of twenty-four hour heat production with reference to body weight. Then interspecific comparisons are made, expressed in terms of total heat production per kilogram of body weight and per square meter of surface area. The accompanying charts are plotted arithmetically. The warm-blooded animals considered range from the 8 Gm. mouse to the 4,000 Kg. elephant. Comparisons are made also between warm-blooded and cold-blooded animals at low cell temperatures and at 37 C. It is notable that among animals of different species but in the same weight group great differences in total heat production, as well as in metabolism expressed per kilogram and per square meter, obtain; for these discrepancies there is as yet no answer. Much emphasis is placed on the questionable validity of the surface area concept and considerable evidence is presented to indicate (p. 121) "how futile is the attempt to ascribe a constant value to the heat production of different animal species expressed per unit of surface area." Moreover, throughout the discussion the necessity is stressed of recognizing heat production rather than heat loss as the fundamental biologic activity involved in metabolic measurements. Finally, the factors which may be involved in the metabolic differences in and between species are considered and, in essence, best future progress is predicated on attempts to correlate differences in metabolic intensity with differences in bodily configuration and with differences in the composition, chemistry and distribution of the blood. A "unifying principle," if there is one which would serve as a common denominator for all animal species, is as yet an elusive quantity, and the key to the wide differences in the level and intensity of "vital energetics" is still not at hand. Indeed, one prime purpose of this monograph is to turn attention from the simple concept of heat loss as a unifying principle—which the author regards as fallacious—to the more subtle and profound differences between individuals and species, in which ultimately such a unifying principle may be discovered.

You Can Sleep Well: The A B C's of Restful Sleep for the Average Person. By Edmund Jacobson, M.D. Cloth. Price, $2. Pp. 269, with 40 illustrations. New York & London: Whittlesey House, McGraw-Hill Book Company, Inc., 1938.

The theory of sleep induced by relaxation is expounded by the author through the conversations of a mythical doctor and patient. The book is intended for laymen, although it is ironically stated in the preface that scientists and physicians may learn from it also. It is exceedingly difficult to review a work for popular consumption, especially one as breezily written as this, which skips lightly over controversial matters, conflicting evidence and other theories and which dogmatizes the author's own views. The lay reader is compelled to follow Jacobson's implied attitude of take it or leave it.

Del carcinoma primitivo broncopulmonar. Por Niceto S. Lôizaga, docente libre de Clinica de enfermedades infecciosas de la Facultad de ciencias médicas de Buenos Aires. Paper. Pp. 221, with illustrations. Buenos Aires: Librería y Editorial "El Ateneo," 1938.

This monograph is based on an extensive review of the literature and on a study of forty-six cases observed at the Hospital Muniz during the last ten years. The full histories are given of twenty-one patients studied completely in all respects, clinically as well as anatomically. The structure of primary cancer of the lung is well illustrated by photographs. The bibliography covers some twenty pages. The book is a significant addition to the growing literature on cancer of the lung.

The Scientist in Action: A Scientific Study of His Methods. By William H. George, M.Sc., Ph.D., F.Inst.P., Honorary Lecturer in Physics, University of Sheffield, Sheffield, England. Cloth. Price, $3. Pp. 354, with 31 illustrations. New York: Emerson Books, Inc., 1938.

The choice of both British and American scientific clubs, this book deals with scientific research as a form of human action. The producers as well as the products of scientific research are examined and described. "The scientist himself becomes a part, not only of his apparatus, but of his results also. To talk about science without talking about the scientist is rapidly becoming meaningless. The research worker, as a pure-reason machine, is abandoned for the idea of a biological unit reaching to, and acting upon, an everchanging environment." The first part, on the scientific outlook, discusses qualities of scientific research (action, facts, the arrangement of facts, newness), description versus absolute truth, change and the uniformity of nature, the should-ought mechanism and assessment of value; the second part, getting scientific facts, the eyewitness's observation, scientific observation, pattern, the question whether facts are first seen in isolation, selection and abstraction; the third part, arranging scientific facts in chapters on order, laws and classification, pattern in action, the scientific theory, problems of theorizing, some factors in experimental technic and the future of experimental research. The fourth part, or conclusion, contains a personal explanation because of the stress laid on the "biologic factors" in research and a summary of the trends and conclusions of the discussion. The book is of extreme interest to those who are concerned with the methods and meaning of science. In a vigorous style it gives a clarifying and stimulating treatment of the scientist in action in research.

Biology for Pharmaceutical Students and Others. By S. Mangham, M.A., Professor of Botany, University College, Southampton, England, and A. R. Hockley, B.Sc., Lecturer in Zoology, University College, Southampton. Cloth. Price, $6.50. Pp. 613, with 299 illustrations. Baltimore: William Wood & Company, 1938.

Written primarily for students of pharmacy, this book is well suited to any one desiring a succinct account of the basic structural features and functions of plants and animals. It deals also with development, endocrine organs, vitamins, mendelism, heredity and evolution. The structure of flowering plants is fully presented. The book is amply illustrated with adequately

labeled diagrammatic figures, largely original and very well done. In its completeness, wide scope and abundance of illustrations this textbook of biology (in the sense of a combination of botany and zoology) is of unusual excellence.

Comparative Anatomy and Physio-Pathology of the Autonomic Hypothalmic Centres. By Dr A. A Boon. Acta Psychiatrica et Neurologica Supplementum XVIII. Paper Pp 129, with 22 Illustrations Copenhagen. Einar Munksgaard, Haarlem De Erven F. Bohn, 1938.

In this volume the author summarizes the literature on his topic and confirms certain anatomic observations already well established. The book is of some value for quick reference to the literature but adds nothing of significance.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Compensability of Recurrence of Hernia Following Operative Repair.—In May 1932, the claimant sustained a "double hernia," which apparently was successfully corrected by an operation. He began his employment with the defendant company in August 1933. On May 21, 1934, as the result of strain in lifting a large piece of coal in the course of his employment in one of the defendant's mines, he sustained a bilateral inguinal hernia and a right femoral hernia. On June 11 an operation for the correction of these hernias was performed by a physician employed by the defendant company. The incisions "healed firmly" without any infection. On July 2, the claimant was discharged from the hospital where the operation had been performed and reported that he was able to return to work on August 6. In accordance with an agreement for compensation, the claimant was paid compensation up to August 6.

Subsequently, while outside of his employment, he felt a little pain following a forceful sneeze and thereafter another left inguinal hernia developed The claimant then applied to the workmen's compensation board for reinstatement of the agreement for compensation on the ground that his disability had recurred. It was conceded that the sneeze was the immediate cause of the hernia. However, the claimant contended that he had sustained a recurrence of his hernia due to a weakened condition of his left abdominal wall following the operation. The defendant, on the other hand, contended that the claimant had fully recovered from the operation, that his abdominal wall had not been left in a weakened condition and that the claimant had not sustained a recurrence of his hernia but had sustained a new injury due to the sneeze which occurred outside of his employment, for which injury the defendant was in no way responsible. The board found that the claimant had "sustained a recurrence of the hernia on account of a physical weakness as a result of his previous hernial operation and due to the sneeze," fixed August 16 as the date of its recurrence and reinstated the compensation agreement. From a judgment of the court of common pleas, Allegheny County, affirming the award of the board, the employer appealed to the superior court of Pennsylvania.

The burden, said the superior court, rested on the claimant to prove that his hernia most probably would not have developed if his abdominal wall had not been in a weakened condition as a result of the operation. To support his claim for compensation, the claimant relied on the testimony of a physician who examined him following the alleged recurrence. This medical witness testified that based on his examination he was of the opinion that the claimant had sustained a recurrence of his hernia. After a herniotomy, he testified, there is a period of from eight to fourteen weeks, depending on the individual case, during which there is a definite weakness in the abdominal wall, which weakness is not a fault of the operative work but is due to the fact that the tissues are still "knitting." During this period a cough, sneeze or a lifting might produce a recurrence of a hernia. He frankly admitted that he could not state definitely whether the "healing process" had been completed in this case or whether the hernia was a new injury due to the sneeze or was attributable to a weakened condition of the abdominal wall. On the other hand, the company physician testified that a sneeze or anything that would increase the intra-abdominal pressure might produce a hernia even in an individual who had never had a herna and that in his opinion the claimant did not have a weakened condition of his abdominal wall as a result of the operation and that the sneeze was a productive factor in the causation of the herna

Although, said the court, the testimony on behalf of the claimant was not as positive as might be desired, it could not be said that the finding of the board was unsupported by competent evidence. Furthermore, the board was at liberty in arriving at its conclusion, to take into consideration the entire course of events following the claimant's discharge from the hospital. In the judgment of the court there was justification for reinstating the agreement for compensation How ever, the court was of the opinion that the date of recurrence as fixed by the board, Aug. 16, 1934, was not supported by the evidence. The evidence merely showed that the herna was not in existence on Sept. 27, 1934, but that it had developed prior to Dec. 1, 1934. The court concluded that there was no justification for reinstating the agreement as of any date prior to Sept. 27, 1934.

Accordingly, the court ordered that the judgment be modified and as modified affirmed.—*Roberts v. Hillman Coal & Coke Co. (Pa.), 200 A. 128.*

Society Proceedings

COMING MEETINGS

American Association for the Study of Goiter, Cincinnati, May 22-24 Dr W. Blair Mosser, 133 Biddle St, Kane, Pa, Secretary

American Association for Thoracic Surgery, Los Angeles, July 5-7 Dr Richard H. Meade Jr, 2116 Pine St, Philadelphia, Secretary

American Association of Genito Urinary Surgeons, Williamsburg, Va May 24-26. Dr. Charles C. Higgins, 2050 East 93d St, Cleveland Secretary.

American Association of Industrial Physicians and Surgeons, Cleveland, June 5-8 Dr. V. S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Bronchoscopic Society, Rye, N. Y., May 26 Dr. Lyman [illegible] 319 Longwood Ave, Boston, Secretary

[illegible] Association, Montebello, Canada, May 31-June 1 University of Pennsylvania Medical Laboratory.

American Gynecological Society, White Sulphur Springs, W. Va, May 22-24 Dr. Richard W. TeLinde, 11 East Chase St, Baltimore Secretary.

American Laryngological Association, Rye, N. Y., May 24-26 Dr James A Babbitt, 1912 Spruce St, Philadelphia, Secretary.

American Neurological Association, Atlantic City, N. J, June 5-7 Dr Henry A. Riley, 117 East 72d St, New York, Secretary.

American Ophthalmological Society, Hot Springs, Va, June 5-7 Dr Eugene M. Blake, 303 Whitney Ave, New Haven, Conn, Secretary

American Orthopedic Association, Buffalo, N. Y., June 5-8 Dr Ralph K. Ghormley, 110 Second Ave. S W., Rochester, Minn, Secretary

American Otological Society, New York, May 22-23 Dr. Thomas J Harris, 104 East 40th St, New York, Secretary.

American Proctologic Society, Brooklyn, N. Y., June 25-27. Dr Curtice Rosser, 710 Medical Arts Bldg, Dallas, Texas, Secretary

American Urological Association, White Sulphur Springs, W Va, May 29-June 1. Dr. Clyde L. Deming, 789 Howard Ave, New Haven Conn., Secretary.

Connecticut State Medical Society, New Haven, May 25-26 Dr Creighton Barker, 258 Church St, New Haven, Secretary

Maine Medical [illegible] Springs, June 25-27. Dr F R. Carter, 22 Ars [illegible] ary.

Massachusetts M [illegible] June 6-8. Dr. Alexander S Begg, 8 Fenway, Boston, Secretary.

Medical Library Association, Newark, N. J., June 27-29. Miss Janet Doe, 2 East 103d St, New York, Secretary.

Minnesota State Medical Association, Minneapolis, May 31-June 2 Dr B. B. Souster, 11 West Summit Ave, St Paul, Secretary.

Montana, Medical Association of, Butte, June 28-30. Dr. Thomas L. Hawkins, 50 North Main St., Helena, Secretary.

National Gastroenterological Association, New York, June 1-2 Dr G. Randolph Manning, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, Boston, June 26-29. Dr. Charles J Hatfield, 50 West 50th Street, New York, Secretary.

New Hampshire Medical Society, Manchester, June 8-9. Dr Carleton B Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 6-8. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

Pacific Coast Oto Ophthalmological Society, San Francisco, June 19-22. Dr. C. Allen Dickey, 450 Sutter St, San Francisco, Secretary

Pacific Northwest Medical Association, Spokane, Wash, June 26-29 Dr C. W. Countryman, 407 Riverside Avenue, Spokane, Wash, Secretary

Rhode Island Medical Society, Providence, June 7-8 Dr. Guy W. Wells 124 Waterman St., Providence, Secretary

Society of Surgeons of New Jersey, Elizabeth, May 25. Dr. Walter B. Mount, 21 Plymouth St, Montclair, Secretary.

Vancouver Medical Association Summer School, Vancouver, B C, June 6-9. Dr. W. W. Simpson, 203 Medical Dental Bldg, Vancouver, B C. Secretary.

West Virginia State Medical Association, White Sulphur Springs, July 10-12. Mr. Joe W. Savage, Public Library Bldg, Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

23: 143-276 (March) 1939

Choice of Bismuth Preparation. Clinical Resume of Excretion and Retention Studies. H. N. Cole, T. Sollmann and Katharine Henderson, in collaboration with G. W. Binkley, H. Connors, G. Cooper, W. R. Lover, H. Reichle, W. F. Schwartz, D. Seecof and M. Sullivan, Cleveland.—p. 143.

*Treponemicidal Activity of Arsphenamine and Neoarsphenamine in Vitro, with Special Reference to Citrated Blood and Suggested Method for Prevention of Transfusion Syphilis. Clara C. Kast, C. W. Peterson and J. A. Kolmer, Philadelphia.—p. 150.

*Acquired Syphilis in Children. Epidemiologic and Clinical Study. F. R. Smith Jr., Baltimore.—p. 165.

Id. Case Reports on Four Sisters. A. G. Schoch and W. E. Long, Dallas, Texas.—p. 186.

Acetarsone Orally in Treatment of Acquired Syphilis in Adults. H. M. Robinson and H. M. Robinson Jr., Baltimore.—p. 188.

Treatment of Acute Anterior Urethritis with Silver Picrate. F. Knight and H. A. Shelanski, Philadelphia.—p. 201.

Gonococcic Endocarditis. Report of Case with Autopsy. W. M. Brunet, Chicago.—p. 207.

Sobisminol (Sodium Bismuthate Soluble) in Treatment of Experimental Rabbit Syphilis. C. Shaw, J. E. Kemp and Elsie Mae Fitzgerald, Chicago.—p. 210.

Acquired Syphilitic Interstitial Keratitis. Report of Two Cases. H. Pariser, Philadelphia.—p. 214.

Observations on Incidence of Latent Paroxysmal Hemoglobinuria as Evidenced by the Donath-Landsteiner Phenomenon. L. V. Dill, with technical assistance of Ida Douvros and C. E. Isenhour, Durham, N. C.—p. 220.

Erythema of the Ninth Day Syndrome Associated with Bismuth Therapy. L. Goldman and G. E. Clarke, Cincinnati.—p. 224.

Acute Fatal Liver Necrosis Following Tryparsamide Administration: Report of Two Cases. H. L. Traenkle and F. A. Dolce, Buffalo.—p. 228.

Gumma of the Brain. B. J. Alpers, Philadelphia.—p. 233.

Spirocheticidal Activity of Arsphenamine.—Because of the high spirocheticidal activity of arsphenamine (disodium) and neoarsphenamine, Kast and her co-workers advise that as a means for the prevention of transfusion syphilis either compound be added to citrated human blood in a final dilution of 1:10,000 whenever syphilis of the donor is suspected or known to be present. Ill or toxic effects have not been observed in eight patients.

Acquired Syphilis in Children.—Smith describes some of the clinical and epidemiologic features of acquired syphilis in 125 children 10 years of age or less. They are authenticated cases that the author collected from the larger pediatric clinics of the eastern and southern United States. In the Johns Hopkins Hospital only forty-five cases of early acquired syphilis in children less than 11 years of age were observed in seventeen years (1920-1937), during which time there were ninety cases among children from 11 to 15 years of age and 4,487 cases among adults. The disease was acquired through attempted sexual intercourse by forty-three, through kissing by fifteen, through a household contact by fourteen and through blood transfusion by nine, on forty-four acquisitions there are no data. There were approximately twice the number of females affected as males. This difference became more marked with advancing age. In most instances of infection by illicit sexual intercourse a female child was infected by an adult male. Also the risk of infection from casual household contact seems to be greater for female than for male children. Most of the patients were from families belonging to the lower economic groups whose hygienic habits were poor and in whose homes overcrowding was prevalent. The clinical characteristics of acquired syphilis in children do not differ materially from those of acquired syphilis in adults. Treatment produced satisfactory clinical and serologic results. The risk of acquiring syphilis by the ordinary contacts between individuals living or working in the same house seems to be small, but when the contact is intimate as in the case of young children with their mother or nurse the risk is sufficient to have a practical significance. Infection by playmate contact is usually acquired by secretive infantile sex practices rather than by the ordinary relationships of play. The nine cases of transfusion syphilis emphasize the necessity for careful pretransfusion examination of all donors, including parents and relatives.

Annals of Internal Medicine, Lancaster, Pa.

12: 1175-1402 (Feb.) 1939

Prophylaxis in Allergy. R. A. Kern, Philadelphia.—p. 1175.

*Chronic Brucellosis (Undulant Fever): Analytic Study of the Positive Reactors Among School Children. T. E. Angle and W. H. Algie, Kansas City, Kan.—p. 1189.

Variation of Blood Pressure with Skeletal Muscle Tension and Relaxation. E. Jacobson, Chicago.—p. 1194.

Human Autonomic Pharmacology. XV. Effect of Acetyl Beta-Methylcholine Chloride (Mecholyl) by Iontophoresis on Arterial Hypertension. J. Loman, M. T. Lesses and A. Myerson, Mattapan, Mass.—p. 1213.

Low Chest and Upper Abdominal Pain. W. M. Ballinger, Washington, D. C.—p. 1223.

Chemical Nature of Heart Failure. G. Herrmann and G. M. Decherd Jr., Galveston, Texas.—p. 1233.

*Macrocytic Anemia, Other Than Pernicious Anemia, Associated with Lesions of the Gastrointestinal Tract. C. C. Sturgis and S. M. Goldhamer, Ann Arbor, Mich.—p. 1245.

Tolerance and Toxicity of Insulin. II. With Forced Administration of Carbohydrate. F. M. Allen, New York.—p. 1263.

Psychotherapy, with Special Reference to Use of Hypnosis. J. L. McCartney, Philadelphia.—p. 1279.

The Problem of Rheumatism and Arthritis. Review of American and English Literature for 1937 (Fifth Rheumatism Review). P. S. Hench, Rochester, Minn., W. Bauer, Boston, M. H. Dawson, New York, F. Hall, Boston; W. P. Holbrook, Tucson, Ariz., and J. A. Key, St. Louis.—p. 1295.

Chronic Brucellosis in School Children.—Angle and Algie found evidence of chronic illness (the persistence of any two of the following symptoms: nervousness, headache, rheumatic symptoms or constipation) in 179 of the 462 positive brucellergin reactors, negative tuberculin reactors studied in 1937. The symptoms persisted in 57.5 per cent of the 139 children reexamined in 1938. Control studies indicated that there was a higher percentage of children with chronic illness in the group under investigation. Replies received from twenty-six professors of immunology indicated that the presence of agglutinins, opsonins and allergic cutaneous tests are specific reactions for present or past Brucella infection. Immunologic evidence of Brucella infection does not mean disease. The diagnosis of chronic brucellosis depends on clinical signs plus some positive laboratory data. The ambulatory and subclinical types of Brucella infection are apparently not uncommon.

Macrocytic Anemia Associated with Gastrointestinal Lesions.—During the last eleven years Sturgis and Goldhamer have observed a large group of patients with pernicious anemia during the course of which they encountered a number of patients with macrocytic anemia who illustrate strikingly the various types of gastrointestinal lesions which may cause such an alteration in the blood. One reason which indicates that intestinal lesions are responsible for this type of anemia is the disappearance of the anemia when the intestinal lesion is repaired. In one case, for example, the erythrocyte count returned to normal following resection of the small intestine for partial obstruction, at which time the patient was not receiving any antianemic therapy. It is also of significance that the anemia reappeared when the partial obstruction recurred. Further evidence that the group of patients which was studied did not have a true addisonian anemia which by chance was associated with some gastrointestinal lesions is that in three of the ten patients considered free hydrochloric acid was present in the gastric secretions. Also five of the remaining seven patients did not have paresthesia of the hands and feet, which is present in 90 per cent of patients with pernicious anemia. Furthermore, only one patient had recurrent glossitis, which is present in approximately 65 per cent of patients with addisonian anemia. Atrophy of the tongue was not present in the eight patients in whom this sign was looked for. This sign is present in about half of the patients with pernicious anemia. It is not difficult

to understand why a macrocytic anemia develops in some patients following partial resection of the stomach. The intrinsic factor which is essential to maturation of the erythrocytes is undoubtedly secreted by the glands in the gastric mucosa. It appears to be a logical assumption that the development of a macrocytic anemia following operations on the stomach depends almost entirely on how much of the stomach remains following the operation. The association of this type of anemia with the presence in patients of multiple intestinal anastomoses can readily be explained on the ground that the intestinal contents may pass through only a small portion of the small intestine in such cases and, therefore, the likelihood of absorbing a normal amount of the active principle would be diminished. It is somewhat more difficult to understand why this type of anemia should develop in a patient with an intestinal stricture or partial obstruction, such as existed in one of the present cases, as only a relatively small portion of the small intestine was involved in the pathologic process. A plausible assumption would be that even a localized lesion may in some manner affect the entire intestinal tract in such a way as to destroy or prevent the absorption of the active principle. It appears that from two to five years is required for macrocytic anemia to develop following resection of the stomach, that is, to reach a stage severe enough to produce symptoms. The length of time elapsing varies according to several factors. First, it is dependent on the extent to which the gastric and intestinal function is impaired; secondly, it is affected by the amount of reserve erythrocyte maturing material which is stored in the liver and perhaps elsewhere in the body. Other conditions which may possibly be of importance are the age of the patient and the presence of infections. For example, the reserve supply of the active principle would be consumed more rapidly in an elderly patient than in a younger one or in one with an active infection, and on this account a macrocytic anemia would develop more quickly in such a patient.

Archives of Neurology and Psychiatry, Chicago

41: 435-658 (March) 1939

Gliomas of the Pons: Clinical and Pathologic Characteristics. B. J. Alpers and J. C. Yaskin, Philadelphia.—p. 435.

Pathologic Picture of Thujone and Monobromated Camphor Convulsions: Comparison with Pathologic Picture of Human Epilepsy. L. Opper, New Haven, Conn.—p. 460.

"Silver Cells" and "Spirochete-like" Formations in Multiple Sclerosis and Other Diseases of the Central Nervous System. G. B. Hassin and I. B. Diamond, Chicago.—p. 471.

Quantitative Absorption of Phenolsulfonphthalein from Subarachnoid Space. W. J. Gardner and W. A. Nosik, Cleveland.—p. 484.

*Return of Cognitive Conscious Functions After Convulsions Induced with Metrazol. L. H. Cohen, Worcester, Mass.—p. 489.

Ligation of the Left Anterior Cerebral Artery: Its Hazards and Means of Avoidance of Its Complications. J. L. Poppen, Boston.—p. 495.

Action of Metrazol (Pentamethylenetetrazol) on Hypothalamus of the Cat. J. H. Masserman, with technical assistance of E. W. Haertig, Chicago.—p. 504.

Cardiac Activity During Epileptic Seizures. T. C. Erickson, Montreal.—p. 511.

*Electro-Encephalography in Clinical Neurology: Its Value in Routine Diagnosis. D. Williams, London, England, and F. A. Gibbs, Boston.—p. 519.

Neurogenic Tumors Arising from the Sacrum. A. W. Adson, F. P. Moersch and J. W. Kernohan, Rochester, Minn.—p. 535.

Localized Nonsuppurative Encephalitis Adjacent to a Focus of Infection in the Skull. M. Atkinson, New York.—p. 556.

*Tuberous Sclerosis: Relief of Epileptic Symptoms by Radiation Therapy. A. B. Friedman, Brooklyn.—p. 565.

Analysis of the Thinking Disorder in a Case of Schizophrenia. Eugenia Panfmann, Chicago.—p. 568.

Bilateral Frontal Lobectomy: Follow-Up Report of Case. R. M. Brickner, New York.—p. 580.

Sign of Facial Palsy. R. Wartenberg, San Francisco.—p. 586.

Return of Consciousness After Induced Convulsions.—Cohen studied the return of the cognitive conscious functions in the period following convulsive seizures. The studies were carried out on schizophrenic patients during metrazol therapy. The functions of esthesia, prosexia, gnosia, praxia and mnesia reappear in the order given. It is suggested that these studies be extended, since they have a bearing on the general problem of the nature of consciousness. Furthermore, it appears that metrazol offers a safe and convenient means for the study of the interruption and normalization of the stream of consciousness.

Electro-Encephalography in Clinical Neurology.—Williams and Gibbs state that the electro-encephalogram has been used in the routine investigation of patients in a large neurologic and neurosurgical service over a period of ten months. The site and character of foci of abnormal cortical rhythms were determined by the method described by Walter. In 105 cases in which intracranial lesions were suspected there was a close correlation between the actual position of the lesions and that predicted by the electro-encephalograms in the fifty cases in which the pathologic process was demonstrated. The lesion was demonstrated at operation or necropsy in thirty-five of these fifty cases, and in another fifteen cases clinical evidence of localization was strong or was supported by the results of previous exploration, by x-ray evidence or by other signs of the lesion, such as a visible mass, skull defect or scalp wound, so that the diagnosis could be made with accuracy. In forty-one cases in which no cerebral lesion was demonstrated in the electro-encephalograms, subsequent clinical investigation gave negative results. In the remaining fourteen cases the position of predicted cerebral lesions could not be confirmed through lack of clinical and pathologic data. It is concluded that the method has great practical value as a diagnostic procedure in routine neurologic practice.

Tuberous Sclerosis.—Friedman reports a case of tuberous sclerosis without mental deterioration treated with roentgen rays. The epileptic symptoms were relieved. The patient has remained well for more than two and a half years.

Archives of Surgery, Chicago

38: 397-598 (March) 1939

Congenital Cystic Dilatation of the Bile and Pancreatic Ducts: Necropsy Thirteen Years After Hepaticoduodenostomy. G. L. McWhorter, Chicago.—p. 397.

Clinical Significance of Calorimetric Changes in the Lower Extremity. B. Lipshutz and M. Naide, Philadelphia.—p. 412.

Histologic and Histochemical Structure of the Normal Thyroid Gland. A. E. Hertzler, Halstead, Kan.—p. 417.

Intracranial Hypertension of Unknown Cause: Cerebral Edema. A. L. Sahs and O. R. Hyndman, Iowa City.—p. 428.

Swelling of the Brain in Cases of Injury to the Head. P. Shapiro and H. Jackson, Chicago.—p. 443.

Experimental Production of Tumors of the Brain with Shope Rabbit Papilloma. B. Woodhall, R. W. Graves and J. W. Beard, Durham, N. C.—p. 457.

The Superior Colliculi: Their Function as Estimated from a Case of Tumor. O. R. Hyndman and W. J. Dulin, Iowa City.—p. 471.

*Hemangioma of Joints: Report of Five Cases. G. E. Bennett and M. C. Cobey, Baltimore.—p. 487.

Atresia Ani Urethralis: Report of Case. L. A. Thumig, Brooklyn.—p. 501.

*Ethyl Alcohol as Germicide. P. B. Price, Baltimore.—p. 528.

Parathyroidectomy for Raynaud's Disease and Scleroderma: Late Results. Alice R. Bernheim and J. H. Garlock, New York.—p. 543.

Regional Redistribution of Blood in Experimental Secondary Shock. H. A. Davis, Memphis, Tenn., and R. J. Jermstad, St. Joseph, Mo.—p. 556.

Review of Urologic Surgery. A. J. Scholl, Los Angeles; F. Hinman, San Francisco; A. von Lichtenberg, Budapest, Hungary; A. B. Hepler, Seattle; R. Gutierrez, New York; G. J. Thompson and J. T. Priestley, Rochester, Minn.; E. Wildbolz, Berne, Switzerland, and V. J. O'Conor, Chicago.—p. 581.

Hemangioma of Joints.—Bennett and Cobey present five cases of hemangioma of the knee joint. The age at onset varied from 18 months to 18 years and the duration of symptoms from ninety minutes to eight years. Trauma was not a factor. Swelling was present in all cases, with pain and recurring attacks of limp and pain on motion in four. The palpable elastic, spongy mass, compressible and distensible, was evident in only two. There was tenderness in two. Muscular atrophy and crepitation were present in only one case. Two of the patients received no treatment before operation, two were treated with rest in bed and one was treated with bandages and casts. The roentgenograms throughout failed to show any abnormality except for erosion of the cartilage in one case. In the first case complete excision was attempted, hemorrhage and infection followed, and finally amputation had to be performed. Complete excision was possible in only one case, in which the tumor was pedunculated. Biopsy followed by radium or roentgen therapy was carried out in the other three cases, with practically complete recovery. The final diagnosis of hemangioma was made and verified by

histologic study in the first four cases. The signs, symptoms and course made the diagnosis certain in the last case.

Ethyl Alcohol as Germicide.—Using original quantitative tests of bactericidal activity, Price has found ethyl alcohol, within certain narrow limits of concentration, to be strongly germicidal, both in vitro and on the skin. Exactly 70 per cent by weight (which has no constant volume per cent equivalent) is the most effective concentration. Even slight variations from this particular strength lessen its bactericidal power. Seventy per cent by volume is almost useless. Degermation of skin by alcohol takes place at a regularly logarithmic rate. Each minute the skin is kept in 70 per cent (by weight) solution without friction is equivalent to about six and one-half minutes of scrubbing in water. Friction increases the speed of degermation. Against test bacteria in suspension, 70 per cent (by weight) alcohol acts even more strongly and rapidly. Higher and lower concentrations are less effective. The difference between the degerming effects of alcohol on skin and in vitro are thought to be due largely, if not entirely, to differences in degree of contact between germicide and bacteria. This explains also why friction increases the germicidal action of alcohol on skin. Evaporation weakens 70 per cent alcohol and lessens its bactericidal power. A routine method of preoperative preparation of the hands has been evolved which, while simple, is a great deal more effective than technics in use at present in many leading hospitals. Seventy per cent by weight alcohol is recommended also for use in preparing the field of operation and in disinfecting contaminated hands.

Canadian Medical Association Journal, Montreal

40: 213-318 (March) 1939

*Prevention of Silicosis by Metallic Aluminum: H. J. J. Denny, W. D. Robson, Schumacher, Ont., and D. A. Irwin, Toronto.—p. 213.
Clinical Significance of a Lump in the Breast. E. M. Eberts, Montreal.—p. 228.
Leukoplakia and Allied Mouth Conditions. D. Quick, New York.—p. 234.
Low Back Pain and Sciatica. J. A. L. Walker, Windsor, Ont.—p. 240.
Carcinoma of the Sigmoid Colon (Radiologic Study). A. C. Singleton and M. R. Hall, Toronto.—p. 247.
*Abolition of Clinical Tuberculosis by Anticipation and Control. W. Ogden, in collaboration with G. C. Anglin, M. Brown, A. H. W. Caulfeild, Edith Gordon, T. G. Heaton, W. C. Kruger, E. L. Sexsmith, Margaret S. Thompson and T. R. Welwood, Toronto.—p. 253.
Diabetes Mellitus with Marked Hypercholesterolemia and Signs Simulating Cerebral Thrombosis. Case. I. M. Rabinowitch, Montreal.—p. 257.
Changing Conditions for Cesarean Section. R. T. Weaver, Hamilton, Ont.—p. 259.
Hernia. R. K. Magee, Peterborough, Ont.—p. 264.
Intravenous Glucose Tolerance Curve as Index of Liver Function and Liver Replacement Therapy in Cases of Hepatic Insufficiency. R. Wilson, Vancouver, B. C.—p. 268.

Prevention of Silicosis by Metallic Aluminum.—In a previous article Denny and his co-workers showed that the addition of small quantities of metallic aluminum powder almost completely inhibited the solubility of silicious material in the beaker. Silicosis developed in six rabbits exposed to quartz dust for six months. The condition did not develop in seven rabbits exposed to quartz dust plus 1 per cent metallic aluminum powder for the same period. The authors state that metallic aluminum on being converted into hydrated aluminum reduces the toxicity of quartz in tissues by flocculation, by absorbing silica from solution, but chiefly by coating the quartz particles with an insoluble and impermeable coating. This coating has been definitely identified as a gelatinous hydrated alumina, which on drying forms the crystalline alpha aluminum monohydrate boehmite. Other silicious materials when treated in a similar manner to quartz and aluminum in water appear to be coated by the precipitated gelatinous aluminum hydrate. Animals whose lungs on analysis contained 1 per cent or more of metallic aluminum have shown no evidence of silicosis after being exposed to quartz dust up to periods of seventeen and a half months. This was in direct contrast to well developed silicosis in the quartz control rabbits in seven months. In lungs having less than 1 per cent aluminum in which fibrosis is present there is no demonstrable evidence of hydrated aluminum in the fibrotic areas. In lungs in which the hydrated aluminum is shown on staining to be intimately and uniformly mixed with the silica particles, fibrosis has never been found. Aluminum dust for the prevention of silicosis should be of a particle size below 5 microns and grease free. It should be uniformly mixed in any inhaled dust and bear a definite percentage to this dust at all times. To prevent silicosis, aluminum dust may be inhaled daily independently of the silicious dust. The aluminum dust must be sufficiently concentrated in the inhaled dust to provide a minimum concentration in the lung of 1 per cent at all times. The inhalation of aluminum dust in large quantities over long periods of time showed no effect on the general health of the animals and no evidence of toxicity or damage to tissues. The concentration of aluminum dust necessary to prevent silicosis is hundreds of times below its explosive concentration.

Abolition of Clinical Tuberculosis.—Ogden and his collaborators present a plan for following contacts and normals through which an attempt is made to detect "preclinical tuberculosis," thus reducing the incidence of the disease and at the same time aiding diagnosis in the really minimal stages of those getting through the preclinical phase and acquiring actual disease. Over a period of fifteen years a total of 1,300 known contacts, tuberculin positive, and 400 normals have been under observation. Of those who followed the prescribed scheme, in not one has tuberculosis developed. When the contact series includes those whose observation was irregular, the disease developed in only 4.15 per cent (fifty-four) of the total. The incidence in other contact series ranges from 10 to 40 per cent, averaging from 20 to 25 per cent. Known tuberculosis contacts should be tested, first by tuberculin; then, if they are positive, this should be followed by serial serologic examination. All normals not known to be contacts should be tested, because exposure and infection frequently take place without contact being known. When they are tuberculin positive they are then serologically tested as contacts, because such they must have been. Serologic tests differentiate between those who are liable to develop tuberculosis and those who are not. Those thus found liable to develop tuberculous disease are advised accordingly.

Endocrinology, Los Angeles

24: 297-434 (March) 1939

*Observations on Occurrence of an Antidiuretic Substance in Urine of Patients with Preeclampsia and Eclampsia. H. M. Teel and D. E. Reid, Boston.—p. 297.
Hormone Influences on Excitability of Muscular Protoplasm of the Rat's Uterus. F. C. Katzenstein and S. Soskin, Chicago.—p. 311.
Gonadotropic Hormone: Clinical Application of Extraction Methods for Assay Purposes. C. G. Heller and Emily J. Heller, Madison, Wis.—p. 319.
Stability of Testis Hormone. D. R. McCullagh, Cleveland.—p. 326.
Excretion and Fate of Androgens: Excretion of Injected Testosterone and Its Various Derivatives. C. D. Kochakian, Rochester, N. Y.—p. 331.
Daily Excretion of Urinary Androgens in Normal Children. I. T. Nathanson, Lois E. Towne and J. C. Aub, Boston.—p. 335.
*Suppressive Action of Testosterone Propionate on Menstruation and Its Effect on Vaginal Smears. G. N. Papanicolaou, H. S. Ripley and E. Shorr, New York.—p. 339.
*Treatment of Female Menopause with Male Sex Hormone. L. Kurzrok, C. H. Birnberg and S. Livingston, Brooklyn.—p. 347.
Progesterone Is Androgenic. R. R. Greene, M. W. Burrill and A. C. Ivy, Chicago.—p. 351.
Creatine-Creatinine Metabolism and Hormones: Anterior Pituitary Hormones, Theelin and Testosterone Propionate. P. Pizzolato and H. H. Beard, New Orleans.—p. 358.
Persistence of Four to Five-Day Activity Cycles in Vitamin A Deficient Rats with Constant Cornification of the Vaginal Epithelium. C. P. Richter and B. Barelare Jr., Baltimore.—p. 364.
Salt Taste Thresholds of Normal and Adrenalectomized Rats. C. P. Richter, Baltimore.—p. 367.
Renal Lesion in Hyperparathyroidism. W. A. D. Anderson, Memphis, Tenn.—p. 372.
Extent of Re[illegible] the Enucleated Adrenal Gland in the Rat as [illegible] Capsule Left at Operation. D. J. Ingle and [illegible], Minn.—p. 379.
*Thyroid in Treatment of Menstrual Irregularities. Ruth C. Foster and Madeline J. Thornton, Madison, Wis.—p. 383.
Vitamin A Deficiency in Disease of Thyroid Gland: Its Detection by Dark Adaptation. M. G. Wohl and J. B. Feldman, Philadelphia.—p. 389.
Thyroid Function in Diabetes Insipidus in the Rat. H. G. Swann and P. E. Johnson, Chicago.—p. 397.
Endocrinologic and Metabolic Observations in Exfoliative Dermatitis. W. J. Hanes and R. S. Crew, Philadelphia.—p. 404.
Present Day Status of Migraine Therapy. Mary E. O'Sullivan, New York.—p. 414.

Antidiuretic Substance in Urine in Eclampsia.—Teel and Reid state that concentrates prepared from the urine of preeclamptic and eclamptic women during the period of acute water retention exert marked antidiuretic effects on water diuresis in rats. The antidiuretic effect of a concentrate prepared from the

urine of an eclamptic patient after she had taken 1,400 cc. of water by mouth persisted. Similarly prepared concentrates from the urine of normal pregnant women during the last trimester of pregnancy and at the time of delivery exert little or no antidiuretic effect. However, if normal pregnant women are sufficiently dehydrated by withholding water, the urine contains amounts of antidiuretic substance comparable to those found in preeclamptic and eclamptic women. The antidiuretic principle recovered from the urine of preeclamptic and eclamptic women resembles solution of posterior pituitary. This substance acting on the kidney in abnormal amounts, or perhaps inadequately opposed by an antagonist, offers an immediate mechanism for the retention of water in preeclampsia and eclampsia.

Suppressive Action of Androgen on Menstruation.—The inhibitory action of the male hormone on human menstruation is illustrated by Papanicolaou and his associates by a case that they report. This is in accord with previous studies on lower mammals and primates. The absence of uterine bleeding and the persistence of an atrophic vaginal smear type during the period of treatment with the male hormone indicate that the cyclic uterine and vaginal functions were temporarily suppressed. Whether the male hormone acts directly on the ovaries or indirectly through its action on other endocrine glands is still uncertain. That menstrual functions can be inhibited in human beings by androgen, with the induction of a temporary sterility, is of considerable therapeutic significance. A beneficial effect on excessive and uncontrolled uterine bleeding has already been reported. This cessation of bleeding was associated with the development of an atrophic endometrium, an observation which has been subsequently confirmed. This endometrial atrophy is the uterine counterpart of the changes in the vaginal epithelium which underlie the atrophic vaginal smear that the authors observed following the administration of the male hormone. The hormone also appears to be of therapeutic help in the treatment of the menopausal syndrome. Once the atrophic smear is reached, the dose can be reduced to the minimal one which will maintain it. While the authors noticed no masculinizing effects of the male hormone in their patient, a recent study reports changes such as enlargement of the clitoris, marked vulval hyperemia and temporary lowering of the voice with intensive androgenic therapy. Menstruation occurred spontaneously in their patient twenty-eight days after androgenic therapy was stopped.

Treatment of Menopause with Androgen.—By the administration of from 30 to 50 mg. of testosterone propionate Kurzrok and his co-workers were able to ameliorate completely or almost completely the symptoms of the menopause in twenty-one cases. The substance produced no effect on the breasts, in that no patient complained of mastalgia. One patient with arthritis accompanying the menopause was benefited. There were no instances of itching or discharge due to the male sex hormone. Two cases of Trichomonas vaginalis infestation with pruritus responded to treatment with 25 per cent saline douches. Several of the younger women who had had a surgical menopause with resulting markedly severe symptoms responded fully as well as those in whom the menopause was spontaneous. One patient, with severe diabetes, was relieved of her flushes and sweats without any effect on the status of the diabetes. A few patients complained of localized pruritus on one occasion only, at the site of injection. Three patients had been treated previously with large doses of estradiol benzoate after a radiation menopause, with subsequent uterine bleeding; none of these women had any bleeding following administration of the male hormone.

Thyroid for Menstrual Irregularities.—Foster and Thornton treated fifty patients having menstrual irregularities with desiccated thyroid. The women have been observed for a period of from one to four years. Their ages have ranged from 16 to 34 years. With a few exceptions, only those who showed no pathologic changes in the pelvis have been treated. They all had basal metabolism rates below zero (from —1 to —33) the average being —15. Of the twenty-five patients with dysmenorrhea, seventeen had complete relief, five partial relief and three no relief. Of the seventeen patients with oligomenorrhea, all reported definite relief as long as they continued taking thyroid. Several of this group tried going without treatment during the summer vacation but returned in the fall asking to resume treatment because their symptoms had recurred. All stated that they felt much better when having their regular periods. The few patients in this series complaining of menorrhagia and metrorrhagia responded to thyroid therapy in a most satisfactory manner. Of four patients who complained of marked irritability prior to menstruation two obtained partial relief, enough so that they did not want to stop thyroid medication. One had complete relief and one noticed no difference. Thyroid was stopped several times but always with a recurrence of the symptoms.

Iowa State Medical Society Journal, Des Moines

29: 91-142 (March) 1939

Useful Anesthetic Methods and a System of Transfusion of Blood for Use in General Practice. R. C. Adams, Rochester, Minn.—p. 91.
Brachial Block Anesthesia. L. J. Miltner, Davenport, and C. L. Chao, Peiping, China.—p. 94.
Diabetes and Its Management: Review of 366 Cases. E. B. Winnett, Des Moines.—p. 98.
*Prothrombin Test and Vitamin K Treatment for Bleeding Tendency in the Jaundiced Patient. P. F. Olson, Dubuque.—p. 103.
Treatment of Common Foot Disorders. W. R. Hamsa, Omaha.—p. 105.
Kidney Function Tests. W. C. Egloff, Mason City.—p. 110.

Prothrombin Test and Vitamin K for Bleeding.—Olson reports the value of vitamin K in a patient who had been intermittently jaundiced for five months and apparently completely jaundiced for three months. Preoperatively, for obstruction of the common duct, she was given intravenous dextrose and a blood transfusion. At operation a diverticulum of the common duct was encountered and a calcareous obstruction at the ampulla of Vater was relieved. The duct was closed over a T tube, from which bile promptly flowed. Unusual bleeding was encountered at the time of operation and oozing occurred for several days after the operation. Six days after operation a severe hemorrhage occurred. This was controlled by a blood transfusion but the oozing recurred, and four days later another serious hemorrhage requiring transfusion again occurred. A prothrombin bleeding time after the method of Quick was 200 seconds. Vitamin K was given, two capsules being administered orally three times a day after meals. Each capsule was accompanied by 0.32 Gm. of bile salts. The prothrombin bleeding time was determined three days later and found to be 120 seconds. No further hemorrhage occurred and the oozing from the wound was decreasing. Seven days after the continued use of vitamin K the prothrombin bleeding time was reduced to thirty-eight seconds, which was comparable to a normal control, and all bleeding had stopped. The convalescence henceforth was uneventful. The author believes that, in jaundiced patients with an elevated prothrombin bleeding time, vitamin K should be administered prophylactically preoperatively and postoperatively until such time as the liver shall be able to elaborate concentrated bile into the intestinal tract and until such time as a balanced diet can be consumed.

Journal of Clinical Investigation, New York

18: 171-256 (March) 1939

*Gonadotropic Hormone: Urine Assays of Normally Cycling, Menopausal, Castrated and Estrin Treated Human Females. C. G. Heller and Emily J. Heller, Madison, Wis.—p. 171.
Control of Methemoglobinemia with Methylene Blue. W. B. Wendel, Memphis, Tenn.—p. 179.
Water Exchange of Premature Infants—Comparison of Metabolic (Organic) and Electrolyte (Inorganic) Methods of Measurement. H. H. Gordon, S. Z. Levine, Eleanor Marples, Helen McNamara and Helen R. Benjamin, New York.—p. 187.
Experimental Hyposthenuria. J. M. Hayman Jr., N. P. Shumway, P. Dumke and M. Miller, Cleveland.—p. 195.
*Further Observations on Occurrence of Rheumatic Manifestations in the Families of Rheumatic Patients. R. L. Gauld, Baltimore; A. Ciocco, Washington, D. C., and Frances E. M. Read, Baltimore.—p. 213.
Autologous and Homologous Transfusion of Human Ascitic Fluid. H. A. Davis and J. F. Blalock Jr., Memphis, Tenn.—p. 219.
Blood Flow and Vasomotor Reactions in Hand, Forearm, Foot and Calf in Response to Physical and Chemical Stimuli. P. Kunkel, E. A. Stead Jr. and S. Weiss, Boston.—p. 225.
Electrolyte Balances During Artificial Fever, with Special Reference to Loss Through the Skin. E. H. Keutmann, S. H. Bassett and S. L. Warren, Rochester, N. Y.—p. 239.
Changes in Pulmonary Volume Following Lobectomy for Bronchiectasis. G. E. Lindskog, New Haven, Conn.—p. 251.

Gonadotropic Content of Urine.—The Hellers determined the gonadotropic content of the urines from sixty-six menopausal patients. It was found that their potency was not related to the presence or absence of symptoms, age, hysterectomy or involution. No difference in gonadotropic potency was found

between menopausal women with symptoms and senile women, castrated women or menopausal women without symptoms. Urinary gonadotropic concentration was low in women with regular normal menstrual cycles, high in menopausal women in whom cycles had ceased and intermediate in menopausal women with irregular cycles. Treatment with estrogen alleviated the vasomotor symptoms of fifteen menopausal women but failed to reduce their gonadotropic potency concurrently. Continued treatment with estrogen caused a slight reduction in potency but failed to suppress it by significant amounts.

Rheumatic Manifestations in Relatives of Rheumatic Patients.—Gauld and his colleagues studied the high incidence of rheumatic disease in the families of ninety-six rheumatic children. The percentage of persons with a rheumatic history who had parents with a similar history was found to be consistent in two generations of these families and was 3.7 times as high as was found in the families of a control group of normal children. The offspring of the grandparents of the rheumatic and control persons were studied to see whether any relationship was present between the type of mating with respect to rheumatic disease and the percentage of children who were rheumatic. When one or both parents had a history of rheumatic manifestations (rheumatic fever or carditis or chorea) a greater percentage of the offspring was rheumatic than was found in the offspring of parents who had no history of rheumatic disease. The percentage of rheumatic manifestations was found to be almost twice as high in female offspring of rheumatic mothers as in the male offspring of these mothers. A greater percentage of persons with rheumatic disease was found among the maternal aunts and uncles than was found among the paternal aunts and uncles of the rheumatic cases. The data suggest that a hereditary constitution may play a part in the predisposition to this disease. The evidence, however, does not exclude the possibility that infection plays an important part and that exposure may be the predominating factor.

Journal of Experimental Medicine, New York

69: 327-484 (March) 1939. Partial Index

Virus Disease of Cats, Principally Characterized by Aleukocytosis, Enteric Lesions and Presence of Intranuclear Inclusion Bodies. W. D. Hammon and J. F. Enders, Boston.—p. 327.

Studies on Antibacterial Immunity Induced by Artificial Antigens: I. Immunity to Experimental Pneumococcic Infection with Antigen Containing Cellobiuronic Acid. W. F. Goebel, New York.—p. 353.

*Complement Fixation in Human Malaria with Antigen Prepared from Monkey Parasite Plasmodium Knowlesi. M. D. Eaton and L. T. Coggeshall, New York.—p. 379.

Antigenic Properties of Type Specific Substance Derived from Group A Hemolytic Streptococci. G. K. Hirst and Rebecca C. Lancefield, New York.—p. 425.

Organ Work and Organ Weight. Florence Walter and T. Addis, San Francisco.—p. 467.

Complement Fixation in Human Malaria.—Eaton and Coggeshall describe complement fixation studies the antigens for which were prepared from (1) normal monkey red cells, (2) parasitized red cells of monkeys dying with Plasmodium knowlesi infection and (3) the spleens of monkeys dying with Plasmodium knowlesi infection. The serums were obtained from (1) normal human beings, (2) patients with syphilis, (3) patients with dementia paralytica who were receiving malaria therapy and (4) patients with malaria alone. The malarial antigens gave negative complement fixation reactions with from 70 to 80 per cent of the syphilitic and normal serums and weak or doubtful reactions with the remaining 20 to 30 per cent. With the exception of one antigen prepared from spleen, there was no evidence that the malarial antigens were more reactive with Wassermann-positive than with Wassermann-negative serums. Some human serums gave weak complement fixation with antigens prepared from normal monkey erythrocytes and the percentage of these positive reactions was slightly higher with malarial serums than with normal or syphilitic serums. The most sensitive and specific malarial antigen was prepared from dried parasitized red cells by extraction with saline solution, freezing and thawing. This Plasmodium knowlesi antigen gave strong complement fixation with malarial serums from human beings infected with Plasmodium knowlesi, Plasmodium vivax or Plasmodium falciparum. The titer of complement fixing antibodies reaches a maximum about one month after the beginning of the acute infection. At this time all of the Plasmodium knowlesi serums tested were positive. After four months the reaction diminishes rapidly in titer but may remain positive for twelve months or longer. With Plasmodium knowlesi infections in man, the complement fixation reaction remains positive for some time after the infection has apparently disappeared as judged by daily smears and inoculation of monkeys with the blood. The complement fixation reaction in malaria is group specific rather than species specific. Serums from patients infected with Plasmodium vivax or Plasmodium falciparum reacted in the same way with the Plasmodium knowlesi antigen as the homologous serums. Absorption of malarial human serums with normal monkey erythrocytes does not remove the immune bodies which fix complement with malarial antigens.

Journal of Lab. and Clinical Medicine, St. Louis

24: 559-668 (March) 1939. Partial Index

Specificity of Pneumococcus Types by Quellung and Agglutination Reactions. A. Noble and Bertha C. Cameron, Detroit.—p. 559.

*Observations on Use of Quinidine Sulfate in Children. C. R. Messeloff, New York.—p. 574.

Effect of Bananas on Laxation. P. L. Harris, Charleston, S. C., and G. L. Poland, New York.—p. 580.

Ragweed Hay Fever: Effect of Dosage in Treatment of 314 Cases. H. D. Dundy, L. Levin and H. Markow, Brooklyn.—p. 583.

*Effects of Tobacco Smoking on Health: Study of 2,031 Medical Records. J. J. Short, H. J. Johnson and H. A. Ley Jr., New York.—p. 586.

*Direct Comparison of Reactions of Human System to Tobacco Smoke and Adrenalin. J. J. Short and H. J. Johnson, New York.—p. 590.

Relation Between Skin Sensitivity, Liver Function, Leukopenic Index and Toxic Effects from Cinchophen. W. B. Rawls, B. J. Gruskin, A. A. Ressa and A. S. Gordon, New York.—p. 597.

Comparison of Intradermal Tests with Agglutinability and Certain In Vitro Tests of Streptococci, Staphylococci, Micrococcus Catarrhalis and Colon Bacilli Isolated from Persons Suspected of Having Chronic Infection. G. H. Chapman and C. Berens, New York.—p. 601.

Study of Calcium and Phosphorus in Cerebrospinal Fluid. D. J. Cohn, I. Kaplan and A. Levinson, Chicago.—p. 609.

Blood Picture in Brucellosis: Preliminary Report. Myrtle Munger and I. F. Huddleson, East Lansing, Mich.—p. 617.

Relationship Between Agglutinability and Certain In Vitro Tests of Staphylococci, Streptococci and Colon Bacilli Isolated from Persons Suspected of Having Chronic Infection. M. H. Stiles, Philadelphia, and G. H. Chapman, New York.—p. 620.

Sodium Dehydrocholate Solution as Solvent for Neoarsphenamine in Treatment of Syphilis. C. Shaw, Chicago.—p. 624.

Intradermal Test as Aid in Diagnosis of Enterobiasis. H. Tsuchiya and T. C. Bauerlein, St. Louis.—p. 627.

Determination of Hippuric Acid in Urine. T. E. Weichselbaum and J. G. Probstein, St. Louis.—p. 636.

Quantitative Determination of Urinary Estrogenic Hormone (Biologic Method): Consideration of Technic, Animal Colony and Laboratory Personnel. A. Palmer, San Francisco.—p. 643.

Demonstration of Bacteriostatic Action of Sulfanilamide on Hemolytic Streptococci in Vitro. E. Neter, Buffalo.—p. 650.

Effects of Quinidine Sulfate in Children.—Messeloff studied the effects of various doses of quinidine sulfate on ten children with regular sinus rhythm, one with frequent and persistent premature auricular contractions and one with bundle branch block associated with congenital heart disease. The impairment of auriculoventricular and intraventricular conduction as well as a decrease in the amplitude of the positive T wave, phenomena noted in adult studies, are also seen in children. The principles of dosage and of cumulation governing the clinical use of the drug in children appear to be identical with those reported in adults. Intraventricular conduction in the child with the bundle branch block was not unduly impaired by quinidine. Children tolerate large doses of quinidine, as judged by the age and weight standards. The usual adult daily dose of from 15 to 30 grains (1 to 2 Gm.) may be safely given to children. However, the large doses should be controlled by frequent electrocardiograms. The principles underlying dosage and cumulation of quinidine established for adults apply equally to children.

Effects of Tobacco Smoking on Health.—In an attempt to learn what, if any, symptoms are produced in comparatively healthy ambulatory persons by the use of tobacco, Short and his co-workers asked an unselected group of insurance policy holders to fill out a questionnaire, at the time of their periodic health examination, designed to elicit their practices with reference to the use of tobacco, but contained no reference to physical signs or symptoms. The latter information was obtained independently from the physical examination and medical history, which were recorded separately. Of 2,031 persons studied, 1,292

habitually used tobacco, 496 were nonusers, 104 used it only occasionally and 139 were former users who had discontinued the practice. Symptoms relating to the respiratory, circulatory, gastrointestinal and nervous systems were definitely increased among smokers. These increases ranged from 50 per cent for palpitation of the heart to 300 per cent for cough. The increased tendency to dyspnea on exertion in smokers gives point to the tabu on tobacco by many athletic directors, especially the trainers of pugilists. The relationship of tobacco smoking to gastric disturbances, especially hyperacidity, is a frequent clinical observation. For this reason sufferers from gastric or duodenal ulcers are usually asked to refrain from tobacco. In this study "heartburn" was increased by 100 per cent, and other digestive symptoms from 62 to 112 per cent. There was no significant variation between the smokers and nonsmokers in weight, pulse rate or blood pressure. Tremors appeared to be diminished in the smoking group. However, there was a tendency for tremors to be increased if habitual users were deprived of tobacco for a time; also blood pressures tended to vary considerably during the actual process of smoking. Seventy-eight of the 139 persons who gave up smoking did so for reasons of health.

Reactions to Tobacco Smoke and Epinephrine.—Short and Johnson made a direct comparison of the effects of epinephrine injection with those of tobacco smoking. Their observations, they state, confirm the view that the characteristic effects on pulse, blood pressure, peripheral cutaneous temperature and blood sugar of tobacco smoking can be explained by an increased output of epinephrine. This most probably is the result of a stimulating effect of nicotine on the sympathetico-adrenal system.

Journal of Neurophysiology, Springfield, Ill.

2: 101-172 (March) 1939

Course of Recovery of Spinal Cord from Asphyxia. A. van Harreveld and G. Marmont, Pasadena, Calif.—p. 101.
Cortical Response to Sensory Stimulation Under Deep Barbiturate Narcosis. A. Forbes and B. R. Morison, Boston.—p. 112.
Search for Changes in Direct Current Potentials of the Head During Sleep. H. Davis, P. A. Davis, A. L. Loomis, E. N. Harvey and G. Hobart.—p. 129.
Influence of Anoxia on Pupillary Reflexes in the Rabbit. B. Ury and E. Gellhorn, Chicago.—p. 136.
Factors Controlling Brain Potentials in the Cat. H. H. Dubner and R. W. Gerard, Chicago.—p. 142.
Control of Potential Rhythm of the Isolated Frog Brain. B. Libet and R. W. Gerard, Chicago.—p. 153.
Brain Wave Frequencies and Cellular Metabolism: Effects of Dinitrophenol. H. Hoagland, M. A. Rubin and D. E. Cameron, Worcester, Mass.—p. 170.

Journal of Urology, Baltimore

41: 265-434 (March) 1939. Partial Index

Nephrostomy: Indications and Technic. R. C. Graves and W. T. Buddington, Boston.—p. 265.
Surgical Treatment of the Horseshoe Kidney. J. E. Strode, Honolulu, Hawaii.—p. 285.
Neuroblastoma of Adrenal Gland. S. Malisoff, New York.—p. 296.
Adrenal Heterotopia: Survey of Literature and Report of Case. O. S. Culp, Baltimore.—p. 303.
Etiology and Treatment of Renal Lithiasis. G. R. Livermore, Memphis, Tenn.—p. 310.
End Results in Renal and Ureteral Calculi. F. J. Parmenter, Buffalo.—p. 320.
Sacculated Aneurysm of Abdominal Aorta Operated for Perinephric Abscess. R. L. Davis, San Antonio, Texas.—p. 332.
Nephroptosis. G. W. Fish and C. T. Hazzard, New York.—p. 336.
*Transurethral Operations on Women for Relief of Dysfunction of Vesical Neck. G. J. Thompson, Rochester, Minn.—p. 349.
Surgical Removal of Vesical Calculus: Experimental and Clinical Study. F. P. Twinem, New York.—p. 360.
Clinical Study of Forty-Nine Cases of Urinary Calculi Requiring Surgery. C. H. deT. Shivers and K. P. Henderson, Atlantic City, N. J.—p. 366.
Hemorrhage into the Bladder in Polycythemia Vera: Report of Case. A. Kemble, Washington, D. C.—p. 397.
*Use of Vitamin C in Treatment of Essential Hematuria: Preliminary Report. C. E. Burkland, Baltimore.—p. 401.
Prostatic Hypertrophy as Part of Generalized Metabolic Disease: Evidence of Presence of Lipopenia. E. M. Boyd and N. E. Berry, Kingston, Ont.—p. 406.
Diagnostic Value of Residual Urine Estimation. T. J. Kirwin and G. A. Hawes, New York.—p. 413.

Transurethral Operations for Dysfunction of Vesical Neck.—Thompson performed thirty-five transurethral operations for dysfunction of the vesical neck among twenty-four women. The etiology of this disease is not definitely revealed by microscopic study of the tissue removed at operation. The hypothesis that it is caused by fibrosis in the sphincteric region seems fallacious in view of the fact that a considerable amount of fibrosis is found in normal tissue from this region. A possible explanation is that hyperplasia of the superficially lying epithelium or of the sphincter muscle occurs and causes urinary retention. The results of operation were excellent in fourteen cases, good in five, fair in four and poor in one. Removal of tissue from the entire circumference of the vesical neck is necessary to obtain a good result in all but exceptional cases in which only incision might suffice. The patient should be observed for a number of years following operation, and treatment including dilation with a Kollmann dilator will probably be necessary in some cases in order to maintain normal vesical function; the transurethral operation can be repeated with benefit if urinary obstruction recurs.

Vitamin C and Essential Hematuria.—Burkland used vitamin C in the treatment of four cases of essential hematuria. There was no evidence of scurvy or gross vitamin C deficiency in the four patients, except possibly in one who had colitis and diarrhea for some time. Yet the hematuria, which in each case had been present for several weeks, disappeared after the patients were given intravenous injections of vitamin C in the form of the sodium salt of ascorbic acid in sterile water. The dosages were arbitrarily chosen and therefore varied in patients from 100 to 300 mg. daily. A decrease in the hematuria occurred on the oral administration of vitamin C in the form of ascorbic acid tablets and fruit juices, but the intravenous administration was necessary to produce a more rapid, dramatic response. This was probably because on oral medication the absorption is delayed and is often faulty. It is the author's opinion that the vitamin C stopped the hematuria through its ability to cause alteration in capillary permeability, but, in addition, other actions reputed to it, such as increasing the coagulability of the blood, stimulating epinephrine secretion and acting as a catalyst for cellular metabolism, may have played some part in causing cessation of the hematuria. The effect may also be due to the fact that in the utilization of vitamin C by the body a large amount of it is excreted by the kidneys, leading to a high concentration in these organs. In view of the efficacy of the treatment, cases of essential hematuria might be considered as subclinical forms of vitamin C deficiency.

Kentucky Medical Journal, Bowling Green

37: 89-128 (March) 1939

The Problem of Chronic Disease. A. Bell, Hopkinsville.—p. 89.
Hodgkin's Disease in Childhood. Margaret A. Limper, Louisville.—p. 97.
Immediate Repair of Perineal Lacerations. N. M. Garrett, Brodhead.—p. 102.
Lobar Pneumonia. N. Sugarman, Sneedville, Tenn.—p. 106.
Management of Obesity. G. Fulton and E. C. Humphrey, Louisville.—p. 110.
Headache. C. F. Long, Elizabethtown.—p. 116.
Postpartum Hemorrhage. S. H. Starr, Louisville.—p. 120.

Maine Medical Association Journal, Portland

30: 45-68 (March) 1939

The Doctor's Dilemma When and If the Government Goes into the Practice of Medicine in a Big Way. R. I. Lee, Boston.—p. 45.
Treatment of Genito-Urinary Infections with Sulfanilamide. G. A. Schneider and M. J. Harkins, Lewiston.—p. 52.
Two Unusual Foreign Body Cases. E. L. Pratt, Lewiston.—p. 54.

Minnesota Medicine, St. Paul

22: 145-216 (March) 1939

Significance of Normal Blood Sugar in Treatment of Diabetes Mellitus. J. R. Meade, St. Paul.—p. 145.
Acute Surgical Conditions of the Abdomen. J. M. Hayes, Minneapolis.—p. 147.
Torsion of the Omentum and Appendices Epiploicae: Report of Two Cases. B. F. Davis, Duluth.—p. 151.
Rating of Disabilities. M. O. Henry, Minneapolis.—p. 154.
Surgical Clinics of Europe: Some Personal Observations Made in 1937, 1938. L. Sperling, Minneapolis.—p. 157.
Indications for Cesarean Section. R. J. Moe, Duluth.—p. 163.
*Progesterone in Treatment of Habitual Abortion. S. B. Peters, Silver Creek, N. Y.—p. 166.
Human Hereditary Defects. E. J. Engberg, Faribault.—p. 169.
*Mumps Meningo-Encephalitis. T. L. Birnberg, St. Paul.—p. 173.

Progesterone for Habitual Abortion.—During the last year Peters has treated four cases of recurrent spontaneous abortion. The patients delivered normal living infants at term. As soon as the diagnosis of pregnancy was made and up to and

including the fifth month of pregnancy the patients received biweekly intramuscular injection of progesterone or corpus luteum extracts amounting to approximately 1 international unit. In all cases the blood Wassermann reactions were negative and nothing in the history, physical examination or laboratory data could be found to account for the abortions. No definite conclusions can be stated, but the author makes the suggestion that progesterone is a specific for a certain type of quite common recurrent abortion and premature labor, a view which is corroborated by experimental studies.

Mumps Meningo-Encephalitis.—*During a period of five* and a half years Birnberg has encountered thirty-eight cases of mumps meningo-encephalitis in private practice. So large an incidence, with no coincidental unusual mumps epidemic, leads him to consider mumps as a disease in which meningeal symptoms appear relatively often, and in the preadolescent age group it has been the most frequent complication that he has observed. The specific cause of mumps meningo-encephalitis would seem to be either the mumps virus or a toxin liberated by the virus. The clinical symptoms of mumps meningo-encephalitis may appear at from one to ten days after the onset of the parotitis. Occasionally the meningitis and parotitis develop simultaneously, as in one of the present cases. The neurologic symptoms in rare instances precede the parotitis by several days. There are some cases in which the meningo-encephalitis would appear to be of undoubted mumps origin by virtue of epidemiologic contact but in which a parotitis never occurs or is so slight as to pass unnoticed. The symptomatology, as observed in the thirty-eight cases, shows a fair degree of uniformity. The presenting symptom is almost invariably headache, often quite intense. Vomiting occurred in practically all cases but was usually not incessant and persisted for only one or two days. All patients had varying degrees of fever. Hiccup, lethargy or irritability were inconstant and usually not pronounced symptoms. Rarely dilated pupils may be an index of cerebral involvement. Convulsions and focal paralysis have been recorded but the author did not observe them in his cases. Neurologic examination almost always reveals rigidity of the neck and a positive Kernig sign. The diagnosis rests largely on the recognition that such a complication does occur. The relatively mild symptoms with a rather high cell count are a valuable diagnostic criterion. The treatment of mumps meningo-encephalitis is chiefly symptomatic. Spinal puncture should be performed as a diagnostic procedure; it is often of value in reducing fluid pressure, particularly in patients with persistent headache and vomiting. Mumps meningo-encephalitis persists for from three to eleven days. The temperature returns to normal and the subjective symptoms clear up two or three days before the neurologic signs become normal.

Missouri State Medical Assn. Journal, St. Louis

36: 99-142 (March) 1939

The Third Stage of Labor, with Special Reference to Postpartum Hemorrhage, Placenta Accreta and Inversion of the Uterus. E. L. Dorsett, St. Louis.—p. 99.
Some Complications of Pregnancy and Labor in General Practice with Treatment. J. D. James, Springfield.—p. 102.
Office Management of Ambulatory Gynecologic Patients. R. R. Wilson, Kansas City.—p. 105.
Pyelitis of Pregnancy. C. E. Burford, St. Louis.—p. 108.
Vomiting of Pregnancy: Outline of Rational Therapy. C. R. Wegner, St. Louis.—p. 109.
Tuberculosis in Pregnancy. A. C. Henske, St. Louis.—p. 111.
Heart Disease and Pregnancy. J. Jensen, St. Louis.—p. 112.
Appendicitis in Pregnancy. D. Sauer and F. Bailey, St. Louis.—p. 113.
Pregnancy and Rectal Diseases. W. K. McIntyre, St. Louis.—p. 114.
Pregnancy and the Skin. C. W. Lane, St. Louis.—p. 115.
Relationship of Prenatal Nutrition to Fetal Tooth Development. A. O. Gruebbel, Jefferson City.—p. 117.
Rocky Mountain Spotted Fever: Report of Case. J. Zahorsky, St. Louis.—p. 118.
Nupercaine: Its Place in Urologic Practice. N. F. Ockerblad and H. E. Carlson, Kansas City.—p. 120.
Pyelitis Due to Bacillus Dysenteriae (Flexner), with Response to Sulfanilamide. A. C. Van Ravenswaay, Boonville.—p. 122.
Head Injuries and Their Mental Sequelae. E. T. Gibson, Kansas City.—p. 123.
Acute Retrocecal Appendicitis: Clinical Sign of Diagnostic Value. V. T. Williams, Kansas City.—p. 126.
Factors Influencing the Birth Rate and Maternal and Infant Mortality Rates in Missouri. J. W. Chapman, Jefferson City.—p. 127.

Nebraska State Medical Journal, Lincoln

24: 81-120 (March) 1939

Diagnosis and Management of Peripheral Vascular Disease. G. de Takats, Chicago.—p. 81.
Prevention and Early Diagnosis of Rheumatic Heart Disease. C. J. Lundy, Chicago.—p. 83.
Gastroscopy in Diagnosis of Diseases of the Stomach. R. R. Best and A. M. Popma, Omaha.—p. 86.
Acute Appendicitis with Perforation. J. Weinberg, Omaha.—p. 89.
Newer Developments in Child Nutrition. P. C. Jeans, Iowa City.—p. 92.
Anorexia. A. G. Dow, Omaha.—p. 96.
Nutrition as Affected by the Economic Level. G. E. Robertson, Omaha.—p. 98.
Treatment of the "Refractory" Anemias. J. C. Sharpe and S. G. Rathburn, Omaha.—p. 103.
Hysteria: Exposition of the Theory of T. A. Ross. R. F. Richie, Lincoln.—p. 107.

New England Journal of Medicine, Boston

220: 269-314 (Feb. 16) 1939

Experimental Studies Concerning the Nature of Hypertension: Their Bearing on Surgical Treatment. S. J. G. Nowak and I. J. Walker, Boston.—p. 269.
Pelvic Sympathetic Surgery for Relief of Bladder Pain: Resection of Superior Hypogastric Plexus and Lateral Sacral Sympathetic Ganglions in Tuberculous Cystitis. C. F. Schroeder, Detroit.—p. 274.
Various Methods of Determining the Early Diagnosis of Arteriosclerosis in Diabetes. L. I. Kramer, Providence, R. I.—p. 278.
*Alcohol Tolerance Tests in Normal Individuals and in Patients with Diabetes Mellitus and Diabetes Insipidus: Effect of Pituitrin, Insulin, Food and Forced Water on Blood and Urine Alcohol Levels After the Ingestion of Alcohol. H. Blotner, Boston.—p. 283.
Abdominal Surgery. A. W. Allen, Boston.—p. 290.

Alcohol Tolerance Tests in Normal and Diabetic Persons.—Blotner discusses the results of some alcohol tolerance tests that he performed on normal persons and on patients with diabetes insipidus and diabetes mellitus following the ingestion of 0.6 cc. of absolute alcohol per kilogram of body weight. He also studied the effect of insulin, solution of posterior pituitary, food and forced water intake on these tests. Symptoms of alcoholic intoxication appeared in these people when the alcohol concentration of the blood and the urine were below 63 mg. per hundred cubic centimeters, in comparison to the much higher levels reported by others. Alcohol curves of the blood and the urine after a test meal were slightly higher in patients with diabetes insipidus than in normal persons. Solution of posterior pituitary reduced the alcohol levels of the blood and the urine in both these groups; nevertheless it increased considerably the symptoms of alcoholic intoxication in the former. In the patients with diabetes mellitus the alcohol levels of the blood and the urine were appreciably higher than normal, although the symptoms of alcoholic intoxication were much the same. The administration of insulin had no effect on the alcohol curves or on the symptoms of alcoholic intoxication. An alcoholic odor on the breath may cause confusion in the diagnosis of coma due to insulin or acidosis. The ingestion of food before the ingestion of alcohol produced a striking decrease in the alcohol levels of the blood and urine and in the symptoms of alcoholic intoxication in diabetic patients. The diuresis resulting from forced water intake and uncontrolled diabetes insipidus did not dilute the concentration of alcohol in the urine but increased the total amount of alcohol excreted in it. Nevertheless, forcing water in the case of an alcoholic patient would not produce any appreciable results in therapy, because the total alcohol eliminated by this method is small compared to the amount ingested.

220: 315-364 (Feb. 23) 1939

Experiences with Gastrectomy, Total and Subtotal. F. H. Lahey, Boston.—p. 315.
David Williams Cheever. F. B. Lund, Boston.—p. 321.
Surgical Diseases of the Extrahepatic Bile Ducts. I. S. Ravdin, Philadelphia.—p. 326.
Use of Vinyl Ether (Vinethene) in Infancy and Childhood: Report of 100 Cases. R. E. Gross, Boston.—p. 334.
*Use of Specific Serums in Treatment of Pneumonias Associated with Pneumococci of the "Higher" Types. M. Finland, Boston.—p. 336.
Gastro-Enterology. C. M. Jones, Boston.—p. 339.

Serums for Pneumonias of "Higher" Types.—Finland believes that type V, VII and VIII pneumonia is sufficiently prevalent to make it possible to accumulate significant numbers of cases within a reasonable time to indicate the efficacy of any therapy. Pneumonias due to the "higher" types may be quite atypical in their symptomatology and in the character of the

pulmonary lesions produced. This is in sharp contrast to types I and II, which except in rare cases are associated with typical lobar pneumonias. Thus a small percentage of cases of type V pneumonia are atypical, but among those due to types VII and VIII, particularly the latter, the disease may be atypical in a considerable proportion of cases. The experience of all observers who have treated any appreciable number of cases of type V pneumonia with serums has been uniformly favorable. In most clinics, including the Boston City Hospital, the results as judged by the reduction in mortality and the occurrence of rapid clinical improvement have been comparable to those obtained in type I cases or even better. Experiences with type VII and VIII cases, on the other hand, have varied widely; most of them have been favorable, and the mortality in specifically treated cases has been lower than that of non-serum treated cases. One may also include type XIV pneumonia in infants and young children among those which have given favorable results in clinics in which serum has been used extensively. There are many fundamental reasons underlying the differences in result, and these are in no way different from the circumstances previously encountered in type I and II cases. Therefore every effort should be made to acquire the necessary basic information with regard to the frequency of the various types in pneumonia, the bacteremic incidence, the death rates among the various types of pneumonia and the occurrence of the same types of pneumococci in the respiratory tract under other conditions. In acutely sick patients with good sputum raised from the bronchi, particularly if it is rusty, the discovery of a given type as the only or definitely predominating organism is adequate indication for specific serum, and its proper employment will probably increase the chances of rapid recovery. Further experience may reveal that certain of the types are more regularly and intimately related to pneumonia than are others. Already it appears that a greater proportion of types IV, XII and XVIII pneumococci, for example, are causative agents in pneumonia than are those of types VI, X, XX and types "higher" than XX. This is only relatively true, however, since probably every type may cause severe and even fatal pneumonia under the proper circumstances or in a particular individual.

New York State Journal of Medicine, New York

39: 401-488 (March 1) 1939

Topical Application of Vitamin A: Efficiency Judged by Growth Stimulation. W. H. Eddy and Joan L. Howell, New York.—p. 406.
Afterpains. S. B. Blakely, Binghamton.—p. 411.
Clinical Experiences with Sulfanilamide Therapy, with Special Reference to Toxic Effects. R. Ottenberg, New York.—p. 418.
General Paresis: Biologic and Serologic Variants Affecting Results of Treatment. B. Pollack, Rochester.—p. 431.
Carcinoma of Rectum and Colon: Early Diagnosis and Treatment. F. C. Yeomans, New York.—p. 439.
*Chancroid: Comparative Study of Ito Test Made with Three Vaccines. H. C. Saunders, O. Canizares and R. F. Reider, New York.—p. 447.
Therapeutic Use of Bacteriophages, Particularly in Sepsis. W. J. MacNeal, New York.—p. 451.

Ito Test for Chancroid.—Saunders and his associates believe that the Ito test, performed with vaccines of Ducrey streptobacilli, is specially valuable in the diagnosis of long-standing chancroids. In the majority of these phagedenic lesions, in which autoinoculations are usually negative, the Ito test is always positive. The negative autoinoculations in these cases are probably due to the overgrowth of the Ducrey streptobacillus by common pyogenic bacteria. They substantiate the opinions of other observers that the Ducrey vaccine is satisfactory as a diagnostic test in the majority of cases. In a comparison of Greenblatt's vaccine with dmelcos, 180 tests were performed on eighty-six individuals. The tests were positive in forty-four cases and negative to both vaccines in forty-six cases. In twenty-six of the positive cases the two vaccines gave equal reactions. Greenblatt's vaccine gave stronger reactions than dmelcos in four cases and weaker reactions in sixteen cases. A comparison of an American commercial vaccine with dmelcos (sixty-two tests on twenty-seven persons) gave nineteen negative and twelve positive reactions with both vaccines. In five of the positive cases the two vaccines gave equal reactions. The commercial vaccine was stronger in one case and weaker in six cases. In comparing the three vaccines, 360 tests were performed on 112 persons; seventy-six gave negative reactions to all vaccines, forty-four gave positive reactions, of which twenty-six were of equal intensity, and eight gave the strongest reaction with dmelcos, four with Greenblatt's and four with the commercial vaccine. When the reaction to dmelcos vaccine was negative, the other two vaccines also gave negative reactions. The differences in the positive reactions were slight and in no case of such a degree as to be of any practical value. Therefore the specificity of the two American Ducrey vaccines for the diagnosis of chancroidal infections is confirmed.

Psychoanalytic Quarterly, Albany, N. Y.

8: 1-138 (Jan.) 1939

Notes on Identification in Case of Depression Reactive to Death of Love Object. M. W. Peck, Boston.—p. 1.
Character and Symptom Formation: Some Preliminary Notes with Special Reference to Patients with Hypertensive, Rheumatic and Coronary Disease. F. Dunbar, New York.—p. 18.
Observations on World Destruction Fantasies. W. J. Spring.—p. 48.
Problems of Psychoanalytic Technic. O. Fenichel, Los Angeles.—p. 57.
Schopenhauer and Freud: Comparison. W. Bischler, Geneva, Switzerland.—p. 88.
Contributions of Psychoanalysis to Education of the Adolescent. Caroline B. Zachry, New York.—p. 98.

Public Health Reports, Washington, D. C.

54: 287-334 (Feb. 24) 1939

Studies of the Acute Diarrheal Diseases: I. Differential Culture Mediums. A. V. Hardy, J. Watt, T. M. De Capito and M. H. Kolodny.—p. 287.
Clegg's Ameba Culture Method for Growing Mycobacterium Leprae. Florence L. Evans.—p. 301.
*Glucose Tolerance in Rheumatic Fever. M. P. Schultz.—p. 305.

54: 335-372 (March 3) 1939

Preventive Clinic Facilities Available in Ninety-Four Selected Counties of the United States. A. J. Borowski and Margaret Lovell Plumley.—p. 335.
Catalytic Potency of Blood in Rheumatic Fever. M. P. Schultz and Edythe J. Rose.—p. 343.
Study of Quartz-Fusing Operations, with Special Reference to Measurement and Control of Silica Fumes. E. C. Riley and J. M. DallaValle.—p. 352.

Dextrose Tolerance in Rheumatic Fever.—Schultz obtained curves indicating the degree of dextrose tolerance in ten patients with rheumatic fever and fourteen with various febrile diseases. In none of the patients is it apparent that the patient with rheumatic fever, in comparison with those suffering from other febrile diseases, possessed an increased degree of dextrose tolerance. However, in comparison four rheumatic patients showed a relatively decreased dextrose tolerance. This may perhaps be accounted for by the occurrence of slightly higher temperatures in the rheumatic fever patients in some instances. In both groups temperatures had been closely comparable during preceding days and, with the exception of one comparison, the erythrocyte sedimentation rates agreed closely. On the basis of dextrose tolerance tests the author states that no association between rheumatic fever and hyperinsulinism is demonstrable.

Rhode Island Medical Journal, Providence

22: 39-56 (March) 1939

Relation of Household Dusts to Asthma in Childhood. W. P. Buffum and S. S. Freedman, Providence.—p. 42.

Rocky Mountain Medical Journal, Denver

36: 145-216 (March) 1939

*Common Animal Parasites Transmissible to Man. E. R. Mugrage, Denver.—p. 162.
Newer Methods of Treatment in Psychiatry. C. H. Barnacle, Denver.—p. 164.
Brain Tumors with Focal Symptoms. L. E. Daniels, Denver.—p. 168.
Surgical Problems of the Gallbladder and Bile Ducts. A. S. Jackson, Madison, Wis.—p. 171.
Heart Disease in Colorado. E. Durbin, Denver.—p. 173.

Common Animal Parasites Transmissible to Man.—Endamoeba histolytica, Trichomonas hominis, Ascaris lumbricoides and Enterobius vermicularis, according to Mugrage, are endemic in the vicinity of Colorado and he believes that more frequent stool examinations in the laboratory would undoubtedly disclose other parasites. Animal parasites seldom seen now may be encountered in the future owing to the increasing use of rapid transportation, the airplane particularly. Any person coming from a country in which animal parasites are prevalent is potentially a carrier. Animals or birds brought in, or even the airplane, automobile, ship or baggage can also

act in a similar way. With rapid transportation the incubation period for development of the parasite may extend beyond the time of arrival of the host at his destination, with subsequent development of symptoms not diagnosed unless this possibility is considered. A few cases of malaria have been seen at Colorado General Hospital with symptoms developing after the person's return to Colorado from the South. The United States Public Health Service considers this possibility a definite problem, and its personnel inspects both passengers and airplanes on all commercial airlines coming into this country. The Army and Navy medical corps also consider animal parasites of major importance in their problems on health and sanitation and their medical schools stress this subject. Other governmental departments are also active on this public health problem of parasite control, which the medical profession in general practice has largely slighted.

South Carolina Medical Assn. Journal, Greenville

35: 57-82 (March) 1939

Present Status of Prostatic Surgery. L. P. Thackston, Orangeburg.—p. 57.
Dr. John Moultrie of Charles Town. P. Rucker, Richmond, Va.—p. 60.
Congenital Vomiting—Causes and Treatment. W. Weston Jr., Columbia.—p. 62.

Southern Medical Journal, Birmingham, Ala.

32: 233-340 (March) 1939. Partial Index

Treatment of Carcinoma of the Cervix Uteri: Tissue Changes During and Following Radiation Therapy. J. C. King and W. W. Brandes, Memphis, Tenn.—p. 233.
Improved X-Ray Technic in Studying Knee Joints. E. C. Holmblad, Chicago.—p. 240.
Tuberculosis and Tuberculids. H. S. Alden and J. W. Jones, Atlanta, Ga.—p. 256.
Exercise Tolerance Test (Master and Oppenheimer) in Estimation of the Capacity of the Diseased Heart. B. R. Heninger, New Orleans.—p. 262.
Thermophore Treatment of Retinal Detachment. L. T. Post, St. Louis.—p. 273.
Conservative Management of Sinuses. J. W. Jervey Jr., Greenville, S. C.—p. 278.
Surgical Aspects of Chronic Sinusitis. W. R. McKenzie, Baltimore.—p. 283.
Lye Poisoning and Stricture of the Esophagus: Report of Fifty Cases. J. M. Martin and J. M. Arena, Durham, N. C.—p. 286.
Lobar Pneumonia. D. R. Sacks and L. Rice, San Antonio, Texas.—p. 294.
*Mode of Action of Sodium Sulfocyanate in Reducing Hypertension: Report of Its Effect on the Erythrocytes. H. M. Doles, Norfolk, Va.—p. 299.
Cancer, Trauma and Compensation. E. L. Bishop, Atlanta, Ga.—p. 302.
Clinical Correlates of Functional Uterine Bleeding. E. C. Hamblen, Durham, N. C.—p. 308.
Hemorrhage in Pregnancy, with Brief Analyses of Cases of Hemorrhage During the Last Ten Years at the University and St. Anthony Hospitals in Oklahoma City. W. W. Wells, Oklahoma City.—p. 319.
Syphilis and Life Insurance. T. W. Murrell and R. C. Manson, Richmond, Va.—p. 322.
*Treatment of Dermatoses of Intestinal Origin with Castor Oil and Sodium Ricinoleate. A. G. Schoch, Dallas, Texas.—p. 326.
Premonitory Pain in Coronary Artery Occlusion. W. Langston, Oklahoma City.—p. 333.

Action of Sodium Thiocyanate on Hypertension.—Doles studied the value of the thiocyanates by giving ten patients with hypertension and macrocytosis a general diet with an intake of 30 mg. of iron daily through food and water. After the fifth day the output of iron in twenty-four hours was estimated in the stools and urine for four days. The average daily output was from 14.5 to 16 mg. The patients were then given a diet in which the maximal intake of iron in twenty-four hours did not exceed 7.5 mg. and after the fifth day quantitative determinations were made for five consecutive days. Only a faint trace of iron could be found in the stools and none in the urine. The same procedure was carried out with this diet being continued and the patient was given 3 drachms (12 Gm.) of sodium thiocyanate twice a day. From 12.5 to 24.5 mg. of iron, depending on the patient, was recovered in the stools and urine every twenty-four hours. As long as the patient showed a relatively high output of iron in the stools and urine there was a fall in the volume of packed cells with a corresponding fall in the blood pressure. However, four patients did not give up their iron readily; and it was many months before the macrocytosis or blood pressure responded. Contraindications to the use of thiocyanates are hypertension in which the cells are normocytic, normochromic, normocytic hypochromic, microcytic normochromic or microcytic hypochromic, or in macrocytic hypertensions which show an increase in the icterus index of 7 units or more without evidence of hepatic disease.

Castor Oil for Dermatoses of Intestinal Origin.—Schoch treated ten patients who had dermatoses presumably of intestinal origin with castor oil by mouth or a castor oil derivative (sodium ricinoleate and kaolin emulsion). In nine there was clinical evidence that prompt benefit resulted from the administration of castor oil or its derivative. Not the slightest benefit resulted from the administration of the castor oil in the remaining patient, even though the dermatosis was definitely intestinal in origin. Castor oil is probably more thorough in its cathartic action than the usually prescribed saline laxatives. The favorable influence that sodium ricinoleate apparently exerts in some cases is not clearly understood.

Surgery, Gynecology and Obstetrics, Chicago

68: 595-722 (March) 1939

*Multiple Primary Malignant Lesions. L. K. Stalker, R. B. Phillips and J. deJ. Pemberton, Rochester, Minn.—p. 595.
*Fate of Living and Dead Cartilage Transplanted in Humans. L. A. Peer, Newark, N. J.—p. 603.
Modern Surgical Treatment of Ureterocele. R. Gutierrez, New York.—p. 611.
Aseptic Necrosis of Bone: II. Infarction of Bones of Undetermined Etiology Resulting in Encapsulated and Calcified Areas in Diaphyses and in Arthritis Deformans. S. C. Kahlstrom, Bath, N. Y.; C. C. Burton, Dayton, Ohio, and D. B. Phemister, Chicago.—p. 631.
Diagonal Conjugate versus X-Ray Pelvimetry. A. L. Dippel, Baltimore.—p. 642.
Pauwels' Reclination, Physiologic Reconstruction for Nonunited Fracture of Neck of Femur. G. J. Karfiol, San Francisco.—p. 648.
Technic of Mammaplasty in Conditions of Hypertrophy of the Breast. H. Gillies and A. H. McIndoe, London, England.—p. 658.
Accessory Renal Vessels: Their Influence in Certain Cases of Hydronephrosis. H. J. Jewett, Baltimore.—p. 666.
Intracranial Solitary Chondroma. J. Chorobski, J. Jarzymski and E. Ferens, Warsaw, Poland.—p. 677.
Acute Putrid Abscess of the Lung: III. Roentgenographic Features. A. S. W. Touroff and H. Neuhof, New York.—p. 687.
Operative Management of Fibromyomas in the Uterus at Term. C. P. Huber, Indianapolis, and H. C. Hesseltine, Chicago.—p. 699.
Jejunoplasty for Obstruction Following Gastro-Enterostomy or Subtotal Gastric Resection. C. L. Hoag and J. B. deC. M. Saunders, San Francisco.—p. 703.
Fractures of Neck of Femur Treated with Smith-Petersen Nail: Analysis of Seventy-Eight Cases During 1937. S. M. Leydig, St. Louis.—p. 713.

Multiple Primary Malignant Lesions.—From a review of the literature of the last twenty years, Stalker and his colleagues find that multiple primary malignant lesions occur more frequently than is generally suspected. They made a study of 2,500 cases of malignant lesions in which operation was performed at the Mayo Clinic during 1937. They found 113 instances of multiple primary neoplasms in this group of cases. In these cases there were 327 separate neoplasms; 167 involved the skin and lip, forty-seven of the neoplasms were situated in the gastrointestinal tract, forty-three in the mammary gland, twenty-seven in the ovaries and fourteen in the uterus or cervix, and twenty-nine were situated in various other parts of the body.

Fate of Living and Dead Cartilage.—Desiring to obtain more definite information concerning the fate of human cartilage grafts in human tissues, Peer performed the following experiments: 1. Six segments of cadaver cartilage preserved in alcohol were transplanted beneath the skin of six other human beings and removed for examination at intervals of from six months to two years. 2. Eight segments of living autogenous costal cartilage were buried beneath the skin of eight human beings and removed for examination at intervals of from six months to six years. All these grafts were transplanted without perichondrium. Dead cartilage grafts buried from nine and one-half months to two years showed progressive invasion by fibrous tissue and partial absorption. In contrast to this, autogenous rib cartilage grafts showed no invasion or absorption over the same period. Two late autogenous rib cartilage grafts buried for four and one half and six years, respectively, appeared as living cartilage. From the evidence found in these sections one may conclude that autogenous rib cartilage survives after transplantation as living cartilage and, up to periods as long as six years, neither increases nor decreases in size. Therefore autogenous rib cartilage is better material for plastic repair than dead, pickled cartilage.

Tennessee State Medical Assn. Journal, Nashville

32: 39-76 (Feb.) 1939

Sulfanilamide: Review. E. H. Barksdale, Nashville.—p. 39.
Medical Management of Chronic Gallbladder Disease. L. C. Sanders, Memphis.—p. 47.
Intravenous Use of Morphine Sulfate in Treatment. B. R. Powers, Knoxville.—p. 50.

Virginia Medical Monthly, Richmond

66: 129-190 (March) 1939

Early Diagnosis in Pneumonia. W. P. Adams, Norfolk.—p. 129.
Diagnosis and Treatment of Lobar Pneumonia. D. G. Chapman, Richmond.—p. 132.
Type III Pneumococcus Pneumonia: Report of Case Successfully Treated with Specific Serum. J. P. Kent, Altavista.—p. 136.
Prevention of the Common Cold. J. R. Hamilton, Nassawadox.—p. 139.
Bang's Disease. I. D. Wilson, Blacksburg.—p. 142.
Roentgen Ray Examination of the Colon. W. P. Gilmer, Clifton Forge.—p. 143.
Otogenic Acute Suppurative Arthritis. F. H. McGovern, Danville.—p. 146.
*Acute Arsenic Poisoning. W. A. Porter, Hillsville.—p. 148.
Snares and Pitfalls in Medicine as Shown in Review of Three Cases: Brilliant Results and Cures by Modern Medicine in Two Cases. W. E. Driver, Norfolk.—p. 151.
Care and Feeding of the Newborn and the Premature from the Pediatric Point of View. J. B. Stone, Richmond.—p. 158.
Myxedema. K. D. Graves, Roanoke.—p. 162.
Value of the Periodic Health Examination. R. F. Simms, Richmond.—p. 164.
Responsibility of the General Practitioner in Prevention of Mortality in Acute Abdominal Conditions. H. W. Smeltzer, Abingdon.—p. 169.
Significance and Management of Ankle Edema. W. C. Reed, Richmond.—p. 171.
Fish-Bone Perforating the Cecum Simulating Acute Appendicitis. W. Fry, Washington, D. C.—p. 173.

Acute Arsenic Poisoning.—Besides the usual treatment of arsenic poisoning Porter used 800 international units of vitamin B_1 daily. The salient feature in the patients receiving the vitamin was the absence of diarrhea. It is his belief that the use of vitamin B_1 has a definite place in the treatment of toxic neuritis from metal poisoning. Prompt improvement of neuritic pains occurred after the vitamin B_1 had been administered for only a few days.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

47: 55-106 (Feb.) 1939

*Recurrent Hyperthyroidism: Likelihood of Recurrence in Relation to Preoperative Blood Iodine Level. R. B. Cattell and H. J. Perkin, Boston.—p. 55.
Medical Aspects of Treatment of Toxic Goiter. J. H. Means, Boston.—p. 62.
Microhistometric Method Applied to Thyrotropic Hormone Assay. P. Starr, R. W. Rawson, R. E. Smalley, E. Doty and Helen Patton, Chicago.—p. 65.
Hyperinsulinism Due to Tumor of the Pancreas: Case Report. R. D. Forbes, C. F. Davidson and J. Duncan, Seattle.—p. 76.
Varicose Veins in Pregnancy. A. M. McCausland, Los Angeles.—p. 81.
Chronic Duodenal Obstruction: Two Case Reports. B. P. Mullen, Seattle.—p. 85.
Tuberculous Subphrenic Abscess and Empyema with Perforation of Diaphragm: Report of One Case. H. N. Roback and J. N. Alley, Medical Lake, Wash.—p. 88.
Fused Placentas Simulating Single Placenta. C. L. Wilson and A. C. Webb, Chicago.—p. 91.
Surgical Approach to Hypertension: Division IV. F. M. Findlay, San Diego, Calif.—p. 94.

Recurrent Hyperthyroidism.—Cattell and Perkin relate the data of patients with recurrent or persistent hyperthyroidism observed at the Lahey Clinic in the last decade. They present evidence which suggests that the level of iodine in the blood in hyperthyroidism may be used as an index for determining the amount of thyroid tissue to be removed. Persistent hyperthyroidism results from not removing enough of the gland. Recurrent hyperthyroidism is a return of the primary disease at some time following operation, after an interval of complete relief from toxic symptoms. The causes of recurrent hyperthyroidism are as obscure as are the factors responsible for the original disease. From 1928 to 1937 inclusive subtotal thyroidectomy in one or more stages was performed on 4,956 patients. Of these patients 119 were later operated on for persistent hyperthyroidism and 187 for the recurrent type. The average time interval between the initial and second operation for persistent hyperthyroidism was two years and four months; for recurrent hyperthyroidism it was seven years and eleven months. The authors believe that following the initial thyroid operation recurrent hyperthyroidism can be often prevented if the patient is watched carefully. Their patients are advised to refrain from work for from six to twelve weeks. Daily periods of rest, avoidance of stimulants and excitement are necessary. Careful follow-up examinations including a basal metabolism test are done every three months for one year and every year for five years. At these examinations minor complaints are treated and general means are employed for rehabilitation. Follow-up study has led the authors to conclude that the use of iodine following subtotal thyroidectomy for hyperthyroidism did not reduce the incidence of recurrent or persistent hyperthyroidism. A study of the preoperative and postoperative blood iodine levels in 256 cases of exophthalmic goiter has given them a means of predicting cases in which recurrence is likely to happen. This prediction can be made prior to the initial thyroid resection and accordingly is a guide in selecting those patients who should have the more radical thyroidectomy. A correlation exists between the blood iodine level and the duration of symptoms in patients with exophthalmic goiter. The blood iodine level tends to be elevated in cases with symptoms of hyperthyroidism for nine months or less. After symptoms have been present for one year or longer the blood iodine level is generally found to be within normal limits. A further insight into the iodine metabolism in exophthalmic goiter has been gained by estimating the concentration of iodine in the blood at intervals following operation. Of 256 cases studied, 100 were followed for one year. The blood iodine results in these patients show that each case can be classified into one of three groups. Group 1 consists of 170 patients with hyperthyroidism who had an elevated blood iodine before treatment was commenced. Following subtotal thyroidectomy the blood iodine was found to remain normal throughout the year during which they were followed. Fifteen patients showed transitory postoperative myxedema, while only one had recurrent hyperthyroidism. Group 2 consists of sixty-one patients with hyperthyroidism who had a normal preoperative blood iodine level and following subtotal thyroidectomy were found to have an increase in the concentration of iodine in the blood. The greatest elevation of blood iodine usually occurred six months after operation. After one year the level of iodine in the blood returned to normal. Two patients of this group had transitory hypothyroidism, while twelve had recurrent hyperthyroidism. Group 3 consists of twenty-five patients in whom the blood iodine level was normal preoperatively and was found to remain normal during the year following subtotal thyroidectomy. Only one patient had transitory postoperative myxedema. Therefore it appears that in order to decrease the rate of recurrence in group 2 it becomes necessary to do a more radical subtotal thyroidectomy in all patients having a normal blood iodine level preoperatively.

West Virginia Medical Journal, Charleston

35: 105-152 (March) 1939

Pathogenesis of Low Back Pain. E. L. Compere, Chicago.—p. 105.
Control of Tuberculosis in West Virginia. G. E. Gwinn, Beckley.—p. 116.
Prevention and Modification of Measles. F. J. Holroyd, Princeton.—p. 121.
Sulfanilamide Treatment of Undulant Fever. L. B. Hart, Beckley.—p. 126.
Gout: An Ancient Wolf in Modern Sheep's Clothing. J. L. Wade, Parkersburg.—p. 128.
Sulfanilamide in Treatment of Gonorrhea in the Female. A. P. Hudgins, Charleston.—p. 137.

35: 153-200 (April) 1939

Nephropexy. G. F. McKim, Cincinnati.—p. 153.
Hernia in Infancy. C. T. Thompson, Morgantown.—p. 158.
Effect of Pulmonary Emphysema on the Heart. H. M. Korns, Iowa City.—p. 160.
Maternal and Child Health Services Under the Social Security Act. Clara E. Hayes, Washington, D. C.—p. 164.
Foregut—Triumphant Entry to Conflict. N. B. Hendrix, Martinsburg.—p. 169.
Reflections on the Diagnosis and Treatment of Coronary Occlusion. I. I. Hirschman and L. B. Gang, Huntington.—p. 179.
Staphylococcic Septicemia: Case Report. J. F. Morris, Huntington.—p. 186.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

51: 51-108 (Feb.) 1939

*Pellagra in Great Britain Since 1934. J. H. T. Davies and H. G. McGregor.—p. 51.
Phytopharmacologic Index in Pemphigus: Note. F. W. Sansome and L. Forman.—p. 63.
Further Experimental Studies of Pemphigus. L. Fleck and F. Goldschlag.—p. 70.

Pellagra in Great Britain.—Davies and McGregor present a summary of the twelve cases reported as pellagra in Britain since 1934 and add four new cases seen by them. They believe that there is sufficient evidence to show that vitamin B_2 deficiency alone is not sufficient explanation for the occurrence of pellagra. Murray calls attention to the facts that maize is not inferior to rice or wheat in vitamin B_2 content, yet a rice diet rarely gives rise to pellagra, while a diet of maize often does, and that the consumption of yellow maize, in distinction to white, does not predispose to the disease. Again, many cases have been reported in which the diet previous to the onset of the disease was reasonably full and varied; the preponderance of the disease in the female sex also points to some additional factor besides vitamin deficiency. The former point is made much of by the exponents of the infective theory. The latter suggests the possible influence of the endocrines. Further, although Goldberger has shown that rat pellagra is purely a vitamin B_2 deficiency disease, variable only in relation to this deficiency, human pellagra shows an additional variation—a seasonal one. Sabry postulates a mother substance, or pellagratoxin, which is acted on by a ferment in the presence of sunlight to produce melanin. The mother substance is phenylalanine; he has identified the ferment as dopa-oxidase, which is present in maize and some other foods. Sabry injects thiosulfate, which, it is claimed, neutralizes the pellagratoxin. The exact part played by light, however, in producing the eruption is by no means clear. Crutchfield regards trauma of various kinds more important than any specific photodynamic action of the sun. Other substances besides vitamin B_2 are now known to have antipellagra properties. Chief among these is nicotinic acid. Though neither the maximal nor the minimal dose has been ascertained, the factor may well be administered in daily doses of 50 mg. Finally, there remains for discussion the possibility of an association between pellagra and Addison's disease. The connection has been proposed because of the frequent occurrence in pellagrins of symptoms suggestive of Addison's disease: hypotension, pigmentation, subnormal temperature, weakness and gastrointestinal upsets. According to Simpson, the situation may be epitomized as follows: 1. Vitamin deficiency might cause both pellagra and adrenal insufficiency in the same patient. 2. Adrenal insufficiency might occur in the course of pellagra as a sequel to malnutrition. 3. Pellagra might occur in the course of chronic Addison's disease as a sequel to the associated anorexia. In the present state of knowledge it would seem that no definite ruling can be given on the question of a direct etiologic association between the two conditions.

Edinburgh Medical Journal

46: 61-152 (Feb.) 1939

*The Expectancy of Life After Ureteral Transplantation. H. Wade.—p. 61.
Field of Vision and Anatomy of the Visual Nerve Path. H. M. Traquair.—p. 83.
Tumors of the Lung, Mediastinum and Pleura. M. C. Tod.—p. 95.
Observations on the Virus of Influenza, with a View to Elaborating a Simple Diagnostic Test Whereby Its Presence in the Respiratory Tract of Man May Be Revealed. W. J. Tulloch.—p. 117.

Life Expectancy After Ureteral Transplantation.—Wade states that, in order to determine the expectancy of life after ureteral transplantation and to assess accurately how far, if at all, this has been shortened by the establishment of a cloaca, it is necessary to select patients in sound general health and free of disease, but in whom the urinary bladder was irreparably damaged by developmental error or accident. In this category are included certain cases of complete vesical exstrophy, subsymphysial exstrophy and vesicovaginal fistula with destruction of the vesical sphincter from obstetric injuries or similar cause. Cases are now available in which a sufficient period has elapsed since ureteral transplantation to enable one to estimate accurately the influence of this operation on the general health of the patient and the expectancy of life. In this connection the author cites four cases in which the ureters were transplanted into the pelvic colon for the congenital malformation of vesical exstrophy. They demonstrate conclusively to him that when ureteral transplantation has been successfully performed the patient is given not only comfort, happiness and good health but also the prospect of a natural length of life. His patients were operated on thirty, twenty-eight, twelve and eleven years ago, respectively. This shows that only in those persons in whom a congenital deformity or traumatic injury is being corrected ureteral transplantation is a relatively safe procedure and fully warranted in these distressing disabilities.

Journal of Hygiene, London

39: 1-90 (Jan.) 1939

Streptolysins of Various Groups and Types of Hemolytic Streptococci: A Serologic Investigation. E. W. Todd.—p. 1.
Ventilation of Houses After Fumigation with Hydrogen Cyanide. A. B. P. Page, O. F. Lubatti and F. P. Gloyns.—p. 12.
Investigation on Seasonal Fluctuation of Vitamin C Excretion in Palestine. K. Guggenheim.—p. 35.
Note on the Percentage Loss of Calories as Waste on Ordinary Mixed Diets. E. P. Cathcart and A. M. T. Murray.—p. 45.
*Milk Epidemic of Scarlet Fever and Angina, Originating from a Milkmaid with Scarlatinal Otitis Media. E. J. Henningsen and J. Ernst.—p. 51.
Influence of Air Movement and Atmospheric Conditions on Heat Loss from a Cylindrical Moist Body. A. J. Canny and C. J. Martin.—p. 60.

Milk Epidemic of Scarlet Fever.—Henningsen and Ernst report a milk epidemic of scarlatinal angina. There were 118 cases of scarlet fever and about fifty cases of sore throat. The infection was spread through contamination of the milk from a milkmaid with purulent otitis media after nonrecognized scarlet fever. On cultivation, Streptococcus pyogenes, group A (Lancefield), type 3 (Griffith) was isolated from 108 of the patients and from pus from the ear of the milkmaid. The cows, on the other hand, and their milk were found to be normal. Inquiry into the conditions under which the milk was distributed to the consumers confirms the connection between the otitis media in the milkmaid and the epidemic of scarlet fever. The cases in this epidemic were mild, but still one patient died of complicating bronchopneumonia.

Journal of Laryngology and Otology, London

54: 61-120 (Feb.) 1939

The History of Cancer of the Larynx. St. Clair Thomson.—p. 61.
Normal Hearing by Bone Conduction. A. Greenbaum, Phyllis Margaret Tookey Kerridge and E. J. Ross.—p. 88.

Journal of Tropical Medicine and Hygiene, London

42: 17-32 (Jan. 16) 1939

The Ultraviolet Absorption Spectrums of Serums in Human Schistosomiasis. A. Hassan.—p. 17.
Brief Notes on Columbensis Fever: Report of Case. G. Scotti.—p. 19.
Diseases of the Skin in Negroes. L. J. A. Loewenthal.—p. 20.

42: 33-48 (Feb. 1) 1939

*Treatment of Oriental Sore (Leishmaniasis Cutanea) with Fuchsin Paint. A. Castellani and G. Amalfitano.—p. 33.
Incidence of Bacterium Aerogenes and Intermediates in Human Feces. M. Mollari, W. A. Randall and R. Reedy.—p. 34.
Diseases of the Skin in Negroes. L. J. A. Loewenthal.—p. 36.

Treatment of Oriental Sore with Fuchsin.—Castellani and Amalfitano obtained satisfactory results with fuchsin paint in the treatment of three cases of cutaneous leishmaniasis. The fuchsin paint consists of 10 cc. of saturated alcoholic solution of basic fuchsin and 100 cc. of 5 per cent phenol solution. This is filtered and 1 Gm. of boric acid is added. After two hours 5 cc. of acetone is added, and still two hours later 10 Gm. of resorcinol is added. The solution is kept in dark stoppered bottles. The technic of treatment is as follows: For two days a dressing of boric acid (1 per cent) and resorcinol (1 per cent) is applied to the sore. The parts should be continuously kept moist with the lotion. This removes the crusts and scales present. Then the fuchsin paint is applied to the sore regularly twice a day and 2 cc. of the same solution is given intramuscularly every other day. The solution may also be injected into the nodule

and around it. Every eight or ten days the application of the fuchsin to the sore is discontinued for one or two days, when the boric acid and resorcinol dressing is again applied. The treatment effected a cure in the three cases reported in from two to three and one half months.

Lancet, London

1: 309-368 (Feb. 11) 1939

Treatment of Pneumonia with 2-(*p*-Aminobenzenesulfonamido) Pyridine (Sulfapyridine). A. L. Agranat, A. O. Dreosti and D. Ordman.—p. 309.
*Treatment of Chronic Myeloid Leukemia: Importance of the Myeloblast. M. C. G. Israëls.—p. 317.
Torsion of the Appendix of the Testis. G. D. F. McFadden.—p. 320.
Aneurysm of Both Popliteal Arteries. C. Flemming.—p. 322.
*Urea Clearance in Hematemesis. D. A. K. Black.—p. 323.
Excretion of Injected Aneurin (Vitamin B_1). J. Marrack and Helga Franziska Höllering.—p. 325.
Intraperitoneal Rupture of Rectum. T. A. James.—p. 326.

Treatment of Chronic Myeloid Leukemia.—Israëls cites seven cases of chronic myeloid leukemia in which myeloblasts appeared in the peripheral blood. When the patient with this disease has not received treatment, the presence of myeloblasts is not of serious significance if they disappear when roentgen therapy is begun. If they increase, the outlook is grave, irrespective of any changes in the total leukocyte count. When myeloblasts appear during treatment, they usually signify that roentgen therapy is no longer effective and that, whatever the total leukocyte count, death is imminent. The completeness of the myeloblastic transformation in the bone marrow is parallel to that in the peripheral blood. The effectiveness of treatment is best judged by the diminution of the proportion of immature leukocytes and by the improvement in the anemia. The anemia should be thoroughly treated and roentgen therapy may be postponed provided the immature leukocytes do not increase and the patient's clinical condition warrants it.

Urea Clearance in Hematemesis.—Black studied the renal function in twelve cases of gastrointestinal hemorrhage. The severity of the condition of some of these cases precluded the adoption of any disturbing procedure and principal reliance was placed on the urea clearance test of Van Slyke. In most of the cases there was a moderate or even a pronounced lowering of urea clearance; after a week the clearance usually rose to within normal limits. A "scatter diagram" was constructed, showing the relationship of urea clearance to red cell volume. Although four of the cases showed considerable divergence, the remainder approximate a linear relationship. This indicates some degree of correlation, in the present cases, between the urea clearance and the red cell volume; the divergent values indicate that other factors besides the red cell volume influence the clearance—a fact which is hardly surprising when one considers the wide normal variation in urea clearance. No correlation appears to exist between the urea clearance and the blood pressure, hemoglobulin or blood urea. After every allowance has been made for low protein intake and absence of diuresis, there is still evidence of diminished urea clearance in these cases. As pointed out by Van Slyke (1934), diminution of clearance must be due either to decreased renal blood flow or to less complete extraction of urea from the blood. The importance of blood flow is, however, suggested by the degree of correlation between the fall in clearance and the red cell volume. Estimations indicate some impairment of renal function. However, the present evidence is insufficient to establish definitely the mechanism of renal impairment.

Practitioner, London

142: 137-240 (Feb.) 1939

Midwifery and the General Practitioner. E. MacLean.—p. 137.
Antenatal Care in General Practice. W. H. F. Oxley.—p. 143.
Delayed Labor. A. Walker.—p. 153.
Diagnosis and Treatment of Disproportion. W. C. W. Nixon.—p. 163.
Management of the Puerperium and Its Minor Disturbances. A. H. Davidson.—p. 171.
Equipment and Instruments for Midwifery in General Practice. J. Beattie.—p. 179.
Diet in Health and Disease: XX. Breast Feeding. C. K. J. Hamilton. —p. 187.
Immediate Surgery in Air Raids: Work in a Casualty Clearing Station. P. H. Mitchiner.—p. 197.
Decompression of the Bladder. H. Bailey.—p. 207.
Psychologic Factor in General Practice. M. O. Raven.—p. 213.
Solutions Used in Injection Treatment of Hernia. M. Lee.—p. 221.
The Practitioner and His Accounts. G. Lowe.—p. 224.

Archives de Médecine des Enfants, Paris

42: 137-190 (March) 1939

Agranulocytic Syndromes in Children. G. Paisseau, J. Ferroir and J. Gautier.—p. 137.
*New Orientations in Treatment of Bronchopneumonias of Nurslings. B. Soria.—p. 146.
Diagnosis of Kala-Azar by Sternal Puncture. S. Bartsocas.—p. 153.
Three Interesting Cases of Tuberculosis in Children. P. Rueda.—p. 155.
Treatment of Tuberculosis in Children. J. Comby.—p. 168.

Treatment of Bronchopneumonias in Nurslings.—According to Soria, bronchopneumonia continues to be one of the diseases which have the greatest mortality rate in nurslings and young children. In nurslings its case fatality is more than 50 per cent. After pointing out that the mechanism of cellular and humoral defense is not yet organized in nurslings, the author discusses the various forms of bronchopneumonia such as the pulmonary, the cardiohepatic, the gastrointestinal, the nervous and the toxi-infectious form. The treatment of bronchopneumonia has remained unchanged in recent years and it must be admitted that until now there has been no specific and efficacious treatment. Some use serums and vaccines, others employ inhalation of oxygen, others autohemotherapy and still others physical therapy. The author uses hypertonic solution of dextrose (from 15 to 20 per cent), which exerts a regulating effect on the disordered metabolism and stimulates the organs in general, particularly the muscular fibers of the heart, increasing the nutrition of the muscle and restoring the tonicity, which had been damaged by the action of the toxins. The disturbances in the acid-base equilibrium of the nurslings with bronchopneumonia lead to a generalized atonia of the entire musculature, by glycogenic insufficiency, which produces a disturbance in the respiratory function and impairs the return of the blood to the general circulation; the result of this is a hypotension which can be observed in several of the aforementioned forms of bronchopneumonia. Muscular hypotonia can be brought about by a diminution of dextrose in the blood stream, also by a diminution of glycogen in the muscles and likewise by a sympathetic phenomenon. The favorable action of dextrose solution on the muscular tonus cannot be doubted. The arterial tension increases after the second or third injection, the pallor and cyanosis change to an almost normal coloration, the dyspnea diminishes, the diuresis increases, the patient becomes quieter and sleeps better, the thirst subsides, the loss of weight is gradually arrested and the appetite returns. In the cardiac form the author observed in addition to the improvement of the general condition also a decrease in the cardiac dilatation. The volume of the congested liver decreased and the pain disappeared. In the nervous form the results were not quite as surprising but the general condition and the arterial tension improved and drainage by lumbar puncture rapidly counteracted the nervous phenomena. In the gastrointestinal form, sugared water in a quantity of from 600 to 700 cc. (20 per cent maltose and dextrin) produced excellent results. In the toxi-infectious form, however, the hypertonic solution of dextrose does not produce such favorable results because of the virulence of the infection. These cases may terminate in death in the course of forty-eight hours. Of the various modes of administration the author regards the intraperitoneal route as the most suitable, pointing out that the left iliac fossa is the best site. He employs a needle from 5 to 7 cm. in length. Shock is avoided by injecting the dextrose solution with 0.5 cc. of a 1:1,000 solution of epinephrine hydrochloride. From 150 to 200 cc. of the dextrose solution is administered daily. The author employed this treatment in more than 150 cases and, as a result, the mortality decreased by from 30 to 35 per cent.

Presse Médicale, Paris

47: 305-320 (Feb. 25) 1939

*Extraction of Projectiles and Foreign Bodies from Heart: Late Results (Twenty Years After.) R. Le Fort.—p. 305.
Rare Cases of Deviation of Cutaneous Allergy to Tuberculin in Tuberculous Children. G. Paisseau, J. Valtis and F. Van Deinse.—p. 307.
*Xenopus Pregnancy Test. E. Elkan.—p. 308.

Extraction of Projectiles from Heart.—Le Fort points out that it is now permissible to reply to the questions so often asked during the war of 1914 to 1918 regarding the immediate and late dangers caused by the presence of pro-

jectiles in the heart or by their extraction from the heart. He reviews the clinical histories of patients who underwent extraction of foreign bodies or projectiles from the heart more than twenty years ago and then discusses the various aspects of the extraction, such as indications for it, dangers involved and technic. In the conclusion he stresses that the extraction of foreign bodies is possible from the walls as well as from the cavities of the heart. The presence of free projectiles in the cavities of the heart involves considerable dangers, so that their removal is advisable. However, it should be undertaken with all necessary precautions. The projectiles which are enclosed in the cardiac walls do not seem to cause grave dangers. They may remain buried in the muscle without provoking grave anatomic lesions, but their presence is often accompanied by serious functional disturbances. The extraction of projectiles from the anterior wall is a simple operation. However, the extraction of projectiles from the postero-inferior wall is a complex procedure and may become extremely difficult in cases of cardiopericardiac symphysis. The small projectiles may be abandoned, provided they are well tolerated. The large ones and those which cause complications should be removed. The danger caused by the presence of a projectile in contact with the large vessels of the heart is less grave than is imagined. The author says that he demonstrated twenty years ago that the vessels defend themselves ordinarily against metallic foreign bodies either by enveloping them in their wall or by isolating them by cellular cleavage. The indications for a surgical intervention should be carefully estimated in each case and the operation must be carried out with great care. All blind extraction procedures are prohibited. Generally the cardiac muscle is extremely adherent to the shell fragments. It must be separated with care and patience, fiber by fiber. Not only is it necessary to have a survey over the entire operative field but also it must be possible to enlarge the opening without delay. Every resection of rib or costal cartilage gives mediocre late results and leaves a weak or deformed area in the wall. Only those procedures should be used which permit a temporary removal of the ribs by section of their cartilages and of their intercostal spaces. A rigorously exact reparation of the wall must terminate the operation. The immediate surgical results are good and they persist in the course of years.

Xenopus Pregnancy Test.—Elkan says that the toad pregnancy test was first described by Hogben in 1930. He himself employed this pregnancy test last year 360 times, using 2,291 toads (Xenopus laevis Daudin) for this purpose. The test proper starts with the collection of urine. The patient is urged to limit the fluid intake as much as possible on the day before the specimen is collected so that the specific gravity of the urine will be high enough. The urine that is eliminated on the day following the restricted fluid intake has a specific gravity of from 1.020 to 1.030, and from 100 to 200 cc. of this urine is sent to the laboratory. It is more difficult to proceed with the test on urines with low specific gravity. Another factor is that the patient must not take any drugs on the day preceding the test. For injection into the dorsal lymph sac of the toads it is possible to use either 2 cc. of untreated urine or 1 cc. of extract, which is prepared according to Zondek's method of precipitation. After the injection the toads are placed in special jars, where they rest on perforated platforms so that they cannot eat their own spawn. For several hours the jars are kept at a temperature of 24 C. The most rapid positive result which the author observed was that oviposition took place four hours and fifty minutes after the injection. The usual time is from six to eight hours. Unfortunately the effect of the same urine on a series of six toads is not always uniform. However, the exactness of the xenopus pregnancy test does not seem to differ from that of the Aschheim-Zondek and Friedman tests. It permits the diagnosis of pregnancy in the early stages with less delay than do other biologic tests. The animals do not have to be killed to obtain the results; they can be used over again. The method is not more expensive than are other biologic pregnancy tests, and the technic is simple and free from error.

Schweizerische medizinische Wochenschrift, Basel

69: 189-211 (March 4) 1939. Partial Index

Question of Tubal Sterilization. E. Baumann and O. Geiser.—p. 189.
*Blood and Bone Marrow in Bang's Disease (Brucella Abortus Infection). N. Schmid.—p. 191.
Trial with Endovesical Ozonotherapy in Urinary Colibacillosis. M. Secrétan.—p. 193.
Pathogenesis of Chronic Hematogenous Disseminated Tuberculosis. W. Schlesinger.—p. 196.

Blood and Bone Marrow in Brucella Infection.—Schmid says that the diagnosis of Brucella abortus infection is based on the positive outcome of bacteriologic and serologic methods, namely (1) the demonstration of Brucella abortus in the blood culture or animal tests, (2) the demonstration of agglutinins in the serum and (3) the complement fixation test. In this paper the author gives especial attention to the morphologic aspects of the blood, pointing out that the blood picture in Brucella abortus infection resembles most that of abdominal typhoid. To be sure, this applies only to the leukopoiesis, for the erythrocytes are influenced only slightly or not at all, except that occasionally a mild, secondary anemia is observed. The leukocyte values may decrease to 2,500. Most frequently their number is between 3,000 and 6,000. Mononucleosis exists regularly and the lymphocytes and monocytes show a relative increase, but monocytosis is not as frequent as is lymphocytosis. Among the relatively reduced neutrophils, a deviation to the left is often noticeable and staff-nuclear cells appear. The eosinophils may disappear completely, but they are generally present in reduced numbers. As in typhoid, the leukopenia becomes more pronounced up to a certain point in the course of the disease; but, as recovery approaches, the blood picture becomes normalized. The monocytes behave differently than in typhoid, and the presence of neutrophils militates against typhoid and for Brucella abortus infection. With the exception of the cases that are complicated by hemorrhagic diathesis, the blood platelets remain unchanged. The sternal marrow shows chiefly a myelocytic and a promyelocytic composition, at least in the cases without complications. The author regards this medullary picture as indicative of a mild disturbance in maturation. The medullary changes are of no diagnostic significance. If complications arise in Brucella abortus infection, the blood picture shows a varying behavior. Since little is known regarding the bone marrow in complicated cases, the author gives a detailed report of such a case. The patient had a cutaneous infection with Brucella abortus. At first the course was typical, but then a complication arose in the form of a hemorrhagic diathesis on the basis of a thrombopenia and with hemorrhages in the mucous membranes, necroses, generalized purpura, hematuria and cerebellar hemorrhages. No sternal puncture was made while the patient was alive, on account of the danger of hemorrhage. However, the necropsy revealed periostitis, chronic osteomyelitis with fibrosis, nodules of Brucella abortus infection in miliary dissemination, hemorrhages and atrophy of the substantia spongiosa. Liver and spleen likewise contained nodules of Brucella abortus infection in miliary dissemination. The author thinks that such a characteristic histologic picture is new in Brucella abortus infection. Some of the medullary aspects approach those of panmyelopathy. However, further medullary studies will be necessary to gain a better insight into these problems.

Klinische Monatsbl. f. Augenheilkunde, Stuttgart

102: 1-160 (Jan.) 1939. Partial Index

Megalocornea in Its Connection with Other Deviations in Members of Same Family. R. G. Posthumus.—p. 1.
Trepanation Cyclodialysis. K. Bergler.—p. 49.
Mechanical Injuries of Eye. Ida Czukrász.—p. 57.
Restoration of Lacrimal Passages. Z. Nižetić.—p. 67.
Two-Stage Dacryocystorhinostomy. Z. Nižetić.—p. 71.
*Ocular Tuberculosis and Benign Lymphogranulomatosis (Boeck's Sacroid, Multiple Benign Miliary Lupoid). F. W. Meyer.—p. 76.

Ocular Tuberculosis and Benign Lymphogranulomatosis (Boeck's Sarcoid).—Meyer shows that the ocular disease which develops in the course of benign lymphogranulomatosis (Schaumann's term for Boeck's sarcoid) or which in some cases exists long before the benign lymphogranulomatosis appears is of tuberculous etiology. The tuberculous character

is indicated by the clinical picture, by the course of the disease and finally by the tendency to the development of secondary phthisis in various organs in the course of benign lymphogranulomatosis. The following aspects are characteristic for the completely developed symptomatology of Schaumann's benign lymphogranulomatosis: peculiar cutaneous efflorescences, osseous changes that are designated as osteitis tuberculosa multiplex cystica (Jüngling), a simultaneous involvement of groups of lymph nodes and peculiar roentgenologic changes in the lungs with enlargement of the mediastinal lymph nodes. In a number of cases ocular disorders develop which exhibit the typical aspects of an ocular tuberculosis. Most likely they represent true tuberculosis of the eye. If the process is completely developed, the tuberculin reaction is usually negative. In the frequent concurrence of benign lymphogranulomatosis and true tuberculosis, the outcome of the tuberculin reaction seems to be determined by the predominance of the one or the other disease. The importance of the roentgenologic aspects of the pulmonary changes is disputed. At any rate, it seems inadvisable to base the diagnosis of benign lymphogranulomatosis only on the roentgenologic changes and perhaps on the negativity of the tuberculin reaction. The outcome of the tuberculin reaction has no corroborative power, since the negative outcome can be observed also in tuberculous processes of other organs and in pulmonary tuberculosis. The peculiarity of the pulmonary aspects does not permit the classification of such cases into a special group, particularly if there exist no changes in other organs. Only microscopic observations permit the definite diagnosis of Schaumann's benign lymphogranulomatosis. Ocular tuberculosis is not an essential aspect of benign lymphogranulomatosis but it frequently accompanies the process; to be sure, it does so not more frequently than does tuberculosis of other organs. Benign lymphogranulomatosis eventually may be an atypical tuberculosis; the term does not indicate the etiology of the peculiar disease.

Klinische Wochenschrift, Berlin

18: 145-184 (Feb. 4) 1939. Partial Index

Investigations on Metabolism of Vitamin B_1 in Healthy Persons and Patients. H. Schroeder.—p. 148.
*Permeability of Blood-Cerebrospinal Fluid Barrier for Sulfanilamides. Vonkennel and W. Schmidt.—p. 150.
Porphyrinuria and Intestinal Saprophytes. A. S. von Mallinckrodt-Haupt.—p. 153.
4.4'-Dioxy-Alpha-Beta-Diethylstilbene, a Synthetic Compound with Action of Estrogenic Preparations. H. Kreitmair and W. Sieckmann.—p. 156.
Value of Bacteriologic Examination of Sternal Marrow. H. E. Bock.—p. 162.
Paroxysmal Tachycardia. H.-J. Kohbrok.—p. 165.
*Diagnosis of Syphilis by Means of Coagulation Reaction in Cerebrospinal Fluid. E. Carlinfanti.—p. 168.

Permeability for Sulfanilamides of Blood-Cerebrospinal Barrier.—Vonkennel and Schmidt studied the sulfanilamide content of the blood and its passage into the cerebrospinal fluid after oral and parenteral administration. In this paper they give their attention to the permeability of an intact blood-cerebrospinal barrier for sulfanilamides. After the oral or parenteral administration of various sulfanilamides they examined the blood and the cerebrospinal fluid at hourly intervals for a period of five hours. Summarizing their observations, they stress the following points: 1. Soluble prontosil could not be detected in the cerebrospinal fluid. 2. Solution of sodium sulfanilate was found to pass into the cerebrospinal fluid only in the smallest quantities. The salt effect and the hydration capacity are suggested as explanation for this. 3. The para-amino-benzene-sulfonamide (prontosil album) showed an excellent penetration into the cerebrospinal fluid. 4. The dimethyl-disulfanilamide showed practically no permeation capacity, under the conditions employed by the authors. They think that this is due to the slight concentration in the blood and to the molecular volume of the substance. 5. The para-amino-benzene-sulfonacetylamide (albucid) and a carbohydrate compound of sulfanilamide showed the same qualitative behavior as does the pure sulfanilamide.

Coagulation Reaction in Cerebrospinal Fluid in Diagnosis of Syphilis.—Carlinfanti discusses the theoretical foundations and describes the technic of a method which permits the demonstration of syphilitic antibodies and their quantitative examination in small quantities of cerebrospinal fluid and with the aid of inexpensive reagents. It is a modification of a coagulation reaction which was described in 1914 by Hirschfeld and Klinger. It has been employed on 418 specimens of cerebrospinal fluid and the impression has been gained that in view of its sensitivity and because it differs in nature from other reactions it could render good service as an accompanying test to the Wassermann reaction and to the flocculation reactions.

Münchener medizinische Wochenschrift, Munich

86: 121-160 (Jan. 27) 1939. Partial Index

Measuring of Dose in Short Wave Therapy. J. Kowarschik.—p. 121.
*Blood Transfusion in Treatment of Acute Severe Carbon Monoxide Poisoning. K. G. Koch.—p. 126.
Cyclically Conditioned Pains in Breasts. K. Evelbauer.—p. 128.
Experiences with Cycloscopy According to Samuels. R. Wenner.—p. 131.
Fundamentals of Problem of Vitamin Requirements. H. Schroeder.—p. 133.
Remarks on Bulgarian Cure. M. John.—p. 135.
Postvaccinal Disturbances. S. Werner.—p. 136.

Blood Transfusion in Carbon Monoxide Poisoning.—Koch states that the chief effect of carbon monoxide poisoning and the factor that threatens the life of the patient is the anoxemia, resulting from the formation of carboxyhemoglobin. After discussing measures that have been recommended to counteract this anoxemia, such as inhalation of oxygen or of oxygen and carbon dioxide and the administration of methylene blue, he points out that hemoglobin, which is introduced by means of blood transfusion, will act at once as an oxygen vehicle. Patients who have the signs of severest intoxication, that is, those in whom the reflexes and reactions have been abolished, in whom respiration and circulation are greatly impaired and who do not respond to strong stimulants, many have such a small amount of oxyhemoglobin that inhalation of oxygen, circulatory stimuli and venesection will not prevent death. The author demonstrates, on the basis of case histories, that in such cases blood transfusion after a previous venesection may save the patient's life, because the large quantity of normal hemoglobin introduced in this manner will provide the lacking oxygen more rapidly than will other methods. It is advisable to precede the transfusion by venesection. This procedure removes carboxyhemoglobin from the circulation because the blood in the depots, which is forced into the circulation following venesection, does not absorb the carbon monoxide as rapidly as does the circulating blood. Moreover, the loss of blood stimulates the emergence of new erythrocytes from the bone marrow. If in severe cases of carbon monoxide poisoning venesection and blood transfusion have provided the organism with sufficient oxygen to avert death, the further treatment with oxygen and circulatory stimulants has better prospects of success. The author describes the clinical histories of two patients with severe carbon monoxide poisoning who probably would not have survived without the repeated blood transfusions.

86: 161-200 (Feb. 3) 1939. Partial Index

Treatment of Accidental Wounds. F. König.—p. 161.
Prophylaxis of Tetanus or Not? F. Jaeger.—p. 164.
*Prognosis of Arborization Block. F. Kienle.—p. 168.
Danger of Pure Sunstroke, Without Overheating in High Mountains. K. Leonhard.—p. 174.

Prognosis of Arborization Block.—Kienle maintains that the diagnosis of arborization block can be based only on the electrocardiogram. After citing the electrocardiographic characteristics which Weber designates as the basis of the diagnosis of the arborization block, he says that it was generally believed that extensive destruction of or severe damage to the fine terminal fibers of the specific connecting system was the cause of these severe electrocardiographic changes. However, some investigators showed that extensive myocardial changes are the cause of the arborization block and this was proved by the detection of severe organic changes in the myocardium. On the other hand there were investigators who maintained that there is also a "functional" arborization block and it was actually proved that an arborization block was caused by coronary insufficiency and disappeared after treatment with theophylline with ethylene diamine. Here the deficient blood supply had apparently caused "fatigue" but not organic damage in the conduction system. The author further shows that many electrocardiographic curves which have been designated as indicating arbori-

zation block were really branch block curves because the narrowly circumscribed electrocardiographic characteristics of arborization block were not strictly adhered to. The prognostic evaluations based on such records are therefore erroneous. For this reason he investigated the prognosis of arborization block in twenty-five patients who were observed at his clinic and who remained under observation until death. In this material the prognosis of arborization block proved much more unfavorable than was indicated in earlier reports. All of the twenty-five cases terminated in death in the course of one year. The average survival was three and one half months. The mortality curve shows a steep downward trend during the first two months and this is ascribed to the rapid fatal termination of the cases of arborization block, which are caused by infarct. A case is described in which multiple infarcts produced the electrocardiographic aspects of an arborization block, whereas the typical signs of infarct were absent from the electrocardiogram.

Zeitschrift f. d. ges. Neurol. u. Psychiatrie, Berlin

164: 417-580 (Jan. 23) 1939

Clinical Aspects of Exogenic Psychoses. K. Westphal.—p. 417.
Studies on Vitamin C Content of Cerebrospinal Fluid: Seasonal Fluctuations of Vitamin C Content in Cerebrospinal Fluid of Nursling. M. Kasahara and I. Gamma.—p. 492.
*Question of Spontaneous Remissions of Schizophrenic Psychoses with Special Consideration of Duration of These Remissions: What Can Be Attained with the Shock Therapy of These Conditions? G. Langfeldt.—p. 494.
Investigations on Pavlov's Reflexes in Patients with Mental Defects. M. Schröter.—p. 501.
Contribution to Knowledge of Pyknolepsy. M. Rohde.—p. 516.
Relations Between Changes in Blood Sugar, Clinical Symptoms and Curative Course in Insulin Therapy of Schizophrenic Patients. E. Hofmann.—p. 531.
Circumscribed Arachnoidal Sarcoma of Cerebellum. O. Foerster and O. Gagel.—p. 565.

Spontaneous Remissions of Schizophrenic Psychoses.—Langfeldt deplores that many investigators of the shock therapy of schizophrenia overlook the fact that their statistical reports are of limited value as long as they fail to state what forms of schizophrenia were treated. He shows that the psychoses which are designated as schizophrenia can be divided into two main groups: (1) the typical schizophrenias, that is those cases which in Kraepelin's terminology are designated as dementia praecox and (2) the so-called schizophrenias, the "schizophreniform psychoses." This second group includes chiefly persons with some manic-depressive aspects and persons with psychopathic tendencies (paranoid, hysterical, asthenic cyclothymic schizoid and others). The typical and the atypical schizophrenias differ greatly in their prognosis. The atypical schizophrenias are nearly all spontaneously cured and, except for a few cases with an intermittent course, the cure is permanent. Shock therapy shortens the duration of these atypical cases. However, it cannot be definitely said as yet whether this is a permanent advantage. Among the schizophreniform conditions that have an acute onset there are also cases that show the typical schizophrenic symptomatology. If these cases are not treated they have an unfavorable prognosis. However, it will require further investigations to determine whether these cases are amenable to shock therapy. The author says that there is an increase in reports which show that the atypical schizophrenias are the ones that react favorably to shock therapy with insulin or metrazol. He emphasizes that all reports on shock therapy of schizophrenia should give attention to the differentiation between typical and atypical cases of schizophrenia.

Vestnik Khirurgii, Leningrad

56: 655-828 (Nov.) 1938. Partial Index

*Magnesium Sulfate Blood Transfusion in Experimental Shock. B. P. Abramson.—p. 659.
Clinical Observations on Hexenal Anesthesia. T. M. Ayzman and G. Ya. Iosset.—p. 671.
Treatment of Compound Fractures of the Cranial Vault. G. Ya. Iosset.—p. 680.

Magnesium Sulfate Blood Transfusion in Experimental Shock.—Abramson states that 100 blood transfusions performed in his clinic with magnesium sulfate as a preservative demonstrated the usefulness of this method. In order to test its effect in traumatic shock the author performed animal experiments in which profound shock was induced in anesthetized cats by repeated evisceration and traction on the mesentery. It was found that bleeding the animal one half hour or forty-eight hours before the experiment rendered it more liable to shock. The latter was of such degree that the animals could no longer be saved by intravenous saline transfusion. With the use of magnesium-blood transfusion the author succeeded in saving eight of ten animals. The author concludes that the effect of magnesium sulfate-blood in shock is not inferior to that of citrated or whole blood.

56: 829-932 (Dec.) 1938. Partial Index

Operation for Sectioning of Splanchnic Nerves in Arterial Hypertension. S. S. Shirimanyan.—p. 831.
*Umbilical Cord as Bone Suture Material. L. G. Shkolnikov.—p. 839.
Significance of Dissecting Aneurysm in Surgery. Ya. A. Bukhshtab.—p. 847.
Organization and Work of Surgical Division in Distant Regions (Periphery). F. G. Uglov.—p. 856.

Umbilical Cord as Bone Suture Material.—Shkolnikov describes a method of preparing human umbilical cord to be used as bone suture material. After the blood is expressed from the cord by pressure and rinsing in water, it is dried, shaped and stretched. The dried cord is kept for one month in a solution containing pure iodine 10 parts, potassium iodide 10, alcohol 1,000 and glycerin 80. The solution is changed twice in the course of the month. The cord thus treated proved sterile after multiple culturing. Its tensile power amounted to from 20 to 80 Kg. The author demonstrated in animal experiments that this suture material is absorbed slowly, that is in from two to six months. Roentgenograms and microscopic sections demonstrated a stimulating effect on the various bony elements, in particular the periosteum. The suture was applied in twelve clinical cases, in four of which there were pseudarthroses, in three compound fractures and in five simple fractures. The suture held the bony fragments satisfactorily. There was no infection. The author concludes that this biologic homoplastic material is well suited for bone suture because of its tensile strength, resistance to infection, slow absorption and osteogenic effect.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

83: 727-866 (Feb. 18) 1939. Partial Index

Psychoses in Heart Disease. H. C. Rümke.—p. 728.
Examination of Blood and of Blood Pressure During Airplane Trip from Amsterdam to Batavia and Back. C. J. van Mervennée.—p. 736.
*Leptospirosis of Dogs in Antwerp. N. van der Walle.—p. 740.
Intestinal Myiasis Caused by Larvae of Sarcophaga Haemorrhoidalis in Child. L. S. Wildervanck.—p. 756.

Leptospirosis in Dogs.—Van der Walle examined 100 dogs of the municipal enclosure for stray animals at Antwerp for leptospirosis. He was able to demonstrate the presence of antibodies to leptospiras in the blood of forty-four of these animals. The number of cases in which Leptospira canicola was more strongly lysed than Leptospira icterogenes was about twice as great as the number in which the other reaction was more prominent. The percentage of infection increased with the age of the dogs. On the whole, a larger number of positive reactions was detected in male than in female dogs. Leptospira canicola was cultivated from the kidneys of one of the apparently healthy dogs. This leptospira appeared only slightly pathogenic for guinea pigs; jaundice was noticeable only after the second passage. Two young dogs which had been intravenously injected with this culture had only a slight temporary conjunctivitis. One of these animals was killed twenty days after the infection; the Levaditi stain showed numerous leptospiras in the kidneys, but exclusively in the tubules.

Acta Chirurgica Scandinavica, Stockholm

82: 1-98 (Feb. 13) 1939

Hemophilia with Spontaneous Hemorrhage in Iliopsoas Muscle Followed by Injury to Femoral Nerve: Case. A. Tallroth.—p. 1.
*Posttraumatic Disturbances in Region of Appendix, So-Called Traumatic Appendicitis. S. Grettve.—p. 11.
Neurogenic Factor in Strangulation Ileus. H. Wahren.—p. 57.
*Trauma and Leukemia. T. Olovson.—p. 63.
Surgical Treatment of Split Fractures at Proximal End of Tibia. E. Landelius.—p. 90.

Posttraumatic Disturbances of Appendix.—Grettve asserts that the significance of trauma as an etiologic factor in posttraumatic disturbances of the appendix has been overrated. If a blunt force hits the lower right part of the

abdomen directly and with great violence, it may result in rare cases in real damage to the appendix. Minor injuries probably heal spontaneously, but those of a major kind may be complicated by inflammatory processes necessitating operative intervention. If operation is not unduly postponed, it should be possible to ascertain whether the condition is the direct result of injury. On the other hand, it is questionable whether such cases should be regarded as true appendicitis even if the damaged appendicular wall has been overtaken by necrosis and is the seat of secondary inflammatory processes. No external violence is likely to lead to typical appendicitis in a previously healthy and normally functioning organ. On the other hand the possibility exists, at any rate theoretically, that a direct violence to the appendicular region may become the exciting factor in the production of appendicitis in an organ which is the seat of old pathologic changes and which, as a result of impeded emptying, is already threatened by a spontaneous attack. In practice it is probably never possible to exclude with certainty that the appendix before the accident had been the seat of a quiescent or developing inflammatory process which till then had produced no manifest symptoms. Direct violence to the abdomen farther away from the appendicular region or a sudden reflex contraction of the abdominal muscles as a result of the accident cannot produce either damage to the appendix or appendicitis. In some cases prevailing conditions may justify the assumption that appendicitis had been present at the time of the accident. It seems impossible, however, to appraise the true significance of a trauma in a patient with a previously obscure appendicitis. The appendicitis may have begun at approximately the same time at which the patient sustained the accident. On the other hand the violence may have aggravated the inflammatory process, but it hardly will be possible to state to what extent the duration and final outcome of the disease were influenced by the trauma.

Trauma and Leukemia.—*Olovson* describes two cases of myeloid leukemia which occurred in connection with traumas. The leukemia developed after fracture in one and after contusion in the other. Reviewing the literature, the author detected sixty-seven similar cases. In forty of the sixty-nine reported cases the trauma consisted in contusion of the abdomen (splenic region), in twenty-one cases other regions were affected; in eight cases the accident had caused fracture of some bone. The possibility of trauma as a cause of leukemia is being discussed in the light of the present day theories as to how leukemia arises. Some causal connection may quite well exist; the trauma may constitute the exciting factor in a person predisposed to leukemia. Yet it would seem that trauma can play only a small part, as traumas occur frequently but traumatic leukemia is a rare condition.

Nordisk Medicin, Helsingfors

1: 1-82 (Jan. 7) 1939

Hospitalstidende

*Histologic Investigations on Pylorus Gland Organ in Pernicious Anemia. E. Meulengracht.—p. 11.
*Early Diagnosis of Pleural Empyema. M. Olesen and U. Hansen.—p. 19.

Pylorus Gland in Pernicious Anemia.—Meulengracht's examination of the stomach and duodenum from eight patients with clinically and anatomically diagnosed pernicious anemia revealed pronounced changes in the fundus, with atrophy of the glands and disappearance of the special glandular elements. The changes were less definite in the pylorus and the pyloric glands seemed to be relatively well preserved. In the Brunner glands no changes could be demonstrated microscopically. The author discusses the possibilities for reconciling these results with the present conception of the pathogenesis of pernicious anemia. He suggests as the most probable explanation, wholly or in part, a failure of the interaction between the intrinsic and extrinsic factors which originate the third principle, or liver factor, a process which must be ascribed to the intestine, especially the small intestine.

Early Diagnosis of Pleural Empyema.—Olesen and Hansen describe a procedure for recognizing an empyema in its earlier phase, while the pleural exudate is still serous or turbid. The cells from the exudate are stained by Olesen's supravital staining method. Living leukocytes absorb the neutral red in their granules, while dead leukocytes cannot be stained in the weak solution used. In the exudate from seven cases of pleurisy between 22 and 100 per cent of the leukocytes could not be stained, and in these cases an empyema developed in from two to sixty days. In 101 cases in which all the leukocytes were stained, no empyema occurred.

Norsk Magasin for Lægevidenskapen

*Case of Idiopathic Dilatation of Choledochus (or Congenital Choledochus Cyst). P. Bull.—p. 31.
Mass Psychosis and Its Effects. D. Abrahamsen.—p. 36.
Blood Type A_2B with Strongly Developed Agglutinin a_1 and Relatica of This Type to Blood Transfusion. O. Hartmann.—p. 39.
Variations of Content of Vitamin C in Potato. E. Mathiesen.—p. 42.

Congenital Choledochus Cyst.—Bull states that there are now about 100 known cases of this disorder. Only five cases have been recorded in patients over 41. His patient, a woman aged 42, had abdominal pain, probably due to the biliary disturbance, during childhood and a symptom free period between the ages of 18 and 31 and transient jaundice two years later. On gastrojejunostomy for a callous pyloric ulcer when the patient was 35 no tumor was discovered. Seven years later there was pain in the epigastrium radiating to the spine, with dyspnea; a round, tender, fluctuating tumor, thought to be a retroperitoneal cyst originating from the pancreas, filled the epigastrium. After puncture and removal of 2,250 cc. of thick dark fluid idiopathic dilatation of the common bile duct was diagnosed. Cholecystoduodenostomy was done. Grave infection in the cyst followed and 3,000 cc. of fetid fluid was removed on repuncture; hemorrhagic nephritis and hypochloremic uremia developed. Recurring retention necessitated a third puncture and drainage, with removal of 1,500 cc. of fetid pus. Steady improvement set in and on discharge no tumor was palpable. The author says that idiopathic dilatation of the common bile duct predominates in women. The cardinal symptoms are pain, tumor and jaundice. Grave complications may occur; the contents of the cyst may become infected before or after anastomosis between the cyst and the intestine, there may be a marked hemorrhagic diathesis, and in rare cases the cyst may rupture into the abdomen. Correct diagnosis before operation is said to have been made in only five or six cases. The prognosis depends first of all on the patient's condition at the start of surgical treatment. The mortality for the known cases is about 60 per cent. All authors agree that a communication must be established between the bile duct and stomach or intestine, whether primarily or after preliminary drainage; secondary anastomosis must not be long delayed.

Medicinsk Revue

Duodenal Diverticula. S. Quist-Hanssen.—p. 45.
*Phlegmonous Gastritis. K. Schnitler.—p. 51.

Phlegmonous Gastritis.—Schnitler says that in two of his cases of phlegmonous gastritis the onset was acute and death occurred within four days, while in another, with pain in the epigastrium for several days before admission, the course was more protracted. In the latter, certain reparative changes appeared microscopically in the form of a fairly active formation of connective tissue and fibroblasts. The infection was due to streptococci, either in pure culture or together with staphylococci. In the one case there was a chronic gastritis from misuse of alcohol and a lesion from a bone splinter which had penetrated into the gastric submucosa. In the others, erosions and ulcerations in the gastric mucous membrane are regarded as the port of entry. In phlegmonous gastritis an acute inflammation is present in the submucosa, partly with the picture of a diffuse phlegmon, partly more localized abscesses, or both. The inflammation may progress and occupy practically the whole stomach or be more limited. In the localized cases the seat of the process is usually the pylorus or its immediate vicinity. Diagnosis is not generally made until operation or necropsy. Prognosis is grave. Treatment of the acute cases is surgical. In the localized cases recovery has followed resection of the stomach. In the diffuse form treatment can be only palliative.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, No. 21 COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS MAY 27, 1939

NICOTINIC ACID IN THE TREATMENT OF ATYPICAL PSYCHOTIC STATES

ASSOCIATED WITH MALNUTRITION

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There have been reports of excellent results from the treatment of pellagrous psychoses with nicotinic acid;[1] these have dealt with the more familiar mental symptoms occurring in frank or subclinical pellagra of the usual type. The present communication deals with observations made on nineteen individuals all presenting mental symptoms of somewhat similar pattern, none corresponding to the ordinary conception of pellagrous dementia. Hebetude grading into profound stupor was a feature so prominent that frontal lobe tumor was suspected in three patients, lethargic encephalitis in one and chronic subdural hematoma in a third. Delirium was present three times, agitated depression once, and one patient presented the signs of central neuritis. Signs of peripheral neuritis were not discovered, but five patients had marked deafness which disappeared under treatment; it was difficult to determine whether this transient deafness was due to failure of attention or to actual interference with the auditory mechanism.

The complete syndrome of pellagra was absent and no patient had a history of the disease. Glossitis, in the sense of abnormal redness of the tongue, with or without papillary atrophy and ulceration, was present in all but two of the group. Stomatitis occurred only once, dermatitis was not seen, two patients had mild nonspecific vaginitis and one had diarrhea which developed while under observation. The incidence of gastric anacidity was quite irregular; in many instances gastric contents could not be secured. Inadequate nutrition was evident from the history or the observations made in every case. There was no attempt at rigid control of the diet, feeding was a problem always, and the poor condition of the patients often made the use of a pellagra-producing diet unjustifiable. A few profoundly unconscious patients were of necessity maintained on parenterally administered dextrose and sodium chloride solutions during a part of the treatment period.

All patients were subjected to rather comprehensive clinical and laboratory examination, including a neurologic and psychiatric survey. All usual quantitative, chemical and serologic determinations were made on the blood and cerebrospinal fluid. Electrocardiograms were made soon after admission and often repeated. The excretion of ascorbic acid in the urine was followed in a number of instances.

A great majority of the group were elderly and had organic disease, which might have been considered an adequate cause for the mental symptoms. At least eleven had advanced arteriosclerosis complicated in one instance by cerebrospinal syphilis; one patient had clinical and serologic evidence of cerebrospinal syphilis without peripheral vascular disease, and two men were severely and chronically alcoholic. A control group presenting stupor of demonstrable organic origin was made up of patients with frank cerebral vascular accidents, brain tumor and bromide intoxication.

The use of nicotinic acid was at first quite empirical, the coincidence of stupor and glossitis in obviously malnourished patients suggesting the possibility of incomplete or "cerebral" pellagra as a contributing factor to their dilapidation. Usual methods for hydration and support were taken in every case. Three patients (1, 3 and 4) were given thiamin chloride intramuscularly and intrathecally and one patient (17) took adequate amounts of this vitamin by mouth. Nicotinic acid was administered after other forms of treatment failed to produce improvement; except in case 17 it was given intravenously as sodium nicotinate. Sodium nicotinate was prepared by neutralizing a saturated solution of nicotinic acid with sodium bicarbonate, phenolsulfonphthalein being used as the indicator; the solution was then diluted to a standard volume representing 0.5 mg. of nicotinic acid per cubic centimeter, sterilized in pyrex flasks and stored in a refrigerator until used. Dosage varied from 100 to 300 mg. daily, the treatment period from three to ten days. The usual peripheral vasodilatation occurred during injection of the solution, but no untoward reactions were observed.

Response to nicotinic acid was striking in the group under discussion. In four cases (3, 8, 12 and 15) the vitamin seemed to contribute greatly to improvement; in the rest, "cure" was dramatic. In the control group with demonstrable cause for stupor, no improvement was noted after administration of equal or larger amounts. The results of treatment made it evident that these patients presented a form of pellagra evidently common but seldom recognized, even in endemic areas where physicians are alert to the rather protean manifestations of the disease. We are quite certain

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1. Matthews, R. S.: Pellagra and Nicotinic Acid, J. A. M. A. **111**: 1148 (Sept. 24) 1938. Spies, T. D.; Aring, C. D.; Gelperin, Julius, and Bean, W. B.: The Mental Symptoms of Pellagra, Am. J. M. Sc. **196**: 461 (Oct.) 1938. Sydenstricker, V. P.; Schmidt, H. L., Jr.; Fulton, M. C.; New, J. S., and Geeslin, L. E.: The Treatment of Pellagra with Nicotinic Acid, South. M. J. **31**: 1155 (Nov.) 1938. Spies, T. D.; Grant, J. M.; Stone, R. E., and McLester, J. B.: Recent Observations on the Treatment of 600 Pellagrins with Special Emphasis on the Use of Nicotinic Acid in Prophylaxis, ibid. **31**: 1231 (Dec.) 1938.

that the therapeutic test with nicotinic acid was life saving in practically all of the group and equally certain that many persons have been allowed to die because of a failure to recognize the cerebral symptoms of pellagra when other evidences of the disease are absent. Jolliffe [2] has recently reported a somewhat similar experience in patients with signs of central neuritis. We are fully in accord with his suggestion that cerebral manifestations may be the first evidence of severe or complete depletion of nicotinic acid.

While each patient in this series presented phenomena of unusual interest and possible importance, for the sake of brevity the important observations are tabulated and summaries of only six typical case histories presented.

Summary of Cases

No. and Name	Race, Sex, Age	Signs	Associated Diseases	Nicotinic Acid	Result*
1 H. J.	W, ♂, 27	Stupor, glossitis	Alcoholism	100 mg. daily 9/10-9/21, 1938	Well
2 G. M.	W, ♂, 49	Stupor, glossitis	Alcoholism, arteriosclerosis	100 mg. daily 9/26-9/28, 1938	Well
3 M. B.	W, ♀, 42	Stupor, glossitis?	Hysteria	100 mg. daily 9/13-9/22, 1938	Improved (stupor well)
4 A. M.	W, ♀, 57	Stupor, glossitis	Severe macrocytic anemia	100 mg. daily 9/30-10/3, 1938	Well
5 L. J.	W, ♂, 78	Stupor, glossitis†	Arteriosclerosis	100 mg. daily 10/11-10/16, 1938	Well
6 L. W.	C, ♀, 62	Stupor, glossitis	Arteriosclerosis, severe	100 mg. daily 10/9-10/12, 1938	Well
7 H. H.	W, ♂, 54	Stupor, glossitis	Arteriosclerosis, severe	100 mg. daily 10/19-10/26, 1938	Well
8 B. S.	W, ♂, 56	Stupor, glossitis	Arteriosclerosis	125 mg. daily 10/22-10/27, 1938	Improved
9 D. W.	W, ♀, 54	Stupor, glossitis	Arteriosclerosis, syphilis	150 mg. daily 10/17-10/21, 1938	Well
10 M. T.	C, ♀, 24	Stupor, glossitis	.....	100 mg. daily 11/2-11/4, 1938	Well
11 B. R.	W, ♀, 48	Stupor, glossitis,† vaginitis	.....	150 mg. daily 11/4-11/8, 100 mg. 11/9-11/11, 1938	Well
12 S. B.	W, ♀, 54	Stupor, glossitis	Involutional psychosis	150 mg. daily 11/5-11/8, 1938	Improved
13 C. J.	W, ♀, 56	Stupor, glossitis	Abscess of thigh	150 mg. 11/25, 300 mg. 11/26, 150 mg. 11/27, 1938	Well
14 M. L.	C, ♂, 48	Lethargy	Arteriosclerosis, syphilis	200 mg. daily 11/19-11/22, 1938	Well
15 S. H.	W, ♀, 75	Stupor, glossitis	Arteriosclerosis	100 mg. daily 1/2-1/9, 1939	Improved
16 D. B.	W, ♀, 38	Stupor, glossitis†	Syphilis	300 mg. daily 1/4-1/6, 1939	Well
17 R. W.	W, ♂, 78	Stupor, glossitis	Arteriosclerosis, cancer	200 mg. daily by mouth, 12/26, 1938-1/4, 1939	Well
18 V. R.	W, ♂, 58	Stupor	Arteriosclerosis	300 mg. daily 1/13-1/15, 1939	Well
19 J. D.	W, ♂, 54	Stupor, glossitis†	Arteriosclerosis, syphilis	300 mg. daily 1/14-1/17, 1939	Well

* "Well" indicates that stupor and glossitis were entirely cured, not that associated chronic diseases were influenced. "Improved" indicates that stupor and glossitis were cured but organic or functional mental changes of nonpellagrous origin persisted.
† Typical pellagrous glossitis.

CASE HISTORIES

CASE 1.—H. J., a white man aged 27, was admitted to the University Hospital Aug. 27, 1938, from the city jail, where he had been taken in an alcoholic stupor. There was a history of severe chronic alcoholism. On admission the patient was well developed and well nourished, stuporous and with no evidence of paralysis. Ophthalmoscopic examination showed normal fundi. The tongue was red, dry and rough. General physical examination was not significant. Neurologic examination showed absence of knee and ankle jerks and no abnormal reflexes were present; there was definite response to painful stimuli. All routine laboratory examinations were of no significance. The cerebrospinal fluid was under 90 mm. of water pressure, the Queckenstedt test was negative, the cell count and protein content were normal and reactions with colloid gold and mastic suspensions were negative. Intubation was done and a liquid high vitamin diet was instituted. Thiamin chloride was given intrathecally, 20 mg. August 27, August 31 and September 4. The usual treatment for cerebral edema was carried out but no improvement resulted. For fourteen days the man lay in deep stupor; September 10, nicotinic acid was given, 100 mg. intravenously as sodium nicotinate; during the afternoon some four hours after treatment the man regained consciousness and spoke rationally. Treatment was continued for ten days; on the second day solid food was requested and on the fourth the patient was up and walked about the ward. Neurologic examination on the day when consciousness returned showed no evidence of peripheral neuritis. September 12 the fasting contents of the stomach showed 38 degrees of free hydrochloric acid and 47 degrees of total acidity. The man was discharged well September 26.

CASE 4.—A. M., a white woman aged 57, was admitted to the University Hospital Sept. 20, 1938. A history obtained from the relatives told of progressive difficulty in walking and almost constant headache for the past two years; during the past three weeks the patient had become almost completely ataxic and entirely lethargic. She was well nourished and well developed, apparently stuporous but could be aroused by drastic stimulation. The temperature was 98, the pulse 88, the respiratory rate 22 and the blood pressure 120 systolic, 80 diastolic. The skin was dry, a lemon yellow and free from blemishes. The tongue was liver colored with complete atrophy of the papillae. There were systolic murmurs at the mitral and aortic areas of the moderately enlarged heart. The peripheral arteries were large, firm and tortuous. The liver and spleen were not felt. The uterus and adnexa were senile. Neurologic examination after some difficulty showed a broad-based gait with staggering while supported. Romberg's sign was present and the finger to finger and heel to shin tests showed marked ataxia. Knee jerks were hyperactive but no abnormal reflexes were present. The pupils were irregular and responded quite sluggishly to light. After mydriasis, only pallor of the retina and retinal arteriosclerosis were evident. On psychiatric examination the patient was stuporous and entirely unable to cooperate. The blood contained 11 Gm. of hemoglobin per hundred cubic centimeters, 2,500,000 red blood cells and 7,800 white blood cells per cubic millimeter, with 160,000 platelets per cubic millimeter and 0.5 per cent reticulocytes. The color index was 1.2, the volume index, 1.2. The gastric contents after histamine September 22 showed 0 free hydrochloric acid and 12 degrees of total acidity. The cerebrospinal fluid was normal. The urine and stools contained an excess of urobilin. Blood smears showed anisocytosis, poikilocytosis and macrocytosis. Nucleated erythrocytes were not seen, platelets were abundant and no abnormal leukocytes were noted.

The diagnosis of addisonian anemia was made and concentrated liver extract-Lilly was given, 15 cc. intramuscularly as a depot dose September 23, following by 3 cc. daily for five days. Thiamin chloride 10 mg. was given intrathecally September 22 and 10 mg. intramuscularly was administered from September 23 to October 3; 400 cc. of blood was transfused September 24. No reticulocyte response followed the use of liver extract; daily counts varied between 0.3 and 0.6 per cent, nor was there any clinical improvement.

September 30 nicotinic acid (as sodium nicotinate) 100 mg. was given intravenously and continued until October 4. On October 1 the patient was conscious and cooperative and ate ravenously of the regular ward diet. On the following day she was alert and entirely rational. October 5, oral administration of nicotinic acid was substituted for intravenous treatment and 300 mg. was given each day in doses of 50 mg. every two hours from 8 a. m. to 6 p. m. Ferrous gluconate was prescribed, 5 grains (0.32 Gm.) three times a day. Clinical improvement was rapid. October 14 the patient was able to be up and around the ward. By October 18 all neurologic signs had disappeared; the patient was rational and

2. Jolliffe, N. H.: Effects of Vitamins on Mental and Emotional Processes, read before the Association for Research in Nervous and Mental Diseases, New York, Dec. 27, 1938.

in good spirits. The blood contained 12.5 Gm. of hemoglobin per hundred cubic centimeters, 4,200,000 red blood cells and 9,500 white blood cells per cubic millimeter. Volume and color indexes were 1. No reticulocytosis was observed; the maximum count was 0.8 per cent. The patient was discharged October 19 apparently well.

CASE 5.—L. J., a white man aged 78, was admitted to the University Hospital Sept. 30, 1938. A history obtained from the relatives told of increasing weakness and lethargy over a period of several weeks; eight days before admission the patient became bedfast and stuporous. He was fairly well nourished, stuporous and mildly delirious. The temperature was 99.2 F., the pulse 80, the respiratory rate 20 and the blood pressure 186 systolic, 110 diastolic. The skin was dry and wrinkled, the retinal arteries were sclerotic and the tongue was dry, bright red and atrophic. There was evidence of pulmonary congestion; the heart was moderately enlarged. There was advanced peripheral arteriosclerosis. Laboratory examinations showed moderate hypochromic anemia, normal renal function and electrocardiographic evidence of coronary sclerosis. The gastric contents could not be obtained. A liquid high vitamin diet, concentrated solutions of dextrose given intravenously and full doses of digitalis had no effect on the patient's condition. October 11 nicotinic acid was given, 100 mg. intravenously as sodium nicotinate, and repeated daily until October 16. On the second day of treatment the patient was alert and attentive and the tongue was pink and showed many small papillae. By October 14 the sensorium was entirely clear and the tongue normal. The patient was dismissed well October 19 and remained apparently well until Jan. 20, 1939, when he died suddenly from massive cerebral hemorrhage.

CASE 10.—M. T., a Negro woman aged 24, admitted to the University Hospital Oct. 27, 1938, had been seen many times in the outpatient department during the previous eight months complaining of headache and general malaise. In March 1938 she showed marked lethargy and March 31 a lumbar puncture yielded normal cerebrospinal fluid. During October consciousness became so clouded that she could not keep her eyes open or answer questions during an interview. There were no signs of an active psychosis.

On admission she was well developed and fairly well nourished, uncooperative and apparently stuporous. The temperature was 99 F., the pulse 80, the respiratory rate 18 and the blood pressure 132 systolic, 96 diastolic. The skin was normal. The left pupil was slightly larger than the right; both reacted normally to light and in accommodation. Ophthalmoscopic examination showed normal fundi. The tongue was red with smooth tip and edges; there was no stomatitis. No abnormalities were discovered on examination of the thorax, abdomen and genitalia. The knee and ankle jerks seemed slightly increased on the right. The patient lay with her eyes closed, entirely inert; she could be roused but consciousness was much clouded and she did not ever speak spontaneously. On being persistently roused she seemed oriented but failed to answer questions adequately, and it was impossible to hold her attention. Delusions and hallucinations seemed to be absent. The blood showed moderate hypochromic anemia; chemical determinations of the blood were negative and the Wassermann and Kahn reactions were negative. The urine showed nothing unusual. The gastric contents after administration of histamine contained 0 free hydrochloric acid and 14 degrees of total acidity. The cerebrospinal fluid was again normal in all respects. An electrocardiogram showed evidence of slight myocardial damage.

Because of persistent hebetude, frontal lobe tumor was strongly suspected; the possibility of chronic subdural hematoma was also considered. No nutritional history was obtainable but it was decided to try the effect of nicotinic acid, since there was mild glossitis and achlorhydria. Nicotinic acid 100 mg. was given intravenously as sodium nicotinate November 2, 3 and 4. About five hours after administration of the first dose there was a very definite change; the patient was fairly alert and answered questions quite satisfactorily. The following day she was more normal than she had been since she came under observation, responding promptly and rationally and showing keen interest in her surroundings. She remained clear mentally throughout the remainder of her stay in the hospital, talking freely, observant of all details and showing active and appropriate affective reactions. An encephalogram November 6 showed slight atrophy of both frontal lobes. The gastric contents obtained after administration of histamine November 10 contained 18 degrees of free hydrochloric acid and 35 degrees of total acidity. She was dismissed, apparently well, November 14.

CASE 11.—B. R., a white woman aged 46, was admitted to the University Hospital Nov. 2, 1938, with a tentative diagnosis of carcinoma of the uterus. There was a history of a foul vaginal discharge for some months, with progressive loss of appetite. During ten days preceding admission she had become progressively more weak and irrational, then stuporous and incontinent. She was small, emaciated, immobile and unconscious. The temperature was 100.2 F., the pulse rate 82, the respiratory rate 22 and the blood pressure 100 systolic, 30 diastolic. The skin was loose and dry; there was no dermatitis. The pupils were large and equal and they reacted to light; ophthalmoscopic examination showed normal fundi. The patient was edentulous, the tongue was red and smooth and there was no stomatitis. The lungs, heart and abdomen seemed normal. There was mild vaginitis with a profuse purulent discharge; the uterus and adnexa were normal. All tendon reflexes were much exaggerated with sustained ankle and patellar clonus and Chaddock's sign. The rectal and vesical sphincters were incontinent. There was no response to questions; strong painful stimuli were evidently felt but failed to rouse the patient. There were frequent sucking movements of the lips and cheeks and from time to time spontaneous grasping movements of the hands. There was slight hypochromic anemia; chemical and serologic examinations of the blood were negative. The urine showed moderate amounts of acetone. The gastric contents after administration of histamine contained 0 free hydrochloric acid and 14 degrees of total acidity. The cerebrospinal fluid was normal in all respects. X-ray examination of the thorax and of the gastrointestinal tract was negative.

An indwelling tube was installed for the administration of fluids and liquid diet. Psychiatric and neurosurgical consultants suggested central neuritis and frontal or hypothalamic tumor as possible explanations of the patient's condition. Because of mild glossitis and vaginitis with stupor, it was decided to give nicotinic acid. Amounts of sodium nicotinate solution equivalent to 150 mg. of nicotinic acid were given intravenously November 4 to 8 and then reduced to amounts representing 100 mg. until November 12. Some six hours after the first dose of sodium nicotinate the patient was definitely more responsive and the sensorium, while still clouded, was remarkably clearer. On the second day of treatment the patient was fairly cooperative, noticed the examiner, protruded the tongue on request and answered questions; on this day the indwelling tube was removed and a soft diet was taken. Sucking and grasping movements were less frequent and spasticity was less marked. On the following day she was alert and answered questions rationally. The sphincters were under control and primitive motor phenomena had ceased; all reflexes were normal. On this day the tongue was normal and there was no vaginal discharge. Subsequent improvement was rapid and the patient was dismissed, apparently normal, November 23.

CASE 18.—V. R., a white man aged 58, was admitted to the University Hospital Jan. 13, 1939. There was a history of gradually developing weakness and of aching of the feet with stumbling at night; a sensation of thoracic compression and increasing drowsiness had been present for about four months. He was emaciated, inert and entirely inattentive and looked much older than his stated age. The temperature was 98.6 F., the pulse 90, the respiratory rate 18 and the blood pressure 140 systolic, 80 diastolic. The skin was loose and dry and free from eruption. The pupils were irregular and reacted sluggishly to light and in accommodation. The optic disks were abnormally well defined and gray; the retinal arteries were tortuous and irregular. The tongue was rough and coated, with moderately red tip and edges. The lungs and heart were

not remarkable. The abdomen was scaphoid and the walls were soft. Reflexes were sluggish but no abnormal reflexes were found. There was great difficulty in holding the patient's attention when he was roused; the speech was slurred and there was marked apparent impairment of hearing. No sensory disturbances were found; the gait was slightly ataxic. The blood was normal in all respects, as was the urine. The cerebrospinal fluid showed no abnormalities.

Because the patient was lethargic and evidently poorly nourished it was decided to try the effect of nicotinic acid, though none of the usual signs of pellagra were present; 150 mg. was given intravenously on the evening of January 13 and 300 mg. January 14 and 15. On the morning of January 14 the patient was alert and cooperative, attention was readily gained and held and hearing seemed greatly improved. By the following day all mental clouding had disappeared, as had the speech defect and slight incoordination of the legs. He stated that he felt entirely well, and he was dismissed January 16 with no persisting symptoms.

COMMENT

The results obtained with nicotinic acid in this group of patients would seem to leave no doubt that the stupor, which was the presenting sign in every case, was due to specific deficiency of vitamin. No improvement followed the administration of nicotinic acid to patients with bromide intoxication, brain tumor or recent cerebral hemorrhage or thrombosis. It is to be emphasized that stupor was the single phenomenon common to the group. Glossitis was typical of pellagra in not more than four instances; two patients had rough coated tongues and the other thirteen had tongues which were dry and abnormally red but with abundant papillae, a type commonly referred to as "toxic" or "dehydrated." Gastrointestinal symptoms were absent and no patient showed dermatitis of any sort. The high proportion of elderly patients with advanced arteriosclerosis is significant in that such persons are apt to be without means of livelihood and severely undernourished as a result of neglect by relatives or of their own indifference. In our experience such patients have fallen into a high mortality group usually inadequately diagnosed "cerebral arteriosclerosis" or "cerebromalacia," hospitalized as a gesture and perfunctorily treated until death from bronchopneumonia. It is not to be supposed that we suggest that all stuporous conditions of obscure etiology are manifestations of pellagra. We have, however, been impressed by the dramatic improvement obtained in this series of cases and we are convinced that a therapeutic test with nicotinic acid is justifiable in cases of unexplained hebetude or unconsciousness.

Apparent deafness was a striking feature of five of our cases (2, 13, 14, 18 and 19). It was very difficult to evaluate the improvement in hearing which followed treatment with nicotinic acid. Unquestionably the threshold of auditory perception was raised during the period of stupor, but in two cases (13 and 14) there was a progressive increase in auditory acuity after hebetude had disappeared.

SUMMARY AND CONCLUSIONS

Nineteen stuporous patients showed remarkable improvement after treatment with nicotinic acid.

The usual criteria for the clinical diagnosis of pellagra were largely absent; four patients had the pellagrous type of glossitis and two had vaginitis; dermatitis and diarrhea were not present on admission in any case.

A great majority of the group were elderly with advanced arteriosclerosis and presented a clinical picture commonly attributed to arteriosclerotic encephalopathy.

Hebetude grading into profound stupor may be the only sign of severe acute pellagra, and therapeutic trial of nicotinic acid is justifiable as the only method at present available for the accurate diagnosis of such cases.

It is our present conviction that nicotinic acid was life saving in all but one or two of the cases under discussion.

BORDERLINE STATES OF NUTRITIVE FAILURE

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Nutrition now occupies the center of the stage. Formerly she played only a minor, somewhat unattractive, role and her lines were few, but today she enjoys a leading part and has the spotlight. Still greater brilliance of performance is promised. This advancement began about a quarter of a century ago when man's imagination was fired and his zeal for scientific inquiry kindled by the discovery that certain hitherto unknown substances, later called vitamins, although required only in minute amounts, are absolutely essential to the orderly progress of an animal's life processes. Without these substances the young fail to grow and the older animal sickens. It is of this sickness, in its many forms, that I wish to speak.

Three facts concerning nutritive failure are becoming increasingly obvious: first, that it does not come solely from lack of vitamins but from deficiency of proteins and minerals as well; in certain of the lower animals it comes even from lack of fats; second, that in America it is seldom complete; and third, that it is not, as a rule, the expression of a single nutritive fault. More often it is partial in extent and multiple in nature with a clinical picture that is correspondingly lacking in detail and hazy in outline.

Important too is the growing realization that nutritional failure is not the result solely of failure of supply, for it is frequently encountered in persons whose food supply is fully adequate. True, many of these patients simply do not eat the food offered them but there are others who, even though they consume adequate food of the right kind, suffer nonetheless from nutritive failure. Theirs is not a problem of the choice of food but of its digestion, absorption and utilization.

The first problem of this character was solved when Castle demonstrated that one of the most common of deficiency diseases, pernicious anemia, is due to a defect of the stomach. Then came reports telling of syndromes of similar character resulting from carcinoma of the stomach, gastrectomy, intestinal anastomosis and partial intestinal obstruction. Even rapid emptying of the stomach or long continued diarrhea may so interfere with digestion and absorption as to lead to nutritive failure. Witness the macrocytic anemia of sprue, due directly in all probability to poor absorption of the extrinsic factor of Castle and more remotely to the alterations in muscle tone and mucosal pattern characteristic of this disease.[1] Even nutritive deficiency

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The DaCosta Foundation Oration, read before the Philadelphia County Medical Society, Philadelphia, March 15, 1939.

1. Mackie, T. T.; Miller, D. K., and Rhoads, C. P.: Sprue: Roentgenologic Changes in the Small Intestine, Am. J. Trop. Med. 15:571-589 (Sept.) 1935.

itself, as Miller and Rhoads [2] have shown for the vitamin B complex, may so impair the integrity of the alimentary tract as to interfere with the absorption of other essential substances and thus lead to additional deficiencies of still other types. The same is true of peptic ulcer and chronic ulcerative colitis, which are sometimes attributed to nutritive failure but which are themselves, in all probability, the cause of the deficiencies noted. Apparently anything which seriously impairs the integrity of the gastrointestinal tract may so interfere with digestion and absorption as to lead to nutritive failure.

Such interference, however, is not limited to structural anomalies. Like difficulties are created by abnormalities of the digestive fluids, as can be seen most often in the deficiency states associated with achlorhydria. Just what role this defect plays it is difficult to say, but it is apparently of significance in a number of disorders other than pernicious anemia, notably pellagra and sprue. Even in the hypochromic anemias it plays a part, for in the absence of free hydrochloric acid from the stomach contents iron is not converted from the ferric to the ferrous state and therefore is not readily available for use. Similar hindrances are imposed by the absence of bile from the intestinal tract, for in this condition carotene, the precursor of vitamin A, and perhaps vitamin D also, fail of absorption and there results a deficiency of these elements.

Still other factors are capable of causing deficiency diseases in the face of an adequate food supply. Vitamin A and iron, for example, are both poorly utilized in the presence of an infection. In the case of the latter this was well illustrated by Whipple [3] when he told of the dog which ceased to build hemoglobin properly from injected iron when a focus of infection developed but which, as soon as the focus was removed, again produced hemoglobin in expected amounts. Additional evidence of this character is seen in the report of Kellogg and Mettier [4] that iron is poorly utilized when, as in peptic ulcer, alkalis are given.

Another potent cause of nutritive deficiency, hitherto unrecognized, is the ease with which the balance between vitamin requirement and energy output is upset, for the former is as a rule dependent on the latter, profoundly so in the case of vitamin B_1. If, for example, as was pointed out by Cowgill [5] and more recently emphasized by Williams and Spies,[6] a person consumes increased quantities of carbohydrate or alcohol; if, because of hyperthyroidism, fever or additional exercise, he increases appreciably his metabolism or, in the case of a woman, if she becomes pregnant, the requirement for vitamin B_1 is greatly increased. If the diet in this respect has hitherto been a borderline one, nutritive deficiency results and characteristic symptoms may develop.

Similar results may follow disturbances of intermediary metabolism, notably those which accompany disorders of the liver. Many substances are stored in the liver and when it is diseased the body may be deprived of reserves of essential nutritive elements on which it is accustomed to rely. If this organ is cirrhotic, for example, not only is the storage of vitamin A interfered with but the conversion of carotene into the vitamin is retarded. In addition, poor utilization of vitamin D [7] and inadequate production of plasma proteins are also experienced. The low levels of ascorbic (cevitamic) acid reported in the blood during rheumatoid arthritis and the assumed increase in requirement are also apparently due to disturbance of intermediary metabolism. It can safely be said, therefore, that the requirement of the body for vitamins and other nutritive essentials is governed by many factors, prominent among which are the condition of the gastrointestinal tract and the functional integrity of the liver.

No discussion of diet today would be complete without some mention of the distinction which is becoming increasingly obvious between minimum and optimum. As applied to nutrition the two words are by no means synonymous. Witness the report of Sherman and Ellis [8] concerning vitamin G and of Batchelder [9] concerning vitamin A showing in each group of experiments that the animal's improvement in vigor and nutritive well-being paralleled closely successive additions of the vitamin to the diet until an amount of this substance was administered which was several times that necessary to prevent evidences of nutritive deficiency. Like experience in the feeding of vitamin B to children was reported by Knott.[10] Since the body is apparently unable to build adequate reserves of this vitamin, she assumed that the highest retention represented the optimum intake and found that this point was reached only when six or seven times the minimum requirement was given. Such studies lead to the conclusion not only that optimum in this relationship is distinct from minimum but that it is to be distinguished even from adequate.

Subclinical states of nutritive failure hold greater interest for the average physician than do the outspoken deficiency diseases, both because they are more frequent and because without creating recognizable illness they often destroy the patient's efficiency, impair his sense of well-being and constitute a potent source of poor health. The recognition of these states, however, is not easy because there is no yardstick by which nutritive status can accurately be measured. The effort is being made to perfect methods of precision which will serve this purpose, but except for the determination of the ascorbic acid of the blood and possibly the capacity of the eye for dark adaptation, none of these are suitable yet for general use. The physician must rely on painstaking clinical observation and a recognition of those conditions under which nutritive deficiency is most apt to occur. The symptoms, which are well represented in a group of patients of whom I shall speak presently, are as a rule rather vague and elusive. Significant symptoms always are sore tongue and tendency toward diarrhea, but when these appear the disease can hardly be classed as subclinical. Careful questioning will often reveal faulty dietary habits,

2. Miller, D. K., and Rhoads, C. P.: The Experimental Production of Loss of Hematopoietic Elements of the Gastric Secretion and of the Liver in Swine with Achlorhydria and Anemia, J. Clin. Investigation **14**: 153-172 (March) 1935.

3. Whipple: Personal communication to the author.

4. Kellogg, Frederick, and Mettier, S. R.: Effect of Alkaline Therapy for Peptic Ulcer on Utilization of Dietary Iron in the Regeneration of Hemoglobin, Arch. Int. Med. **58**: 278 (Aug.) 1936.

5. Cowgill, G. R.: The Physiology of Vitamin B_1, J. A. M. A. **110**: 805-812 (March 12) 1938.

6. Williams, R. R., and Spies, T. D.: Vitamin B_1 and Its Use in Medicine, New York, Macmillan Company, 1938.

7. Heymann, Walter: Importance of the Liver for the Antirachitic Efficacy of Vitamin D, Proc. Soc. Exper. Biol. & Med. **36**: 812-814 (June) 1937.

8. Sherman, H. C., and Ellis, L. N.: Necessary Versus Optimal Intake of Vitamin G, J. Biol. Chem. **104**: 91 (Jan.) 1934.

9. Batchelder, E. L.: Nutritional Significance of Vitamin A Throughout the Life Cycle, Am. J. Physiol. **109**: 430 (Sept.) 1934.

10. Knott, Elizabeth M.: A Quantitative Study of the Utilization and Retention of Vitamin B by Young Children, J. Nutrition **12**: 597 (Dec.) 1936.

extreme faddism, substandard conditions of living, a long continued illness or operation perhaps, or some other circumstance which has influenced the state of the patient's nutrition. Recognition is often made more difficult by the multiple nature of the deficiency. Even such a clearcut disease as pernicious anemia is frequently complicated by contributory deficiencies. As was well expressed by Minot,[11] it is often of more practical importance to recognize that the patient has nutritional deficiency than to be able to name exactly what nutritional deficiencies he has.

The physician who attempts to describe nutritional failure should confine himself to the disorders seen within his own area of activity, for climate, soil, food supply, racial customs, economic considerations, are all of profound influence. I can speak, therefore, only of my own observations in the Gulf states, but these, I believe, will permit of a fair amount of generalization. My interest in nutrition was aroused many years ago by experience with a group of patients who are ordinarily shunned by most physicians. These patients, while presenting a great variety of symptoms, have in common easy fatigue, both mental and physical, anemia of varying degree, digestive disorders of every type and of all grades of severity, aches and pains that are not necessarily constant in time or location, a lowered basal metabolic rate perhaps, dryness and other minor disturbances of the skin, and an emotional instability that physicians are accustomed to associate with neurasthenia. But neurasthenia is a poor diagnosis always, and for this group in particular it is a highly unsatisfactory one. It seemed best at that time to make no diagnosis, and for a number of years with a large measure of success these patients were treated without a diagnosis.

Today, after watching the response of the patient of this type to a more liberal diet, I now feel convinced that his troubles are due largely to nutritive deficiency. The vague pains of which he so often complains are not the expression merely of heightened emotionalism; too often they are reminiscent of the symptoms described by Brennan[12] in the latent beriberi seen in the Philippines. The same is true of his easy fatigue, palpitation and insomnia. Likewise, I think it fair to assume that his vague digestive disorders, even though they depend on functional derangement rather than on structural damage, are none the less genuine. When one recalls the description by Cowgill and Gilman[13] of the depression of gastric secretory activity produced by lack of the vitamin B complex, and that of Shimazono[14] of the altered intestinal motility which accompanies the same deficiency, it is not difficult to recognize the true nature of these disabilities.

The patients of whom I speak have been put to bed in the hospital, reassured, given a pat on the back, and forced to eat a liberal, well balanced diet, a type of diet to which, as a rule, they were utterly unaccustomed and against which they sometimes rebelled. In the majority of instances the improvement has been thoroughly satisfactory. The aches and pains have disappeared, foods were eaten that formerly were regarded with great fear, emotional stability has been established, and the patient has not infrequently blossomed out like a rose. He was cured, at least for the time being, but of what he was cured I formerly had many doubts. Now I believe I know. It was not, as was at first thought, the seclusion, the opportunity for quiet contemplation, the reassurance, the atmosphere of encouragement or the pat on the back that accomplished the cure. It was food.

High in the list of such disorders should be placed the so-called prepellagrous state. Since J. B. McLester in his study of the histories of pellagrins seen at the Hillman Hospital in Birmingham made the significant discovery that an appreciable number of these patients had been admitted the previous year under the diagnosis of neurasthenia, we have made an effort toward the early recognition of such cases of subclinical pellagra. Many of the patients recently studied could with some justice be called neurasthenic, but when given nicotinic acid and thiamin, with a diet appropriate for pellagra, they recovered their nervous stability and sense of well-being to a remarkable degree. I believe that with a good history the prepellagrous state can be recognized without great difficulty and further progress of the disease stopped.

Among the discoveries made by Spies and his associates in these pellagra studies two are deserving of mention here. First, abundant confirmation was found of the belief which I expressed a few years ago[14a] that the deficiency responsible for the manifestations of this disease is as a rule multiple in nature. Nicotinic acid will relieve in a graphic manner the psychic and the gastrointestinal symptoms of pellagra, but experience has shown that vitamin B_1 is required for relief of the neuritis. Second, it was demonstrated early in this work that a diet fully adequate to protect against pellagra will not necessarily arrest the disease once it is started; the same nutritive substances are required but in greatly increased amounts. The conclusions drawn from these observations apply, experience has led me to believe, not only to pellagra but also to many other deficiency states, borderline and outspoken.

The minor disorders that appear in the twilight zone of nutritive failure are many and varied. In this group can be placed the normocytic anemia, with a slightly macrocytic tendency, ascribed by Minot[15] to lack of vitamin C and the iron deficiency anemia seen among many young women. This last, although mild, is apparently identical with the chlorosis frequently described forty years ago. In the same category belong the dermatoses of minor extent described by Youmans and Corlette[16] and others and the peculiar dystrophy of the nails reported by White. In the first group improvement was effected by the administration of vitamin A and in the second by vitamins A, B and D. I am not familiar with the beriberi heart described by Weiss and Wilkins,[17] but I believe that other disorders which accompany low grade vitamin B_1 deficiency, difficult of accurate appraisal, are

11. Minot, G. R.: Nutritional Deficiency, Ann. Int. Med. **12**: 429 (Oct.) 1938.

12. Brennan, T. J.: The Early Diagnosis of Beriberi, Nutrition Abstr. & Rev. **2**: 841 (April) 1933.

13. Cowgill, G. R., and Gilman, Alfred: Physiology of Vitamins: XXIII. The Effect of Lack of the Vitamin B Complex on the Secretion of Gastric Juice in Dogs with Gastric Pouches, Arch. Int. Med. **53**: 58 (Jan.) *1934*.

14. Shimazono, J., quoted by Cowgill, G. R.: The Vitamin B Requirements of Man, Yale University Press, 1934.

14a. McLester, James S.: The Nature of Pellagra: A Critique, Am. Int. Med. **8**: 475 (Oct.) *1934*.

15. Minot, G. R.: The Anemias of Nutritional Deficiency, *J. A. M. A.* **105**: 1176 (Oct. 12) 1935.

16. Youmans, J. B., and Corlette, M. B.: *Specific Dermatoses Due to Vitamin A Deficiency*, Am. J. M. Sc. **195**: 644 (May) 1938.

17. Weiss, Soma, and Wilkins, R. W.: The Nature of the Cardiovascular Disturbances in Nutritional Deficiency States (Beriberi), Am. Jour. Med. **11**: 140 (July) 1937; Disturbances of the Cardiovascular System in Nutritional Deficiency, J. A. M. A. **109**: 786 (Sept.) 1937.

of relative frequency. Among these should be included many so-called functional digestive disorders with anorexia and loss of gastrointestinal muscle tone, and many forms of neuritis, both single and multiple. Witness the neuritis of pregnancy which Strauss and McDonald[18] successfully treated with abundant diets rich in vitamin B_1, and the neuritis of diabetes mellitus, which Williams and Spies[6] believe is due to vitamin B_1 deficiency.

Other disorders, the nature of which is sometimes difficult of recognition, accompany low grade protein starvation. This deficiency does not always produce effects as outspoken as the nutritive edema and other evidences of faulty diet described by Youmans in the mountains of Tennessee. Less obvious symptoms such as weakness, pallor and the pitting of the ankles and puffiness of the eyelids that follow long continued illnesses may result from lack of protein. In this group should be placed also the toxemias of pregnancy which Strauss[19] has shown to be due to hypoproteinemia, and certain of the hypochromic anemias. A large proportion of the circulating protein is included in the hemoglobin molecule, and without a sufficient supply of this foodstuff hemoglobin is inadequately produced. Evidence of this is seen in the experiments of Weech and his associates,[20] whose dogs, maintained on a diet deficient in protein, experienced a marked fall in red blood cells as well as depletion of circulating proteins. This explains why hypochromic anemia is sometimes so refractory to treatment. Lack of protein is far reaching in its effects.

The relationship of inadequate diet to disease is not always direct. It would take a stretch of the imagination to regard cirrhosis of the liver as a deficiency disorder, yet Connor[21] looks on starvation or partial starvation, plus alcohol, as first among the causes of this disease. He lists the several types of faulty diet which prepare the way and doubts whether the adequately nourished person, even though he uses alcohol to excess, ever develops cirrhosis. Even cataract has been brought into this category. Bourne[22] suggests, since the lens is a growing tissue and since relatively large amounts of essential amino acids are required for the elaboration of its protein, that this structure is in all likelihood susceptible to protein deficiency. A similar influence is attributed to vitamin C, which is normally present in the lens. Since the amount of ascorbic acid is less in the lenses of older animals and least of all in cataractous lenses, and since ascorbic acid is so intimately concerned in the metabolism of this structure, it is thought that its withdrawal will produce degenerative changes. Because of the low ascorbic acid levels reported in the blood of rheumatoid diseases[23] arthritis is also included in this group. Such examples cannot be regarded as final evidence of a directly causative relationship, but they illustrate nonetheless the fact that diseases which apparently are of other origin may develop on a basis of nutritive deficiency.

The chronic undernutrition which leads to the disorders just discussed is far reaching in its effects and sometimes difficult of correction. Witness the experiments of French and Bloomfield,[24] who demonstrated that rats which have lost weight as the result of a defective diet and then have been restored to normal by a stock ration subsequently show more rapid weight loss when again placed on the same defective diet, which is taken to indicate that there has been some real alteration in the status of the animal. This principle is probably applicable to man also, for it is well established that long continued undernutrition will lead to general physical inferiority, small stature, skeletal defects and even intellectual retardation. That nutritive failure during the formative period of life if long continued may result in damage which can never again be completely corrected is evident in the small stature and mental and physical inferiority of children reared in undernourished families.[25] Continued into adult life, such deficiencies may also lead to early decay, as was seen in the experiments of McCollum, who found that mice reared on a diet within the "twilight zone" of good nutrition exhibit relatively early the signs of senility and fail to live out their normal span of life. Other animals show the same tendency; man is probably no exception.

ILLUSTRATIVE CASES

In closing I would like to tell of a few patients who have suffered from the deficiency states I have attempted to describe and then speak briefly of treatment. A patient whose gallbladder had been removed was having a stormy convalescence. She could not be induced to eat, was prostrated far beyond what could reasonably be expected, and was apparently developing a psychosis. In view of her "finicky" appetite and of her history of never having eaten properly since childhood, she was finally given nicotinic acid and daily intramuscular injections of liberal amounts of liver extract. The result was graphic. The psychoneurosis disappeared, she began to eat, and convalescence ensued. The starvation incident to the illness and subsequent operation had simply pushed a borderline deficiency over the border.

Another patient's diagnosis varied from time to time between inadequate personality, constitutional inferiority and neurasthenia. In addition to his numerous bodily complaints he was utterly lacking in stamina. He experienced frequent emotional upsets and could work only a few days at a time; even then he was thoroughly inefficient. Finally, because of the similarity between this young man's complaints and those of many early pellagrins, he was given, in addition to an abundant diet, nicotinic acid. There was immediate improvement. He returned to work and continued to work steadily. Because, no doubt, of damage done to his nervous system many years ago, the original diagnosis of constitutional inferiority still holds good, but since he has taken nicotinic acid his difficulties have largely disappeared.

18. Strauss, M. B., and McDonald, W. J.: Polyneuritis of Pregnancy: A Dietary Deficiency Disorder, J. A. M. A. **100**: 1320 (April 29) 1933.

19. Strauss, M. B.: Nutritional Deficiency and Water Retention in the Toxemias of Pregnancy, J. Clin. Investigation **14**: 710 (Sept.) 1935; Observations on the Etiology of the Toxemias of Pregnancy, Am. J. M. Sc. **194**: 772 (Dec.) 1937.

20. Weech, A. A.; Wollstein, M., and Goettsch, E.: Nutritional Edema in the Dog, J. Clin. Investigation **16**: 719 (Sept.) 1937.

21. Connor, C. L.: The Etiology and Pathogenesis of Alcoholic Cirrhosis of the Liver, J. A. M. A. **112**: 387 (Feb. 4) 1939.

22. Bourne, M. C.: Metabolic Factors in Cataract Production, Physiol. Rev. **17**: 1 (Jan.) 1937.

23. Rinehart, J. F.; Greenberg, L. D.; Baker, Frances; Mettier, S. R.; Brukman, F., and Choy, Frank: Metabolism of Vitamin C in Rheumatoid Arthritis, Arch. Int. Med. **61**: 537 (April) 1938. Rinehart, J. F.; Greenberg, L. D.; Olney, Mary, and Choy, Frank: Metabolism of Vitamin C in Rheumatic Fever, ibid. **61**: 552 (April) 1938.

24. French, L. R., and Bloomfield, A. L.: "Latent Deficiency" in Rats, J. Nutrition **14**: 117 (Aug. 10) 1937.

25. Richards, M. B.: Role of Vitamin A in Nutrition, Brit. M. J. **1**: 99 (Jan. 19) 1935.

Vallebona [18] reported a cure in one case but failure in four other cases. Cignolini [12] failed in seven cases to effect recovery. Lezius,[20] in a monograph published in 1936, said that he had observed no healing of abscesses after short wave therapy. One of his patients died of hemorrhage immediately after irradiation and a second two weeks later from extensive new areas of destruction of lung tissue. In a paper on the treatment of gangrene of the lung written from the Heidelberg surgical clinic, Lezius [19] said "We had very poor results *with roentgen* and short wave irradiation of the lung" (Ganz schlechte Erfahrungen machten wir mit Roentgen- und Kurzwellenbestrahlung der Lunge). In ten cases Jacchia and Ghetti [21] failed to obtain a cure, but in four they claimed complete recovery. Vosschulte and Schwarzhoff [22] in a recent paper stated that they had operated in two cases in which short wave therapy had been employed for a long time without any success.



Fig. 1 (case 1, June 21, 1935).—Large shadow involving nearly one half of the entire right lung field (which has a circular outline in the oblique position). No fluid level was visible. Diagnosis: large lung abscess.

We have collected from the literature 129 cases of lung abscess and gangrene treated with short waves by eighteen clinicians, as shown in the accompanying table. Eighty-seven of the patients, or 67 per cent, were reported to be cured.

The following series has been carefully studied. The patients with two exceptions were hospitalized during the course of therapy. This made possible a careful observation of temperature, pulse, physical signs, sputum and blood sedimentation rate. Roentgenograms were made at frequent intervals. Schliephake's original recommendations regarding technic were carefully followed.

Treatments were usually given daily, beginning with an initial one of ten minutes' duration. The duration was gradually increased to thirty or even forty-five minutes. Large glass electrodes 20 cm. in diameter were used. They were usually placed from 4 to 6 cm. from the skin. The wavelengths selected were 4 cm. or 6 cm. A large two vacuum tube machine was used. It has an output of 500 watts when generating a 6 meter length.

During the first treatments increased expectoration was often noticed. In one case treatment was discontinued for three days owing to the presence of blood in the sputum. The treatments did not disturb the patients after they became accustomed to the procedure.

ACUTE LUNG ABSCESS

CASE 1.—*History and Course.*—M. H., a girl aged 10 years, had had a tonsillectomy April 27, 1935, and pain in the right side of the chest June 6. Later fever and cough developed, w foul sputum. On her admission to the Boston Floating Hosp *June 20* there were *dulness and diminished* breath sounds o the right side of the chest. X-ray examination showed evide of a lung abscess (fig. 1). The temperature varied between 1 and 103 F. and the pulse was accelerated. The total amount sputum was from 20 to 80 Gm. daily. July 1 short wave tre ment was begun. Three days later the temperature fell normal. July 6 the physical signs had disappeared. The blo sedimentation rate dropped from 55 mm. in one hour July 1 22 mm. July 16. No further determination was made un December 3, when it was 4 mm. in one hour. July 11 a roen genogram showed clearing of the infiltration, but the cavity w unchanged (fig. 2). During the following month it shrank until measured only 2 cm. by 1 cm. In a roentgenogram made Augu 23 the abscess was no longer visible (fig. 3). There was a goo gain in weight, and the patient seemed to make a comple recovery except for the persistence of a small cavity, as show by later roentgenograms. The last short wave treatment w given Feb. 12, 1936. She returned to the Children's Clinic o request from time to time. March 14 a note was made that sh was going to school and feeling well and that there was n cough or expectoration. She remained free from symptom until September, when there developed a cough, which persisted When she was seen October 31 her temperature was 101.2 F The sputum was purulent and of foul odor. There were dulnes and bronchial breathing over the lower part of the right lung A roentgenogram revealed an abscess involving the entire middle lobe (fig. 4). November 5 she was sent to the Massachusetts Memorial Hospitals with a temperature of 101 F. There the abscess was drained in a three stage procedure. At operation it was found to involve the entire middle lobe. During the following months the patient slowly recovered, and she was discharged April 26, 1937, with a small sinus still present.

Therapy.—A 4 meter wavelength was used with large electrodes 3 cm. from the skin. Treatments were given daily, lasting from ten to forty-five minutes. The total number of treatments was 113 and they extended from July 1, 1935, to Feb. 12, 1936.

This case seemed to be a striking demonstration of the curative value of short wave therapy in lung abscess. The symptoms rapidly disappeared, but a small cavity persisted in spite of 113 short wave treatments given over a period of more than six months. The patient remained clinically well for over a year. Then symptoms returned, the abscess enlarged and surgical treatment was necessary. The case teaches that a lung abscess is not cured until the cavity is closed and replaced by scar tissue.

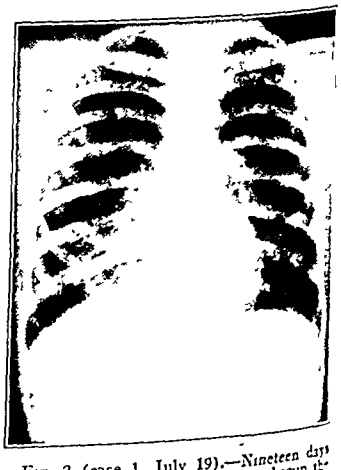


Fig 2 (case 1, July 19).—Nineteen days after short wave treatments were begun the shadow was reduced in size, but there was a large cavity in the lung with a fluid level clearly visible.

CASE 2.—*History.*—A. G., a single woman aged 29, had a tonsillectomy April 7, 1938, and nine days later, April 16, there was a sudden rise of temperature with chill and cough. From the onset until admission to the Diagnostic Hospital of the New England Medical Center April 21 the temperature had ranged from 100 to 102 F. and there had been severe pain in the lower right lateral region of the chest, with increasing cough and sputum amounting to as much as 100 Gm. daily. On two occasions it had a foul odor and taste. On admission *the patient* appeared acutely ill. There was an almost con-

20. Lezius, Albert: Der Lungenabscess, Ergebn. d. Chir. u. Orthop. **29**: 571, 1936.
21. Jacchia and Ghetti: Treatment of Lung Abscess with Short Wave Therapy, Gior. med. d. Alto Adige **8**: 1938; abstr., Med. Klin. **34**: 483 (April 8) 1938.
22. Vosschulte, K., and Schwarzhoff, E.: Spontanheilung, interne Behandlung und Indikation zum chirurgischen Engriff beim Lungenabzess, München. med. Wchnschr. **85**: 580 (April 12) *1938.*

tinuous cough, with choking attacks and the expectoration of foul-smelling sputum. There was slight dulness over the lower part of the right lung posteriorly. In this area a few moist rales were present. The sputum contained a few spirochetes, fusiform bacilli and many elastic fibers. No tubercle bacilli were found. Roentgenograms April 21 showed an area of homogeneous density in the mid third of the right lung in which a fluid level was seen. May 5, fourteen days after admission, the cavity appeared much larger. The clinical course was marked by continuous fever during the first nine days. On the ninth day the patient coughed up 717 Gm. of sputum in twenty-four hours. After this the amount of sputum ranged between 100 and 200 Gm. The temperature was unchanged. The blood sedimentation rate remained the same. It was 24 mm. in one hour April 22 and also May 5.

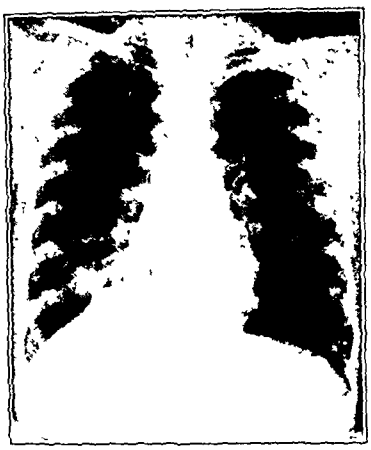


Fig. 3 (case 1, August 23).—The abscess cavity can no longer be discerned. It is apparently replaced by dense tissue.

The patient received either 0.1 Gm. or 0.05 Gm. of neoarsphenamine on three occasions. This treatment was discontinued on account of a marked reaction after the third treatment.

Therapy.—Daily treatments were given except for the four days from April 27 to May 2. A 6 meter wavelength was used with large electrodes, each placed 6 cm. from the skin. The duration of the single treatments was from five to fifteen minutes. Severe paroxysms of coughing, together with the weakened condition, made treatments longer than fifteen minutes unadvisable. The total number of treatments was eight.

Course.—There was no change in the clinical picture, but there was a definite increase in the size of the cavity. Therefore the patient was transferred to the New England Deaconness Hospital, where a large abscess cavity was found and drained by Dr. Overholt. She made a good recovery.

In this case of lung abscess following tonsillectomy, short wave therapy was given over a rather short period, but as the patient's symptoms were not diminished and as the abscess increased in size it seemed proper to resort to surgical treatment. In view of the small number of treatments given one might not be justified in recording this case as a failure of short wave therapy. On the other hand, eight treatments given in two weeks failed to produce the slightest amelioration of the symptoms.

CHRONIC LUNG ABSCESS

CASE 3.—*History.*—G. B., a housewife aged 35, had pneumonia of the lower lobe of the right lung in 1928 and since then had raised from 20 to 30 Gm. of sputum daily. Between 1929 and 1932 several hemoptyses occurred. For the past few years she had felt fairly well and had been able to do a moderate amount of housework. On examination Sept. 19, 1935, slight pallor was noted. There was flatness over the right side of the chest; here a few sibilant and consonating rales were heard. No tubercle bacilli or elastic tissue could be found in the sputum. The sedimentation rate was 17 mm. in one hour. There was no anemia. Roentgenograms showed a faint triangular shadow in the middle of the right lung, which was interpreted as due to an abscess. During the following days the sputum averaged 50 Gm. The hemoglobin content was 89 per cent and the red cell count 4.7 million per cubic millimeter. The temperature was normal. Bronchoscopic examination supported the diagnosis of abscess of the lung.

Therapy.—Radiation with a 4 meter wave was given daily for from fifteen to forty minutes with electrodes 20 cm. in diameter placed 4 cm. from the skin.

Course.—Treatment was continued from September 23 to December 23, when she was discharged. The results of x-ray examination remained unchanged, and when she left the hospital she was raising from 30 to 48 Gm. of mucopurulent odorless sputum daily.

This patient had a very chronic and benign form of lung abscess. There was no improvement, although short wave treatment was given for three months.

CASE 4.—*History.*—R. H., a business man aged 56, had a febrile pulmonary infection in December 1933 following exposure to cold. A roentgenogram of the chest in June 1934 showed changes suggestive of bronchopneumonia. Cough had persisted since then. In September 1934 an x-ray examination revealed an abscess in the lower lobe of the left lung, as did one done in April 1935. On admission June 6, 1935, he stated that the cough and sputum had increased during the previous three weeks and that the sputum was purulent. There was dulness over the lower lobe of the left lung. Occasional medium and coarse rales were heard over this region. The temperature during the stay in the hospital did not rise above 99.6 F.; the average pulse rate was 95. The blood sedimentation rate was 6 mm. in one hour (Westergren). A blood count showed 7,100 leukocytes and 5.2 million erythrocytes per cubic millimeter and a hemoglobin content of 100 per cent. The sputum amounted to between 12 and 60 Gm. in twenty-four hours; there were many elastic fibers in one specimen but no tubercle bacilli. X-ray examination revealed in the eighth intercostal space of the left lung a definite round shadow 3 cm. in diameter apparently half filled with fluid.

Therapy.—Thirty-four treatments were given, a 4 meter wavelength being used. Large electrodes were placed 4 cm. from the skin of the chest. For the first fortnight a short wave treatment was given daily, and then a treatment was omitted two or three times a week.

Course.—No improvement in the patient's general condition was noticed. A roentgenogram made at the end of treatment showed no change in the size or the appearance of the abscess.

This case represents a benign form of a well encapsulated abscess without signs of activity. Despite prolonged treatment there was no change in the size of the abscess.

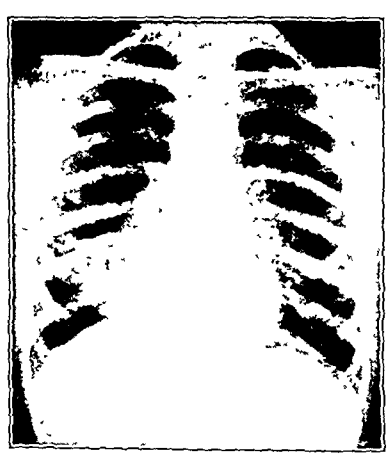


Fig. 4 (case 1, Nov. 5, 1936).—The cavity, with a fluid level, is larger than in July 1935.

CASE 5.—*History.*—H. R., a boy aged 9 years, swallowed a blade of grass Oct. 4, 1935, and apparently had pneumonia one week later. Subsequently a diagnosis of lung abscess was made and confirmed by x-ray examination. In January 1936 he was placed in a hospital outside Boston, where aspiration of the abscess was attempted. Empyema then developed. Two ribs were resected and 500 cc. of pus removed. Improvement followed and the temperature fell to normal. He was admitted to the Diagnostic Hospital of the New England Medical Center February 17. He was pale and undernourished, and there was a foul odor to the breath. There was a draining sinus in the right lower part of the chest, with dulness on percussion over this part and diminished breath sounds. The hemoglobin content was 70 per cent, the leukocytes numbered 17,200 per cubic millimeter and the sedimentation rate was 50 mm. in one hour. The sputum contained no acid-fast

bacilli or elastic fibers and varied in amount from 60 to 120 Gm. X-ray examination revealed a marked infiltration of the lower lobe of the right lung with an ill defined lower margin and a curved outline of the upper margin. He was in the hospital nearly two months and had a mild fever throughout his stay. The average pulse rate was 100.

Therapy.—Daily irradiation was performed with a wavelength of 4 meters and large electrodes placed about 3 cm. from the skin. The total number of treatments was forty-two.

Course.—There was no change in the amount of sputum, temperature or general condition during his stay at the hospital. He was transferred to the Massachusetts Memorial Hospitals, where lobectomy was attempted July 17. He did not survive the operation.

This was a case of severe lung abscess due to a foreign body. The condition did not respond to short wave therapy.

CASE 6.—*History.*—E. Y., a machine tender aged 21, who showed the first signs of pulmonary involvement in April 1936, when he began to cough and raise blood-streaked sputum, was under observation in the Diagnostic Hospital from June 2 to June 25. There was dulness over the right side of the chest. Diminished breath sounds and moist rales were present over the entire right lung. The leukocytes numbered 28,200 per cubic millimeter. The blood sedimentation rate was 52 mm. in one hour. X-ray examination showed a large area of infiltration in the upper lobe of the right lung with areas suggestive of destruction of lung tissue. During his first stay in the hospital the infiltration lessened and the sputum decreased from 100 to 25 Gm. A roentgenogram taken on discharge showed remarkable regression of the infiltration, but a definite area of softening had developed. He improved for a time. On August 9 cough returned, and he was readmitted August 16. The sputum had increased in amount and had developed a foul odor. It amounted to between 30 and 50 Gm. in twenty-four hours. Only a single elastic fiber was found in the sputum; there were no tubercle bacilli. The temperature varied from normal to 103 F. X-ray examination August 20 showed an infiltration involving two thirds of the upper lobe of the right lung with a questionable fluid level.

Therapy.—Radiation with a 6 meter wavelength was given daily for nine days for from fifteen to thirty minutes, large electrodes placed 4 cm. from the skin being used.

Course.—The temperature fell somewhat after a few days but later rose again. X-ray examination September 14 showed extension of the infiltration toward the base with a fluid level present. The patient was transferred to the Massachusetts Memorial Hospitals, where September 19 operation (drainage of two lung abscesses and resection of three ribs) was performed. He died October 6. Autopsy revealed multiple abscesses in the lower lobe of the left lung.

This patient when treated was in a toxic condition. He was in no way benefited by short wave treatments and finally died in spite of operation.

CASE 7.—*History.*—F. R., an Italian shoemaker aged 44, became ill Feb. 12, 1937, when fever, cough and headache developed. X-ray examination four weeks later showed an isolated abscess with a fluid level in the lower lobe of the left lung. Operation was advised in October but refused. Later cough, expectoration and loss of weight became more pronounced. The patient entered the Diagnostic Hospital November 17. He showed signs of chronic infection and pallor and coughed frequently. He weighed 98 pounds (44 Kg.). The temperature was 100 F., the respiratory rate 36 and the pulse rate 88. There were slight dulness over the lower lobe of the left lung and a slight decrease in the tactile fremitus over the base of the left lung, where numerous moist rales were heard after coughing. A blood count showed 14,500 leukocytes and 4.5 million erythrocytes per cubic millimeter and a hemoglobin content of 65 per cent. The sedimentation rate was 78 mm. in one hour (Westergren method). The sputum ranged in amount from 160 to 460 Gm. in twenty-four hours and had a foul odor; no spirochetes were found. X-ray examination on admission showed a dense shadow over the lower lobe of the left lung.

Therapy.—The patient was given thirty-six treatments with a 6 meter wavelength for twenty minutes daily from November 19 to January 6, except on Sundays and holidays. The electrodes were 20 cm. in diameter and were placed 4 cm. from the skin of the left lower part of the chest.

Course.—The temperature varied between 100 and 102 F. and the respiratory rate between 30 and 36. The pulse remained accelerated. There was a slight increase in weight but no change in general condition of the results of x-ray examination. December 27 the sedimentation rate had risen to 127 mm. in an hour.

The patient was transferred to the surgical department of the Peter Bent Brigham Hospital, where he died after drainage was performed. An autopsy revealed multiple abscesses in the left lung.

In this case progressive multiple abscess formation was not influenced by short wave therapy.

CASE 8.—*History.*—J. B., a man aged 22, who in March 1937, on the ninth day after an appendectomy, was seized with a shaking chill followed by a severe cough and high fever, the following day raised fetid sputum. A week later an x-ray examination showed an infiltration of the upper lobe of the left lung. Cough and fever continued, and about 30 Gm. of foul sputum was raised daily. He lost 20 pounds (9 Kg.). During the summer the symptoms gradually disappeared. Through the fall and early winter he was fairly well and regained 20 pounds. In February 1938, three weeks before admission, he was seized with cough, pain in the right upper part of the chest and fever. The fever persisted for a week. On admission, March 30, his weight was slightly diminished, his general condition was fair, there was no anemia and he had moderate cough. A few sibilant rales were heard over the base of the left lung; otherwise the physical examination gave negative results. A roentgenogram of the chest showed two cavities in the apex of the lower lobe of the left lung. The sputum contained many elastic fibers but no tubercle bacilli or spirochetes.

Therapy.—Daily short wave treatments for from ten to twenty minutes with a 6 meter wavelength were given. Large electrodes were used over the lower lobe of the left lung at a distance of 10 cm. in front and 4 cm. in back. The total number of treatments was nineteen.

Course.—During hospitalization he remained afebrile except for five days (April 18-April 23), when he had an increase of sputum, headache and a rise of temperature to 102 F. The sputum ranged in amount from 75 to 250 Gm. daily, contained a little blood occasionally and had a fetid odor. There was no improvement in the results of examination on discharge. He was transferred to the New England Deaconness Hospital, where Dr. Overholt did a three stage drainage of the lung abscesses. He made a good recovery.

Chronic abscesses in the lower lobe of the left lung causing relatively mild symptoms were uninfluenced by short wave therapy.

COMMENT

We have published our results because we believe they indicate clearly that short wave therapy is of far less value in the treatment of lung abscess than the advocates of this method claim. We are especially doubtful of the possibility of curing chronic abscesses with short waves. There is a certain danger, as recently pointed out by Vosschulte and Schwarzhoff,[22] that patients may be lost by persistence in conservative treatment who might be saved by surgical intervention. Whether or not short wave therapy will cure acute lung abscesses is still undecided. As an analysis of the

reported cases shows that eighty-five of 128 patients with lung abscess, or 66 per cent, recovered, the evidence is clear that a further trial of this method should be made with patients seen early in the disease before surgical intervention is resorted to. We have used throughout the most powerful apparatus of European manufacture, identical with the best equipment employed by those who have reported cures, large Schliephake electrodes, and have given daily treatments of the same duration as those by others who have had success. Dieker,[11] using exactly the same technic that we employed in most of our cases, a large output of energy, a wavelength of 6 meters and a distance from the skin of at least 4 cm., reported fifteen recoveries in sixteen cases. The only reasonable change we can make in technic is to increase the distance of the electrodes from the chest. In view of the experience of Liebesny [8] and others we shall use in the future an air gap between the electrode and the skin of 10 cm.

SUMMARY

In two cases of acute and in six cases of chronic abscess of the lung, short wave therapy was not successful in effecting a cure.

30 Bennet Street.

BILE SALT SOLUTIONS IN INFECTIONS WITH BETA HEMOLYTIC STREPTOCOCCI

THEIR THERAPEUTIC AND PROPHYLACTIC PROPERTIES

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AND
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Hilgermann [1] has advocated parenteral administration of small amounts of sodium taurocholate as an effective prophylactic and therapeutic measure in treating infections caused by beta hemolytic streptococci. He offered the following theoretical basis for its use: Injection of small quantities of sodium taurocholate brings about death and solution of small numbers of streptococci, from which antigenic substances are liberated; these antigens induce an active immunity to the invading organism by stimulating formation of protective antibodies. No convincing evidence was offered to support this theory. Hilgermann's experiments with mice were preliminary and meagerly detailed; Stoeckel's [2] more complete work only partially supported Hilgermann's claims. The results of the clinical use of sodium taurocholate [3] were suggestive but not at all conclusive, owing principally to the lack of extensive bacteriologic data but also to the use of other forms of treatment along with the bile salt therapy.

From the Christ Hospital Research Institute.

1. Hilgermann, Robert: Die Chemotherapie der Streptokokkeninfektion, München. med. Wchnschr. **77**: 1970-1971 (Nov. 14) 1930; Chemotherapie mit gallensauren Alkalien ein sicheres Heilmittel bei Streptokokkeninfektionen, Zentralbl. f. Gynäk. **60**: 1090-1096 (May 9) 1936; Chemotherapie und Prophylaxe der Streptokokkeninfektion mittels gallensauren Alkalien, ibid. **60**: 2290-2294 (Sept. 26) 1936.

2. Stoeckel, K. H.: Tierexperimentelle Untersuchungen mit dem Chemotherapeutikum Taurolin (Hilgermann), Ztschr. f. Immunitätsforsch. u. exper. Therap. **91**: 285-298 (Oct. 15) 1937.

3. Schäfer, Günther: Die Erfolge der Chemotherapie mit gallensauren Alkalien bei Puerperalfieber und bei gynakologischen Streptokokkeninfektionen, Zentralbl. f. Gynäk. **60**: 1096-1107 (May 9) 1936.

Our attention was brought to the status of this problem by the late Dr. John E. Greiwe, who had obtained a supply of Hilgermann's bile salt preparation (prepared by Schering-Kahlbaum). Greiwe had used this material clinically without success. This clinical failure and the obvious theoretical objections to the use of any bile salt preparation for this purpose suggested the need of more extensive experimental work than Hilgermann had reported.

We have performed both prophylactic and therapeutic experiments with mice, using (1) Hilgermann's preparation and (2) a solution prepared in our own laboratory containing sodium taurocholate and sodium deoxycholate. These solutions were tested against infections produced with different strains of beta hemolytic streptococci. Our results have been uniformly negative; in every experiment, regardless of the amount of the therapeutic agent administered or the time or mode of administration, the treated animals have died as rapidly as the controls.

EXPERIMENTS

Therapeutic Solutions.—Hilgermann has never given the exact composition of his sodium taurocholate solution, either in publications or in communications to Greiwe. It is said to be a dilute solution of sodium taurocholate in a special buffer, the nature of which is not disclosed. Qualitative examination gave the following results: The solution gave a very weak Pettenkofer reaction and a negative Gregory-Pascoe reaction. Unless the buffer inhibited the ordinary reactions of sodium taurocholate, this observation indicates that if a bile salt is present it is more likely a derivative of deoxycholic acid than of cholic acid. Alkaline hydrolysis liberated aminonitrogen equivalent to that contained in a 0.44 per cent solution of sodium taurodeoxycholate. Sulfur was present. The solution had a p_H of 8.2 and contained 0.6 per cent of phenol.

The solution prepared in our laboratory contained 0.5 per cent sodium taurocholate, 0.05 per cent sodium deoxycholate and 0.5 per cent phenol, all in tenth molar aminoacetic acid buffer at p_H 8.2.

Administration: The solutions were injected, both subcutaneously and intraperitoneally, in amounts varying from 0.5 cc. of the undiluted solutions to 0.5 cc. of 1:10,000,000 dilutions. When used prophylactically these amounts were injected forty-eight, twenty-four and twelve hours prior to infection. When they were used therapeutically, some groups of animals were treated immediately and others two and four hours after infection.

Streptococci.—Five strains of beta hemolytic streptococci were studied. Two, Schw and C203, were supplied by Dr. Perrin H. Long of Johns Hopkins University; these were highly virulent for mice, 10^{-8} cc. of a sixteen hour blood broth culture killing mice within forty-eight hours. The other three strains were freshly isolated from human beings and passed through numerous mice until maximum virulence was obtained; two were as virulent as Schw and C203; the third was of low virulence, 10^{-4} cc. of a sixteen hour culture being required to kill a mouse. In our experiments all mice were infected intraperitoneally with ten minimum lethal doses of the streptococci.

RESULTS

The results of a typical experiment, that with C203, are shown in the accompanying table. Our results have been entirely negative; neither Hilgermann's preparation nor our own possessed prophylactic or therapeutic properties.

This observation is contrary to those reported by Hilgermann and Stoeckel. A comparison of our work with Hilgermann's is impossible, since he has not presented any experimental data. Stoeckel used a beta hemolytic streptococcus of low virulence; his control mice infected with 10^{-1} cc. of a twenty-four hour broth culture survived for three days. Three of seven mice infected with 0.1 cc. of that culture and treated with 0.5 cc. of 1:100,000 and 1:1,000,000 dilutions of Hilgermann's preparation survived; mice treated with 0.5 cc. of a 1:10,000 dilution died, as did the controls.

Effects of Prophylactic and Therapeutic Treatment on the Survival Time of Mice Infected with Beta Hemolytic Streptococci (C203)

No. of Mice in Group	Time of Administration	Solution Administered*	Amount Injected (Cc.)	Average Survival Time (Hours)
6	48 hours prior to infection	H	0.5	40
6	48 hours prior to infection	S and R	0.5	43
6	24 hours prior to infection	H	0.5	41
6	24 hours prior to infection	S and R	0.5	41
6	12 hours prior to infection	H	0.5	42
10	Controls	None	0.0	43
6	On infection	H	0.5	44
6	On infection	S and R	0.5	46
6	On infection	H	0.5×10^{-1}	41
6	On infection	S and R	0.5×10^{-1}	43
10	Controls	None	...	47
10	On infection	H	0.5×10^{-3}	41
10	On infection	H	0.5×10^{-4}	42
10	On infection	H	0.5×10^{-5}	41
10	On infection	H	0.5×10^{-6}	42
10	On infection	H	0.5×10^{-7}	42
10	Controls	None	...	43

* "H" refers to the Schering-Kahlbaum preparation; "S and R," to the Schmidt and Remsen preparation. Prophylactic and therapeutic injections were made subcutaneously into mice infected intraperitoneally with 10^{-7} cc. of sixteen hour blood broth culture.

This observation would indicate that the effective dose of sodium taurocholate is infinitesimal, not more than 0.00005 mg. per mouse. It is difficult to explain Stoeckel's results, but it is to be noted that he used only sixteen mice in his entire experiment and that of the treated animals only three of thirteen survived.

Theoretically it seems improbable that bile salt solutions such as Hilgermann's could have curative or prophylactic properties in streptococcic infections. It is well known that hemolytic streptococci are slightly if at all soluble in solutions of bile salts. Even assuming that a few strains might be bile soluble, the amounts of bile salt used would be much too small to effect solution and larger quantities would probably be toxic. In addition it must be remembered that the liver removes bile salts from the circulating blood very rapidly, and any sodium taurocholate injected would have slight opportunity of reaching streptococci in isolated lesions.

PURPURA HAEMORRHAGICA

WITH ESPECIAL REFERENCE TO PERMANENCE OF REMISSION FOLLOWING SPLENECTOMY

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AND
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In 1916 Kaznelson [1] reported the first splenectomy as a therapeutic measure in a case of idiopathic purpura haemorrhagica. Since then this procedure has been carried out in hundreds of cases and has become a standard practice in many clinics all over the world. Few persons doubt the effectiveness of this form of treatment in properly selected cases not only in rehabilitating those persons who are recurrently or chronically invalided but also in actually preserving the lives of some patients who suffer from acute hemorrhagic phenomena.

Splenectomy is still an empirical procedure, since the role of the spleen in the disease and the mechanism by which its removal causes remission are unknown. Until the fundamental nature of the condition is understood, the study of all its phases will continue to be of interest. One such phase pertains to the permanence of remissions produced by splenectomy.

One of us (T. W.) performed one of the first splenectomies, if not the first, for purpura in the western hemisphere. The case is still under observation and is presented here (case 1), together with five others in which operation was done more than ten years ago.

REPORT OF CASES

CASE 1.—This case was reported in 1923 by Bowen,[2] with follow-up records covering the first four months after operation.

J. S., a man aged 22, was admitted to the Buffalo General Hospital May 16, 1922. Abnormal bleeding was noticed first at the age of 4 years, after a laceration above the eye. At 5 he bled profusely when, during an attack of diphtheria, the membrane was pulled off. At 7 profuse bleeding followed adenoidectomy. At 11 he began to have jacksonian epilepsy associated with visual disturbances, localized occipital headache and partial paralysis. For the full eighteen years up to the time of hospitalization he had suffered from petechiae and ecchymoses of the skin and from epistaxis and recently he had suffered from hemorrhages from the bowel. Because of the symptoms his school life and later his work had been highly irregular. An acute exacerbation of bleeding phenomena began one week before admission.

Physical examination revealed extreme pallor, ecchymoses, old and new hemorrhages into the eye and exaggerated reflexes in the right arm. The lymph nodes and the spleen were not palpable.

Examination of the blood showed 1,648,000 erythrocytes, 18 per cent hemoglobin and 4,800 leukocytes, with 75 per cent polymorphonuclears, 18 per cent lymphocytes and 7 per cent monocytes. There were 2,500 platelets. The bleeding time was twenty minutes, the clotting time eight minutes and the clot nonretractile. Occult blood was found in the stool repeatedly.

During the interval between admission and operation (three months) he had one convulsive attack. He was given one blood transfusion, which was followed by clinical improvement. One month after admission a petechial eruption developed and the bleeding time was found to be two hours and twenty-five minutes. A few days later the spleen became palpable, and

From the Buffalo General Hospital and the University of Buffalo Medical School.

1. Kaznelson, P.: Verschwinde der hämorrhagischen Diathese bei einem Falle von essentialle Thrombopenia (Frank) nach Milzextirpation, Wien. klin. Wchnschr. *29: 1451, 1916.*

2. Bowen, B. D.: A Case of Chronic Purpura Haemorrhagica with Therapeutic Splenectomy, Bull. Buffalo General Hosp. **1: 2, 1923.**

still later there was bleeding from the gums and intestine. Splenectomy was performed August 28. Convalescence was accompanied with complete cessation of bleeding symptoms, except for one mild attack of epistaxis and ecchymosis two months after operation.

A few days after being discharged from the hospital he was readmitted with an attack of "catarrhal jaundice" from which he recovered. Shortly after this he secured a position as street-car motorman, which he held without interruption for eight years. Since then he has worked continuously as maintenance

TABLE 1.—*Results of Blood Examinations in Case 1*

Date	Platelets	Bleeding Time (Minutes)	Comment
June 10, 1922	.....	145	
Aug. 28	.....	20	Before splenectomy
Aug. 28	2,500	..	After splenectomy
	17,000	..	2 hours after splenectomy
	22,000	..	4 hours after splenectomy
Aug. 29	190,000	4	22 hours after splenectomy
Aug. 30	230,000	..	
Sept. 6	608,000	3½	
Sept. 20	307,000	..	
Sept. 29	57,000	14	
Oct. 9	96,000	6	
Oct. 15	.....	..	Discharged from hospital
Nov. 3	20,000	70	Recurrence of bleeding
Nov. 11	.....	..	"Catarrhal jaundice"
Nov. 20	50,000	12	No bleeding
Dec. 19	85,000	8	
Dec. 9, 1926	232,000	4	
Mar. 26, 1932	233,000	6	
Apr. 29, 1938	176,000	1½	

man for a real estate concern, doing various types of outdoor and indoor work, of which the major part is painting.

Reexamination April 29, 1938, almost sixteen years after operation, revealed that except for the slight attack of bleeding one month after operation he had had no hemorrhagic symptoms since the splenectomy. In 1932 he had had his tonsils removed without difficulty. There had been no convulsive seizures of any kind, and paralysis had disappeared. Occasionally he had headaches similar to those which formerly occurred with the seizures. His vision was excellent in both eyes, but he noted spots before the right eye occasionally.

He was healthy appearing and muscular. The right fundus showed several small patches of retinal atrophy. The reflexes were normal and equal in the two arms.

CASE 2.—E. M., a married white woman aged 42, was admitted to the Buffalo General Hospital Jan. 22, 1926. The present illness began in October 1924 with an attack of "shingles," followed by multiple hemorrhages from the uterus and continuous bleeding from the gums of such severity that she often awoke at night with her mouth full of blood. There

TABLE 2.—*Results of Blood Examinations in Case 2*

Date	Platelets	Bleeding Time (Minutes)	Hemoglobin, %	White Blood Cells	Comment
Jan. 30, 1926	12,000	24	23	4,500	
Mar. 16	24,000	5½	33	2,600	After 4 transfusions
Apr. 10	25,000	5	52	2,200	6 hours after transfusion
Apr. 11	53,000	..	53	4,000	
Apr. 12	26,000	..	42	6,000	
Apr. 13	22,000	..	35	2,400	
Apr. 14	28,000	..	34	.....	
Apr. 21	43,000	..	38	4,400	

were almost daily epistaxis and the development of hemorrhagic spots in the skin varying in size from that of a pinhead to that of a pea. She lost strength and 15 pounds (6.8 Kg.) in weight. Spots appeared before her right eye and there was ringing in the ears.

She had suffered from prolonged and profuse menstrual flow since puberty. She had borne three children. Hemorrhage had followed the last delivery. The last child suffered from frequent severe attacks of epistaxis and bled abnormally after trauma.

Examination revealed emaciation and marked pallor. The skin showed generalized purpura. Bleeding points were present in the gums. The lymph nodes and the spleen were not enlarged. No abnormality was found on pelvic examination to account for the bleeding.

Examination of the blood showed 820,000 erythrocytes, 23 per cent hemoglobin and 4,500 leukocytes, with 40 per cent polymorphonuclears, 58 per cent lymphocytes and 2 per cent monocytes. The bleeding time was twenty-four minutes and the clotting time one-half minute. There were 12,000 platelets, the urea nitrogen content was 29.4 mg. per hundred cubic centimeters and the serum bilirubin content was too low to estimate.

During the first ten weeks following admission she received nine blood transfusions. These were followed by subjective improvement, and bleeding from the gums and into the skin ceased. Uterine bleeding continued despite a uterine pack.

Splenectomy was performed April 10. Convalescence was uneventful except for mild uterine bleeding for five days. The patient was discharged from the hospital May 2, showing remarkable general improvement.



Patient 1 in 1938, fifteen and one-half years after splenectomy.

It has not been possible to obtain reports on the blood since she left the hospital. However, a recent report from her physician revealed the fact that there has been no marked recurrence of hemorrhagic symptoms.

CASE 3.—K. R., an unmarried white woman aged 26, admitted to the Buffalo General Hospital March 15, 1927, had always "bruised" easily. However, she was well until 1923, when her menstrual periods began to be prolonged and the flow profuse. In 1926 purpura, bleeding gums and marked increase in the menstrual flow developed. After that she complained of progressively increasing weakness and shortness of breath.

She was well developed and had marked pallor. No purpura was present. The gums bled easily on slight pressure. The lymph nodes were not enlarged and the spleen was palpable indistinctly.

Examination of the blood showed 1,600,000 erythrocytes, 27 per cent hemoglobin and 5,500 leukocytes, with 81 per cent polymorphonuclears and 19 per cent lymphocytes. There were 24,000 platelets. The bleeding time was prolonged, the clotting time normal and the clot nonretractile.

Two blood transfusions were given a week apart. There was general improvement, and except for an attack of gingival bleeding March 31 there were no hemorrhagic phenomena for about one month. However, uterine bleeding recurred. Ultraviolet irradiation had no effect on either the symptoms or the blood. Three transfusions at short intervals were followed by only slight amelioration of the bleeding

Splenectomy was performed July 14. Except for an attack of pleurisy on the left side, convalescence was uneventful, and up to the present time there has been no single recurrence of abnormal bleeding.

TABLE 3.—*Results of Blood Examinations in Case 3*

Date	Platelets	Bleeding Time (Minutes)	Hemoglobin, %	Comment
Mar. 16, 1927	16,000	Prolonged	27	
Mar 30	10,000	16	51	After 2 transfusions
Apr. 11	13,000		33	
July 11	65,000	Prolonged	55	After 3 transfusions
July 15	156,000			After splenectomy
July 16	309,000			
July 21	273,000			
Aug 20	280,000			
Sept. 25	300,000			
Mar. 22, 1932	665,000	5	73	
Jan. 16, 1936	576,000	3½	98	
May 2, 1938	460,000	3½	96	

CASE 4.—E. K., a white boy aged 3 years, admitted to the Children's Hospital July 27, 1927, had been perfectly well until May 30, when he had a spontaneous profuse nosebleed lasting an hour. The second attack occurred a week later. This was followed by numerous attacks at short intervals. At this time large ecchymoses began to appear on slight trauma A few days before admission he had three severe attacks of epistaxis in one day. Petechiae and hemorrhages from the mouth, intestine and bladder were not observed.

Physical examination revealed marked pallor and many large ecchymoses No nasal lesion was found that could account for the recurrent epistaxis. The lymph nodes and the spleen were not enlarged.

Examination of the blood showed 2,520,000 erythrocytes, 55 per cent hemoglobin and 15,300 leukocytes, with 72 per cent polymorphonuclears, 23 per cent lymphocytes and 5 per cent monocytes. There were 3,000 platelets. The bleeding time was ten minutes, the clotting time five minutes and the clot nonretractile.

Epistaxis continued in the hospital, and splenectomy was performed August 3. Convalescence was uneventful and he was discharged August 29.

TABLE 4.—*Results of Blood Examination in Case 4*

Date	Platelets	Bleeding Time (Minutes)	Hemoglobin, %	White Blood Cells	Comment
July 27, 1927	3,000	10	55	15,300	
Aug 3					Splenectomy
Aug. 4	5,000	10			
Aug 6	8,000				
Aug 8	19,000				
Aug 10	23,000				
Aug. 12	15,000	8			
Aug. 15	11,000				
Aug. 23	None seen		60	15,000	
Sept 1	22,000				
Sept. 14	32,000				
Oct. 20	377,000	3			
Apr. 12, 1928	74,000		90	11,500	
Mar 19, 1932	267,000	1	80		
Jan 9, 1936	164,000	4½	82	10,800	

Observations have been made at intervals after the operation and there has been no recurrence of bleeding. He is now a healthy, well developed boy of 14.

CASE 5.—I P., a married white woman aged 30, was admitted to the Buffalo General Hospital April 9, 1928. This case was described by Kahn[3] in 1932, but follow-up notes were not included in his report.

Seven years before admission she bled continuously for eight weeks after childbirth After that menstruation became irregular, prolonged and profuse. Severe epistaxis occurred one week before each period. Ecchymoses appeared after slight trauma. For about four months before admission these symptoms were exaggerated, and bleeding from the gums became severe. Roentgen treatment failed to control uterine bleeding

Examination showed marked pallor, and purpuric spots were present on the left leg. The lymph nodes and the spleen were not enlarged.

Examination of the blood showed 2,330,000 erythrocytes, 25 per cent hemoglobin and 8,200 leukocytes, with 82 per cent polymorphonuclears and 18 per cent lymphocytes. There were 36,000 platelets. The bleeding time was twenty minutes and the clotting time three and one-half minutes.

The patient received one blood transfusion and other treatment to control the bleeding, with no effect. Splenectomy was performed April 17. Convalescence was stormy and complicated by pleurisy with effusion. However, all bleeding ceased, and she was discharged from the hospital May 28

It has not been possible to obtain reports of the state of the blood since then, but at the time of writing the patient is known to be alive and well and to have had no recurrence of abnormal bleeding.

CASE 6.—J. R., a white girl aged 13, admitted to the Buffalo General Hospital April 24, 1928, had had bleeding symptoms for the first time five years previously, following scarlatina and measles. Since then there had been recurrent attacks of

TABLE 5.—*Results of Blood Examinations in Case 5*

Date	Platelets	Bleeding Time	Hemoglobin, %	White Blood Cells	Comment
Apr. 9, 1928	36,000	20 minutes	25	8,200	
Apr 17					Splenectomy
Apr. 21	245,000				
May 5			50	14,800	Pleurisy
May 16	350,000				

TABLE 6.—*Results of Blood Examinations in Case 6*

Date	Platelets	Bleeding Time	Hemoglobin, %	White Blood Cells	Comment
May 11, 1928	20,000	Very long	45	8,000	
May 19					Splenectomy
May 25	152,000				
June 6	157,000		49		
Mar. 4, 1932	225,000		80		
Aug 23, 1935	240,000	2½ minutes	90		

epistaxis, bleeding gums and purpura About one year before admission she underwent tonsillectomy and bled profusely. A short time after this her menstrual periods began; they were irregular and prolonged, and the flow was profuse.

The patient was well developed, with pronounced pallor Petechial hemorrhages were present on the chest, abdomen and extremities. The gums were actively bleeding. The lymph nodes and the spleen were not enlarged

Examination of the blood showed 3,580,000 erythrocytes, 45 per cent hemoglobin and 8,000 leukocytes. There were 20,000 platelets. The bleeding time was prolonged and the clotting time normal.

Preparations for splenectomy were begun at once, and after two transfusions the operation was performed May 19. Postoperative convalescence was uneventful, and there has been no recurrence of abnormal bleeding to date Menstruation has been regular each month, each period lasting six or seven days, with light flow. The patient has led a normally active life, having finished school and undergone training as a nurse, with no loss of time because of illness.

SUMMARY AND COMMENT

In this paper we have reported the results of splenectomy in six cases of purpura haemorrhagica. The periods of postoperative observation have varied from ten to fifteen and one-half years. As far as can be determined, this group of patients has been followed longer than any group thus far reported. Only

3. Kahn, M. E.: Abnormal Uterine Bleeding in Blood Dyscrasias, J. A. M. A. 99:1563 (Nov. 5) 1932.

Whipple,[4] Geggie[5] and Giffin[6] have reported cases observed longer than ten years. However, records of some fifty-three cases observed from five to thirteen years were found. These included the cases just mentioned and those of Beneke,[7] Solway,[8] Myers[9] and Brown and Elliott.[10] This makes the total of cases observed from five to fifteen and one-half years about fifty-nine.

Although detailed records are not available, it would seem that in the great majority of these cases there was complete relief from symptoms and that the remissions were permanent to the end of the observation period. In the minority there were recurrences of hemorrhagic phenomena, usually of mild types. Only one case[6] was found in which severe bleeding occurred more than five years after splenectomy. It was that of a girl in whom severe metrorrhagia developed at the onset of puberty five years after splenectomy and after a long period of good health. This patient died.

Our series illustrates a few interesting and important points that have been mentioned by other writers. The first of these concerns the selection of cases for splenectomy. By far the best and most convincing results were obtained in cases in which the diagnosis of recurring idiopathic purpura haemorrhagica was unequivocal. This was true in cases 1, 3, 5 and 6. In these cases all evidence of history, physical examination and laboratory data supported the diagnosis. Recovery was characteristic and permanent. However, case 2 was atypical with respect to the age of the patient at the onset of illness, the comparatively short duration and the leukocyte picture. The patient recovered slowly and incompletely, and the platelets failed to increase in the characteristic manner. This is the type of case in which the decision to perform splenectomy is reached with some reluctance, as though the procedure is rather forced on the physician. Case 4 fails also to conform to the group of ideal cases, although the results were excellent. This was a case of juvenile purpura of short duration. What the end result would have been with more conservative treatment cannot be said. However, with increasing knowledge of this disease it has come to be recognized that a high proportion of affected children recover spontaneously. On the other hand, similar cases are known in which acute hemorrhagic phenomena developed and death followed in spite of heroic measures. It seems to us that the question of therapeutic indication in juvenile purpura is still unsettled and that there is much to be said for prompt splenectomy before the patient becomes a poor operative risk.

A second interesting point concerns the platelet response and associated phenomena in relation to splenectomy. Brown and Elliott[10] and others have described a platelet curve which has come to be regarded as rather typical. A sharp rise occurs usually within forty-eight hours, to reach a peak in about ten days. This is followed by a secondary fall, sometimes to a subnormal level, at which point a mild recurrence of bleeding is noted. In case 1 of the present series there was such a course, and we have observed this phenomenon in several more recent cases. However, it is not present in all. In some cases, for example case 3, the initial increase brings the platelet level within normal limits, where it is maintained without perceptible fluctuation for long periods. In others the initial rise is extremely slow (case 4). In a number of cases the platelet level has remained subnormal for months or years and yet no recurrence of bleeding has resulted. In most of these, other evidences of hemorrhagic diathesis, for example prolonged bleeding time, may be demonstrated.

In other words, the majority of typical cases of recurring purpura respond to splenectomy in a rather characteristic manner, but a minority do not. In spite of numerous suggestions with regard to prognosis and prevention of this unfavorable response, there seems to be no absolute method of foretelling the result in an individual case.

Brown and Elliott[10] described postoperative pulmonary complications on the left side in two cases. In the present series, patients 3 and 5 showed similar complications. In both the involvement seemed to be limited to the pleura, one having pain and friction rub and the other a large effusion.

CONCLUSIONS

1. Of six patients with purpura haemorrhagica observed from ten to fifteen and one-half years after splenectomy, all continue to be free from bleeding phenomena, and four of these are known to show normal platelet levels.

2. The best and most convincing results were seen when the preoperative diagnosis of recurring idiopathic purpura haemorrhagica was unequivocal.

4. Whipple, A. O.: Splenectomy as a Therapeutic Measure in Thrombocytopenic Purpura Haemorrhagica, Surg., Gynec. & Obst. **42**: 329 (March) 1926.

5. Geggie, C. G.: Essential Thrombocytopenic Purpura Haemorrhagica: A Report of Six Operative Cases, Canad. M. A. J. **35**: 651 (Dec.) 1936.

6. Giffin, H. Z.: Essential Thrombocytopenic Purpura, Internat. Clin. **4**: 95 (Dec.) 1936.

7. Beneke, cited by Whipple.[4]

8. Solway, L. J.: Thrombopenic Purpura: Report of a Case with Recovery Following Splenectomy, Canad. M. A. J. **30**: 637 (June) 1934.

9. Myers, Bernard: Essential Hemorrhagic Purpura, Proc. Inst. Med., Chicago **10**: 216 (Feb. 15) 1935.

10. Brown, D. N., and Elliott, R. H. E.: The Results of Splenectomy in Thrombocytopenic Purpura, J. A. M. A. **107**: 1781 (Nov. 28) 1936.

THE RELATION OF THE PHYSICIAN TO THE TUBERCULOUS PATIENT

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The past decade can truly be called the beginning of a new era in collapse therapy in pulmonary tuberculosis. It is not my purpose at this time to enter into any discussion of the various forms of collapse now being utilized in the treatment of pulmonary tuberculosis but rather to dwell on and consider the psychologic and mental phase in the treatment of this disease.

In an analysis of records concerning patients discharged from the Hudson County Tuberculosis Hospital I noted that four times as many patients who were not receiving any form of collapse therapy signed a release as opposed to those who were. In an effort to ascertain the cause for this, three reasons presented themselves: (1) a feeling of well being, (2) conditions at home requiring their return to work, (3) the patient not sufficiently aware of the importance of bed rest in the treatment of tuberculosis and not educated properly as to the advantages of the sanatorium or hospital. With the knowledge in mind that a goodly number of the patients who signed a release in the past returned to the sanatorium with their lesion much more advanced in extent, and also remembering the definite danger that these patients present in carrying the infection to those with whom they might come into contact, we are

From the Tuberculosis Service of Dr. B. S. Pollak, Medical Director, Hudson County Tuberculosis Hospital.

attempting to guide our efforts toward the creation of a better understanding of each and every patient so that we may aid in directing them toward their goal of a life of usefulness to themselves and to society.

Many patients who are admitted to the sanatorium are not acutely ill and except for a slight cough or a sudden hemoptysis were not aware that anything was wrong with their physical condition. In the mass tuberculin testing that is now going on in various parts of the country, many cases of tuberculosis are being discovered that are entirely asymptomatic. I do not think it beyond the experience of every physician dealing with tuberculosis to say that in these patients, and especially in those who are the bread earners of a family, the news is received with some degree of shock. Especially is this true among those who recall stories of the fearful "consumption" and are not aware of what can be done today with most cases if obtained soon enough. I believe that the way a person is going to react to the knowledge that he has tuberculosis and will have to remain in a sanatorium for a long time depends on two factors: (1) his inherent characteristics, whether his tendency is toward an introvert or extrovert type, and (2) his station in life at the moment, whether or not he has any responsibilities, such as a family to support. It therefore behooves the physician, when he makes a diagnosis of tuberculosis, to study the type of patient that he has in hand. Especially is this true if he is going to treat the individual.

INTROVERTS AND EXTROVERTS

Jung has classified the human psychology into two groups: the introverts and the extroverts. Extroversion may be defined as the turning of an interest outward toward some object. Introversion, on the other hand, is a recession of interest from the object toward the subject or the contemplation of one's own thoughts and feelings. We do not believe that the tuberculous patients can be classified into these two groups as these represent the two extremes, but in each individual is the inherent tendency to lean more or less toward one or the other extreme. And when the individual develops tuberculosis that tendency becomes somewhat more manifest. I agree with Wolepor [1] in that we do not believe that there is any specific abnormal state in tuberculosis and that the neurasthenic manifestations encountered in tuberculous patients are not specific to tuberculosis alone but are the same as are not infrequently seen in individuals with any protracted illness. It is with the two extreme types and particularly with the introvert that the doctor must turn psychiatrist. For after all, as Noyes [2] defines it, psychiatry is "primarily concerned with the behavior of the human organism as a unitary system engaged in adjustment to its environment." That is exactly what the physician dealing with tuberculous patients must do: adjust and adapt them to their illness as close to the point of contentment as is possible, instilling within them the hope and certainty that they will soon recover and return to their former usefulness to society. In no other disease is this so important, for here the individual must be confined to a bed rest regimen for a number of months and he must be made to believe in the need for such treatment, and preferably in a sanatorium.

The extrovert is characteristically carefree and unconcerned about his condition. The problem that confronts the physician is to gain the confidence of the patient and to institute an educational program, explaining the need for prolonged treatment if the patient is to make satisfactory progress. Occasionally one will encounter a patient who does not understand the necessity for the need of intensive treatment. Here one must be frankly outspoken and attempt to show the patient what may happen if he fails to heed the physician's advice. The patient must be made to realize that he is a sick person in spite of his apparent well-being. He must be convinced of the fact that tuberculosis, when discovered early, may be easily controlled, whereas, when the disease is of a more advanced type, it is more difficult to obtain a satisfactory result. In order to obtain the full cooperation of the patient, it is essential that he be advised concerning the development and progress of the disease through the medium of educational propaganda, which must be conveyed to him in order that he may fully comprehend the significance of the entire situation. It is at this time that the physician in charge must make an indelible impression on his patient. An intelligent presentation of all details concerning the patient's particular involvement will in many instances mark the success or failure of the case in question.

It is with the introvert that we must use the greatest of discretion. He has kept his troubles to himself, for his best defense has been to keep his troubles hidden. It is this type of individual that should be prevailed on to share his innermost thoughts with the physician if the physician anticipates any results. He must not be allowed to become depressed, for I am convinced that a happy patient with a happy, healthy state of mind is a most desirable asset in fighting a chronic disease such as tuberculosis. On the other hand, I condemn the practice of minimizing a patient's lesion, such as diagnosing an infiltrate as a "bronchitis" so as to avoid any "embarrassment" to the patient. I only too often see patients who state that their physician, several months prior to admission, told them that they had a "little bronchitis" or a "tiny spot on the lung" and advised only a couple of weeks rest in bed. Such misleading statements or errors in diagnosis are just too frequent. However, when one has a patient in the sanatorium with the diagnosis of tuberculosis, in a certain few select cases I believe it perfectly justifiable to minimize somewhat the extent of the process. Those patients who are apprehensive and worried about themselves must be reassured and convinced that their trouble is not too far advanced and that with time they will recover. An attitude of optimism must be assumed by the doctor and imbued in the patient. I have noted in some of these cases that the mere mention of the word "cavity" has caused them to become panicky and apprehensive.

CASE 1.—T. O., a white man aged 35, was first admitted to the institution in February 1937 with a left sided pleurisy with effusion. Three years previously he had been treated medically for a mild hyperthyroid state with apparently good results. The fluid was aspirated on one occasion, a clear straw-colored fluid being obtained with no underlying parenchymal lesion noted on x-ray examination and after two months he was discharged. At that time it was seen that he was quite apprehensive and nervous but the knowledge that he had no definite pulmonary lesion soon cheered him. Following discharge he returned every three months for check-up and x-ray examination. In May 1938 a roentgenogram showed a small cavity in the right infraclavicular region, for which he was hospitalized. In view

1. Wolepor, Ben: The Mind and Tuberculosis, Am. Rev. Tuberc. 19: 314 (March) 1929.
2. Noyes, A. P.: Modern Clinical Psychiatry, Philadelphia, W. B. Saunders Company, 1934.

of his previous mental state and his fear of tuberculosis, he was told that he had an infiltrative lesion in his lung which required hospitalization. Pneumothorax was attempted but no free space was found. During all this time he had occasional "spells" of depression when he would become deeply concerned about his general health, but a few words of encouragement would soon put him at ease. One day, while talking to one of the nurses, he learned that he had a cavity in his lung and a dramatic change took place. He became exceedingly despondent, his appetite became poor and his entire demeanor was that of a "lost man." It was only after repeated talks with him, in which the size of the antrum was greatly minimized and evidence presented that a cavity could heal, that he was made to return to a more cheerful state of mind with the hope of recovering completely.

Here was a patient who was in the hospital and who was apprehensive and nervous about his physical condition, but who at the same time was most cooperative. In this type of individual I feel justified in minimizing the extent of the lesion, as long as it makes the patient maintain a cheerful and hopeful outlook and he continues to be cooperative.

ATTITUDE OF THE PHYSICIAN

I believe it wise, when making staff rounds, not to discuss the progress of the case in front of the patient, except in the form of encouragement, as the patient will listen intently and invariably misinterpret every statement. The physician should devote as much time as possible to obtain a sympathetic understanding with the patient and discuss at length any problem that may be brought up, no matter how trivial it may seem. These individuals should be encouraged to keep interested in the news of the day and I heartily endorse the widespread use of the radio. Its effects on the well-being of the patients have been so encouraging that in the new Hudson County Tuberculosis Hospital, which is now ready for occupancy, every bed is supplied with an individual ear-set, so that a patient may have the choice of listening to one of four different programs without in any way interfering with the other patients in the ward, should they desire to listen to another station or take a nap.

We have noted in a number of cases, especially of the introvert type, that, when pneumothorax is attempted and found to be ineffective because of an obliterative pleuritis, the patients will become despondent and feel that their only chance for recovery is lost. We have pretty well obviated this apparent setback by thoroughly explaining to them when pneumothorax is suggested that this procedure is merely an adjunct in the treatment of tuberculosis; that they will improve with bed rest alone, but that if pneumothorax is tried and proved to be successful it will help to rest the lung a little more and tend to hasten the recovery. But by no means is the thought conveyed that it is the treatment *par excellence*. In every ward in the sanatorium there must be one or more patients on a bed rest regimen who are improving. Pointing these patients out to the new arrival on whom pneumothorax has been tried unsuccessfully will do much in reassuring them.

In a sanatorium one constantly has to contend with requests from patients to be discharged. Particularly is this true among those who are on bed rest and are getting along fairly well. They feel that they can return home and continue with the same sort of treatment. With a very few exceptions I have found this not to be true. The majority of those who sign a release become careless about carrying out the fundamentals of the treatment and soon have to return because of reactivation of the lesion. This group presents a real problem not only to themselves but to the others with whom they come in contact. It is with this group that the physician must become frank and outspoken and stress the dangers involved. To obtain the cooperation of the patient and to have him fully comprehend the significance of his intentions, it frequently will be beneficial to cite as an instance the individual with whom the patient is familiar, who, for the reason of having refused advice, had to return with an advanced lesion. The earnestness and sincerity with which such statements are submitted to the patient will frequently have such a desired effect and persuade the patient to remain. The patient must be made to realize the seriousness of his disease. He must be made to realize that his ultimate recovery depends entirely on the extent of his cooperation with the physician.

One thing must be emphasized to all tuberculous patients, that rest means not only physical rest but also mental rest and that one cannot be subordinated to the other. The object of physical rest is to diminish the work of the lungs by diminishing the number and extent of the respiratory excursions. Yet, what good is such physical rest if the patient maintains a state of high nervous tension as seen in the neurasthenic type of individual? It is not infrequently noted that patients with extensive pulmonary involvement who are cheerful and mentally stable show a favorable progress. Ishigami [3] explains this on the presence of a comparatively high opsonic index. On the other hand, patients with neurasthenic tendencies showed a lowering of their opsonic during the period of mental upset with systemic upset and general decline.

MEMBERS OF THE FAMILY

The tuberculous person must be shielded from the cares and responsibilities of home and business and I have had, time and time again, to caution friends and members of the family from bringing any news to the patient which may in any way disturb him. Because of this I feel that, whenever feasible, sanatorium care for the patient is the desirable thing, for here the individual is more or less isolated from home influences, which, although well meant, are not always to the patient's best interests and, in addition, he is under constant supervision with the knowledge that he is in the same hospital with a number of others similarly afflicted and all having the same goal. Also, from a public health standpoint, his chances of spreading his infection are minimized.

CASE 2.—R. V. B., a white woman aged 21, a secretary, was admitted to the Tuberculosis Service of the Jersey City Medical Center Nov. 6, 1937. Prior to her admission she had been treated at another institution, where pneumothorax had been started on the right side May 17 and on the left side on June 15, 1937. Refills had been continued on the right side up to the time of her admission but had been discontinued on the left side November 6 because of an adherent pleuritis over the cavity-bearing left upper lobe with a tiny residual pneumothorax pocket over the lower lobe. The right lung showed a 35 per cent selective collapse over the upper lobe with an antrum measuring 2 cm. in diameter in the upper lobe area.

It was noted that during the first three days the patient was extremely despondent with persistent nausea, anorexia and frequent crying spells. After many attempts she was finally prevailed on to unburden herself and she stated that a physician had told her that her left lung was "shot" and that nothing

3. Ishigami, Tohru: The Influence of Psychic Acts in the Progress of Pulmonary Tuberculosis, Am. Rev. Tuberc. 2: 470 (Oct.) 1918.

could be done for her, so that pneumothorax had been discontinued. Her father yielded the information that, since being told, she had become greatly depressed and appeared to be much worse. At the staff conference it was decided to continue with the pneumothorax on the right side for the sake of reinstilling in her the hope for some recovery, although it was felt that her ultimate prognosis was poor. Slowly but surely, by frequent visits and talks to the patient, she was finally made to realize that her left lung was not completely "shot" and that pneumothorax was not essential for recovery from tuberculosis. To illustrate the point more vividly, several patients on whom pneumothorax had been attempted but no free space obtained and who were recovering were brought to her bedside and shown to her to prove that a bed rest regimen could be sufficient to heal a lesion. The change in her during the next few days was remarkable. She became cheerful and her appetite slowly improved. The true state of affairs was presented to her father and he was warned against revealing this information to her. She got along fairly well as time went on and the cavity on the right side gradually closed. In May 1938 she received a letter from her sister telling her that she had heard that the pneumothorax on the right was going to be discontinued as it was ineffective. This was practically equivalent to pronouncing a death sentence on her, for she lapsed into a state similar to the one she was in when she was first admitted. This statement was entirely erroneous as we had no idea of doing this, but we reasoned that the father had revealed the true state of affairs to the "indiscreet" sister, who in part misinterpreted the statement to mean that we were going to discontinue the treatment on the right side. She was called in and the patient was finally convinced that her sister had been misinformed. She soon returned to her normal self and at the present time is one of the most cheerful patients in the hospital with as much hope as any of them.

In conclusion, I would make a plea for a more rational attitude toward the tuberculous patient, one of optimism and hope, for with both of these we shall find our task in combating this disease a much easier, happier and more fruitful one.

THE EFFECT OF NONSPECIFIC OPERATIONS ON ESSENTIAL HYPERTENSION

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Investigation of the literature on the operative therapy of essential hypertension indicates inadequate use of control studies. This is especially significant in relation to the question of whether nonspecific surgical measures influence hypertensive disease.

In 1930 Ayman [1] evaluated the therapeutic results in cases of essential hypertension by interpreting symptomatic relief. He stated that the successful treatment of essential hypertension by the use of many different drugs and methods of treatment has been reported at least 200 times in the decade 1920 to 1930. Since then an equal number of new types of treatment for essential hypertension have been introduced, many enthusiastically. They stay momentarily and then rapidly wane into obscurity.

At present a constantly increasing number of operations are being proposed and performed as treatment for essential hypertension.[2] We have analyzed these with the results published and, as Ayman [1] found previously, noted that the articles dealing with the surgical treatment of essential hypertension exhibit certain common features:

1. Complete or partial symptomatic relief is reported.
2. A moderate and occasionally a marked reduction in blood pressure is reported.
3. The degree of symptomatic relief is generally greater than the degree of reduction in blood pressure.
4. The degree of symptomatic relief is frequently out of all proportion to the reduction in blood pressure.
5. Marked symptomatic relief sometimes occurs without any reduction in blood pressure.

TABLE 1.—*Age Groups*

Ages	No. of Cases	Per Cent
21-30	3	11.1
31-40	9	33.3
41-50	10	37.1
51-60	4	14.8
61-70	0	0.0
71-80	1	3.7
Totals	27	100.0

TABLE 2.—*Sites of Nonspecific Surgical Measures*

Site	No. of Cases
Pelvis	16
Prostate	3
Appendix	3
Gallbladder	2
Thyroid	2
Hernia	1
Hemorrhoid	1
Total	28

This report presents a comparison between the results of nonspecific surgical measures (e. g. hysterectomy, cholecystectomy, prostatectomy) and specific measures (e. g. extensive sympathectomy, splanchnic nerve resection, celiac ganglionectomy) performed on patients with essential hypertension. During the past nine years 1,500 cases of hypertensive heart disease have been studied. In fifty-two of these, various operations had been performed during the precardiac stage.

Of the surgical cases, twenty-seven are suitable for analysis. A total of twenty-eight operations were carried out. None of these were performed as direct treatment of the essential hypertension; they were incidental to it. However, many patients refused the necessary surgical measures because of their hypertension until, in an effort to gain consent, it was explained to them that operation might help their high blood pressure. There was no proved basis for this statement. It was used only as a means to attain an end, the operation being urgently indicated at the time.

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Craig, W. [illegible]: Unilateral and Bilateral Resection of [illegible] Splanchnic Nerves: Its Effects in Cases of [illegible], Arch. Int. Med. **54**: 577 (Oct.) 1934.
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All the patients except patient 21 were operated on in the Cook County Hospital. Later they returned to the hospital when congestive heart failure or other manifestations occurred. All deaths and autopsies listed took place in the Cook County Hospital. A record was kept of the preoperative and postoperative blood pressure, the type and duration of symptoms, how long the patient was symptom free postoperatively, the blood pressure when he was last seen and the outcome. Cases were not selected. We had no part in obtaining consent for operation, surgical planning or after-care in the majority of these cases. Our observations were routine studies of the factors which influence the course of hypertensive heart disease.

There were fifteen white (nine female and six male) and twelve Negro (ten female and two male) patients in this series. The ages varied from 26 to 72 years at the time of operation. Twelve (44.4 per cent) were under 40 and twenty-two (81.5 per cent) under 50 (table 1).

TABLE 3.—*Effects of Nonspecific Surgical Measures on Essential Hypertension*

Case	Age	Sex	Race	Blood Pressure: Pre-operative	Blood Pressure: Post-operative	Type of Operation	Effect on Symptoms	Last Postoperative Examination: Period Since Operation	Last Postoperative Examination: Blood Pressure	Comment
1	30	♀	N	200/130	140/90	Supracervical hysterectomy	Symptom free 7 yr.	8 yr.	130/110	Died at 38 of congestive heart failure
2	44	♀	N	190/130	136/94	Hysterectomy	Symptom free 2 yr.	5 yr.	224/112	Decompensated when last seen, 5 years after operation
3	29	♀	N	240/180	170/110	Salpingectomy, appendectomy	Symptom free 6 yr.	6 yr.	230/170	Died at 35 in terminal uremia
4	40	♀	N	220/170	160/120	Hysterectomy	Symptom free 7 yr.	8 yr.	218/130	Decompensated when last seen, 8 years after operation
5	38	♀	N	204/150	158/92	Oophorectomy, appendectomy	Symptom free 4 yr.	5 yr.	190/130	Failure of left side of heart when last seen, 5 years after operation
6	34	♀	N	230/130	188/116	Hysterectomy	Symptom free 6 yr.	8 yr.	230/140	Decompensated when last seen, 8 years after operation
7	35	♀	N	214/150	146/108	Hysterectomy	Symptom free 3 yr.	5 yr.	200/140	Decompensated when last seen, 5 years after operation
8	34	♀	N	200/120	170/104	Panhysterectomy	Symptom free 2 yr.	3 yr.	210/110	Died at 37 in terminal uremia
9*	38	♀	N	240/180	190/120	Panhysterectomy	Symptom free 3 yr.	4 yr.	200/140	Died at 42 in terminal uremia; autopsy showed malignant nephrosclerosis
10*	38	♀	N	260/190	180/130	Panhysterectomy	Symptom free 1 yr.	2 yr.	244/170	Died at 40 in terminal uremia; autopsy showed malignant nephrosclerosis
11	41	♂	N	230/160	168/104	Bilateral hernlotomy	Symptom free 8 months	1 yr.	210/130	Return of all symptoms when last seen, 1 year after operation
12	54	♂	N	210/130	140/96	Prostatectomy	Symptom free 2 yr.	5 yr.	190/110	Decompensated when last seen, 5 years after operation
13	30	♀	W	160/110	120/82	Cholecystectomy, appendectomy	Symptom free 6 yr.	8 yr.	140/110	Return of all symptoms when last seen, 8 years after operation
14	36	♀	W	220/150	188/110	Oophorectomy, appendectomy	Symptom free 3 yr.	8 yr.	200/120	Died at 44 of congestive heart failure
15	43	♀	W	170/120	138/88	Thyroidectomy	Symptom free 5 yr.	11 yr.	200/110	Died of congestive heart failure, confirmed at autopsy, at 54
16	26	♀	W	220/160	180/120	Oophorectomy, appendectomy	Symptom free 5 yr.	6 yr.	170/110	Died at 32 in terminal uremia; autopsy showed arteriosclerosis and arteriolosclerosis of kidneys
17	59	♀	W	230/150	160/110	Panhysterectomy	Symptom free 4 months	7 months	210/130	Decompensated when last seen, 7 mo. after operation
18	49	♀	W	166/110	120/74	Hysterectomy	Symptom free 9 yr.	12 yr.	228/124	Decompensated when last seen, 12 years after operation
19	52	♀	W	178/108	134/80	Appendectomy	Symptom free 3 yr.	4 yr.	180/110	Died at 56 of congestive heart failure
20	43	♀	W	260/170	190/120	Hysterectomy	Symptom free 2 yr.	3 yr.	280/166	Return of all symptoms when last seen, 3 years after operation
21	40 49	♀	W	170/112 186/118	140/80 150/102	Thyroidectomy Vaginal hysterectomy	Symptom free 2 yr. Symptom free 18 months	2 yr.	170/104 180/110	Return of all symptoms 2 years after first operation until second operation 9 years later; symptom free to date
22	57	♂	W	200/130	160/110	Prostatectomy	Symptom free 5 yr.	6 yr.	210/120	Failure of left side of heart when last seen, 6 years after operation
23	49	♂	W	180/120	136/78	Appendectomy	Symptom free 3 yr.	5 yr.	164/118	Decompensated when last seen, 5 years after operation
24	47	♂	W	230/160	186/106	Appendectomy	Symptom free 6 yr.	6 yr.	270/170	Died of congestive heart failure at 53
25	44	♂	W	160/110	128/68	Hemorrhoidectomy	Symptom free 4 yr.	5 yr.	170/120	Failure of left side of heart when last seen, 5 years after operation
26	72	♂	W	190/130	150/100	Prostatectomy	Symptom free 6 yr.	7 yr.	150/112	Decompensated when last seen, 7 years after operation
27	45	♂	W	220/150	170/120	Cholecystectomy, appendectomy	Symptom free 3 yr.	4 yr.	200/112	Decompensated when last seen, 4 years after operation

* Malignant hypertension proved by autopsy.

The seven general types of operation performed are indicated in table 2. Sixteen patients (59 per cent) had pelvic operations, mainly hysterectomy or panhysterectomy for large fibroids alone or combined with diseased ovaries and fallopian tubes.

The preoperative and postoperative blood pressures are indicated in table 3. Reductions were common but in no way related to the amount of symptomatic relief.

All patients were relieved of symptoms such as headache, pain in the chest, "nervousness," dizziness, fatigue, insomnia and palpitation, regardless of the type of operation performed.

The duration of the symptom-free stage varied from four months to nine years, averaging three and one-half years (table 4). As far as can be determined, the results were better in our cases than in any of the specific operations for essential hypertension. Yet our patients were certainly not operated on primarily for the essential hypertension. Any of the claims made for the efficacy of treatment of essential hypertension by specific surgical measures can be substantiated by our cases of nonspecific operation. It is contended that if a patient is able to return to his former occupation—if he is relieved of his subjective symptoms—that and that only determines the value of the operation. Our patients had at least seven different types of operation and obtained the same results. While enforced bed rest, operative hemorrhage, anesthesia, operative insult and traumatism and the administration of sedative drugs are common factors in both nonspecific and specific surgical procedures which possibly influence hypertension, we believe our results prove what Ayman [1] showed clearly, that the symptoms associated with uncomplicated essential hypertension may frequently be relieved by the suggestion inherent in any seriously and enthusiastically prescribed drug or means of therapy.

TABLE 4.—*Duration of Symptom-Free Stage*

Years	No. of Cases
Less than 1	3
1 to 2	6
3	6
4	2
5	3
6	3
7	2
9	1
Average, 3½	Total, 28

SUMMARY

The symptomatic relief and reduction in blood pressure resulting from nonspecific surgical measures (e. g. hysterectomy, prostatectomy, cholecystectomy) in the presence of essential hypertension are similar to and sometimes better than those obtained by specific procedures (extensive sympathectomy, splanchnic nerve resection, celiac ganglionectomy) performed especially for those purposes in the treatment of essential hypertension. The evidence presented justifies doubt of the indications for specific surgical treatment of essential hypertension and the results obtained from it.

Manson's Fortune Diminished Rapidly.—At the end of 1889 Manson returned to Scotland, where he had acquired an estate in the vicinity of his birthplace, and where he intended to pass the remainder of his days as a man of leisure; but luckily for posterity, fate had it otherwise. The large fortune that he had accumulated rapidly diminished in the face of the falling value of the Chinese dollar, so that in the ensuing year he was forced to begin work again, and descending upon London, he commenced a consulting practice at 21 Queen Anne Street. Although his reputation had been unequalled in the East, he found that it was not so easy to commence an uphill struggle at 46 years of age; but soon his connection began, and it was not long before he was appointed a physician to the Seamen's Hospital Society, with charge of beds in the Dreadnought Hospital at Greenwich.—Power, Sir D'Arcy: British Masters of Medicine, Baltimore, William Wood & Co., 1936.

Clinical Notes, Suggestions and New Instruments

SUBSEQUENT HISTORY OF A NEEDLE BROKEN OFF AND LOST IN THE UTERINE WALL DURING AN EMERGENCY OPERATION

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Now and then a needle breaks off during an operation. As a rule, it is possible to recover the broken portion and remove it; sometimes it cannot be found.

In the case here reported a right tubal pregnancy had been removed. A few months later the patient was hurriedly admitted to the hospital and at once operated on for a rupture of the uterus during early pregnancy.

On account of the patient's alarming condition, quick action was necessary. During closure of the ruptured uterine wall the greater portion of a curved needle broke off and was lost in the wall of the uterus; it could not be located.

It was necessary to get the patient off the table at the earliest possible moment. The tear in the uterine wall was sutured and the abdomen closed.

The subsequent history of the needle is an interesting one.

REPORT OF CASE

First Admission.—M. McF., a Negress aged 22, was admitted to the Johns Hopkins Hospital Nov. 10, 1934, complaining of vaginal bleeding for seven weeks, abdominal pain, weakness, nausea and vomiting. She had menstruated normally from Aug. 20 to 23 and from Sept. 15 to 18, 1934. The history and results found on examination were typical of a ruptured tubal pregnancy on the right side. Immediate operation (performed by Dr. Erle Henriksen) confirmed this. A large, rather old pelvic hematoma was found in which the right tube and ovary were involved. Right salpingo-oophorectomy was done, the cornual portion of the tube being excised from the uterus with a small wedge of surrounding tissue. This defect was closed with figure of eight sutures of no. 2 plain catgut (fig. 1), and the right round ligament was used to cover the raw surface according to the Coffey technic. Convalescence was uneventful and the patient was discharged in good condition November 22.

Course.—For nearly three months the patient had been feeling well and returned to the outpatient clinic Feb. 18, 1935, for a follow-up examination. At this time she stated that she had menstruated normally from Dec. 13 to 18, 1934, and from Jan. 14 to 17, 1935, and was then several days past the expected date of her menstrual period. For three weeks she had had slight pain in the left lower quadrant of the abdomen. Examination revealed no abnormalities except the absence of the right adnexa. She returned March 2 stating that the abdominal discomfort persisted although it was never severe. There were no signs of pregnancy at this time, but on March 11 the uterus was found to be about twice the normal size and was firm; some tenderness was present in the left adnexal region but no masses were palpable. There had been no vaginal bleeding since her last menstrual period January 14. A possible tubal pregnancy on the left side was suspected, although an intra-uterine pregnancy seemed more likely, and nothing was evident to contraindicate continued observation in the outpatient department after she had been warned of more acute symptoms. She returned one week later, March 18, saying that sharp pains had been experienced in the left lower quadrant the day before, at which time she was nauseated and vomited. Examination was made and revealed tenderness in the left lower quadrant of the abdomen; the cervix was a little soft; there was no vaginal bleeding; the uterus was symmetrically enlarged, two and a half times its normal size; there was tenderness but there were no masses in the region of the left tube and ovary. Intra-uterine pregnancy was the impression at this

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time. The patient left the examining table, dressed and was about to leave the clinic when she felt dizzy and weak, complained of a sudden, sharp pain in the upper part of the abdomen, and fainted.

Second Admission.—The patient was immediately admitted to the ward from the outpatient clinic March 18 with the tentative diagnosis of a ruptured left tubal pregnancy. The pulse was rapid, with a rate of from 130 to 140 a minute, and of poor quality; respirations were rapid and shallow. The abdomen was



Fig 1.—Appearance of the right uterine cornu after removal of a right tubal pregnancy.

distended There was generalized abdominal tenderness and muscle spasm and definite evidence of intra-abdominal free fluid. The usual treatment for shock was immediately administered. She was prepared for operation as quickly as possible.

Operation (performed by Dr Thomas Cullen).—Under gas-ether anesthesia a paramedian incision in the lower part of the abdomen was made Between 1,500 cc. and 2,000 cc. of fresh blood was free in the abdominal cavity. The left tube and ovary were normal. The uterus was symmetrically enlarged and soft, corresponding to a pregnancy of two or three months. There was a large rupture beginning at the right cornu, extending downward from 4 to 5 cm in the lateral wall of the uterus through which placental tissue and fetal membranes protruded from the uterine cavity (fig 2). The bleeding vessels were immediately controlled, edges of the tear were excised and a portion of the placenta was removed with blunt forceps The fetus was not encountered The laceration was repaired with several figure of eight sutures of plain catgut. In an attempt to control a small amount of bleeding from a needle hole in the uterus a small Ferguson needle was broken About three fourths of the needle was left in the myometrium, as the patient's condition did not allow time for further search. As stated before, the right tube and ovary had been removed previously. The proximal end of the round ligament, which had been severed from the uterus, was again sutured to the region of the right cornu. A large quantity of free blood was sponged from the abdominal cavity and the wound was closed in layers without drainage.

Pathologic Report.—The tissue removed for study consisted of parts of grossly normal appearing placenta with attached membranes and small pieces of myometrium which had been trimmed away from the edges of the laceration. Microscopic examination revealed normal placental tissue corresponding to a pregnancy of two or three months. The myometrium was interesting in that small areas of scar tissue were visible in addition to rather deep penetration of the trophoblastic tissue into the uterine wall. The outer, uninvaded smooth muscle was not more than 5 mm. in thickness.

Course.—During and after the operation 5 per cent dextrose was given intravenously, this being followed by a transfusion of 500 cc. of citrated blood. Gradual improvement followed. The hemoglobin determination, which had been 48 per cent (Sahli) on admission, had risen to 65 per cent the following day. Moderate vaginal bleeding persisted, and in view of this a light curettement was done April 8, very little tissue being obtained. After this vaginal bleeding was diminished her general condition was good, and on April 10 she was discharged after receiving contraceptive advice.

The vaginal bleeding ceased several days after discharge from the hospital. She returned to the outpatient clinic May 2, bringing with her the part of the needle which had broken off in the myometrium during the operation, stating that this had passed by the vagina without pain the day before. There were no complaints. Examination revealed the uterus normal



Fig 2.—Rupture of the right side of the uterus during an early pregnancy, occurring a few months after removal of a right tubal pregnancy. Forceps pulling away some of the fetal membranes

in shape, size and position though somewhat adherent. The left ovary was of normal size and slightly adherent and was not tender. Her condition was quite satisfactory when she was last seen.

This was a most happy termination of what might have been a difficult problem We have no record of a similar case having ever been observed in the Johns Hopkins Hospital.

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THE USE OF RABBIT ANTIPNEUMOCOCCUS SERUM IN THE TREATMENT OF ULCUS SERPENS

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For years the more commonly accepted methods of treatment of ulcus serpens have been chemical disinfection, curettage, cautery by physical or chemical means, and a variety of surgical measures. Specific serum therapy has never been widely acclaimed, those using it having reported indifferent results.

Cheney [1] in 1922 voiced the opinion of most ophthalmologists by citing the failure of serum therapy on two counts: 1. In the majority of cases the pneumococci isolated from corneal ulcers were not suitable for serum therapy. At that time the only available potent antiserum was for the type I pneumococcus. In his series of twelve cases "group IV" pneumococci, for which no antiserum was available, were the usual organisms cultured. In reviewing the literature Newman [2] collected 131 cases of ulcus serpens. In only five was the condition caused by type I, and in ninety-seven it was caused by "group IV." 2. Owing to the avascular character of the cornea, serum administered intravenously could hardly be expected to penetrate it and influence the process.

Since the work of Cooper in subdividing the old pneumococcus "group IV" it has been possible to type the pneumococci obtained from such corneal ulcers. Originally "group IV" was subdivided into twenty-nine types. The evidence at present, however, indicates that type VI is similar to type XVI and type XV to type XXX. They may be typed by the Neufeld technic [3] in the manner that is used for the typing of pneumococci in the sputum. Specific rabbit pneumococcus antiserum for typing is now available in practically all portions of the United States. Recently this serum has been introduced for clinical use in the treatment of pneumonia caused by several different types of pneumococci, and more types are gradually being included. For experimental use it is available for the treatment of nearly every type. Rabbit pneumococcus antiserum offers the possibility of usefulness in the treatment of pneumococcic ulcers of the eye because of the smaller molecule of the rabbit antibody as compared with that of the horse antibody, and the higher antibody titer of rabbit antiserum as compared with that of horse antiserum. Because of its small size the rabbit antibody molecule appears to be able to penetrate more freely into inflammatory areas than does the horse antibody. This thought has been given some support by the studies of Horsfall and his associates.[4] If this is true, one of Cheney's objections is partially overcome.

REPORT OF CASE

F. S., a Negro aged 87, was admitted to the ophthalmologic service of the Hospital of the University of Pennsylvania June 1, 1938, giving a history of injury to his left eye by a twig while he was trimming a hedge on May 19. The following day considerable pain and lacrimation had been noted, which had persisted up to the admission to the hospital. The history and systemic review were of significance only in that he had been suffering gradual loss of vision for the past two years.

Physical examination gave essentially negative results aside from the ocular condition.

The right eye was normal except for an incipient senile cataract, giving 9/15 vision with a pinhole. The left eyelids were slightly swollen and marked blepharospasm was exhibited. A small amount of purulent discharge exuded from the palpebral fissure. The conjunctiva was diffusely and markedly injected and slightly chemotic. A rather deep and sharply excavated round corneal ulcer 3 mm. in diameter was seen over the pupillary area to the temporal and inferior side. Its center was stained brown by mild protein silver, which his family physician had prescribed. The nasal margin was undermined and grayish. A hypopyon of 1 mm. was present. The aqueous humor exhibited a marked flare. The pupil was miotic and fixed. The lens was cataractous, the vision being limited to perception of light. No discharge could be expressed from the nasolacrimal duct.

On admission, after material for cultures had been taken from the culdesac and the ulcer, treatment was immediately started with 1 per cent atropine twice daily, hot compresses and irrigations with mercurophen (sodium oxymercury orthonitrophenolate) 1:12,000 as frequently as needed to keep the eye free from discharge. One cc. of Pregl's iodine solution was injected subconjunctivally below the cornea. The nasolacrimal duct was irrigated and found to be patent. The ulcer during three days of this therapy spread, advancing nasally and downward. The hypopyon fluctuated from 1 to 2 mm. The cultures of material from the ulcer and culdesac were reported at this time as positive for type XXIII pneumococci, so the patient was given instillations of ethylhydrocupreine (optochin) hydrochloride 2 per cent aqueous solution four drops four times daily, since no specific serum could be obtained. This therapy was continued for two days, during which time the spread of the ulcer continued unabated. Then, five days after admission, an adequate supply of type XXIII antipneumococcus rabbit serum was made available, enabling us to discontinue the ethylhydrocupreine. Forty-nine thousand units of antiserum was given during the first twenty-four hours, 30,000 units intravenously, 15,000 units by instillation (one drop every fifteen minutes) and 4,000 units subconjunctivally. At the end of this time the ulcer looked distinctly cleaner and no increase in size was noted. There was little local reaction to the subconjunctival injection of antiserum. From this time on improvement continued, and four days after the giving of serum was started the ulcer began to epithelize from the temporal margin and the hypopyon disappeared. The patient was given daily injections of antiserum intravenously for four days, and then medication was stopped, a total of 134,000 units having been given by this route. One more injection June 8 of 2,000 units made a total of 6,000 units subconjunctivally. The instillations by drop were kept up nearly continuously every fifteen minutes for five days and intermittently for ten days longer, making 340,000 units by this method and a total of 480,000 units of antiserum. Sixteen days after the institution of specific therapy another culture of material from the left eye was made, and it was found to be negative. A blood culture, made as soon as the original culture of material from the eye was reported, was negative. X-ray examination showed the pulmonary fields to be clear. The patient was discharged from the ward on the twenty-third day, with only a fine crescent on the cornea which stained with fluorescein. This had been the location of the previously advancing nasal border of the ulcer. The conjunctival chemosis had disappeared and only moderate diffuse injection remained, as well as two posterior synechiae. No immediate or delayed serum reaction occurred.

The patient was followed in the outpatient department and last seen July 6, at which time no staining of the cornea was present and the eye had remained quiet. The scarring of the cornea was minimal, being of macular density. Unfortunately the visual result could not be determined because of the senile cataract.

COMMENT

When the age of the patient and the advanced condition of the ulcer before treatment are considered, the clinical course proved to be distinctly better than that which is usually encountered with pneumococcic ulcers of the cornea. The scarring was certainly less than should have been expected.

We feel that here is a neglected phase of ocular therapeutics, since the previous objections to antiserum therapy are no longer valid. Potent antiserum for the different types of pneumococci is now available. It is possible that rabbit antiserum is better able to penetrate the cornea than the previously used horse antiserum. Our purpose in reporting a single case is to draw attention to the further possibilities of the antiserum therapy of pneumococcic infections of the eye.

The serum was furnished by the Lederle Laboratories, Inc.

From the Departmen ... the Department of Medicine of the Hospital of ...

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HEMIPLEGIA FOLLOWING INJECTION OF EPINEPHRINE HYDROCHLORIDE

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There is no previous record in the medical literature of hemiplegia in man brought on by an injection of epinephrine. However, Wilhelm Erb[1] in 1905 reported the production of cerebral hemorrhage in rabbits following injections of this substance. It is curious that epinephrine, because of its widespread and sometimes careless use by asthmatic patients, should not have been added before to the list of rare causes of hemiplegia along with antipneumococcus serum,[2] antidiphtheric serum,[3] insulin[4] and nicotine.[5]

REPORT OF CASE

History.—J. D., a white man aged 33, married, an electrician, was known to have had seasonal and perennial hay fever and bronchial asthma since the age of 10 years. For the last four years he had received specific therapy with tree, grass and ragweed pollens and also with the inhalants dust and orris root. With such therapy his condition was definitely improved, but at times fairly severe attacks of asthma developed. For relief from such attacks he used epinephrine in a nebulizer, and during more severe attacks it had been customary for his wife to administer subcutaneously to him injections of epinephrine hydrochloride. This she had done satisfactorily for three years.

His symptoms had been so severe during the last three ragweed seasons that it had been necessary to hospitalize him. However, during the first three weeks of the 1938 ragweed season and until the onset of his present illness, he had been comfortable and attended work by having his wife administer to him every evening 0.75 cc. of epinephrine in oil.[6]

The morning of August 29, he awakened with a mild attack of asthma, which he alleviated somewhat by using the nebulizer. However, in thirty minutes the asthma reappeared and his wife administered to him 0.5 cc. of the 1:1,000 solution of epinephrine hydrochloride. Immediately following the injection he experienced a violent, splitting headache and in a few seconds became unconscious. The train of symptoms appeared, as his wife described, in the length of time that it took her to walk from his bed, following the injection, to a chest of drawers where she kept the syringe.

Examination.—The patient was seen forty-five minutes later. He was lying flat in bed in a semicomatose state. The temperature was 99 F. and the pulse rate was 90. The respirations were slow and stertorous. Although he recognized me, he was unable to speak. The face was pale and the skin moist. There were no convulsive movements. The heart, lungs and abdomen were normal. The blood pressure was 120 systolic, 80 diastolic. (It is important to insert here that during the previous four years, while the patient was under constant observation and treatment for his allergic condition, the blood pressure, taken on many occasions, had never exceeded (110/70). The neurologic examination revealed the following:

Cranial Nerves: Second: The pupils were equal, round and regular, and reacted to light. Accommodation could not be tested. Visual fields could not be determined. The optic disks were clear and well defined. There were no hemorrhages or exudates.

Third, fourth and sixth: There was no ptosis of the lids. The ocular movements seemed normal.

Fifth: There was no apparent numbness of the face. The corneal reflexes were normal. The muscles of the jaw could not be tested.

Seventh: There was a moderate facial weakness on the right.

Eighth: The hearing, tested by watch and tuning fork, seemed normal.

Ninth, tenth and eleventh: The patient was unable to speak. The pharyngeal reflex was intact. The strength of the sternomastoid and trapezius muscles could not be tested.

Twelfth: The tongue was protruded to the right.

Motor System: The upper and lower extremities were flaccid, but there seemed to be more resistance to passive motion on the left side of the body. Tests for ataxia could not be made.

Sensory System: There was a definite reduction of cutaneous sensibility to touch and pain on both sides of the body, but there was less impairment on the left side.

Reflexes: The tendon reflexes were present in both the upper and lower extremities. There was no clonus. The right plantar reflex was definitely extensor.

In two hours the patient moved both legs and the left arm but was unable to move the right arm. In one week he was mentally clear but had difficulty in understanding what was said to him. The right arm could be lifted a few inches off the bed. For the first time he became aware that he was unable to see objects on the right of him with his left eye closed and that while reading he could see only half a word at a time. It was now possible to do a thorough neurologic examination.

The following observations were made by Dr. Frank R. Ford, the neurologic consultant.

Cranial Nerves: Second: The pupils were as described before. Examination of the visual fields disclosed a complete right homonymous hemianopia. The fundi were as described before.

Third, fourth and sixth: The conditions were as described before.

Seventh: There was a slight right-sided facial weakness.

Eighth: There was no subjective disturbance of hearing. Hearing was within normal range as tested with a watch and a tuning fork. There was no aural vertigo.

Ninth, tenth and eleventh: There was no weakness of the soft palate and no disturbance in swallowing. The pharyngeal reflex was present. There was no weakness of the sternomastoid and trapezius muscles.

Twelfth: The tongue protruded slightly to the right.

Motor System: There was some weakness of the right side of the face, of the right arm and of the right leg. The muscle tone was slightly increased in the right leg, although not obviously so in the right arm. The patient had a good deal of difficulty in using the right arm and leg. He missed his nose with the right finger but the movement suggested uncertainty rather than ataxia.

Sensory System: There was considerable reduction of cutaneous sensibility over the entire right side of the body, but there was not an absolute loss of touch or of pain. The sense of position, of passive movement, of stereognosis and of two-point sense were severely impaired on the right side of the body.

Reflexes: The tendon reflexes on the right side were as active as those on the left. There was no clonus. The right plantar reflex was definitely extensor.

Speech: The patient had some difficulty in finding words and forming sentences correctly. Articulation was fairly clear. He had great difficulty in understanding what was said to him and it was frequently impossible for him to grasp simple sentences, even when they were repeated.

It has been six weeks since the unfortunate accident occurred. The patient is now able to move the right arm above the head.

Dr. Leslie N. Gay gave the author the opportunity of reporting this case.

From the Protein Clinic, Department of Medicine, Johns Hopkins Medical School and Hospital.

1. Erb, W. H.: Cerebral Hemorrhage in Rabbits Following Epinephrine Injections, Beitr. z. path. Anat. u. z. allg. Path. **7**: (suppl.) 500-514, 1905.

2. Girard, J., and Picard, D.: Hemiplegia Following Injection of Pneumococcus Antiserum in Therapy of Bronchopneumonia: Case, Rev. méd. Nancy **66**: 306-309 (April 1) 1938.

3. Charleux, Georges: Aphasia and Right-Sided Hemiplegia Following Injection of Diphtheritic Antiserum, Lyon méd. **149**: 522-525 (April 24) 1932.

4. Labbé, M., and Boulin, R.: Hemiplegic Accidents in Course of Insulin Therapy of Diabetes; Need for Close Supervision of Insulin Therapy in Old People, Presse méd. **45**: 225-226 (Feb. 13) 1937. Criscitiello, Modestino, Jr., and Messer, E. R.: Neurologic Phenomena in Course of Treatment of Diabetes, New England J. Med. **205**: 1246-1248 (Dec. 24) 1931. Deicke, Otto: Angiospastic Hemiplegia as Hypoglycemic Reaction to Insulin Shock in Acute Diabetes; Case, Deutsche med. Wchnschr. **54**: 1375-1376 (Aug. 17) 1928.

5. Hanau, Giorgio: Transitory Hemiplegia from Nicotine, Gazz. d. osp. **52**: 1573-1575 (Dec. 13) 1931. Kulbs, F.: Temporary Hemiplegia Caused by Nicotine, Four Cases, Klin. Wchnschr. **10**: 2159-2161 (Nov. 21) 1931.

6. Keeney, E. L.: A Slowly Absorbed Epinephrine Preparation: Preliminary Report, Bull. Johns Hopkins Hosp. **62**: 227-229 (March) 1938. Keeney, E. L.; Pierce, J. A., and Gay, L. N.: Epinephrine in Oil: A New Slowly Absorbed Preparation of Epinephrine, Arch. Int. Med. **63**: 119-142 (Jan.) 1939.

The gait is steady but he is uncertain of what the right leg is doing. The speech has improved and is more articulate, but he still has difficulty in understanding. With the exception of these changes the observations made on neurologic examination are identical with those enumerated before.

COMMENT

When the patient was first seen the development of the sudden hemiplegia could be attributed to either an angiospasm or a vascular hemorrhage due to a sudden hypertension. In either instance it was likely that the epinephrine by mistake had been injected directly into a small blood vessel; when the patient's wife was questioned, it became apparent that she had neglected to withdraw the plunger of the syringe before making the injection. Later on, because of the failure of the symptoms to disappear, it seemed more likely that there had been a vascular hemorrhage.

The neurologic consultant felt that there was a large lesion in the left hemisphere involving the visual pathways, the sensory pathways and some of the sensory speech areas and that the lesion must therefore involve the cortex of the inferior parietal region, where all these pathways are located. Because of the difficulty in speech, it was unlikely that the lesion could have been located in the left internal capsule.

The patient should improve slowly for a time, but it is improbable, because of the extent of the lesion, that he should make a complete recovery or ever be able to do more than the simplest work.

SUMMARY

A complete right-sided hemiplegia with a right homonymous hemianopia occurred in a young man without hypertension, following an injection of epinephrine hydrochloride.

1114 St. Paul Street.

DERMATITIS FROM INDUSTRIAL CONTACT WITH NICOTINIC ACID

R. M. WATROUS, M.D., NORTH CHICAGO, ILL.

Such pharmacologic work on nicotinic acid as has been reported has shown it to be a comparatively inert substance, aside from its specific effect in pellagra. A flushing of the skin with a sensation of warmth has been observed after its administration either intravenously or by mouth.[1] Rachmilewitz and Glueck[2] described the occurrence of an urticarial dermatitis with flushing of the face and severe itching in a patient with pellagra after he had received two 50 mg. doses of nicotinic acid orally. Chen, Rose and Robbins[3] determined the lethal dose for dogs to be 2,000 mg. per kilogram of body weight over a period of from eight to ten days—an enormous quantity compared with the therapeutic dose. These investigators found no irritant effect from 1 per cent solution of nicotinic acid injected intradermally. The following cases indicate that nicotinic acid is capable of producing a transient dermatitis in certain persons when it comes in contact with the skin.

REPORT OF CASES

CASE 1.—L. H., a white man aged 60, a nonsmoker, worked for an hour one afternoon making a granulation of nicotinic acid with excipients, in preparation for the molding of tablets. When he left work about two hours later, a physician called his attention to a diffuse erythema of all parts of the skin which had been exposed to the dust; his skin had the appearance of mild sunburn. That night the patient noticed moderate burning and itching of the affected skin and verified for himself its red appearance. The next morning the skin appeared and felt normal in every way, and it has continued so since.

CASE 2.—A. M., a white woman aged 38, an occasional smoker, began putting nicotinic acid tablets into bottles at 2 p. m. She continued the work the next day until 11 a. m. No symptoms were noticed until the following day, when she began to have severe itching and burning sensations on all portions of the skin not covered by the work clothing. On the affected areas there was a maculopapular rash with follicular distribution. The symptoms lasted with somewhat less severity until the next day, when I was able to verify the appearance and distribution of the rash. The skin was normal on the third day after exposure and has continued so since.

CASE 3.—A. M., a white woman aged 23, an occasional smoker, worked one morning bottling nicotinic acid tablets. At about 11:30 a. m. she began to notice a slight burning sensation on the exposed areas of skin and came to the dispensary, believing she had a "heat rash." At this time she had a diffuse erythema of all the exposed areas, sharply delimited by the lines of the clothing. On this erythematous base were small discrete maculopapules with follicular distribution. By 2:10 p. m. the reaction had faded considerably, and the exposed skin was washed with a cotton swab moistened with distilled water, the swab then being rinsed in distilled water. An unaffected area on the back was washed in a similar way, and the p_H of the washings determined immediately, with the following results: exposed skin, p_H 4.42; unexposed skin, p_H 4.35, and distilled water, p_H 6.10.

The next day the skin appeared and felt normal, and it has remained so since.

CASE 4.—J. B., a white woman aged 20, a nonsmoker, worked for an hour and a half putting nicotinic acid tablets into bottles. Nothing made her aware of any unusual condition of her skin until she happened to look in the mirror in the washroom and saw that her face appeared sunburned. She came to the dispensary to cooperate in the study, and her face was seen to be diffusely red except for two areas under the eyes, where her glasses had apparently prevented dust from settling. There was a mild burning or flushed sensation over the face at this time. The forearms, over the exposed portions, showed a fine macular rash with follicular distribution. No itching was complained of. Twenty-four hours later all subjective and objective manifestations had disappeared.

COMMENT

Other workers handling nicotinic acid under identical circumstances experienced no such reactions. The conditions under which the bottling of tablets was carried out allowed only a minimal exposure to the chemical; there was no visible dust, and the operator's hands never came in direct contact with the tablets.

To study further the effect of nicotinic acid on the skin, some powdered nicotinic acid was rubbed into a patch on the flexor surface of the forearm of eight volunteers. Four of these showed some reaction within a few hours, while the other four could detect no change whatever up to forty-eight hours after the application of the powder. Of the four showing reactions, three exhibited only a mild macular redness about the follicles, coming on from two to four hours after application of the chemical and lasting up to forty-eight hours, without itching or burning sensations. The fourth member of this group had a much more vigorous reaction, which came on only thirty minutes after contact and was accompanied with intense itching and burning. Some redness persisted in this subject for the next thirty-five hours. Curiously enough, this person showed no reaction at all when the same amount of nicotinic acid was rubbed into the skin of the forearm two weeks later. Five of these subjects were habitual smokers and three did not smoke. No correlation could be established between the use of nicotine and the susceptibility to the dermatitis.

The way in which nicotinic acid produces these local reactions is still obscure. That they are due to a local acid effect seems improbable because of the weak dissociation of nicotinic acid and because of the fact that not all skins respond to its application.

SUMMARY

Susceptibility to mild transient dermatitis due to contact with nicotinic acid during its industrial use is found only in certain persons at certain times, and its pathogenesis is at present unexplained. This condition is entirely related to industrial exposure to nicotinic acid and, to judge from existing literature, has no counterpart in clinical practice.

From the Department of Clinical Research, the Abbott Laboratories.

1. Gross, E. S.; Sasaki, Y., and Spies, T. D.: Effect of Nicotinic Acid on Increased Porphyrinuria Occurring in Seven Painters, Proc. Soc. Exper. Biol. & Med. 38: 289 (March) 1938.
2. Rachmilewitz, M., and Glueck, H. I.: Treatment of Pellagra with Nicotinic Acid, Brit. M. J. 2: 346 (Aug. 13) 1938.
3. Chen, K. K.; Rose, C. L., and Robbins, E. B.: Toxicity of Nicotinic Acid, Proc. Soc. Exper. Biol. & Med. 38: 241 (March) 1938.

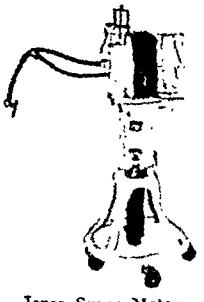
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

JONES SUPER MOTOR-BASAL METABOLISM TESTER ACCEPTABLE

Manufacturer: Jones Metabolism Equipment Company, 315-323 South Honore Street, Chicago.

The Jones Super Motor-Basal Metabolism Tester is a closed circuit bellows type of metabolimeter using a motor blower to circulate the oxygen. It measures the time required by the patient to consume a measured liter of oxygen instead of computing the amount of oxygen consumed in a definite period of time. According to the firm, this method simplifies the computation. It is finished in white enamel with exposed parts of double chrome plate. The oxygen tank, chamber, and gage for measuring oxygen are supported by an iron frame. A superstructure carries the bellows, soda lime container, motor blower and recording device. Complete, the unit weighs approximately 50 pounds. It is 25 by 20 inches at the base and 50 inches high. With the breathing tubes in place, the overall length is 45 inches. It is readily portable on four 1½ inch casters.



Jones Super Motor-Basal Metabolism Tester.

The apparatus is connected to the patient by means of the conventional mouth piece and rubber tubes. A valve is provided which permits the patient to breathe room air until ready to begin the test. Then the valve is turned in the horizontal position so that the patient may breathe oxygen from the metabolimeter. The motor blower in the return circuit draws the oxygen and carbon dioxide from the patient and drives it through the soda lime back into the bellows. Negative pressure thus created at the mouth piece is very small.

Respiratory excursions are recorded on a moving plate, which drops at the rate of one inch per minute for eight minutes on the basal speed and in sixteen minutes at the superbasal position. A timer stops the apparatus. The movable plate operates on a plane perpendicular to that of the bellows. One end of the bellows is fixed. The recording pen is attached to the moving end. Two sizes of bellows are available. This increases the flexibility of the machine and makes it possible to handle patients of large size, irregular breathers, and individuals with a high oxygen consumption.

The Jones Motor-Basal Metabolism Tester was investigated in a clinic acceptable to the Council and gave satisfactory service, comparing favorably with other metabolism units with regard to accuracy and mechanical efficiency.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Jones Super Motor-Basal Metabolism Tester for inclusion in its list of accepted devices.

SANBORN WATERLESS METABOLISM TESTER ACCEPTABLE

Manufacturer: Sanborn Company, 39 Osborn Street, Cambridge, Mass.

Description: The Sanborn Waterless Metabolism Tester is a compact, semiportable unit that can be readily wheeled from room to room. It is 19 inches high by 13 inches long by 11 inches wide and weighs approximately 33 pounds. It may be furnished with or without a stand that is adjustable in height from 29 to 38 inches and occupies 2.7 square feet of floor space. This stand carries the oxygen tank and auxiliary apparatus and is equipped with large wheels which make it easy and safe to move. The tubes connecting the machine with the patient are 26 inches long.

This waterless machine has most of the features described for the Sanborn Motor Grafic Model E. I. S. (THE JOURNAL, Aug. 22, 1936, p. 587). It differs principally in having a vertically moving rubber bellows in place of a water spirometer. This bellows is supported by a chain passing over ball-bearing pulleys. The weight of the bellows is counterbalanced by a spring in the base.

Recording is made by a kymograph, 3⅜ inches in diameter, which carries a special wax coated chart rigidly held in place by special clamps. The electrically driven kymograph makes one complete revolution in ten minutes with an accuracy of plus or minus 0.16 per cent. The rulings in the chart are accurate to plus or minus 0.9 per cent.

The oxygen in the rubber bellows is circulated by means of a motor driven fan. This develops a positive pressure on the mouthpiece of 2 mm. of water. A valve inserted in the airline makes it possible for the operator to connect the patient with room air or oxygen at will.

METHODS OF USING THE METABOLISM TESTER

Two different methods of determining the rate of metabolism may be used with this waterless apparatus.

In the first, or short test, method a definite amount of oxygen, 1.25 liters, is placed in the bellows and the patient breathes from this until the oxygen is consumed. The time necessary for this is noted and a computation is made on this basis. No corrections for temperature and barometer are necessary in the short test. The volume of oxygen is measured in a rigid container and is not affected by barometer (atmospheric pressure), but the pressure applied to the oxygen within the container varies for different temperatures.

It is a fundamental law of physics that, when gas is in a rigid container, the volume is not affected by outside atmospheric pressure but varies with temperature and also by the pressure that is applied to the gas within the container. In the Waterless, oxygen gas is admitted to the container from a tank and the pressure is allowed to increase to a definite point required for the temperature that exists. A gage is calibrated to give the pressure that is required for 1.25 liters of oxygen at 0 C. and 760 mm. pressure.

This volume under compression is released into the rubber bellows from which the patient breathes. In the bellows, local conditions of atmospheric pressure and temperature may vary but there will still be 1.25 liters under standard conditions of 760 mm. and 0 C. By the test one finds the time it takes for a patient to consume this 1.25 liters and thus one obtains the patient's rate of oxygen consumption. This is the short test method.

In the second, or long test, method the bellows is filled with an excess of oxygen and the patient breathes this for a definite length of time, from ten to sixteen minutes. The amount of oxygen is then computed from the fall in the bellows. This fall is calibrated in terms of volume of oxygen.

In the long test method, temperature and barometer readings must be corrected for local conditions. These corrections are made in the same way that is customary in the common type of water-sealed metabolism testers. In the Waterless, the oxygen is let directly into the bellows through the pressure chamber with the bellows valve open. No reading of the gage or measurement by the pressure chamber is needed. The long test method may be used when the gage or pressure chamber which is required in the short test method is out of service. The unit volume of oxygen that is consumed during a given time is obtained from the chart, but the volume will be the volume that exists for a given temperature and barometer of local conditions. It must be corrected to 0 C. and 760 mm., and a correction of 2 per cent for humidity made.

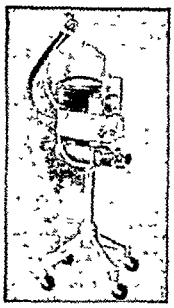
VOLUME OXYGEN DELIVERED BY GAGE

The accuracy of the short test method depends on the accuracy with which the oxygen is delivered to the bellows. This point has been carefully checked by the following method: The volume of oxygen delivered by the apparatus was measured as it would be used by the patient. Two 2 liter flasks were connected in an air tight manner with rubber stoppers which were fitted with convenient inlet and outlet tubes. One of the flasks was filled with distilled water, which had been allowed to come to room temperature, and weighed. Enough water was placed

in the other flask to create a partial vacuum. Both flasks were weighed to the nearest tenth of a gram before displacement; then the full flask was connected to the metabolimeter mouthpiece and inverted at the same time as the one nearly empty. The inverted flasks were supported on adjustable ring stands. Oxygen was then admitted according to directions in the Sanborn instruction booklet. The nearly empty flask was lowered so as to create a partial vacuum and the oxygen was drawn over from machine to flask as a result. This was continued until the full amount of oxygen admitted to the bellows was in the displacement flask. Clamps were placed on the connection to the metabolimeter and the flasks were brought to a common level, disconnected and weighed. The difference in weight between the flask empty and the flask filled gave the amount of water displaced, and this gave, in turn, the volume of oxygen represented delivered by the gage to the bellows. The volume of oxygen collected during six trials averaged 1,444 cc., which, corrected for a temperature of 23 C., a barometer of 749 and a saturated water vapor of 20 mm., gave 1,278 cc. of dry oxygen delivered by the gage, the correct volume being 1,275 cc.

ACCURACY OF THE LONG TEST METHOD

In the long test method the oxygen is not measured by the gage but by the fall of the bellows. This is measured on the chart by a special scale, which should be calibrated for each instrument. The accuracy of this method depends on the resilience of the rubber bellows. As this changes in the course of time, the scale must be recalibrated. Since the accuracy of the apparatus may change slowly, it is advisable that the operator recheck the scale and the condition of the bellows or have this done by the firm at regular intervals.



Sanborn Waterless Metabolism Tester.

Careful measurements comparing the long test with the short test under identical conditions gave a difference in readings between the two of 3 per cent when the scale was used without correction.

The long test method also requires an accurate reading of the temperature of the oxygen in the bellows. Temperatures are read during the long test by a mercurial thermometer with bulb directly in the breathing circuit. The average temperature is used to correct the volume of oxygen used.

OXYGEN LOSS FROM BELLOWS

The ability of the system to hold gas was tested by placing a weight of 1 Kg. on the bellows for forty-eight hours with all valves closed. The system lost 25 cc. of oxygen per hour. Without any pressure on the bellows, the loss was 3.7 cc. per hour. This indicates that under usual conditions the loss of oxygen is slight, 0.06 cc. per minute. Since the rubber bellows is clamped to the metal frame by a ring which compresses the rubber and is also cemented wherever a junction is effected with metal, the chance for oxygen loss during a metabolism determination is slight.

CLINICAL TESTS

The Sanborn Waterless Metabolism Tester, the short test method being used, was compared with the standard tested metabolimeter used in the clinic. Patients were tested consecutively on both machines under strictly comparable conditions. The determinations made on the different machines agreed within 2 per cent of one another. The Sanborn Waterless Metabolism Tester gave readings uniformly lower than the standard apparatus.

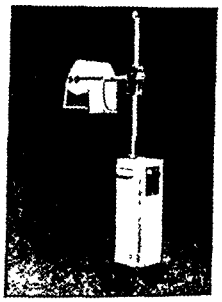
The tables in the pamphlet concerning calculation of the long test method have been checked with the slide rule and are found to be correct. The directions in the book of instructions describe the handling of the patient in a clear and concise manner and the operation of the apparatus correctly.

As the result of the Council's investigation, it seems evident that the Sanborn Waterless Metabolism Tester is accurate within the limits allowed for metabolism testing apparatus. In view of this report, the Council on Physical Therapy voted to include the Sanborn Waterless Metabolism Tester in its list of accepted devices.

HANOVIA SUPER ALPINE LAMP (MODELS S AND E) ACCEPTABLE

Manufacturer: Hanovia Chemical & Manufacturing Company, Chestnut Street and N. J. R. R. Avenue, Newark, N. J.

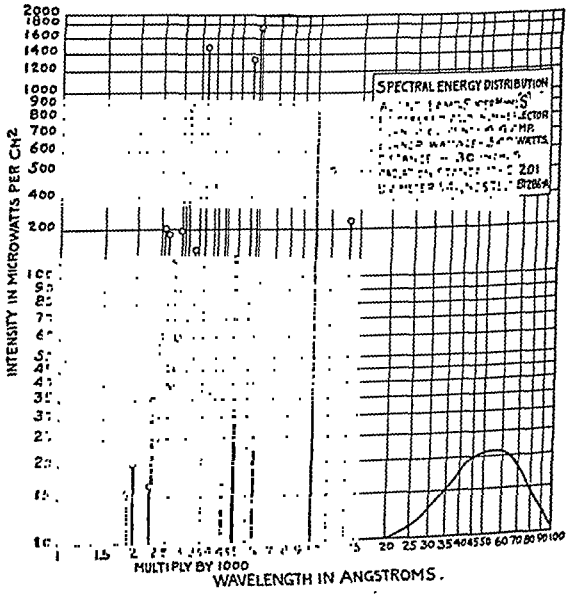
The Hanovia Super Alpine Lamp is a high pressure, high intensity quartz mercury arc lamp recommended for use in the hospital or physician's office. It is available in two models; Model S operates on alternating current, Model E on direct current. The burner is mounted at the focal point of a processed aluminum reflector which is supported within an outer hood, from which it is separated by a ventilation envelop, designed to assist in maintaining a comfortable hood temperature. A steel tape measure located at the side of the hood may be employed to measure the distance from the burner to the patient.



Hanovia Super Alpine Lamp.

The lamp hood is supported on the upright by means of a main swing head and cross arm, and is counterbalanced by a counterweight located within the upright. Vertical adjustment permits a minimum distance between the burner and floor of 48 inches and a maximum distance of 78 inches. The cross arm has a 10 inch travel, and at its maximum extension the burner is 24 inches from the upright, which rests on the transformer electrical control cabinet, in turn, integral with the base. This is mounted on four 4 inch rubber tired casters with clearance sufficient under the base for movement over a 2 inch door sill. The hospital unit in addition has a hospital-type carrier rigidly bolted to the base, especially adapting the lamp to ward work for bedridden patients. The approximate shipping weight of the entire unit is 200 pounds.

The electrical controls are located in a ventilated steel housing the top of which is 39 inches from the floor. A control panel is located on the side of the housing 32 inches from the floor. It comprises an electric supply switch, a ten point intensity control switch and an indicating instrument. The instrument for the Model S alternating current lamp is an ammeter which indicates the burner current. The instrument for the Model E direct current lamp is a voltmeter which indicates the burner voltage and polarity.



Spectral energy distribution.

The ultraviolet ray generating source, a self-starting burner, is a high pressure, low voltage mercury arc enclosed within a transparent fused quartz tubular vessel provided with metal lead-ins for the electric current which are sealed vacuum tight

rectly to the quartz tubing. An alternating current burner ntains self-heating incandescent solid activated electrodes and filling of mercury, with a rare gas for self-starting purposes. he direct current burner utilizes a mercury pool cathode and solid incandescent anode. Ultraviolet, visible and infra-red diations are emitted by both types of burners.

Model S (alternating current), operated on control No. 1, oduces an intensity of ultraviolet rays for wavelengths 3,130 ngstroms and shorter of 1,500 microwatts per square centi-eter and in ten steps to 2,500 microwatts per square centimeter. he maximum ultraviolet energy (after the lamp has warmed p) is sufficient to produce a first degree erythema (mild redden-ng) on the average person after an exposure of twenty seconds. he direct current lamps, Model E, are similar to the Model S intensity and erythema production.

The firm submitted evidence to substantiate the ability of ese lamps to produce suitable ultraviolet radiation to prevent r cure rickets in children, to prevent and cure infantile tetany.

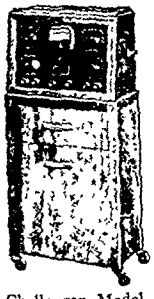
The unit was tried out in a clinic acceptable to the Council nd gave satisfactory performance. It apparently emits the ame kind of radiation generated by other Hanovia lamps pre-iously accepted by the Council. The lamp also gives the same ype of service in the clinic as other Hanovia units have in the ast.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Hanovia Super Alpine Lamp, Models S and E, for inclusion in its list of accepted devices.

"CHALLENGER" MODEL K SHORT WAVE UNITS ACCEPTABLE

Manufacturer: The Birtcher Corporation, 5087 Huntington Drive, North, Los Angeles.

The Challenger Model K Short Wave Units are recommended for medical and minor surgical uses. They are available in three cabinet styles designated 970, 980 and 990. The DeLuxe model (990) has a shipping weight of approximately 163 pounds. The dimensions of the cabinet are 45 inches high by 24 inches wide by 15 inches deep. The Standard model (980) comes in a two-piece cabinet and its shipping weight is approximately 125 pounds. The cabinet dimensions are 43 inches high by 20 inches wide by 14 inches deep. The small Portable model (970) comes in a black leatheret case with an electrode compartment and a removable lid. Its net weight is about 50 pounds and its dimensions are 13½ inches high by 19 inches wide by 15 inches deep.



Challenger Model "K" Short Wave Unit.

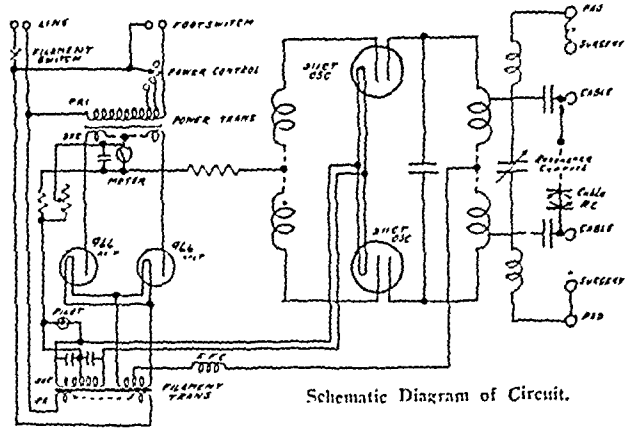
A tuned plate, tuned grid circuit is utilized and has a wavelength of approximately 16 meters. Two power and two separate rectifier tubes and a separate filament transformer are employed. Evidence submitted by the firm indicated that with an electromotive force of 116 volts and a measured input of 890 watts, the photoelectric cell and lamp load method being used, the output was 520 watts. With this load the output meter was evidently short circuited and no regard paid to the excursion of its needle.

In the Council test, with an electromotive force of 111 volts and an input of 660 watts, the output measured 270 watts. In this test the output meter was used and full scale reading regarded as full load of the apparatus.

With regard to the inductance calorimeter method, the firm submitted data showing that, with an electromotive force of 120 volts and a measured input of 970 watts and 3½ turns of the cable, the output was 445 watts.

In the Council test, in which a calorimeter was used according to specifications by the firm, and at an electromotive force of 107.5 volts and an input of 1,020 watts, the output was 417 watts. The milliammeter on the panel read about 600. In other words, the needle deflected as far as it could and would have gone farther had the scale been larger. Under this load the rectifier tubes began to flicker and the investigator recognized this as being an overload on the machine.

At a maximum input of 660 watts after two hours of continuous service the temperature rise in the outside windings of the transformer was 60 C., which is within limits acceptable to the Council.



Schematic Diagram of Circuit.

Evidence submitted by the firm for tissue heating was on a machine of similar hookup. It is given in the accompanying table.

Averages of Eight Observations

Deep Muscle			Oral	
Initial	Final		Initial	Final
		Pad Technic		
99.5	100.1		98.8	98.9
		Cuff Technic		
99.2	101.8		98.4	98.9
		Cable Technic		
99.3	102.7		98.8	98.1

The unit was tried out clinically by a qualified physician selected by the Council, who reports that it gave satisfactory service.

In view of the foregoing report, the Council on Physical Therapy voted to include the "Challenger" Model K Short Wave Diathermy Units Nos. 970, 980 and 990 in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

LYXANTHINE-ASTIER NOT ACCEPTABLE FOR N. N. R.

Lyxanthine Astier is a polypharmacal mixture of ingredients marketed by the Gallia Laboratories, Inc., of New York City for the treatment of arthritis and related conditions.

The advertising circular for this product states, "Lyxanthine-Astier, a product of the research laboratories of Dr. P. Astier of Paris, France, and now prepared in the United States, is a compound containing an efficient combination of active principles amounting to 33%." The content of the various ingredients in 100 Gm. of the preparation is listed as follows:

"Iodo-propanol-sulphonate of sodium	12 Gm.
Bitartrate of lysidin	9 "
Calcium gluconate	12 "
Sodium bicarbonate	37 "
Tartartic acid	15 "
Citric acid	6 "
Powdered sugar	9 "
Oil of Lemon	several drops

The three ingredients apparently considered by the manufacturer to be of principal therapeutic value, since their actions are discussed individually, are iodo-propanol-sulfonate of sodium, which, it is claimed, "Combines the action of sulphur and iodine"; calcium gluconate, "An entirely organic radical of calcium"; and lysidin bitartrate, "A powerful solvent and eliminant of metabolic waste." The total content of these three ingredients is said to be 33 Gm. in 100 Gm. of Lyxanthine, which

agrees with the quantitative statement ". . . an efficient combination of active principles amounting to 33%." The content of other ingredients, which might conceivably be active constituents of the mixture, that is, sodium bicarbonate 37 per cent, or the tartaric and citric acids together, 21 per cent, would leave the physician and the patient in a dilemma regarding the manifold therapeutic possibilities, or contrariwise, of this complex mixture.

The indications for the use of Lyxanthine-Astier are stated to be "Arthritis—regardless of classification, whether mono- or poly-articular"; "Chronic rheumatism—whether articular or the so-called 'muscular rheumatism,'" gout; sciatica; neuritis, neuralgia; lumbago; gallstones; renal, ureteral or vesical calculus; "in hepatic disorder associated with arthritis," and several other conditions. The recommended course of treatment consists of ". . ." 20 consecutive days of medication followed by a 10 day rest period." According to the dosage recommendation of one teaspoonful daily (two teaspoonfuls in acute attacks), a patient would take daily a mixture of about 0.48 Gm. each of iodopropanol-sulfonate of sodium and calcium gluconate, 0.36 Gm. of lysidine bitartrate, the sodium salts resulting from the effervescent interaction of 1.48 Gm. of sodium bicarbonate, 0.6 Gm. of tartaric acid and 0.24 Gm. of citric acid dissolved in a glass of water; and twice as much if he decided he had ". . . to treat an acute attack." Continued alkalinity of the urine could promote precipitation of phosphates in the kidneys and bladder and possible formation of calculi with serious consequences. Hence, it is wholly unwarranted for the manufacturer to make such irresponsible recommendations on dosing with these alkalizers without warning the patient and physician of possible undesirable systemic disturbances, if not dangers to health. The ingredients chosen for special mention in the manufacturer's circular may be considered first.

IODO-PROPANOL-SULFONATE OF SODIUM

Iodo-propanol-sulfonate of sodium (CH_2I-$CHOH$-CH_2SO_3Na) is not listed in the United States Pharmacopeia, National Formulary, New and Nonofficial Remedies, Heffter-Heubner's Handbuch der experimentellen Pharmakologie or Seifert's Nebenwirkungen, nor is it listed in the *Quarterly Cumulative Index Medicus* to June 1938 or in *Chemical Abstracts* from 1916 to 1938.

There appears to be no discoverable published scientific evidence that iodo-propanol-sulfonate of sodium has a specific action in arthritis or in the other diseases listed by the manufacturer. That this agent "combines the action of sulphur and iodine" may be true, but it does not follow that these chemical elements, as used in Lyxanthine-Astier, are available for the ordinary actions of which they are capable when free or in simpler combinations.

Both iodine and sulfur have been recommended in various forms for the treatment of arthritis. For example, iodine has been used as potassium or sodium iodide, the iodoxybenzoate and iodocinchophen among the better known forms. Despite this usage, the therapeutic value of iodine in arthritis has never been conclusively demonstrated. The Council on Pharmacy and Chemistry does not recognize this therapeutic claim for iodine.

Sulfur has been widely used parenterally as a means of producing fever and also to some extent orally by using a combination of iodine and disodium-dithio-salicylate, which was recommended by Nardelli [1] for arthritis. Here again the specific value of the oral use of sulfur has not been found acceptable. The effectiveness of compounds like iodothiosal may be attributed to their salicylate content. Similarly also the effects of iodoxybenzoate and iodocinchophen may be ascribed to the oxybenzoate and the cinchophen, respectively.

LYSIDINE BITARTRATE

Lysidine, or ethylene-ethenyl diamine, was introduced by Ladenburg in 1894 as a uric acid solvent for use in the treatment of gout. Like piperazine, lycetol (dimethyl piperazine tartrate) and other compounds, which have been similarly recommended, it is a basic amine capable of forming a soluble salt of uric acid in the test tube.

In an exhaustive review of these compounds in 1917 Hanzlik [2] cited evidence to show that, although they dissolved uric acid in vitro, the presence of sodium chloride or urine greatly decreased this solvent power. As shown by Haskins [3] in 1916, large doses of lysidine given to men might slightly increase the uric acid content of the urine and also the uric acid dissolving power of the urine, particularly when sodium bicarbonate was given simultaneously. However, simple alkalization and dilution of the urine gave correspondingly effective results, without exposing the patient to the possible harmful effects (dermatitis) of lysidine.

Since the appearance of Hanzlik's review twenty-one years ago, no references to lysidine have been found in the *Quarterly Cumulative Index Medicus* up to June 1938. In 1935 a United States patent [4] was granted for the cinchoninic acid salts of the piperazines, with the claim that these were effective therapeutic agents in the treatment of arthritis. No clinical or experimental reports have been found to date to substantiate this claim.

Meyer-Gottlieb and Pick [5] state that the assumption is erroneous that increased excretion of uric acid can be produced by alkalis or by uric acid solvents (piperazine, lysidine, lithium carbonate and so on), as is also the assumption that urate stones in the bladder can be dissolved by these agents. Thus the manufacturers' advertising literature perpetuates an old therapeutic error in the face of evidence to the contrary.

Accordingly, no evidence or authoritative opinion has appeared to date which would warrant altering Hanzlik's conclusion that the use of such urate solvents as piperazine and lysidine, with the hope of obtaining therapeutic effects in gout and related disorders, is inadvisable.

As previously stated, among the alleged indications for the use of Lyxanthine-Astier, in addition to gout, are arthritis, neuritis, gallstones and other conditions in which there is no known disturbance of purine metabolism. The use of a uric acid solvent in these diseases, even if it were effective on body urate, is obviously irrational.

CALCIUM GLUCONATE

Calcium gluconate is an effective preparation of calcium and as such may help supply the normal calcium requirements of the body. However, there is no acceptable evidence for a specific therapeutic value of calcium in arthritis, gallstones and so on. It has been reported by Graber-Duvernay [6] that a series of twelve or more injections of 10 cc. of 10 per cent solution of calcium gluconate, given intravenously at intervals of three or four days, remarkably ameliorated the symptoms of five cases of arthritis. The solution is reported to have been less effective when given intramuscularly, despite the fact that intramuscular injection is an accepted method of administering this compound for the systemic effects of calcium. A verification of the therapeutic results claimed by Graber-Duvernay has not been found in medical literature. It may be noted that the alleged therapeutic effects resulted from intravenous, and not oral, use of the calcium gluconate. This is another case of abuse of intravenous medication, since the systemic effects of calcium are readily obtained by the oral and intramuscular methods. It is pertinent that the Council on Pharmacy and Chemistry does not accept claims of therapeutic value in arthritis for calcium gluconate.

OTHER INGREDIENTS

The other ingredients of Lyxanthine-Astier, namely sodium bicarbonate, tartaric acid, citric acid, powdered sugar and oil of lemon, require no special consideration, as their actions and uses are well understood. The diuretic, antacid and possible cathartic actions of the sodium salts of the organic acids could conceivably produce beneficial eliminative effects, which might impress favorably a susceptible patient. But, of course, the eliminative treatment might be carried too far for his good. Some of these results would be obtained by the use of these simple remedies alone, when indicated, or even by liberal drinking of water alone, without the inconvenience and expense of taking them with the other unnecessary ingredients of Lyxanthine. At the same time there is no good reason to attribute specific antigout effects to these common agents, but the manu-

1. Nardelli, G.: Arch. di farmacol. sper. **50**: 125 (March 20) 1930.
2. Hanzlik, P. J.: J. Lab. & Clin. Med. **2**: 308 (Feb.) 1917.
3. Haskins, H. D.: The Uric Acid Solvent Powder of Urine After Administration of Piperazin, Lysidin, Lithium Carbonate and Other Alkalis, Arch. Int. Med. **17**: 405 (March) 1916.
4. Ornstein, S.: U. S. Patent 2,008,923, July 23, 1935.
5. Meyer-Gottlieb and Pick: Die experimentelle Pharmakologie, ed. 4, 1933, p. 557.
6. Graber-Duvernay, J.: Lyon méd. **154**: 211 (Sept. 2) 1934.

facturer does not mention this in his advertising. Taken occasionally, these common agents might be of less harm to the patient than the other ingredients. However, there is no justification for medication on the assumption that what might do no harm might sometimes do some good, with the complete oversight of *vix medicatrix naturae*.

Claims for the therapeutic value of the oral use of the constituents of Lyxanthine-Astier in the diseases named in the advertising are based on reports which do not represent convincing evidence. The unsigned and therefore unidentifiable testimonials which appear in the manufacturer's advertising circular are of little satisfactory value as controlled scientific evidence. Consistent with the unfavorable opinion expressed in this report is a recently expressed adverse opinion of the claims for Lyxanthine-Astier.[7]

SUMMARY

1. Lyxanthine-Astier is a polypharmacal mixture of four well known drugs of the therapeutic armamentarium and two less common agents together with flavoring and aromatic ingredients.

2. Of the two uncommon agents, lysidine bitartrate is obsolete and in the opinion of the Council devoid of therapeutic usefulness. The other uncommon ingredient is iodopropanol-sulfonate of sodium, whose actions and uses have not been established by evidence adequate to justify its exploitation as a therapeutic agent.

3. The content of the other more common ingredients, namely calcium gluconate, sodium bicarbonate and the tartaric and citric acids, is sufficiently high to produce the undesirable state of alkalosis if Lyxanthine-Astier should be used continuously and indiscriminately. This undesirable effect is considered possible because of the rather liberal dosage of Lyxanthine-Astier advised by the manufacturer, but especially the higher dosage for so-called "acute attacks." Such usage might actually prove dangerous to susceptible individuals.

4. Satisfactory clinical and experimental evidences of the usefulness of Lyxanthine-Astier, either as the whole mixture or as the ingredients individually, are conspicuous by their absence in support of the manufacturer's therapeutic claims, which concern themselves with gout, arthritis, chronic rheumatism, sciatica, neuralgia and several other chronic disorders.

5. Accordingly, Lyxanthine-Astier has no recognized place in the therapeutic armamentarium, the claims for it being unwarranted and misleading, and its exploitation to the physicians and public is unjustified.

The Council voted that Lyxanthine-Astier be declared not acceptable for New and Nonofficial Remedies because it is a needlessly complex and unscientific mixture of well known substances marketed under a fanciful name with claims that are in the main exaggerated and unwarranted.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

ANTIPNEUMOCOCCUS SERUM TYPES IV AND VIII COMBINED (See THE JOURNAL, June 18, 1938, p. 2082, and the Revised Supplement to N. N. R., 1938, p. 18).

E. R. Squibb & Sons, New York.

Concentrated Antipneumococcic Serum, Types IV and VIII-Squibb.—Concentrated antipneumococcic serum, types IV and VIII, is prepared by immunizing horses with intravenous injections of cultures of types IV and VIII pneumococci. When test bleedings show the serum to have reached a sufficient degree of potency for these two types of pneumococci, the horses are bled aseptically and the serum is refined and concentrated by the method described by *Lloyd D. Felton (J. Immunol.* **21**: 357 [Nov.] 1931). The usual sterility and safety tests are made, as required by the regulations of the U. S. Public Health Service, and the potency of the product is expressed in terms of the standard serum for type VIII antibodies as supplied by the National Institute of Health. For type IV antibodies the serum is tested against standard serum, the value of which has been expressed in terms of the unit described by Felton in the *Journal of Infectious Diseases* **37**: 309 (Oct.) 1925. Marketed in vials containing 20,000 and 50,000 units respectively of each type.

Dosage.—At least 100,000 units intravenously within the first four hours after diagnosis has been established.

ANTIPNEUMOCOCCUS SERUM TYPES V AND VII COMBINED (See THE JOURNAL, June 18, 1938, p. 2082, and the Revised Supplement to N. N. R., 1938, p. 18).

E. R. Squibb & Sons, New York.

Concentrated Antipneumococcic Serum, Types V and VII-Squibb.—Concentrated antipneumococcic serum, types V and VII, is prepared by immunizing horses with intravenous injections of cultures of types V and VII pneumococci. When test bleedings show the serums to have reached a sufficient degree of potency for these two types of pneumococci, the horses are bled aseptically and the serum is refined and concentrated by the method described by Lloyd D. Felton (*J. Immunol.* **21**: 357 [Nov.] 1931). The usual sterility and safety tests are made, as required by the regulations of the U. S. Public Health Service, and the potency of the product is expressed in terms of the standard serum for type V and VII antibodies as supplied by the National Institute of Health. Marketed in packages of one vial containing 20,000 units and 50,000 units respectively each of types V and VII.

Dosage.—At least 100,000 units intravenously within the first four hours after diagnosis has been established.

BARBITAL SODIUM-ABBOTT (See New and Nonofficial Remedies, 1938, p. 129).

The following dosage form has been accepted:

Barbital Sodium Tablets, 5 grains.

SUPRARENALIN (See New and Nonofficial Remedies, 1938, page 231).

The following dosage forms have been accepted:

Suprarenalin Solution 1:1,000 in 1 cc. ampules (for hypodermic use).
Suprarenalin Solution 1:1,000 in 10 cc. vials (for hypodermic use).
Suprarenalin Solution 1:1,000 in 1 oz. bottles (for parenteral use).
Suprarenalin Solution 1:10,000 in 1 cc. ampules (for hypodermic use).

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

PIERCE MILL YELLOW CORN MEAL

Manufacturer.—Welfare and Recreational Association of Public Buildings and Grounds, Inc., Washington, D. C.

Description.—Bolted yellow corn meal containing the germ endosperm and a small amount of bran.

Manufacture.—Corn which has been thoroughly cleaned is crushed between millstones operating in a restored grist mill for which an "old type" water wheel provides the power. The stones are run at slow speed, causing only a slight rise in temperature of the grain. The ground corn is passed over a bolting cloth, where most of the bran is discarded. The meal, which is not heat treated during milling, is packed in waxed paper and cardboard cartons which must be stored in a cool dry place to prevent rancidity.

The mill is subject to inspection by government health authorities and by a sanitary officer employed by the association.

Analysis (submitted by manufacturer).—Moisture 10.4%, total solids 89.6%, ash 1.3%, fat (ether extract) 4.5%, protein ($N \times 6.25$) 7.9%, crude fiber 1.8%, carbohydrates other than crude fiber (by difference) 74.1%.

Calories.—3.69 per gram; 105 per ounce.

CRADLE BABY BRAND STRAINED AND SEEDLESS CURRANT AND RASPBERRY JAM

Manufacturer.—Glaser, Crandell Company, Chicago.

Description.—Canned strained jam, prepared from a mixture of currants and red raspberries, sweetened with sucrose. The jam may contain small amounts of added acid and/or pectin.

Manufacture.—Currants and red raspberries from Michigan are handled as described for Cradle Baby Brand Strained and Seedless Grape Jam (THE JOURNAL, April 8, 1939, p. 1343).

Analysis (submitted by manufacturer).—Moisture 31.2%, total solids 68.8%, water-insoluble solids 0.3%, water-soluble solids 68.5%, ash 0.3%, protein ($N \times 6.25$) 0.7%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 66.6%, acidity 0.9%.

Calories.—2.69 per gram; 76 per ounce.

7. Arthranol, Ertron and Lyxanthine-Astier, Queries and Minor Notes, J. A. M. A. **111**: 1953 (Nov. 19) 1938.

THE CASE OF BRINKLEY VS. FISHBEIN

PROCEEDINGS OF A LIBEL SUIT BASED ON AN ARTICLE PUBLISHED IN *HYGEIA*

(Continued from page 2065)

DEPOSITIONS

There were next introduced in evidence, after considerable discussion, depositions taken in advance of the trial by the attorneys for the American Medical Association.

DEPOSITION OF HORATIUS DEWITT OSBORN

Mr. Matthews, attorney for the American Medical Association, read the deposition of Horatius DeWitt Osborn, employee of the Brinkley Hospital in Little Rock, who testified that he graduated from high school in Fulton, Kan., in 1916 and then attended, for three years, the Kansas College of Medicine and Surgery. He testified also that the fee of $750 is paid sometimes by check, sometimes in cash, and sometimes with a personal note for the balance, sometimes in instalments. He stated also that collateral is accepted in the form of investment certificates or bonds.

TESTIMONY OF ARTHUR S. HUMPHREY

Arthur S. Humphrey stated that he was deputy clerk of the District Court of Geary County, Kansas, and that he had personally taken from the records of the court in Kansas a number of depositions developed in connection with a previous suit of Brinkley vs. Fishbein. Mr. Matthews then introduced into the record some depositions from this suit.

DEPOSITION OF HANS V. CHRISTENSEN

Hans V. Christensen testified that he is the auditor of the Kansas City *Journal Post*, that the Kansas City *Journal Post* had carried a rotogravure supplement relative to Brinkley and had been paid $2,842 for the publication of this supplement for one day.

DEPOSITION OF EVERETT E. ELLISON

This deposition stated that Everett E. Ellison is an advertising man. Mr. Ellison described his conversation with Brinkley relative to the job concerned with the rotogravure supplement in the Kansas City *Journal Post*.

Mr. Matthews then introduced the supplement itself as an exhibit in the case.

ARGUMENT ON INTRODUCTION OF FURTHER DEPOSITIONS

At this point the jury was excused while the Court heard arguments as to the matter of further depositions in the case relating to the previous career of John R. Brinkley in Greenville, S. C., one of the depositions being that of an attorney who represented Brinkley in 1913 and who later testified as to the incidents involved. The Court ruled that the attorney's deposition would not be admissible.

On the other hand, the Court ruled that the testimony of James E. Crawford, inmate of a penitentiary in Oklahoma, who had been associated with Brinkley in Greenville, would be admissible. A number of advertisements which had been circulated in Greenville were offered in evidence and postponed for further consideration.

DEPOSITION OF JAMES E. CRAWFORD

Mr. Matthews then read the deposition of James E. Crawford, who stated that he had first met John R. Brinkley in the spring of 1913 in Chicago at the bar in the Brevoort Hotel. They became casually acquainted while having drinks together, later going to Chattanooga, Tenn., with the plan to form medical offices similar to the one in which Brinkley had been previously employed in Chattanooga, Brinkley stating that he had been employed by Dr. Burke, a physician who specialized in venereal diseases. Crawford stated that he and Brinkley studied the methods of Burke in Chattanooga, remaining there two weeks, and then going to Greenville, S. C. They first looked over the city to see whether or not it would be profitable to establish offices and then located on Main Street over a drugstore on the corner, remaining approximately two months. A sign was made reading "Greenville Electro Medic Doctors." Advertisements were placed in the Greenville papers At the time of their arrival in Greenville they possessed less than $10. A credit account was opened at the drug store to cover the supplies and the rent. Their advertisement stated that they were specializing in venereal and nervous diseases, which they purported to treat with 606 and 914. Actually, the witness said, they didn't use either one. "We used instead a colored solution of distilled water for injections." Brinkley did the injections and Crawford was the business manager. A charge of $25 was made for each injection.

After two months, Brinkley and Crawford departed from Greenville. Crawford stated that the immediate occasion of leaving was pressure on the part of creditors for collection of bills.

At the cross examination Crawford stated the he was at present in the Oklahoma penitentiary for eighteen months for having committed robbery with firearms. He had previously served a term in the Federal Prison in Leavenworth, Kan., for transporting a stolen motor car. The robbery was committed at the Hotel Mayo in Tulsa, Okla.

TESTIMONY FOR THE PLAINTIFF: TESTIMONY OF I. F. INGRAM

I. F. Ingram stated that he was commonly known as Frenchy Ingram. He was a ranchman who had once been a patient of Dr. Brinkley's. At this time the jury was excused from the courtroom, and the attorneys presented arguments concerning the question of admissibility of the testimony of patients. This argument occupies some fifteen pages of the transcript, after which the court ruled that such evidence was inadmissible.

TESTIMONY OF MARSHALL SMITH

Marshall Smith testified that he has lived in Del Rio, Texas, for thirty-four years; that he is in the ice business; that he had read the article in *Hygeia*, having found the magazine on the bureau in a hotel in San Antonio. He stated also that the article was much discussed in Del Rio at the time it appeared.

TESTIMONY OF HERMAN LIPPE

Herman Lippe testified that he had lived in Del Rio, Texas, for seventeen years; that he had read the article in *Hygeia*, having purchased a copy at a newsstand, and that the article was much discussed in Del Rio.

TESTIMONY OF CLARA W. BLETHEN

Clara W. Blethen testified that she is a resident of Minneapolis and that she had read the article in a doctor's office in Minneapolis. On cross examination it was brought out that her son-in-law is a pilot for Brinkley's airplane and has been for about eight years.

TESTIMONY OF R. R. TUMBY

R. R. Tumby testified that he is a resident of Ackerly, Texas, and is pastor of the First Baptist Church, and at various times he has officiated in other cities in Texas. He has known John R. Brinkley since 1936, at which time he was operated on in the Brinkley hospital and the operation was performed without charge. He testified also that the reputation of Dr. Brinkley in various parts of Texas as a prostatic surgeon was good.

TESTIMONY OF A. C. PETERMEYER

A. C. Petermeyer was recalled to the stand by the plaintiff and questioned by Mr. Morriss Sr. He brought with him a

copy of Gray's Anatomy, 23d edition, on page 231 of which is a picture of the testicle. He explained with this illustration, and with the aid of a blackboard, the anatomy of the testis, also describing again the nature of the operation performed on the testis, involving tying off of the efferent tubules. The testimony then proceeded:

Q.—All right, just how does Doctor perform or you perform this operation, then, please, sir? *A.*—A sulcus is located between the head of the epididymis; that is, this space between the testicle and the epididymis, all these ducts converging into this area. If we wish to ligate all of the ducts the suture or the ligature—

Q.—What do you mean by suture or ligature? *A.*—The thread, we use linen, is passed through this sulcus, entirely around all of these ducts.

Q.—In other words, if you are wanting— *A.*—If we wish to produce sterility?

Q.—Yes, sir. *A.*—Yes, sir. If not, the needle is introduced through, not around, but through the approximate center portion of the area, the linen suture is carried through with the needle.

Q.—To tie off approximately half of them? *A.*—To tie off approximately half of the ducts.

Q.—Then it is always more or less, is that it? *A.*—Yes, sir.

Q.—And then it is tied there with this linen cord, is that it? *A.*—That is right.

Q.—Now, Doctor, state whether or not in that way you do have the effect to cut off the secretion through those ducts you do ligate? *A.*—Yes, sir.

Q.—And now what is the particular effect that you are trying to accomplish by that part of the operation, this tying off? *A.*—We are trying to accomplish a balanced condition of the secretions of the testicles.

Q.—Now, what do you mean by a balanced condition? Explain that in detail. *A.*—It has been shown that in early adult life there is a normal physiological balance of the secretions of the testicles. Two secretions have been identified, the male hormone and the female hormone. These secretions have been found in the urine, and in an average, normally conditioned male about 18 units of the male hormone are found in the urine. Studies and work with men in the late forties and early fifties have produced this evidence, that there was a physiologically unbalanced condition of these two hormones, male and female.

Q.—One of the doctors spoke of that yesterday, I believe, or something like that. He said on cross examination that he compared it to a change of life. *A.*—Yes, sir.

Q.—Is that the way you would express it? *A.*—Yes, that is true. Paul Niehans of Switzerland and Elliott Smith of London and Lower, who is with the Crile Clinic in Cleveland, Ohio, have made studies of the testicle with its relation to the prostate gland, and unquestionably they have proven that there is a relationship between the unbalanced condition of the testicular hormones and prostatic hypertrophy.

Q.—You mean representing a change that comes about with age, this change of life you speak of? *A.*—Yes. They have discovered that in men about the age of 50 that 50 to 75 per cent of these individuals have shown a definite decrease in the male hormone in the urine. These men also presented urinary symptoms, frequency of getting up at night, difficulty in emptying their bladders, disturbances in the crotch. They also complained of a lowering of sexual vitality. After their work and studies they concluded that if there is a definite relation between the testicles and prostate and the disturbance with the secretions of the testicle, then there must be some similar way of stopping the growth of the prostate and reducing it in size than by the radical method of taking the prostate gland out entirely, so they concluded that if there was a lacking of male hormones why wouldn't it be beneficial to the patient to give him male hormones. Crile gave his patients inhibin, which is a beef extract made from the beef testis. In his series of treatments he observed a 65 per cent improvement by the giving of the male hormone itself. Another method was used and that was the giving or implantation or transplantation of glandular substances from other animals, including the human. And third was the ligation such as I have described to you on the blackboard. By ligation of all or a portion of these ducts they were able to show by the increased amount of the male hormones that appeared following their operation that they have done something to balance the physiological secretions in the testicle.

Q.—Now, do you mean to even up again the male and female hormones, is that what you mean? *A.*—Yes. The results that they obtained from this work showed by actual work done on the patients that their urinary symptoms began to decrease, that the nervousness associated with the condition, so-called change of life, began to decrease, and that they actually noted a recession or a stoppage of the growth of the prostate gland itself, and in many instances a return of sexual vitality.

Q.—Now, did you bring any of those works with you? *A.*—I have Paul Niehans' article, published February 9, 1936, in the *Lancet*.

At this point argument arose as to the introduction of periodicals and references which had been brought into court by the witnesses, including the writings of Niehans and of Lower. It was the rule of the court that such materials could not be introduced, after which the evidence proceeded:

Q.—Now, Doctor, then go ahead now. You were starting to say what you were trying to accomplish by this ligation, tying off. Go ahead and tell what effect, if any, it has when you do tie off and where it has the effect and why. Explain it in detail. *A.*—The effect of ligation aids to reestablish or balance up the hormones in the testicle. The male hormone has been found to be markedly reduced, while the female hormone remains the same. After the ligature or tying off of these ducts we are aiding the testicle to reestablish a normal balance of the secretions.

Q.—All right. Now, what effect does that have on the prostate? *A.*—It was found that when the male hormone was markedly decreased and the female hormone remained the same that there was a beginning of prostatic hypertrophy with its associated urinary disturbances.

Q.—Now, what do you mean by prostatic hypertrophy? *A.*—Enlargement.

Q.—Swelling or enlargement? *A.*—Swelling or enlargement, yes.

Q.—All right, you say you found when they got out of balance that there is then the hypertrophy or enlargement, there it begins? *A.*—Yes.

Q.—All right, then, Doctor, I will ask you whether or not you know historically and medically whether or not at one time in the history of the profession in this country in bad cases of prostate suffering whether they practiced castration of the individual? *A.*—Yes. Many years ago castration of the male, that is, removing both testicles, was practiced. An examination of those men showed that they had complete atrophy of the prostate gland.

Q.—You mean— *A.*—A complete shrinking up of the gland, that none of the male or female hormones could be identified in the urine, thus proving definitely that there is a relationship between the testicles and the prostate gland. Removing the testicle completely produced severe psychological reactions, aside from the fact that it produced sterility and impotency. So the practice was not carried out very far.

Q.—Now, then, go ahead and tell—go back to what you were trying to do, what does it accomplish with this operation of tying off some of them that you do, if you know? *A.*—The results of the operation show that the urinary symptoms decrease.

Q.—The urinary symptoms? *A.*—Getting up at night to urinate and the frequency and the distress associated with passing the urine went away and there was noted a definite reduction in the size of the prostate gland. This did not occur immediately but within the course of a few months. The prostate gland did not enlarge all of a sudden; the enlargement was gradual. The reduction is likewise gradual.

Q.—Now, Doctor, have you or not had occasion—first kill that. I want to ask another matter. With reference to the removal, the older operation of the removal of that gland or with reference to the operation which we laymen speak of as the reaming operation, the transurethral, clipping it away, taking it out, what is the object to be obtained by science, what is the reason for the removing or cutting away of that gland? *A.*—The purpose of removal of the gland is to relieve the obstruction at the outlet of the bladder.

Q.—Well, now, then, will that have the effect or tend to have the effect to stop—to enable them to empty their bladder freely and stop the pain and irritation incident to urination? *A.*—In many cases.

Q.—Is that then the reason for the removal of that gland? *A.*—Yes, sir.

Q.—Or the reaming of it out, either way? *A.*—Yes.

Q.—And, incidentally, as we go along, then this transurethral or reaming operation, you have many times performed that operation, haven't you, doctor? *A.*—Yes, sir.

Q.—In doing that do you remove the whole gland? *A.*—We remove as much of the gland as possible. In fact, we remove it all down to the capsule. The capsule cannot be removed with the transurethral resection.

Q.—What do you mean by capsule? *A.*—The capsule is a fibrous tissue that surrounds the prostate.

Q.—The bag in which it is held, isn't it? *A.*—Yes.

Q.—It is the lining or bag, you might say, that holds it? *A.*—It is the covering of the prostate, similar to the cover, fibrous capsule, around the tonsil.

Q.—Or somewhat similar to the skin that covers the skin. That is, the tissue that holds it, surrounding it? *A.*—Yes.

Q.—Now, is that removable by the transurethral process? *A.*—The capsule?

Q.—Yes. *A.*—No.

Q.—All right. Now, with reference to the purpose, then, of these operations, you say the purpose is to reduce that enlarged prostate so as to relieve the pressure on the neck of the bladder, is that right? *A.*—That is right.

Q.—All right. Now, how do you accomplish that by the operation that you perform now, this Dr. Brinkley operation we speak of? How do you accomplish that without removing the gland? *A.*—After the secretions or hormones of the testicles are balanced or they become fairly balanced we note that because of the relationship between the testicles, the testis, and these secretions that there is a definite association there with the prostate, and by normalizing or by balancing up this physiological unbalance the prostate gland slowly reduces in size.

Q.—Now, is that sufficient to give the relief necessary? *A.*—It is in a great many cases. If the patient has a complete obstruction at the neck of the bladder because of an enlarged prostate and comes to us with a catheter in the urethra or a large amount of residual urine we perform a transurethral resection because the patient has advanced too far, the hypertrophy has increased too far. The patient needs relief immediately from his urinary obstruction. Then we do a transurethral resection. But in the earlier stages of prostate enlargement, before a large amount of residual urine is found in the bladder, it can be done.

Q.—What do you mean by residual? *A.*—The amount of urine left after the patient voids.

Q.—That is, left after he urinates, you call that the residual? *A.*—Yes, sir. In those cases the ligation operation such as I have described to you on the blackboard will aid in establishing a normal balance of the glandular structures and he will get a slow reduction in the prostate.

Q.—All right. So, now, that is the good you are trying to seek by the operation? *A.*—Yes.

Q.—Does that relieve not only this urinary trouble, but then does that have the effect to relieve the pains that the patient suffers from before that? *A.*—Yes, it does.

Q.—Now, what ailments have you found in your experience flow or follow from these enlarged prostate troubles, what effect does it have physically on the individual or may it have? *A.*—The immediate effect on the urinary tract is that the bladder becomes infected, the urinary bladder sooner or later becomes infected by the urine that stagnates in the bladder.

Q.—Now, infected. What does that do when it gets infected? *A.*—Organisms in the urine, germs in the urine.

Q.—Does it produce soreness? *A.*—Soreness, inflammation, swelling of the mucous membrane or lining of the bladder. The attempts on the part of the bladder to empty itself produce strain; after a while this straining weakens the bladder wall and the muscle fibers tend to separate and allow the interlining of the bladder to bulge through between there and form little pockets in the wall of the bladder. The continuation of urine in the bladder finally leads to the formation of diverticulae. This is a large pouch. Sometimes it assumes the proportion of three and four times the size of the bladder. It is then the kidneys in turn become damaged, and you have hydropyonephrosis, pyelitis and nephritis.

Q.—Now, you are talking about pyelitis—nephritis. Nephritis is Bright's disease? *A.*—Yes, disease of the kidneys.

Q.—What is pyelitis? *A.*—Inflammation or infection of the pelvis of the kidney. The pelvis of the kidney corresponding to a funnel in shape, the small end connecting with the tube that carries the urine from the kidney to the bladder.

Q.—All right. Now, may or may not that produce or does it frequently produce pains in the patient? *A.*—Yes.

Q —Where? A —In the back, especially in the lumbosacral region That is the lower portion of the back, the region of the kidneys and below And pain in the crotch and perineum and pain just above the pubic bone over the bladder region and pain in the prostate region

Q —And, now, may or not that condition spread until it causes rheumatism, or does it often? A —Yes, the absorption of poisons from the urinary tract, from the prostate gland, have often produced rheumatic aches and pains in other parts of the body

Adjournment to afternoon session

Questions by Mr Morriss Sr

Q —Doctor, I believe I had been asking you about what was the manner of this tying off operation to reduce the prostate A —The ligation of the ducts or tubes prevents hormones from escaping into the seminal fluid, and they are forced to be reabsorbed by the little veins in the tunic or lining of the testicle thereby remaining in the circulation

Q —Instead of escaping, you mean? A —Yes, sir

Q —Otherwise the tendency would be to escape in the urine? A —They would be lost and escape through the seminal fluid but they are reabsorbed in the blood stream, and in examining the urine the male and female hormone is recovered in about equal proportions

Q —Balanced, in other words? A —Yes, sir

Q —That results you say, in the reduction? A —Yes, sir, of the prostate

Q —Of the size of the prostate and has a tendency to bring back to normal size the prostate? A —Yes, sir

Q —Now this question, while we are on it How long were you with Dr Brinkley in his performance of those operations before you yourself commonly, or at all did operations, did the same operation? A —Three years

Q —Three years? A —Yes, sir

Q —During that time were you with him constantly and assisting him in his performance of the operations? A —Yes, sir

Q —During that three years, as nearly as you could estimate it, because I don't suppose you know the number, do you, and you haven't looked up that and don't know the number, do you? A —Approximately 1 000

Q —And as nearly as you could state, about how many of those operations, that particular operation, did you see him perform, or in other words, how many times and on how many people did you see him perform that operation within the three years before you did it? A —Several thousand

Q —You mean in all or before you did it yourself? A —Before I did it

Q —What did you mean by the one thousand a minute ago A —That was the number that I did during 1936 and, approximately 1936 and 1937

Q —You misunderstood me on that At any rate you had seen Dr Brinkley perform several thousand of those operations before you performed them without his assistance? A —That is right

Petermeyer stated that he had assisted in operating on some 3,000 cases, and that, following these operations, symptoms of prostatitis appeared to diminish, and that there was actual reduction in the size of the gland He stated also that from 90 to 95 per cent of the patients had returned and had developed improvements, and in all 10 per cent had had no relief He stated also that it was customary to say to patients with advanced cases of enlargement that the simple ligation operation might not bring about relief and that it might be necessary to remove the prostate by transurethral resection He stated that this had been the custom in 5 per cent of the cases

Petermeyer also stated that it was customary to reject all cases in which there was a possibility that the condition was malignant He also said it was customary to take a specimen for purpose of biopsy when there was a question as to malignancy and that such patients, when cancer is found, are told to go elsewhere

He said also that in the hospital there were rectal treatments and hernia treatments, that proctology was in charge of Dr Hilburn and also in charge of Dr Louis Kline and that the results were uniformly good

He also said that some of the patients who had not been able to pay were operated on without pay

Petermeyer also said that white cell counts were made before the solution 1020 was injected, and that it was found that the injection of this solution brought about an increase in the white blood cells, and that this was valuable in overcoming infection He also said he did not know how it brought about this effect

Petermeyer also stated that there were three strengths of hydrochloric acid 1 250, 1 500 and 1 1,000 He stated that patients coming into the hospital remain until they are ready to dismiss them, and that there is no definite time for patients to remain in the institution and that during their stay in the hospital the patients visit freely with one another

Objection was taken by counsel for the American Medical Association to this testimony on the ground that in making this statement the article referred to the practice in Kansas and not to that in Little Rock

Petermeyer testified that in many instances the complete procedure is not carried out on the patient, but that the procedures differ with different patients, also that the charges vary according to the procedures

Petermeyer also stated that he had used the ampules in many instances and that the statements published in the article relative to the ampules were not true He also stated that between twelve and fifteen doctors and between thirty and forty nurses had been associated with Brinkley during the time that he had been associated with him

CROSS EXAMINATION BY MR REYNOLDS

In the cross examination, Mr Reynolds asked Petermeyer whether or not he personally had any faith in the goat gland operation for the purpose of reduction of high blood pressure, and for the purpose of reduction of the size of the prostate The *witness objected to answering the question on the ground that* he had not performed any such operation

Q —I am asking for your opinion, and I will ask that you answer yes or no? A —I am not going to give you my opinion, because the only opinion that I have is the opinion that I obtained from Dr Paul Neihans and Elliott Smith and others who have done gland implantations

Q —I am asking you in your opinion as a medical man a medical student, at least, have you any faith in the transplantation of a goat gland in a human in that method as reducing the size of the prostate? A —I wouldn't answer that question on the grounds that I wouldn't be in a position to

Q —Then, you don't know whether you have any faith or not—do you have any faith in it for reducing high blood pressure? A —I don t know that it has been used for the reduction of high blood pressure

Q —Well, if it has have you any faith in it? A —The high blood pressure is caused by glandular disturbances

Q —I don t want to argue with you—

Mr Morriss Sr —We will have to ask the young gentleman to let the Doctor get a short ways in the answer before he interrupts him

THE COURT —As I understand it, he asked the question 'have you got any faith in the goat gland operation for reducing high blood pressure,' and I wouldn't confine him to a yes or no answer, he could say he did or he didn't, and then he could make his explanation, but the way he started out he didn't start to answer the question "yes', answer the question, and then, if you want, make an explanation, you can do that, and nobody is going to be trapped here, and you can t be trapped you can't trap a man with a yes or no answer

A —State your question again

Q —I want to know if you have any faith in that operation as reducing high blood pressure? A —Indirectly, yes

Q —Have you any faith in it as a treatment for hardening of the arteries? A —I don't know

Q —Have you any faith in it as a means of creating additional energy in man? A —Yes, sir

Q —Have you any faith in its cure for epilepsy? A —No, sir

Q —As a cure for syphilis? A —No, sir

Q —Locomotor ataxia? A —No, sir

Q —As any treatment for prostatitis? A —No, sir, unless it is associated—well, prostatitis and true prostate hypertrophy are two different things

Q —That is true I asked you about the one first, and I want the prostatitis, the inflammation? A —I don't believe so

Q —Dementia praecox? A —Indirectly, yes

Q —Diseases of the stomach, bowels and kidneys in general? A —Perhaps not the stomach and bowels, but the kidneys indirectly and the adrenal glands indirectly

Q —Sterility? A —I don't know

Q —How about sterility caused by mumps? A —Gland implantations wouldn t change that

Q —Now, Doctor, I have enumerated several things over here and suppose we change from the goat gland operation and now consider the operation which you have described and which you call the ligature method, would your answers to any one of those be any different than they were regarding the goat gland operation? A —I don't know as I understand your question

Q —Well, would this ligature operation that you have described in your opinion, have an effective treatment for the high blood pressure that is the ligature operation itself? A —Indirectly

Q —Arteriosclerosis? A —Indirectly

Q —Impotency? A —Yes, sir

Q —It would cure sterility caused by mumps? A —No sir

Q —Epilepsy? A —Indirectly

Q —How about locomotor ataxia? A —No, sir

Q —That is caused by syphilis, isn't it? A —Yes sir

Q —General anemia? A —Yes sir

Q —Would the ligature method have any effect on curing prostatitis? A —I don t know

Q —Well now, you have been working with the prostate gland and don t have any opinion on it? A —Well yes, sir

Q —All right, tell my why? A —Why?

Q —Yes, sir What is there in that ligature process that would be a treatment of any kind for prostatitis? A —All right, with your prostatitis you have your associated hyperplasia of the prostate cells and your ligature method will aid in reduction of that hyperplasia but would have no effect directly on the organs or the infection involved in the prostatitis

Q —You mean to say there is also hyperplasia in prostatitis? A —There is always inflammation and swelling

Q —Not hyperplasia—that is only one type, isn't it, Doctor? A —Hyperplasia, there are several types

Q —You also have hyperplasia when you have the condition you described as prostatitis? A —Yes, sir

Q —You know that isn't right? A —You can have prostatitis without hyperplasia

Q —How about as a treatment for constipation does your ligature affect that? A —It is not a treatment for constipation

Q —Doctor, you have done a considerable amount of research and study since you have testified here Wednesday, haven't you, as regards these urinary organs? A —No, sir

Q —You haven't at all? A —No, sir

Q.—On Wednesday didn't you testify that there were fifteen or twenty of these little efferent ducts between the testes and the epididymis? A.—I did.

Q.—Today you have changed your opinion to twelve to twenty? A.—A man can change his opinion.

Q.—That is all it is—that is all I want to know. You haven't done any particular reading in the field of chemistry since you appeared here, have you? A.—No, sir.

Q.—Didn't you testify Wednesday that 1020 meant a chemical formula of 1,000 parts of water to 1 per cent of hydrochloric acid? A.—No, sir.

Q.—What was it? A.—I told you some of the constituents of the ampule.

Q.—Weren't you asked what 1020 designated and you said it was the chemical formula of 1,000 to 1? A.—Hydrochloric acid?

Q.—Didn't you say that Wednesday? A.—I stated the number of constituents of the ampules, but I made no definite statement as to the percentage that those ampules definitely contained.

Q.—You didn't say anything about 1,000 to 1? A.—Yes, sir.

Q.—And you said the 1020 was a formula indicating that, didn't you? A.—No, sir.

Q.—It can be any percentage and still be 1020? A.—No, sir. Those formulas are made according to a standard formula, and they don't vary.

Q.—Didn't you a few minutes ago say they did vary, and you use sometimes 250 to 1 and sometimes 500 to 1 and sometimes 1,000 to 1? A.—Not in the 1020.

Q.—Isn't that what counsel was asking you about? A.—I don't remember.

Q.—You have a different designation for the other formulas? A.—Yes, sir.

Q.—1020 is always 1,000 to 1? A.—To be positive, I don't know the proportion of hydrochloric acid in the ampules.

Q.—You have those other formulas by different numbers in connection with your work now, do you? A.—Yes, sir.

Q.—Did you have when you were practicing here in Del Rio? A.—Yes, sir.

Q.—Do you know what the proportions are at all of any one of them? A.—No, sir.

Q.—You administered them to the patients yourself? A.—Yes, sir.

Q.—You administered something to the patients that you didn't know what was in it? A.—Yes, sir.

Q.—Do you think that is good practice? A.—There is no doctor who knows exactly what is in the ampule, every ampule that he is introducing into a vein; the formula is not on the ampule.

Q.—You didn't have an idea how much hydrochloric acid was in either one? A.—I had a suspicion about the amount, yes, sir.

Q.—What would determine whether you would use 1,000 to 1 percentage or 200 to 1 percentage? A.—Nothing in particular.

Q.—Just use anything, the handiest one? A.—One to 250 or 1 to 500 strength will bring quicker results than the 1 to 1,000 or the 1 to 1,500 or the 1 to 2,000.

Q.—Why is there any point in ever using the 1 to 1,000, then? A.—Well, that could be a matter of a doctor's opinion.

Q.—Well, why is it— A.—There are occasionally some slight reactions from using a more concentrated solution; I have seen some chills and rigors from giving 1 to 250 or 1 to 500; it seldom occurs with a solution of 1 to 1,000.

Q.—Do you know why that is? A.—Yes, sir.

Q.—Why is it? A.—Because it produces too instantaneous a reaction.

Q.—Yet, it didn't make any difference to you which one you used? A.—I didn't say that.

Q.—Well, tell me what it was you said. I am not trying to trap, you, Doctor, I just want to get at what you did and why you did it? A.—We gave 1 to 250 if the patient could tolerate it, that is when we used the hydrochloric acid in the 1020; but I don't know what the percentage of HCl is.

Q.—Are you sure there is any HCl in it? A.—I believe there is.

Q.—Are you sure? A.—I am not positive.

Q.—As a matter of fact, 1 per cent of HCl to 1,000, why, that isn't much different than distilled water? A.—There is that difference.

Q.—Is there any difference in the specific gravity of the two? A.—I am not a chemist, and I couldn't answer that.

Q.—Did you say the results you claimed to have obtained by injecting this hydrochloric acid solution would be obtainable by distilled water? A.—No, sir.

Q.—Would it be obtainable by the 1,000 to 1 solution? A.—There would be a slight increase of the white cells.

Q.—That wouldn't be from the use of one tube or ampule? A.—Not from 1 to 1,000.

Q.—Six ampules? A.—Yes, sir.

Q.—How much? A.—Increase the white blood cells double that amount.

Q.—Would there be an increase of the white blood cells after you use distilled water? A.—I haven't tried it.

Q.—Have you an opinion? A.—I don't know.

Q.—Now, Doctor, when you testified here on Wednesday were we justified in assuming from your testimony that you meant you ligated a separate duct at any time? A.—No, sir, not any separate duct.

Q.—How do you determine how many of them you are going to tie off? A.—We can't determine exactly; the needle is introduced through the central portion, and we assume that about half of them are ligated.

Q.—You can feel those with your hand? A.—Yes, sir, you can, collectively you can.

Q.—But you can't feel number one and number seven and number nineteen? A.—No, sir.

Q.—You didn't mean to leave that impression Wednesday? A.—We don't call them out by numbers; we know there is an average of fifteen of those ducts there, and if the ligature is thrown completely around it you ligate all of them, and if the needle is passed through the central portion we get about 50 per cent of them.

Q.—Wednesday you testified, didn't you, that the reason you ligated them is because you found nodules in them, that is, when you tied them off you found nodules by feeling? A.—There might be a nodule.

Q.—Didn't you testify that is the reason you tied them off? A.—There might be nodules.

Q.—Answer the question.

Mr. Morriss Sr.:—Now, he said "didn't you testify so and so."

Mr. Reynolds:—I will withdraw it.

Mr. Morriss Sr.:—We deny that.

THE COURT:—He can answer the question.

A.—Yes, sir.

Mr. Reynolds:—I will withdraw it.

Q.—Suppose you find a nodule, one on the extreme end and one on the extreme other end of that group, what about that? A.—Probably would.

Q.—So, if you ever found more than one nodule you would tie up the whole group? A.—Yes sir.

Q.—And that results in sterility? A.—On that particular side.

Q.—Have you ever seen a case where you just found one nodule in that group? A.—Yes, sir.

Q.—Isn't it a fact if there is one there is more? A.—There could be one or more.

Q.—What causes that? A.—Nodules?

Q.—Yes, sir. A.—Infection and stoppage of the duct.

Q.—And it is your opinion that that will usually occur in only one duct at a time and may have no connection with the other ducts? A.—It may occur in one or more ducts.

Q.—Now, how do you determine whether you are going to tie off five of them or eight of them or what? A.—If we find that there is considerable involvement of the epididymis on the first side we ligate all of them, but before the operation is begun we attempt to determine which side is involved the most, and if it is the right side we operate on the right side first, and if it is the left side we try to leave the better side of the two without ligation of all the ducts.

Q.—Now, how large are those ducts? A.—They are about the size of a lead in a pencil.

Q.—Do you know Dr. Folsom who is professor of urology of Baylor in Dallas? A.—Yes, sir.

Q.—Do you know whether or not he is recognized as an authority—

THE COURT:—You can't ask one witness to pass on the credibility of another witness.

Q.—Have you the opinion, Doctor, that you are able to see these ducts by the mere looking at the tissue? A.—No, sir.

Q.—Manipulating them? A.—No, sir; you can't see the ducts individually.

Q.—They squeeze together when you twist them? A.—Yes, sir.

Q.—Yet, you can feel them? A.—In a group.

Q.—You can feel the whole group? A.—Yes, sir.

Q.—You testified Wednesday that in the ordinary operation seven or eight of them were ligated or tied off? A.—Yes, sir.

Q.—Now you mean that that is all in a group? A.—That would be half of the group on one side.

Q.—All right, now, Doctor, does the tying off of all of those produce sterility? A.—Yes, sir.

Q.—Now, sometimes in connection with your ligature operation you tie off all of those, and then go on farther up in this line where the sperm proceeds and you take a section out of the vas deferens? A.—Yes, sir.

Q.—When you take a section of the vas deferens out, that alone produces sterility, doesn't it? A.—Yes, sir.

Q.—When you ligate all of the ducts alone, without touching the vas deferens, that produces sterility? A.—If the ligature is placed around tight enough.

Q.—You always place them tight enough? A.—Yes, sir.

Q.—There is no point in putting it on there loose? A.—I wouldn't think so.

Q.—What, then, is the purpose of taking out a part of the vas deferens tube up here after you have already cut off all of these little ducts down here? A.—When we attempt to inject the mercurochrome in the vas deferens and it is blocked at the point of injection, we draw down on the approximate portion of the vas deferens endeavoring to get above the obstruction in the vas and if we are successful in doing so we inject the mercurochrome, and if we are not, if this vas is full of cheesey pussy material, we remove as much of it as we can clear down to the head of the epididymis because it is an area of infection, the tube is no longer useful to the patient, he is already sterile and blocked.

Q.—If you found that vas wasn't clogged up at all after you tied all of the ducts you wouldn't touch the vas, would you? A.—No, sir.

Q.—Now, Doctor, you were explaining a while ago about tying off these ducts, that it then retained a certain substance in there, and what is that substance? A.—Seminal fluid.

Q.—Is that the only secretion of the testes? A.—Testicular fluid.

Q.—As a matter of fact, there are two different types of secretion, the internal and external secretion, in that organ, aren't there? A.—There are two secretions.

Q.—All right, now, the internal secretion is the one that goes through these little ducts up into the vas and up into the seminal vesicle, or is it the external? A.—Internal.

Q.—Is that the one that contains the hormones? A.—Yes, sir, one of them.

Q.—Does the external also contain hormones? A.—One contains the female and the other the male.

Q.—Which is which? A.—The cells from the interstitial—

Q.—I am asking whether the internal or the external secretion contain the female or the male? A.—The internal contain the female.

Q.—All right, then, when you tie off all of the ducts you are merely preventing the female hormone from getting up into the vas, and, so, according to that— A.—No, sir, you are not; after you—state your question again; perhaps I didn't understand exactly what you meant. Do you mean that this hormone escapes through the seminal fluid to the seminal vesicle or to the blood stream?

Q.—I asked if there is any difference in where the external and the internal secretions escape? A.—The secretions escape through the seminal fluid.

Q.—Both internal and external? A.—I don't know.

At this time the court recessed until the afternoon session.

Questions by Mr. Reynolds:

Q.—Dr. Petermeyer, where in your opinion is the sex hormone introduced into the human body? A.—In the germinal epithelia.

Q.—And that means the testes? A.—Yes, sir.

Q.—And, then, whichever secretion it is that goes through the ducts and goes up into the seminal vesicle and out the body in the usual course, that takes that hormone right along with it? A.—No, sir.

Q.—What happens? A.—It is taken up by the circulation.

Q.—Both male and female? A.—Yes, sir.

Q.—None of them go through the little tubes at all? A.—None of the internal secretions, no, sir.

Q.—None of the hormones? A.—I don't think so.

Q.—Then, why do you tie off the efferent duct in an attempt to keep the hormones in the body if none of them ever went out there in the first place, that is all I want to know? A.—You are not ligating those ducts to keep the hormones in the body, you are ligating the ducts to produce a congestion of the cells so that they can, so to speak, regenerate and start the secretion of male hormone.

Q —In other words, those very cells that used to secrete the part that goes out through them now discharge that duty and start another one, is that it? A —No, sir

Q —They die? A —No, sir There is a regeneration of the epithelium, which produces the hormones

Q —It takes the place of the other one, or what is that regeneration? A —It regenerates the cellular structure

Q —What is produced by the interstitial cells? A —An internal secretion

Q —Containing no hormones? A —Yes, sir

Q —And does it go out through the ducts? A —Through the circulation

Q —Then, you didn't mean to imply this morning at all that you were tying those off for the purpose of preventing the escape of a hormone? A —No sir

Q —You think that tying them off does prevent the escape of a hormone? A —Tying them off does, as I stated before, produce a congestion of the epithelial cells which produce the hormones, and these hormones are absorbed by the circulation and do not pass out through the testicular fluid

Q —There is no idea which hormone is going to be produced, is there, the male or the female? A —Yes, sir

Q —Which produces which? A —You mean which cells produce which?

Q —Yes sir A —The interstitial cells produce the female hormones

Q —And what produces the male? A —The germinal epithelia

Q —Now, the literature you referred to this morning about increasing or decreasing hormones had nothing to do with your operation, did it? A —Yes, sir

Q —Wasn't that literature regarding the injection of a hormone secretion? A —It was regarding three things, the injection of a hormone secretion, the implantation of glandular substances and the ligature operation

Q —Who wrote up that ligature operation? A —Paul Niehans

Q —*Did this man Lower* that you relied on so much— A —Lower made the conclusive statement that 65 per cent of his patients who had received the glandular substances alone responded to treatment

Q —You didn't mean to imply that Lower performed the ligature operation? A —I did not

Q —As a matter of fact the only operation he performed, if any, in that regard is the taking of a section out of the vas deferens? A —I don't know

Q —In that connection Doctor, I will ask you if you didn't the other day when you were on the stand make this answer to the question, which I will read "Question Do you know of any other recognized doctors in the United States that use the technic of operation that you have here described? Answer Yes sir Question Who are they, please?" and then we have this business about you didn't have their consent to divulge their names, and you recall that, and then "Question "—well, the answer was "I do not have the consent to divulge their names, but I can give you one whose article has appeared in literature published by the institution Question By which institution do you mean? Answer From the Crile Clinic in Cleveland Ohio" A —The answers I gave was with reference to the use of glandular extract

Q —The first question there related to this operation, didn't it? A —I don't know whether Lower has experimented—

Q —You didn't mean to tell the jury at all that Lower had ever done this ligature operation and claimed the things for it that you claim, did you? A —I don't remember

Q —Do you mean that now? A —I do not

Q —Now, Doctor, this injection of the hormone extract, upon which you based your opinions before, how was that extract prepared, from what? A —You mean how—it is the extract you are talking about?

Q —I mean what is the substance they use to make a sex hormone or isolate it or get it, or whatever it is? A —Use glandular tissue There are some synthetic hormones that are made without the use of glandular tissue

Q —How are those made? A —I don't know

Q —You don't know whether they are made from urine? A —I have never gone into the chemistry of how those preparations are made

Q —You don't know whether it is possible to make them from urine? A —I believe it is

Q —And why is that? A —I don't know—because they appear there, for one thing

Q —In other words they are taken into the circulatory system and then they get into the bladder? A —Yes, sir

Q —They don't go through the vas deferens? A —No, sir

Q —Doctor, did you mean to imply that Dr Lower agreed—that he advanced the theory that cutting out a section of the vas reduces the size of the prostate? A —I don't know

Q —You didn't mean to imply that at all? A —No, sir

Q —Now, then, this substance that you referred to this morning in *your description* of how and what the sex hormones function is, was inhibin? A —Yes sir

Q —Who was it that wrote about that? A —Lower

Q —And how was that administered? A —Orally, I believe orally, by *mouth*

Q —You didn't say this morning that it was administered by injection into the veins? A —I don't believe so

Q —You were wrong if you did? A —Yes, sir, if I made that statement I was wrong

Q —Have you ever injected it? A —No, sir

Q —Never had an opportunity to observe its effects, then, in any manner? A —Not personally

Q —Now, in *tying off the tubules back there*, again, does that cut off the blood supply to the testes? A —No, sir

Q —Now, Doctor, in the treatments that you give at Dr Brinkley's hospital, or that you give prior to 1938, did I understand you to say that you reject cases where a prostate has cancer? A —If we know it, yes, sir

Q —You don't purport to treat that? A —No sir

Q —You send them to somebody else? A —Yes, sir

Q —*That somebody* else is a doctor there in Little Rock? A —We have told some patients about Dr Marshall's Hospital, yes, sir

Q —Is Dr Marshall an eclectic doctor, if you know? A —He is

Q —Does Dr Marshall have anything to do with the Eclectic Board of Arkansas, if you know? A —I don't know

Q —Now, how is it that you determine that a prostate has cancer when the patient comes to your hospital? A —Examining the prostate with the index finger, and the cancerous prostate often feels nodular with areas of increased density and stoney like hardness and the gland is usually adhered, so much so that it is not movable in the least

Q —*In other* words, you determine it yourself, do you? A —No, sir

Q —Well, the doctor that is doing the operating? A —We usually use *laboratory tests to* determine the tissue we are examining

Q —You have pathologists to determine that? A —Yes sir

Q —Who is that? A —Kirschberg

Q —I thought you said yesterday that he was a licensed laboratory technician? A —He is under Dr Chandler, who is

Q —Is what? A —Head of the laboratory, in charge of the laboratory

Q —Is he a pathologist? A —Yes, sir

Q —Is he a member of the *American Association of Clinical Pathologists*? A —*I don't know.*

Mr Morriss Sr —We object to that as irrelevant and immaterial We have an idea, and you might let us suppose, for instance, that he might be, and at the moment he went with Dr Brinkley they discharged *him from that*

Mr Reynolds —I will withdraw it It is immaterial

Q —Doctor when you were here in Del Rio you yourself attempted to determine by this method that you have described whether a person had a cancered prostate or not? A —No, sir

Q —Do you know anything about cancer? A —Very little

Q —Did you ever attempt to treat a patient that was reported to you to have cancer? A —No, sir

Q —Now, Doctor, previously in your testimony you referred to the Steinach operation, and the Steinach operation doesn't have anything to do with making the sutures in the ligature at all, that you are talking about does it? A —It has to do with the ligature

Q —Not with the ducts? A —Yes, sir

Q —Isn't it a fact that that is merely cutting out a portion of the vas? A —*Not the Steinach No 2*, it is a ligation

Q —*Of what*? A —*The head of the ducts* you are ligating all of the ducts but not the vas deferens, you are ligating the portion of the epididymis known as the head of the epididymis, where all of the ducts end and terminate in the head of the epididymis

Q —It is an entirely different thing from your operation ? A —No, sir

Q —It is the same? A —Yes, sir

Q —And that you identify as the Steinach No 2? A —The Steinach No 2 is where they are all ligated at that point, and we modify that when we ligate only part of them

Q —Now, Doctor, on your direct examination here counsel asked you if patients were allowed to come and go, pay or not pay, as you please to which you answered "yes," and is that the correct answer to that? A —To come and go, and those who aren't able to pay and *can't pay*, some of them don't pay

Q —You generally find out beforehand whether they are going to pay? A —We have no way of knowing what their financial rating is

Q —Isn't that your job now? A —No, sir It was

Q —You quit doing that entirely? A —Yes sir

Q —When did you quit that? A —I haven't done that since I was in Del Rio, I did some of that work when I was here

Q —I thought you had only been the business manager since you were in Del Rio? A —I am in charge of a different line of work in Little Rock than I was here, I am the business manager there where *the charts are kept and where the correspondence is kept*

Q —You did that in Del Rio? A —Yes, sir

Q —And you practiced medicine here, didn't you? A —Yes, sir

Q —You have a license in this state, don't you? A —Yes, sir

Q —Do you have one in Arkansas? A —No sir

Q —Who has taken over the work that you did down here now? A —Dr Osburn and Dr Brinkley

Q —So you haven't got a license in Arkansas? A —No sir

Q —And he hasn't got a license in Texas? A —*I don't think so*

Q —So, when you move you two just switch around, is that it? A —Yes, sir

Q —Now, with regard to your claim that this hydrochloric acid solution may combat infection and increase the white blood *cells, isn't it* a fact that infection itself is often marked by an increase in white blood cells? A —Yes, sir

Q —Now Doctor, referring to the prostatic enlargement where there is difficulty with urination, when you take a *man* in that condition put him in bed for a week and let him get a good *rest* that in itself will somewhat relieve that condition, won't it? A —If it is prostatitis it will

Q —I said prostatic enlargement A —No, sir If it does, it is only temporary

Q —Now, if you put him in bed—well, it will *do* it, though? A —Temporarily he may get some relief

Q —*Now* suppose you take off the urine at the same time, the residual urine, and let him have that week of rest, it has a *more* permanent effect doesn't it? A —It makes the rest in bed more effective when the catheter is introduced and the bladder is depressed slowly, and the—yes sir, he improves from that alone, but the improvement is only temporary

Q —Now, Doctor, can you tell us what is the function of the prostate gland? A —The only function that I know of is that the description that was given was that it is an accessory sexual gland, the secretions of which augment the seminal fluid or add to it

Q —How does the secretion of the prostate gland get to the seminal fluid? A —In the urethra

Q —*In other words* the seminal fluid and the semen *itself never* does go into the prostate gland, does it? A —The seminal *fluid only* goes through the ejaculatory duct

Q —And that goes through the prostate gland? A —Yes, sir, the ejaculatory duct passes through the prostate gland, but the tube just passes through and there is no opening from the ejaculatory *duct into* the prostate gland

Q —That is just like a hole through it? A —Yes, sir

Q —*It doesn't* circulate throughout the gland? A —Yes, sir

Q —And it runs into the urethra by a separate tube? A —Yes sir

Q —And then the prostate gland itself, a little lower down has another tube of the same nature that runs into the urethra? A —There are a number of small ducts

Q —Incidentally, did Dr Brinkley originate what you referred *to as* the injection method of treating hernias? A —No, sir

Q —In fact, that is quite common, isn't it? A —It is

Q —It is nothing *particularly in your specialty* at all? A —No, sir

Q —What percentage of the patients that *come* to you do you *advise* to go somewhere *else*? A —From 5 to 10 per cent

Q —What per cent have cancer? A —I don't know

Q —You mean that *your hospital*—Dr Brinkley advertises over the radio, people come to him for treatment and you tell them *to go some* place else in 10 per cent of the cases? A —I can't give you the number or the percentage of the patients, I don't have that in mind

Q —Isn't it a fact that *20 per cent* of the enlarged prostates are caused by cancer or accompanied by cancer, at least 20 per *cent*? A —I don't know what the percentage is

Q —Well have you an opinion? A —That all depends on the *age of* the patient—

Q.—You don't want to state. If you don't want to state, say so. A.—State the question again.

Q.—I said what percentage of all cases of enlargements is a cancerous enlargement? A.—From, perhaps, 10 to 20 per cent.

Q.—But only 10 per cent you send away—. Now, Doctor, you testified that after a patient has been at your hospital a week, now, he stays around, oh, as many days longer as he can or as is necessary, and isn't it a fact that you charge them $35 a week for that, though? A.—Our hospital charges $35 a week.

Q.—You were with Dr. Brinkley in 1933, and was Dr. Brinkley advertising over the radio then, if you know? A.—I believe he was giving health talks over the radio at that time.

Q.—You call a health talk a talk where he asks patients to come and be treated by him? A.—They are asked to come for an examination—why, yes.

Q.—That is a health talk, in your idea of the word? A.—Yes, sir.

Q.—He was broadcasting at that time over XER? A.—Yes, sir.

Q.—Is he broadcasting over it now? A.—Yes, sir.

Q.—It is a different name now? A.—XERA, I believe.

Q.—Was there any space in there that he didn't broadcast over that station? A.—I believe the station was shut down for repair work, or something, for a while.

Q.—Just for repair work? A.—So far as I know.

Q.—You don't know anything about an effort to take him off of the air at that time? A.—No, sir. I haven't paid much attention to the radio part, and I can't tell you.

Q.—Doctor, do you refer to the broadcasting that Dr. Brinkley continues to do as health talks? A.—Yes, sir, I would. One of the witnesses who sat in this chair yesterday, a specialist from Dallas, said that Dr. Brinkley's health talks had made men of this country prostate conscious, and that they were now going to urologists in earlier stages of the prostate development than they were previously, and, consequently, his business had been markedly improved and increased.

Q.—Where did you get that information? A.—Right in this building yesterday.

Q.—You weren't in the courtroom? A.—No, sir.

Q.—Doctor, in connection with a health talk, is it still a health talk when Dr. Brinkley tells people to send him the names and addresses of two or five people that then are suffering from prostate trouble and who are financially able to attend the Brinkley Hospital?

Mr. Morriss Sr.:—I think that is argumentative and calling for an opinion and conclusion of the witness.

THE COURT:—Sustain the objection.

Q.—You know that Dr. Brinkley does make such broadcasts as that? A.—I believe so.

Q.—And, yet, you tell us that your business doesn't come by mail? A.—The attention of the people is brought to bear by the radio.

Q.—Then the names come into you, and what do you do then? A.—These patients, as a rule, write and want to know of some one who has been to our hospital for treatment.

Q.—We are not on my question. Maybe you didn't understand. Dr. Brinkley advertises for people to send him names of other persons, then those names come in, do they not? A.—Yes, sir.

Q.—You get communications of that kind? A.—Yes, sir.

Q.—People who are supposed to be suffering from some condition that you can treat and who are financially able to come to the Brinkley Hospital? A.—Yes, sir.

Q.—What do you do with those names? A.—We send them one of our booklets.

Q.—Through the mail? A.—Yes, sir.

Q.—Have you got much response from those people? A.—Sometimes.

Q.—Write them letters? A.—If they write to us.

Q.—You say that is one of the effective means of your advertising? A.—It is part of it.

Q.—Well, is the effect—do you get patients from it? A.—Yes, sir.

Q.—And you write follow-up letters if they don't answer the first one, don't you? A.—I don't know about that.

Q.—You are not doing any of that work yourself? A.—No, sir.

Q.—*Have you ever?* A.—I did—no, sir, I never did any of the follow-up work.

Q.—But you know it was done? A.—Yes, sir.

Q.—Did you get many patients from that method? A.—Some.

Q.—Well, was it ten a year? A.—Sir?

Q.—Was it ten a year, or how many? A.—More than that.

Q.—Two hundred—give me some estimate. A.—Well, I don't have *anything to do with that*, so how can I answer your question?

Q.—You did know about that. All I am asking about is what you know. A.—I don't know whether it is a hundred, two hundred or three hundred; anyway, we get patients by that method.

REDIRECT EXAMINATION

By Mr. Morriss Sr.:

Q.—You spoke about the process of tying off with this linen suture; in other words, it is a *linen string*? A.—Yes, sir.

Q.—Call it that? A.—Yes, sir.

Q.—What about the durability of that? I want to inquire about how long does that last? A.—That linen suture remains permanently; it is nonabsorbent.

Q.—It doesn't absorb or decay or rot, or anything like that? A.—No, sir.

Q.—That is a type of linen suture that remains? A.—Yes, sir.

Q.—Now, I want to ask you about—counsel asked you a great many questions about the technical matters there, but regardless of the exact process in which nature does cause it, have you found and is it your definite opinion that this operation that we have spoken of on the prostate, that Dr. Brinkley's hospitals do for the prostate enlargement, is it effective and beneficial to the patient? A.—Yes, sir.

Witness excused.

TESTIMONY OF DR. MORRIS FISHBEIN

Dr. Fishbein was recalled to the stand by the plaintiff and examined by Mr. Morriss Sr.

Examination by Mr. Morriss Sr.:

Q.—When you were on the stand the other day being examined by your counsel, referring to broadcasts by Dr. Brinkley, you were asked "and from what source or sources did you receive that information," and you gave this answer: "from listening to the broadcast of the plaintiff on many occasions, and on one occasion in which the plaintiff said in my own hearing to the people to send him merely a bill with their name on a sheet of paper mentioning the broadcast, but not to describe the symptoms, merely send the *name* on a piece of paper with a bill; in fact, if I can remember the exact words, he didn't have time to go into the symptoms and that he would send a bottle of medicine that would be of help to them," and I will ask you to identify the time when you heard that? A.—It is my recollection that is several years ago.

Q.—How many years ago? A.—I would say some time after coming to Del Rio, I can't fix it within that definite time.

Q.—Some time after coming to Del Rio? A.—Yes, sir. He may have said "send it to the Del Rio Drug Company," I am not positive, but he said he just wanted the name on a sheet of paper and the two dollar bill, and—

Q.—I didn't ask you to make the speech, I am just asking you when it occurred? A.—To my recollection, several years ago.

Q.—You say it was after he moved to Del Rio? A.—To my best recollection.

Q.—Over what station? A.—I believe the same station from Mexico.

Q.—XERA or XER? A.—I believe from Mexico. I don't try to memorize the names of his various stations.

Q.—The one opposite Del Rio? A.—I believe it was the one from Mexico.

Q.—You mean here by Del Rio? A.—That he was using at that time.

Q.—You are not willing to commit yourself to say what year nor what station? A.—Not without being able to verify it.

Q.—Well, are you able to verify it or do you just give your best judgment? A.—It is my recollection, as stated, that it was several years ago *from a station in Mexico.*

Q.—Now, you said you were listening to him on one occasion in which the plaintiff stated "in my own hearing"? A.—Yes, sir, that is right.

Q.—And you were remembering his exact words "he didn't have time to go into the symptoms and that he would send a bottle of medicine that would be of help to them"? A.—I think those were the approximate words.

Q.—You can't remember the year nor the month nor the place, the station over which he was broadcasting, is that right? A.—I wouldn't attempt to fix it that closely.

Q.—Are you going to say still that it was after he came to Del Rio or do you now think, maybe, it wasn't? A.—I feel quite certain it was after he came to Del Rio.

Q.—But you are not entirely certain about that? A.—Yes, sir, quite certain.

Q.—You said you felt certain it was after he came to Del Rio, is that what you are talking about? A.—To the best of my recollection it was *after he came to Del Rio.*

Q.—You are not qualifying that and you won't say positively it was before or after he came to Del Rio? A.—To the best of my recollection it was after—

Q.—By saying "to the best of my recollection" do you mean you are not certain? A.—I am quite certain. I am modifying the word "certain."

Q.—Modifying it? A.—Yes, sir.

Q.—What do you mean by modifying it? A.—One can be relatively certain or absolutely certain.

Q.—What do you mean now? A.—I am not absolutely certain, I am relatively certain.

Q.—You mean by that that you are not positive? A.—Not absolutely positive.

Q.—Not absolutely positive? A.—No, sir.

Q.—But you still say by the proposition that to the best of your recollection the claim you testified to occurred since he came to Del Rio and over the local station across the river, or, at least, it referred to the Del Rio Drug Store? A.—Possibly.

Q.—One of the three? A.—Yes, sir.

TESTIMONY OF DON HOWARD

Don Howard testified that he is a resident of Del Rio, Texas, and a radio announcer with station XERA, across the river from Del Rio in Mexico, and he represents the accounts handled by the International Advertising Agency, and that he has been connected with the station for two and a half years. He is familiar with the broadcasts. He testified that he had not heard Dr. Brinkley say to send him money and he would send *them a pill* or bottle of medicine.

Cross examination by Mr. Brown:

In the cross examination by Mr. Brown, Don Howard testified that the statement used was "my prescriptions are on file at the Del Rio Drug Store." He testified also that Dr. Brinkley offered $500 in prizes and to win this money one had to complete the sentence "I consider Dr. Brinkley the world's foremost prostate specialist because . . ." He stated also that Dr. Brinkley asked for the names of those physically and financially able to come and see him. He stated also that the time on the station was used by the Consolidated Drug Company of Chicago and by the Sterling Insurance Company of Chicago.

In the re-direct examination by Mr. Morriss Sr., Don Howard stated that the prizes were for the completion of the slogan and for sending names of people who might be interested in the Brinkley literature, and that it was done with transcription. In the re-cross examination, the witness stated that Dr. Brinkley comes out on weekends to broadcast and that the rest of the time records are used.

TESTIMONY OF J. O. WELDEN

J. O. Welden testified that he is plant superintendent for station XERA and that he had not heard Dr. Brinkley suggest that the public send him money and he would send medicine.

On cross examination, he stated that the company is owned by the Frontier Broadcasting Company, which is a Mexican company He stated also that he had heard the people told they could buy medicine in the Del Rio Drug Store, among them one for constipation On re-direct examination, he stated that he had not heard such statements for some time, on re-cross examination, he stated that at one time the station had been closed

March 27, 1939

TESTIMONY OF JOHN R BRINKLEY

DIRECT EXAMINATION

Q—Dr Brinkley, you were on the stand the other day, called by the defendant, I believe? *A*—Yes, sir

Q—How old are you, Doctor *A*—Fifty four my next birthday

Q—Where were you born? *A*—I was born in Western North Carolina, Jackson County

Q—Were you reared there? *A*—Yes, sir

Q—And who was your father and what was his business or profession? *A*—My father was Dr John Richard Brinkley, a physician

Q—And did he or not practice there until his death? *A*—Yes, sir, he practiced through that country there beginning before the Civil War and up until the time of his death in 1896

Q—How old then were you when he died? *A*—Ten years of age

Q—Was your mother then living or had she died? *A*—My mother had been dead five years She died in 1891

Q—And with whom did you live after your father's death? *A*—My mother's aunt raised me

Q—And what were the circumstances, Doctor? Were you poor or was there property or without property, poor, what was it? *A*—While father lived we had plenty to eat After my father died why, it was a case of root pig or die, and there wasn't very much soil to root in We were poor

Q—Now, as to the schooling, early schooling, where did you go to school? *A*—I attended the local schools around there near home like the rest of the children, mountain schools

Q—And did you find employment, work? What did you work at first, I mean, aside from around home what did you work at first? *A*—The first employment I ever had to pay me anything was carrying the mail

Q—What work had you done up to that time as a boy? *A*—I had been going to school and working around on the little farm we had there

Q—All right, how old were you then when you went to carrying the mail? *A*—Well, I was only 16 or 17, somewhere around there

Q—And, Doctor, did you in consequent of that or in connection with that get into something else and how, just briefly? *A*—Carrying the mail from the postoffice up there in the mountains down to the railroad station I became acquainted with the railroad agent and was given an opportunity to stay there with him and learn telegraphy and railroad bookkeeping and how to take care of a railroad agency

Q—Well, go on now and just tell us in your own way about how long before you began to study for a medical career? What was your purpose in employment, and through your youth or boyhood what was your aim or purpose or hope in life? *A*—My hope was to be a doctor like my daddy The day he was buried I said to myself that I was going to find some way or other to become a doctor like daddy was That was my aim and my ambition

Q—And— *A*—I might say the only thing open there a fellow could get to do was to teach local schools and teachers salaries were only $15 a month and school only lasted three or four months a year, so teachers' salaries were only about $45 or $60 a year and there was no chance for anybody teaching school to ever get to medical school, and so I thought learning telegraphy would be better There was a boy that learned it and went to Washington and New York and did very well, so I thought learning telegraphy and getting a way to make money to go to medical school was the better for me

Q—Well, without getting into too much detail, did you pursue your work of telegraphy and the Western Union Agency and so forth until you finally got into school and got your schooling? *A*—Yes sir

Q—And would you mind just briefly outlining where all you worked and studied and whether in or out of school, with reference to how you prepared yourself to be a doctor and how long? *A*—I went from Sylva, North Carolina, to Baltimore to see about getting into Johns Hopkins University because that was the only medical school I had ever heard of at that time Going up there I found I did not have enough education to enter the school and I met a man while I was there in Baltimore that had another school there that prepared young men with—for school entrance requirements, and while I didn't stay there and attend the school with him, yet he furnished me with books to read and outlined a plan of study for me and I went on up to New York City and worked in New York City for quite a while for Western Union Then I worked for the Central Railroad in New Jersey, Hoboken, New Jersey During that time I was doing I suppose today what we would call one of these correspondent courses like we have outlined I would go down to Baltimore occasionally and report how I was getting along and be quizzed and first one thing and another I left New York in 1906 because my aunt who raised me was in feeble condition I returned to North Carolina and she died in December of 1906 and was buried and I married and I went to Chicago and got a job with the Western Union Telegraph Company and found out about Bennett Medical College in Chicago and matriculated in Bennett College in June 1908 and worked for Western Union of a night and went to school of a day And the first year I was in school there in Bennett Dr Robert—Dr John Dale Robertson, who was president of the school, established a literary department that he called the Jefferson Park College, I believe it was During our freshman year in Bennett we freshmen that wanted to take literary work outside of our medical work would go over to this Jefferson Park College at 3 o'clock in the afternoon and spend a couple of hours over there in study until 5 I had to leave at 5 o'clock because I had to be down at the Western Union office at 5 30 to go to work, and that is the way my time was occupied the freshman year

Q—All right and how many years did you have there in that college? *A*—I had my freshman and sophomore and my junior year

Q—Then what did you take the other year? In other words the senior year? *A*—My senior year was taken at the Eclectic Medical University in Kansas City, in which I graduated—

Q—I say why didn't you take your senior year there in Bennett? *A*—Because I owed for my tuition It was a common practice for Dr Robertson to allow students to enter school short of money, figuring they would work it out, but he wouldn't let them enter the senior year without paying up, and I couldn't, so I dropped it

Q—Did you later pay the doctor? *A*—Yes, sir, I paid it in 1921

Q—Did you go, then, elsewhere and—by the way, did you get a certificate or something to practice for a while under your three year work? *A*—Yes, sir, I did

Q—Your research and general work you had done? *A*—Yes sir

Q—What was that? *A*—I got, in the state of Tennessee the law there was that undergraduates could take the examination and receive a license to practice in Tennessee without being a graduate physician I took the examination in Tennessee and received an undergraduate license I practiced over in Arkansas for a short time under a permit issued to me by the Arkansas Eclectic Board of Arkansas

Q—Then, Doctor, right at this juncture you heard of the deposition of this man Crawford who said that you went with him down into North Carolina and undertook to practice there—I mean South Carolina Greenville, South Carolina Did you do that? *A*—No not the way the deposition stated

Q—All right, just what is the fact about that? *A*—I was in Chicago Illinois, and went out to Lincoln Park it was a Sunday afternoon and there was a bathing beach out there and a place where you rented suits to go in swimming and I went up to get a ticket and the man told me all the lockers were occupied, but if I would accept a locker occupied by some one else to go ahead, and I said all right

Q—All right, is that the way you met him? *A*—That is where I met him

Q—All right, what happened? *A*—He was from Mississippi and I was from North Carolina and I was up there alone and he was alone and we were always glad to meet somebody from the South, and we got to talking together and I told him about having previously worked for Dr Burke at Knoxville and Chattanooga and that I was going back with Burke and he said he didn't have anything to do and he said he wondered if he could go down and work for Burke And we went down, and that is how he met Burke, who was opening up these offices

Q—Did Burke open up these offices for special work? *A*—Yes, and employed physicians in the offices and treated venereal diseases

Q—All right did you make an arrangement with Burke that took you to South Carolina? *A*—Burke asked me to go down to Greenville South Carolina, and rent the office down there office space and get out advertising They had form advertising, the advertising was all the same for every office They didn't have one kind of advertising for one town and another for another, it was all built up and arranged And I took this advertising down there and placed these ads and run this opening announcement down there for a couple of weeks and Burke promised when I went down there to take charge of the office to send a doctor that was licensed in South Carolina I stayed down there a couple of weeks and got things ready to go and no physician showed up

Q—When did you plan to open the office? *A*—We planned to open on a certain Monday to be open to the public and start doing business treating on Monday and I called Burke up on the telephone and told him there was no doctor down there and that I was going to leave because I was not licensed down there And he didn't send anybody and I simply got on the train and left and Crawford said "if you are going I am not going to stay here,' so I went over to Mississippi—

Q—You heard Burke's statement of the administration of some colored water of some kind? *A*—I didn't practice—

THE COURT—Crawford you mean? You said Burke

Q—Crawford? *A*—I didn't practice at all I didn't administer any colored water, 916 or 606 or anything else

Q—You left before the time that the office was to have—before the physician was to arrive, is that what you mean? *A*—Yes

Q—All right Now, you heard this testimony that was given by Crawford while an inmate in the penitentiary in 1931 or 1932 an inmate of the Oklahoma Penitentiary on these charges of robbery Did you ever see him after that? *A*—I saw James E Crawford he came to see me in Milford, Kansas, during the summer of 1932 while I was a candidate for governor of the State of Kansas

Q—Was he at large then had he gotten out at that time? *A*—He told me he was out

Q—Did he tell you how he got out? *A*—Yes, he related certain circumstances of how he got out of the penitentiary in Oklahoma

Q—What did he say? *A*—He told me that while he was an inmate in the penitentiary at McAlester, Oklahoma, he was called into the warden's office where he met two attorneys who introduced themselves to him and told him they were from the American Medical Association and that they wanted a certain deposition from him that would be injurious to me and if he would give them that deposition they would assist him in getting out of the penitentiary And he said that they gave him a box of cigars and candies and $20 and left and two weeks later they came back with my lawyers and he gave the kind of deposition they wanted

Q—What did he propose to you? *A*—He told me if I would give him $300 he would make another deposition saying the one he gave them was all a lie

Q—What did you tell him? *A*—I told him to get the hell out of my office I told him if he would lie for them he would give a deposition to me and say I had paid him $300 to get a deposition and they would get another from him I wouldn't have anything to do with him

Q—Doctor, now, when did you—when did you begin the active practice of the—of medicine? *A*—I was licensed in Arkansas, passed the state board there in May 1915, and Tennessee in June 1915 I wrote both boards, passed both examinations and practiced for a few weeks in Memphis and a few weeks over in Judsonia Arkansas, for a short while and I was over there at Judsonia Arkansas where the strawberries are supposed to be good and the river got up and flooded all the strawberries and there wasn't going to be any crop and I met a man who told me he thought Kansas was a good state for a fellow to locate in and I went up to Kansas and went to—

Q—Milford? *A*—Well, I first went to Fulton I first went to Fulton Kansas

Q—And then to— *A*—Then to Milford

Q—Yes, sir How long did you practice at Milford Doctor? *A*—After I began the practice of medicine at Milford, Kansas late October 1917, and remained there until 1933

Q—Now during all of that time were you in the active practice of your profession, medicine and surgery? *A*—Yes sir

Q—Did you or not have occasion during that time to pursue your study as a doctor? I mean what did you do, did you work and study? *A*—From time to time I left Milford Kansas, I would get some doctor to come in and take my place and look after my patients while I was away and I would go off a month or two and go to some hospital or clinic and take postgraduate work I went to Chicago two or three times took some

work there, went to New York, visited different hospitals in New York and clinics, saw operations performed and talked with different teachers.

Q.—Did you or not have occasion then to go to Europe in your work or your study? *A.*—Yes, sir, I received an invitation by a cablegram from Dr. Thompson, from Shanghai, China, in the fall of the year 1923. It was right after that—I associated it with that big earthquake that destroyed Yokohama because I know when I arrived at Yokohama the whole thing was in ruins, and Dr. Thompson asked me to come to Shanghai and I went over to Shanghai and did a few—

Q.—Was that intended as a removal or just temporary? *A.*—It was just a call to go over there and do some surgery.

Q.—I see? *A.*—And I got a little money over there from Shanghai—well, to be exact I got about $5,000 paid me about—I was paid about $5,000 for what few operations I did.

Q.—Now, Doctor, at that time had you or not become interested in any particular line of practice? *A.*—Yes, I had been doing the transplantation of glands into people.

Q.—Well, when and how or what time did you get interested in it, particularly in the gland, the human gland treatment and research and study? *A.*—My attention was attracted to glandular study by Professor Sutow. Professor Sutow was professor of physiology at Bennett College, Bennett Medical School, and he used to quite frequently tell we boys that he believed one of the greatest fields ahead of us was a study of the glands of internal secretion because little or nothing was known of them, and one day a professor came or a doctor rather came in and gave a talk. His name was Dr. Hair, and he gave a very enthusiastic talk about the possibility—

Mr. Brown.—Your Honor, we object to going into what some doctor said in his lectures as being hearsay.

Mr. Morriss Sr.—We don't want the details.

A.—I merely meant to say those two instances are what caused me to become more or less interested in the glands of the body. And a very peculiar circumstance happened at Milford, Kansas. I had only been there about two weeks, being a new doctor in town and having a little drug-store that I had opened up there, and different country people would drop into the drug store to meet the new doctor and pay me their respects and tell me they were glad I was there and so forth. This one man came in and got to talking with me about sexual weakness. I told him I didn't know anything that would do him any particular good as to sexual weakness. The conversation continued and we got to talking about why couldn't we take some glands out of an animal and put them into a man. I told him it was biologically impossible. He wanted to know why it was impossible. I told him because you couldn't transplant the glands from a higher order of animal kingdom to a lower or vice versa. He wanted to know how I knew you couldn't, and I told him that was what' I had been taught and I believed it. To make a long story short, he furnished the animal and I transplanted some glands into him, with good results according to his statements to me.

Q.—What was—was it, Doctor—you spoke about him furnishing the animal and you broke off there. Was it of his own volition? Did he insist? *A.*—Yes, he insisted.

Q.—And through what period of time was that and who joined him in his insistence? *A.*—His wife.

Q.—All right, did you or not visit them out there to see and did you or not advise against it and did you— *A.*—Yes, sir, I advised the man not to have it done and he said "you are a surgeon. You can put them in and if they spoil you can take them out."

Q.—Well, that was true, wasn't it? *A.*—Yes, sir.

Q.—Well, all right, did you or not find any results from that operation? *A.*—To me the results were amazing and startling because I expected bad results and disastrous results and instead of that happy results were obtained. The man claimed that he had been sexually dead for sixteen years. His wife verified that statement. A year later I delivered his wife of a fine baby boy, which at least proved that he was fertile, anyhow.

Q.—Did you or not then perform—did you perform any other operations on his own kin? *A.*—A cousin of his, a cousin of his. Of course, the news got around in great fashion, and a cousin of his came to me and asked me to do the same thing on him and I did and he had me to transplant glands into his wife. Then one of their relatives was in the insane hospital in Nebraska. He had been a banker. He was a banker up there, he was a cashier and lost his mind and was placed in an insane institution. They wanted to know from me if I thought glands would do this insane person any good, and I said "Lord God no," and they said "we want you to try it," because he had been a masturbator and "we know it" and they brought him down there, took him out of the institution, and I put those glands into him and that man recovered his mind and today is in charge of one of the biggest banks in Kansas City, Missouri. He came out of the insane asylum in Nebraska and had those glands put in. I published that in an article in a little magazine, and down in Alabama a lady read it. She had a daughter that had been in the insane asylum for ten years in Tuscaloosa, Alabama. She was violently insane at times. When she went to get a permit, she had to get a state permit to get this daughter out of a padded cell, they had to keep her in what is called a padded cell to keep her from doing injury to herself; she was trying all the time to commit suicide. And my wife and I met this lady with her daughter in Memphis, Tennessee, and put her in a drawing room and brought her to Kansas City and over to Milford. I transplanted glands into that young lady. She stayed in my hospital for a month, fully recovered her mental capacity. She didn't want to go home because she felt she was disgraced because of her previous life. She secured a secretarial position in Kansas City, Missouri, and married a physician and today she is healthy and happy and normal. I can go on and recite instances like that one after the other.

Q.—All right, Doctor—by the way, were you a member of the American Medical Association? *A.*—I was a Fellow of the American Medical Association at that time.

Q.—Now, did you or not from your experimentation, your operations, your efforts, your research, did you become convinced that there was benefit in glandular transplantation? *A.*—I did, I thought I had made a wonderful discovery, I thought this was the grandest thing in the world, I wanted the whole world to know about it.

Q.—Well, did you or not refuse to give it to the profession or did you offer it to them? *A.*—I offered it to the profession. I tried to get some of these things published in various medical journals. They very kindly said they couldn't afford to publish them. I wrote letters to doctors in different states telling them about some of the results I had obtained and asking them to come to Milford and let's see if we couldn't get it before the profession. No interest was shown.

Q.—Did you or not continue that effort? Did you or not have doctors there to witness your operations, there and elsewhere? *A.*—Yes, sir, doctors have seen me operate many times in the United States as well as in foreign countries.

Q.—And why, Doctor, did you go to advertising, just tell the jury your own feeling about it? *A.*—My feeling about the matter was that it was something that was too good and too valuable to lay aside and do nothing about it and that the public should know about it, the people should know about it, the people should have the benefit of it.

Q.—Doctor, what per cent of the population of the country are affected by the—by this trouble that you now operate for and such as that, this glandular—that is, the prostate gland? *A.*—I think it is pretty well considered that about 65 per cent of the men past the age of 50 have some involvement of the prostate gland.

Q.—Well, now, then, was it your desire to do something for those men or for the world at large on that question? *A.*—Yes, sir, it was. I was removing prostate glands, I was a general surgeon doing general surgery and was removing prostate glands.

Q.—Now, in your surgery during those years did you do general surgery? *A.*—Yes, sir.

Q.—I mean all kinds of operations? *A.*—That is true.

Q.—Were you or not then through the years at Milford were you or not actively and busily engaged in your practice as a surgeon? *A.*—Yes, sir, I was.

Q.—And as a physician also, but I am speaking particularly about in surgery? A.—Yes, sir, I was doing much surgery.

Q.—During all of that time were you doing study and research work to further qualify and— *A.*—I was doing many experiments, animal experiments, and people that came to me in the beginning that wanted these glands transplanted or thought they would like to have them, since I had found out they wouldn't hurt anybody to put them into them, why, I transplanted glands to people just to see if it would have any effect on all manner and kinds of diseases.

Q.—Was that always, Doctor, with their understanding of what was to be done and that was done? *A.*—Oh, yes, sir.

Q.—And then we had gotten down to, but I don't believe we got over, the matter of your resort to radio? *A.*—I had been called by Harry Chandler, Harry Chandler the owner of the Los Angles *Times* in Los Angeles, California, had read a little article I had written or published in some magazine some place and he asked me to come out there, an old employee at the time was sick. Mr. Chandler wanted me to put these glands into him to see if it would do him any good. While I was there Chandler was having installed KHJ for the *Times*. I think it was the first radio station that was ever put in there in Los Angeles, California. And leaving California and going back to Milford I thought it would be a nice thing to entertain the patients by having a radio station close to the hospital where they could lay in bed and listen in on their ear-phones, and I bought the station and gave lectures over it, talked about various diseases of the human body and did that up until 1929. I never tried to produce any patients over the radio at all, never even made any effort to. I was using the radio up until 1929 to give musical entertainment and medical lectures and medical advice in a general way. In 1929 I began a series of lectures dealing with the diseases of children. I began to receive an enormous amount of mail from people asking me about this thing and that thing and another thing. I couldn't answer it, and the only way it could be answered was to go on the radio and answer a good bulk of it, and in 1929 from answering those letters over the radio, through the radio, patients began to come to me because of radio advertising.

Q.—Well, what was the result there of your work so far as the membership in the American Medical Association was concerned? *A.*—Well, some time after 1917, I don't remember what year it was, why, I just didn't pay any more dues or bother anything more about it.

Q.—And had you or not been able to get their cooperation or hearing with reference to your glandular treatments? *A.*—No, sir. I wrote a letter to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION briefly outlining some observations I had made in transplanting these glands and asked them if they would consider publishing an article for me, and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION replied—I can't give you the exact words, but I can give you the meaning—they said "if we published in our journal every unverified announcement of a cure or treatment why the American Medical Journal instead of being a scientific journal would just be cluttered up with stuff," that is the meaning of it. "We can only publish articles that come to us verified from scientific sources." That was in substance the reply of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Q.—Now, then, you finally discontinued the transplanting of glands of animals, you say. When was that? *A.*—1933.

Q.—Explain your reasons for that? *A.*—Sundry reasons. One reason was that there was a lot of kidding and joking about this gland business. Many patients it was found out in their home community that they had been down to Dr. Brinkley's hospital, they had gone down and got a pair of glands, lots of men's wives were sensitive to the gland work and gradually more and more there was coming out glandular products and glandular preparations of some merit.

Q.—Had you yourself advocated that, advocated the experimentation in glandular products, the benefits of it? *A.*—Well, I recommend the use of glandular products in the treatment of disease.

Q.—All right, go ahead. I interrupted you. *A.*—Well, I don't understand your question.

Q.—You just said that your reasons for discontinuing the transplantation of the goat gland, the animal glands, as you said there was lots of kidding and then these products, glandular products had begun to be on the market. Is that what you said? *A.*—Yes, sir.

Q.—Well, do you mean by that that you were able— *A.*—I felt like by using good glandular products, injecting them into patients, I would probably supplement to a large extent the transplantation of glands, which is naturally a bothersome accessory method of treatment in your hospital, so I came down here to Del Rio, Texas, opened the hospital here in the Roswell Hotel, and have not done any gland transplanting since.

Q.—All right. Now, Doctor, was your work in that line and has your practice been primarily to make money out of it or what has been your feeling about it? *A.*—No, my idea of the whole thing was to try to get something worked out to where we could save from being removed the prostate glands of men. The prostate gland is one of the sex glands, a necessary gland for a man to retain his body in a healthy condition, enjoy normal sexual life and good health. Removing the prostate gland either suprapubically or transurethrally carries with it a certain amount of surgical risk. These prostate cases, many of them they are not good surgical risks. When they come to the hospital they are carrying residual urine, the functioning of the kidneys is down and they don't stand much shock unless you can get the kidney function up. Some of them doesn't come up very good. There is danger of infection, there is danger of hemorrhage, shock and hemorrhage and infection are three factors that all prostate surgeons or urinologists are conscious of in their work.

Q.—Well, now, then, how did you begin your research to try to find a way out of that? *A.*—How my attention was directed to the glands, these glands that I was implanting having any effect on an enlarged prostate or enabling a man to empty his bladder was that a lot of these men that came to see me for a gland transplantation that was all they

wanted, they wanted a gland transplantation for sexual weakness, they didn't want anything else done to them, they just wanted that for sexual weakness Naturally those patients were examined and many had enlarged prostates, many had difficulty in urinating I always had an understanding with those patients that any time that they wanted a gland transplantation repeated or if they sluffed out and didn't take it, as it is called, they could always come back and have the work repeated any time they wanted to Quite a few of those patients drifted back to see me and they would say "Doctor, if you had done as much good for me in the way of helping my sex weakness as you have helping me urinate I would be tickled to death," and that directed my attention to the fact that planting these glands into a man that was having difficulty in urinating that somehow or other the urinary trouble was helped That was the thing that caught my attention first

Q—*And did you make research in that respect in the old country?*
A—What did you say?

Q—Did you make any investigation or research in the old country on your occasions of being over there? *A*—Yes, sir When I made this trip around the world I made a special trip to Saigon, Indo China *I went to Saigon, Indo China,* because nearby was a colony of eunuchs

Q—By eunuch you mean— *A*—A man who has lost either through removal by surgery, accident or otherwise his testicle He is castrated And with the kindness of the French surgeon who was there in charge of the port at Saigon I went out into the interior a ways to a little village where there was an old monastery *I think* the name of the town was Annom, and there was some eunuchs there and the French surgeon gained their permission for me to examine their prostate And I couldn't find they had a prostate any evidence of a prostate That has been confirmed many times by different observers If a man's testicle is removed in youth his prostate gland doesn't even develop, and if in later life his testicles were removed his prostate gland shrunk up, showing there was some relation between the testicles and prostate

Q—Well Doctor, without going into detail did you pursue that research and that study on through the years? *A*—Yes, sir I might say on that same trip I went to Berne, Switzerland, to see Dr Coker of the Coker Clinic there The Coker Clinic there on thyroid diseases is famous the world over The old man that established the clinic the senior Dr Coker, was dead, but his son who had grown up with him in the work was in charge I spent a very pleasant week with him and discussing the enormous amount of thyroid disease in Switzerland, and he was removing thyroid glands—

Q—Where is the thyroid gland? *A*—The thyroid gland is located astride of the windpipe here in your neck And I asked him when he had to take out too much thyroid what did he do, how did he supply the deficiency

Mr Brown—Your honor, we don't object to the investigation, but the conversation is hearsay.

THE COURT—Yes

Q—Say what you did? *A*—I witnessed many transplantings of thyroids into human beings His way was to take a plug out of the shin bone To make that more understandable, he took out the plug like we boys used to plug a watermelon And he would put this in the marrow, and that was his method He was using sheep glands in thyroid deficiencies

Q—Well, now, Doctor, I wanted to get down to the point of your beginning of your operations on the prostate gland To operate for the prostate trouble—I mean had you or not *performed many of the operations* removing the glands and the like, had you done many of those? *A*—Yes, sir, I have performed many

Q—Well, I believe you said your effort or desire was to find a way to avoid the removal, is that right? *A*—Yes indeed, I wanted to avoid removing the prostate if possible, and as I said my attention was brought to the prostate being affected by the transplanting And about that time Steinach made some announcements about ligating the vas deferens

Q—That is the matter we have been hearing about? In other words, tying off? *A*—*No, not at that time*

Q—I mean ligating means tying off the vas deferens, that large tube? *A*—Steinach first advocated a ligature, a linen ligature around the vas deferens, not cutting it out, just tying off its main channel or line Secondly, Steinach came back and said take out a portion of the vas *deferens And his third work had been to ligate these tubes coming* from the testicle that has been under discussion here And I tried some of those Steinach, those ligation operations first I didn't see that they were of any value because that thread around the tube cut it in two and you had a free end of your tube, and I couldn't see it was a very good policy so of my own volition I commenced taking out a section of the vas along with the transplanting and then I started taking out a part of the arteries, the vas deferens artery, tying it off I was doing all sorts of things to try to see what was best to help the prostate working all the time along the line of what improvements could be made in what I was doing that might lower the size of the prostate and make him empty his urine normally

Q—Was that a research and work and experimentation that if successful would be beneficial and useful to society and to mankind? *A*—Yes sir

Q—Well, now I wish you would tell us just a word about that and what your ambition was for it *A*—My ambition has always been to do all the good that I can in all the ways that I can, and I felt like if I could have introduced something to the medical profession, or world in general, that would save men from a dangerous surgical operation or loss of their glands that it was worth any sacrifice or anything that I could do to accomplish it, *and I still feel the same way today*

Q—Well, did you work out this operation to your satisfaction? *A*—Mr Morriss I don't think that any man ever worked out any operation to his satisfaction I don't think we ever work out any treatment to our satisfaction If we did why then progress would stand still

Q—*I don't mean* that, I mean to the point where you thought it was beneficial and fairly successful? *A*—Yes, sir, to the point where it does good and helps patients, yes

Q—And, Doctor, how long now have you been doing that operation? I mean as a specialty not in individual cases or in connection with your other operations, but as a specialty since you came to Del Rio? *A*—The operation that has been under discussion in this courtroom I began doing it a little before and had it worked out, but put it into universal effect when I came down here to Del Rio in 1933

Q—How many times would you say, as near as you can, you have performed that operation, Doctor? *A*—The one that is under discussion here?

Q—Yes, sir *A*—The ligation of the ducts?

Q—Yes, sir *A*—I believe I would be conservative in saying I have performed at least 3,000 of those operations

Q—You are talking about yourself are you? *A*—I am talking about *what I have done myself*

Q—Now, then, did you or not teach your staff, some of the members of it, to perform that *operation with* you and then finally independent of you? *A*—Yes, sir

Q—And under your supervision, then, and in your hospitals how many times do you believe that operation has been performed including *your work and what your staff has* done under your supervision? *A*—At least 5,000 times

Q—Have you had occasion to follow up the investigation keep in touch with those patients to ascertain whether or not—what the results were and whether or not beneficial results were obtained? *A*—Yes sir I make an effort to keep my patients—keep in contact with my patients By way of illustration, last February I mailed a letter to the last known address of every patient I had any record of ever having been in the Brinkley Hospital, inviting them to a reunion to be held at our Country Club Hospital in Little Rock this fall, and from time to time we write our patients, write them friendly letters, letters of friendly information letters of invitation to return for rechecks

Q—Is it a part of your arrangement and your practice that they may and do always return—I mean may return anyway and should return for check ups and such as *that*? *A*—Yes, we consider our annual recheck business on patients, we consider that one of the best protections to patients that can be given because we give them thorough rechecks to see if anything else is wrong with them other than what was at the time they became my patients That way we can advise what structures in *their body are undergoing pathological changes or diseases that may be* beginning to outline and advise medication, diets and care of them In so doing we enable these patients to live longer and healthier and happier and get more out of life than if they were not privileged to get that yearly examination service or examination service any time they wanted to return for it

Q—And have you thus had occasion to make extensive study of the effects, the after effects, the ultimate effects of these operations on your patients? *A* I have

Q—Well, now, without pursuing that any further, what is the effect and in what per cent of cases is it beneficial? *A*—I find that following this operation the patient relates a feeling of well being, he feels more energetic

Mr Brown—We think it is hearsay what the patients told him

Mr Morriss Sr—That is case history

A—We find that their blood pressure in many cases where it was above normal has gone to normal

Mr Brown—We have that objection

THE COURT—Overrule the objection

Mr Brown—Note the exception

A—We give these patients an examination when they enter our hospital and we give them an examination when they check out of the hospital and we note the physical findings both at admission and discharge We find that these patients are able to empty their bladders with less difficulty, in many instances no difficulty at all Of course not all of them, you understand, are well of their prostate trouble or disease or enlargement in a seven day period by any means but their urinary frequency, getting up at night, burning draining dribbling has ceased or greatly ceased In a great many cases their blood pressure is down to normal or greatly reduced their appetite is better, they are eating more, or beginning to have better appearance the sickly pallor or color in their faces is disappearing When they came in the hospital probably they had such pain and misery they couldn't get out of bed couldn't sleep without the use of pain relieving medicines We find them upon discharge not requiring any medicine, the pain having gone sleeping well, feeling well

Q—Well, now, after that how long have you observed them for what length of time have you observed the cases after the operation that you might know what the condition continued to be? *A*—We are reexamining and rechecking on patients as far back as fifteen years who come to us in our hospital We find that those patients continue to have good health

Q—Well, now, those that you have operated on by this operation since you came to Del Rio, I mean this same operation since you came to Del Rio have you had occasion to observe and examine and recheck on those that were operated in 1933 and each successive year? *A*—We are doing that daily, we have recheck patients coming to us every day We are examining former patients daily just the *same as we are* examining new arrivals

Q—Doctor, I believe it has been shown and I assume these patients have come from all over the country? *A*—Yes, sir

Q—Now, do you have a good many of them in this region here? *A*—Oh, I have a large number of *patients in the state of Texas*

Q—I know, but I mean in this western area here, Val Verde and adjoining counties? *A*—Yes, sir, patients in Del Rio and outside of Del Rio, in San Antonio, Uvalde and Eagle Pass and all up, all around here

Q—Well, have you observed any similar effects generally over the country, the effects on your patients over the country have been about the same as those in this region? *A*—Yes, the effects, *the region* or the geography of the country doesn't have anything to do with it

Q—So the effect is uniform regardless of where they come from, is that it? *A*—That is right

Q—Have you told or did you tell the other day, *I don't remember,* what percentage of your patients are materially benefited by the operation, aside from the medical care and examinations you give them—by the operation, what percentage of them do you think? *A*—I don't think we ever have a patient that doesn't receive benefit in one way or another All patients receive a certain amount of benefit in varying degrees Some of these prostate cases they have to be reoperated on All these prostate cases that I do this prostate operation on I don't get a hundred per cent result with that operation, but I do get a very high percentage of results and those that come to us if the prostate does not become reduced or for *some reason they can't* empty their bladder we have them come back to the hospital and we do further surgery on them

Q—Doctor, in your advertising and in the pamphlets and also over the radio, why do you advertise as *plainly as* you do to the public? What are you seeking to do?

Mr Brown—Your honor, we think that calls for a conclusion, just a self serving declaration about what he has been doing and it is immaterial and irrelevant

Mr Morriss Sr—What is his purpose is what I am getting at

Q—Is it your purpose merely to make money for yourself or is your purpose to benefit your fellow man? *A*—My primary aim of course is to benefit sick people

Mr Brown—*Your honor,* I think that is clearly objectionable

THE COURT—Well, this examination is taking rather a wide range and the Doctor has been allowed without objection to express a good many conclusions and opinions and generally give his version of the matter

He was interrogated the other day fully from the defendant's standpoint of it, and I think I will let him state his views with regard to his opinions or conclusions. Of course, they are not binding on the jury any more than *Dr. Fishbein's* were.

Mr. Brown:—We except to the ruling of the court.

Q.—Just state what has been your aim and purpose in it all, Doctor? *A.*—My aim and purpose as previously stated primarily is of course to reach the sick people and benefit sick people. Naturally in advertising and maintaining expensive institutions, buying radio time, money must be had, we must charge for our services; poor people are coming to us, many people coming to us not able to pay are operated on free of charge. We operate on many physicians without charging them anything. We operate on many ministers without charging them anything. We operate on many men and women for fees like $25 and $50 and $75 fees in fact sometime. Our examination fee being $50 for the kind of examination we give. We even sometimes go ahead and do the examination and all the person can pay is $50 for the examination and we give them additional treatment without additional pay.

Q.—Doctor, I am not going to go through the details of this article with you. You have read it and we have inquired about, for instance, these various statements about patients coming in on Monday and leaving on Friday and not letting the next week's patients know what was done. What about that, have you ever tried to conceal the facts from your patients? *A.*—Absolutely not. My patients mix and mingle and visit with one another, take down one anothers names and addresses and get back home and correspond with one another. We have reception rooms, entertainment rooms, play rooms. The patients mix and mingle together. The patients are coming in every day and leaving every day.

Q.—Has that always been the case, have you always permitted and encouraged them to mix and mingle? *A.*—Our patients have always mixed and mingled together without any restraint on our part or any influence or any suggestion on our part.

Q.—Doctor, they spoke of your licenses having been revoked in places. Now, let's see. Did you ever go and study in Italy and get a license there? *A.*—Yes, sir, I went to the Royal University of Pavia, Italy, took the final examination and received the degree of Doctor of Surgery in June of 1925; returned to Italy in November of the same year and took the nation or state examination which was necessary and passed and became a licensed and registered physician in the Kingdom of Italy.

Q.—And then did you also pass examination in England and obtain a license there or right to practice? *A.*—It was not necessary to pass an examination in London, the Italian license that I had, the Italian examination was considered the equivalent of the English examination and on the basis of the examination I passed in Italy I was immediately registered to practice in the Kingdom of Great Britain and her possessions.

Q.—Doctor, do you know whether or not the American Medical Association or its members or officers assailed you in reference to those matters and those rights? *A.*—*Yes, I know.*

Mr. Brown:—That would be hearsay unless he had some evidence of it, your honor.

A.—I graduated—

THE COURT:—Just a moment. I don't see the materiality of it, as to this defendant here.

Mr. Morriss Sr.:—Well.

Q.—Doctor, were those licenses to practice in England and Italy later withdrawn? *A.*—Yes, sir.

Q.—And they spoke about some licenses in some of the states of the United States where you had gotten licenses having been withdrawn or revoked. Was that done around in the same general period? Was it done after your withdrawal from the American Medical Association and your beginning to advertise? *A.*—Yes. The Connecticut license was revoked in 1923 while I was in China. The Kansas license was revoked in 1930 while I was in Kansas. The English license and the cancellation of the Italian degree I thought occurred in 1927. I am not sure of the year, it might have been 1928.

Q.—Well, I believe you said the other day that the Connecticut license, that there was a large number, wasn't it, that was a large number of licenses? *A.*—In Connecticut?

Q.—Of many people? *A.*—That was a blanket revocation in Connecticut, every Eclectic doctor, I think, so far as I know, had his license revoked automatically.

Q.—What are and have been the various—what we call schools of medicine? I mean by that the different denominations or the names of the different ideas or branches such as surgery and allopathical and homeopathic and eclectic, *is that all?* *A.*—Pertaining to medicine I believe those three schools, the eclectic, homeopathic and allopathic were the schools pertaining to the use of drugs. There is the chiropractic institution and the osteopathic institution which started out, I believe, to practice manipulation and massage. I think now they have gone into the practice of medicine.

Q.—You spoke about your license being revoked out in California or an indictment—or an indictment preferred out there? *A.*—Yes, sir.

Q.—Now, just tell the jury about that? *A.*—All I can tell you about it is Mr. Chandler wrote me asking me to come to Los Angeles, California, and operate on his editor. I replied to Mr. Chandler that I was not licensed in California and he conferred with the secretary of the California Medical Board, Dr. Pinçum—

THE COURT:—Now, that is bound to be hearsay, Doctor.

Q.—Were you advised— *A.*—I was called out there. What I was trying to get at, I was called in consultation by another physician in California to come out there in consultation with him on this patient that Chandler wanted me to operate on, because under the medical practice acts if I am licensed in Texas and a licensed physician in Illinois calls me up there in consultation on a case or cases I violate no practice act by going to Illinois with this physician that is licensed there, *providing I am licensed here.* It is not necessary for me to get a license. And it was under that arrangement I went to California, stayed out there I think six weeks, there was some kind of permit issued, I don't remember what it was, some kind of permit given for me to remain there and do some work for thirty days. Later on there was an indictment returned against me and I read the allegation in the governor's office in Topeka, Kansas, in which it said I had been—

Q.—You need not—well, was it for violating—practicing out of authority? *A.*—Violating the medical practice act of the State of California, as I understand it, remember it.

Q.—All right, was that later—was that indictment dismissed? *A.*—The charges were dismissed, yes, sir.

Q.—You were asked the other day if you weren't convicted of a liquor charge. Will you just tell what did happen about that, Doctor, exactly? *A.*—One of my patients at Milford, Kansas, or near Milford, Kansas, a little town called Elyria, was a dentist and he was opening up his office in Wichita, Kansas. He came by to tell me goodbye and asked me if I would give him a bottle of alcohol to use in his office down there until such time as he could get a permit or make arrangements to get his supply of alcohol he would need in his office in Wichita. And I was very glad to accommodate him and wrote a note to my wife who was down at the drugstore, I was up at the hospital, wrote a note to give the man, the doctor, a pint of alcohol, and she did. He went down to Junction City, which was 12 miles from us, met some of his friends there, proceeded to drink the alcohol and he got gloriously drunk. Kansas has a bone dry law, they could arrest you for smelling breath on your liquor—I mean liquor on your breath.

Q.—Was that the charge, Doctor? Was that what the charge grew out of? *A.*—That is what it was.

THE COURT:—I am not sure that I understand it. As far as he ever got was when they arrested the man that had the alcohol. Why arrest him? He stopped in the middle.

Q.—I mean is that why they preferred charges against you? *A.*—The man was taken to jail in a drunken condition and when he got sober enough to talk they asked him where he got his alcohol and he said he got his alcohol from Mrs. Brinkley up at Milford. I had gone, happened to have left during this time he come to see me in the morning and I went to Kansas City in the afternoon. The county attorney 'phoned me and told me the circumstances and he said "I have to take legal action, Doctor, which to me is regrettable," and I said "all right, take it out on me and leave Mrs. Brinkley alone because I authorized her to dispense that alcohol to that dentist." So the liquor law up there was applied against me. I pleaded guilty to the charge and was sentenced to three months in jail and a $300 fine. The county commissioners said they wouldn't have me in jail because I eat too good, it would cost too much to feed me, and they let me pay the fine.

Q.—*Did you just pay the fine?* *A.*—That is all.

Q.—Doctor, with reference to this charge here, now, you will remember what the article says about your telling people to send their bill—their dollar and get their pill. And you heard what Dr. Fishbein said with reference to what he had heard you say on the radio. Will you just tell us about that? *A.*—I don't make that kind of broadcast. Never at any time do I tell somebody to wrap up a bill and send some money in an envelope minus symptoms or anything and I will send some medicine. I tell people I don't treat them by mail, I don't treat them by correspondence. Night after night in my broadcasts, there is hardly a broadcast goes by I don't say "don't write to me for home treatments, we don't treat people until they come to the hospital and have an examination." Possibly after the examination is completed we find conditions whereby we can prescribe and you can go on home, but we are not going to treat anybody until we have had them in the hospital and examined them.

Q.—This treating by remote control, it states "we treat people by remote control." I don't know where it was, but you remember the statement prescribe by remote control. Is there any truth in that? *A.*—No, I don't do any such thing as that.

Q.—Doctor, you have heard the description of the prostatic operation as given by Dr. Petermeyer. Do you want to add anything to that? *A.*—I could give a whole lot better description and probably more understandable than has been given of that operation, but I hate to take the time of the Court. I think it has been admitted that some kind of operation is performed on my patients, and I am content to let it stand at that.

Q.—In the main, without details, is that the operation, the ligating as Doctor has explained it? *A.*—That is in the main the way that we are treating and operating on our patients now and have been since 1933.

Q.—Now, you have heard the testimony. Did you ever claim that you ligated one duct at a time or anything of that kind? *A.*—Oh, no.

Q.—Doctor, you have heard what was testified by the experts with reference to the physiological impossibility of the operation benefiting people and so forth. What have you got to say about that? *A.*—I know it does benefit people. When a man has been practicing something for more than twenty years like I have, like I have with thousands of patients, examining those patients when they come to see me the first time and seeing them down through the years, seeing the changes that takes place by physical examinations and scientific examinations and knowing that those patients have been benefited, why, there isn't any question about the people being helped. I have two hospitals filled throughout with patients all the time. They wouldn't be coming to me all the time spending their money if they weren't getting something for it.

Q.—You heard the testimony with reference to these vials of liquid. What do you call them ampules? *A.*—Ampules, *yes, sir.*

Q.—All right, do you want to add anything to what Dr. Petermeyer said about that? Do you ever fool the people with just giving them something that doesn't amount to anything? *A.*—Not by any means whatever.

Q.—Or is there a purpose in it? *A.*—When my attention was first attracted to the use of hydrochloric acid in the treatment of infectious diseases and treatment of gonorrhea and syphilis, I read an article by a man by the name of Ferguson, and I took several patients and examined the blood of the patients before I gave them anything and after examining their blood and making findings and recording it I began giving them a series of injections of hydrochloric acid. I gave it in various strengths, some strengths of 1 in 2,000, 1 in 1,000, 1 in 500, 1 in 250 and after using these various strengths on many many patients, watching, observing the reactions and benefits, if any, that would be observed, I came to the conclusion that the safest way to administer hydrochloric acid was in a strength of one in a thousand. I also use it for wet dressings. I use it in combination and conjunction with other medicines.

Q.—Now, will you explain what it is designed to do, what the purpose is of the hydrochloric acid in the solution? *A.*—My observation of it is that it increases the number of white blood corpuscles. The white blood corpuscles are the ones in our blood stream that attack invading organism, so-called disease germs. And naturally the normal patient should have seven thousand white blood corpuscles, and if you increase those by the injection of this medicine to thirty or forty thousand you have a lot more soldiers on your side fighting the invading disease organisms.

Q.—Well, now, then, is there inflammation, infection, around the parts, the bladder and so forth, in these cases? Does that have any effect on that? *A.*—My observation is that it helps these old cystic cases. These prostate cases coming to us, the bladder walls are infected, they have a cystitis, meaning a burning. My observation is intravenous injections of hydrochloric acid aids us materially with the other treatments we give these patients in overcoming and shortening the time of overcoming that particular infection. Also that the administration of

hydrochloric acid materially reduces the healing time in our work on the scrotum and also on the rectum And I find it assists and aids in the healing of old sores on the patient's body In other words, I find it quite a useful drug in my practice Hydrochloric acid is a natural body acid The human stomach contains it

At this time there was considerable debate on the admission of certain evidence into the case, after which the testimony proceeded·

Q —Doctor, in how many jurisdictions are you now licensed to practice and have you been in recent years? A.—I hold a license to practice medicine and surgery in the state of Texas, the state of Arkansas, the state of Missouri, the state of Tennessee, and I still retain my license to practice in the Kingdom of Italy because of a written examination I took before the Italian Board in December 1925

Q —Then, it wasn't the license to practice medicine but the medical degree, is that what it was that was revoked? A —That is true

Q —In Italy? A —That is true, the degree I received from the university was annulled, but the license that I received to practice medicine has never been revoked or canceled

Q —Doctor, concerning your medical research, what have you had and what do you have in the way of a library? I am not talking now about the general equipment in your hospital, but the library, what do you maintain and what do you have in the way of a medical library? A —I have a good, well stocked library of various text books on surgery, practice of medicine, and different diseases, and, year by year, as new publications come out I purchase them, and I subscribe to various medical publications to read and keep informed of what is going on and being done in scientific medicine

CROSS EXAMINATION

By Mr. Reynolds·

Q —Dr Brinkley, referring to this 1020 preparation, 1020 as I understand your testimony of the other day, means 1,000 parts of distilled water to 1 part of hydrochloric acid in a 20 cc ampule, is that correct? A —Yes, sir

Q —Plus the coloring material? A —Yes, sir, that is it

Q —You say you experimented with various concentrations with the strength of this hydrochloric acid solution, and what was the most concentrated solution you experimented with? A —One in 200

Q —And the weakest was 1 in 2,000? A —Yes, sir

Q —And you performed the experiments yourself? A —I had them given under my direction, I selected a group of patients and set them aside in the hospital, and I had their blood examined and then made the record of the blood findings

Q —When was it that you did all of this? A —We did this at one time in Milford, Kansas, and, maybe, more than once, and we did it again two or three times down here in Del Rio, Texas

Q —I suppose Dr Petermeyer assisted you in some of them, did he? A —No, sir, I don't remember that he did, maybe he did, but I don't know

Q —Well, now, Dr Brinkley, who determined which one you were going to use at the particular time? A —I don't understand your question

Q —I mean who was the one to say "we are going to try 250 on this patient and 500 on this patient"? A —I was the one that said that I would want to try 250 on a certain number of patients and 500 on a certain other number of patients

Q —Now, Dr Brinkley, in this substance, this solution, who made that for you, who prepared it? A —I have it made by the Glosser Laboratories in New York City

Q —You order all of these *different concentrations from them*? A —No sir I don't think that I had the 250 s and the 500's from Glosser, I think I secured them from other sources

Q —Did you make any up yourself? A —No, sir, I didn't make any myself

Q —Not any in your hospital were made up by your employees? A —No, sir

Q —Can you tell whether the thousand to one or the 250 to 1 is by weight or volume? A —It was whatever was supplied to me, if I wrote to a manufacturer to give me a given number of ampules and they came to me labeled as such, I accepted them as such

Q —By weight or volume? A —I don't know

Q —Do you know which you asked for? A —I don't know that there is any distinction

Q —Don't you know there is a great difference in the concentration by weight and by volume? A —I left that to the reliable manufacturer, *not being a chemist* and having nothing to do with chemical work, I deal with reliable concerns that put out dependable products in a safe way and that will not be harmful to humans

Q —Those concerns send you what you order? A —I write an order and I say "please send me one hundred ampules of one to five hundred hydrochloric acid and one to two hundred fifty hydrochloric acid and one to one thousand"

Q —And the chemist doesn't know whether you want it by weight or volume? A —I don't suppose he does

Q —You think that is good practice, Doctor? A —Well, I left it to the chemist to send me a product that wouldn't be injurious to the patient

Q —Something that wouldn't hurt anybody? A —Something that wouldn't injure, of course, I wouldn't want to give anybody anything that would hurt them

Q —Doesn't it make a difference as to whether you administer it where you put it and what part of the body you put it in? A —All of these products are used intravenously

Q —You never injected it intramuscularly? A —Hydrochloric acid?

Q —Yes, sir A —No, sir

Q —Doctor, do you remember when your deposition was taken in connection with the case brought against the American Medical Association by Paul Fernel, a Chicago plastic surgeon, out at your home here? A —Yes, sir, I remember giving a deposition out there

Q —In 1937, wasn't it? A —Yes, sir

Q —At that time didn't you testify in that deposition that this 1020 was administered in the muscles? A —If I did it was misinterpreted, and I didn't intend to

Q —If you did you were wrong about it? A —I was wrong if I said so, yes, sir.

Q —All right, now, Doctor, as a medical man administering drugs and solutions and the hydrochloric acid to your patients, you can't deny that there is a great difference as to whether a concentration is by weight or volume? A —Naturally, there is a difference

Q —*How* was that difference determined? A —I don't know It was determined by the chemists

Q —What is the difference? A —I don't know

Q —How do you know there is a difference? A —Well, because the statement is different, one is the *weighing of the product and the other* is to the volume of the product, so, naturally, it makes a difference

Q —*Do you know* whether in preparing a solution to administer to your patient you can use weight as to one ingredient and volume as to another? A —I *think* it would be by weight, I believe it would be by weight, that is my opinion of it

Q —Can you mix them up one by volume and weight by *the other*? A —Hydrochloric acid is a liquid and water is a liquid, and hydrochloric acid mixes with water—I don't see why you couldn't mix it

Q —Could you mix a definite amount of hydrochloric acid expressed in terms of weight with a definite amount of water expressed in terms of volume? A —I would suppose so

Q —It sounds possible, doesn't it? A —Yes, sir

Q —And you know, as a matter of fact, that is often done in preparing medical solutions, don't you? A —It may be

Q —You know, as a matter of fact it is often all by weight and all by volume? A —I never go into the manufacturing of these solutions

Q —Then, 1 to 500, you expect to get the same thing any time whether you designate it, what it is, or not? A —I would expect if I was dealing with some reliable manufacturer that is dependent and supplies the medical profession with products for the administration of their patients, I expect to get a product from them that would be nonninjurious to give a patient

Q —Without telling them in what way it is to be administered and without telling them for what purpose? A —I tell them it is to be given intravenously, but you don't tell for what purpose

Q —I will ask you in connection with this deposition in the Fernel case if you weren't asked this question and if you didn't give the following answer

"Q —That is what I thought too I thought, perhaps, it pertained to that particular function of the body that you were talking about? A —No, sir

"Q —That is the distinction you want to make? This 1020 you have that you use, you inject it in the veins sometimes? A —No sir I imagine the injection of that would be so painful that he might hit me with a ball bat"

Weren't those the questions and answers you gave at that time? A —I can't imagine any such being given, I certainly would never think of such a thing

Q —Dr. Brinkley, after that deposition was transcribed you read that over and affixed your signature, didn't you? A —No, sir, I didn't read it over, I just glanced through it and signed it, and I didn't have time to thoroughly read it or correct it

Q —You don't think the report was right, then, is that right? A —I know I never intended to say any such thing as that, I can assure you that

Q —Doctor, that is your signature there, isn't it (showing witness instrument)? A —Yes, sir, I think it is

Q —Now, Doctor, are there any other types of medicine you administer to patients that you just send an order and a blanket designation of 1 to 500 and you don't tell the chemists it is by weight or by volume for the mixture of those? A —We use many preparations intravenously that we order direct from the manufacturers

Q —Are they standard preparations used by other members of the medical profession? A —Many are

Q —Then, they would know what to do with that, in a general way? A —Yes, sir, and if I write to them and order something and tell what purpose I want to use it for and how I want to use it, they make up a safe and dependable and reliable solution for me

Q —Then, hydrochloric acid is something that isn't generally used, that is something different? A —I think many people use hydrochloric acid

Q —And you think the chemist is fully qualified to tell you what you should use? A —I *think so*

Q —And that you are qualified to use it without knowing whether it contains that percentage by weight or volume? A —*I think a reliable* manufacturer sends you a product that he is supplying to you and other members of the profession that is not any risk being taken in

Q —In other words, the chemical manufacturer is determining the treatment to your patients rather than you, isn't that right? A —No sir

Q —All right, now, Doctor, in using this hydrochloric acid in the blood stream it is a fact that hydrochloric acid is an inflammatory or infection inciting substance, isn't it, that is, causes it, in other words? A —You mean hydrochloric acid would cause infection?

Q —*Sure*? A —I don't think so

Q —How about inflammation? A —I don't think it *would, because* any—in other words, if it was injected inside a vein, the blood stream—

Q —What does it do? A —It has an action that stimulates the production of white blood cells

Q —All right, you tell us how white blood cells are produced in the human body and generally for what purpose? A —They are defensive in their action

Q —In other words, they are produced to combat infection? A —That is right

Q —And when you inject the hydrochloric solution you *don't think* that *there is any infection* goes along with that because of that production of white blood cells? A —No, sir, there is *no infection*, if there was any infection in it your blood cells, why, it would be injuring your patient

Q —I *want to know* how 1020 produced the white blood cells? A —It evidently stimulates the thing that makes them

Q —*It does*? A —That is *what it causes*, and we don't know what causes it, but something goes wrong with it

Q —Is there anything else you give? A —We *inject* in the patient various vaccines and serums to stimulate the human forces and body against the diseases

Q.—And those, you know, are infection inciting substances themselves? *A.*—Those vaccines have been subjected to the heat to a point where the infection has been destroyed and the toxin from the infection is retained, but the organisms themselves are killed.

Q.—Is that your understanding of the vaccination? *A.*—The bacteria is killed.

Q.—Is it true that you inject the vaccine into the body in order to produce the situation that is opposite, but, at the same time, it is one infection that throws off; in other words— *A.*—I think it produces the opposite result, sure, but the vaccine, naturally, is introduced to stimulate the increase of the defensive organisms of the body.

Q.—Doctor, will you tell us where and how white blood cells are produced? *A.*—It is not generally known where the white blood cells are produced; the spleen is one place where they are considered to be made. They increase after taking these ampules.

Q.—Then, Doctor, you say that your work here with 1020 is quite experimental, don't you? *A.*—No, sir, I don't think it is experimental in the way of helping people.

Q.—It is experimental so far as you knowing what is in the substance and knowing where it happens or why it happens? *A.*—I don't think anybody knows what happens or takes place; when we administer many preparations we observe the clinical results and draw our conclusions from what happens after we do something.

Q.—And this 1020 business—Doctor, have you ever tried injecting pure distilled water in place of hydrochloric acid? *A.*—No, sir, I never have.

Q.—As a matter of fact, if you think over your theory very well, Doctor, you know you would get the same result? *A.*—I don't know what result you would get by injecting pure distilled water; I have never tried it or made the observation.

Q.—How much does the 1020 ampule cost you—you say eighteen cents apiece? *A.*—I think something like that.

Q.—And you administer about a half a dozen of them to a patient over a period of a week, you say? *A.*—Seven to fourteen.

Q.—And for that week's treatment, the administration of those seven to fourteen ampules, you charge a $100, isn't that true, Doctor? *A.*—No, sir, not in that way, no, sir.

Q.—What way is it? *A.*—We give those ampules and then we give the patient other medication; that isn't the only medicine we give them.

Q.—When he leaves the hospital do you give him medicine to take home with him? *A.*—We have various prescriptions filled for the patients to take back home and take after they get home.

Q.—Most of them take 1020 if they leave before the postoperative treatment? *A.*—No, sir.

Q.—None do? *A.*—No, sir, not now, and we haven't in two or three years.

Q.—You did then? *A.*—Yes, sir, years ago.

Q.—And your charge was the same whether they stayed for the postoperative treatment or went home, it was still $100? *A.*—No, sir, not based on $100 a man; a man might come and pay $275 for an operation, and the operation and treatments might be $750.

Q.—And it might be $1,500 for the treatment for the payment on an automobile? *A.*—It may not be on an automobile. When the patient gets home, and we thought that he should continue to take some of the medicine intravenously we give it to them to have their family doctor administer when they get home.

Q.—Do you give the instructions as to how to give the medicine? *A.*—It is given to the patient by the doctor that handled them in the hospital.

Q.—As to how the home doctor should use it? *A.*—A letter of instructions went along with it.

Q.—When was it you said you first tried the experiment with the hydrochloric acid in Milford, Kansas? *A.*—I don't remember the first time we tried it.

Q.—Just approximately? *A.*—I think it was in 1932; I think it was the year before I came down here.

Q.—Was that before Ferguson's article was written, that you are talking about? *A.*—I don't know when his article was written; I remember that I read Ferguson's article, and I had read other articles. It might have been at the beginning of 1933; but, anyway, I know I had used some of it and was using it in Kansas before we moved down here to Del Rio, Texas.

Q.—Have you read any further articles on the use of that substance in which the physicians stated that they found it was of no value? *A.*—I have read articles from physicians who said they had no results with it whatever.

Q.—You also know it has generally been disproven and disregarded by the medical profession? *A.*—No, sir, I don't think so, because I notice the manufacturers still make it and sell it, so, there must be a demand.

Q.—They make and sell it when you ask for it? *A.*—They sell it to others of the profession besides me; I am not the only one that buys it.

Q.—You don't know that as a fact, or that is your understanding—you know very well the medical profession has discarded the use of hydrochloric acid for the purpose you claim to get out of that? *A.*—I don't believe that.

Q.—You spoke about hydrochloric acid being one of the natural acids in the body, and you could say that about almost any acid, couldn't you, Doctor? *A.*—Not in the sense of what I meant when I made that statement; I was thinking of hydrochloric acid in the stomach.

Q.—Well, there are several other acids in the stomach, too? *A.*—Yes, sir.

Q.—What percentage of hydrochloric acid is in the stomach? *A.*—I will declare, I don't remember; 1.25, I believe, but I forget.

Q.—If there is some in there, some of the hydrochloric acid in the stomach, does that produce white blood cells in the stomach? *A.*—No, sir, I don't have any idea that it does.

Q.—Why not? *A.*—Because it is not coming in the stomach—I don't conceive of it coming in contact with the blood stream; it is put out in the stomach as an aid to digestion.

Q.—There is no way it would get in the blood stream, in your opinion? *A.*—No, sir, not as hydrochloric acid there in the stomach, no sir.

Q.—Now, Doctor, you talked about some experimental work or some study that you made in a colony of eunuchs, and where was that? *A.*—Indo-China, Ammon.

Q.—And your study of those eunuchs, that is, if they were castrated at an early age, they didn't develop a prostate gland? *A.*—Those I examined didn't have any evidence of a prostate.

Q.—What is it, in your opinion, from the examination that causes the growth of the prostate gland? *A.*—The prostate gland, in my opinion, is held in check up until the man attains a certain age, which I call the change of life in a man, by a balanced condition of his glandular system.

Q.—Wait, Doctor, you are not answering what I had in mind; maybe the question wasn't clear. What I mean is what is it that, between the time a baby is born and up until he becomes, well, until he reaches the age of puberty, what is it that causes the production and growth of the prostate gland? *A.*—I read in the literature that the prostate and the accessory sex glands are stimulated to grow by the male sex hormone, which controls them.

Q.—And the male sex hormone, where and how does it get up there? *A.*—The male sex hormone is made some place inside of a man's testicle, but it hasn't been definitely determined yet what part of the testicle that hormone is made in; that hormone, according to different investigators, stops at the age of puberty and remains normal along with the female hormone; the man has both hormones, the male and the female, until the break, we call it a break, on the anterior portion of the pituitary gland, and later on in life when a man grows old the cells in the testicles, whichever kind they may be, that makes the hormone, due to the infeeblement, don't make so much any more, and there is a less amount of the male sex hormone, and this takes the break off of the substance called prolan in the anterior part of the pituitary gland, and the basic cells in the pituitary where the prolan is supposed to be made exhaust themselves by the use of the prolan—

Q.—Well, I merely asked you what produced the growth of the prostate gland up to the growth of puberty—you say it is the sex hormones? *A.*—Yes, sir, the male sex hormone, that is my understanding.

Q.—The male sex hormone functions in that growth by passing through what canal in the body? *A.*—The blood stream.

Q.—And does that have anything to do with these ducts that you tie off? *A.*—In the sense of a hormone passing through the ducts, I don't think there is any relationship there at all.

Q.—Which secretion in the testes do you think passes, the external or the internal? *A.*—The external with spermatozoa.

Q.—Would that indicate to you that the external secretion didn't contain the sex hormone? *A.*—I don't think it does.

Q.—But you said you didn't know a minute ago? *A.*—I never said any such thing. I said I didn't know what part, and nobody else knows what part of the human testes makes those hormones.

Q.—It is definitely established what kind of tissue does? *A.*—Yes, sir; it is the interstitial tissue.

Q.—You can dissect and find what kind of tissue is in a particular part of it? *A.*—Yes, sir; but they haven't been able to put their finger on it and say which part is which that makes that hormone.

Q.—But if they just look and find where the interstitial tissue is they would know? *A.*—No, sir, because they have searched the interstitial tissue and they are not sure that it is made there; some are of the opinion that it is made in the inner tubules, and the epithelial and the interstitial, and one fellow has one idea where it is made and another fellow has another idea.

Q.—When you find a man late in life that you have the opinion that he has an enlarged prostate, as I understand Dr. Petermeyer's testimony, you tie off or ligate the ducts in order to cause a congestion, is that right? *A.*—In one sense I would correct that.

Q.—Let's have what other sense, if you don't agree with him? *A.*—My thought is, along with others, that tying off the ducts and blocking the passing of the semen so that it can't get out of the testes destroys the tubules, which we discussed previously, and destroys them and makes more room for the interstitial cells and germ cells to rejuvenate themselves and be more of them so that there will be more of the male sex hormone which can be made by the patient, and that is the way the benefits result; because many examinations have been made of these men before they had this done to them, and the amount of the sex hormones was found in the urine, and after the work was done the urine was examined later and found to be increased.

Q.—Where is the female sex hormone produced? *A.*—Somewhere in the testes of the male.

Q.—You think that by tying off the ducts you are going to get a disproportionate production, and you are going to change the balance? *A.*—It doesn't seem to change the balance; theorizing on it, you would theorize that way, to increase one you would think you would increase the other, but that has not been noted to occur.

Q.—That is not noted by you to occur? *A.*—I have talked with other men in this line of work and discussed it thoroughly, and I have seen many learned men; I have seen Dr. J. Elliott Smith, at the Saint Giles Hospital, London, England, and I went to see Professor Steinach at Vienna, but he was away on his vacation, so I talked with Professor Doppler, his assistant, and I went to Montreaux, Switzerland, and talked with Dr. Niehans, who has been doing this work, and Dr. Kocher of Berne, Switzerland, and I got their ideas as to whether it reconciled with me and whether I was on the right track, and I tried to go into those things.

Q.—Those men were doing that with the purpose or claim of sexual rejuvenation, were they? *A.*—Answering the question that way, I never asked what claims they were making, other than that we were discussing this work from a standpoint of enabling a man to empty his bladder.

Q.—They didn't claim it was an operation they were performing for the purpose of reducing the size of the prostate? *A.*—Yes, sir.

Q.—They didn't claim they were doing it for the purpose of treating prostatitis, did they? *A.*—Yes, sir; I believe I have some case reports from both of them on cases of prostatitis.

Q.—I thought you said you didn't discuss the purpose for which they were doing it, Doctor? *A.*—I said I didn't discuss the operation from a rejuvenation standpoint. You asked if they were claiming the operation was good for rejuvenation, and I said I didn't discuss it along that line.

Q.—When there is a change in what you call the balance between the male and female sex hormones in later life, I understand that you mean that the male hormone portion of it is decreased, is that correct? *A.*—That is what I am thinking, that the amount of male hormone is decreased and the female hormone seems to remain stationary.

Q.—Does that tend to make any physiological change in the man other than the prostate? *A.*—The testes soften about that time.

Q.—Do they tend to become effeminate? *A.*—No, sir; the man doesn't lose enough of his male sex hormones to take a change toward the feminine sex.

Q—Now, Doctor, in the ligature of these ducts it is quite true that nature tends to compensate in some manner for every blocked function, isn't that the general truth, in other words, any kind of an injury, why, nature has some compensating factors, like you are talking about the production of the white blood cells, and that is a relatively general rule, isn't it? *A*—I think more or less general, yes, sir

Q—Doctor, when you only tie off a few of those ducts between the testes and the epididymis, isn't it your opinion that nature compensates by making the rest of them do the work that all had done before? *A*—No, sir, I don't think so, I believe when you tie up a portion of those ducts that part of the tissue becomes congested and probably destroyed, and the tubules, no doubt, a portion of them become injured from that and they are replaced by something else

Q—You think nature causes a difference in the production of certain things or the certain parts that cause the male hormone, but you don't think it has anything to do with the parts that go through those tubes? *A*—In this instance nature wouldn't build a new set of tubules because a man is born with those, and if he loses a tubule he loses it forever and he is not going to grow another one

Q—If you tie off those, tie one of those off, and assuming there are nineteen others, why, tying off the one, why, the nineteen would do the work of the twenty? *A*—I wouldn't tie off just one

Q—I don't mean that, I just mean to say— *A*—I don't think so. A man would be plenty fertile yet, because a man, from that standpoint, is still passing plenty of spermatozoa

Q—And after that the nineteen would do the same as the twenty did before? *A*—I don't think nature would compensate to that extent.

Q—Are there any other portions of the body where you think nature wouldn't compensate? *A*—There might be, if you called my attention to them

Q—Those tubes aren't full all of the time? *A*—They are filled full of spermatozoa and semen, I believe, and I think they are filled all of the time, I don't think they are ever empty

Q—Constantly full? *A*—I think semen is coming out of those cells down there, and those globules, and gradually working up those tubules to where they are all of the time filled

Q—What kind of tissue are those tubules composed of? *A*—Tubular tissue

Q—Is tubular tissue elastic? *A*—No, sir, they are not elastic

Q—There is no way under the sun that those would stretch or enlarge to compensate for pressure, in your opinion? *A*—I doubt very much if they stretched any, they would, naturally, I suppose, when this secretion would be locked off, that is what causes—

Q—That is nature's compensation, isn't it? *A*—Not in the sense I am talking about, that is where nature can't help the tubules, and they are destroyed because they become overfilled and destroyed

Q—Well, then, it is your opinion that if you tie off all of those little ducts, efferent ducts, that as soon as or later you completely stop the external secretion from being produced in the testicles? *A*—I can't answer you that question, that could only be answered if I did the operation on a man and then later on took his testicles out and cut them open and looked to see what had happened.

Q—Now, Doctor, you talked about your dollar for pills business, and you have over the radio numerous times in the past told people to send a dollar or a dollar and a half to the Del Rio Drug Company and get prescription number 51 or number 65, or something like that, you have done that? *A*—No, sir, I never have since there was a Del Rio Drug Store, and I never have since I have been here mentioned any prescription by number, by any number whatever, as I told you, I promised the Federal Radio Commission in Washington in June 1930 I would never again describe those medicines by number over the radio, and prescribe them, and I never have called medicine by number over the radio since

Q—You did before that time? *A*—Yes, sir, I did before June 1930, I did

Q—All right, Doctor, you have taken symptoms of patients prior to that time and prescribed over the air, haven't you, from symptoms written in letters? *A*—It is like this those letters would come to me and they would say "I have been to my doctor—"

Q—Doctor, I guess you explained that before, why and how but it is a fact that you did it?

Mr Morriss Sr—He was answering the question, and he has a right to answer it, I think

THE COURT—Let him make the explanation afterward, but I think he should answer it

A—Yes, sir But I would like to explain

Q—Now, Doctor—

Mr Morriss Sr—Just a moment, the court said he has a right to explain it

THE COURT—If the simple answer of yes or no isn't enough, I will let him explain it.

A—I would like to explain this for instance, you wrote me a letter and said you were being treated by Dr so and so and that he told you that you had gallbladder or stomach disease or some other disease, and what was the matter, and that that was what you were taking the treatment for—"now, Dr Brinkley, my symptoms are so and so, and here is the way I feel, and what do you think about it," and that is the way most of those letters were answered on that basis, that these people were taking treatment from some doctor and they told me they were suffering from something

Q—Lots of those letters that you prescribed for over the air on that didn't state they had been taking a treatment from the doctor, a lot of them said "I have a back injury, and I have so and so," and you prescribed on the basis of what they told you in the letter? *A*—I probably have, I may have in some of those instances

Q—And lots of those instances where they wrote and said "I have gallbladder trouble" or "I have rickets" or something else, and you prescribed? *A*—Yes, sir When a patient says "I have so and so" I am of the opinion that the physician told them that is what he had

Q—You don't think that a patient gets it in his mind about what he has? *A*—Well sir, I agree with you on that, plenty of them get a notion in their head that is hard for a doctor to get out

Q—Do you think it is good practice to advise a man over the air that says "I have such and such" when you don't know which way he came to that conclusion? *A*—If you advise him something such as a simple laxative, or something like that, it is all right, but if you go to advising him on definite things and treatments other than that I think it is wrong

Q—All right, if somebody wrote and told you a child had rickets and you would prescribe thyroid extracts? *A*—Probably, in making a statement of that kind, I would have some background picture of this particular case

Q—Now, Doctor, as we consider that subject, isn't it a fact that a cathartic, for instance, might be very dangerous in a stomach case? *A*—A brisk cathartic on coming appendicitis, I think, is dangerous is a dangerous thing

Q—As a matter of fact when patients write in and describe a half a dozen symptoms it is quite possible those symptoms might be due to two or three different conditions, isn't it? *A*—Possibly

A—Doctor, you spoke with great reverence of your father as a doctor, but your father didn't advertise his wares, did he? *A*—Lord no, he was a poor, old country doctor

Q—Well, Doctor, I want to get one thing straight did you mean to state a while ago that the attorneys for the American Medical Association paid Crawford for giving that deposition by getting his release? *A*—No, sir, I didn't intend to convey any such meaning of that

Q—Let's have what you mean? *A*—This fellow Crawford came to me at my office in Milford, Kansas in 1932 while I was a candidate for governor, and he said for a consideration of $300 he would change this deposition that he had given to the American Medical Association while he was in the penitentiary in McAlester, Oklahoma, and he went on to relate to me the circumstances, said he was called into the warden's office—

Q—Did you say they promised to get him out? *A*—He said they promised to help him, and he told me—

Q—You didn't mean to convey the impression that there was any influence by the American Medical Association in getting that testimony? *A*—I am just telling you, and that is all I can do I can't do anything other than relate what Crawford said to me, and Crawford said they would do anything that they could

Q—Did Crawford tell you they did effect his release? *A*—I don't know that he said they did

Q—You didn't have that impression at that time? *A*—I was so disgusted with him, like any man would be under the circumstances

Q—Doctor, how many goat gland operations would you say that you and your associates performed since you introduced it? *A*—I suppose about six thousand, five or six thousand

Q—You say, now, those were experimental or do you say that it was the greatest remedy you ever found? *A*—I believe that the transplantation of glands is one of the greatest adjuncts to treatment for certain things we have, and I find that those glands are far superior even today than any product I can get like the male or female sex gland for the administration of a patient

Q—You have seen many of the patients in whom you have transplanted goat glands a considerable period after the transplantation haven't you? *A*—All down the years yes, sir

Q—You examined the testicle at that time? *A*—Nothing only by feeling of it

Q—For how long would you say, after you put that gland in there were you still able to feel it? *A*—You seem to be of the opinion that all of my gland operations were in the testicle, and I think I started to relate the other day that I transplanted them in different ways and I related one of them in the testicles

Q—Well, speak of the one in the testicles? *A*—We better say there are very few of those done, very few of them performed, the majority of those gland implantations were made in the fasciae of the scrotum or in the cremaster or the cremasteric muscles of the scrotum

Q—You could feel them? *A*—Yes, sir

Q—How long a period of time could you feel them? *A*—I have observed them—well, in one particular case—and of course, I am not mentioning that case to say that all cases were like this because they weren't but you asked me how long, and I will say I remember one case that I could feel nodules and lumps in there for a period of two years afterward

Q—What would be the average would you say? *A*—The average of those would be—the majority of them would practically find nothing left after a period of six months, a few of them, quite a few of them I found to be able to feel of them nine months afterward

Q—What did you feel when you felt them? *A*—Feel a round nodule like a little marble, or something like that

Q—Hard scar tissue? *A*—No, sir

Q—What did it feel like? *A*—I thought so, but I cut some out to see, and some of them had glandular tissue in them

Q—As a matter of fact, no male sex hormones are produced in goat glands? *A*—There are, no doubt, female and male sex hormones when they come out of the goat, it is evidently full of them

Q—Do you believe that the sperm is specific with the species? *A*—I am not speaking about sperm, I am speaking about hormones

Q—Then, your goat glands had nothing to do with anything but hormone production, is that what we are to understand? *A*—My idea of whatever good they did to put in a man caused him to urinate, and so forth, and he was getting that sex hormone to balance his own up to the level with the female sex hormone, and that is where the good came about

Q—Was it the overamount of female hormones that caused the enlarged prostate? *A*—It seems to be, 'cause we go and inject the female sex hormone into the pig or the rat, and by continual injections of that in the pig and in the rat they have cancer of the prostate or enlarged prostates, and by that we produce cancerous prostates and enlarged prostates, and, on the other hand, if you take both of the male and the female hormones of equal proportion and inject them at the same time there is no observation or change one way or the other

Q—Here is what I am trying to get at if the male sex hormone, if that is what causes the growth or accounts for the growth of the prostate gland, how was that consistent with your theory that in later life, adding more male hormones reduces the size of the prostate gland? *A*—When the male hormone becomes reduced in size it releases other substances held there called prolan, and when this is put in the blood stream then the prostate—the production of the prolan is stopped and the prostate ceases to enlarge

Q—Then, it is the prolan that caused the enlargement? *A*—The prolan is set loose by the action of the sex hormone

Q—The prolan is what causes the enlargement? *A*—In connection with the sex hormone

Q—The sex hormone is something that sets it loose, and it doesn't have anything else to do except that the prolan is on the prostate is that your thought? *A*.—No, sir, my thought isn't that way

Q.—I just want to get what it is, Doctor. What I want to know is the difference between the size in the prostate gland being because of the hormone, and, yet, in old age when you cause the production of more male hormone you say that minimizes or reduces the size? *A.*—A man has a normal amount of male sex hormones running from 10 to 24 units, and that is what has been estimated as being the normal amount of male sex hormones, and as long as man maintains that the release of prolan is not observed, but when that amount is decreased the release of prolan is observed and enlargement of the prostate takes place, so if we don't have the proper amount of sex hormones in the man's testicles to hold the prolan in the pituitary gland in balance and not let it go to overproducing itself we are going to get our enlarged prostate, and we have to have that checked, and the sex gland, the male sex gland is the one that checks against the prolan in the pituitary.

Q.—You know that in the development from child into man there are often cases of a delayed development? *A.*—Yes, sir.

Q.—Would you say in connection with that that when a person doesn't assume his full sexual maturity you must also find an enlarged prostate? *A.*—When these testicles haven't descended in children and haven't developed we find the prostate hasn't developed, and that is what gives me the idea that the male sex hormone has to do with the growth and development of the prostate gland because the undescended testicle, if both are undescended, it shows that the boy grows up just like a eunuch and has no prostate.

Q.—Now, Doctor, are goat glands used in the manufacture of commercial hormone preparations? *A.*—I don't know.

Q.—As a matter of fact, they get the greatest supply of that from entirely different substances? *A.*—I don't know where the supply comes from, since they have been able to identify the hormone.

Q.—They get it from the urine of pregnant mares? *A.*—That is one source.

Q.—You never heard of them using goat glands for that purpose? *A.*—I never heard of using sheep glands or any other kind, because it would be too expensive, it would be impossible to use, I think, for the extract of that hormone.

Q.—Now, Doctor, in this new technic you now have you say you have widely discussed that with people, and you let everybody know about it, and you have written articles to the medical journals asking them to print? *A.*—New technic?

Q.—Yes, sir? *A.*—I haven't written a thing to the medical journals, because I was turned down before and I knew I would be turned now.

Q.—As a matter of fact, you stated in your biography here that you would never reveal your technic of any kind to anybody again, didn't you? *A.*—I declare, I don't know what is in the biography.

Q.—You did have a little trouble with a couple of fellows who worked for you taking your goat gland and going elsewhere and performing that operation? *A.*—Owensby and Dragoo at Milford have their own hospital there, and they have been there ever since I left Milford.

Q.—And you didn't have any resentment of that at all? *A.*—I thought they treated me unfairly when both of them had been on my staff and employed by me, and to break loose from me.

Q.—Didn't you send out circulars and letters and advertisements in newspapers denouncing them for having done that?

Mr. Morriss Sr.:—I believe that is pretty far afield.

THE COURT:—I think it is legitimate cross examination.

Q.—How about that, Doctor? *A.*—I am sure I never put anything in the newspapers.

Q.—You did send out some circulars? *A.*—Probably did send out letters to my patients, very likely did.

Q.—In other words, you resented the other doctors having, in your opinion, stolen your treatment, is that right? *A.*—I just felt like they didn't treat me fair.

Q.—By using your treatment, is that it? *A.*—No, sir, by quitting my employ, abruptly breaking off from me without doing so in a legitimate business-like way.

Q.—You wanted to keep that process yourself, didn't you, Doctor? *A.*—I didn't want those fellows working for me to get up and set up a hospital and go in competition with me.

Q.—In your biography isn't this statement contained, referring to that episode and referring to the doctors by letter, Dr. A and Dr. B, and then it said "this forced Brinkley to do his own surgical work in Kansas; a court order permitted this, but this court order was of doubtful permit, and at any time Brinkley might find himself without authority to operate his own hospital or perform his own surgery. He came to some definite conclusions that the discovery and all improvements in his technic had been made by him alone, and he had been betrayed by A and B, and never again would he give a doctor a chance to do this to him, and he would let no other doctor in on his secrets"? *A.*—The betrayal didn't refer to them setting themselves up in business, but from business methods and things they did in my office that certainly brought me to the conclusion and opinion that I never would have any doctors working for me again and take them into my confidence like I did those two fellows.

Q.—You haven't broadcast your new treatments to the world, then, have you? *A.*—Well, I am broadcasting every day.

Q.—I said your new treatments or methods to the medical profession? *A.*—As I told you, I haven't written any medical journal articles since the previous time when I offered them and they weren't accepted; I don't consider it would be any use for me now to get out a letter to the doctors or try to get something in the medical journal.

Q.—You know that Ferguson wrote about the hydrochloric acid solution, don't you, and the doctors tried it? *A.*—Yes, sir, I know Ferguson wrote about it.

Q.—Also, that it was generally discarded?

THE COURT:—You asked that before.

Q.—Now, Doctor, there has been some talk here about your inviting other doctors to see your goat gland operation; as a matter of fact, that happened when your license was under fire, and you then said to the Kansas Board to appoint some doctors to watch you, isn't that it? *A.*—That is one time, but that is just merely one instance among many.

Q.—And those doctors did come and watch your operation? *A.*—Some of them did. I don't think all did.

Q.—Dr. Nesselrode was one? *A.*—Yes, sir.

Q.—And, then, they made full reports to the Kansas Board? *A.*—Very likely did; it is my understanding that they did.

Q.—And the license was, thereafter, revoked?

THE COURT:—That has been in evidence here a half dozen times that the license was revoked. We will recess now, gentlemen, until two o'clock.

At this time a recess was taken until 2 p. m. of said date; which time having arrived, the following proceedings were had, to wit:

Questions by Mr. Reynolds (resumed):

Q.—Dr. Brinkley, just a few more questions. Do I understand it that you formerly called what you now call your surgical technic the compound prostatic operation? *A.*—Not exactly, no, sir. When I was using the word the compound that was back in the days when I was doing work on the vas deferens, implanting the glandular tissue and things like that, and that was what I was speaking of as the compound operation.

Q.—Was that the same as the four phase operation? *A.*—When I was speaking of that I was putting in the glands, cutting out a section of the vas and injecting medicine through the vas and bringing down some muscle tissue and implanting it into the testicle.

Q.—I understand that, but is there a difference there between your four phase operation and then what you next called your compound operation? *A.*—Yes, sir.

Q.—There is a difference? *A.*—Yes, sir, there is a difference.

Q.—Is there a difference between the compound operation and what you refer to as the compound prostatic operation? *A.*—I don't think I ever used the word compound prostatic operation, I don't think I used that.

Q.—You haven't used any other name for this present surgical technic? *A.*—When I first started using it I thought about calling it a budding operation just for the purpose of using a term.

Q.—Doctor, you spoke this morning about thyroid gland transplantations. I believe you say you witnessed that over in Europe some place. That was discarded, wasn't it, after some experimentation? *A.*—I don't know, sir.

Q.—You haven't heard of it being followed up in this country and being generally used, have you? *A.*—I don't know.

Q.—Now, Doctor, there is another thing I want to get clear here. In your opinion was your four phase or any operation employing the goat gland effective in curing sterility caused by gonorrhea? *A.*—No, not a gland transplantation, it would certainly have no effect on sterility caused by gonorrhea.

Q.—And you don't have that claim regarding your compound operation, do you? *A.*—No, sir.

Q.—Now, about sterility caused by mumps? *A.*—Back when I first began using these glands I put the glands into some patients that had the mumps and after the glands were transplanted into them their wives conceived and bore children and that gave me a thought that possibly the absorption of that glandular tissue was stimulating the man's testicle into the formation of sperm cells. Possibly my misconception in my eagerness and enthusiasm was overdrawn.

Q.—Do you cure sterility caused by mumps by your present technic? *A.*—Oh, no.

Q.—You don't make any such claim? *A.*—No.

Q.—Doctor, this is a touchy subject, but quite truthfully, in your own estimation, are you the greatest prostatic specialist in the world? *A.*—You know, I certainly don't think so. I imagine there are many men who are probably greater than I am.

Q.—But you like to have people write on these contests stating that you are? *A.*—The announcer over the radio station fixes up those announcements and puts them out.

Q.—What are you going to do with those letters? Have you formed plans on those? *A.*—I will send each one of those people a book.

Q.—You are going to judge the best one and give them the prize, though? *A.*—Well, that is a statement made over the radio. I imagine I will call in several people at Little Rock. I imagine we will have thousands of them. I doubt if I will be able to read them all.

Q.—What book is this you are going to send them? *A.*—A little book, probably a little book entitled "After Twenty-One Years."

Q.—What is the general nature of the book? *A.*—Talks about the radio station and the silver wedding anniversary of Mr. and Mrs. Brinkley, reproduction of x-ray pictures we have made of former patients and my boyhood.

Q.—Talks about your former patients? *A.*—Yes.

Q.—And benefits you have done for them? *A.*—Yes, sir.

Q.—Doctor, may I ask what is the value of that enormous ring on your left hand there? *A.*—I paid $4,300 for that ring, sir.

Q.—Do you think that is the value of it? *A.*—I don't know what it is worth. That is at least what I paid for it.

Q.—How about the one on your right hand? *A.*—This?

Q.—Yes, sir? *A.*—That ring is worth about a $1,000.

Q.—How about your stickpin? *A.*—Fifteen hundred dollars.

Q.—Your tieclasp? *A.*—Oh, about $800.

Q.—How many automobiles is it you have now, Doctor? *A.*—I will have to go to counting up.

Mr. Morriss Sr.:—I don't know that that has anything to do with the question of this libel suit, but if he wants to pursue it I just don't know why. If the gentleman thinks he can get some prejudice in that way I don't want to make any particular objection.

THE COURT:—Well, if you don't want to object you ought not to rise to your feet. If you want to object the court will rule on it.

Mr. Morriss Sr.:—I just think that that inquiry has gone far enough, that is what I think about it.

THE COURT:—Overrule the objection.

Mr. Morriss Sr.:—Note the exception.

Q.—How many automobiles, Doctor? *A.*—Well, now, you will pardon me until I figure up a little bit, will you? Over on the farm in North Carolina I have a couple over there and down at the citrus groves I have a couple down there. That is four. At the hospitals we have three or four. Well, say that is eight. I am not sure. And I think we have four here at home, something like that. I guess about a dozen.

Q.—These here at home are all large cars, aren't they? *A.*—No, we don't have—if you are thinking of limousines, we don't have any limousines here, we have nothing larger than a five passenger car here.

Q.—What about this red car you ride around in, what kind of car is that? *A.*—That is a Cadillac 16 coupé.

Q.—How many times is your name on there, Doctor? *A.*—I never counted it, I don't know.

Q.—About thirteen or fourteen times, isn't it? *A.*—I don't know, I never counted it.

Q.—In naming your automobiles you forgot your bus in Little Rock, didn't you? You have a bus running between your two hospitals? *A.*—No, that is an old Cadillac.

Q —Doctor, you originally built this radio station over in Villa Acuna, didn't you? A —XER? I built that, the first one, myself

Q —How many towers were sticking up, the antenna? A —We put up two and then the third one

Q —That third one was put up after the station was temporarily closed, or was it? A —No, that third tower was up there when the station did close

Q —Sometime between its opening, then And then you didn't put it up in the first place? A —The two towers were put up and then within a year I think the third tower was put up

Q —Now, that third tower is located just about the center of the other two except it is a little to the south toward Mexico, isn't it? A —Right

Q —What is that third tower for? A —To give a directional effect to the station

Q —In other words, your broadcasts don't go South, but they go North? A —Yes, they go South the amount of power that goes South is the exact power that is in the antenna I will just give you an illustration as it is today Today there is 500,000 watts put in the antenna Now, South they get the effect of a 500 000 watt broadcasting station, but directly up this way they get the effect of a million watts broadcasting station

Q —Now, Doctor, just as a general estimation what is the value of the real estate owned by you? A —In North Carolina I would estimate the real estate over there is worth $75,000 The citrus groves down here in the Valley $50,000

Mr Morriss Sr —By the way, I believe we object to all that as having nothing to do in this case, being irrelevant and immaterial and incompetent to establish any issue and we move the exclusion of—the withdrawal of the questions and the answers so far and make the objection to anything further along that line

Mr Reynolds —Your honor, there are several decisions in various states I don t think we have found one in Texas, I will say that, but in many states that the financial condition of the plaintiff in a libel action may be introduced into evidence Now, it is generally known that the financial condition of the defendant can be but there is a division of authority on the financial condition of the defendant—of the plaintiff I am urging those decisions in that way upon the Court as being a reasonable one You will find that all definitely set out, I think it is page 251 of Newell on slander and libel

THE COURT —It seems to me if there is inquiry as to the source of his revenues, where it might have come from, it might have some relevancy I think the question of his income was gone into rather thoroughly the other day He testified what his income was for three or four years I don't think I will let any further questions along that line go in

Q —It is a fact, is it, Doctor, that you have had continual financial success in the practice of your medicine, though, ever since you started advertising? A —No, I haven't had continuous success, I have had some years that were quite unsuccessful

RE-DIRECT EXAMINATION

By Mr Morriss Sr

Q —Doctor, since the lengthy discussion about the theories of the prostate that we have had do you or not still hold to the opinion that your operation benefits patients and mankind? A —Absolutely

Q —Do you or not know whether the prostatic operation by ligating the epididymis has been accepted and approved and is now practiced by a good many other doctors other than yourself? A —Yes, that technic is used by other physicians

Q —Counsel asked you the other day and there was testimony, the testimony of Mr Tingle, about a proceeding filed at Dallas at one time in which it was tried to revoke your license in Texas What became of that proceeding? A —Dismissed

Q —Doctor I did want to ask you one other matter, and that was with reference to the effect, if any, of this article at the time it came out upon your own feelings? A —It made me feel ashamed and made me feel embarrassed and hurt my feelings generally It made my wife feel ashamed and my daughters—

Mr Reynolds —Just a minute The rest of the family aren't claiming damages here I think that should be stricken from the answer

THE COURT —The feeling of his wife or the balance of his family might have had some effect on him I will let the jury consider it

Mr Morriss Sr —I think that is all

RE-CROSS EXAMINATION

By Mr Reynolds

Q —You said this technic is being used now by other physicians How many can you tell us that use the ligation of the efferent ducts? A —Steinach, Elliott Smith, St Giles Hospital in London and Dr Neihans is using it, and I think there are quite a few physicians in the United States using it

Q —Do you know that there are any in the United States using it? A —I believe there are

Q —You don t know? A —I don't care to swear to it That is an opinion

Q —Now, regarding these Texas proceedings in regard to your license, they were dismissed, there never were any hearings on that, were there? A —No

RE-DIRECT EXAMINATION

By Mr Morriss Sr

Q —Doctor, with reference to your best information, how about doctors in San Antonio and other cities and towns, have they gone to using it?

Mr Reynolds —I object to the Doctor's best information

Witness excused

TESTIMONY OF J H DAVIS

J H Davis testified on direct examination by Mr Morriss Sr that he is a doctor, living in Little Rock and licensed in Arkansas, Texas, Mississippi, Louisiana and Oklahoma He came to Del Rio in 1933 and moved with the Brinkley Hospital to Arkansas His testimony then proceeded as follows

Q —What do you do, Doctor, what is your connection there? A —Well I am examining physician, and of course I recheck some people, not many not as many in Little Rock as I did here

Q —Have you witnessed and assisted in any of these prostate operations that Dr Brinkley performs? A —I have been in the operating room a few times when Dr Brinkley was operating and, in fact, when the other surgeons was operating, too

Q —And have you had occasion to inquire—let's see you have been there something over five years, have you? A —Something like that.

Q —Have you had occasion to acquire an intimate knowledge of the operation and of the treatment, examinations and all that that are given to the patients in that hospital? A —I do about the examination and I have had observation of the operation I have never done the operation

Q —We are not going to take the time, Doctor, to ask you with reference to the details of the examination that patients are put through That has been testified to But I just wanted to get from you the matter of—of this prostate operation and the question of its success or not? A —Well, my observation has been that it is very successful

Q —Now, about how many—you spoke about the opportunity to recheck What do you mean by that? A —Well, that is patients that have been operated on and later, six or eight months, possibly a year or a number of years later returned for a recheck, a general check up

Q —Is that for examination of their physical condition generally? A —Yes, sir

Q —In those instances do you examine them or have you done so? A —I have made the recheck examination, a good many of them

Q —What did you find with reference—in rechecking, I mean, what do you generally find, that is any exceptions or otherwise, what do you find with reference to the condition when they come back? A —Improvement in some instances and in some instances satisfactory cures

Q —Doctor, you are not talking loud enough You said improvement in some instances and in some instances satisfactory cures? A —Yes, sir

Q —What about the prostate, the condition of the prostate after those operations, whether or not it has been changed in its size, reduced or otherwise Tell us about that? A —Well, the prostate, it is owing to the condition of the prostate when it was received, about the time that there would be any change or not, and some of the prostates that are only enlarged from an infiltration will reduce quicker than one that is fibrous

Q —What do you mean one that is fibrous? A —Well, it is a little bit hard

Q —Well, I am talking about those that come back six or eight months or a year and so forth, what do you find their condition to be then? A —I find improvement

Q —On a question of reduction or not, that is what I am trying to get at, the reduction of the size of the prostate? A —Well, they are reduced The prostates are graded from one plus to minus and three plus and three minus and so on You take a three plus prostate, one that is infiltrated from infection will reduce after the operation to normal size over the course of seven or eight days That has been my observation Those that are larger and have an infiltration of glandular tissue and have become a little bit fibrous, they don't reduce so much, but those that are two plus might be a two minus in eight months or twelve months on recheck

Q —What do you mean by that just explain about the size? A —A two plus prostate in the first stages of enlargement from its normal size that is a two plus prostate, and a two minus would be a little bit—or three minus or three plus would still be larger

Q —In other words, if I understand you, you grade them according to size? A —According to size, yes, sir

Q —Up to what maximum size do you find them? A —I have found a few that I graded them out as four plus

Q —What size would that be? A —Well, that would be something the size of the ordinary grapefruit, pretty large

Q —I want you to tell the jury whether or not, Doctor, from your observation and experience with these operations on the many patients you have seen whether or not the operation is in your opinion considered a success or otherwise? A —Well, it is a success

Q —Is it or not beneficial to the sufferer? A —Yes, sir

Q —Does it or not—I am not talking about every case—but does it or not relieve the patient from his sufferings, and if so the percentage of cases? A —I wouldn't know the exact percentage, but the per cent relieved is very large They may be relieved of urinary trouble The prostate may not go down so rapid, but they will be relieved of urinary troubles and pains adjacent thereto, a large percentage

Q —Now what about the continuation of that improvement, does it extend is it permanent in its nature or is it temporary or how? A —Well, it seems to be permanent from my observation of the number of rechecks that I have had in the last five years

Q —Have you or not then had occasion to recheck those whose operations are as much as four or five years old? A —Yes, sir, I have rechecked them further back than that, ones operated on at Milford Kansas I wasn't associated with Dr Brinkley at Kansas, but there have been patients to the hospital that I have rechecked here in Del Rio that was operated up there back in 1930 and '31 and '32 and possibly, then back before that, but I don't remember their names

Q —What did you find in those older cases, that is, what I mean is the condition? A —Well, we had the record before us, the size of the prostate when they entered, and the most of them were normal would be my recollection about it so far as the size of it was concerned

Q —I suggest you tell us what part you have in the physical examinations so as to manifest what you know about the condition when they come there? A —Well, the patient registers and then they are sent to my office for a physical examination and I make the physical examination and grade the prostate and return it back to the laboratories

Q —Then you do have opportunity to know what their condition is when they get there as to their prostatic trouble, do you? A —Yes sir

Q —Doctor, would you tell us—by the way, how long have you been practicing medicine, did I ask you that? A —Well, no I graduated from medical college in April 1912, I think it was No, April 4, 1904

Q —Well, have you been practicing ever since? A —I have been in the active practice ever since

Q —How did you happen to go with and when did you go with Dr Brinkley in his hospital? A —Well, I think it was 1902—

Q —You mean 1932? A —1932, I mean I carried a patient from my home town to the hospital at Milford, Kansas

Q —From your home town where, Doctor? A —Waldo, Arkansas

Q.—Go ahead. A.—I carried this patient up there and he was examined and accepted and was operated on, and I stayed there in the hospital with him for the period of seven days. And he drove my car back from Kansas in the seven days. That is, the most of the time. We took time about and he drove some as we went up, I carried him up in my car and brought him back in my car, and I rechecked him then in 1933 or 1934, I dis-remember, here at Del Rio and he was well and all right. And then when Brinkley came from Kansas and established his hospital in Del Rio I had a license in Del Rio and I believed in his work after staying in his hospital up there for a week.

Q.—Now, then, go ahead? A.—I wrote him and asked him if he had a place on his staff, that if he did I would consider it, and he wrote me he did.

Q.—Did you have any other patients that went to him or you took to him? A.—I carried another one to him in the spring of 1933 from Stamps, Arkansas, and he was rejected, they said he was too far advanced and they wouldn't take him. They were the only patients I ever carried to the Brinkley Hospital.

Q.—That was before you made your connection with the hospital? A.—Yes, sir, that was before I ever made any connection with him.

Q.—You had met Dr. Brinkley, then, on the occasion of your visits? A.—I met Dr. Brinkley at Little Rock in the spring some time of 1932. He was down there and made an address to the medical association. Myself and wife drove up there. I wanted to see what he looked like. I never had seen him.

Q.—Was that before or after that that you took the patient up to Milford? A.—I carried that patient up there before that. He was in Canada. My patient was brought back home before the medical association met. So I drove up to Little Rock to hear him. That was the first time I ever heard him.

CROSS EXAMINATION

By Mr. Reynolds:

Q.—What medical association was that you say, Doctor? A.—The Eclectic Medical Association.

Q.—Are you an eclectic doctor yourself? A.—No, sir.

Q.—You have never attended any meetings where Dr. Brinkley addressed them, a county medical society? A.—No.

Q.—You didn't mean to infer that? A.—No, it was the State Eclectic Medical Association of Arkansas. I am a member of the allopathic tribe.

Q.—Doctor, now in your examining of patients you said something about grading the prostate and then sending it to the laboratory. What do you mean by that? A.—Well, after the physical examination is made and the condition of the prostate is described on the examination blank as to its size and as to its tensity and so forth, then they are sent to the laboratory for x-ray work.

Q.—The patient is? A.—Yes, sir.

Q.—Not just a section of the prostate? A.—Oh, no.

Q.—Now, Doctor, how many times is it you have seen Dr. Brinkley himself operate? A.—A good many times. I wouldn't say how many, but a number of times.

Q.—Have they all been cases of prostatic enlargement? A.—Yes, sir.

Q.—No prostatitis? A.—Well, an enlarged prostate might have some inflammation and it might not have.

Q.—Any for prostates containing cancer? A.—How is that?

Q.—Any for prostate glands containing a cancer? A.—I have never seen him operate on one that was supposed to have cancer.

Q.—He does that though, doesn't he? A.—Not that I know of. If he does I don't know it.

Q.—Now, this patient, this first patient that you brought to Dr. Brinkley, did he perform the goat gland transplantation in that patient? A.—No, sir, Dr. Brinkley didn't do that; Dr. LeGrew did it.

Q.—It was a goat gland operation? A.—Yes, sir.

Q.—And how about the second one that was brought? A.—The second one I brought he was rejected, there was no operation made on him. He was too far advanced.

Q.—Did they give him treatments? A.—No, sir.

Q.—They send him home? A.—I brought him back home.

Q.—Is that patient still living? A.—I think he is.

Q.—And that was seven years ago? A.—It was in the spring of 1933. He went to Shreveport and had something done. I don't know what he had done.

Q.—Now, these present operations, that is, what Dr. Brinkley calls his surgical technic, you understand that term? A.—I have seen him do it, yes, sir.

Q.—How many times have you seen him do that? A.—Oh, quite a number of times.

Q.—And have you rechecked patients on whom he has done that? A.—A number of them.

Q.—What is the average length of the incision that you find, the scar, to be when you recheck? A.—Something like about from a half to three-quarters of an inch, and some would possibly be an inch long if there is a hydrocele in connection with it the incision is longer.

Q.—But if it is not it is only half or three-quarters of an inch long? A.—Ordinarily where there is no hydrocele.

Q.—With an incision of that size it is your understanding Dr. Brinkley lifts the testicle out? A.—He don't lift the testicle out unless there is a hydrocele. He may lift a portion out.

Q.—What portion? A.—The head of the epididymis.

Q.—What does he do then, inject something into it? A.—He has a needle threaded and he picks up the head of the epididymis and puts the needle around in there and brings it around there and ties it.

Q.—Around what, the head of the epididymis? A.—Through the head of the epididymis.

Q.—Now, I don't understand just exactly how that works. Will you explain the position of the epididymis on the testicle so we will get that clear? A.—It is attached to the testicle.

Q.—By what? A.—By the vas deferens along the side of the testicle. The vas deferens enters at the head.

Q.—It isn't attached by the vas deferens? A.—I say the vas deferens enters in the head of the epididymis and the epididymis is attached by the tissue in some way, I don't know.

Q.—Well, then, it is a position like this, like this finger over my fist? A.—Yes.

Q.—And the operation you have seen him perform, he just runs through the head of the epididymis with a piece of linen thread and then ties that, does he? A.—Yes, I think so. He has a string and he ties it anyway.

Q.—And you have examined that operation closely? A.—How is that?

Q.—Have you watched him closely do that? A.—Just standing in the operating room looking on, trying to see what I could see.

Q.—In what position is that string after it is tied? Is it vertical or horizontal? A.—It is horizontal, it is tied horizontal in a surgeon's knot, I presume.

Q.—Then has he done anything else in there? A.—That is all, he drops it back and sews it up.

Q.—Is that all the operation consists of? A.—Sometimes he injects the epididymis before he goes through the head of the epididymis.

Q.—Injects it with what? A.—Well, mercurochrome, I guess.

Q.—You have never seen him do that, have you? A.—Yes.

Q.—And that goes right in the epididymis? A.—No, it goes in the vas.

Q.—Well, you mean he injects it in the vas rather than in the head of the epididymis, is that right? A.—Injects it in the vas and it goes up it, I guess, because the urine is red after the injection.

Q.—Have you ever seen him cut out a section of the vas? A.—Well, I have seen him do that, too.

Q.—Have you seen him tie off a section, ligate a section of the vas? A.—They ligate the end next to the testicle. The other end is left open.

Q.—When they ligate the end next to the epididymis there do they also ligate the head of the epididymis in another manner? A.—No, that is two different operations.

Q.—Now, Doctor, you are the one that receives and examines the patients in the first instance, are you not? A.—Yes, sir.

Q.—You make the diagnosis? A.—Yes, sir, the tentative diagnosis.

Q.—Then who makes the final diagnosis? A.—Well, here in Del Rio Dr. Brinkley, when he was here, made the final diagnosis. When he was away I think Dr. Petermeyer made the diagnosis, and up at Little Rock Dr. Osburn does it.

Q.—Dr. Osburn is doing most of the surgery up there now, isn't he? A.—Yes, sir.

Q.—Dr. Brinkley operates how many times a week? A.—I haven't seen him operate but one week since I have been up there. That was this last April a year ago he operated on some forty-five or forty-eight patients that week.

Q.—Just before he left Del Rio was Dr. Brinkley doing very much surgery then? A.—He was doing some, not very much. Petermeyer was doing the most of it. That was last year.

Q.—How long did it take him to perform this operation when you witnessed it? A.—Well, about from twelve to fifteen minutes.

Q.—They charge $750 for that operation, is that correct? A.—That is what I have been told.

Q.—And now, Doctor, these follow-up patients, that is when you recheck them, do you go out to their homes and do that? A.—No, they come to the hospital.

Q.—And from all over the country? A.—Yes, sir.

Q.—At their own expense? A.—Yes, sir.

Q.—Is there no further charge on that? Do you charge them for that? A.—No further charge on that, everything is free when they get to the hospital.

Q.—Well, when you discharge a patient from the hospital there you are quite sure that he is cured or relieved before you discharge him, aren't you? A.—As a rule. In some instances they might not be relieved altogether, but they want to go home and we let them go and give them full instructions as to diet and prescriptions.

Q.—Then it is this latter class that generally comes back for a recheck, isn't it? A.—Well, I don't know, I don't remember.

Q.—Well, you have the record before you when you make the recheck? A.—No, sir.

Q.—You don't know which class is the largest? A.—Well, I don't know which class would be the larger, as far as that is concerned. The majority of them come back for rechecks, though.

Q.—Have any of them that you have ever seen operated on come back for a recheck, to your knowledge? A.—Yes, I remember a few. There are so many of those patients you couldn't recall the names, but there is a complete record made of every patient. I remember a few.

Q.—What per cent of the patients come back for a recheck? A.—I couldn't tell you.

Q.—Haven't you an estimate? A.—Well, I am inclined to think around 60 per cent come back anyway, maybe more than that. I don't know how many come back.

Q.—It wouldn't be as low as 5 per cent, would it? A.—No, sir.

Q.—How many would you say come back during the period of a year, the last year? A.—Well, I couldn't say, but we have them there all the time.

Q.—It would be in the thousands, would it? A.—No, I don't think it would run into that, not thousands. Possibly it would run up to a thousand that would come back in a year. I haven't kept account of those things and I don't know.

Q.—Now, Doctor, which hospital is it you are stationed at now in Little Rock, the town hospital? A.—The city hospital, Twentieth and Schiller Avenue.

Q.—You have seen records on patients up there where all that was done to them was the removing of residuary urine, haven't you? A.—Not unless it was a rejection. There are many of our patients carrying residual urine when they come.

Q.—As a matter of fact, relieving them of that will make them feel better? A.—Undoubtedly it will, yes.

Q.—They will look better? A.—Yes, sir.

Q.—Give them a week's rest and that does them a lot of good and makes them more energetic? A.—Undoubtedly.

Q.—After you relieve them of the residuary urine, taking the average case that comes to you as a prostate enlargement, it is quite some time before they will have any complaint again, isn't it? A.—I can't say just as to that, whether they are carrying a lot of residual urine. I have patients come to me carrying as much as fifty-four residual, and it would be impossible to draw it all off at once because if you did you would have to put sterile water back because—

Q.—Do you do any of that drawing off? A.—I have done some at Del Rio, but not any at Little Rock.

Q.—You work for Dr. Brinkley on a salary, do you not? A.—Yes, sir. If you draw it all off when you have so much residual urine you would then have diverticula, drawing too much off.

Q.—Have you observed Dr. Petermeyer operate? A.—Yes, sir.

Q.—And the technic he uses is the same as that of Dr. Brinkley? A.—The same thing.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Eight dollars per annum in advance

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SATURDAY, MAY 27, 1939

THE ST. LOUIS SESSION

The St. Louis session of 1939 takes its place along with all the other recent annual sessions of the American Medical Association as setting a peak for medical assemblages. Foremost again among the features of the meetings was the Scientific Exhibit, pronounced by most of the physicians in attendance the greatest opportunity for concentrated graduate education available anywhere in the world. In each of the exhibit spaces scientists recognized for their accomplishments in various fields of investigation, teaching and practice demonstrated the highlights of their work. In many places visitors found it difficult to pass through the aisles because of the great numbers of physicians assembled to hear lectures and to see demonstrations. Simultaneously motion pictures were being used to reveal the actual application of new technics in medical care. Special exhibits devoted to the diagnosis and treatment of pneumonia, of diabetes and of fractures were especially useful because they were cooperative features which thoroughly digested the subjects with which they were concerned.

The attendance at the annual session was 7,412, which made this, of course, the largest meeting of physicians ever held in the city of St. Louis, a figure which compared favorably with the numbers attracted by meetings held even in the centers of population. The hotels of the community were taxed to their capacity, as were all the other convention facilities. Yet the quality of material available was so excellent that few physicians complained when minor difficulties were experienced. Indeed, exhibitors in the technical exhibit expressed universal gratification in the attendance and in the interest shown. On the last day of the session all were well-nigh exhausted by the manner in which their capacity had been taxed by the interested questioners. The technical exhibits again indicated that manufacturers realize the value of scientific demonstration rather than salesmanship in interesting the prospective purchaser in the medical field.

In the Scientific Assembly, new technics of education had been developed under the leadership of Dr. James Paullin, chairman of the Council on Scientific Assembly. Combined meetings, particularly on the last day of the session, and the panel discussions which prevailed in the general scientific sessions, attracted large numbers of physicians, whose interest was shown by the fact that questions were asked of the participants in the panels for more than an hour after the preliminary discussions were made. The features of the scientific program were, of course, the newer investigations in industrial medicine, the use of sulfanilamide and sulfapyridine, the vitamins and the glands. This material will be reflected in the pages of THE JOURNAL within the next few months.

The sessions of the House of Delegates were notable for unanimity of action and for the harmony which prevailed. The topic of greatest significance was the point of view in relationship to the proposed Wagner health act. As will be seen from the minutes of the House of Delegates, the reference committee to which this matter was assigned prepared a concentrated analytical report which was adopted by the House of Delegates on the first motion without a dissenting vote and even without any attempt at discussion by individual members. Interesting also to the House of Delegates was the action taken regarding the amendment to the By-Laws in order to increase the capacity and function of the Council on Medical Education and Hospitals. By the new action the Council will be increased to nine members, who are to be selected because of their special interest in the various aspects of medical education, including premedical education, undergraduate and graduate education, as well as the work of the hospitals. A preamble to this resolution indicated that it was the desire of the House of Delegates to keep the work abreast of the newer developments in this field, particularly the certifying boards in the medical specialties, the associated residencies in hospitals, and the work of the special societies which have grown apace in medicine in recent years. Attention was attracted also by the resolution regarding membership of Negro physicians in the American Medical Association and requesting a special representative of women in the House of Delegates. Both the resolutions and the subsequent action seem to have been somewhat misunderstood by the press. Eventually it was made clear that Negroes may hold membership in county medical societies in many of the states, and that even in southern portions of the United States attempts are constantly made to provide Negro physicians with the full scientific benefits of medical organization. Moreover, it was again emphasized that under the democratic system of government the county medical societies must be the determiners of their memberships. Part of the difficulty arises because government relief agencies in the South refuse to utilize the services of Negro physicians for Negro patients, claiming lack of

membership in the American Medical Association as the reason. The resolution asking that a woman be regularly seated in the House of Delegates was defeated. Women have on occasion been regularly elected to the House of Delegates and have served efficiently. There is at present no bar to the election of women by any constituent association.

During the week the press, the radio and all other avenues of publicity were cooperative so that there were numerous broadcasts, both locally and nationally, and the pages of the local press were replete with material developed by the convention. Most of the great press services were also represented and papers at a considerable distance used much material from the St. Louis meeting. The accuracy of the scientific reporting was most commendable.

Entertainment at the St. Louis session was profuse. Every available space in every hotel was constantly in use for special events, many of them arranged by fraternities, alumni associations, honorary societies or specialistic groups and many of them developed by the Woman's Auxiliary in the course of its annual session. Indeed, the officers of the Woman's Auxiliary expressed themselves as more than pleased with the annual session and with the arrangements that had been made. The House of Delegates was entertained on the opening night by a puppet show in which leaders in scientific and other medical affairs were caricatured in relationship to current activities. Particularly impressive was the opening address of Aesculapius, beautifully delivered with organ accompaniment:

Attention Sires—for I would have you gaze
Upon yourselves—as mystic mummers haze
Your mortal imperfections!

Out of the realm of shadows I have come
And with me brought my merry puppet crew.
They've acted—for the Pharaohs—at their Court,
With wise men of old Persia did consort,
And now they hold their mirror up to you.
You are my own, and we have welded strong
Eternal bonds that make us act as one.
Together we have battled, heart and soul,
'Gainst error with perfection as our goal
While pledging love of ease and self to shun.

The curtain rises now upon the proof
Of stupid man's unwillingness to see
What our self sacrifice has brought
As battles for his life and health we've fought
In shielding him from mortal's end's decree.

The farewell speech of Aesculapius reflected the inspiration of the meeting:

I leave you now, but not for long I trust,
Affection's made of heart throbs—not of dust.

The way of flesh is weak, but be ye strong
My precepts follow and ye'll ne'er do wrong.

Continue sons the poor and weak to aid
In gold of grateful hearts, you will be paid.

Your ear, your eye, your brain, your heart, your hand
You lend to others when you join my band.

Your ear must list to every cripple's plea
Your eye must hurt of soul or body see.

With kindly hand, the tear of sorrow dry
Though weary, haste to answer suffering's cry.

Your brain and heart must find the easy road
For straggling feet that stumble 'neath their load.

Be fearless when you level straight your lance;
With life and health at stake, ne'er trust to chance.

Before we go my puppets bid me say
We love you all and with you fain would stay.

If we have made you laugh, with joy we're filled.
To bring smiles to you is all we willed.

Adieu! We've had a happy time
With hearts entwined, we'll all sing Auld Lang Syne.

DR. JAMES B. HERRICK RECEIVES DISTINGUISHED SERVICE AWARD

The second award of the Distinguished Service Medal and citation by the American Medical Association was tendered during the annual session at St. Louis to Dr. James Bryan Herrick of Chicago. The first award last year was made to Dr. Rudolph Matas of New Orleans. By the system of selection this award has already come to be recognized as one of the most important within the gift of the Association. After nominations are made through the Distinguished Service Award Committee, five names are sent by them to the Board of Trustees. The Trustees select three of the five, and the House of Delegates, at its first session, selects one of the three. This year the three names nominated to the House of Delegates were those of Dr. James Bryan Herrick, Dr. Chevalier Jackson of Philadelphia, and Dr. Edward Jackson of Denver. The report of the House of Delegates published in this issue indicates the vote cast.

Dr. James Bryan Herrick was born Aug. 11, 1861, in Oak Park, Ill. He attended Oak Park High School and the Rock River Seminary at Mount Morris, Ill. He then received his A.B. degree from the University of Michigan in 1882. For a time he taught in the Central High School at Peoria, Ill., where he acquired a love of good literature and a facility for expressing himself in the English language. Through an association with Moses Coit Tyler he developed a great interest in Chaucer. Dr. Herrick then took up the study of medicine, receiving the degree of Doctor of Medicine from Rush Medical College in 1888. His internship was served in the Cook County Hospital and in 1889, after completing his internship, he married Miss Zellah P. Davies of Oak Park.

Dr. Herrick has contributed greatly to the periodical literature of medical science, he has taught in his Alma Mater and he is widely known for his contributions particularly to our knowledge of coronary thrombosis. Indeed, it has been said that his articles on coronary thrombosis have done more to force clinical recognition of the condition and to stimulate clinical and experi-

mental study than all other writings on the subject. Probably most significant was the contribution on "Clinical Features of Sudden Obstruction of the Coronary Arteries," published in 1912. In his career as a physician he also has been instructor in medicine at Rush Medical College from 1890 to 1894, adjunct professor from 1894 to 1900, professor from 1900 to 1927, and he is now emeritus. He has been attending physician at the Presbyterian Hospital in Chicago since 1895 and a member of the board of trustees of the Lewis Institute since 1903. He has also been president of the Association of American Physicians, of the Institute of Medicine in Chicago, and of the American Association of the History of Medicine. In 1930 he received the Kober Medal of the Association of American Physicians for Research and Scientific Medicine. In 1931 he gave the sixth Harvey Society Lecture at the New York Academy of Medicine on the Coronary Artery in Health and Disease, and in 1933 he was elected honorary fellow of the New York Academy of Medicine. In 1932 he received the honorary degree of Doctor of Laws from the University of Michigan, and in January 1939, at the 194th convocation of the University of Chicago, the honorary Doctorate of Science was conferred upon him.

Throughout his career he has been of vast assistance to young men and a builder of medical institutions. He was founder and first president of the Chicago Society of Internal Medicine. From 1928 to 1934 he was a member of the Judicial Council of the American Medical Association. By this second award the House of Delegates still further enhances the significance of its Distinguished Service Medal.

ENZYME THERAPY OF GRAM-POSITIVE INFECTIONS

The isolation of a soil bacillus capable of destroying gram-positive micro-organisms in the animal body seems to offer an encouraging lead toward a new therapeutic procedure. About ten years ago Dubos [1] of the Rockefeller Institute began a systematic search for environmental saprophytes. His initial attempt sought some nonpathogenic fungi or bacteria which could use the type-specific capsular polysaccharide of the pneumococcus. Finally from certain peat soils a saprophytic bacillus was isolated which was apparently able to decapsulate type III pneumococci in vitro. Enzymes isolated from this bacillus, however, were inactive against other types of pneumococcus and did not have any effect on nonpneumococcic polysaccharides. Dubos found that this saprophytic enzyme would protect mice against type III pneumococcus infections but was without general pneumococcidal action. Moreover, even though the enzyme did decapsulate type III pneumococci it did not demonstrably injure the living portion of the bacterial cell.

Dubos [2] therefore attempted a new technic, recently described. Soil samples were repeatedly moistened with aqueous suspensions of gram-positive cocci. After many months of selective adaptation an unidentified spore-bearing bacillus was isolated from one soil sample which was capable of producing lysis of living gram-positive micro-organisms. This soil bacillus is gram specific, attacking equally well staphylococci, streptococci, pneumococci and all other types of gram-positive micro-organisms thus far tested. The soil bacillus, however, is wholly inert against the gonococcus and other gram-negative bacteria.

From subcultures of this lytic bacillus, it is reported, the active principle can be set free by autolysis and can be isolated in a state of relative purity by acid precipitation at refrigerator temperature. The active principle thus isolated is heat labile and is nondialysable through a collodion membrane. One mg. of the dried extract is capable of producing lysis of 1,000,000,000 living pneumococci within one hour. Staphylococci and streptococci are also acted on but somewhat less rapidly. Lytic action is most rapid at 37 C., all action ceasing at 0 C. As little as 0.0001 mg. of the dried extract added to 5 cc. of nutrient broth will prevent the multiplication of a massive inoculum of pneumococci (e. g. 10,000,000 micro-organisms). Bacteriostasis of staphylococci and streptococci requires somewhat larger amounts of the extract. Streptococci incubated in the presence of even minute traces of extract, however, lose their ability to reduce methylene blue in the presence of dextrose. Morphologic alterations are not demonstrable in these physiologically deficient streptococci.

When tested for its possible therapeutic value the Dubos lysin has been found effective in preventing and curing gram-positive infections in laboratory animals. A single intraperitoneal injection of 2 mg. of the extract, for example, will protect a white mouse against as many as 100,000 minimum lethal doses of type I, II, III, V or VIII pneumococcus (other types not yet tested). Protection against even larger doses of pneumococci may be effected by repeated injections of the saprophytic extract. Moreover, the extract exerts a curative effect when administered several hours after experimental infection with virulent pneumococci. Similar therapeutic effects have been demonstrated after experimental infections with hemolytic streptococci.

The possible therapeutic value of the Dubos enzymes in human medicine has not yet been tested. If this new lytic agent should prove to be of positive clinical value, the Dubos technic of selective cultivation of environmental flora will stimulate further experimentation. Perhaps soil bacteria effective against tubercle bacilli or other pathogenic groups may yet be found.

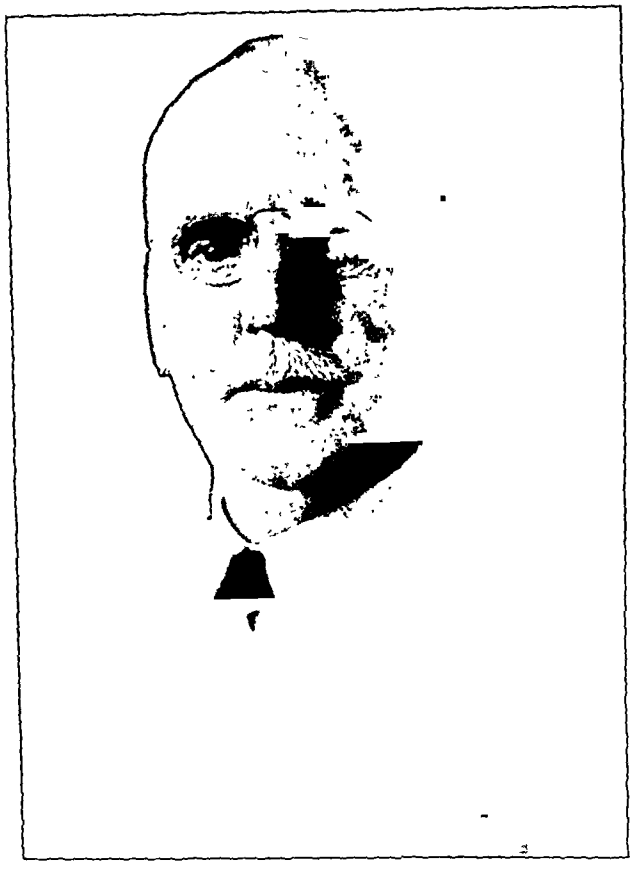
1. Dubos, René J., and Avery, O. T.: J. Exper. Med. 54: 51 (July) 1931. Avery and Dubos, ibid., p. 73.

2. Dubos, René J.: Proc. Soc. Exper. Biol. & Med. 40: 311 (Feb.) 1939.

Current Comment

NATHAN B. VAN ETTEN—PRESIDENT-ELECT

The general practitioner as a leader in medical affairs was recognized by the House of Delegates of the American Medical Association in the St. Louis session when it elected Nathan Bristol Van Etten to be President for the years 1940-1941. Dr. Van Etten received his degree in medicine from Bellevue Hospital Medical College in 1890 and he has practiced in New York City since that date. In 1906 he became visiting physician to the Union Hospital and has been constantly associated with that hospital. He has also been medical director of the Morrisania City Hospital since 1929 and president of its staff since 1932. Throughout his career he has given unstintingly of himself to every medical and public effort to which he was called. His quality of leadership is shown by the fact that he has been president of the Bronx County Medical Society, of the Bronx Borough Medical Society, of the New York Society of Medical Jurisprudence, of the Medical Alumni of New York University, of the Greater New York Medical Association, and also president and trustee of the Medical Society of the State of New York. This long list of presidencies reaches its culmination in election to the presidency of the American Medical Association. In the Association he served as a member of the House of Delegates in 1920 and 1923, continuously from 1926 through 1935, and also in the special session of 1935 which considered the Social Security Act. He was elected vice speaker of the House of Delegates in 1933 and served in that position until he was elected speaker in 1935. While in the House of Delegates he was a member and frequently chairman of many important reference committees. While speaker in 1936, 1937 and 1938 he earned the respect and admiration of the delegates by his calm manner, his absolute justice, his leadership and his unwavering fidelity to the principles of the American Medical Association. In his address of acceptance, Dr. Van Etten again dedicated himself to the work of the Association and made a plea for united action, saying:



NATHAN B. VAN ETTEN, M.D.
PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

> Yesterday you adopted a report defining your position in relation to the proposed Wagner health act. It will have small value, however, unless the whole medical profession of the United States is educated to fully understand it.
>
> Every delegate must realize his official obligations as never before and carry home to every single practitioner in his state a full consciousness of the importance of this declaration of principles. That practitioner is potentially one of the most powerful persons in the democracy. If he can be made to see his duty to his country and educate his patients to a realization of the dangers of centralized control of medical practice, your action of yesterday will be sustained.
>
> In the name of welfare, gentlemen of the House, the practice of medicine as you know it and as you hoped it would become is to be destroyed. The functions of the most highly educated group of professionals in the world are to be taken over by bureaus operated by adventurous amateurs.
>
> The time has come for the concerted action of every doctor in the United States.

LETHAL METHEMOGLOBINEMIA

Bradley and his colleagues [1] of the University of Wyoming have shown that bovine asphyxial death following the ingestion of certain toxic hays is due to the formation of methemoglobin in the blood stream. In one region of Wyoming in 1934 twenty-nine head of cattle died within a few hours after eating well cured oat hay. The Wyoming investigators, therefore, studied hay intoxication experimentally. They found that 11 pounds (5 Kg.) of one local sample of oat hay would kill a 350 pound (160 Kg.) steer in about nine hours, that a water extract of the same hay caused another steer to show asphyxial symptoms from which he later recovered. In both cases a chocolate brown color was observed in the blood, which was shown chemically and spectroscopically to be due to methemoglobin. The erythrocytes are not laked, and the plasma remains clear and straw colored. Another calf fed a smaller amount of toxic hay did not develop symptoms or methemoglobin at the end of six hours. By the ninth hour, however, the animal presented typical symptoms and had a high concentration of methemoglobin in the blood stream. By the end of twenty-four hours, both symptoms and methemoglobin had disappeared. Toxic oat straw develops in certain restricted areas in Wyoming and Colorado. Whether this is due to soil conditions, to some unrecognized toxic weed or to a fungous or virus infection of the oats has not yet been determined. The fact that the oat toxin is water soluble and heat stable, however, will be of great value in its ultimate isolation and identification.

1. Bradley, W. B.; Beath, O. A., and Eppson, H. F.: Science **89**: 365 (April 21) 1939.

ORGANIZATION SECTION

PROCEEDINGS OF THE ST. LOUIS SESSION

MINUTES OF THE NINETIETH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT ST. LOUIS, MAY 15-19, 1939

HOUSE OF DELEGATES

First Meeting—Monday Morning, May 15

The House of Delegates convened in the Ball Room of the Hotel Statler and was called to order at 10 a. m. by the Speaker, Dr. H. H. Shoulders.

Preliminary Report of the Reference Committee on Credentials

A preliminary report of the Reference Committee on Credentials was submitted by the chairman, Dr. Deering G. Smith, New Hampshire, who reported that 153 delegates with proper credentials had registered and that that number was one of the largest registrations in advance of the meeting.

Roll Call

The roll call was dispensed with, on motion of Dr. E. G. Wood, Tennessee, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried.

The Speaker announced that the report of the Reference Committee on Credentials would constitute the roll call of the House for the transaction of business.

Adoption of Minutes of San Francisco Session and of the Special Session

On motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. John Q. Myers, North Carolina, and carried, the House dispensed with the reading of the minutes.

It was moved by Dr. John Q. Myers, North Carolina, seconded by Dr. A. T. McCormack, Kentucky, and carried, that the minutes of the San Francisco Session be adopted as printed.

Dr. Charles E. Mongan, Massachusetts, moved the adoption of the minutes of the Special Session held in Chicago in September 1938. The motion was seconded by Dr. J. R. Westaby, South Dakota, and carried.

Distinguished Service Award

Dr. Arthur W. Booth, Chairman of the Board of Trustees, presented the following report:

The Committee on Distinguished Service Award of the American Medical Association submitted five names to the Board of Trustees. The Board, in accordance with chapter VI, section 5, of the By-Laws, has selected by ballot the following names for presentation to the House in alphabetical order: Dr. James B. Herrick, Chicago; Dr. Chevalier Jackson, Philadelphia; Dr. Edward Jackson, Denver.

The Speaker appointed as tellers Drs. Harvey F. Garrison, New Jersey; William A. Ellingwood, Maine, and Charles B. Reed, Illinois.

The tellers spread the ballot and the Secretary announced that 154 votes were cast, of which Dr. James B. Herrick received 63; Dr. Chevalier Jackson 69 and Dr. Edward Jackson 22.

Since no nominee received a majority of the votes, the Speaker announced that another vote would have to be taken and that, in accordance with the rules, the name of the nominee receiving the smallest number of votes, namely, Dr. Edward Jackson, would be dropped from the ballot.

Dr. Deering G. Smith, Chairman, Reference Committee on Credentials, stated that 165 delegates had registered, and the Secretary announced that Dr. James B. Herrick received 81 and Dr. Chevalier Jackson 79 votes. The Chairman declared Dr. James B. Herrick, who received a majority of the votes cast, to be elected by the House to receive the Distinguished Service Award of the American Medical Association.

Address of the Speaker, Dr. H. H. Shoulders

The Vice Speaker, Dr. R. W. Fouts, Omaha, presided while the Speaker, Dr. H. H. Shoulders, read his address, which was referred to the Reference Committee on Reports of Officers:

To the Members of the House of Delegates of the American Medical Association:

Mr. Speaker, Members of the House, Guests:

By your suffrage, I have the honor of greeting you this morning as your presiding officer.

Since last we met I have taken occasion to review, in a way, the proceedings of this House for a period of years. It was undertaken as a dull task but proved to be an interesting experience. The effect was, among others, to enhance my admiration for the genius and loyalty of this House of Delegates.

It must be remembered that this body is composed of 174 delegates, representing the medical profession in every state in this Union, including Alaska, Hawaii, the Panama Canal Zone, the Philippine Islands and Puerto Rico. You are so widely scattered that there is little opportunity for contact with one another in the interim between sessions. A wide variety of local conditions obtain in the areas represented. Every possible shade of opinion and every possible local interest, both personal and professional, are represented. You are democratic in concept, composition and conduct.

The House is in session for a few hours each day for not more than three days as a rule. A relatively small amount of time is available for deliberation and debate. No ready reference library is at hand. Almost every session of the House has been called on to consider and act on issues of vital importance not only to the medical profession but to the people of this country as a whole.

Notwithstanding all these conditions, one finds in the Proceedings of the House a golden thread of consistency which runs straight through all the actions taken on all issues presented which in any way touch the fundamental principles to which you have given allegiance. It would be natural, under the circumstances, for errors to occur and for actions taken in one session to be in conflict with those taken in another session one or many years before. Yet this has not occurred.

It is of interest and may be of value to consider why this is so. Such a striking result might easily be explained if your actions were controlled by a dictator or a boss. Fortunately, this House is not subservient to any such person, and more fortunate still is the fact that no one seeks such power, nor could one obtain it under our democratic organization.

It seems to me that not one but several factors are responsible for this result. Of first importance is our code of ethical principles. Not alone because it is in existence, but because the spirit of it is so deeply rooted in our professional life, it has given to us, as a profession, a philosophy. Our loyalty to these principles is not based on self interest; their appeal is to the noblest instincts of mankind and the highest concepts of human relationship and conduct. Our convictions with regard to them give us courage to declare ourselves in relation to them when occasion arises. Some years ago I heard a philosophy expressed to the effect that a man is fortunate who finds himself anchored

to ideals. The reason given for such a philosophy was that the existence of a man is transitory but that ideals live on through the ages.

Another factor, possibly of greater importance than either of the other two, is our faith. We have faith in the merits of democratic processes as a means for the accomplishment of the highest and best in human welfare. By such processes our philosophy has been evolved. They have not stood in the way of progress. To the contrary, they have augmented sound progress, as our history shows. We know that these processes appear to be slow at times. We know also that attempts to accomplish desirable ends in a hurry by brushing these ideals aside may have the effect of destroying the most important element in human welfare; viz., freedom itself.

We know that, if we doctors had the power to dictate to patients instead of advising them, a still greater increase in longevity might result. But we know also that such an achievement, at the price of freedom, would be the worst bargain that could possibly be made. We have never sought such power for ourselves. We naturally oppose it in others.

We do believe in coordinated effort on a democratic basis. We believe in the closest coordination of effort as between the legislative, executive and judicial branches of the American Medical Association on the basis of mutual respect and confidence—all working to a common purpose. We have faith in one another. There is all about us obvious evidence of lack of faith. There is lack of faith of one group of citizens in another group. There is lack of faith in government and in the various agencies of government. There is lack of faith of one government in another government. Some citizens have expressed by word and act a lack of faith in the merits of democratic processes. Furthermore, influences have been at work and divers means have been employed to destroy faith in these processes.

Nothwithstanding all these conditions and influences, the record shows that we have stood by our faith. We have held on to our ideals. In my opinion, we have thus earned a liberal measure of public confidence. I know of no other group of men who have stood by convictions or even observed pledges with greater fidelity. I entertain the belief that the time will come again, maybe soon, when a grateful public will applaud our loyalty to ideals and principles, as was done not so long ago.

May I suggest that we approach the duties of this session with such a faith in one another, in the several departments of our organization and in the future.

In Memoriam

It becomes the melancholy duty of the Speaker to call the roll of those who have in times past responded to the roll call of this House but who in the last year have responded to the last roll call on earth.

A. W. Baugh, Pennsylvania, 1913.
Carl Boettiger, New York, 1935 Special Session; 1936.
Nelson O. Brooks, New York, 1917-1918; 1926.
John W. Burns, Texas, 1922-1932; 1934; 1935 Special Session; 1935-1938; 1938 Special Session; Member of Judicial Council, 1937—.
Richard C. Cabot, Massachusetts, 1907; 1915.
John Champlin, Rhode Island, 1902-1904; 1906-1909; 1912.
A. J. Crowell, North Carolina, 1909; 1915; 1922; 1925-1926; 1929-1931.
George Edmund de Schweinitz, Pennsylvania, President-Elect, 1921-1922; President, 1922-1923.
T. A. Felch, Michigan, 1903; 1909.
Frederick H. Flaherty, New York, 1927-1932; 1935-1938.
J. C. Flippin, Virginia, 1934; 1935; Special Session; 1935-1938; 1938 Special Session; Member, Council on Scientific Assembly, 1936—.
P. Maxwell Foshay, Ohio, 1902-1903.
L. M. Gates, Pennsylvania, 1913; 1915.
J. Norman Henry, Pennsylvania, 1926-1931; 1933.
Vard H. Hulen, Texas, 1911.
J. Allen Jackson, Pennsylvania, 1932-1934; 1935 Special Session; 1935-1937.
Charles H. Goodrich, New York, 1932-1934; 1935 Special Session; 1936-1938.
Alexander Lambert, New York, 1911; Third Vice President, 1909; President-Elect, 1918-1919; President, 1919-1920; Member of Judicial Council, 1911-1918 (chairman of that council, 1912-1918).
S. L. Ledbetter, Alabama, 1910.
Hugh F. Lorimer, Ohio, 1908.
Philip Marvel, New Jersey, 1902; 1923; 1928-1930; 1934; 1935 Special Session; Third Vice President, 1900-1901; Trustee, 1904-1920; Vice President, 1925-1926.
Ephraim R. Mulford, New Jersey, 1929-1934; 1935 Special Session; 1935-1937; 1938 Special Session.
J. H. Murray, Pennsylvania, 1924; 1927.
Frank P. Norbury, Illinois, 1904.
Hugh T. Patrick, Illinois, 1912, 1919-1920.
William G Ricker, Vermont, 1925-1928; 1930; 1932-1934.
William H. Seemann, Louisiana, 1915-1916; 1919-1926; 1930-1934; 1935 Special Session; 1935-1938; 1938 Special Session.
Walter H. Snyder, Ohio, 1905.
H. W. Van Allen, Massachusetts, 1912-1913.
Frederick L. Van Sickle, Pennsylvania, 1916-1917; 1923.
Victor G. Vecki, California, 1913-1916; 1919; 1922-1929.
H. D. Wood, Arkansas, 1927.

The lives of these men constitute a part of our living record of achievement.

It is fitting that the House pause at this moment to take some appropriate action in remembrance of them.

At the request of the Vice Speaker the members of the House arose and stood for one minute in silent tribute to the memory of departed delegates.

An amended motion of Dr. A. T. McCormack, Kentucky, that when the House adjourns it adjourn in memory of all the former members of the House of Delegates who have passed on was seconded and carried.

Reference Committees

The Speaker announced the personnel of the Reference Committees:

SECTIONS AND SECTION WORK

George Gray Ward, Chairman.....Section on Obstetrics and Gynecology
Thomas B. Throckmorton.....Section on Nervous and Mental Diseases
Curtice Rosser.....Section on Gastro-Enterology and Proctology
Francis F. Borzell.....Pennsylvania
William R. Molony Sr.....California

RULES AND ORDER OF BUSINESS

John H. O'Shea Chairman.....Washington
James R. McVay.....Missouri
John Q. Myers.....North Carolina
Walter B. Martin.....Virginia
Samuel P. Mengel.....Pennsylvania

MEDICAL EDUCATION

Harvey B. Stone, Chairman.....Maryland
Charles W. Stone.....Ohio
George Blumer.....Connecticut
Andrew F. McBride.....New Jersey
E. H. Skinner.....Section on Radiology

LEGISLATION AND PUBLIC RELATIONS

Holman Taylor, Chairman.....Texas
L. G. Christian.....Michigan
Karl S. J. Hohlen.....Nebraska
Thomas P. Farmer.....New York
G. Henry Mundt.....Illinois

HYGIENE AND PUBLIC HEALTH

A. T. McCormack, Chairman.....Kentucky
W. F. Draper.....United States Public Health Service
A. A. Walker.....Alabama
Guy W. Wells.....Rhode Island
Edward M. Pallette.....California

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Charles E. Mongan, Chairman.....Massachusetts
Edgar A. Hines.....South Carolina
T. K. Gruber.....Michigan
Felix P. Miller.....Texas
E. G. Wood.....Tennessee

REPORTS OF OFFICERS

Floyd S. Winslow, Chairman.....New York
William H. Myers.....Georgia
James Q. Graves.....Louisiana
Elbridge J. Best.....California
Forrest J. Pinkerton.....Hawaii

REPORTS OF BOARD OF TRUSTEES AND SECRETARY

John H. Fitzgibbon, Chairman.....Oregon
J. Newton Hunsberger.....Pennsylvania
Grant C. Madill.....New York
Charles W. Roberts.....Georgia
W. F. Braasch.....Minnesota

CREDENTIALS

Deering G. Smith, Chairman.....New Hampshire
Raymond L. Zech.....Washington
H. B. Everett.....Tennessee
A. A. Ross.....Texas
George R. Dillinger.....Indiana

MISCELLANEOUS BUSINESS

Henry C. Macatee, Chairman.....District of Columbia
Ben R. McClellan.....Ohio
Fred Moore.....Iowa
William Weston.....Section on Pediatrics
E. S. Hamilton.....Illinois

Address of President Irvin Abell

The Speaker resumed the Chair and presented the President, Dr. Irvin Abell, Louisville, Ky., who delivered the following address, which was later referred to the Reference Committee on Reports of Officers, with the exception of that portion referring to the Wagner National Health Bill, which was referred to a Reference Committee on Consideration of the Wagner National Health Bill that was subsequently appointed:

Mr. Speaker and Members of the House of Delegates:

The past year has seen peak development in many of the activities of the American Medical Association. An all time high has been reached both in membership in the Association and in subscriptions to THE JOURNAL. The various councils and bureaus have been continuously active in promoting their scientific and educational objectives. Liaison meetings between the Council on Foods, the Council on Pharmacy and Chemistry and representatives of the federal bureaus have developed assistance in the administration of the Food, Drug and Cosmetic Act. The newly created Council on Industrial Health sponsored a conference held in Chicago in January attended by representatives of the various agencies interested in industrial health and laid the ground work for improvement in this special field.

The Council on Medical Education and Hospitals has devoted much thought and effort to the problem of graduate education and training with the object in view of establishing standards and increasing facilities for the acquisition of training on a basis of the requirements established by the specialty boards. This problem is an intricate one but gives promise of solution with the cooperation of the agencies interested in it. Events of momentous importance involving medicine have evolved from the changing social thought of recent years. The recommendations of the Technical Committee on Medical Care, a subcommittee of the Interdepartmental Committee to Coordinate the Health and Welfare Activities of the federal government, presented to the National Health Conference, held in Washington last July, envisaged a comprehensive program for the participation of the federal government in health activities. At the special session of the House of Delegates held last September these recommendations were carefully considered and the attitude of the American Medical Association toward them was clearly defined in the report of the reference committee unanimously adopted by the House.

The committee appointed by the Speaker of the House in compliance with its instructions has held two all day conferences with the Interdepartmental Committee, the first one October 31 in response to the resolution of the House of Delegates which directed it to confer with such agency or agencies as might be designated by the President of the United States, the second one January 15 on the invitation of Miss Josephine Roche, extended through Mr. G. St. J. Perrott, secretary of the Interdepartmental Committee. Since the Interdepartmental Committee did not, at either meeting, submit a draft of the proposed legislative enactment for the translation of its recommendations into activity, the discussions were of necessity limited to principles. Your committee closely adhered to the principles and policies adopted by the House of Delegates both at its special session and at its previously held regular session. Discrepancies between the data and statistics assembled by the Technical Committee on Medical Care and those assembled by the American Medical Association were emphasized where such might ultimately influence the application of the Technical Committee's recommendations. Expansion of public health, maternal and child welfare services with limitation of curative measures to private practice where available; utilization of vacant beds in present hospitals on a per diem basis; the construction of new beds and diagnostic health centers on a basis of economic, geographic and health needs with standards for hospital administration and for professional personnel; perpetuation of hospitals and health centers; the formulation of plans for the care of the medical needy determined by local and financial needs under medical and local state supervision; the approval of sickness compensation and of voluntary insurance for hospital and medical service, and unqualified opposition to the suggestion in recommendation IV that the individual states initiate studies and plans for the care of all their people on a tax paid basis are briefly the points for which your committee contended. Compulsory sickness insurance is a more appealing and a more euphonious title than the one which accurately identifies it, namely sickness tax. Mr. Falk of the Technical Committee tentatively set the level at which compulsory plans would operate at an income of $3,000 or less. Federal statistics reveal that but 7 per cent of the population enjoy an income above this amount, if and when a compulsory plan becomes operative in all the states at this level, 93 per cent of the population will be covered thereby.

Our interview with the President was held at the suggestion of and was arranged for by the Surgeon General of the Public Health Service. President Roosevelt was most gracious and affable and discussed both his interest in an increase in hospital facilities and a wide distribution of medical care on a basis of need and as well the budgetary difficulties which the program entails. At his suggestion the chairman of your committee briefly but clearly outlined the position of the American Medical Association to each of the five recommendations made by the Technical Committee.

On January 23 the President presented to the Congress his message on the National Health Program with a recommendation for its careful consideration and study. On February 28 Senator Wagner of New York introduced into the Senate of the United States a bill, S. 1620, entitled "A Bill to provide for the general welfare by enabling the several states to make more adequate provision for public health, prevention and control of disease, maternal and child health services, construction and maintenance of needed hospitals and health centers, care of the sick, disability insurance and training of personnel." Although the bill is actually an amendment to the Social Security Act, the bill proposes that, if it is enacted, it be called the "National Health Act of 1939." Assuming that this bill has the endorsement of the federal agencies responsible for the National Health Program, it has afforded opportunity to study the means by which it proposes to put into effect the recommendations of the Interdepartmental Committee and by comparison to see how far it harmonizes with the approval in principle given by the House of Delegates at its special session. The American Medical Association at no time expressed its opinion on the amounts of money to be expended in such a program, but it is of interest to note that the Wagner bill proposes an expenditure of $98,250,000 for the fiscal year of 1940, $123,500,000 for the fiscal year of 1941 and $334,000,000 for the fiscal year of 1942, with no limit on the amounts during 1941 and 1942 for public health work, for grants for mental and tuberculous hospitals, for grants for medical care, for grants for temporary disability compensation and for administration, and, further, that for the fiscal years subsequent to 1942 there is no specified limit on expenditures for the accomplishment of any of the purposes of the act.

While no specific mention is made of compulsory sickness insurance, the measure introduces the principle of allotment of federal money to the individual states for medical care, by the Social Security Board, without specifying the means to be used in the individual states for providing such service other than to demand the approval of the Social Security Board, being silent as to the permissible extensions and improvements of medical care that a state may make and as to whether such care shall be provided through a state medical service or by a system of state health insurance or by payment for services on a fee basis. The administrative agencies mentioned in the bill are the Children's Bureau, the United States Public Health Service and the Social Security Board, final and complete authority for carrying out the purposes of the act resting in these three departments. Granting the occurrence in a rural or isolated community of disease which from their classification would come under each and all three of these agencies, satisfactory and competent administration would seem extremely difficult, if not impossible. Such a contingency but enhances the contention of the American Medical Association for a Minister of Health, a unified agency for the correlation of all health activities. The bill does not provide for means of determining the local need for the various services it proposes to furnish, a matter of importance repeatedly

emphasized by the House of Delegates, and no stipulation as to the utilization and improvement of existing hospitals is mentioned. These are but a few of the points that demand your consideration and study in aiding in the development of a health program for the nation to which we are by experience, knowledge and conviction committed, its fundamental objectives being an expansion of public health, maternal and child welfare services, approved care to the indigent and the medically indigent, and an extension of hospital and diagnostic facilities.

Another movement which intimately concerns medicine is to be found in the activities of the Department of Justice in securing an indictment of the American Medical Association for monopolistic practices operating in restraint of trade. During the past summer an assistant to the Attorney General gave releases to the press in Washington accusing the American Medical Association of illegal practices and threatening it with criminal prosecution, thereby promoting an antagonistic mental attitude on the part of the public toward the Association. In a release of August 1 the following appears: "In the event that voluntary cooperation results in constructive proposals going beyond the elimination of illegal practices, the Department would adhere to its previously announced policy of submitting such proposals to the court as a basis for a consent decree." In other words, in order to escape trial the American Medical Association must admit guilt and agree to do more than the law requires. On December 1 another assistant to the Attorney General, in addressing a public audience in Milwaukee, outlined the "charges which the Department of Justice is presenting to the Grand Jury," "what the Department's lawyers" had learned, "the background of the controversy," "that the American Medical Association has adopted an official policy of opposition," and so on. This particular attorney at the time was engaged in conducting the inquiry by the grand jury and later signed the indictment brought by it. From time immemorial grand jury investigations have been presumed to be secret, in order to prevent antagonistic mental attitudes on the part of prospective jurymen who will sit on the trial jury when and if an indictment is obtained. One can but wonder if the actions of these two attorneys are in harmony with the ideals and traditions of the American Bar Association.

The fundamental point at issue in the indictment of the American Medical Association is as to where the power of policing professional organizations shall lie. Heretofore by common consent this power has been vested in the organizations themselves, which have established standards of qualification, training, attainment, character and conduct for those desiring to enter their ranks and for the members desiring to remain in their ranks. This power has been exercised in good faith and with good intent for the protection of the public. Should a conviction be obtained and upheld by the appellate courts, the policing power would be transferred to the federal government, which would then determine qualifications for membership, articles of expulsion, and the like. While this legislation was primarily aimed at the American Medical Association, it is apparent that many other organizations, professional and business, have an interest in it, since that which applies to one will apply to all. The House of Delegates, at the San Francisco session, declared in no uncertain terms its intention to see the then threatened indictment through to its ultimate conclusion; the principle involved is one on which there can be no compromise. As your President, it has been my duty and my privilege to visit many of the component bodies of the American Medical Association and it is with definite gratification and pleasure that I bear witness to their loyalty to the principles for which the Association stands and of their earnest and sincere desire to cooperate in bridging the gap between the accumulation of medical knowledge and its equable, wide distribution in the shape of good medical service.

In conclusion permit me to express to the members of this House and through them to the membership of their respective bodies my profound gratitude and thanks for their constructive criticism, their loyal support and their faithful cooperation in maintaining the ethical institution of medicine, the record of which today stands unparalleled in all the world in the prevention, control and cure of disease.

Address of President-Elect Rock Sleyster

The Speaker presented the President-Elect, Dr. Rock Sleyster, Wauwatosa, Wis., who delivered the following address, which was later referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

The interest and attention of this body, when in annual session the past few years, has been largely occupied with threats to the science of medicine by social and governmental agencies, ambitious to revolutionize orderly procedure in the continued development and distribution of medical care. Such agencies have promoted an impression that there has been a "breakdown" in medicine as there has been in agriculture, industry, railroads, building and manufacturing. We know that this is not true. We know that medicine, in fact, is about the only major endeavor which has not failed but on the contrary has improved its quality of service as well as its distribution during the depression years. Such needs as exist are only those coexistent with the needs of the necessities of life; they have been met by American medicine as no other needs have been satisfied.

I have wondered, during the past few sessions of the House of Delegates, if possibly, with attention focused on these threats, we have not paid too little attention to the purposes for which the American Medical Association was organized and to the established activities in which it is engaged. I dimly recall one of the old "Dooley" stories of how the hoodlums of the third ward stood in front of Mrs. Murphy's house calling her names, she so busy talking back to them from the front door that she did not see or hear two of their delegation raiding her icebox via the kitchen entrance. And so this morning I want, from this point, to ignore the noise out in the street and briefly to redirect your attention to some of our activities and to some threats to them from an entirely different quarter.

Previous reports to the House of Delegates have called to your attention growing concern over the ever increasing number of medical organizations. While we have made a gain of approximately 14,000 members in the past five years, a number equal to the entire memberships of the Michigan, Ohio, Indiana and West Virginia state societies, and a contradiction to any claims of strife and disintegration in our ranks, the fact remains that many organizations, some perhaps unnecessary, are a drain on the time and interest of our members. After all, the American Medical Association always has assumed and always must assume the responsibility of medical progress and the defense of all that has been accomplished in the past. No other group is representative of all branches of medicine, no other group has the organization necessary, and no other group includes in its membership practically all members of all independent groups.

Most of these independent societies were originally organized for purely scientific purposes in some particular field. I believe most of their members agree that matters of broad public policy should, and must, be the responsibility of the American Medical Association. Yet occasionally an officer of one of these societies, in interview or speech, expresses endorsement of policies in conflict with those established by this House, representative of the whole profession. No one would deny such officer the American right to express his individual opinion —but is he authorized to speak in the name of his society? An officer of the American Medical Association may not voice unapproved policies, and it must be remembered that in the public eye an officer cannot be dissociated from his organization. In these days of danger to medicine, each scientific organization, if in agreement that primary responsibility rests with the American Medical Association, should insist, by the adoption of a standing rule, resolution or otherwise, that its officers, during their term of office, refrain from public discussion of broad policies of public welfare, except such as have been officially adopted by their organizations, in order to protect the membership from being committed without an opportunity for expression of opinion. Even if such speakers definitely explain that they speak for themselves alone, they cannot dissociate themselves from their public offices.

The various councils, bureaus and publications of the American Medical Association have been established by the House of Delegates or their creation has been approved by the House. Their progress as reported to you by your Board of Trustees is most gratifying. Their work has increased tremendously year by year and the demands made on them at all times tax their resources. I want merely to mention some of their difficulties—difficulties which it seems to me are quite unnecessary and which tend to defeat their purpose.

Seldom is there a period in organizations so strikingly influential for the future of a profession, and of the public, as was that of 1900 to 1906 in the American Medical Association. The fruits of medical contributions were being jeopardized by the multiple evils which became apparent in the proprietary medical school, in the exploitation of physicians by commercialized directories and in the commercial domination of our therapeutics. History has repeatedly shown that in times of crises leadership arises. So it was under the able leadership of Dr. George H. Simmons, supplemented by the loyal support of progressive physicians, that the period 1900 to 1906 was one of exceedingly constructive efforts, the magnitude of which grows more in the increased perspective of the last thirty years.

The proprietary evil has always been with medicine in one form or another. In America the development of all sorts of so-called ethical preparations began about 1875 and grew to serious proportions at the first part of this century. From time to time the medical profession became articulate against the debasedness of the proprietary medicine evil. The profession was also aware that it had no means of determining those new drugs in which it should have confidence from those which were bad, and in both cases the advertising for them generally teemed with claims preposterous even then. The growing concept of the sad state of materia medica was augmented by a resolution in 1904 from the delegates of the Michigan State Medical Society asking that the Board of Trustees be requested to provide a means whereby analyses of medicinal substances could be made and reports obtained concerning the composition and properties of these substances.

The Council on Pharmacy and Chemistry (the name given the body composed of well known pharmacologists, pharmacists, chemists, clinicians and bacteriologists) was organized Feb. 11, 1905, primarily for the purpose of disseminating information which would protect physicians and the public against fraud, imposition, undesirable secrecy and unwarranted therapeutic claims. The Council has carried on its work for thirty-four years. No one unfamiliar with the work of this Council can appreciate the sacrifices demanded of its members and the indebtedness of this association to them.

Thirty years ago there were no medical journals whose advertising pages could be considered a credit to the medical profession. Today not only the greatest medical journal in the world but the state journals and many independent journals show by their clean advertising the imprint of the Council's efforts in furthering rational therapy and enhancing the scientific treatment of the sick.

In contrast are the pages of certain little magazines sent without subscription charge to all members of the profession —magazines usually referred to as "throw away" journals. Most of the advertising in these journals is not acceptable to the American Medical Association. This of course is the reason for their existence. They have no doubt been extremely profitable to their private owners for they have furnished to these advertisers a large audience which could not be obtained through the American Medical Association journals. One of them has repeatedly attempted to undermine the councils and committees that have attacked nostrums and made therapy scientific. Some publish the names of an "advisory board"—names of leading members of this organization. All publish articles or abstracts written by our members. It is hard to believe that members of this organization will lend their names to the promotion of publications of this type.

A matter of similar interest relates to the journals created by this House to cover the specialties. These are the ranking journals of the world in their special fields. All but three are published at a loss. In competition with them are certain journals published for profit by commercial firms which accept advertising far from meeting the requirements of our Council on Pharmacy and Chemistry. Many of these are excellent journals. Their covers advertise long lists of names of men high in our ranks, while their advertising pages recommend to the reader products these same editorial boards would blush to endorse.

Thirty-five years ago this House created a Council on Medical Education, later to become the Council on Medical Education and Hospitals. As a result of its work there has, during these years, been an unparalleled advance in medical education. No other agency could have accomplished what it has. The activities of this Council have constituted one of the greatest safeguards for the protection of the health of the American people. You will be called on at this meeting to decide important questions on which the future influence of this council will depend. If its work, independence and responsibility are to continue unchanged, we should be able to demand for it the loyal support of every member.

During the past year THE JOURNAL has continued its fearless editorial policy of attack on quackery. These exposés have for years resulted in suits for damages being brought against the Association. We have recently won the suit brought by John R. Brinkley against the editor of *Hygeia*. Many suits never come to trial, but attorneys' fees and preparation for defense entail large sums of expense. We sometimes wonder whether the public is appreciative of this effort and expense in its behalf. Nevertheless we have at all times considered it our duty to expose dishonesty in medicine wherever it is found. Several suits against the Association are pending at this time. We have never compromised and we have never retracted, for we stand firmly on the principles and truths that we enunciate.

It is no secret that these are troublous times. Modern technics for bringing pressure on various groups of our population to obtain favorable action for extraordinary economic and sociologic proposals have resulted in constant harassment of the medical profession. In the midst of these trials come many requests that the Association embark on new projects in the field of research, in the field of publication, in protection of the public against the hazards of unethical practices, in public health education. Many of these suggestions seem highly desirable, and it is the hope of your officers that we may be able to undertake them, at a time not too far away, when stability in economics, in government and in industry shall again prevail.

Finally, may I urge every possible effort to train and educate our members to think of, and refer to, the American Medical Association not in the third person but in the first. Five thirty-five North Dearborn Street is not the American Medical Association. It is a *building*, occupied by more than 600 employees engaged in carrying out the activities and policies this House of Delegates has created. *You* are the American Medical Association. The membership you represent is the American Medical Association. Nothing can come from that building which you have not authorized. A criticism of the American Medical Association, yes, an indictment of the American Medical Association or of any of its officers, is a thrust at you personally and individually.

Unfavorable comment when heard is usually due to ignorance regarding the organization and its activities. I wish every member could visit our headquarters and become familiar with it. Let us urge this on our membership, and, if our state and county societies would delegate certain members to visit it annually, the investment in the expense entailed would yield rich dividends to all concerned.

CONCLUSION

Members of the House of Delegates, throughout my entire professional life I have been associated with the work of the American Medical Association. I recall the giants of American medicine who in the past have arisen in this House of Delegates to defend the ideals and objectives of this great organization. I call to mind Frank Billings leading the

campaign against unethical proprietary medicines; the work of William J. Mayo in advancing the science of surgery; Frank Wynn of Indiana giving impetus to our great scientific exhibit. All of us remember the sagacious leadership of Malcolm LaSalle Harris, the idealism of the distinguished George de Schweinitz, the devotion of Pusey, of Hubert Work, of Richardson and many others. These men, busy in the practice of medicine and with their personal affairs, gave freely of their time and of their lives to advance the progress of organized medicine. They were the builders, in this House of Delegates and in various official bodies, who turned over to us the great institution for which we now carry the responsibility. It is a serious and a sacred trust. The officers whom you have elected, the employees who administer your affairs, look to you for guidance in their work, for support in their activities, and for confidence which will inspire and stimulate them to maintain securely and build more greatly what is already the greatest organization of physicians that the world has ever known. In this House of Delegates there are physicians with knowledge, with astuteness, with abilities equal to those of the great founders and leaders of the past. The times demand the most that you can give. I believe we may depend upon you to rise to the occasion.

During the coming year my resources in time and strength are yours to command. I ask only your full cooperation in all that is best for medicine and for the people of this great country.

Address of the Vice President, Dr. Howard Morrow

The Speaker presented the Vice President, Dr. Howard Morrow, San Francisco, who addressed the House as follows:

Mr. Speaker and Gentlemen:

I am not on the official program, so I will try to give you something impromptu. I was most embarrassed last night when I stood in the hall being photographed with Dr. McCormack of Kentucky. After the photograph was taken the photographer wanted to know from Dr. McCormack who he was. It took Dr. McCormack five minutes to tell him he was President of the Southern Medical Association, the head of the Department of Health of Kentucky, the head of everything in Kentucky. Then he turned to me and said "Who are you?"

I said "My name is Morrow, H. Morrow." "But," he said, "who are you?"

I said, "Nothing, nobody, just a small fry from the Coast."

By that time Morris Fishbein came along and he said "He is supposed to know something about leprosy."

I said "My God! If they put that in the newspaper I'll lose what little practice I have."

Address of Dr. C. E. Hercus

On request of the Chairman, the Secretary presented Dr. C. E. Hercus, Dunedin, New Zealand, who addressed the House as follows:

Mr. Speaker, Dr. West and Members of the House of Delegates:

I thank you very much indeed for the cordial way in which you have welcomed me, a visitor from the most southern of the British dominions. It is a very great privilege indeed to be invited to attend this great meeting of this great Association, and it is a very great privilege and pleasure for me as a representative of the New Zealand and British Medical associations to bring to you their tribute and to thank you for the flow of publications that come from your offices, which have been of greatest value in our British medicine in New Zealand. The many journals which you have sent and which have been referred to this morning have been a source of great inspiration and help to us in the South and we thank you for it. We also wish to pay a tribute, and I as their representative do so now, to this great country and to this great profession for the traditions established and maintained by you which were referred to in that eloquent speech of the Speaker. We in the southern dominions, I think, stand for those same traditions and ideals for which you stand, and we do look to you increasingly for leadership and inspiration.

I thank you very much for your welcome.

Address of Dr. T. C. Routley

The Secretary then presented Dr. T. C. Routley, the secretary of the Canadian Medical Association, who addressed the House as follows:

Mr. Speaker, Mr. President, Mr. President-Elect, Dr. West, Gentlemen:

There is a law up in our country which says that if one has undisputed and undisturbed right of way for a period of twenty-one years, that right of way becomes permanent and irrevocable. Sixteen years ago at your meeting in San Francisco, by the cordiality of your welcome and the affectionate way you treated me during my stay with you, I commenced my right of way into the hearts of the House of Delegates of the American Medical Association. Now, Mr. Speaker, it is my hope that five years from now I shall be able to claim an undisputed and undisturbed right of way in perpetuity.

I, sir, look forward always with the greatest of pleasure to coming to your annual meeting, and I do bring you on this occasion, as I have done on previous occasions, the most affectionate greetings from your brother practitioners north of the 49th parallel of latitude. As I have told you before, we are a very small body numerically but our problems are the same as yours and we do regard you as our big cousin over here, giving us the lead in many directions.

Sir, while on my feet I should like, if I may, to pay tribute to your Secretary, Dr. Olin West, and to his associates who have been so kind to the Canadian Medical Association whenever we have called on them for counsel and advice. Indeed, I couldn't begin to tell you just what it has meant to us from year to year to know that wherever and whenever we needed some assistance Dr. West was always so courteous and so prompt in giving us that assistance.

So I bring you again the greetings of the Canadian Medical Association and I thank you, sir, and this House of Delegates for your kindly reception.

REPORTS OF OFFICERS

Report of the Secretary

Dr. Olin West presented his report as Secretary, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary. Dr. West then announced that since his report had been put into print the membership had increased to 113,113 and the Fellowships to 70,100.

The Secretary then read a telegram of greeting from Dr. Rudolph Matas, New Orleans, recipient of the Distinguished Service Medal in 1938, and announced the receipt of communications from organizations, officials and mercantile establishments in St. Louis, sending greetings to the American Medical Association.

Report of Board of Trustees

Dr. Arthur W. Booth, Chairman, presented the report of the Board of Trustees.

Supplementary Report on Medical Patents

Dr. Roger I. Lee, a member of the Board of Trustees, then presented the following supplementary report of the Board dealing with medical patents:

From time to time the House of Delegates has reaffirmed its position in regard to the undesirability of doctors taking out medical patents. The Judicial Council has given the subject repeated and prolonged consideration and decided not to recommend any changes in the present procedure. The House of Delegates, in a recent meeting, referred the matter of medical patents to the Board of Trustees for report. In consequence of this action, the Board of Trustees appointed a committee to secure further information.

Finally, on March 16, 1939, a conference at the headquarters of the American Medical Association was called, to which all interested parties were invited. At this conference varying points of view were presented by representatives of the Scarlet Fever Committee, Inc., the Insulin Committee of the University of Toronto, of the manufacturers, of the public, and of the Council on Pharmacy and Chemistry. The publication of the

proceedings of this conference has been unavoidably delayed but will appear in THE JOURNAL in a few weeks.

The views presented varied widely. One was that at one end was the view that patents should not be secured in the medical field or that they should be frankly dedicated to the public; another expressed the desirability of securing medical patents and of energetically controlling these patents for the protection of the public.

There were some points of agreement. One was that the attitude of the manufacturers was clearly defined and fair. Again, it seemed clear that if a patent is controlled it will result in much litigation. Moreover, it seemed evident that few medical individuals personally benefited financially from patents. However, it appeared that in some instances there had developed a real competition between the manufacturers, the commissions and the committees directly or indirectly under the control of universities. In some of these instances money in varying amounts accrues to the universities for purposes of research. Furthermore, there was evidence brought out in the conference, as had been brought out in resolutions before the House of Delegates, that there was a real danger of a severe control of a medical patent interfering with medical research.

SUPPLEMENTARY REPORT ON ARMY MEDICAL LIBRARY

Dr. Booth presented the following Supplementary Report of the Board of Trustees pertaining to the Army Medical Library:

The act passed by the Seventy-Fifth Congress authorizing the construction of a new building in which to house the Army Medical Library and Museum, approved by the President June 15, 1938, carried no appropriation for the construction of the building. That session of Congress adjourned without otherwise making available the necessary money. The Seventy-Sixth Congress convened Jan. 3, 1939. Copies of the resolutions adopted by the House of Delegates at the San Francisco session, petitioning the Congress to make available the necessary fund to construct the building as soon as practicable, were promptly forwarded to the President of the United States, the Vice President, the Speaker of the House of Representatives, the Secretary of War, the Chief of Staff of the Army, and the chairmen of the House and Senate Committees on Military Affairs and on Appropriations. The War Department appropriation bill, however, in which the appropriation for the library building would normally be placed, has already passed the House and the Senate but contains no such appropriation, nor is the appropriation proposed in any other pending bill. Our state associations have been urged to petition the Congress for prompt action with respect to this appropriation and to appoint committees to keep constantly in touch with the matter.

The Board suggests that the House of Delegates reemphasize its hope that the necessary fund to construct this building be made available by the Congress without delay as the need is urgent.

SUPPLEMENTARY REPORT ON FEE SCHEDULES

Dr. Booth presented the following supplementary report of the Board dealing with fee schedules:

In response to the request of the House for a report on fee schedules, the Bureau of Medical Economics has given careful consideration to the matter. It is still studying it and simply wants to report progress at this time.

SUPPLEMENTARY REPORT ON WAGNER NATIONAL HEALTH BILL

The Wagner National Health Bill is an important measure. It has received consideration by the Board and that body feels that it should be considered by the House of Delegates. It is suggested that the Speaker appoint a special reference committee to which this bill and any matters that may be presented bearing on it may be referred for consideration.

Dr. Frederic E. Sondern, New York, moved that the suggestion of the Board be adopted and that the Speaker be requested to appoint a special reference committee to consider this bill, the committee to report to the House during the executive session on Tuesday. The motion was seconded by several delegates and carried.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried, the Speaker was authorized to appoint a reference committee on executive session.

The Speaker then announced the following personnel of these two reference committees:

CONSIDERATION OF THE WAGNER NATIONAL HEALTH BILL

Walter F. Donaldson, Chairman.....Pennsylvania
Frederic E. Sondern.....New York
Walter E. Vest.....West Virginia
Fred Rankin .....Section on Surgery, General and Abdominal
E. H. Cary.....Texas
Henry A. Luce.....Michigan
Howard L. Snyder.....Kansas

EXECUTIVE SESSION

Charles J. Whalen, Chairman.....Illinois
Herbert L. Bryans.....Florida
H. G. Hamer.....Indiana
John M. Birnie...
Peter Irving .....
Clyde L. Commer.
McLain Rogers.....Oklahoma

The report of the Board of Trustees and its supplementary reports were then referred to the Reference Committee on Reports of Board of Trustees and Secretary, with the exception of the Supplementary Report on Medical Patents, which was referred to the Reference Committee on Legislation and Public Relations and the Supplementary Report on the Wagner National Health Bill, which was referred to the Reference Committee on Consideration of the Wagner National Health Bill.

Supplementary Report of Board of Trustees

REPORT OF COMMITTEE TO STUDY PROBLEMS OF MOTOR VEHICLE ACCIDENTS

The Secretary presented the following report of the Committee to Study Problems of Motor Vehicle Accidents, which was referred to the Reference Committee on Legislation and Public Relations:

The Committee to Study Problems of Motor Vehicle Accidents met at the headquarters of the American Medical Association on Dec. 8, 1938. Those attending were Dr. Herman A. Heise, Milwaukee, Chairman; Drs. Burt R. Shurly, Detroit, and C. W. Roberts, Atlanta, Ga., members of the committee; Mr. J. S. Baker of the National Safety Council, and Dr. Olin West, Secretary of the American Medical Association.[1]

The members of the committee are aware of the marked reduction in motor vehicle accidents and fatalities since the peak year of 1937 and are convinced that the improvement is due chiefly to education and traffic law enforcement. The medical profession realizes its responsibility and believes that further improvement can be obtained if the following facts are comprehended and the recommendations set forth here are adopted.

PHYSICAL AND MENTAL DEFECTS

Physical and mental defects, as they affect motor vehicle accidents, can be classified roughly into three general groups according to the duration of the disability:

1. Permanent deficiencies, such as missing extremities, certain visual and hearing defects, feeblemindedness, and small stature.

2. Transitory deficiencies which may impair ability for a number of days or months, such as weakness during or after illness, arthritis, various diseases which may cause coma or seizures, and mental troubles which may result in unstable emotional states.

3. Brief and often self-inflicted disabilities from which recovery is usually natural, certain, complete and prompt, such as intoxication, the effect of drugs, lack of sleep, unusual excitement or worry.

Official agencies for dealing with physical and mental defects as they relate to driving ability include drivers' license administrators and city and state police departments. The drivers' license administrators watch for the more obvious permanent physical defects when they examine new drivers for licenses. They also conduct hearings and reexamine those drivers who

1. The Chairman was assisted in the preparation of this report by the secretaries and other members of the National Safety Council's Committee on the Driver and Committee on Tests for Intoxication. The statements and recommendations set forth here are substantially concurred in by these two committees of the National Safety Council.

have had more than their share of traffic accidents or traffic violations, to determine whether the licenses should be suspended or revoked. The police officials deal primarily with the drivers who get into trouble because of temporary disabilities such as intoxication.

There are many problems in determining minimal physical and mental standards for new drivers. Higher qualifications may be set for the employment of commercial drivers than for the licensing of the general public, because the former involves a process of selecting the few best from many, and any questionable applicant may be rejected, whereas, in licensing the public, only the *certainly unfit* may be rejected and all questionable applicants must be given the benefit of the doubt and accepted.

Loss or paralysis of limbs is not as dangerous as it might be, because the automobile may be especially equipped for drivers so afflicted and because such drivers usually compensate by extra care. The problem in dealing with sensory defects is one of establishing the point in deficiency at which the hazards become great enough to bar the person from driving; much research is yet needed to determine standards for sensory defects. The dangers of low intelligence are not generally realized, and as yet little has been done either to set standards of intelligence for drivers or to relate mental development to possible hazards.

Certain mental and physical defects are evident even in childhood. If it were possible for the schools to keep simple records which would follow the progress of a child through school, information could be gathered which would be very valuable when this individual applies for a driver's license. Such a record should include notations as to serious eye and ear defects, epileptic seizures, and so on. Also records of unstable individuals of low intelligence (I. Q. less than 70 per cent) would be of value. More careful examination of persons with bad school records would aid materially in keeping the potential accident-prone person off the highways.

Suspension and Revocation of Driving Privilege.—It is a well known fact that a small percentage of drivers are involved in more than their share of traffic accidents and have more than their share of traffic violations. It is of the utmost importance that adequate records of traffic accidents and major traffic violations be kept so that these persons can be identified and reexamined to determine whether they should continue to have the privilege to drive. Such records should preferably be kept by a state department and should be readily available to similar departments in other states. Persons having had more than their share of accidents or violations should be given special examinations, and hearings should be conducted to determine whether their licenses should be suspended or revoked.

Transitory Deficiencies.—These deficiencies ordinarily cannot be brought to light by original examination for licenses because they may develop at any subsequent time. Most of them would even escape detection in any practical periodic reexamination. However, most such conditions call for medical attention and thus come to the notice of physicians.

Probably the greatest contribution to traffic safety that the medical profession as a whole can make is in preventing accidents due to transitory disabilities. It should be the duty of physicians to inform patients of the possibility of prescribed drugs causing driving hazards. This applies particularly to insulin, opium derivatives and other sedatives. The use of anesthetics for minor operations may also leave the patient in the condition in which he is less able to cope with traffic. Too many drivers, during investigations of accidents in which they were involved, attribute the mishaps to dizziness, faintness, sickness or weakness "because of something the doctor gave me," or because of a condition for which they were under treatment.

ALCOHOLIC INTOXICATION

The importance of alcohol as a factor in traffic accidents has been demonstrated further by the work of Holcomb[2] in Evanston, Ill. Alcohol tests were made of the breath of 1,750 drivers chosen at random on the streets of Evanston, a legally dry community, and results were compared with the results of alcohol tests made on the urines of 270 drivers brought to Evanston hospitals after being involved in personal injury accidents. If alcohol were not a factor in accidents, it is obvious that the percentage of drivers in each of these two groups who had been drinking would be about the same. However, it was found that 47 per cent of those involved in personal injury accidents had alcohol in their blood, while only 12 per cent of the drivers selected at random were in the drinking class. The results are even more significant when a comparison is made of the percentages of drivers in each class whose blood contained 0.15 per cent of alcohol or more. Assuming that the chance of having an accident when no alcohol has been consumed is represented by the number one, then the chance of having an accident has been shown to be fifty-five times greater when the average person has a concentration of alcohol in his blood of 0.15 per cent or more. (Approximation by Committee on Tests for Intoxication, National Safety Council, in its 1938 Report.)

Holcomb's survey confirms previous observations that alcoholic intoxication contributes materially to the peak of accidents, which occurs on Saturdays and Sundays. His study also confirms the belief of many that alcoholic intoxication, rather than darkness, is the major cause of the high proportion of personal injury accidents in the hours after midnight.

The concentration of alcohol in the blood is one of the best criteria of intoxication because blood alcohol concentrations closely parallel detrimental effects noted in carefully conducted experimental tests. Although this relationship is not mathematically exact because of slight variations resulting from inherent differences in human beings, it is sufficiently accurate for practical purposes. The relationships between concentrations of alcohol in blood, urine, saliva and breath have been shown to be sufficiently definite so that chemical tests of any of these body materials can furnish a reliable measure of the degree of alcoholic influence.

For medicolegal purposes, the committee recommends the following interpretation of chemical tests for alcohol:

1. Although there is no minimal figure which can be set at which there will be absolutely no effect from alcohol, the committee recommends that persons with a concentration of alcohol of less than 0.05 per cent by weight in blood or its equivalent in urine, saliva or breath should not be prosecuted for driving while under the influence of alcoholic liquor.
2. All persons show a definite loss of that clearness of intellect and control of themselves which they would ordinarily possess when the concentrations are above 0.15 per cent in the blood or its equivalent in other body fluids or breath and should therefore be considered as under the influence.
3. When the alcohol concentrations are between 0.05 and 0.15 per cent in the blood, a great many of the persons will be under the influence of alcohol, but the committee recommends prosecution only when the circumstances and results of physical examination give definite confirmation of such influence.

Chemical tests for intoxication are compulsory in Sweden and Germany after traffic accidents. These tests are used also in a number of other European countries. Results of chemical tests have been used as evidence in court in at least fourteen states in this country. Indiana is the first state to adopt a law which defines borderline limits for alcoholic influence in terms of amount of alcohol in the defendant's blood. The limits set forth in this law conform essentially with those recommended in this report.

Results of chemical tests of specimens which are obtained without compulsion and properly identified are almost always admitted as evidence in courts in this country. Chemical tests are usually employed to corroborate evidence obtained from observation of the accused. In cases involving injury from an accident, the evidence from chemical tests eliminates guesswork, even though the suspect is unconscious or displays symptoms which may be the result of injuries sustained in the accident.

The tests exonerate the innocent as well as assist in convicting the guilty. Cities using chemical tests obtain a much higher proportion of guilty pleas and a much higher percentage of convictions of cases which go to trial. Use of chemical tests enable the prosecution to refute the usual "two bottles of beer" defense.

When the defendant pleads guilty, it is not necessary to have an expert testify on the relationship between concentrations of alcohol in body materials and the probable degree of alcoholic

2. Holcomb, R. L.: Alcohol in Relation to Traffic Accidents, J. A. M. A. **111**: 1076 (Sept. 17) 1938.

influence. However, this expert testimony is necessary in all court cases in which the admissibility of chemical test evidence is questioned by the defense attorney. Physicians are often called on to give expert testimony on the meaning of the test results. Before attempting to present such expert testimony, physicians should become familiar with the literature on the subject and should preferably have some experimental background on the relationship between physical impairment and test results.

In some states, courts will refuse to admit testimony of physicians who have treated an injured person at the time a physical examination is made or a specimen is obtained for chemical tests, holding that the treatment creates a physician-patient privilege. When there is a possibility of such a privileged relationship developing, the specimens for chemical tests should be taken by other persons.

The medical profession is particularly fortunate in having these chemical tests at its disposal. They will enable the profession to avoid the well known "disagreements of experts." Their use is recommended whenever physicians are called on to diagnose degree of alcoholic influence for city and state enforcement departments.

Respectfully submitted.

Herman A. Heise, Chairman.
Burt R. Shurly.
Thomas A. McGoldrick.
C. W. Roberts.

Report of the Judicial Council

Dr. George Edward Follansbee, Chairman, presented the report of the Judicial Council, which was referred to the Reference Committee on Reports of Officers.

Report of the Council on Medical Education and Hospitals

Dr. W. D. Cutter, Secretary of the Council, presented the report of the Council on Medical Education and Hospitals as printed in the Handbook, together with the following supplementary report, which was referred to the Reference Committee on Medical Education:

Supplementary Report

First, the report on the survey of medical and hospital care in the state of Mississippi, referred to in paragraph 6 of the Council's report to the House of Delegates (page 176 of the Handbook), was not completed in time for distribution to the members of the House of Delegates. It will be printed in The Journal for June 3. A brief abstract of this report is presented to the House of Delegates.

Second, since the publication of the Essentials of a Registered Hospital, page 178 of the Handbook, those sections dealing with the physical plant, medical staff organization, pathology and laboratory diagnosis, anesthesia, and dietetics have been amplified. These revisions are submitted to the House of Delegates as a part of this supplementary report.

Third, The Essentials of an Approved Examining Board in Specialties, page 202 of the Handbook, were further revised at a meeting of the Council on May 14. Section III, paragraph A, subheading 3, was amended to read "Membership in the American Medical Association is recommended."

Fourth, The Council has found it desirable to confer with the examining boards in several of the specialties and some of the special societies, such as the American College of Physicians and the American Psychiatric Association, concerning problems of graduate medical education relating to the training of specialists, and requests the permission of the House of Delegates to explore the possibility of cooperative relationships with such organizations.

Ray Lyman Wilbur, Chairman.
J. H. Musser.
Fred Moore.
Reginald Fitz.
Fred W. Rankin.
Charles Gordon Heyd.
Frank H. Lahey.
William D. Cutter, Secretary.

Survey of Hospitals and Medical Care in Mississippi

The state of Mississippi was selected by the Council on Medical Education and Hospitals for a complete study of hospitalization and facilities for medical care. The procedure involved personal visits of inspection by members of the Council's staff to all the hospitals, registered and unregistered. The state health department and a number of county health departments lent their cooperation in supplying data for the survey. The number of hospitals, related institutions and unclassified facilities inspected for the survey totaled 117.

1. In appraising medical service in this state, one must take into account the fact that more than 50 per cent of the population in Mississippi are Negroes and that the demand for medical service among this group may fall below the requirements of the white population.

2. While the population is approximately equally divided, the number of general hospital beds for Negroes is 0.7 per thousand as compared with 2.4 per thousand of the whites. Although the proprietary hospitals are most numerous as a group, they control only 12.1 per cent of the beds. All available information clearly points to the fact that additional general hospital beds are not needed for the white population in Mississippi, the percentage of unoccupied beds being 46.8 per cent. Distance and transportation offer no serious difficulties. Four small areas in the state are more than 30 miles from a hospital, but these districts are well served by the hospitals in urban centers. Approximately 25 per cent of the patients admitted to all general hospitals came from a distance of 30 miles or more. It is not uncommon for patients to travel upward of 70 miles to the hospital of their choice.

3. The tuberculosis program is in need of more adequate financial support in order to utilize the present facilities and to increase the number of beds about 100 per cent.

4. The number of beds for nervous and mental patients is apparently adequate for the needs of the state. A field psychiatric clinic program, however, is needed.

5. Mississippi has no hospitals approved for intern or residency training. Several have made application and are now in the process of conforming to the requirements.

6. Obstetric delivery rooms and nurseries are needed in many general hospitals offering this service; thirty-seven have no delivery rooms and forty-three have no nurseries.

7. More qualified radiologists and pathologists are needed in the state. Clinical laboratory facilities do not provide a sufficiently wide scope of service in most hospitals. Investigation indicated that clinical laboratory examinations should be more complete.

8. The development of nursing education in Mississippi has not kept pace with the advances in other parts of the country and this may be partially ascribed to economic conditions. The number of graduate nurses employed in general hospitals does not compare favorably with accepted standards of hospital service.

9. It appears that the distribution of physicians in Mississippi has followed the general trend away from rural areas, but this does not necessarily mean a lack of sufficient medical service. Other factors tend to enlarge the territory which a doctor can serve, such as better communications, better methods of transportation, improved roads, and hospital facilities.

10. Extensive inquiry among all classes of the population, including doctors, workers, health officers and nurses elicited the almost uniform response that there is practically no person in Mississippi who cannot secure the services of a physician regardless of ability or inability to pay.

Note.—A complete report of the Mississippi survey will be published in The Journal for June 3 and reprints will be available later.

Essentials of a Registered Hospital

General Statement.—Hospitals should be organized and conducted primarily for the purpose of providing facilities where the sick and the injured of the community may be given scientific and ethical medical care.

Registration is a basic distinction between all recognized hospitals and those that are refused recognition. It is a prerequisite to the consideration of a hospital for approval for interns or for residencies in specialties.

The registration of hospitals, the approval of hospitals for interns, approval for residencies in specialties, and all other service of the Association regarding hospitals is carried on by the Council on Medical Education and Hospitals. Separate essentials have been adopted for each of these types of approval.

It is the desire of the Council to cooperate in every way for the improvement of hospital service, whereby the sick and injured may be provided with scientific and ethical medical care.

The Council does not have nor does it assume legal authority over any hospital. It recognizes clearly that the officers in charge of such institutions have the unquestioned right to conduct the hospitals in any way they may deem wise. If a hospital desires to have its name appear on the American Medical Association Hospital Register and thus have the endorsement of that Association, it should be willing to comply with the principles which the Council on Medical Education and Hospitals considers necessary.

I. *Organization.*—1. The organization should consist of a supreme governing body qualified to administer a hospital. This may be a board of trustees or directors, a partnership or an individual. Such a board, partnership or individual must assume final authority and responsibility for the administration.

2. There must be a well qualified executive officer who may be designated as administrator, superintendent or director or by some other title. This person should be responsible to the governing body for carrying out its policies. The executive officer should be assisted by competent personnel adequate to the needs of the institution.

II. *Physical Plant.*—1. The hospital plant should consist of modern, safe buildings maintained in a sanitary condition, provided with fire protection and adequately equipped and furnished for the comfort of patients. Equipment for diagnosis and treatment should be reasonably complete for all types of work the staff purports to carry on in the hospital.

2. Institutions accepting surgical and obstetric patients should provide a modernly equipped operating room, a delivery room and a nursery. Hospitals that are strictly limited in the service they offer are not expected to have the complete organization and equipment of a general hospital.

III. *Medical Staff.*—1. Since the medical staff is the most important factor in the delivery of medical service to patients, too great care cannot be exercised in the selection of staff members. The staff should be limited to physicians holding the degree of doctor of medicine from medical colleges acceptable to the Council on Medical Education and Hospitals, having satisfactory qualifications as to training, licensure and ethical standing, and to dentists who are graduates of recognized dental colleges and whose professional ability and standing are known to the medical staff.

2. Osteopaths, chiropractors and other cult practitioners outside the scope of regular medicine, or unethical physicians, may not be permitted to use the hospital's facilities. They may not enter data on the records, carry out diagnostic procedures or treatments, or in any way assist in doing this work.

3. The form of organization of the staff is determined by the size and the activity of the hospital in accordance with its needs.

4. In very small hospitals where there are few physicians and where an elaborate organization is not practicable, there should still be some authority competent to pass upon the qualifications of those who seek to use the hospital's facilities. Particular care should be exercised in the assignment of surgical privileges since it is essential for the safety of patients that both the surgeon and his assistants be properly qualified.

5. Where further organization is needed it should consist of such officers as president, secretary and others; and committees, such as executive, medical records and credentials, elected or appointed according to the constitution and by-laws.

6. Staff departments such as medicine, obstetrics and surgery, should be organized as may seem wise.

7. Regular staff meetings should be held monthly. The agenda should include:

(a) *Business*
Reading of minutes, unfinished and new business; reports of committees, and so on.

(b) *Medical*
Report of the medical records department; analysis of the work of the hospital; discussion of deaths, infections, complications and consultations.
Reports of standing and of special medical committees.
Discussion and recommendations for improvement of the professional work of the hospital.

Postmortem examinations that have been performed should be presented together with the clinical aspects. Pathologic specimens removed surgically or at postmortem may be demonstrated and discussed.

8. Minutes of all staff meetings and attendance records shall be kept by the secretary.

IV. *Pathology and Laboratory Diagnosis.*—1. The laboratory facilities should provide as complete a service as is practicable.

2. The pathologist should preferably be a physician who holds the certificate of the American Board of Pathology. Where it is not possible to employ the services of a pathologist directly, arrangements should be made for a consulting service for tissues, postmortem examinations and the interpretation of the more difficult tests and examinations in clinical pathology. All surgical tissues should be examined, described and diagnosed by a pathologist.

3. The department should be equipped for all routine procedures and for whatever additional tests and examinations are frequently called for by the staff.

4. At least one well trained clinical laboratory technician should be employed.

5. Reports of all work done in the department should be kept on file.

6. *Autopsies.*—Every effort should be made to secure consent for the performance of autopsies. They should be conducted by a qualified pathologist or under his supervision, and protocols, including clinical summaries, should always be filed.

V. *Radiology.*—1. The responsibility for all radiologic examinations must rest on the physician-roentgenologist who is head of the department. His findings and conclusions for all examinations should be placed in the patient's chart. Nothing in this provision should preclude additional study and interpretations by qualified attending physicians on the staff.

2. The physician-roentgenologist should be preferably one who is a diplomate of the American Board of Radiology or a physician whose qualifications are acceptable to the Council on Medical Education and Hospitals of the American Medical Association.

3. It shall not be the policy of the hospital to make a profit from the department of radiology.

VI. *Anesthesia.*—The anesthesia service should be under the direction of competent medical personnel whenever possible. If a qualified specialist in anesthesiology is not available, supervision may be assigned to some member of the staff who has had special training in this field or to a nurse anesthetist whose qualifications are acceptable.

VII. *Nursing Service.*—1. A competent nursing service should be provided, adequate for complete coverage for both day and night periods, and for surgical and obstetric supervision. All nursing should be supervised by registered graduates. Hospitals that do general surgery should have a trained operating room nurse.

2. *Dietetics.*—The services of one or more graduate dietitians, as may be required, should be available for supervision of regular and special food services. Where graduates cannot be employed, these functions should be assumed by some competent person.

VIII. *Pharmacy.*—The handling of drugs should be properly supervised and should comply with all the legal regulations. Accurate records should be maintained. A qualified person should be placed in charge, preferably a graduate pharmacist; whatever arrangement is made, all prescriptions should be filled by a graduate pharmacist.

IX. *Medical Records.*—1. An adequate record system should be maintained in all departments. No certain forms are recommended since requirements vary greatly according to the size and type of hospital. Samples of suitable forms for all departments may be readily obtained from publishers of hospital records.

2. Case histories and physical examinations should be recorded immediately following the patient's admission. In no case should it be longer than twenty-four hours after admission. The history, physical examination, routine laboratory work and provisional diagnosis should be recorded before an operation except in emergencies. The attending physician is directly responsible for the accuracy and completeness of case records, whether prepared by him or by another.

3. The usual case record consists of identification data, chief complaint, past medical history, family history, history of present illness, physical examination, provisional diagnosis; special reports such as consultations, clinical laboratory, pathology, x-ray and the like; medical or surgical treatment, progress notes, final diagnosis, condition on discharge and follow-up records; autopsy report when available.

4. No case record should be filed until it is complete and then only after it has been reviewed and signed by the attending physician.

5. Monthly and annual analyses of hospital service should be made in order that the staff may be in a position to improve its service.

X. *Ethics.*—In order that a hospital may be eligible for registration it will, of course, be expected that the staff and management conform to the principles of medical ethics of the American Medical Association with regard to advertising, commissions, division of fees, secret remedies, extravagant claims, overcommercialization and in all other respects.

Report of the Council on Scientific Assembly

Dr. James E. Paullin, Chairman, presented the report of the Council on Scientific Assembly, which was referred to the Reference Committee on Sections and Section Work.

Dr. Paullin added that the members of the Council record with deepest regret and sorrow the loss by death of one of their members, Dr. J. C. Flippin, Charlottesville, Va.

Presentation of New Members

The Speaker read the names of members of the House who had never served in the House previously and requested each one to stand to be recognized when his name was called.

NEW BUSINESS

Resolution on Granting a Seat in the House of Delegates to a Woman Delegate

Dr. Floyd S. Winslow, New York, in behalf of the Medical Society of the State of New York, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, It is a critical time in the history of American medicine, when it is important that all physicians should unite in safeguarding the interests of the profession; and

WHEREAS, The American Medical Association especially needs at this time the active interest and loyal support of all its members; and

WHEREAS, There are about 8,000 to 9,000 women physicians in the United States, many of them eligible for membership in the American Medical Association and many of them already members thereof; and

WHEREAS, These women physicians have in many states organized city and state associations; and

WHEREAS, There is also a national organization known as the American Medical Women's Association, the members of which have found it difficult to build a powerful organization because of the relatively few women and lack of large funds; and

WHEREAS, It is undesirable to segregate the women physicians' interests from the interests of the profession as a whole; and

WHEREAS, The ratio of women physicians to men physicians is so small that the chance of representation in the house of delegates of the various state medical societies is almost nil; and

WHEREAS, We believe that the women's medical organizations have much to give in big visioned ideas, vigorous work and loyalty if their wishes can only be made articulate; therefore be it

Resolved, That the House of Delegates of the American Medical Association grant a seat to a woman delegate.

Resolution on Testing of School Children for Early Detection of Defective Vision and Hearing

Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Thousands of children with defective vision and hearing in the schools of our country are endeavoring to obtain an education; and

WHEREAS, The importance of the early diagnosis and correction of these defects is necessary to better education; be it

Resolved, That the American Medical Association give support and encouragement to the various state medical societies and other agencies and foundations in carrying on a nation-wide testing of school children for the early detection of these handicaps.

Resolution Urging that Membership in the American Medical Association Be Not Denied Solely on Basis of Race, Color or Creed

Dr. James M. Flynn, New York, in behalf of the Medical Society of the State of New York, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, A rapidly changing social order is demanding a reorientation of the attitudes and responsibilities of the individuals and agencies engaged in providing for the medical care of the public;

WHEREAS, The entire strength of all elements engaged in the practice of medicine should present a united front in facing and solving these problems in the interest of the public health;

WHEREAS, The Negro physicians numbering more than 5,000 in the United States and about 350 in New York State bear the direct responsibility for the care of approximately 13 million citizens whose collective health problems form one of the most challenging areas in the entire battle-line against sickness and disease;

WHEREAS, These physicians have not only demonstrated individually and collectively their ethical and professional fitness to shoulder their just responsibilities but have shown a zeal and a devotion to the health problems of their people worthy of the best traditions of American medicine;

WHEREAS, The best interests of the entire medical profession and, indeed, of the entire public demand that they receive identical opportunity for medical education, for professional experience in hospital and clinic and for participation in public health programs, public and private—in short, all of the rights, privileges and responsibilities inherent in regular membership in organized medicine;

WHEREAS, The county medical society is the basic unit of the American Medical Association, membership in which is a prerequisite for membership in the American Medical Association;

WHEREAS, South of the Mason and Dixon line, Negro physicians are generally and systematically excluded from membership in county medical societies, making membership in the American Medical Association and affiliation with organized medicine impossible;

WHEREAS, This exclusion along racial lines strikes at the fundamental rights of this large group of physicians and indirectly lowers the quality of medical care which they must deliver to an already underprivileged group whose health problems admittedly press more firmly for solution than those of any other racial group;

WHEREAS, These Negro physicians have time and again demonstrated their constancy and heroic devotion to the democratic form of government and all that that term implies and have strongly recorded their position toward the pending medico-economic issues as identical with that of organized medicine; and

WHEREAS, The Medical Society of the State of New York has, through its House of Delegates, recorded as its considered opinion that any and all restrictions imposed on any American citizen solely on the basis of race or religion is not only inimical to the cause of the public health with which we are so deeply concerned but dangerous to the entire body politic of our democratic form of government; and

WHEREAS, The Medical Society of the State of New York, in keeping with this opinion, has urged its members, especially those in positions of key responsibility in education, and in charitable and public health enterprises, such as medical schools, hospitals and clinics, to consider seriously the removal of any restrictions not only as a matter of simple justice but in the light of their inherent capacity to hamper and restrict the entire medical profession in rendering the best possible service to the public and use their good offices and influence in removing any restrictions based solely on race or religion, to the end that our proud boast of a truly democratic form of government, a truly liberal and unselfish medical profession, be less honored in the breach than in the observance; therefore be it

Resolved, That the House of Delegates of the American Medical Association declare its belief that membership in the various component county societies of the American Medical Association should not be denied to any person solely on the basis of race, color or creed.

Resolution Limiting Directorship of Approved Clinical Laboratory to Licensed Physician

Dr. Frederic E. Sondern, New York, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, Years ago the examinations made by clinical laboratories were largely factual in nature and, as a consequence, a portion of the work was done by chemists and technicians not having medical degrees or being licensed to practice medicine;

WHEREAS, Particularly in the last one or two decades, the developments in laboratory medicine have been such as to require clinical medical knowledge for the safe performance of many of the newer diagnostic procedures undertaken; and

WHEREAS, Specimens are obtained by surgical means from the spinal canal, veins and organs of the body, and drugs and dyes are injected for the purpose of various functional tests, all definitely requiring clinical medical experience and judgment for their performance and interpretation if the safety of the patient is to be guarded; therefore be it

Resolved, That only a licensed physician duly qualified as a clinical pathologist may serve as the director of an approved clinical laboratory, as such practice is a specialty of medicine.

Resolutions on Exhibition of Medical or Surgical Procedure to Lay Groups

Dr. Charles B. Reed, Illinois, presented the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws and to the Judicial Council as a reference committee:

WHEREAS, In the Principles of Medical Ethics Chapter III, Article I, Sec. 4, it is stated that the "Solicitation of patients by physicians as individuals, or collectively in groups by whatsoever name these be called, or by institutions or organizations, whether by circulars or advertisements, or by personal communications, is unprofessional," and, further, that it is unprofessional to solicit patients "by indirect advertisement" or "to employ any methods to gain the attention of the public for the purpose of obtaining patients"; and

WHEREAS, The exhibitors of films portraying the physical process of childbirth and other surgical measures to lay groups by individuals, hospitals and commercial concerns are constantly increasing in numbers and in extent of distribution; and

WHEREAS, These pictures, while officially exploited as educational in character, are in reality utilized for the advertisement of individuals, hospitals and commercial products; therefore be it

Resolved, That the exhibition of any medical or surgical procedure to lay groups shall first be approved for that purpose by exhibition of the film to the county or state society where the proposed exhibition is to occur or to a board of censors thereof or to the American Medical Association; and be it further,

Resolved, That exhibitors violating the provisions of this resolution shall be considered unethical.

Resolutions on Wagner National Health Bill

Dr. Fred Moore, Iowa, in behalf of the Iowa State Medical Society, presented the following resolutions, which were referred to the Reference Committee on Consideration of the Wagner Bill:

WHEREAS, The Wagner bill (S. 1620) of the Seventy-Sixth Congress, entitled the National Health Act, in that part pertaining to maternal and child welfare gives the Children's Bureau as a federal administration agency such broad powers (1) in rules and regulations, (2) in setting up undefined advisory councils for participating states, and (3) in determining amount of funds needed after 1942 without limit; and

WHEREAS, The bill makes specific provision for construction of new hospital and treatment centers up to $158,000,000 within three years; and

WHEREAS, The bill does not provide any method or means of determining needs for development of the various services; and

WHEREAS, The bill makes no provision for use of existing unused hospital and treatment facilities; and

WHEREAS, State programs for medical care under this bill are to be subject only to the approval of the Social Security Board; and

WHEREAS, The bill provides that the Social Security Board shall set up state advisory boards whose personnel and responsibility are not defined; and

WHEREAS, The bill makes no specific distinction between medical care for the indigent and that for self-sustaining people, except to stress the need for those in "severe economic distress"; and

WHEREAS, The implications and interpretation of the bill with reference to compulsory health insurance under supervision of governmental units are not clear; therefore be it

Resolved, By the Iowa State Medical Society that S. 1620 will not promote the public interest in economics or health; and be it further

Resolved, That the Committee on Public Policy and Legislation of the Iowa State Medical Society shall request members of Congress from Iowa to obtain modification of the bill in accordance with previously declared policies of the American Medical Association and the Iowa State Medical Society, and, in event of failure in that, to oppose the act; and be it further

Resolved, That the delegates to the American Medical Association present copies of this resolution to that body, with the request that the American Medical Association use its utmost influence to attain these objectives.

Resolution on Medical Care to the Indigent

Dr. Walter B. Martin, Virginia, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, The American Medical Association recognizes the importance of extending more adequate medical care to the indigent and to the low income group; and

WHEREAS, Many plans have been proposed and are being urged that have for their purpose the extension of such care; and

WHEREAS, We believe that many of these plans are unsound in their conception and will not result in the provision of a high quality of medical service to the groups they propose to help, and, further, that they are economically dangerous and extravagant and will result in wasteful dissipation of public funds; and

WHEREAS, The present day cost of medical care is principally due to the vast increase in the accessories of medicine resulting from the rapid progress of the science of medicine during the past generation; and

WHEREAS, Among the seriously ill who incur large expenses as a result of illness the hospital cost constitutes over half of the total cost of their illness; therefore be it

Resolved, That we favor the following plan as the first step in extending more and better medical care to the indigent and the medically needy on a sound professional and economic basis:

1. Payment to the hospital by the government, local, state and federal, of the full cost of hospital care of all indigent patients.

2. Subsidy for the full hospital care of the low income group, this subsidy to be applied through local hospital service associations now existing or to be formed, so as to allow the sale of hospital service contracts at a reduced rate to the low income group below a certain fixed income level.

Advantages:

1. Increased bed occupancy on a pay basis and full utilization of existing facilities.

2. Increased income to hospitals enabling them to (*a*) lower the rates to patients who pay their own way, (*b*) improve their service and facilities and (*c*) set up reserves for needed expansion.

3. Make possible in areas where the medical need exists the establishment of new hospitals which heretofore have not been economically feasible.

4. Improve the standards and quality of hospital service. As payment would be made on the basis of hospital cost and as the cost would vary with the quality of service rendered, there would be a constant incentive to improve facilities and service and thus become eligible to enter a higher income bracket.

5. Make possible the improvement of outpatient service for the ambulatory indigent and the establishment of such service where it does not now exist.

6. Average the principal item of cost in severe illness and reduce the premiums that the individuals in the low income group will pay to approximately $3 to $5 a year.

Cost: It is proposed that half of the cost of this plan be borne by the federal government and half by the state and local governments. Allowing a hospitalization rate of one day for each person each year and an average hospital cost of $5 a day, and accepting the figure of 40 million as constituting the indigent and low income group, the total cost would be from 150 to 200 million dollars. The share of the federal government in such a project would be from 75 to 100 million dollars, which is somewhat less than the expenditures proposed for the first year under the Wagner act.

Resolutions on Rearrangement and Rewording of Principles of Medical Ethics

Dr. E. J. Best, California, presented the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws sitting with the Judicial Council:

WHEREAS, In these and other troublous times in order to maintain the high quality and ideals of our medical profession it is most essential to uphold the standards of the Principles of Medical Ethics without compromise; and

WHEREAS, Since the Principles of Medical Ethics were rewritten in 1912 there have arisen many problems not known to the leaders of our profession twenty-seven years ago; and

WHEREAS, Because of the nation-wide influence of members of component societies who have made presentations on public platforms, in the press and over the radio because of the arrangement and wording of the Principles of Medical Ethics, component county medical societies have recently found it next to impossible to draw up sound charges to discipline members who have violated our medical ethics; therefore be it

Resolved, That the Speaker of this House of Delegates appoint a committee of five Fellows of the American Medical Association to study the Principles of Medical Ethics and the form of the code of ethics of the legal profession, having in mind the rearrangement of our Principles of Medical Ethics for continuity, the rewording for clarity, the addition of a commentary following each principle to illustrate the intent and the quoting of relating decisions of the Judicial Council; and be it further

Resolved, That this committee be directed to report its recommendations to the 1940 session of the House of Delegates of the American Medical Association.

Resolutions Expressing Appreciation of Staff at Headquarters

Dr. E. H. Skinner, Section on Radiology, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

WHEREAS, The medical profession of America has been confronted with vital issues affecting the welfare of all citizens and the free integrity of medicine and calling for courageous leadership and positive action by the organized profession; and

WHEREAS, This action and leadership has been maintained through a loyal and competent headquarters staff; and

WHEREAS, The Council on Medical Education and Hospitals, the Bureau of Medical Economics and other departments in the headquarters office have helped materially in the efforts of radiologists to maintain and raise the standards of radiologic practice, through which efforts definite progress in the gradual solution of some of our vexing problems has been achieved, thereby protecting medicine against insidious harm to one of its parts; *therefore be it*

Resolved, That the Section on Radiology expresses its appreciation and commendation of the members of the headquarters staff for their cordial assistance to the Intersociety Committee for Radiology, as representative of all radiologists, and to this section in upholding and applying accepted principles to assure the continued advancement of radiologic practice and the protection of the science against adverse influences; and be it further

Resolved, That a copy of these resolutions be spread on the minutes of this section of the House of Delegates.

Supplementary Report of Board of Trustees

The Secretary, at the request of the Board of Trustees, presented, as representative of a number of communications that have come to the offices of the American Medical Association, the following communication, which was referred to the Reference Committee on Miscellaneous Business:

THE EPISCOPAL DIOCESE OF WESTERN MICHIGAN
DEPARTMENT OF CHRISTIAN SOCIAL RELATIONS

The Reverend H. Ralph Higgins, S.T.D., Chairman
St. Mark's Church, Grand Rapids, Michigan

April 6, 1939

Dr. Olin West, Secretary
American Medical Association
535 North Dearborn Street
Chicago, Illinois

Dear Dr. West:

I am directed by the Department of Christian Social Relations of the Diocese of Western Michigan to notify you of the Department's endorsement of the recent stand of the American Medical Association in reference to proposed programs of federalized medicine.

The resolution of our department states specifically:

1. We approve the general principles outlined for the expansion of public health and maternal and child health services.

2. We favor the expansion of general hospital facilities where the need exists.

3. We recognize the principle that the complete medical care of the indigent is a responsibility of the community and that such care should be organized by local governments and supported by tax funds; that in poorer communities federal funds may be needed to make up for local inability to raise funds.

4. We are completely unwilling to foster any system of compulsory health insurance or a system of tax supported federalized medicine for the whole population.

5. We approve the principle of hospital group insurance on a nonprofit basis. We endorse the principle of compensation for loss of wages due to illness as put forth under Recommendation V by the Interdepartmental Committee.

This department is an official agency of the Episcopal Diocese of Western Michigan and it is composed of some thirty or forty representatives of the parishes and missions of the Diocese.

Faithfully yours,
H. RALPH HIGGINS

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by several delegates and carried, the House recessed at 1:10 p. m., to reconvene Tuesday, May 16, at 9:30 a. m.

Second Meeting—Tuesday Morning, May 16

The House of Delegates was called to order at 9:45 a. m. by the Speaker, Dr. H. H. Shoulders.

Report of Reference Committee on Credentials

Dr. Deering G. Smith, Chairman, reported that 168 delegates had registered and been seated.

Roll Call

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried, the House voted to have the report of the Reference Committee on Credentials constitute the roll call of the House.

Report of Reference Committee on Sections and Section Work

Dr. George Gray Ward, Chairman, presented the following report, which was adopted on motion of Dr. Ward, seconded by Dr. A. T. McCormack, Kentucky, and carried:

Your reference committee commends the new plan by which local physicians are requested to offer a program on Monday. This plan is especially appropriate in view of the tradition which bars local physicians from reading papers in the section program. It does feel, however, that every effort should be made to select subjects of interest to the general practitioners.

Your reference committee endorses the new "panel" or round table programs on Tuesday and believes that they will continue to prove interesting and informative.

The reference committee feels that the emphasis placed on symposiums in section meetings and on joint symposiums presented by two sections on this year's scientific program is worthy of perpetuation.

The committee congratulates the Council on Scientific Assembly on maintaining the high standards of the Association in this year's program.

Respectfully submitted. GEORGE GRAY WARD, Chairman.

Presentation of Minutes

On motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. George W. Kosmak, New York, and carried, the House dispensed with the reading of the minutes.

Report of Reference Committee on Medical Education

Dr. Harvey B. Stone, Chairman, presented a report, which was amended to read as follows:

1. Your Reference Committee recommends the adoption of the Resolution Expressing Appreciation of Staff at Headquarters, presented by Dr. E. H. Skinner, Section on Radiology.

2. Your Reference Committee approves and recommends the adoption of the Report of the Council on Medical Education and Hospitals as printed in the Handbook and as contained in the Supplementary Report with the following notations and exceptions:

In paragraph 13 of the printed report, the Council on Medical Education and Hospitals expresses the opinion that the attention of the constituent state societies of this Association should be called to the great importance of controlling the direction of programs of postgraduate education. Your Reference Committee herewith recommends that the House of Delegates empower the Council on Medical Education and Hospitals to carry out this purpose.

In paragraph 14, the Council on Medical Education and Hospitals recommends that it be authorized to send three representatives to act on the Advisory Council on Medical Education, Licensure and Hospitals. Your Reference Committee disapproves of this suggestion and recommends as a substitute the following:

The Council on Medical Education and Hospitals of the American Medical Association is always willing to cooperate with other organizations in those matters with which the Council is concerned. Accordingly, it will be glad to have problems and recommendations presented to it for consideration, or to meet with other organizations in pursuance of the functions of the Council.

In paragraph 4 of its Supplementary Report, the Council on Medical Education and Hospitals requests permission to explore the possibility of cooperative relations with other organizations concerned in problems of graduate medical education. Your reference committee approves of this request and herewith recommends that the House of Delegates grant such permission.

In paragraph 7 of subheading *III* of the statement concerning "Essentials of a Registered Hospital," the Report of the Council enters into considerable detail concerning staff meetings. In the judgment of your committee it would be wiser to strike out this whole paragraph and substitute for it the following paragraph:

Staff meetings should be held for the review of the work of the hospital, the discussion of results, the reports of autopsy and pathologic studies, the presentation of papers and such other matters as concern the professional work of the hospital. Your reference committee herewith recommends this substitution.

Respectfully submitted. HARVEY B. STONE, Chairman.

On motions of Dr. Stone, duly seconded and carried, the report was adopted as amended.

Report of Reference Committee on Reports of Officers

Dr. Floyd S. Winslow, Chairman, presented the following report:

1. Address of the Speaker: Believing that the present and the future may be benefited by a study of the past, your Speaker has reviewed preceding records of the House of Delegates and in this commendable self-imposed task he found considerable good.

He notes and calls our attention to the complexity of representation that unites to give this House of Delegates a true democratic composition. This makes it possible to handle issues of vital importance, issues that are vital not only to the medical profession but to the people as a whole.

Your reference committee believes that the latter point might well be more widely publicized.

The Speaker has very wisely noted the lack of errors and reversal of actions in the past as due to two causes: 1. Our Principles of Medical Ethics, which has given us a philosophy. 2. Faith—a faith that has augmented sound progress and opposed gain at the price of freedom—a faith in coordinated effort on the sound principle of checks and balances working to a common purpose—a faith in one another in a world lacking in faith—and a faith that gives hope in believing that the time may be soon when our loyalty to mankind may again be appreciated by the public.

Your reference committee heartily approves the expression of these ideals so clearly and timely expressed by our Speaker.

2. Address of the President: Your reference committee has given careful consideration to the excellent material contained in the presidential address of Dr. Abell. The evidence of his untiring efforts and the breadth of his vision attest his zeal and constitute a perpetual testimonial to his leadership and high purpose in the profession.

Your reference committee considers as especially noteworthy his strict observance of the principles and policies adopted by this House of Delegates. His suggestion for improving medical care by utilizing existing vacant hospital beds is a step in the right direction and should be adopted and followed.

Your reference committee recognizes the importance of expansion of public health, maternal and child welfare services along the line which he recommended; however, it is well to note his unqualified disapproval of recommendation 4 of the National Health Program.

His reference to the methods used by the government for the purpose of arousing strong sentiment against the American Medical Association shows to what ends a bureaucratic system will resort. The temperate language in this reference is no less a tribute to his forbearance than it is an indictment of those who would see justice trampled under foot.

3. Address of President-Elect: Attention was drawn by the President-Elect to the threats to the science of medicine by social and governmental agencies by creating the impression that there is a near breakdown in medicine. Your reference committee feels that cognizance should be given to such unfounded threats.

His reference to the increasing numbers of medical organizations meets with our approval and deserves consideration by all members of the medical profession. We need stronger union and greater efforts in the solution of our problems. Multiplicity of medical organizations, unless there is definite need for such, only dissipates our strength. Officers and members should refrain from expressing opinions not approved by the American Medical Association, unless they make it clear that it is their personal opinion and not the policy of the organization. Much of the misunderstanding in the bodies of organized medicine is caused by statements of individuals who are believed by the public to speak authoritatively but who, in fact, speak only for themselves.

The President-Elect's reference to the evils concerning the medical profession at the beginning of this century is noted with interest. Those evils were the existence of the proprietary medical schools, commercialized medical directories and proprietary medicines.

Fine leadership contributed toward the correction of these paramount evils. Such leadership can now be depended on to effect a satisfactory adjustment of the present day problems. His reference to the high type of medical journals published by the American Medical Association as compared to those published by some private companies is noteworthy. The contrast is obvious.

The President-Elect refers to the high standard and fearless policy of the Editorial Department of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Such policies merit the continued confidence of the House of Delegates and reflect the ideals of the Editor.

4. Report of the Judicial Council: 1. Ethics of Various Plans of Reducing Sickness Cost: It is obvious that any plan for reducing sickness cost to the low-income population by periodic prepayment should be ethically solved. To this end your reference committee recommends that the Judicial Council be consulted in those instances in which any question of ethics is involved under the plan for consideration.

2. Teaching in Schools of Chiropody or Podiatry: Your reference committee approves the position taken by the Judicial Council with regard to teaching of chiropody or podiatry and recommends that the House of Delegates approve such teaching, provided the schools in which it is conducted are connected with approved medical colleges which require recognized standards of preliminary education. Under such conditions the curriculum is supervised by the state department of education, and graduates of such schools are licensed to practice by examination.

3. Diagnostic Clinics: Your reference committee recognizes the difficulty arising from the effort to define Diagnostic Clinic and commends the conservatism surrounding such an effort. It agrees with the conclusions of the Judicial Council that:

A. A diagnostic clinic is an organization of physicians whose sole work in the clinic is to make or supervise diagnostic examinations of patients referred to the clinic by doctors of medicine, or to collaborate in general diagnostic surveys.

B. The reports of the diagnostic clinic on examinations and tests are made only to the referring physician unless he requests that the case and the recommendations for treatment be discussed with the patient as part of a professional consultation at which the relationship of the results of the diagnostic studies to the general condition of the patient is open for discussion. In such case, discussion is only by a member of the staff.

C. The staff of the diagnostic clinic should include representatives from all the specialties that are of recognized diagnostic usefulness. Every clinical examination, laboratory test or x-ray procedure is made by a physician who specializes in that field or under his supervision. The clinic must be equipped to allow the various specialists to exercise fully their abilities.

D. The control of the clinic must be vested in one or more members of the professional staff. Any profits are to be apportioned only to the members of the staff actually engaged in the work of the clinic. There must be no dividends, bonuses or salaries paid any individual except for services rendered.

E. The clinic must be governed in its activities by the same ethical principles as apply to an individual member of the American Medical Association.

Respectfully submitted.

FLOYD S. WINSLOW, Chairman.
WILLIAM H. MYERS.
JAMES Q. GRAVES.
ELBRIDGE J. BEST.
FORREST J. PINKERTON.

The first three sections of the report of the reference committee dealing with the addresses of the Speaker, President and President-Elect were adopted on motions of Dr. Winslow, duly seconded and carried.

Dr. Winslow moved the adoption of the fourth section of the report dealing with the Report of the Judicial Council, and the motion was seconded by Dr. J. Q. Myers, North Carolina. After discussion, Dr. Winslow moved that the fourth section of the report be adopted with the exception of that part which refers to podiatry, and the motion was seconded by Dr. John Z. Brown Sr., Utah, and adopted after further discussion.

Report of Reference Committee on Medical Education

Dr. Harvey B. Stone, Chairman, presented the following resolution as a substitute for the Resolution Limiting Directorship of Approved Clinical Laboratory to Licensed Physician, which was adopted on motion of Dr. Stone, duly seconded and carried:

WHEREAS, Years ago the examinations made by clinical laboratories were largely factual in nature and, as a consequence, a portion of the work was done by chemists and technicians not having medical degrees or being licensed to practice medicine, and

WHEREAS, The developments in laboratory medicine, particularly in the last one or two decades, have been such as to require clinical medical knowledge for the safe performance of many of the newer diagnostic procedures undertaken; and

WHEREAS, Specimens are obtained by surgical means from the spinal canal, veins and organs of the body and dyes and other drugs are injected for the purpose of various functional tests, all definitely requiring clinical medical experience and judgment for their performance and interpretation if the safety of the patient is to be guarded; therefore, be it

Resolved, That the American Medical Association specifically recognizes the practice of clinical pathology as a specialty of medicine and believes that those persons who practice it and who act as directors of clinical laboratories must be graduates of recognized medical schools and licensed to practice medicine in their respective states; and further be it

Resolved, That owing to the nature of the subject, the American Medical Association recognizes that it is necessary for these persons to complete at least three years of adequate training in clinical pathology, in addition to the training which they have received in regular courses in medical schools, before assuming the directorship of clinical laboratories.

Report of Committee on Legislative Activities

Dr. E. H. Cary, Chairman, presented the following report of the Committee on Legislative Activities, which was referred to the Reference Committee on Legislation and Public Relations:

Mr. Speaker and the Members of the House of Delegates:

Since the last session the members of the Committee on Legislative Activities, individually and collectively, have been drawn into many conferences concerning legislation affecting the interest of the members of the medical profession in the United States.

The committee calls your attention to certain phases of legislation affecting the veterans and medical relief on which it has always reported to the House. In addition it wishes to call your attention to some immediate problems which will require the active service of this committee in cooperation with other members of our organization. It is our hope that the House will make clear to the members of the committee its position on any controversial issue which may come before the Congress.

VETERANS' ADMINISTRATION

A report submitted to the Congress on Jan. 30, 1939, shows that, of the 50,670 veterans under treatment at the end of last year, 47,285 were in facilities controlled by the Veterans' Administration, 2,512 in other government hospitals and 873 in state or civil institutions. Over 63 per cent of these veterans in all hospitals are receiving treatment in the facilities in the state of their reported home addresses. Since March 3, 1919, when the acquisition of the government hospitals was first authorized for the treatment of veterans of the World War, there have been 1,863,289 admissions of veterans of the United States to hospitals, of which 152,966 were made during the last year. This load has been increasing since 1919.

The committee finds that on June 30, 1938, there were in Veterans' Administration facilities 51,991 hospital beds, apportioned to the different classes of patients as follows: neuropsychiatric, 28,119; tuberculosis, 5,121; general, 11,662; general homes, 7,089. During the fiscal year 1939 it is proposed to add 3,453 new beds, as follows: neuropsychiatric, 1,334; tuberculosis, 155; general, 1,012; general homes, 952. During the fiscal year 1940 it is proposed to add 6,731 new beds, as follows: neuropsychiatric, 3,686; tuberculosis, none; general, 2,653; general homes, 392. If the proposed plans are carried out there will be available, as of June 30, 1940, a total of 62,175 beds in veterans' hospitals, as follows: neuropsychiatric, 33,139; tuberculosis, 5,276; general, 15,327; general homes, 8,433. The present hospital building program of the Veterans' Administration is being carried out under an appropriation of $4,500,000 made available directly by the Seventy-Fifth Congress, but this is being supplemented by a sum three times as large, $13,268,200, donated by the Public Works Administration.

The Administrator of Veterans' Affairs contemplates as an ultimate goal 100,000 beds in veterans' hospitals presumably for all classes—one bed for every forty veterans throughout the United States. He estimates that the peak load of hospitalization will be reached in 1949 or 1950. What is to become of these hospital facilities as that load declines is not clear.

In addition to the foregoing hospital bills, H. R. 6041, introduced by Representative Hendricks, Florida, proposes to authorize the appropriation of $1,750,000 to construct a 500 bed capacity veterans' hospital on or near the central east coast of Florida, for the accommodation of general medical and surgical disabilities. The other bill, S. 2257, introduced by Senator Gurney, South Dakota, proposes to authorize the appropriation of $1,000,000 to construct an adequate building or buildings to be used as a veterans' hospital and diagnostic center in the first congressional district of South Dakota. The bill does not indicate what type of hospital it proposes to construct.

It would seem that the Veterans' Administration will continue to build hospitals up to the point of the 100,000 beds or more if money can be developed as it has been the last few years.

MEDICAL RELIEF THROUGH FARM SECURITY ADMINISTRATION

The Farm Security Administration claims that it found it necessary to help provide such medical care in the course of its efforts to rehabilitate more than 700,000 low income or destitute farm families because good health is a necessary part of a family's economic rehabilitation and says that quite aside from any humanitarian purpose, it has, as a lending agency, found that a family in good health is a better credit risk than a family in bad health.

The medical director of the Farm Security Administration reports that it has, through the cooperation of state medical associations, developed plans under which families other than the low income farm families in twenty-three states are being helped to obtain medical care at a cost which they can afford. In general, these plans are simple. They are based on the borrower's ability to pay for medical services, as determined by his farm plan, on free choice of physician and on the setting aside of funds, in the hands of a trustee, at the beginning of the operating period. The amount paid for participation varies in different localities. The usual payment is between $15 and $30 a year for each family. When necessary, the Farm Security Administration will increase the size of its loan to enable a borrower family to participate. The details vary, but a part of the pooled funds held by the trustee is allocated at the beginning of each period for hospitalization and emergency needs including surgical care. The remaining fund is then divided into equal monthly allotments for the period covered.

County plans for medical care are in operation in fifty-six of the seventy-five counties in Arkansas, twelve counties in Missouri, forty in Mississippi, twelve in Texas, twenty-six in Alabama, eighty-five in Georgia, seven in Ohio, five in Tennessee, two in Indiana, seven in Oklahoma, three in Iowa, four in New Mexico, three in Virginia, six in North Carolina, twelve in South Carolina, one in Montana, two in Idaho, fifteen in Louisiana, one in New Jersey and four in Florida, and plans have been made in some other states.

The committee would like to call your attention to a mimeographed report under the title "Medical Care Plans for Low Income Farm Families" issued by the Farm Security Administration April 10, 1939. This report gives a great deal of additional information, as well as a financial report with the breakdown of a typical group, showing that the average family pays approximately $27 a year and just how this money is expended. With respect to North Dakota and South Dakota, which states have benefited most through the Farm Security Administration, it is stated that the funds are distributed as follows: for physicians, 51 per cent; for hospitalization, 37 per cent; for dentists, 8 per cent, and for drugs and medical supplies, 4 per cent.

At the end of each month the bills are submitted to the state office of the North Dakota Farmers' Mutual Aid Corporation

at Bismarck or to the South Dakota Farmers' Aid Corporation at Huron, and they are then reviewed and totaled. If the total amount of these bills is less than the amount set aside for that period, all bills are paid in full; if it is in excess of the amount set aside, each bill is cut proportionately.

Every one is familiar with the publicity which has appeared in some of the national magazines about the Farm Security Administration and knows that it has been stated that this service is "a rehearsal for state medicine."

In a recent letter from the director, Dr. Williams, the following statement is made: "Except in the two Dakotas and in California, the plan is developed on the county as a unit. In some states we have a few larger units consisting of several counties. The problem in the two Dakotas, as you know, is really one of relief. There are something like 18,000 families in each state who because of drought and crop failure (grasshoppers) are receiving grants from the Farm Security Administration. Such a large number of families makes it administratively desirable to handle the plan on a statewide basis."

Nothing has come to the attention of the committee that discloses the methods employed in determining the economic status of persons seeking the benefits of cheap medical service or the standard by which the administration determines whether such benefits shall be granted. Information is available from physicians in North Dakota and South Dakota to the effect that the reported arrangements of the Farm Security Administration are not working well and that funds have been exhausted in many places, thus shifting the load of medical care for the clients back to the medical profession. If any member of the House of Delegates has any additional information that this service is being handled in a manner detrimental to the public welfare, the committee would like to be advised.

Recently the President has submitted to Congress his plan No. 1 for government reorganization. The interest of the medical profession in this proposed reorganization centers in the proposal to create a Federal Security Agency in which will be grouped the United States Employment Service, the office of education, the United States Public Health Service, the National Youth Administration, the Social Security Board and the Civilian Conservation Corps. This plan was submitted pursuant to the authority granted the President in a law approved April 3, 1939, and designated as the "Reorganization Act of 1939." This act, as you may know, provides that the President may submit plans to Congress proposing to (1) group, coordinate and consolidate executive agencies of the government, as nearly as may be, according to major purposes, and (2) reduce the number of agencies by consolidating those having similar functions under a single head, and abolish such agencies or such functions thereof as may be necessary for the efficient conduct of the government.

Members of the Committee on Legislative Activities appeared before a Senate committee last year and conveyed to them the suggestion of the House of Delegates that public health and matters related to medical affairs be placed in the hands of a new cabinet officer, preferably a physician. They were informed that the President was opposed to this idea and that it was unlikely that a new cabinet position would be created.

On January 23 the President transmitted the Interdepartmental Committee report to the Congress, with the recommendation that it be given careful study.

Senator Wagner, on February 28, introduced into the Senate a so-called National Health Bill (S. 1620) and since that time contact has frequently been made with the chairman of the Senate Committee on Education and Labor, to which it was referred. The Association was invited to have representatives appear before the Senate Committee early in May but requested permission to submit simply a brief at that time and to send its representatives after this session of the Association. This request was granted. Therefore, the House of Delegates has an opportunity to consider the Wagner bill. The brief, which in a general way stated the position of organized medicine, was presented on May 5 by Dr. Arthur W. Booth, Chairman of the Board of Trustees, who was subjected to many questions regarding the Wagner bill, and the Committee on Legislative Activities with other members of the association has an opportunity to appear before the Committee on Education and Labor on May 25 to present the views of the medical profession, based on the action of this House.

It is fair to say in this connection that a program was outlined by the Committee on Legislative Activities in cooperation with the Board of Trustees, and that that program, in which the Interdepartmental Committee report was broken down, together with the previous expression of the House of Delegates on each of the subjects, was sent to various gentlemen who are working with the Committee on Legislative Activities.

The committee gladly cooperated with the Board of Trustees and other members of this organization in advocating the survey which was recently made in the 747 counties of the various states covering some 40 million people, and believes that it is a most important contribution. For the purpose, an appropriation was made by the Board of Trustees.

For several years this committee has taken a sympathetic interest in the medical problems of the farm population as expressed by the American Farm Bureau Federation. This federation has under consideration the formation of a mutual assistance plan which would incorporate the principle of cash indemnity to its members, a principle which this House approved at the special session in Chicago in September 1938. The intention of this group to consider the use of principles which are consistent with the actions and policies of the Association deserves our commendation. It is to be hoped that state and county medical societies will be sympathetic to the efforts of this group to solve their own medical problems.

Respectfully submitted.

E. H. CARY, Chairman.
F. S. CROCKETT.
R. L. SENSENICH.
J. H. J. UPHAM.
C. B. WRIGHT.

Resolutions on Opposition to the Wagner Bill

Dr. E. H. Cary, Texas, presented the following resolutions, which had been unanimously adopted by the house of delegates of the State Medical Association of Texas, and which were referred to the Reference Committee on Consideration of the Wagner National Health Bill:

WHEREAS, There has been an effort for some years on the part of certain individuals to bring about in this country a system of practice of medicine in which the relation of the patient and his family doctor as it now exists will undoubtedly be destroyed; and

WHEREAS, The Interdepartmental Committee study and report was based on a national health survey made by Works Progress Administration workers under the surveillance of the United States Public Health Service, which survey led to the statement that there were forty million people in the United States without adequate medical care; and

WHEREAS, There followed a survey directed by the Board of Trustees of the American Medical Association through its constituted state associations, in which survey the medical, dental and nursing professions, together with the social and welfare workers, hospitals, schools, health departments, industry, labor and other organizations, have shown that of the forty million people in the 747 counties in the United States covered by the American Medical Association study no considerable number are unable to secure medical service if and when they need it; and

WHEREAS, In a survey in Texas which has been a part of the aforementioned survey by the American Medical Association, the facts developed have been essentially the same; and

WHEREAS, The Wagner bill has been predicated on the national survey of the Interdepartmental Committee; and

WHEREAS, The medical profession has always favored the extension of preventive medicine as part of the work of the United States Public Health Service operating through the state health agencies; and

WHEREAS, The medical profession has traditionally taken care of the indigent sick and would welcome any economic change in the country looking to the better care of the indigent sick; and

WHEREAS, There is an average of 31.1 per cent of the hospital beds unoccupied and the medical profession would be deeply interested in some effort to relieve this economic waste of the facilities already provided for the care of the sick and would gladly support a measure which would provide a hospital in any section of the country where an actual need exists and where there is proper professional personnel to staff it; and

WHEREAS, The Wagner bill No. S. 1620 obviously leads by indirection to compulsory health insurance, to which the medical profession is bitterly opposed; therefore be it

Resolved, That our senators and representatives in Congress be requested to oppose the Wagner bill; and be it further

Resolved, That the medical profession of Texas stands ready at any time to further any reasonable plan, through the proper agencies existing in Texas, to solve such problems as are considered in the Wagner bill.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. John H. Fitzgibbon, Chairman, presented the following report, which was adopted section by section and as a whole on motions of Dr. Fitzgibbon, duly seconded and carried:

REPORT OF THE SECRETARY

Your reference committee has read with satisfaction the report of the Secretary, which indicates that an increasing number of physicians are alining themselves with organized medicine. This growth, bringing the membership to more than 113,000, the highest number ever recorded, is eloquent and convincing testimony in refutation of the claims made in some quarters that there is dissatisfaction in the ranks of the profession.

Your reference committee notes with approval the comment of our Secretary that, on returning to their respective jurisdictions, members of this House of Delegates have in certain instances promptly prepared and published informative reports and résumés of the actions of this body. Your reference committee believes that this practice should be more widely adopted. In view of the widespread interest of both professional and lay groups in the actions of the House of Delegates, our members, whose training best qualifies them to do so, should be encouraged to disseminate the desired information in regard to our activities.

Your reference committee believes that it voices the sentiment of this House of Delegates in expressing appreciation to our Secretary for the untiring efforts manifested by him over a long period and particularly during the past year with its unusual problems.

REPORT OF BOARD OF TRUSTEES

Your reference committee approves in general the interesting and comprehensive report of the Board of Trustees. The report contains so much of interest and importance that the lack of time for adequate comment is regretted. It desires, however, to comment on some of the more important features of the report.

Your reference committee notes with interest and concern that as the result of increased and unusual activities the total expenditures of the Association for 1938 exceeded by more than $11,000 the annual income. It is hoped that there will be lessened emergency expenditures and that the increase in the Fellowship dues and subscriptions will provide sufficient future revenue to meet increased cost of operation and for the continuation of the normal activities of the Association.

The history of THE JOURNAL shows continued advancement and extension in fields of scientific and economic interest. The addition of the Student Section and the development of the Organization Section have undoubtedly increased the value of THE JOURNAL and distinguished it from all similar publications. The reference committee would like to suggest that the Organization Section include items of general economic interest and that the material in this section be edited so as to make it easy to read.

Your reference committee suggests that, owing to general economic conditions, the editorial policies of the special journals be guided to some extent by economic considerations.

Your reference committee approves the action of the Board of Trustees in meeting with representatives of recognized hospital associations and other national organizations and urges continued cooperation with these groups. It recommends approval by the House of Delegates of such action by the Board of Trustees.

In regard to the communications from the National Medical Association, Inc., your reference committee feels that the points raised by that association relative to listing its members in the American Medical Directory should be carefully considered by the Board of Trustees. It is noted that the Board feels that a method for listing Negro physicians in a manner not objectionable to them may be worked out.

Your reference committee commends the creation of the Division of Drugs, Foods and Physical Therapy and feels that such coordination will expedite the activities of the various councils included.

Your reference committee recommends that the House of Delegates approve the action of the Council on Physical Therapy regarding the standardization of tests for hearing for the estimation of compensation, as well as for other purposes. The program of work outlined by this Council is being started at this meeting of the American Medical Association.

Your reference committee notes with approval the vigorous manner in which the Association's newest Council, that on Industrial Health, has approached the objectives included in its field.

Your reference committee commends the efforts of the Bureau of Health Education to inform the public in matters of health, and particularly its increased activity in radio broadcasting and the appearance of its personnel before lay groups.

The work of the Bureau of Medical Economics deserves careful study by the House of Delegates as well as by all other members of the Association. Among the major activities should be mentioned the national survey of the need and supply of medical care. With the aid and cooperation of physicians and medical organizations throughout the country, the Bureau has assembled a great volume of data of value in meeting the economic problems of medicine. This material will be published in a special volume which will merit careful study.

The Bureau is commended for its continued study of medical service plans, group hospitalization and other economic problems and for the reports it has prepared on these subjects.

Your reference committee wishes to congratulate the Bureau of Exhibits on the high quality and educational value of the scientific exhibits at this and the San Francisco session.

Your reference committee approves the supplemental report of the Board of Trustees concerning the Army Medical Library.

The Bureau of Legal Medicine and Legislation is commended for its continued efforts in behalf of the profession during the past year.

In concluding this report, your committee wishes to say that it feels that it has the sympathetic understanding of this House in recording its inability to present in the time available even a brief summary of the condensed activities of the Board and Secretary covering some 100 pages in the Handbook. It is acutely aware, as it knows you are, of the herculean task which their offices impose. Your thoughtful rereading of these illuminating pages is urgently recommended.

It is not of their recorded activities but, rather, of the personalities of the men composing these agencies of our Association that we desire now to speak. Inspired by no thought of reward save the hope that their efforts throughout the interval between our annual sessions may preserve for the people of this country the American system of medical care purchased through the enlightened leadership and sacrifices of our forebears, they struggle without complaint with the ever increasing problems which vex us. Through these labors, supported by the rank and file of our profession, ethical and humanitarian principles so dear to us are to be preserved.

Your reference committee records these sentiments in the hope that full and appreciative recognition of the vital functions performed by the Secretary and the Board may serve to warm the deeper recesses of their hearts and help to sustain them in the arduous days that lie before us.

Respectfully submitted.

JOHN H. FITZGIBBON, Chairman.
J. NEWTON HUNSBERGER.
GRANT C. MADILL.
CHARLES W. ROBERTS.
W. F. BRAASCH.

Report of Reference Committee on Miscellaneous Business

Dr. H. C. Macatee, Chairman, presented the following report, which was adopted section by section and as a whole on motions of Dr. Macatee, duly seconded and carried after discussion by Drs. Arthur J. Bedell, Section on Ophthalmology, and Dr. Macatee:

Resolution on Testing of School Children for Early Detection of Defective Vision and Hearing: Your reference committee recommends that this resolution, presented by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, be endorsed and that all state medical societies be encouraged to

originate programs through county societies to carry out the purposes of the resolution or to foster such programs as already exist.

Communication from the Department of Christian Social Relations of the Episcopal Diocese of Western Michigan: This communication seemed to your reference committee to be germane to the work of the Committee on Consideration of the Wagner National Health Bill (S. 1620), to which committee it was transmitted. However, the Committee on Miscellaneous Business recommends that, on completion of consideration of the Wagner bill by this House, the sender of this and similar communications be informed of the action taken with an expression of the hope that the American Medical Association may count on their continued support.

Respectfully submitted.

HENRY C. MACATEE, Chairman.
BEN R. MCCLELLAN.
FRED MOORE.
WILLIAM WESTON.
E. S. HAMILTON.

Report of Reference Committee on Legislation and Public Relations

Dr. Holman Taylor, Chairman, presented the report of the Reference Committee on Legislation and Public Relations, which as amended reads as follows:

1. Report of the Committee to Study Problems of Motor Vehicle Accidents: This is a report of progress. It is, however, rather complete and comprehensive. It covers problems of physical and mental defects and of alcoholic intoxication. The defects are permanent deficiencies, transitory deficiencies and incidental deficiencies, all of which, it is pointed out, may be either compensated for or relieved. The most disturbing element in automobile driving, it seems, is alcoholic intoxication. This phase of the problem is, in our opinion, handled quite adequately. The application of chemical tests is made, and metes and bounds for medicolegal interpretation are set up. Your reference committee considers the standards thus raised to be fair and just and protective of the interests of both the individual and the authorities. It recommends the adoption of the report.

2. Resolution on Medical Care to the Indigent: Your reference committee finds itself in thorough sympathy with the resolution on Medical Care to the Indigent presented by Dr. Walter B. Martin, Virginia. However, it appears that this House of Delegates has already adopted, in principle and in fact, the recommendations of the resolution. It does not appear necessary, or even advisable, that they be readopted at this time on the recommendation of this committee. The matters concerned in the resolution are now being considered by the Reference Committee on Consideration of the Wagner National Health Bill. Your committee has taken the liberty of furnishing that committee with a copy of the resolution and recommends that the entire matter be so referred.

3. Medical Patents: The report on medical patents is a supplementary report of the Board of Trustees on a matter referred to it by this House. It is merely a discussion of the situation and carries no recommendations. It appears to your reference committee, however, that something should be done about it.

Since the beginning of medical ethics it has been held that it is not proper for a physician to receive financial rewards from any patent covering any agency useful in either prevention or cure of disease, the idea being, of course, that there should be no restrictions on the use of such agencies so that all may alike be benefited. Of recent years, however, the situation has changed remarkably. New problems of great moment have arisen. The honored traditions of the medical profession are in grave danger because of these changes. It appears on the one hand that discoveries in medicine should be protected through patents so that purity may be preserved and the public thereby protected, on the other hand that this effort instead of helping is likely to hamper. Further progress in any particular development which is under patent can be made only through the consent of the holder of the patent. It does not appear that the physician making a discovery which is patented for whatsoever reason now profits materially therefrom.

It seems to your reference committee desirable that some change in our Principles of Medical Ethics should be made. If, as seems to be the case at present, the individual physician, or other individuals, may not profit from any discoveries made, and we do not see how arrangements to change that can be effected, it would be better either that patents be not taken out or that, in those rare instances in which patents are necessary, they be dedicated to the public. Your reference committee recommends that the matter be referred to the Judicial Council of the American Medical Association with the request that it rewrite accordingly the section of the Principles of Medical Ethics referring to patents, and that its report be returned to the House of Delegates for action. Your reference committee recommends further that the proper officials of the American Medical Association be requested to call this matter to the attention of other organizations having to do with health problems, and particularly to the Council on Pharmacy and Chemistry and the Council on Foods of the Association and the laboratories of the United States Public Health Service.

4. Resolution on Granting a Seat in the House of Delegates to a Woman Delegate: This resolution appeals to your reference committee as being one of the most far-reaching resolutions introduced at this session. A division of the medical profession along the lines of sex for any professional purpose appears to be unwise. Beyond any doubt, a policy along the lines of the resolution would make the Association liable to similar demands from a variety of groups. Indeed, this has already happened. It is likewise certain that to grant our women physicians the representation sought in this resolution would be to establish multiple representation. Our women physicians are now entitled to the representation they seek through regular channels. They have the same opportunities for selection that other members enjoy. To permit the selection of members of this House of Delegates by extramural organizations, organizations over which the House has no control, would be to break the rationale of our plan of organization. Certainly it would be necessary, in order to grant the petition embodied in this resolution, to amend our organic law. Your reference committee recommends that the resolution be not adopted.

5. Resolution Urging That Membership in the American Medical Association Be Not Denied Solely on Basis of Race, Color or Creed: Your reference committee has given this resolution careful and sympathetic consideration. While the resolution does not provide for arbitrary action or any force to the end sought, it does set up a policy. In doing that, the resolution implies that the county medical society should not, in effect, have the right of selection of its own members, a fundamental principle in our organization. Readjustment along the lines of the resolution are rapidly taking place in those states most vitally interested. Your reference committee recommends that the resolution be not passed.

Respectfully submitted.

HOLMAN TAYLOR, Chairman.
L. G. CHRISTIAN.
KARL S. J. HOHLEN.
THOMAS P. FARMER.
G. HENRY MUNDT.

The report of the reference committee was adopted, as amended, section by section and as a whole on motions of Dr. Taylor, duly seconded and carried, after discussion.

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. Charles E. Mongan, Chairman, presented the following report:

1. Resolutions on Rearrangement and Rewording of the Principles of Medical Ethics: Your reference committee feels that any proposed change in the Principles of Medical Ethics of the American Medical Association is a matter for serious consideration and that such a study as the resolutions demand should be done by a body of the American Medical Association which has to do with the administration of the Principles of Medical Ethics in the last analysis.

Your reference committee therefore recommends that these resolutions offered by the California delegation be referred to the Judicial Council for study and that the Judicial Council

report to the House of Delegates its conclusions at the session of 1940.

2. Resolutions on Exhibition of Medical or Surgical Procedure to Lay Groups: Your reference committee is of the opinion that the evil complained of can be best settled by local supervision through state or county societies. Such procedure will not necessitate any changes in the Principles of Medical Ethics of the American Medical Association as at present enunciated.

Therefore your committee recommends that such a procedure be followed by the state and county medical societies.

Respectfully submitted.

CHARLES E. MONGAN, Chairman.
T. K. GRUBER.
EDGAR A. HINES
FELIX P. MILLER.
E. G. WOOD.

The report of the reference committee was adopted section by section and as a whole on motions of Dr. Mongan, duly seconded and carried.

Report of Reference Committee on Rules and Order of Business

Dr. John H. O'Shea, Chairman, recommended that the Executive Session of the House of Delegates convene at 1:30 p. m. Wednesday, May 17, instead of at 1:15 p. m. Tuesday, May 16. The motion was seconded by Dr. John Q. Myers, North Carolina, and carried.

Expression of Appreciation

Dr. George W. Kosmak, New York, moved that the House by a rising vote express its appreciation to the various reference committees for their activities. The motion was seconded by several delegates and carried unanimously.

Dr. Arthur J. Bedell, Section on Ophthalmology, moved that when the House recesses today it do so until tomorrow at 1:30 p. m., and the motion was seconded by Dr. A. A. Herold, Louisiana, and carried.

NEW BUSINESS

Resolutions Proposing Amendments to the By-Laws

Dr. J. E. Paullin, Section on Practice of Medicine, introduced the following resolutions, which were referred to the Reference Committee on Amendments to the Constitution and By-Laws and to the Reference Committee on Medical Education:

WHEREAS, The establishment and maintenance of suitable standards in the field of medical education is becoming of increasing importance; and

WHEREAS, The gradual development of the hospital as a center for the training of interns and residents and for graduate medical education of the physician has raised many new problems; and

WHEREAS, The creation of examining boards in the medical specialties and the establishment of many organizations concerned with the qualification of specialists have thrown a greatly increased burden and responsibility on the Council on Medical Education and Hospitals; and

WHEREAS, It should be apparent that the leadership in correlating the various interests concerned with these problems must rest on the American Medical Association as being the one and only organization embracing in its membership representatives of all these interests and activities; therefore be it

Resolved, That the By-Laws of the American Medical Association be amended as follows:

1. Amend chapter VII, section 3, by eliminating "(b) Council on Medical Education and Hospitals" so that that section when amended shall read as follows:

SEC. 3. STANDING COMMITTEES.—Standing committees shall be the following:

(a) Judicial Council.
(b) Council on Scientific Assembly (as amended, 1923 and 1939).

2. Amend chapter VIII, section 1, by deleting the portion beginning on line 4 "The Council on Medical Education and Hospitals" to the sentence beginning "The Members of the Council on Scientific Assembly," and by inserting the following: The Council on Medical Education and Hospitals shall consist of nine members, each elected for five years, two being elected each year for four consecutive years until the fifth year, when one shall be elected. The members of the Council shall be selected by the Board of Trustees, who shall make their choice on the basis of securing for membership in the Council representation from general medical practice, special medical practice, medical education and graduate medical education. Members of the Council shall be eligible for not more than two consecutive terms. This Council shall prepare each year a report of its work and its recommendations, which shall be submitted to the House of Delegates.

3. Amend chapter IX, section 2, by inserting after the words "medical education" in line 4 the words "including premedical, undergraduate and graduate medical education"; and be it also

Resolved, That the present members of the Council on Medical Education and Hospitals shall be continued as members until the terms for which they were appointed shall have expired and that they shall be considered eligible for reappointment.

Resolution on Prescribing of Radium

Dr. E. S. Hamilton, Illinois, presented the following resolution, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws and to the Judicial Council:

The report of the Special Committee appointed by the President of the Adams County Medical Society (Ill.) to study the present ruling of the American Medical Association relative to the rental of radium is as follows:

WHEREAS, At the San Francisco session last year the House of Delegates of the American Medical Association passed certain resolutions condemning the rental of radium under certain conditions, namely, the prescribing and directing of the use of radium in the case of a patient whom the prescriber has not examined or seen; and

WHEREAS, In consideration of the fact that such a rigid ruling would work a great hardship on thousands of members of the American Medical Association and cause great suffering to thousands of citizens of the United States, especially those who are remotely situated from sources of radium; that many patients would be denied the use of radium if they were compelled to make long trips to a source of radium; that many patients have such great confidence in their physicians that they distinctly prefer that he personally administer such radium treatment; that since the pioneers in radium therapy and probably the greatest advocates of radium were not radiologists but leading gynecologists and dermatologists; that since many specialists are well qualified to make many of the applications of radium, because of their specialized knowledge and surgical technic, as is the average radiologist; that since an experience of over twenty-five years, during which time many thousands of patients have been treated, has shown that many conditions in which radium is commonly used can be satisfactorily treated and with great benefit to the patient by the average physician under proper supervision and without a radiologist personally examining the patient on whom the radium is to be used; that because of the great expense of radium it is not practical for the average physician to own it; that the average physician sees so few cases in which radium is needed in his practice that it is not practical for him to make the large financial outlay to purchase it, and that since it is already considered an ethical procedure for physicians to lease radium for long periods or to own it outright, regardless of their qualifications to use it; therefore be it

Resolved, That it is considered ethical for a member of the American Medical Association personally to describe or write a description of a patient on whom he wishes to consider the use of radium and submit it to an experienced radiologist who likewise is a member of the American Medical Association; that if the condition is one in which radium is frequently used and if the radiologist believes the physician submitting the description can use radium with benefit to the patient, he may, therefore, prepare suitable radium applicators, recommend a technic of application and suggest dosage for the treatment of the case under consideration.

A motion to adopt this resolution with the recommendation that a copy be sent to the Secretary of the Illinois State Medical Society, and that the delegate of the Adams County Medical Society be instructed to present it to the House of Delegates of the Illinois State Medical Society at its next annual session (Rockford) for their approval and with the request that the delegates of the Illinois State Medical Society be requested to present it to the House of Delegates of the American Medical Association at its St. Louis meeting was adopted without dissenting vote.

The Committee on Resolutions recommended the approval of the resolution presented by the Adams County Medical Society and the concurrence in its recommendations.

Adopted by House of Delegates May 4, 1939, Illinois State Medical Society.

Resolutions on Army Medical Library and Museum

Dr. Henry C. Macatee, District of Columbia, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

The following resolutions were adopted by the Medical Society of the District of Columbia at its annual meeting held May 3, 1939:

WHEREAS, The Army Medical Library and Museum are housed in a building entirely inadequate for their present purposes and without possibility of expansion for future growth; and

WHEREAS, The immensely valuable collection of medical literature and of anatomic and pathologic specimens is in constant danger of destruction both from the hazards of fire and from the limited space for their proper preservation; and

WHEREAS, The Army Medical Library and Museum constitute a monumental asset both to the United States government and to the medical profession of the entire country; and

WHEREAS, The Secretary of War was authorized by Act of Congress, approved June 15, 1938, to construct a building to replace the present quarters of the Army Medical Library and Museum but was not enabled by the necessary appropriation to carry out the purpose of the Act; now *therefore be it*

Resolved, That the Medical Society of the District of Columbia respectfully petitions the Congress to provide the necessary funds for a new and adequate building for the Army Medical Library and Museum at as early a date as possible; and

Resolved, That copies of this resolution be forwarded to the President of the United States, to the Secretary of War, to the Director of the Budget, to the Surgeon General of the Army, to the Chairman of the Senate and House committees on military affairs and to the senate and house committees of the District of Columbia; and be it further

Resolved, That the delegates be instructed to present this resolution to the House of Delegates of the American Medical Association at the St. Louis Session and to endeavor to secure the endorsement of its purposes by that House.

These resolutions are presented to this House with the request that they receive your endorsement.

Report of Committee on Medical Care

Dr. W. F. Braasch, Chairman, presented the following report, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

The objectives of the American Medical Association in making this survey were to obtain all available facts about the need and supply of medical care in the United States. Nine special forms were prepared and distributed to individuals and agencies concerned with the care of the sick, including physicians, dentists, hospitals, nurses, pharmacists, health departments, private and governmental welfare and relief agencies, private and public schools, universities and colleges, and industrial, fraternal, mutual benefit, group hospitalization and similar organizations.

Interest in the survey varied greatly in different sections of the country, as well as in adjoining states and counties. Among the barren areas may be mentioned some states in which, apparently because of historic aloofness to innovations, but little cooperation was given. Then, too, several states in which recent poorly conceived surveys had been made, with great expense and doubtful results, were delinquent. One state relied on data gathered in a previous state survey, which, however, did not fit in with the objectives of this survey. Several states were late in getting interested and, as a result, their reports are still being held up. One state made a rapid survey, conducted largely by local health officials, and apparently they did not think the results obtained were worth while since the data were not sent in.

No attempt was made to dictate how this survey was to be conducted. Since circumstances varied widely in different parts of the country, no nationwide plan could be followed.

LOCAL TREATMENTS OF THE SURVEY

It was urged that each county medical society appoint a committee to discuss all the results, and to prepare a report with recommendations for improvement. There were many county medical societies in which this was done. Some of these committees prepared reports in the form of bound volumes of considerable size, including special types of investigation or material from previous local studies. Such county medical societies found that when the survey was used in such a thorough manner it formed a new foundation for local medical programs.

State medical associations were urged to take the county reports, and, after adding an analysis of statewide medical activities, to summarize the situation in the entire state and to offer suggestions for improvements in medical organization. Some state medical associations deserve special mention for the service which they rendered the medical profession of their own state and of the whole country in making this survey. New Jersey may be offered as an outstanding example: its state report forms a large volume which covers every type of medical problem and lays the foundation for further study and for solutions where these are possible. It is noteworthy that, while several states pleaded lack of funds as a reason for not undertaking the thorough analysis, discussion and summary which were urged, New Jersey reports that only $600 was expended in preparing its report. Examples of studies in individual counties and states have already been published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

EXTENT OF COVERAGE

Up to the present time, 502 county medical societies have sent returns from 763 counties in thirty-seven states. The total population of these counties in 1930 was 43,790,068. Every section of the country was covered, and reports were received from every county in several states.

This survey is more nearly representative of both urban and rural populations than any previous study. Using the standard accepted by the United States Bureau of the Census prior to 1930, it is assumed that the urban population is composed of those living in cities of 2,500 population or more and that all others are rural. According to this standard, the urban population included in this survey was 28,694,853 and the rural population 15,095,215. Reports were received from practically every county in eight states. Returns are still being received and the final report will be even more complete in its coverage.

The survey of the American Medical Association was not designed primarily to produce a statistical report but rather to obtain a consensus as to the need and supply of medical care; yet it revealed certain statistics of sufficient accuracy to be worthy of presentation. Replies were received from 20,199 physicians and dentists. Many counties did not separate returns made by physicians from those made by dentists, and in some localities forms were sent only to physicians. The ratio of returns received from physicians and dentists in counties where a separation was made leads to the conclusion that about 17,000 of the 20,000 forms returned were filled out by physicians. These 17,000 physicians report *giving medical service without* charge to 2,611,451 persons. This is a little more than 5 per cent of the population covered by the study. Since the number of those who replied was less than 25 per cent of the physicians in the area covered, we are certainly within safe limits of error *if we assume that double this* amount of gratuitous service was given in all the physicians' offices and patients' homes during *this period.* This would mean that 10 per cent of the population was given this type of free service. This same fraction (about *25 per cent)* of the total number of physicians gave 1,909,713 hours of service in hospitals and clinics in addition to the care of patients at home or in physicians' offices. Any sort of calculation based on these facts demonstrates that the previously used estimate of $1,000,000 a day of *free service by physicians* in the United States is far below the actual figure. These preliminary estimates will be reviewed, if necessary, in the final report. Another and more detailed, and probably more accurate, check of the amount of free services given by physicians will be provided when Forms IF are completed and tabulated.

The cooperation received from sources other than the medical profession was especially gratifying. Hospitals, nurses, health departments, private or governmental welfare and relief agencies, private and public school systems, universities and colleges, industrial, fraternal, mutual benefit, group hospitalization and similar organizations as well as pharmacists filled out 13,933 forms.

WHAT THE REPLIES INDICATE

Next in significance to the comprehensiveness of the sources of information is the unanimity of the replies. If the nurses, hospitals, health departments and relief organizations had differed sharply with the physicians as to the adequacy and accessibility of medical care, there would have been justifiable suspicion of the accuracy of the survey. No such conflict appears in reports from any section of the United States. Whenever physicians report inadequate provision of medical care by relief authorities, this judgment is confirmed by welfare and relief officials. Wherever physicians found difficulty in procuring hospitalization for certain classes, hospital authorities said there were too few beds. When fully 90 per cent of the physicians found that practically every person needing and desiring medical service could obtain it, the hospitals, health departments, nurses and welfare workers confirmed this report. The reason for this unanimity is clear. All were dealing with different phases of the same set of facts and not with theories.

They all saw the same things, and the reports of what they saw were bound to agree if stated honestly and accurately. Such differences as appear were shared by each category of reporters.

The points of general agreement are also significant. There was almost complete unanimity and universality of opinion that medical services provided by governmental agencies were the ones most apt to be insufficient. Governmental provisions for medical care for the indigent are everywhere inadequate, except as supplemented by gratuitous services of physicians. From many states came complaints of overcrowded facilities for the care of the mentally diseased, the feebleminded and the tuberculous. For these categories of patients greater expenditures are recommended. School examinations tend to become perfunctory and are not followed by treatment of the defects discovered. This is most frequently explained as being due to indifference or objections of parents to medical care, although there is occasional criticism of lack of interest on the part of school authorities in following up physical examinations with action. Although information concerning dental services appeared to be incomplete, the dental reports indicate that insufficient dental care was received by school children, the indigent and the low income classes. Comments affirmed that much of this deficiency is due to indifference and lack of education concerning the need of dental care, although economic reasons were frequently given.

To the key question which the survey was primarily designed to answer, as to whether any large section of the population is unable to obtain needed and desired medical care, the answer is so nearly unanimous and universal that it should be considered conclusive. Fully 90 per cent of all the sources consulted reported that they knew of no significant number of persons needing and seeking medical care who were unable to obtain it. Nurses, health departments, relief and welfare workers, school and university authorities, industrial and mutual organizations and pharmacists were all asked how many, if any, persons of whom they had knowledge had been unable to obtain needed medical care. They were then asked to comment on any such unmet need and offer any suggestions as to how it could be met. These suggestions and comments are now being analyzed and compiled, and the results promise to offer a body of helpful criticisms and proposals of value in developing better plans for providing medical care.

The overwhelming majority of opinions from all sources agree that forty thousand and not forty million persons in the United States are denied needed medical service. Reports of inability of individuals to secure service are usually accompanied by suggestions of changes in the local organization of medical care by which the needed service can be supplied, and there are numerous reports of such changes being made as a result of the survey.

When to these direct and specific facts are added the many comments and suggestions by the most competent body of trained observers on medical conditions in the United States, the total is the most comprehensive and accurate survey of the need and supply of medical care ever collected. While a full analysis and discussion of comments must await the completed report, sufficient study has been made to permit some generalities.

Much more than a majority of the comments are to the effect that all those who needed and sought medical care received it. Examples of failure to secure such care when needed were usually explained as being due to local conditions not generally difficult to remove. In addition to the inadequacies already mentioned, numerous observers noted the lack of proper accommodations for chronic illnesses, transients and convalescents. Although general proposals for improvements in the organization of medical service were numerous, they formed but a small percentage of all comments. There were many suggestions that plans of medical societies now under way offered possibility of removing many of the difficulties and that some system of prepayment might be desirable for the low income class. There was only an occasional recommendation for compulsory health insurance. It is apparent from the comments made that the great majority of our profession are favorably inclined to changes which would fulfil the needs of local conditions but are opposed to radical changes in the present system of medical care.

One of the important by-products of this survey is that it established methods of more direct cooperation between the central organization of the American Medical Association and the state and county medical societies. This should be of value in the future in carrying out other health activities of national scope.

A working alliance has been established between various agencies allied in medical care which should be of much benefit in future consideration of medical care.

Because of the ever changing nature of medicine, it would be desirable to continue similar appraisals at intervals in the future. Profiting by past experience and with simplification of methods employed, your committee believes that wide cooperation will be given by members of the profession.

Before closing, it should be said that all those who took part in carrying out this survey deserve great credit, since it involved the sacrifice of much time and effort on their part. Particular praise should be given to Dr. Leland and his associates in the Bureau of Medical Economics for their able supervision of the countless details necessary to the execution of this great project.

Respectfully submitted.

WILLIAM F. BRAASCH, Chairman.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded and carried, the House recessed at 12:30 p. m. to reconvene at 1:30 p. m. on Wednesday, May 17.

(To be continued)

REGISTRATION AT ST. LOUIS

The total registration at the St. Louis session was 7,412. Below are given two summaries—one by sections and one by states:

Registration by Sections

Practice of Medicine	2,534
Surgery, General and Abdominal	1,265
Obstetrics and Gynecology	561
Ophthalmology	376
Laryngology, Otology and Rhinology	258
Pediatrics	327
Pharmacology and Therapeutics	35
Pathology and Physiology	210
Nervous and Mental Diseases	208
Dermatology and Syphilology	185
Preventive and Industrial Medicine and Public Health	154
Urology	196
Orthopedic Surgery	210
Gastro-Enterology and Proctology	120
Radiology	253
Miscellaneous Topics: Session on Anesthesia	114
Two or more sections or no section marked	406
Total	7,412

Registration by States

Alabama	51	Nevada	5
Arizona	24	New Hampshire	7
Arkansas	142	New Jersey	47
California	209	New Mexico	9
Colorado	109	New York	307
Connecticut	29	North Carolina	32
Delaware	5	North Dakota	8
District of Columbia	50	Ohio	363
Florida	45	Oklahoma	206
Georgia	45	Oregon	23
Idaho	4	Pennsylvania	167
Illinois	1,373	Rhode Island	7
Indiana	322	South Carolina	14
Iowa	272	South Dakota	11
Kansas	209	Tennessee	159
Kentucky	192	Texas	219
Louisiana	76	Utah	25
Maine	9	Vermont	4
Maryland	42	Virginia	33
Massachusetts	107	Washington	37
Michigan	190	West Virginia	25
Minnesota	154	Wisconsin	153
Mississippi	32	Wyoming	8
Missouri	1,630	Miscellaneous	54
Montana	11	Total	7,412
Nebraska	147		

OFFICIAL NOTES

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 1 p. m. eastern standard time (12 noon central standard time, 11 o'clock mountain time, 10 a. m. Pacific time).

Starting April 30, daylight saving time took effect in Chicago. The program is therefore being broadcast at the same hour Chicago daylight saving time, which means one hour earlier central standard time, two hours earlier mountain time and three hours earlier Pacific time. In communities where daylight saving time is in effect there is no change in the hour of the broadcast.

Owing to network conflicts the Chicago broadcast does not occur at 1 o'clock Wednesday but there is a rebroadcast from a recording over station WENR at 8 o'clock each Monday evening (8 o'clock Chicago daylight saving time, 7 o'clock central standard time). The program broadcast each Monday is identical with the network program of the preceding Wednesday.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

May 31. Checking Up on Health.
June 7. Vacations—Why and How.
June 14. Never Stop Learning.

RADIO BROADCASTS FROM THE ST. LOUIS SESSION

The following radio programs were arranged by the Bureau of Health Education and broadcast in connection with the recent meeting of the American Medical Association at St. Louis:

Network Broadcasts:

NBC, Blue:
Irvin Abell, "American Medicine Today."
CBS:
Rock Sleyster, Interviewed by Science Service.
NBC, Red:
W. W. Bauer, "A. M. A. Session News Report."
Station KSD:
Stanley J. Seeger, Milwaukee, "Burns."
John H. Musser, New Orleans, "Medical Education."
James E. Paullin, Atlanta, Ga., "A. M. A. Scientific Assembly."
Howard F. Root, Boston, "Diabetes."
Ralph M. Waters, Madison, Wis., "Anesthesia."
W. W. Bauer, Chicago, "Modern Hospitals."
Station KMOX:
Wingate M. Johnson, Winston-Salem, N. C., "Doctor-Patient Relationships."
Harry E. Mock, Chicago, "Skull Fractures."
Station KWK:
E. Payne Palmer, Phoenix, Ariz., "First Aid in Fractures."

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. J. Res. 138 has been reported to the Senate with recommendation that it pass, providing that the President's Reorganization Plans No. I and No. II shall take effect on July 1, 1939. Under Reorganization Plan No. I the United States Public Health Service will be transferred from the Treasury Department to the newly created Federal Security Agency and there grouped with the Social Security Board, the United States Employment Service, the Office of Education, the National Youth Administration and the Civilian Conservation Corps. H. J. Res. 180 has passed the House, authorizing the President to invite foreign governments to participate in the seventh International Congress for the Rheumatic Diseases, to be held in New York, Philadelphia and Boston in 1940 under the auspices of the International League Against Rheumatism. H. R. 2987 has passed the House and Senate providing for the compensation of any employee of the United States government who shall furnish blood for transfusion to a member or former member of the military establishment who is a patient in a government hospital.

Bills Introduced.—H. R. 6249, introduced by Representative Reece, Tennessee, provides that any ex-service man shown to have had tuberculosis of a compensable degree shall, under certain conditions, receive not less than $100 a month for the remainder of his life. H. R. 6270, introduced by Representative Myers, Pennsylvania, proposes to amend the Social Security Act so as to extend the old age benefit provisions to certain nurses in respect of their employment outside of religious, charitable and other nonprofit institutions. H. R. 6319, introduced by Representative Schafer, Wisconsin, proposes to authorize outpatient treatment for non-service connected disabilities of a World War veteran if such veteran has a 50 per cent disability or more directly incurred in or aggravated by service in the World War. H. R. 6352, introduced by Representative Keller, Illinois, proposes to authorize the Secretary of the Interior to make inspections and investigations in coal mines to obtain information relating to health and safety conditions, accidents and occupational diseases therein. H. R. 6377, introduced by Representative Mundt, South Dakota, proposes to authorize an appropriation of $1,000,000 to construct a veterans' hospital and diagnostic center in the first congressional district in South Dakota. S. 2304, introduced by Senator Reynolds, North Carolina, provides that all hospital facilities under the control and jurisdiction of the Veterans' Administration shall be available for any insane person who has served in the Regular Army, Navy or Marine Corps of the United States for ninety days or more, not dishonorably discharged, without regard to the cause of such insanity. S. 2442, introduced by Senator Burke, Nebraska, provides that, in the administration of the Veterans' laws, retired enlisted men of the Army, Navy, Marine Corps and Coast Guard who served in any war, suffering from any ailment, disability or disease shall be entitled to hospitalization and domiciliary care in Veterans' Administration facilities, without regard to the nature or origin of such ailment, disability or disease. S. 2353, introduced by Senator Sheppard, Texas, and H. R. 6225, introduced (by request) by Representative May, Kentucky, propose to authorize an appropriation of $375,000 for the construction, rehabilitation and installation at Carlisle Barracks, Pennsylvania, of a medical field-service school, and such utilities and appurtenances thereto as may be necessary.

DISTRICT OF COLUMBIA

Bills Introduced.—S. 2351, introduced (by request) by Senator King, Utah, and H. R. 6266, introduced by Representative Nichols, Oklahoma, provide for the incorporation of certain persons as Group Hospitalization, Inc., the corporation to be authorized (*a*) to enter into contracts with individuals or groups of individuals to provide for hospitalization of such individuals, (*b*) to enter into contracts with hospitals for the care and treatment of such individuals and (*c*) to cooperate, consolidate or contract with groups or organizations interested in promoting and safeguarding the public health.

STATE MEDICAL LEGISLATION

Connecticut

Bills Introduced.—H. 1618 proposes to require all applicants for examination before the State Board of the Healing Arts to be citizens of the United States. As it is necessary for all applicants for licenses to practice any branch of the healing art to pass examinations before the State Board of the Healing

Arts in anatomy, physiology, hygiene, pathology and diagnosis before presenting themselves to their respective professional boards for licensure, the enactment of this bill, in effect, would limit licensure in the healing art to citizens of the United States.

Bill Passed.—House Substitute for House 1485 has passed the house and the senate, proposing so to amend the laws relating to the practice of chiropractic as to require licensed chiropractors to renew their licenses annually with the chiropractic board and to condition renewal on the presentation of satisfactory evidence that the applicants in the preceding year have attended at least one of the two day educational programs as conducted by the Connecticut Chiropractic Association, Inc.

Florida

Bills Passed.—H. 760 has passed the house and the senate, proposing to authorize the Board of County Commissioners of Clay County to levy an additional annual tax not to exceed 1 mill on the dollar of assessed valuation, the proceeds of which is to be used to care for indigent residents of the county who are in need of hospitalization and medical care. H. 762 passed the house, proposing to authorize the organization in counties having a population of not less than 85,000 and not more than 165,000 of corporations to operate nonprofit hospital service plans whereby hospital care may be provided by such corporations or by hospitals with which they have contracted to such members of the public as become subscribers to said plans under contracts which entitle each subscriber to stated hospital care. S. 501 has passed the senate, proposing to authorize every county maintaining a hospital for the indigent to levy annually a tax not to exceed 4 mills on the dollar, to provide a special fund which is to be used, in addition to the amounts appropriated out of the general fund, for the maintenance of the hospital. S. 606 has passed the senate, requiring each county having a population of not less than 53,000 and not more than 57,000 to provide medical treatment, at county expense, to all indigent residents of the county infected with venereal disease. Each affected county is to be authorized to employ and pay at hourly rates of compensation determined by the board of county commissioners as many physicians as are necessary to provide the treatment required. Such boards are further directed to employ in rotation for periods of not less than six months all the resident physicians who have signified their willingness to undertake and perform such services at the prices set by the boards.

Bills Introduced.—S. 593 and H. 965 propose to establish in Seminole County a branch of the Florida State Hospital, for the care and treatment of insane persons. H. 869 authorizes the performance of autopsies on deceased patients of the Florida State Hospital who have no surviving relatives or guardians, or in instances in which the superintendent of the hospital is unable to get in touch with relatives or guardians of deceased patients to procure consent. S. 624 and H. 1092 propose to regulate the manufacture, sale, distribution and advertising of foods, drugs, cosmetics and devices.

Illinois

Bills Introduced.—S. 467 proposes to prohibit any person from practicing as a consulting psychologist without a certificate of registration as provided for by the bill. A person to receive such certificate must have received a degree either of Doctor of Philosophy in psychology, Doctor of Science in psychology, Doctor of Education, or Doctor of Philosophy in education from an approved school, must have had two years' experience in the application of the principles and technics of the science of psychology and must pass examinations to be given by an examining committee consisting of five psychologists. H. 977 proposes to authorize the organization of corporations to operate nonprofit medical service plans whereby medical care or medical and hospital service may be provided by the corporations to those persons who become subscribers to the plans under contracts which entitle each subscriber to stated medical care. Any nonprofit medical plan so established is to entitle each subscriber to select a physician of his own choice.

Massachusetts

Bills Introduced.—H. 2265 proposes to require a physician attending a pregnant woman to take or cause to be taken a sample of her blood at the time of first examination and to submit that sample to a laboratory approved by the department of public health for a standard serologic test for syphilis. H. 2281 proposes to require each party to a proposed marriage, as a condition precedent to obtaining a license to marry, to present a certificate signed by a registered physician who has examined the party. If the physician in making the examination discovers evidence of any infectious disease declared by the state department of public health to be dangerous to the public health, he must inform both parties as to the nature of the infectious disease discovered and the possibilities of transmitting it to the marital partner or to their children. The examination by the physician must include a standard serologic test for syphilis.

Missouri

Bill Amended in the Senate.—S. 342 was so amended in the senate May 15 as to provide that the State Board of Health, which the bill proposes to designate as the agency to handle all funds appropriated for public health by the state or granted for such purposes by the federal government, in carrying out the duties imposed on it in that connection must give equal rights and privileges to all licensed practitioners of any school of medicine or healing recognized by the laws of the state.

New York

Bills Passed.—S. 2255 has passed the assembly and the senate, proposing so to amend the laws relating to the practice of osteopathy as to provide that any licensed osteopath or any applicant for such license "who upon the submission of proper credentials or by examination satisfies the regents that he has received sufficient instruction and training, may be granted the right to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics and biological products." S. 2257 has passed the senate and the assembly, proposing so to amend the insurance code as to permit the organization of cooperative corporations to furnish medical expense indemnity or hospital service to persons who become subscribers under contracts with such corporations.

Pennsylvania

Bill Passed.—S. 1031 passed the senate May 18, proposing to appropriate $20,000 to the Department of Health for the use of the Land Grant College of Pennsylvania to advance research in nutrition for children.

Bills Introduced.—S. 1003 proposes to create a healing art advisory board to advise the Secretary of Health with respect to the administration of the program of medical care to the indigent sick. The advisory board is to consist of one representative selected by each of the following: Department of Welfare, Department of Public Assistance, the Medical Society of the State of Pennsylvania, the state osteopathic association, the homeopathic medical society of the state, the state nurses' association, the state dental society, the state pharmaceutical association and the hospital association of the state. The bill also proposes to require the Department of Health to provide medical care to indigent persons certified by the Department of Public Assistance. S. 788 proposes to appropriate $25,000 to the State Department of Health for the use of the University of Pennsylvania School of Dentistry to carry on research in determining the cause and prevention of dental caries.

Wisconsin

Bills Introduced.—A. 823 proposes to appropriate a sum, sufficient together with moneys to be received by the state as federal aid, to distribute serums and antitoxins free of charge to persons in need of them and unable to afford them. A. 844 proposes to create an interim committee on the cost of medical care to consist of two senators and three assemblymen. This committee is to investigate the general subject of the cost of medical care and the ways and means of lightening the alleged burden thereof.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ADDITIONAL MEDICAL COLLEGE NEWS AND ARTICLES APPEAR IN THE STUDENT SECTION, PAGE 2219.

ALABAMA

Regional Meeting.—At a meeting of the Northwestern division of the Medical Association of the State of Alabama, June 1, the following program will be presented:

Dr. Robert A. Berry, Birmingham, Fistula-in-Ano: Underlying Anatomical Factors.
Dr. Benjamin Hughes Kennedy Jr., Birmingham, Vomiting in Early Infancy.
Dr. Otis E. Marler, Carbon Hill, Abruptio Placenta, with Report of Five Cases.
Dr. James B. McLester, Birmingham, Rational Treatment of Myocardial Failure.
Dr. Lloyd Noland, Fairfield, Management of the Thyroid Patient.

ARKANSAS

Course in Obstetrics.—Dr. H. Close Hesseltine, assistant professor of obstetrics and gynecology, Department of Medicine, Division of Biological Sciences, University of Chicago, will conduct a course in obstetrics in Arkansas in cooperation with the state board of health, U. S. Children's Bureau and the committee on maternal and child welfare of the society. The series of weekly lectures will open in Prescott May 29 to continue for six weeks. Similar programs will be conducted in McGehee, beginning May 30; Jonesboro, beginning May 31; Conway, June 1; Fort Smith, June 2.

COLORADO

Appointments Made to Health and Examining Boards.—Dr. Ray L. Drinkwater, Charles G. Grover, D.D.S., and Attorney Joseph A. Myers, all of Denver, were appointed to six year terms on the Colorado State Board of Health recently. The appointments, as required by law, were confirmed by the state senate before becoming effective. The three new members will succeed Dr. Charles A. Davlin, Alamosa; Dr. Ben Beshoar, Trinidad, and H. C. Dolph, D.D.S., Denver, whose terms had expired. This is the first time an attorney has served as a member of the state board. The two osteopathic members of the state board of medical examiners whose terms had expired, Rodney Wren, Pueblo, and C. Robert Starks, Denver, were reappointed by Secretary of State George E. Saunders. Dr. George R. Buck, Denver, was appointed to succeed Dr. Nolie Mumey, Denver, whose term expired this year. Later Governor Carr reappointed the two osteopathic members but appointed Dr. Orland P. Shippey, Saguache, to succeed Dr. Mumey. The state senate took no action with regard to these appointments as there has been no apparent requirement in the law for senate confirmation of appointments to this board, but the state executive council, by a straight party vote, approved Secretary Saunders' appointments. According to the Rocky Mountain *Medical Journal*, it is the evident intention of state officials to bring about a legal test case, to which Drs. Buck and Shippey would be the nominal parties at suit, to determine where the power of appointment lies under the existing administrative code.

CONNECTICUT

Dr. Clendening Lectures at Yale.—Dr. Logan Clendening, professor of clinical medicine, University of Kansas School of Medicine, Lawrence-Kansas City, delivered the Beaumont lecture on the history of medicine at Yale University School of Medicine, New Haven, April 21. His subject was "Medicine in Paris at the Time of Oliver Wendell Holmes' Visit." Dr. Ernest J. Caulfield, Hartford, president of the Beaumont Medical Club, introduced Dr. Clendening.

DISTRICT OF COLUMBIA

Library Given to Leonard Wood Memorial.—The library of Dr. Earl Baldwin McKinley, who lost his life on the Hawaii Clipper last summer, has been given by his wife to the Leonard Wood Memorial (American Leprosy Foundation), and will be placed in the Culion Library at Culion, P. I., the collection to constitute the "Earl Baldwin McKinley Memorial Library."

Personal.—Dr. J. Winthrop Peabody recently resigned his position as general superintendent of the District tuberculosis hospitals to devote his entire time to private practice.——Dr. Winfred Overholser, superintendent of St. Elizabeths Hospital, Washington, and formerly commissioner of the department of mental diseases of Massachusetts, was voted honorary membership in the Massachusetts Psychiatric Society March 24 in recognition of his many years of work for the advancement of psychiatry in the commonwealth.——Dr. Jefferson Davis Bradfield recently retired as diagnostician in the District health department; he had been connected with the department of psychiatry in the commonwealth.——Dr. Jefferson surgeon general, U. S. Public Health Service, sailed April 12 to attend medical conferences in Paris, Geneva and Scarborough, England; in Paris he attended the meeting of the Permanent Health Office April 23; in Geneva the Conference of the Health Committee of the League of Nations, beginning May 4, and in England he will attend the International Medical Congress, which opens July 1.

ILLINOIS

Dr. Baxter Appointed State Health Director.—Dr. Albert C. Baxter, acting director of the Illinois State Department of Health since the resignation of Dr. Frank Jirka in 1937, has been appointed head of the department, newspapers reported May 4.

Wanted — Unidentified Typhoid Carrier.—The state department of public health is trying to find an unidentified typhoid carrier somewhere in Illinois and thereby avert a possible outbreak of the disease. The state diagnostic laboratory received a specimen for examination for a typhoid carrier May 13 and it turned out to be positive. There was nothing to identify the source of the specimen. The postmark was not legible and the physician who sent the specimen failed to give his own name or that of the patient.

INDIANA

Postgraduate Course.—Indiana University School of Medicine conducted its annual postgraduate course April 10-15. General in scope, the program included clinics and clinicopathologic conferences. The guest speakers included Drs. Julian D. Hart, Durham, N. C., on infections; Morton D. Willcutts, Washington, D. C., subject not announced, and Wyman C. C. Cole, Detroit, "Etiologic Factors in Neonatal Asphyxia."

District Meetings.—Among others, Dr. Willis D. Gatch, Indianapolis, addressed the Second District Medical Society in Bloomington May 24 on "Endometriosis."——The speakers before the Fourth District Medical Society in Columbus May 25 included Dr. Arlie R. Barnes, Rochester, Minn., on "Important Principles in Treatment of Congestive Heart Failure."——Dr. Clinton W. Lane, St. Louis, discussed dermatology before a joint meeting of the Fifth District Medical Society, the Vigo County Medical Society, the Aesculapian Society of the Wabash Valley and the Terre Haute Academy of Medicine in Terre Haute May 5.——At a meeting of the Sixth District Medical Society in Connersville June 7, the speakers will include Drs. Harry V. Scott, Fort Wayne, on "Vomiting in the Newborn and Infancy"; Gerald F. Kempf, Indianapolis, "Newer Aspects of Treatment of Acute Infectious and Contagious Diseases" and William S. Robertson, Spiceland, "Electrocardiography in General Practice."——The Ninth District Medical Society was addressed in Lebanon May 11, among others, by Dr. Cyrus J. Clark, Indianapolis, on "Sulfapyridine in the Treatment of Pneumonia."——Among others, Dr. Howard M. Odel, Rochester, Minn., addressed the Eleventh District Medical Society in Peru May 10 on "Essential Hypertension—Diagnosis and Management."

KENTUCKY

Society News.—Drs. Will R. Pryor and Lytle Atherton addressed the Jefferson County Medical Society, Louisville, May 1 on "Sulfanilamide—Its Value in Infections of the Eye, Ear, Nose and Throat" and "Hydronephrosis" respectively.——Dr. Louis Wallace Frank addressed the Louisville Medico-Chirurgical Society May 12 on "Vitamin K in the Treatment of Upper Gastro-Intestinal Hemorrhage."——Speakers at a meeting of the Louisville Obstetrical and Gynecological Society May 22 were Drs. Henry M. Rubel on "Sulfanilamide in Obstetrics and Gynecology" and Nora D. Dean, "Anesthesia in Gynecology and Obstetrics."——Drs. Elmer L. Henderson,

Louisville, and Oren A. Beatty, Glasgow, addressed the Third District Medical Society, Bowling Green, March 15 on "Hysterectomy" and "Ambulatory Bilateral Pneumothorax" respectively.

Personal.—The McCracken County Health Department dedicated new headquarters in Paducah April 11 to Dr. Van A. Stilley, Benton, honoring his long years of service in the field of public health in western Kentucky. Dr. Carl C. Howard, Glasgow, delivered the principal address. A photomural of Dr. Stilley and a bronze plaque bearing the dedicatory inscription were hung in the building. Dr. Stilley is 72 years old and graduated from the University of Louisville School of Medicine in 1890. He is associate director of county health work for western Kentucky, is councilor for the first district of the state medical association and president of the Bank of Benton.——Dr. Andrew B. Steele, Lewisburg, Pa., has been appointed clinical director of the Western State Hospital, Hopkinsville.——Dr. Walter O. McCammon, Springfield, has been appointed health officer of Washington County to succeed the late Dr. William R. Thompson.——Dr. Isham Kimbell, clinical director at the Veterans Administration Facility, Lexington, has been transferred to the facility at Gulfport, Miss. ——Dr. Charles M. Smith, Dixon, has resigned as health officer of Webster County.——Dr. James W. Baird, Sadieville, was honored by the Scott County Medical Society with a dinner at Lancaster May 4, marking his fiftieth anniversary of medical practice.

LOUISIANA

State Medical Election.—Dr. Christian Grenes Cole, New Orleans, was chosen president-elect of the Louisiana State Medical Society at its annual convention in Alexandria April 26 and Dr. Clarence A. Lorio, Baton Rouge, was installed as president. Other officers are Drs. Dorman B. Barber, Alexandria, Edwin L. J. Zander, New Orleans, and Jean P. Mauboules, Rayne, vice presidents, and Paul T. Talbot, New Orleans, secretary-treasurer. The 1940 meeting will be held in New Orleans.

MASSACHUSETTS

Personal.—Dr. Curtis T. Prout, formerly of Wallingford, Conn., has been appointed medical director of the Ring Sanatorium and Hospital, Arlington Heights, succeeding Dr. Hosea W. McAdoo.——Dr. Salomon Gagnon, Waltham, assistant superintendent of the Metropolitan State Hospital, has been appointed chief executive officer of the Boston Psychopathic Hospital; he was succeeded at the Metropolitan by Dr. William Corwin.——A buffet supper and reception was recently given to honor Dr. Marion Nute in recognition of his completion of forty years as a member of the staff of the New England Hospital for Women and Children.

Symposium on Virus and Rickettsial Diseases.—A short course of lectures, clinics and demonstrations on the virus and rickettsial diseases, with special emphasis on their public health significance, will be presented at the Harvard School of Public Health, Boston, June 12-17. The fee for the course will be $25, payable at any time up to June 12. Enrolment should be arranged before June 1, as facilities for many of the clinics and demonstrations are limited. The lectures will be published later in a single volume, which will be sent to each person who registers for the course. Further information may be obtained from the secretary of the school of public health, 55 Shattuck Street, Boston. Members of the symposium committee are Drs. LeRoy D. Fothergill, chairman, Cecil K. Drinker, John E. Gordon, Edward G. Huber, Charles F. McKhann and Philip Drinker, Ch.E.

MINNESOTA

State Medical Meeting at Minneapolis.—The eighty-sixth annual session of the Minnesota State Medical Association will be held in Minneapolis May 31-June 2, under the presidency of Dr. George A. Earl, St. Paul. Out of state speakers will include:

Dr. Rock Sleyster, Wauwatosa, Wis., President, American Medical Association.
Dr. Andrew C. Ivy, Chicago, Bile Salt Therapy in Gallbladder Disease.
Dr. Joseph Stokes Jr., Philadelphia, Studies of Certain Respiratory Infections of Virus Origin.
Dr. Charles L. Scudder, Boston, Fractures as a State Medical Association Problem.
Dr. Everett D. Plass, Iowa City, Treatment of Vaginal Discharges.
Dr. Thomas Francis Jr., New York, Diagnosis of Virus Diseases.
Dr. Robert G. Bloch, Chicago, Unsuspected Pulmonary Tuberculosis.

One feature of the program will be a conference on medical problems in Minnesota with the following speakers: Drs. Clifford E. Waller, U. S. Public Health Service, Washington, D. C.; Frederick W. Jackson, Winnipeg, Man.; William A. O'Brien, Minneapolis, and Monsignor Maurice F. Griffin, Cleveland. Many scientific motion pictures will be shown during the session. The first public health exposition ever sponsored by the state association will open in the auditorium basement Wednesday May 31 and close Saturday June 3. The annual award of the Southern Minnesota Medical Association will be presented at the annual banquet at the Hotel Curtis Thursday evening. Twenty round table luncheons have been planned. The Minnesota Radiological Society will hold a dinner May 31 in honor of Dr. William Edward Chamberlain, Philadelphia, who will deliver the Russell D. Carman Memorial Lecture May 30. His subject will be "Low Back Pain." Dr. Bloch will address the Trudeau Society at a dinner meeting May 31 on "Tuberculous Caseation, Excavation and Calcification."

MISSOURI

Conference for Negro Physicians.—Announcement is made that a conference for Negro physicians, to be known as the Medical Institute for Physicians, will be held annually under the joint auspices of the Tuberculosis and Health Society of St. Louis, the Mound City Medical Forum and the St. Louis Health Department. The first session was held at the Homer G. Phillips Hospital, St. Louis, April 19-21, and covered discussions in the new developments in diagnosis, treatment of tuberculosis and syphilis and child and maternal hygiene. One evening session, open to the public, was a symposium on health and disease.

MONTANA

Changes in State Board.—Dr. George F. Turman, Missoula, was named chairman of the state board of health, succeeding Dr. Enoch M. Porter, Great Falls, at the board's semiannual meeting in Helena April 6. Dr. Louis H. Fligman, Helena, was named vice president.

Personal.—Dr. E. Martin Larson, Great Falls, for many years president of the Montana Tuberculosis Association, was reelected for another one year term at the twenty-third annual meeting of the association in Helena April 8.——Dr. Harry A. Crecelius, Plains, has been appointed physician and health officer of Sanders County, according to the *Journal-Lancet*.

NEBRASKA

Physician Honored.—The Seward County Medical Society and the Sixth Councilor District Medical Society held a dinner in Milford in honor of Dr. and Mrs. Charles W. Doty, Beaver Crossing, April 10. According to the state medical journal, Dr. Doty is the oldest member of the district and has practiced in Seward County since his graduation from Rush Medical College in 1888. Dr. Joseph Morrow, Seward, was toastmaster.

Society News.—The Five County Medical Society was addressed in Wayne April 6 by Dr. Wayland K. Hicks, Sioux City, on "Bladder Tumors" and Dr. Arthur L. Miller, Kimball, member of the legislature, discussed medical legislation. ——Dr. Rex L. Murphy, Denver, addressed the Scottsbluff County Medical Society in Scottsbluff April 13 on "Chest Conditions of Special Interest to the Otolaryngologist."——Drs. Charles W. McLaughlin Jr. and John W. Duncan addressed the Omaha-Douglas County Medical Society April 11 on "The Acute Surgical Abdomen in Infancy and Childhood" and "Diagnosis and Treatment of Esophageal Diverticula" respectively.——Drs. Arthur D. Munger and Rufus A. Lyman, adddressed the Lancaster County Medical Society, Lincoln, March 7 on "Rational Use of Intravenous Solutions" and "Trends in Professional Education" respectively.

NEW YORK

Outbreak of Gastro-Enteritis.—According to *Health News*, an outbreak of gastro-enteritis in a village in Chautauqua County in March was attributed to failure of the chlorinator to operate during a period of thaw and high water when the source of supply was particularly susceptible to surface pollution. Sixty persons were known to be affected. The onset of illness was sudden and characterized by nausea, abdominal distress and fluid stools. Fever was noticed in about one fifth of the cases. The illness lasted usually from one to three days. All patients recovered.

New York City

The Janeway Lecture at Mount Sinai.—Max Bergmann, Ph.D., member of the Rockefeller Institute for Medical Research, delivered the Edward Gamaliel Janeway Lecture at Mount Sinai Hospital May 16. His subject was "Some Biological Aspects of Protein Chemistry."

Harlow Brooks Memorial Meeting.—The Washington Square Medical Society held its annual Harlow Brooks medical program April 20. Dr. Louis F. Bishop opened the session with "Reminiscences of Dr. Harlow Brooks" and Dr. Lewellys F. Barker, Baltimore, delivered the memorial lecture on "The Diagnosis and Treatment of Vitamin Deficiencies."

Conferences on Tuberculosis—The modern methods of diagnosis and treatment of tuberculosis is the theme of a series of four evening conferences for physicians which opened at the East Harlem Health Center May 11 to continue through June 1. The physicians of the district are invited to bring their own cases and roentgenograms to the conferences for discussion.

Society News.—The New York Diabetes Association held a clinical meeting April 28; the speakers were Drs. John S. Lockwood, Philadelphia, "Treatment of Streptococcus Infections in Diabetes Mellitus with Sulfanilamide"; Frank L. Meleney, New York, "Treatment of Anaerobic Infections in Diabetes Mellitus with Zinc Peroxide," and Valentine M. Murray Wright, Philadelphia, "Diabetic Surgery."

Dr. Park Leaves Bequest for Research.—A fellowship fund for research in medicine, clinical work and bacteriologic and filtrable virus diseases will be established with the residuary estate of Dr. William H. Park, whose will was filed for probate April 10. Dr. Park died April 6. The fund is to continue in perpetuity and is to be called the William Hallock Park Research Fund. Disbursements will be made by a committee composed of the deans of New York University College of Medicine, Cornell University Medical College and Columbia University College of Physicians and Surgeons, Dr. Camille Kereszturi and Dr. Bela Schick. The value of the estate was not determined.

NORTH CAROLINA

Society News.—Dr. Douglas H. Sprunt, Durham, addressed the New Hanover County Medical Society April 20 on "Increased Resistance to Infections Produced by Certain Endocrine Systems."——Dr. Richard M. Pollitzer, Greenville, S. C., among others, addressed the Thermal Belt Medical Society in Marion April 20 on "Pediatric Case Records."——Dr. Julian Deryl Hart, Durham, addressed the Lenoir County Medical Society, Kinston, April 14 on diseases of the parathyroid glands.

Personal.—The Wayne County Medical Society devoted a meeting April 4 in Goldsboro to honoring three members who have practiced for fifty years or more. They were Drs. William H. Cobb and William J. Crawford, Goldsboro, and William G. Sutton, Seven Springs. Dr. Hubert A. Royster, Raleigh, was the principal speaker, reviewing changes in medicine during the past century.——Dr. Millard B. Bethel, Statesville, has been appointed health officer of Cabarrus County, succeeding Dr. John S. Anderson, who resigned.

Asheville Hospital Given to Duke University.—Dr. Robert S. Carroll, founder, owner and medical director of Highland Hospital for nervous and mental disorders, Asheville, has presented the hospital to Duke University, Durham, to be developed as the therapeutic unit of a new department of psychiatry. If at any time in the future the university decides that operation of the hospital in Asheville is not practicable, the property and equipment may be disposed of, but the proceeds therefrom must be used to advance the specialty of psychiatry at Duke. Dr. Carroll will remain the hospital medical director for five years, during which time a gradual interchange of personnel between the institutions will be effected. Highland Hospital, founded in 1904, has a capacity for sixty-five patients. It has three principal buildings, one of which is now being replaced by a stone structure which will have 100 rooms, according to a newspaper account. It is surrounded by fifty acres of specially developed land and 400 acres of mountain woodland, also used by the institution. Included in the gift is Dr. Carroll's residence, which may be used for a faculty residence and assembly hall. Dr. Carroll took medical degrees from Marion Sims College of Medicine in 1893 and from Rush Medical College, Chicago, in 1897. He is 70 years old.

OHIO

New Building at Jewish Hospital.—The dedication of the new building to house the May Institute for Medical Research of the Jewish Hospital, Cincinnati, will take place May 29. Dr. Moses Salzer will preside. Mr. Leo Lehman will present the building to the hospital on behalf of Mrs. David May, and Mr. Maurice E. Pollak, president, board of trustees, will give the speech of acceptance. Dr. Albert H. Freiberg, president of the medical staff, will speak on "Research and Practice in the Hospital"; Dr. Alfred Friedlander, dean, University of Cincinnati College of Medicine, "Truth and Research," and Dr. Anton J. Carlson, professor of physiology, Division of Biological Sciences, University of Chicago, "Science and the Common Life."

PENNSYLVANIA

District Meeting.—The annual meeting of the Seventh Councilor District Medical Society was held in Williamsport April 14. On the scientific program Dr. Russell S. Boles, Philadelphia, made an address on "A Consideration of Functional and Organic Diseases"; Drs. Lloyd G. Cole, Blossburg, and Louis L. Hobbs Jr., Ridgway, "Tumors of the Thyroid Gland." Dr. Rosco G. Leland, Chicago, director, Bureau of Medical Economics, American Medical Association, spoke at the afternoon session on "Current Problems in Medical Care." Other speakers were Drs. David W. Thomas, Lock Haven, president, and Chauncey L. Palmer, Pittsburgh, chairman of the committee on public health legislation of the Medical Society of the State of Pennsylvania; Alexander H. Stewart, deputy secretary, state department of health, and Mrs. Walter F. Donaldson, Pittsburgh, president of the woman's auxiliary of the state medical society.

Pittsburgh

The Bedford Lecture.—The Hon. Samuel B. Pettengill, former Congressman from Indiana, delivered the annual Bedford Lecture of the Allegheny County Medical Society April 27 on "The Citizen's Interest in the Threatened Socialization of Medicine."

Society News.—At the annual meeting of the Pittsburgh Surgical Society at the Mellon Institute May 26 the speakers were Drs. John Stewart Rodman on "Circulatory Problems of Surgical Importance in the Diagnosis of Abdominal Lesions"; Isidor S. Ravdin, "Some Surgical Problems of the Extrahepatic Bile Passages," and Melvin S. Henderson, Rochester, Minn., "Delayed Union and Nonunion in Fractures."

SOUTH DAKOTA

Personal.—Dr. Burt A. Dyar, Pierre, has been appointed full time secretary of the state interallied professional council, which represents the medical, dental, nursing, hospital and pharmaceutical associations.——The South Dakota Public Health Association has changed its name to the South Dakota Tuberculosis Association.

State Medical Election.—Dr. Oscar J. Mabee, Mitchell, was chosen president-elect of the South Dakota State Medical Association at its annual meeting in Aberdeen April 24-26 and Dr. John C. Shirley, Huron, was installed as president. Dr. Bertrand M. Hart, Onida, was named vice president. The next annual session will be in Watertown. The society decided at the recent meeting to redefine the boundaries of the twelve districts as follows:

District number 1, Aberdeen; McPherson, Marshall, Brown, Edmunds, Faulk and Spink counties.
District number 2, Watertown; Clark, Codington, Hamlin and Duel.
District number 3, Madison; Brookings, Lake, east half of Kingsbury and east half of Miner.
District number 4, Pierre; Ziebach, Armstrong, Potter, Sully, Hyde, Hughes, Lyman, Jones, Stanley, Haakon and Jackson.
District number 5, Huron; Hand, Beadle and west half of Kingsbury.
District number 6, Mitchell; Buffalo, Jerauld, Sanborn, west half of Miner, west half of McCook, Hanson, Davison, Aurora and Brule.
District number 7, Sioux Falls; Minnehaha, Lincoln, and east half of McCook, and Moody.
District number 8, Yankton; Charles Mix, Douglas, Hutchison, Bon Homme, Yankton, Turner, Clay and Union.
District number 9, Black Hills; Harding, Butte, Meade, Lawrence, Pennington, Custer, Fall River, Washington, Shannon, Washabaugh and Bennett.
District number 10, Rosebud; Mellette, Todd, Tripp and Gregory.
District number 11, Northwest; Perkins, Corson, Dewey, Walworth and Campbell.
District number 12, Whetstone Valley; Day, Roberts and Grant.

TENNESSEE

Graduate Course in Internal Medicine.—Vanderbilt University School of Medicine, Nashville, will conduct a graduate course in internal medicine to extend over a period of one year, beginning July 1. Limited to six students, the course will consist of supervised work with patients in the medical outpatient service, including the related specialties; experience in the diagnostic laboratories; assigned reading, seminars and conferences, including pathologic and radiologic conferences and autopsy study; directed study and seminars in the preclinical sciences, particularly physiology and biochemistry. Special investigation of a particular problem in one of the divisions of internal medicine as the basis of a thesis will be required. The course will be open to physicians who have completed an internship, have had an additional year's experience as assistant resident in medicine or its equivalent and are acceptable to the school. Three fellowships are available for this course, providing tuition, board and lodging. Additional information may be obtained from the director of postgraduate instruction, Vanderbilt University School of Medicine, Nashville.

GENERAL

Inspection of Airplanes for Insects.—The U. S. Public Health Service reported in *Public Health Reports* April 7 that 398 aircraft were inspected last year for possible mosquito infestation. Of this number, 187 were harboring dead and live insects of various species. A total of 651 insects were recovered, 166 of them alive. Forty were mosquitoes, but only five were alive. None of the mosquitoes was of a dangerous species. Inspection is carried out on all incoming aircraft from Mexico, South America, the Canal Zone and the West Indies primarily for the purpose of detecting mosquitoes that might carry yellow fever. The airline employees spray the planes to kill insects before landing at any port and on overnight stops the planes are thoroughly sprayed after disembarkation of passengers and crew and the planes are closed for the night. The routine inspections are performed by entomologists of the public health service with a flashlight and a chloroform tube.

Teachers of Sight-Saving Classes.—The National Society for the Prevention of Blindness is cooperating with the following colleges and universities in offering at their summer sessions courses for teachers and supervisors of sight-saving classes:

Western Reserve University, Cleveland, June 19 to July 28.
State Teachers College, Buffalo, N. Y., June 26 to August 4.
State Teachers College, Milwaukee, June 26 to August 4.
University of California at Los Angeles, June 26 to August 4.
Wayne University, Detroit, Mich., June 26 to August 4.

Details may be obtained from the university or college.

Dr. Whipple Wins Kober Medal.—Dr. George H. Whipple, professor of pathology and dean, University of Rochester School of Medicine and Dentistry, Rochester, N. Y., was presented with the George M. Kober Medal at the annual meeting of the Association of American Physicians at its meeting in Atlantic City, May 3. Dr. Whipple is noted for research on metabolism, blood regeneration and treatment of secondary anemias. With Drs. George R. Minot and William P. Murphy, Boston, Dr. Whipple several years ago shared the Nobel Prize in medicine for research on pernicious anemia. The Kober Medal is an outstanding award, endowed by the late Dr. George M. Kober, Washington, D. C.

Special Society Elections.—Dr. Herbert B. Wilcox, New York, was elected president of the American Pediatric Society at its recent annual meeting. Dr. Hugh McCulloch, St. Louis, was reelected secretary.——At the annual meeting of the American Physiological Society in Toronto April 28 Dr. Andrew C. Ivy, Chicago, was elected president, and Philip Bard, Ph.D., Baltimore, reelected secretary.——Dr. Ernest W. Goodpasture, Nashville, Tenn., was chosen president of the American Society for Experimental Pathology at its annual meeting in Toronto April 28; Dr. Shields Warren, Boston, vice president, and Dr. Paul R. Cannon, Chicago, secretary. ——At the annual meeting of the American Society for Pharmacology and Experimental Therapeutics in Toronto April 27 Dr. Oscar H. Plant, Iowa City, was designated president. Dr. Gustave Philip Grabfield, Boston, was reelected secretary. Dr. Plant was also elected president of the Federation of American Societies for Experimental Biology and Dr. Donald R. Hooker, Baltimore, reelected secretary.——Dr. Isaac Starr, Philadelphia, was chosen president of the American Society for Clinical Investigation at its annual meeting in Atlantic City May 1 and Dr. Eugene M. Landis, Philadelphia, secretary.

Registration Under Harrison Narcotic Act and the Marihuana Tax Act.—On or before July 1, every physician registered under the Harrison Narcotic Act or under the Marihuana Tax Act, or under both, must reregister with the collector of internal revenue of each district in which he maintains an office or a place for the treatment of patients. Failure to reregister within the time allowed by law adds a penalty of 25 per cent to the annual tax payable at the time of registration and in addition makes the physician in default liable to a fine not exceeding $2,000, or to imprisonment for not exceeding five years, or to both. The Commissioner of Internal Revenue has been lenient in the past in enforcing the criminal penalties for tardy registration but continued disregard on the part of some physicians of the requirement with respect to reregistration will inevitably lead to criminal prosecutions. In recent years the commissioner has given some negligent or recalcitrant physicians the choice between paying substantial sums by way of compromise in lieu of the penalties for their offenses or, as an alternative, accepting criminal prosecution with resultant publicity and liability to fines and possible imprisonment. This was an act of grace on the part of the commissioner; he might have instituted criminal prosecutions without allowing the offending physicians any choice in the matter. If the course that the commissioner has adopted does not produce the desired promptness in registration, he will have no recourse other than criminal prosecution.

Gastro-Enterologic Meeting.—The fourth annual convention of the National Gastroenterological Association will be held at Squibb Hall, New York, June 1-2, under the presidency of Dr. Anthony Bassler, New York. The speakers will include:

Drs. John Stewart Rodman and William G. Leaman Jr., Philadelphia, Role of Circulatory Disorders in the Diagnosis of Lesions of the Gastrointestinal Tract.
Dr. James J. Hepburn, Boston, A Consideration of the General Problem of Gastric and Duodenal Ulcer.
Dr. Hubley R. Owen, Philadelphia, Causes of Poor Results in the Operative Treatment for Duodenal Ulcer.
Dr. Samuel A. Loewenberg, Philadelphia, The Anemias versus Gastrointestinal Disease.
Drs. Isidor S. Ravdin and Jonathan E. Rhoads, Philadelphia, The Control of Hemorrhage in the Jaundiced Patient.
Drs. Max Einhorn and Otto C. Pickhardt, New York, Report of a Case of Segmental Jejuno-Ileitis.
Dr. Charles L. Brown, Philadelphia, Disorders of Calcium Metabolism in Diseases of the Gastrointestinal Tract.
Dr. Frank W. Konzelmann, Philadelphia, An Evaluation of Liver Function Tests.
Dr. George W. Papen, Boston, Conservatism in Surgery of the Pancreas.
Drs. John F. McCloskey and James A. Lehman, Philadelphia, The Surgical Management of Acute Cholecystitis.
Dr. Bernard Fantus, Chicago, The Therapy of Colon Stasis.
Dr. Ellis B. Freilich, Chicago, Gastrointestinal Tuberculosis.
William Walter Cort, Ph.D., and Gilbert Fred Otto, Sc.D., Baltimore, Immunity in Hookworm Disease.
Dr. Myer Solis-Cohen, Philadelphia, Gastrointestinal Disturbances Due to Bacterial Toxemia from Focal Infection.
Dr. Cyrus W. Strickler, Atlanta, Ga., Congenital Bands and Adherences—Symptomatology and Treatment.
Dr. Moses Behrend, Philadelphia, Primary and Recurrent Obstruction of the Common Duct.
Drs. Isaac R. Jankelson, Boston, and Samuel Morein, Providence, R. I., Complications of Diaphragmatic Hernia.
Dr. George G. Miller, Montreal, Canada, Demonstration of Gastric Resection (motion picture).
Dr. Bela Halpert, New Orleans, Gallbladder Disease and Gallstones (by title).

On Wednesday May 31 the first of a series of annual lectures will be delivered at a reception in the Professional Building, New York World's Fair, by Dr. Max Einhorn, New York, on "The Behavior of the Physician Toward His Patient and His Profession."

Association for Advancement of Science.—The American Association for the Advancement of Science will meet in Milwaukee, June 19-24. The program for the Section on Medical Sciences (N) at Marquette University School of Medicine will include thirty-three papers, constituting a symposium on the gonococcus and gonococcic infections sponsored by the American Neisserian Medical Society and Section N. Among the speakers will be:

Dr. Elston L. Belknap and Margaret C. Perry, Milwaukee, Correlation of Clinical Findings with Results from Over 800 Quantitative Lead Examinations of Urine.
Dr. Armand J. Quick, Milwaukee, The Prothrombin Concentration in the Blood of Newborn.
Dr. Michael [illegible], Biological Preparations for the Treatment [illegible]
Dr. Wesley [illegible] hogenesis of Gonococcic Infection.
Drs. Oscar F. Cox Jr. and William A. Hinton, Boston, Evaluation of Smear and Cultural Methods for Detecting the Gonococcus in Males Treated w[illegible]
Dr. Sara E. [illegible], D. C., Gonococcic Meningitis.
Dr. Ralph R. [illegible] E. Shinn, Ph.D., Pittsburgh, Pa., The Mode of Action of Sulfanilamide with Special Reference to Its Anticatalase Property.
Dr. Russell D. Herrold, Chicago, Comparative Efficacy of Sulfanilamide and Sulfapyridine in the Treatment of Gonococcic Infection.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 29, 1939.

Antitoxins Prepared for War Use

At the request of the government the Medical Research Council has made arrangements to provide antitoxins in a quantity sufficient to insure their continued supply in the event of war.

TETANUS ANTITOXIN

Tetanus antitoxin has been provided for both prophylactic and therapeutic use. The prophylactic dose is 3,000 international units (1,500 American units) and is contained in a volume not exceeding 3 cc. During the early part of the great war 500 American units was administered as a routine and produced a striking effect in reducing the incidence of tetanus. During the later stages of the war attempts were made to reduce further the low incidence of tetanus by repeating the dose or increasing it. Since the war the tendency has been to administer 1,000 and, more recently, 1,500 American units. It has been decided that if the prophylactic use of tetanus antitoxin is again required, the dose shall be at this higher level of 1,500 American units. For the treatment of tetanus, ampules of antitoxin containing not less than 10,000 American units in a volume not exceeding 8 cc. have been prepared.

GAS GANGRENE ANTITOXIN

While it is generally recognized that early and adequate surgical treatment is the most important measure in the treatment of gas gangrene, opinion is divided as to the value of antitoxin in the prophylaxis and treatment. It is generally regarded as an accessory to surgical treatment. There are difficulties in the production of antitoxin arising from uncertainty as to the spore-bearing anaerobes concerned and doubt as to whether the predominating organism is the same in urban as in rural districts and whether the antitoxin should be given to all casualties or restricted to those which war experience has shown are likely to have gangrene. Moreover, little is known as to the proper dose. In civil life the infection is more often due to the Welch bacillus than to other anaerobes, such as vibrion septique and Clostridium oedematiens.

Stocks of Welch bacillus, vibrion septique and Clostridium oedematiens antitoxins have been acquired which are considered to be adequate for the needs of both the defense services and the civil population, for both prophylaxis and treatment. Modern preparations of gas gangrene antitoxin are of greater potency than those used in the great war. The arrangements made allow for administration of the antitoxins separately or combined, and the injection can be combined with tetanus antitoxin. The provisional doses (which may be modified in the light of experience or to meet special circumstances) are 3,000 units of Welch bacillus, 1,500 of vibrion septique and 1,000 of Clostridium oedematiens antitoxin, respectively, as a combined injection for prophylaxis. For treatment the dose is two and one-half times as great.

The Epidemiology of Jaundice

At the Royal Society of Medicine Dr. E. R. Cullinan, opening a discussion on the epidemiology of jaundice, said that two forms of infective jaundice, Weil's disease and common infective jaundice, were seen in this country. The former, defined by Weil in 1886, was still relatively uncommon, less than 200 cases having been reported in Great Britain. The disease in human beings could almost always be traced to rats, the organism entering through cuts and sodden skin or perhaps through the conjunctiva and upper respiratory tract. Early diagnosis was essential, as antiserum was valuable in the first stage. There were mild infections without jaundice characterized by fever and malaise, and the disease should be suspected if the patient's occupation brought him into contact with rats.

Common infective, or catarrhal, jaundice was widespread; apparently catarrhal types were seen. Its cause was unknown. In the last twelve years 1,707 outbreaks, widely scattered, were reported in this country. Infectivity was low and incubation long. Children from 6 to 10 years old were peculiarly susceptible. There were often a prodromal period of lassitude and malaise and a sharp febrile onset without rigor. Early headache, anorexia, nausea and abdominal pain were common, and vomiting was often severe. Jaundice appeared at any time up to twelve days after the onset, first in the conjunctiva and then in the face and neck. It usually heralded the beginning of convalescence, but in cases of severe involvement might last three weeks or longer. In adults the liver might be 3 finger-breadths below the ribs. If histamine was injected and a piece of glass pressed on the resulting wheal, 1 van den Bergh unit (or more) of bilirubin in the blood would be revealed by a yellow color in the center. The eye could not detect less than 4 units. The stools were usually clay colored at some time but often contained bile during the jaundice.

The disease spread from person to person and not by water, milk or food. The family and dormitory spread suggested droplet infection. Infectivity was high only when contact was close. The period of incubation was difficult to assess but approximated from twenty-one to thirty-five days. Patients were infectious before they were jaundiced, but the period of infectiousness was short. The pathologic process was probably necrosis of liver cells, but fatal cases were rare. In Sweden epidemic jaundice seemed to have taken the form of acute necrosis of the liver. Subacute necrosis, unassociated with any drug or toxin, was by no means unknown in England. The bile epithelium was seldom destroyed, and there was no evidence of obstruction or inflammation of the bile ducts. The similarity to common infective jaundice suggested a common cause.

PARIS

(From a Special Correspondent)

April 22, 1939.

A Gas Mask for Infants

Dr. Le Mée and his collaborators have produced a device which permits the protection of young infants against war gas. The child is placed in the ordinary inspirator with a person provided with an isolating or filtering mask. A trough of zinc lined with cork receives the child, whose head is covered by a metallic arch. This is enclosed in a sac of impermeable fabric which has a window, through which the child can be watched. Of two connections, one receives the filtering cartridge of the mask and the other the tube of the mask. The aspirating movement of the wearer of the mask causes a current of air which passes through the sac enclosing the child; the expiration expels the vitiated air through the valve of the mask. If necessary the apparatus can be connected with a small oxygen tank, which enriches the air of the common atmosphere of the two persons utilizing the single mask. If, instead of the filtering mask, the isolating mask, with regeneration of air, is used, the same couplings can be arranged so as to connect the sac containing the child in the common circuit. The invention of Dr. Le Mée seems to have solved in a simple manner the difficult problem of safeguarding young infants against war gases.

Postage Stamps to Aid Venereal Disease Campaign

The board of administrators of the national post office department put on sale this year, as it did last year, a stamp to obtain money for the League of Public Morals and for the prevention of venereal diseases. The stamp portrays a woman, who stands for the republic, with an infant, who stands for the race, in her

arms and contains the inscription "Saving the Race." The value of each stamp is 90 centimes (9 cents), which is the postage of any letter in the country and the colonies plus a tax of 30 centimes (3 cents) for the league. One million stamps were sold last year.

National Congress of Tuberculosis

The work of the National Congress of Tuberculosis held at Lille April 11-13 was divided according to the subjects biology, clinical medicine, social medicine and miscellaneous matters. The biologic section was devoted to the study of the role and distinctive characteristics of tuberculous infection due to the bovine bacillus and the avian bacillus. In 11.2 per cent of 100 cases of human tuberculosis the infection was found to be of bovine origin. The highest percentage of tuberculosis of this origin was found in Scotland. It is rare in France, where milk is boiled as a rule. The clinical section was devoted to the purulent exudates of therapeutic pneumothorax and their treatment. Three categories were examined: (1) The puriform effusions, through aging, to which belong the cold pleural abscess and the bacteriologically infected effusions, (2) malignant pyothorax and (3) the septic pleurisies. Complications can be avoided by performing the pneumothorax as early as possible and by intrapleural chrysotherapy. For treatment, to the evacuation followed by lavages with iodized solutions, the use of vaccines, anatoxin and, above all, sulfamide compounds should be added. In case medical treatment fails, surgical treatment should be applied. Simple pleurotomy, proposed by Robert Monod, was debated. On the whole the debates were rich in ideas and documentation but were somewhat confused. This circumstance seemed to indicate room for further study of the question of empyemas. The work in social medicine was devoted to antituberculous prophylaxis through systematic community surveys.

Prevention of Malaria

Professor Marchoux, in a lecture at the Académie de médecine, discussed the prevention of malaria in Tunisia, where the disease is a menace. He considered only the disease itself and the treatment of patients and not the campaign against the anopheles, which was carried out at the same time by classic methods. He had studied particularly the "return" from the medicaments employed, that is the relation between the expense and the results obtained.

For five years, under controlled conditions, synthetic antimalaria drugs, for example "prémaline" (atabrine 0.1 Gm., quinoline 0.005 Gm. and plasmochin 0.005 Gm.), were administered twice a month to a yearly average of 27,000 patients of both sexes and of all ages. The results, calculated by means of antimalaria indexes, i. e. the number of parasites in the blood and the size of the spleen, were satisfactory. From 1936 to 1938 the index of plasmodia diminished from 4.3 to 0.1 per cent. The splenic index in children diminished from 67.0 in May and 33.4 in October 1936 to 9.9 and 1.3 for the same months in 1938. No phenomena of intolerance were observed. This part of the antimalaria campaign cost from 13 to 15 francs ($1.30 to $1.50) per patient, and it was concluded that the region, formerly much contaminated, was now one of the most healthful of countries. But, as with all methods based on therapeutics, this form of treatment does not render unnecessary those measures which are designed to destroy the anopheles and drain the land.

Neurosurgery

Prof. Clovis Vincent, appointed to the chair of neurosurgery which was recently established at the Faculty of Medicine of Paris, in his inaugural speech discussed the development of neurosurgery. He deplored the fate of patients of sixty years ago who suffered from tumors of the brain or spinal cord, as death without relief awaited them. The same fate was in store for patients suffering from facial neuralgia. The field of neurosurgery is not yet entirely satisfactory. Constant collaboration between physicians and neurosurgeons is important. The speaker called attention to the work of Macewen, who in 1879 performed the first operation in a case of tumor of the frontal lobe. But the founder of the science was Cushing, who devoted his life to the development of neurosurgery.

Experimental Adenomas of the Prostate

Prostatic adenomas have been said to be due to hormonal disequilibrium caused by testicular deficiency or by a disturbance of balance between the male and female hormones. Senility exhausts the first, and the second, the estrogenic hormones, thereafter without counterpart, provoke hypertrophy of the prostate.

Petit, Gley and Béraut investigated the effect of injections continued for from twelve to fifteen days of estrogen. These investigations, made on twelve dogs from 2 to 2½ months of age, as well as on controls, demonstrated an intensification of the activity of the urethral epithelium, on which the prostate depends embryologically, with intense budding and adenomatous formation in this small gland, which ordinarily doubles in volume. This augmentation was ascribable especially to the interstitial framework, but its significance remained distinctly adenomatous. The process was rapid but not lasting; it completely regressed as soon as the injections were omitted. The utricle did not seem to have been modified.

Excellent photomicrographs illustrate this work, which was presented at the Société médicale des hôpitaux of Paris. They show that the prostate accelerates its development until occasionally it acquires its characteristic structure and this development becomes in a way comparable to that of the adenoma. The authors point out that one cannot expect to produce in fifteen days a true prostatic adenoma but that it is important to have verified the isolated action of estrogen on an essentially male organ.

BERLIN

(From Our Regular Correspondent)

April 3, 1939.

More Changes Affecting Medical Practice

Among the interesting changes affecting medical practice which have been reported recently are the measures taken to "secure the economic existence of physicians representing workingmen's associations." According to explanations by Reichs-Aerzteführer Dr. Wagner (deceased), when these measures were promulgated, the workingmen's group physician has duties that are not governed by definite hours of work. He can perform these strenuous duties only if he keeps himself physically fit and efficient. Everywhere in Germany the principle is in effect that every one at work receives a leave of absence for which he continues to be paid. Every physician should likewise be obliged to relax completely at least once a year and take leave of absence. Many physicians in the past had to forego a leave of absence because they could not afford either the loss of income or the expense of a substitute during their absence. Wagner said "Since Jews have been eliminated from the medical profession and consequently from participation as representatives of workingmen's associations, Germany's national organization of workingmen's group physicians can now devise new ways of distributing medical fees." Also during illness the necessity of making both ends meet caused many physicians in the past grave cares. In different parts of the country different ways have been tried in the past to solve this difficulty. These attempts, however, were not satisfactory. New decisions provide compensation for physicians connected with workingmen's associations for loss of time and income, and a minimum income for workingmen's group physicians.

Compensation will be paid if the physician interrupts his practice on account of leave of absence, illness, military service

or participation in postgraduate work. The maximum number of days for which a fee will be allowed for leave of absence within a year is twenty-eight. The daily fee paid to the single physician is 12 marks and to the married physician 15 marks plus 1 mark for every child under the age of 21 years supported by the father. Compensation is allowed for sickness if the physician has not been able to practice his profession for more than twelve consecutive days. A medical certificate of another physician is necessary. Examination by an expert can also be required before compensation for sickness is paid, the expense being assumed by the society of workingmen's group organizations. The sick physician must certify that he did not practice even occasionally during the time for which he asks compensation. Compensation for sickness is granted within the same calendar year for as many as eight weeks at the same maximum level as compensation for leave of absence. In case of military duties that prevent the physician from practicing his profession for more than seven days, the single man is paid 7 marks daily and the married man 10 marks, besides 1 mark for every child. Twenty-eight days is the limit. Compensation is also paid for participating in obligatory postgraduate work. These special fees, exclusive of those for postgraduate studies, are paid only to physicians whose income from group practice among workingmen has averaged 500 marks during the last four years.

Physicians admitted to practice in connection with workingmen's groups are guaranteed a minimum income of 1,000 marks quarterly in the form of an increase of group fees if their income is less than that. In these calculations the physician's entire income is computed, that derived from the different policyholders, including the income from benefit bureaus. All other income of the group physician and his wife is also figured, irrespective of its source. However, 500 marks of this income is not included in the computation. This increase of fees is granted only on special request. These regulations concern especially physicians who, on account of increasing age, cannot engage in group practice to the same extent as their younger colleagues. They also concern physicians who for other reasons have a small practice but who are obliged to hold themselves ready to serve and to make available the necessary arrangements for medical practice like other group physicians under more favorable economic conditions.

Another institution belongs in the same picture—the family adjustment fund. It was established in 1934, when the distribution of the entire compensation for group practice was transferred to the association of group physicians. This fund concerns itself with the payment of increases for physicians' children under the age of 21 years the amount of 50 marks a month beginning with the third child. At the same time, an adjustment fund for areas of economic distress was created. Out of this fund the fees of group physicians who practice in regions of great economic need without being able to assure their own economic subsistence from their medical income are increased to 6,000 marks annually.

These new measures are of a nature to influence greatly in the long run the economic life of the medical profession, since later on the question must be considered to what extent the private practice of physicians is to be taken into account in view of the principles set forth. The changes now affect only about 37,000 group physicians of the old reich; for their extension to Austria and the Sudetenland the necessary organization has not yet been effected. Perhaps they will serve beyond their present scope as patterns for other professions. The urgent need for the two adjustment funds mentioned is shown by the official report of the conditions of the rural sick fund. The increases referred to were obviously restricted to localities in which a physician could not maintain himself because of the small population. By means of the increases it was made possible not only to fill a large number of medical positions which otherwise would have remained vacant but also to preserve them. For example, in 1938 nine physicians in Baden, thirty-six in Bavaria, six in Mecklenburg, twenty-six in Lower Saxony, eighteen in East Prussia and twenty-three in the Rhineland received extra allowances of this kind. Since its inception, this adjustment fund has paid out more than 1 million marks to rural physicians in sparsely settled regions. At present more than 300,000 marks is annually paid for this purpose. Only in this way was it possible to prevent physicians from moving away from the country and permanently to improve the medical service of rural areas. These measures must also be based in the future on the assumption that the benefits of this fund are limited to those who are unable to bear the medical costs themselves. Efforts to include the whole rural population in this sick insurance are not officially approved.

What Dr. Wagner himself said about the ideals of the family physician is of interest. The ideal conception of the family physician is perhaps set by the family physician of former days, who was well informed not only in the methods of medicine taught at school but in the natural art of healing and who was likewise the leader, counselor and friend when the patient did not need his medical services. It is the duty of such a physician not only to cure his patient physically but to guide him mentally according to the principles of Nazi "weltanschauung." (Formerly it was unheard of for the physician to be active politically with his patients.) The patient is to remain free to choose his physician, but the aim is that every one register for the period of a year with a definite physician. The physician would be interested no longer in an individual achievement but in having as few sick patients as possible in families thus registered. He would be paid no longer for treating the sick but for keeping them well. The healthiest and happiest nation is not the one that has the finest and largest hospitals and similar institutions, but the one that needs the fewest hospitals because the physician takes prompt measures to prevent sickness. The new type of family physician is therefore essentially different from his predecessor. Not only the family by itself but the social environment must be known in order to understand the disease and the necessary healing methods. With these questions the good old family physician surely had nothing to do.

Besides, the demands made in Germany today by the economic conscription of manpower and by a political science with a socialistic ideology have set the physician new tasks. If, as is now the case, every worker is actually employed, it is doubly difficult for the physician to strike a proper balance between the necessary recreation of the worker and the urgency with which the work needs to be done. At the same time, the efficiency of the worker is to be heightened in accordance with an expressly promulgated objective of medical leadership and consolidated labor and preserved to a higher age level. Inspection of managements, the inclusion of the physician in vocational guidance, medical welfare in Nazi organizations, inspections of villages, all the preventive measures and the health pedigrees that have been partly planned and partly put in force all show the numerous and extraordinarily intensive demands made today by the state on the practice of the German physician. He receives more than ever before stimulation and general directions from headquarters. To his enlarged duties have been added enlarged rights and claims, such as leave of absence and compensation for sickness, rights which are administered by his own professional organization. These are clear signs that the medical profession is being made secure in public law.

That the measures which prohibited Jewish physicians with few exceptions from continuing practice after Oct. 1, 1938, would lead to a shortage of physicians could be foreseen. Emergency steps were taken. Official statements to the contrary, there is a shortage of physicians, for example in Berlin, where on Oct. 1, 1938, about 1,600 Jewish physicians were notified to cease practicing. The remaining Jews, in spite of their best intentions, are unable to give the great number of group patients the proper

attention. On the other hand, the fees charged private patients have been increased. There are said to be physicians who demand two and three times the fee formerly charged. In view of this serious situation, one hears occasionally the prophecy that the authorities will have no other choice than to recall the Jewish physicians. This seems improbable, if for no other reason than because the proponents of radical anti-Semitic measures are still powerful.

The few Jewish physicians who have been permitted to practice among Jewish patients may no longer call themselves physicians. A specialist in surgery, for example, must now designate himself as "Jewish specialist for surgery" (Jüdischer Fachbehandler für Chirurgie); in addition he must affix on each letterhead and prescription the stamp "Eligible to treat only Jews."

Another news item concerns hospital nuns. In one of the largest hospitals in Vienna notice was given to all such nuns, some of whom had been active for a few years and others for decades. Their places will be taken in the near future by members of the Nazi girls' clubs. As many girls as possible are speedily to learn nursing.

BELGIUM

(From Our Regular Correspondent)

April 12, 1939.

Medical Inspection and Health Passbooks

The regulations of mutual life insurance companies and the control of the health of adolescents require that an individual health passbook be kept by every one affected as well as by school children subject to medical school inspection. To unify these different functions, a royal decree has been signed authorizing a complete reorganization of the regulations. The school principal, the teacher and the nurse are to see to it that every one on entering is provided with a health passbook, which will be issued by the minister of the interior and public health and must be used by the person all his life. It may be set up, if the parents desire it, by a physician of their choice and at their expense. It is the property of the one whose name is inscribed and must be preserved by his family. The medical inspectors have a file which they keep and in which they note, besides the notations of the passbook, the instructions which they deem useful. For the records of the minister of the interior and public health they fill out blanks furnished by this department, and these remain confidential. Primary school inspectors and the teaching staff will be furnished by the medical inspector with the needful directions. This inspector will also furnish the pupil with useful instructions compatible with medical information of a confidential nature. Enough copies of the health passbook are furnished school principals by the minister of the interior and public health, on request and at the expense of community bureaus.

Insulin for the Treatment of Schizophrenia

H. Baonville, J. Ley, A. Titeca and J. Titeca made known before the Société de médecine mentale de Belgique the results of a year's insulin treatment of schizophrenic patients at the Neuropsychiatric Center of Brussels. The publication has aroused great medical interest because the results appear encouraging, and the experiment deserves to be continued. This study deals with fifty-four cases of schizophrenia in the hebephrenic, catatonic and paranoid forms treated daily for a period of three months from June 1937 to June 1938 by the insulin shock method, with the regular induction of a profound hypoglycemic coma. The cases in which the clinical picture showed cyclothymia or might be interpreted as a period of delirium secondary to mental degeneration or debility were rigorously excluded. The authors checked their diagnosis by a comparison with the proportion of patients with a diagnosis of schizophrenia, of whom annually a total of 400 are admitted to the clinic and have been treated there for at least two months during the preceding years.

The fifty-four cases are divided into three groups: (1) those in which the disease represented an evolution of less than one year (twenty-two cases), (2) those in which the disease indicated an evolution of from one to two years (fifteen cases) and (3) those representing more than two years (seventeen cases). The favorable results include complete clinical cure as well as improvement sufficient to permit the patient to return to normal life. The failures comprise slight or no improvement. There were seventeen favorable results and five failures in the first group, six favorable results and nine failures in the second and two favorable results and fifteen failures in the third. The best results were obtained in cases of paranoidism and hallucinations.

Lead Poisoning

In the session on studies of occupational diseases organized by the Union of French Metallurgic and Mining Industries, Dr. M. A. Langelez discussed the question of chronic poisoning in Belgium. Of 511 cases of occupational diseases observed in the last ten years, 369 were of lead poisoning. This condition, the author states, has undergone considerable modification for some years, both in its symptoms and in its evolution, because of our exact knowledge of the first indications, such as lead in the blood and urine, stippling in the erythrocytes, changes in the leukocytes, the lead line in the gums and nervous troubles. One can now avoid the serious consequences, particularly paralysis and encephalopathic disorders. Under certain circumstances, when ordinary means of prevention are clearly insufficient, utilization of the dangerous products must be prohibited. In Belgium, notably lead-containing enamels caused chronic lead poisoning.

Flemish Academy of Medicine

The *Belgian Monitor* has published a royal decree relative to the organization of a Flemish Academy of Medicine. Its purpose is, first of all, to answer, in cooperation with the Royal Academy of Belgium, questions submitted by the government and then to keep abreast with all the studies and researches that might contribute to the progress of medicine. The academy will consist of forty active members. The first fifteen will be chosen by the king and, in turn, elect the remaining. Also the academy will have the power to nominate honorary and corresponding members.

Marriages

FRANCIS CLIFFORD NESBIT, Atlanta, Ga., to Miss Anne Geraldine Nolan of Oklahoma City, in Decatur, Ga., April 12.

DOROTHY H. CHENEY, Newburyport, Mass., to Mr. Daniel Randolph Appleton of Kingston, February 25.

MAURICE EMANUEL SCHEETZ, La Fayette, Ohio, to Miss Alma Jones of Des Moines, Iowa, April 20.

JAMES CLARENCE GRIFFIN, Tampa, Fla., to Miss Mary Quinn Doke of Memphis, Tenn., April 24.

JAMES PAUL PROUDFIT, Washington, Pa., to Miss Jane Marie Sybert of Portage, April 15.

JAMES B. WALLER, Decatur, Ill., to Miss Esther Behnke of Whittemore, Iowa, in April.

FREDERICK CHRISTOPHER to Miss Dorothy Watt, both of Evanston, Ill., May 19.

SILVIO ERRICO to Miss Marguerite E. De Greve, both of Moline, Ill., May 4.

ANGELO LAPI, Canton, Ohio, to DR. K. RUTH MERRELL of Massillon, April 18.

HAROLD G. NIX to Miss Jean Gilmer, both of Tampa, Fla., April 15.

Deaths

Harry Elmer Peterman ⊕ Baltimore; Baltimore Medical College, 1895; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; ophthalmic and aural surgeon to the South Baltimore General Hospital; visiting ophthalmic and aural surgeon to the Maryland General Hospital; consulting ophthalmologist and otologist to the Frederick City (Okla.) Hospital; aged 67; died, February 25, of heart disease.

Cyrus Long Pershing, Denver; Columbia University College of Physicians and Surgeons, New York, 1908; associate member of the Colorado State Medical Society; formerly assistant professor of neurology at the University of Colorado School of Medicine; formerly superintendent of the State Home and Training School for Mental Defectives, Ridge, Colo.; served during the World War; aged 70; died, February 8, in the Fitzsimons General Hospital of coronary sclerosis.

Charles Fitzgerald, New Haven, Conn.; University of Vermont College of Medicine, Burlington, 1898; member of the Connecticut State Medical Society; veteran of the Spanish-American War; aged 62; on the staff of the Hospital of St. Raphael, where he died, February 9, of cerebral thrombosis, bronchopneumonia and hypostatic pneumonia.

James Robert Bolton, Beacon, N. Y.; University of the City of New York Medical Department, 1886; member of the Medical Society of the State of New York; on the staff of the Highland Hospital, Beacon, and on the advisory staff of the Vassar Brothers Hospital; aged 79; died, February 24, of valvular disease of the heart.

William Henry Hunsberger, Pennsburg, Pa.; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; on the staffs of the Sacred Heart Hospital, Allentown, and the Jefferson Hospital, Philadelphia; aged 69; died, February 21, of coronary thrombosis and chronic myocarditis.

George Campbell Mizell ⊕ Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1901; at one time associate professor of physiology and gastrointestinal diseases at his alma mater; on the staff of St. Joseph Infirmary; aged 62; died, February 4, of acute cardiac decompensation, arteriosclerosis and chronic interstitial nephritis.

George H. Humphreys, Brockway, Pa.; College of Physicians and Surgeons, Baltimore, 1896; member of the Medical Society of the State of Pennsylvania; for many years president of the school board, and county coroner; aged 74; died, February 10, in the Elk County General Hospital, Ridgway, of carcinoma of the liver.

Frederick Dorr Carr ⊕ Batavia, N. Y.; University of Vermont College of Medicine, Burlington, 1908; for many years city bacteriologist and member of the board of health; medical director of the Genesee County Laboratory; aged 56; on the staff of the Batavia Hospital, where he died, February 12, of coronary embolism.

Thomas Woodburn Paton, Ypsilanti, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; member of the Michigan State Medical Society; on the staff of the Beyer Memorial Hospital; aged 67; died, February 10, in the University Hospital, Ann Arbor, of pneumonia and heart disease.

Edward Samuel Amsler ⊕ Rochester, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1906; aged 57; on the staffs of the Park Avenue Hospital and the Rochester General Hospital, where he died, February 5, of gangrene of the legs, coronary thrombosis and embolus in the abdominal aorta.

Abraham Louis Metz, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1893; professor emeritus of chemistry and toxicology at his alma mater; formerly city and state chemist; aged 75; died, February 10, in a hospital at Tucson, Ariz., of cardiac disease and bronchopneumonia.

Monroe Abraham Meyer ⊕ New York; Cornell University Medical College, New York, 1916; member of the American Psychoanalytic Association, American Psychiatric Association and the American Psychopathological Association; aged 46; was found dead, February 27, of self-inflicted stab wounds.

Asa Lee Pattee, Falmouth, Mass.; Eclectic Medical Institute, Cincinnati, 1895; formerly member of the board of health and state legislature; on the staff of the Barnstable County Sanatorium, Pocasset; aged 69; died, February 25, in St. Anthony's Hospital, St. Petersburg, Fla., of hypertensive heart disease.

Edwin C. M. Hall, New Haven, Conn.; New York Homeopathic Medical College, New York, 1883; at one time secretary of the Connecticut Homeopathic Medical Examining Board; on the staff of the Grace Hospital; aged 80; died, February 4, of myocarditis, endocarditis, nephritis and prostatitis.

Frederick Eft, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1892; member of the Medical Society of the State of Pennsylvania; formerly on the staffs of the Pennsylvania Hospital and St. Vincent's Hospital; aged 75; died, February 7, of cerebral hemorrhage.

Charles Edward Allison ⊕ Williamsport, Pa.; Jefferson Medical College of Philadelphia, 1899; past president of the Northumberland County Medical Society; served during the World War; president of the bank of Elysburg; aged 67; died, February 19, of carcinomatosis.

Ludwig Francis Lubeley, Denver; John A. Creighton Medical College, Omaha, 1910; member of the Colorado State Medical Society; aged 54; died, February 23, in St. Joseph's Hospital of gas gangrene of the right arm and shoulder, influenza and acute enterocolitis.

Clyde C. Phillips, Charlotte, N. C.; North Carolina Medical College, Charlotte, 1912; member of the American Roentgen Ray Society and the Radiological Society of North America; aged 48; was killed, February 11, when his shotgun was accidentally discharged.

Jean Sears Millard ⊕ Akron, Ohio; Harvard University Medical School, Boston, 1910; on the staff of the People's Hospital; medical director of the Goodyear Tire and Rubber Company; aged 62; died, February 24, in Phoenix, Ariz., of cerebral hemorrhage.

Charles Aloysius Coll ⊕ Philadelphia; Medico-Chirurgical College of Philadelphia, 1908; veteran of the Spanish-American and World wars; aged 63; died, February 23, in the United States Naval Hospital, of bronchopneumonia, heart disease and chronic cholecystitis.

Anne Walter Fearn, Shanghai, China; Woman's Medical College of Pennsylvania, Philadelphia, 1893; established a sanatorium bearing her name; author of "My Days of Strength"; aged 68; died, April 28, in Berkeley, Calif., of heart disease.

Marcus Beekman ⊕ Natchez, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1911; member of the Radiological Society of North America; on the staff of the Natchez Sanatorium; aged 54; died, April 23, of coronary disease.

George Christopher Gilfillen ⊕ Dayton, Ohio; Medical Department of the University of Cincinnati, 1912; fellow of the American College of Surgeons; on the staff of the Miami Valley Hospital; aged 50; died, February 22, of coronary occlusion.

Max Allan Dorland, Redondo Beach, Calif.; St. Louis College of Physicians and Surgeons, 1906; member of the elementary school board; on the staff of the Jared Sidney Torrance Memorial Hospital, Torrance; aged 58; died, February 18.

Samuel H. Hillin, Houston, Texas; Memphis (Tenn.) Hospital Medical College, 1890; aged 75; died, February 1, at the Memorial Hospital of pneumonia following a fracture of the hip.

John Bruce James, Richmond, Va.; Medical College of Virginia, Richmond, 1931; aged 33; died, February 6, in the Sheppard and Enoch Pratt Hospital, Towson, Md., of pneumonia.

Annie M. Mennie, Chicago; Illinois Medical College, Chicago, 1901; aged 72; died, February 11, in the Washington Boulevard Hospital, of carcinomatosis.

CORRECTION

Dr. Orcutt Not Dead.—The report of the death of Dr. Arthur Henry Orcutt of Oakland, Calif., in THE JOURNAL, May 6, 1939, page 1849, based on a newspaper clipping, was erroneous.

Correspondence

SULFANILAMIDE IN ACTINOMYCOSIS

To the Editor:—I should like to add corroboration to the results of Miller and Fell with sulfanilamide in actinomycosis (THE JOURNAL, February 25, p. 731).

On Feb. 12, 1937, I made a pathologic examination of two fallopian tubes and portions of two ovaries removed from a married woman aged 20. Smears and histologic sections indicated extensive actinomycotic infection. The operation was performed for nonspecific pelvic inflammation of six weeks' duration. It was an unsatisfactory operation owing to extensive adhesions and evident inflammatory activity. The pelvis showed gross evidence of infectious contamination. Convalescence was delayed and followed by a gradually increasing pelvic induration and mass formation associated with a low grade temperature. Potassium iodide and other medication were given without relief. High voltage roentgen therapy was suggested and refused. By this time the general condition of the patient was grave. On a purely empiric basis sulfanilamide was administered in regular, recognized, routine doses. The patient soon showed a surprising improvement, and the pelvic induration and mass slowly regressed and disappeared within eight months. Today the patient is without any evidence of her former infection.

W. E. B. HALL, M.D., Denver.
From St. Joseph's Hospital, St. Joseph, Mo.

USE OF SODIUM DIPHENYL HYDANTOINATE AS ANTICONVULSANT

To the Editor:—It is gratifying to see Dr. Kimball's report testifying to the effectiveness of sodium diphenyl hydantoinate as an anticonvulsant as used in his series of 152 cases since the beginning of 1938 (The Treatment of Epilepsy with Sodium Diphenyl Hydantoinate, THE JOURNAL, April 1, p. 1244).

His was the first clinic to which the drug was furnished after Dr. Merritt and I had given it a ten months trial under rigid precautions in our own wards. This in turn was only after we had demonstrated its ability to prevent experimentally produced convulsions and its low toxicity in animals (Putnam, T. J., and Merritt, H. H.: Experimental Determination of the Anticonvulsant Properties of Some Phenyl Derivatives, *Science* **85**:525 [May 28] 1937).

His observations are therefore of particular value. It is of course of great importance to record, as Dr. Kimball has done, any peculiar side effects which new drugs may produce. Dr. Merritt has in preparation a study of the toxic manifestations observed in a series of more than 300 cases for periods up to two years, which includes the phenomena, such as rashes, reported in our first clinical paper (Merritt, H. H., and Putnam, T. J.: Sodium Diphenyl Hydantoinate in the Treatment of Convulsive Disorders, THE JOURNAL, Sept. 17, 1938, p. 1068) some instances of the change in the gums, which Dr. Kimball so strikingly describes, and a few other miscellaneous disturbances.

While the incidence of hypertrophy of the gums has been lower in our series than in his—eleven out of 332 cases—(possibly because few of our patients were children), we do feel that the condition has only a superficial resemblance to scurvy, and in our cases there has been no evidence of a deficiency of ascorbic acid. Indeed, the case reported by Dr. Kimball might be taken as evidence against such a conception, since the hypertrophy of the gums persisted even after the level of ascorbic acid in the blood had been raised to a high normal. The hypertrophy of the gums does not cause the patient any inconvenience and can easily go unnoticed over long periods of time.

Dr. Kimball is in my opinion entirely justified in recommending that sodium diphenyl hydantoinate be given only under the direction of a physician. Medical supervision is of particular importance in severe cases, in which a compromise must often be made between the dosage required to prevent all attacks and that which produces no side effects. Encouragement and ingenuity must be employed more often in the use of sodium diphenyl hydantoinate than in the use of phenobarbital, but the results are usually worth while. Overdosage and individual intolerance are problems to which there is an obvious solution. As far as danger to life is concerned, the advantage appears to lie with sodium diphenyl hydantoinate, as compared to bromides and phenobarbital. It is difficult to give an animal enough sodium diphenyl hydantoinate by mouth to kill it, and no serious accidents have been reported from its use in the treatment of epilepsy, although some thousands of patients are taking it.

TRACY J. PUTNAM, M.D.
Harvard Medical School, Boston.

MAGNESIUM SULFATE IN PAROXYSMAL TACHYCARDIA

To the Editor:—In THE JOURNAL April 1 appeared a letter from Dr. L. Zwillinger of Prostějov, Czechoslovakia, relative to the therapeutic use of magnesium sulfate in paroxysmal tachycardia. I should like to correct a false impression which evidently was created by my informal discussion of Dr. George Fahr's paper. The mere fact as stated that I had successfully used magnesium sulfate in several cases should not have been construed as a claim to priority in its use. In Europe as well as in the United States through THE JOURNAL the work of Dr. Zwillinger has been publicized. An editorial "we in Vienna" might have been in better taste, or since the purpose of my brief discussion was merely to remind the audience of the use of magnesium sulfate in tachycardia, the "first person" could and should have been omitted entirely. I am but one of a number of cardiologists who used the drug in Vienna.

WILLIAM DRESSLER, M.D., New York.

EXPERIMENTAL RENAL ATROPHY

To the Editor:—In an editorial (THE JOURNAL, April 8, p. 1344) on the recent work of Drury (*J. Exper. Med.* **68**:693 [Nov.] 1938) entitled "Experimental Renal Atrophy," which deals with experimental renal insufficiency and hypertension in the rabbit, several statements are made which are misleading. The writer of the editorial states that the application of our clamp (Goldblatt, Harry; Lynch, James; Hanzal, R. F., and Summerville, W. W.: *J. Exper. Med.* **59**:347 [March] 1934) to the main renal artery, like other technics employed for the purpose of producing experimental hypertension, produces necrosis or other pathologic changes in the kidney tissue, particularly in rabbits. Although it is true that necrosis can be produced at will by our method by excessive constriction of the main renal arteries and that this is more likely to occur in small animals, yet it is equally true, and of the greatest importance, that by our method hypertension can and has been produced in the dog, monkey, rabbit and rat by ourselves and many other investigators without the complication of renal necrosis (Goldblatt, Harry: Harvey Lectures, 1937-1938, p. 237). What is even more important is that by our method hypertension has been produced, without demonstrable renal excretory insufficiency, a complication which it is evidently difficult to avoid by the method of Drury. In fact, this method was first described by Drury in 1932 (*Proc. Soc. Exper. Biol.*

& *Med.* **29**:856 [April] 1932) for the production of renal insufficiency, and it is only recently that he found that elevation of blood pressure also results. It is undoubtedly valuable for this purpose in small animals, and it is especially useful if it is desired to study accompanying renal excretory insufficiency. The method of Drury is not a basically new one for the production of the hypertension, but it is a different method for the production in small animals of the renal ischemia that induces the hypertension. By this method Drury has so far been able to verify our finding that unilateral as well as bilateral renal ischemia may cause elevated blood pressure and also has confirmed some of the other results obtained by ourselves and others who have used our method of constricting the main renal artery. The important fact is that renal ischemia initiates the hypertension. New methods of producing renal ischemia in small animals, or for other special purposes, are valuable, and in this respect Dr. Drury's contribution is of great importance to investigators of the causative relation between kidney and hypertension. Incidentally, the title of the editorial, "Experimental Renal Atrophy," should have been "Experimental Renal Hypogenesia," since Drury's method is designed not so much to cause reduction in the size of the adult kidney but to prevent the full development of the young kidney.

HARRY GOLDBLATT, M.D., Cleveland.

"COMPLICATIONS DUE TO ARSENICAL THERAPY IN SYPHILITIC PREGNANT WOMEN"

To the Editor:—In THE JOURNAL, April 22, appears an exceedingly valuable contribution on the complications due to arsenical therapy in syphilitic pregnant women, with a report of seven maternal deaths, by Dr. Norman R. Ingraham Jr. Two of the fatalities (cases 3 and 4) were designated as acute circulatory collapse: one following the third injection of neoarsphenamine and the other following a second injection. Each death occurred within an hour after treatment. In commenting on the series, Dr. Ingraham notes that "81 per cent of these fatal treatment reactions were precipitated by three or less arsenical injections" and that "death likewise has been a matter usually of only hours or days."

It is apparently obvious to the author that the fatalities cannot be due to the heavy metal, for he goes on to discuss "the possibility of atopic drug allergy" or "sensitization (acquired allergy)" and states that "such speculation finds further confirmation in the pathologic observations . . . consisting only of extreme peripheral congestion of acute circulatory collapse, with the hemorrhagic phenomena in the brain and other organs." Later Dr. Ingraham uses the phrase "colloidoclastic shock" for these conditions.

I should like to call to Dr. Ingraham's attention the laboratory and clinical description of "speed shock," which I published in the *Archives of Internal Medicine* (**47**:259 [Feb.] 1931), and in THE JOURNAL, March 16, 1935, page 878. There will be found a description of the type of circulatory collapse described in these cases. The observations made on experimental animals closely parallel the autopsies in human beings. The discussion of the possible relationship of "speed shock" to nitritoid crises and to anaphylactoid and colloidoclastic reactions indicates clearly that these may all be identical.

The importance of the recognition of the syndrome of "speed shock" lies in the fact that a mechanism, otherwise mysterious, becomes quite patent and that the prophylactic therapy of the slow intravenous drip will prevent not only the fatalities associated with "speed shock" but also the minor acute disturbances such as nitritoid crises.

HAROLD THOMAS HYMAN, M.D., New York.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

DAILY WATER REQUIREMENTS

To the Editor:—Many physicians and school nurses teach that all persons should drink from six to eight glasses of water a day between meals, and especially is this important if a person suffers from constipation. Some, however, caution against overindulgence in salt because it increases thirst and the consequent drinking of water overtaxes the kidneys. The drinking of plain water is to many persons decidedly diuretic, yet the addition of from one-fourth to one-third teaspoonful of salt per glass causes it to be eliminated by way of the intestine instead. Is forced drinking of water without thirst desirable? The majority of people are interested in hygiene these days but advising them becomes difficult with changing concepts and professional disagreements.

M.D., California.

ANSWER.—It is unfortunate that medical "authorities" do not seem to agree on the simple proposition of the daily water requirement of normal persons. Ordinarily the sensation of thirst is an adequate guide to the amount of water required by the body, because it is conditioned largely by the intake of sodium chloride. Therefore, forced drinking of water is not indicated unless there is fever, an infection of the urinary tract or a suppression of the sense of thirst by various causes, including a low salt diet. Under normal conditions a fluid intake of 2½ or 3 quarts a day, including all beverages, is adequate except in very warm weather. There is, of course, no harm in drinking somewhat more, provided the circulation is normal, the prostate is not hypertrophied and sleep is not disturbed by nocturia. In the presence of epilepsy, hypertension or other potential heart disease, nephritis, toxemias of pregnancy and other conditions in which a high salt and fluid intake may do considerable harm, the physician should fit his advice to the individual patient's needs.

CELIAC DISEASE

To the Editor:—I would appreciate a discussion of the etiology, diagnosis, prognosis and treatment of celiac disease (chronic intestinal starch indigestion) in a child 23 months old. Please also give references.

M.D., New Jersey.

ANSWER.—When celiac disease occurs in children who have always been carefully supervised, it is convenient to presuppose the factor of congenital weakness. There is apparently a faulty digestion of fat or, more probably, difficulty in the absorption of fat, although this is not universally admitted. The pathogenesis is not clear. Some clinicians consider celiac disease to be the infantile form of sprue, both tropical and nontropical. These relationships, however, are not completely established.

The disease usually begins after 6 months of age, most frequently in the last quarter of the first year or in the first half of the second year. The stools are usually bulky, light gray or nearly white, often formed, but at times diarrheal. The number of stools is increased and they contain an excessive amount of fat. As the disease proceeds, the nutrition suffers. Nutritional impairment is further shown by the slow body growth. The abdomen is enlarged owing to dilatation of the colon.

Recovery is slow even under treatment, the disease often lasting for years. In mild cases more rapid improvement can be expected. There is a tendency to acute exacerbation at irregular and often frequent intervals. Between attacks the evidences of indigestion may at first be slight or even wholly absent, but it is not long before there is an increase in the intensity of the symptoms until some of them are constantly present. The prognosis under treatment is, on the whole, good except in the instances in which little can be found wrong with the hygiene and diet and there seems to be a constitutional or an early acquired and persistent lack of functional intestinal power. In such cases death from exhaustion is liable finally to occur. There is always too the danger that the impaired general health may diminish the power of resistance to some intercurrent disorder. The general condition of patients who recover may improve long before the excessive fat disappears from the stools. Complete recovery in some cases includes an ability to carry on normal digestion to all intents and purposes, although in others a tendency to an easily upset intestinal tract persists throughout life.

The essential factor in the treatment of celiac disease is dietary regulation. In celiac disease much loss of calcium occurs, and

hence the administration of a considerable amount is indicated. This may be accomplished through the ingestion of casein or by the addition of calcium gluconate to the diet. When diarrhea is present, vitamin C is poorly absorbed. Vitamins A, D and C may be taken in liberal quantities, A and D through cod liver oil concentrates or in the form of carotene and viosterol, and the necessary quantities of C in the form of orange juice and tomato juice, which are well tolerated.

Protein milk may form the basis of the diet. This can be given in a quantity equivalent to one packed level tablespoonful per pound of body weight. The dried protein milk for the day's feedings is mixed with about a quart of warm water and the mixture is passed through a fine sieve several times. The total amount is divided into four feedings, which are given during the day with a long night interval. A small amount of saccharin may be added to improve the flavor. The amount of protein milk is gradually increased until the infant is receiving as much as one tablespoonful of the dried powder per pound of expected body weight for the age, according to the plan of treatment recommended by Sauer. This forms the sole diet for three or four weeks, or until the stools have become firm and the child begins to gain weight.

The next addition to the diet consists of boiled whole milk, equal parts of evaporated milk and water or whole lactic acid milk, which takes the place of the protein milk, the skimmed milk or the fat-free buttermilk which have up to this time formed the basis of the diet.

Well cooked and strained vegetable purées are begun in small amounts and gradually increased, and two whole eggs may be given in a day. These should be soft boiled or coddled. This diet is continued for a period of several months, usually four or five.

The next addition consists of carbohydrates—at first a very small amount of well toasted bread or zwieback and later cooked cereals, such as corn flakes, grape-nuts, puffed wheat or rice. These are served with skimmed milk but without sugar or cream. If starch in this form is tolerated, the amounts are increased and later well cooked rice is added. Corn syrup may be substituted for the dextrose at this stage.

In the treatment of any case of celiac disease it is essential that proper attention be paid to the general hygienic surroundings of the child. Fresh air, sunlight, proper clothing and sufficient rest all tend to promote recovery. These children are difficult to handle, fretful and querulous. Whoever cares for them should be even tempered, considerate and possessed of infinite patience. The diet must be persisted in and no variations made merely for the purpose of satisfying the child. With proper treatment patients with celiac disease may reach approximately normal physical and mental development.

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TREATMENT OF VAGINAL BURN

To the Editor:—Kindly advise the best method of treatment for a vaginal burn which was done with an air spaced pyrex tube, short wave vaginal electrode, area about 2 by 2½ inches. The patient has been getting tampons twice a week and a cleansing douche every day or every other day. Before the tampon was applied, 5 per cent silver nitrate was used.

M.D., Michigan.

ANSWER.—A speculum should be inserted into the vagina but with great gentleness and care to expose the burned area. Then a greasy substance should be applied all over the entire burned area and a loose pack inserted to prevent apposition of the vaginal walls and subsequent adhesions. The simplest way to accomplish this is to insert gauze thoroughly saturated with sterile petrolatum or hydrous wool fat into the vagina. The petrolatum gauze should be removed every day and the vagina gently cleaned of any débris and another pack replaced in the vagina. As soon as the risk of adhesions seems to be passed, only petrolatum should be applied but no pack. Then even this may be discontinued. However, repeated examinations should be made to make certain that there will be no contraction of the vagina as a result of the scar tissue which will form after the burn has healed completely. If shrinking of the vagina does occur, glass dilators will have to be used to prevent constriction. The patient can be shown how to insert these glass dilators herself.

PROTAMINE ZINC INSULIN, DIABETES AND HERPES ZOSTER

To the Editor:—I should like to know whether my experience with protamine zinc insulin has been duplicated by others. Both in private practice and in clinics with a total diabetic population of about 1,500 I have noticed that herpes zoster has been an extremely rare complication of diabetes. We have had only two cases in more than ten years. Joslin, in his book, lists seven cases in a total of some 6,000 diabetic patients. Since the use of protamine zinc insulin, however, we have had at least a dozen cases of herpes zoster among our patients. Taking into consideration the comparatively short time that the newer insulin has been used, this represents a great increase in the incidence of the complication. I am wondering whether the explanation lies in the fact that the protamine, being a protein, cannot be sterilized by heat and that passage through a Berkefeld filter would permit the virus of herpes zoster to be carried into the final preparation.

E. M. Abrahamson, M.D., Brooklyn.

ANSWER.—Herpes zoster not infrequently occurs in the course of diabetes and is far more common than might be inferred from the reference cited. Despite extensive use of protamine zinc insulin no increase in the incidence of herpes considered attributable to the insulin has been noted in a large experience. Whether it is more frequent in diabetic than in nondiabetic persons is an open question. It may seem to be more frequent now, because diabetic patients are living longer and are watched more closely by their physicians, and all complications are more accurately recorded. Herpes zoster is in general more frequent in older than in younger persons; diabetes originates in at least two thirds of the cases after the age of 40.

CEREBROSPASTIC DIPLEGIA AND SPEECH TRAINING

To the Editor:—A girl aged 4 years had a cerebral hemorrhage at birth. The lesion was definitely diagnosed by x-ray examination following injection of air into the ventricles. She has a definite Little's disease syndrome but began walking at about 30 months. The lesion seems to be located over the speech center, as she does not talk. She will obey commands and shows mentality otherwise of about a 2 year old child. She had pneumonia at about 9 months of age. Following the febrile stage she made definite improvement. Hence the family feels that fever therapy might do good in spite of the diagnosis that has been made. Is there any literature you might have to offer on therapy or do you suggest a school of speech?

M.D., Illinois.

ANSWER.—As far as can be ascertained, the literature offers no definite proof that fever therapy will ameliorate or aid in the treatment of Little's disease (cerebrospastic diplegia). A special school where attention can be given to speech training and physical therapy for the development and coordination of muscles would be advisable for such a child.

DESTRUCTION OF ENTIRE NASAL SEPTUM

To the Editor:—A woman aged 43 presents a nasal condition the cau and cure of which baffle me. The history dates back twenty-nine years. that time there was a small "scab," as she describes it, on the left side the septum of the nose; following this there was a small perforation the septum. This gradually increased until at present the entire septu is destroyed; the perpendicular plate of the ethmoid is eroded. Hemorrha is frequent, at other times just a serous discharge. The turbinates becor congested. Severe headaches result until free drainage is established the nose. The Wassermann test is consistently negative. The nasal bo is not involved. No metastasis or polypi are present in the nasopharynx there is no adenopathy of the glands in the neck. X-ray examination the sinuses shows slight cloudiness. Smears show no organisms. T patient's father died at the age of 75 of chronic fibroid pulmonary tube culosis. He was said to have had tuberculosis cutis. Treatment has co sisted of nose drops, cauterization (with phenol, silver nitrate, and so or and roentgen treatment, with no improvement. Specialists as well general men have treated the patient and have failed to make a diagnosi Please outline the cause and cure.

M.D., Kansas.

ANSWER.—A spontaneous ulceration of the septum beginnin in the cartilaginous portion leading to a perforation which slowl becomes larger and larger can be due only to some specific origin which is not malignant. A simple traumatic perforation neve extends beyond the cartilage unless there is a general atrophi rhinitis. The case described was most likely a lupus, whic presents its characteristic appearance only in the early stages After the septum has been perforated the characteristic appl jelly nodules are more difficult to isolate and observe. It i rare, however, for a lupus of the septum to be unaccompanie by lesions elsewhere in the nasal cavity or in the skin. How ever, it is not impossible. A biopsy taken from the margin o the perforation might still show the typical granuloma with giant cells. The only treatment that offers a chance of arrest ing the process is destruction of the margins with diathermy or the local use of radium. A total of from 400 to 600 mg. hours may safely be used if adequately screened.

Since there is no mention of scabbing or thick secretion, there would be no indication to use any local medication except for occasional introduction of petrolatum.

DIABETES AND GOAT'S MILK

To the Editor:—Several patients with diabetes have been on insulin and have had more or less difficulty, probably because of the inaccuracies of diet or measuring of the insulin dose. Many of these patients have been led by their friends to begin drinking goat's milk and to my great surprise have been able to lower the insulin dosage and finally abandon it altogether and still continue to be sugar free. I have always held that goat's milk was no different than cow's milk except the minor difference in the mineral content and the slight difference in the protein. I can see no reason why goat's milk should be of value. After having seen many of these patients improve without any other change in diet, I feel that there must be some value in it. Have there been any well controlled experiments which would throw any light on the subject?

M.D., New York.

ANSWER.—There is nothing in the chemical composition of goat's milk as compared to that of cow's milk to suggest that the former might be of value in the treatment of diabetes. According to Bosworth and Van Slyke (*J. Biol. Chem.* **24**:173 [March] 1916), its average food value and salt content compare with cow's milk as follows:

	Cow's Milk	Goat's Milk
Percentage of fat	3.90	3.80
Percentage of milk sugar	4.90	4.50
Percentage of protein	3.20	3.10
Percentage of salts	0.910	0.939

Other analyses give slightly different figures.

The analysis of the casein does not differ greatly from that of the casein of cow's milk. There are minor differences in the distribution of phosphates and in the chloride content. It is perhaps of interest, because of recent knowledge of the association of zinc and insulin, to note that Koga (*Keijo J. Med.* **5**:106 [June 30] 1934) found that the zinc content of cow's and goat's milk is approximately the same.

Metabolic studies have been reported only on nondiabetic infants. Sherman and Lohnes (bulletin 429, New York Agricultural Experimental Station, Geneva) found no definite difference in the rate of gain of infants fed cow's and goat's milk. Daniels and Stearns (*Am. J. Dis. Child.* **30**:359 [Sept.] 1925) found that normal infants retained less nitrogen (from 17 to 25 per cent in one series, and from 42 to 44 per cent in another) on a diet of goat's milk than on one of cow's milk.

It would be necessary to have better controlled observations of the cases of diabetes in question, so as to eliminate numerous other possible factors in the improvement, before it could be concluded that the goat's milk was of any positive therapeutic value. It seems extremely unlikely that the use of goat's milk without any other change in diet could have been solely responsible for the changes noted. One is reminded of the old Donkin "milk cure" for diabetes in which milk supplanted all other articles of diet, thus providing an intake of food which was comparable to some of the present day high carbohydrate diets.

ANHIDROTIC HEREDITARY ECTODERMAL DYSPLASIA

To the Editor:—Is there any therapy for a familial absence of sweat glands as shown by inability to perspire and distress when the temperature is raised?

J. R. DUNDON, M.D., Milwaukee.

ANSWER.—Hereditary ectodermal dysplasia of the anhidrotic type is a rare anomaly and all cases should be studied and reported. It appears in male children as a rule and is transmitted only by the female. There are a few exceptions to this rule, such as the case reported by Goeckerman (Congenital Ectodermal Defect, *Arch. Dermat. & Syph.* **1**:396 [April] 1920) and the cases recently reported by Kerley (Hereditary Ectodermal Dysplasia, Non-Sex Linked Type, *Arch. Pediat.* **55**:211 [April] 1938). In all the cases there have been other ectodermal defects, such as deficiency of hair and teeth, a peculiar depression of the bridge of the nose, mistakenly called a saddle nose, bulging of the forehead, even deficiency of the adrenal cortex as noted by Thannhauser (Hereditary Ectodermal Dysplasia of the Anhidrotic Type, THE JOURNAL, March 14, 1936, p. 908). The first case of this kind was reported by an American dentist (Guilford, H. S.: A Dental Anomaly, *Dental Cosmos* **25**:113, 1883).

Under moderate temperatures these patients are comfortable, for insensible perspiration, so called, is not dependent on the action of the sweat glands, as Loewy has shown. His patients with the ectodermal defect eliminated as much water as those with normal skin. Only when the temperature is high, calling for real sweating to keep down the body temperature, do they suffer. Air cooled rooms in which the patient can remain when the weather is hot solve the problem for those able to afford it. Keeping the underwear wet may also be tried. Anointing the skin frequently with a water-containing ointment may be of service. The following may be tried: wool fat 1 Gm., petrolatum 2 cc. and rose water 3 cc.

Mayr (Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1932, vol. 13, pt. 1, p. 26) suggests trying pilocarpine from 5 to 15 mg. (one-tenth to one-fourth grain) in an effort to stimulate whatever sweat glands there may be. This, if tried, must be done with caution, for the action of pilocarpine varies greatly in different individuals.

COUCHING A CATARACT

To the Editor:—In Isabella of Spain; the Last Crusader (1451-1504) William T. Walsh on pages 56-57 states: "Jewish physician and astrologer had just restored the sight of one of the King's eyes by couching (King Juan of Aragon). Juan urged the Jew to heal the other eye. The doctor pleaded that the planets were unfavorable. Juan threatened him with death, but the Jew refused to operate until October, when he couched the other eye with complete success. Juan restored to sight at 80, put on his armor." Webster's Dictionary says "Couch (surgery): Formerly, to treat (a cataract) by turning down or displacing the opaque lens of the eye." In what history of medicine is this old procedure mentioned?

I. H. KIESLING, M.D., Nashwauk, Minn.

ANSWER.—The couching of a cataract is an old procedure. It is mentioned at greater or less length in practically all histories of medicine that deal with ophthalmology. Apparently couching originated in India, where it is still practiced by the natives (Hirschberg, Julius: Ueber den Star-Stich der Inder, translated by Surg. Capt. Maynard, *Indian M. Gaz.*, No. 6, June 1894). It did not appear to be known to the Greeks, and the first mention is by Celsus in the time of Nero. It was of course known to the Arabians, but no mention of the method appears in the old Egyptian literature (The Tadhkirat of Ali ibn Isa of Baghdad: Memorandum Book of a Tenth Century Oculist, translated by Casey A. Wood, page 81). A complete description of the history of couching by Julius Hirschberg (The History of Ophthalmology) appears in Graefe-Saemisch Handbuch der gesamten Augenheilkunde, second edition, volume 12, chapter 13, page 35. Descriptions of the methods of couching can be found in The American Encyclopedia of Ophthalmology, vol. 2, page 1473, and vol. 5, page 3544.

ACNE ROSACEA

To the Editor:—A white man aged 60 has been troubled for years with acne rosacea of the nose. He has consulted many physicians and on two previous occasions, five years ago and three years ago, took x-ray treatments for this condition. In October I gave him three treatments followed by apparent recovery, but the tendency toward the formation of brown scabs is now returning. I have told the patient that this is a chronic type of disease in which x-rays are helpful as a method of treatment, but the possibility of permanent cure is not good. I would appreciate your opinion as to the value of x-rays in acne rosacea; also I should like to know whether or not there is any treatment that will produce a permanent cure.

M.D., Iowa.

ANSWER.—The use of x-rays is one of the most valuable methods for the local treatment of acne rosacea. They by no means effect a permanent cure in all cases, though they are helpful in the majority. Care should be used not to give too large doses or to continue their use too long. There is no method known which would promise a permanent cure. The disease can be ameliorated and more often cured at its outset. Astringents, such as the much used lotio alba, may be sufficient to accomplish this if continued for a long time. Better results may be expected if general measures are combined with local measures. Highly spiced and hot foods and drinks as well as alcohol must be omitted. Anything that irritates the skin, such as wind and weather and strong soaps, should be avoided.

MALARIA IN PREGNANCY

To the Editor:—What is the advisability of permitting a pregnancy to continue in a patient who has had tertian malaria during the past fall. At the present time the patient shows no ill effects from the disease and is still taking regular quinine treatments every month. She has had no recurrences, but her daughter has.

M.D., Michigan.

ANSWER.—There is no indication to terminate pregnancy in this case; malaria does not affect the child unless the disease is acute and severe or unless malarial cachexia develops. Since pregnancy, labor and the puerperium favor relapses, it would be wise to continue prophylactic treatment for the first six months. The dosage should not be large—about 10 to 15 grains (0.65 to 1 Gm.) a week, preferably divided. Recent experiments have shown that even a normal dose of quinine may produce changes in the auditory nerve resulting in deafness (West, R. A.: *Am. J. Obst. & Gynec.* **36**:241 [Aug.] 1938), and there is some ground for believing that large doses in man may do the same. More clinical research on this matter is needed, but it is worth keeping in mind.

LESION OF SPINAL CORD

To the Editor:—A white man aged 38, a superintendent of schools, consulted me for tachycardia of from 90 to 100 and overweight (213 pounds [96.6 Kg.], 6 feet 2 inches [188 cm.]). The blood pressure was 135 systolic, 75 diastolic. There was no evidence of sclerosis of the arteries by palpation. (He had no complaint of any ailment and came only because of membership in the army reserves). After four weeks of treatment, which consisted of a controlled low calory diet and 5 drops of 50 per cent solution of potassium iodide three times a day, he weighed 200 pounds (91 Kg.), the blood pressure was 115 systolic, 75 diastolic, and the pulse 75. Three weeks later he began noting slight weakness of the legs, which was relieved by rest. About 1 p. m. (after attending a dance the previous evening after a strenuous day in the city) his lower limbs became suddenly paralyzed and he sank to the ground in his garage. He called for help and was carried into the living room. Examination within half an hour revealed a blood pressure of 115 systolic, 70 diastolic, a pulse of 78 and a temperature of 98.4 F. He was lying down and unable to move from the hips down. The pupils were equal and regular and reacted to light. The abdominal responses were normal, the knee jerks were equal and slightly hyperactive, the plantar response was not present and the Gordon, Oppenheim and Chaddock reflexes were also absent on both sides. There was no ankle clonus. In the next twenty or thirty minutes movement returned to the right foot. He was then moved to a bed and warm blankets were applied, whereupon he stated that he was unable to feel the warmth with the left leg from the knee down. A check-up of the cranial nerves revealed all to be intact. (Nystagmus was not present.) The biceps and triceps reflexes were normally present on both sides. The Hoffmann response of the thumb could not be elicited. A normal plantar response now occurred on the right, which foot and leg he moved with ease and normally. Pain sensation (with pinprick) was normally present except from the knee down on the left leg. Six hours after the occurrence of paralysis there was a prickly sensation of the skin of the left leg which lasted for half an hour. Soon thereafter he was examined. He was then able to move his left foot and knee but some weakness remained at the hip. Plantar response was now present and normal and equal to that of the right. Other reflexes were unchanged. Examination of the blood and urine gave negative results: hemoglobin content 85 per cent, red cells 5,100,000, white cells 5,800, polymorphonuclear leukocytes 60 per cent; specific gravity of the urine 1.018, albumin and sugar not present and only a few epithelial cells found on microscopic examination. A blood Wassermann test has been taken as a routine every two years since 1926 and has always been negative. There was complete return of strength in the ensuing few days and the remainder of the Christmas vacation he spent on a 1,200 mile automobile trip with his family. At present, three weeks after the attack of paralysis, he feels entirely normal and is doing his regular work. There is no history of any such occurrence in any member of his family. I shall appreciate your suggestion for further examination and also as to what diagnosis or possible diagnoses may be applied. What is the prognosis?

M.D., California.

ANSWER.—The patient has, of course, a lesion of some kind affecting the spinal cord. The two common conditions that must be considered are a tumor of the spinal cord and multiple sclerosis. As long as his condition remains normal it would be better to do nothing. If symptoms return an injection of iodized oil into the cisterna magna will tell whether or not it is a tumor and, if a tumor, where it is located. If the iodized oil descends to the bottom of the canal there is almost positive evidence that no tumor exists, and the probable diagnosis is multiple sclerosis. The prognosis, of course, depends on the character of the lesion.

THYROID AND PERMANENT WAVE

To the Editor:—Would the administration of thyroid extract to a patient over a considerable period have any effect on the patient's hair from the standpoint of its response to permanent waves? Three patients have told me that within a month or two after starting such medication their beauty operators asked them if they were taking thyroid because of the fact that the permanent waves were not taking the way they had before. I would be most happy to know if any work has been done or any observations made on this problem.

RICHARD B. SCHUTZ, M.D., Kansas City, Mo.

ANSWER.—*Hyperthyroidism may cause* premature graying of the hair, especially over the temples and above the ears. The hair of the whole body becomes thinned, not sparing the eyebrows and lashes or the scalp. The skin is usually moist, sometimes with pigmentary changes such as vitiligo or a generalized darkening.

Myxedema, the hypothyroidism of adults, produces in 90 per cent of cases a dry skin with dry and harsh hair, and an alopecia. If a patient in this condition is getting insufficient thyroid medication, one might expect some difficulty with the curling process. This does not apply in the cases cited in the query. In patients on treatment with thyroid extract it is not to be supposed that a hyperthyroid condition can exist. If thyroid medication is indicated, one would naturally expect the condition of the hair to be improved, being restored to a more nearly normal state.

So far as recent medical literature shows, there has been no research tending to give a scientific basis for the theory that small amounts of thyroid extract given a patient who is in need of such treatment can exert any deterrent effect on the susceptibility of the hair to the action of alkalis or heat. Until such work has been done and substantiated, the theory must be considered untenable. It is difficult to avoid the suspicion that this is just another excuse for a failure to produce a satisfactory wave, a failure really due to imperfect technic.

GRANULOMATOUS ULCER ON FLOOR OF NOSTRIL

To the Editor:—A man aged 31 has had an ulcer on the floor of the left nostril the size of a dime (18 mm.) for eight months. The diagnosis, based on microscopic examination of material obtained at biopsy, is chronic granuloma consistent with tuberculosis or sarcoid. What treatment would you advise? There is no evidence of tuberculosis in any system and the Wassermann reaction is negative.

M.D., Massachusetts.

ANSWER.—If the diagnosis is well established energetic and persistent local treatment is indicated. The treatment of choice perhaps is the use of the galvanocautery, a fine point being introduced repeatedly into the ulcerated area and also about the margins to induce a limiting fibrosis. This may be used directly on the ulcer at first or after extensive curettement. Diathermy may also be used to destroy the diseased tissue; or chromic acid may be used if the former two methods are not available. Cauterization may be repeated every ten to twenty days, and in the intervals the patient should have some ointment to apply locally in order to keep crusts from forming.

Applications of radium with a dosage of from 100 to 200 milligram hours applied directly to the lesion have given satisfactory results. Roentgen therapy and electrolysis have not given as good results as the other treatments described. It is needless to say that despite the lack of evidence of systemic tuberculosis general hygienic and supportive measures should be advised.

CONTINUED POSTOPERATIVE PELVIC PAINS

To the Editor:—I am seeking information regarding those patients who have persistent postoperative pains following pelvic operations. Fortunately they are not common. I have patients who had surgery done over two years ago and still continue to have pains in the pelvic regions and pains referred to the back and down the thighs. They have had general supportive or tonic and vitamin therapy and various forms of local therapy such as diathermy, tampons, douches and enemas, but to no avail. Can any one suggest a remedy for these cases?

M.D., Illinois.

ANSWER.—Although it is unfair to state that there is always a demonstrable cause sufficient to explain cases of persistent pain, most of these patients have adhesions, inflammatory masses, or dragging organs with a disturbance of function.

Helpful factors in surgical technic which merit emphasis include the employment of rubber packs to wall off the bowel, deliberate technic in contrast with haste, and placement of the pelvic organs and tissues so that they are well supported but, above all, so that they are free from undue tension.

In those instances in which no pathologic change is demonstrable, frequent causes of discomfort include constipation; improper diet, particularly overeating and hasty eating, also indulgence in too much candy and pastry and too many coarse vegetables, raw fruits and salads; alcohol, a common cause of "colitis"; excessive coffee; lack of sufficient walking and other activities outdoors; personal maladjustments or unhappiness, often accentuated by too much bridge and employment of time with occupations which disturb rather than add to one's poise.

Elliott treatments, sun baths, hydrotherapy, change of climate, sedatives, thyroid therapy and vitamins (with emphasis on liver preparations) are among the items in specific therapy which merit particular mention.

CONGENITAL UMBILICAL HERNIA

To the Editor:—On December 14 I delivered a child with a large hernia into the umbilical cord. This hernia contained the liver and part of the stomach and transverse colon. Its wall consisted of only peritoneum and the amnion of the cord. Immediate surgical repair was done and the infant has survived. I find but little reference to this condition in recent textbooks on obstetrics and pediatrics. What is the incidence and mortality of this condition?

J. H. HOSKINS, M.D., Wahpeton, N. D.

ANSWER.—According to H. B. Saunders (Surgical Treatment of Congenital Umbilical Hernia, *Illinois M. J.* **51**:204 [March] 1937), true congenital umbilical hernia occurs about once in 5,000 deliveries, and such a hernia containing intestine or other abdominal contents occurs about once in 10,000 cases. In an excellent summary of the literature of this anomaly, Julius Jarcho (Congenital Hernia with a Report of a Case Involving the Liver, *Surg., Gynec. & Obst.* **65**:593 [Nov.] 1937) states that in 109 tabulated cases of congenital umbilical hernia the liver was present in thirty-one instances. About 1930 a number of articles

appeared in the literature, most of the authors reporting a single case. The mortality, as might be expected, is high, owing to four definite factors: 1. The effect of anesthesia on a premature or newborn infant. (There is no general agreement as to whether a local anesthetic is safer than ether.) 2. The result of shock and as a direct result of manipulation and operation. 3. General peritonitis. The resistance of the newborn to infection is extremely low, and any method which will reduce this factor should be the one of choice. Horwitz (Hernia of Umbilical Cord: Exomphalos, *Ann. Surg.* **92**:454 [Sept.] 1930) suggests extraperitoneal closure. 4. The inability to return the liver or extra-abdominal hernial contents to the abdominal cavity. Of course, when this is mechanically impossible death ensues within a short time.

BASAL METABOLISM IN CHILDREN

To the Editor:—Since patients in the department of basal metabolism are mainly children, we often encounter cases in which we are at a loss to determine the normal values for the patient. The medical literature is full of controversy regarding the best way to predict normals in infants and children. May I therefore have recourse to your wide experience to tell me which is the best formula for predicting normals. The Aub-Du Bois and Harris-Benedict formulas are intended. I would be much interested to know also what kind of apparatus (with a complete description) you would use in taking the basal metabolic rates of infants and children.

N. R. BOUZIANE, M.D., Montreal, Canada.

ANSWER.—The determination and interpretation of the basal metabolism of infants and children differs principally from that of the adult in that during the former period there is rapid growth and change in the body, while in the latter the body has become standardized. When one considers the period of childhood a distinct division must be made at the age when it is possible to obtain the basal metabolism accurately, collecting the breathing air through a mouthpiece with the help of a nose clip. This requires the intelligent cooperation of the child, and except in rare instances basal periods cannot be obtained with the so-called portable apparatus under the age of 7 years, and the physician should not depend on observations obtained at earlier ages by this method. The metabolism of children younger than 7 years has been obtained in cot chambers which are usually constructed in two sizes, one for infants up to 2 years and the other capable of holding children from 2 to 12 years. The earliest one used in children for relatively short periods was described by Benedict and Talbot ("The Gaseous Metabolism of Infants," publication 201 of the Carnegie Institution of Washington, 1914; and Some Fundamental Principles in Studying Infant Metabolism, *Am. J. Dis. Child.* **4**:129 [Sept.] 1912). This was a closed circuit. Subsequently the apparatus was modified and the open-circuit method used. This was further modified and the time of experimental observations shortened by addition of the Tissot gasometer as described by Higgins and Bates (*Am. J. Dis. Child.* **39**:71 [Jan.] 1930). This method has proved to be accurate and relatively rapid.

All methods of obtaining the basal metabolic rate of infants and young children require a special laboratory technic and technical skill. The portable apparatus that is used for older children and adults, devised by Benedict and Krogh, is manufactured by several different concerns, and although they are all based on the same general principles the mechanical constructions are different. (The Benedict-Roth portable apparatus, manufactured by Warren E. Collins, Inc., 555 Huntington Avenue, Boston, is one which has been found satisfactory.)

The different methods of obtaining the basal metabolic rate of children are not as a rule due to the type of apparatus used but to the technic of obtaining the metabolism and the difficulty of obtaining basal figures. Too large a proportion of the figures that appear in the literature do not represent basal figures, either because of lack of cooperation of the child, excitement or inexperience of the technician in handling children. The tendency of physicians to accept a single test as representing the basal metabolic rate has led to publication of much worthless material and has been commented on by Du Bois in the *Journal of Nutrition* (**3**:331 [Nov.] 1930).

The difficulties experienced in interpreting the basal metabolism of children has resulted from lack of knowledge of the physiologic processes which may affect the metabolism of the growing child. The whole problem of the normal heat production of girls has recently been reviewed by Talbot, Wilson and Worcester (*Am. J. Dis. Child.* **53**:275 [Jan., part 2] 1937) and the former has published standards for both boys and girls that approach the problem from a slightly different angle than that used in the Aub-Du Bois and the Harris-Benedict standards. Talbot believes that these standards give results consistent with clinical changes experienced in childhood. Statistical analyses show that so long as the physical development of the child is normal there is no choice between this standard, the Aub-Du Bois, or the Harris-Benedict but that in children of abnormal development, either underweight or obese, the changes are more consistent with the clinical experiences. It would seem that the use of the standards for total calories for weight and height are therefore of more universal application.

TRAUMATIC ULCERS OF LEGS

To the Editor:—A housewife aged 33 sustained an injury to the lower part of her left leg in July 1938 in a fall in her home. The injury was located on the medial aspect of the upper third of the lower part of the leg. The wound was superficial and involved only the soft tissue. This contused wound became infected in a few days and was then treated with hot packs. Since that time there has been an area about the size of a quarter (24 mm.) which does not heal. Treatment has consisted of various ointments such as peruvian balsam, allantoin and scarlet red. This area, which now really is an ulcer, becomes infected easily. On several occasions the ulcer has been treated with 10 per cent silver nitrate, a sponge applied over the dressing and an ace bandage applied to the lower leg, according to the method of McPheeters. In a few days the ulcer is clean with no evidence of infection, and granulation seems to set in, but even after several weeks of such treatment the epithelium shows no tendency to heal. The Wassermann and Kahn reactions of the blood are negative. Urinalysis is negative. X-rays show no involvement of the bone. The patient's general health is satisfactory. There is no evidence of varicosities. The patient at all times has been ambulatory. I would appreciate any suggestion you may be able to give as to treatment.

M.D., Illinois.

ANSWER.—Traumatic ulcers of the lower extremities, especially if they are located over the tibia where the skin is on a stretch and the blood supply is not active, show a poor tendency to healing. Their chronicity is maintained by secondary infection, and a wall of inflammatory induration is built around the edges. When the defect assumes the size of a quarter, it is best to immobilize the patient with the leg elevated and use continuous dressings of hot boric acid. When the granulations look healthy and the edges are not undermined, a skin graft, preferably a split graft, can be used to cover the ulcer. This procedure requires some experience in plastic surgery. The customary Thiersch graft is too thin and readily breaks down in this location.

BILIARY COLIC

To the Editor:—A woman aged 39 with a history of typhoid at 10 has had mild attacks of biliary colic almost daily for the last eight months. The attacks do not incapacitate her but are enough to make her feel miserable. She passed a renal calculus (left kidney) five years ago. Two months ago duodenal drainage showed normal response of the gallbladder to olive oil. Culture of bile is negative. The icteric index is normal. Blood cholesterol is normal. There is mild gastric hyperacidity. Dye studies show no stones. Emptying of the gallbladder is normal. The stomach is negative on x-ray examination. The urine is normal. Treatment with antispasmodics and alkalis give but little relief. Because of the typhoid would you recommend surgical operation? She has never had acute biliary colic. Can you suggest any further treatment?

M.D., New York.

ANSWER.—The patient should have an intravenous pyelogram to see whether or not the distress is reflex from the urinogenital tract. Furthermore, it may be that the patient has a dyskinesia of the sphincter of Oddi. Finally, one should consider the possibility of a duodenal ileus or stasis. The condition might be improved by the knee-chest position after meals and a suitable corset and pad to hold the stomach in a more normal position to relieve the duodenal ileus. Instead of alkalis after meals, it might be well to try diluted hydrochloric acid in suitable doses. Surgical intervention from the evidence presented does not seem justified.

INHERITANCE OF HUNCHBACK

To the Editor:—A patient has inquired whether the fact that the mother of his prospective bride has a marked kyphosis (hunchback) could conceivably reflect itself in offspring. The two children of this woman are apparently entirely normal. The cause of the kyphosis is not known. If there is any logical or statistical basis for worry, please explain.

M.D., New York.

ANSWER.—The only direct evidence as to the inheritance of the hunchback condition seems to come from the description of a pair of one egg twins by Siemens. When these twins were babies they were both normal and healthy and so much alike as to be practically indistinguishable. Later on one of them had an illness that left her a hunchback invalid, while her twin remained straight and healthy. In this case the hunchback condition was not hereditary, for one egg twins have exactly the same hereditary makeup. There probably is no cause to worry about the case in question.

ANTHRACOSIS

To the Editor:—Does bituminous coal dust cause disabling anthracosis? Are there any cases on record? If so, what are the signs and symptoms?

M.D., New York.

ANSWER.—There is evidence to show that under certain circumstances bituminous coal miners may develop a disabling pneumoconiosis sometimes called "anthracosis," or, more specifically, anthracosilicosis, a silicosis complicated by the accumulation of coal dust in the lungs. A miner's exposure to coal dust may vary from mine to mine, and disability produced may vary depending on the amount of siliceous material associated with the coal dust which he breathes.

The pathologic changes in the lungs may vary from a simple black anthracotic lung without much fibrosis to extensive, localized accumulations of coal dust in fibrotic "india-rubber-like" areas. The latter change apparently does not occur unless the miner has been exposed to quartz.

As in silicosis, dyspnea, cough productive of more or less black sputum, weakness, pain in the chest, physical signs of bronchitis, pulmonary fibrosis and emphysema are symptoms and signs that appear late in the course of the disease. X-ray study will show the degree of fibrosis. Careful sputum study by smear, culture and animal inoculation is often necessary to establish a complicating tuberculosis.

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VISUAL MEMORY AFTER BLINDNESS

To the Editor:—A patient who has been totally blind for five years informs me that visual memories of objects have been gradually fading from his mind, so that now they are entirely extinct. He has no visual image of his wife, who takes care of him, nor of his friends. On questioning about his dreams, he says that though he dreams of performing certain tasks, such as drafting, he never sees objects or people. He is apparently intelligent, with no impairment of faculties. He reads braille. Is this usual in such cases and what is the explanation?

M.D., New York.

ANSWER.—Loss of visual memory is not usual among the blind. One man, blinded at 58 and now 78, states that he still has clear visual images of what he saw before he was 58 with no fading out whatever. For twenty years he has been a teacher of thousands of adult blind and states that he has never heard of such a thing. He further says that many students refer in their writings to things they used to see, and he therefore feels that loss of visual memory must be a most unusual phenomenon. It is possible that in this instance the claimed loss of visual memory may be a subconscious attempt to procure sympathy. At least such a possibility must be considered.

EPITHELIOMA OF LABIA

To the Editor:—Please advise me as to the safest method of procuring a specimen for biopsy from a patient with a suspicious irritation of the labia majora. In the event of a diagnosis of epithelioma, what would be the approved method or methods of treatment? The patient is 66 and is in fair health and strength.

M.D., California.

ANSWER.—If the suggestive area is small and the clinical appearance and history are such as to lead to a reasonable possibility of malignant disease, the safest procedure to adopt is to excise such a lesion completely. The excision may be made with a scalpel or with the electro-endotherm knife.

In the event of a diagnosis of epithelioma, the lesion will have been removed completely and no further treatment is necessary. If the lesion is too extensive to remove by a simple local excision, a small fragment may be excised carefully and examined microscopically. If the lesion proves to be an epithelioma, the best procedure is complete surgical removal if the lesion is operable. This procedure is preferable to radiation therapy when the lesion is still in an operable stage. The question of how to treat the regional lymphatic gland is much more difficult to answer. The following reference is suggested: Cutler, Max, and Buschke, Franz: Cancer—Its Diagnosis and Treatment, Philadelphia, W. B. Saunders Company, 1938, pages 413 and 414.

OSTEOMYELITIS AND SYPHILIS

To the Editor:—A man aged 52 with syphilis of unknown duration was treated in a venereal disease clinic from Oct. 9, 1936, until July 8, 1938, the last treatment being given June 10, 1938. During this time he received four courses of twelve injections of bismuth from Oct. 9, 1936, to June 10, 1938, and one course of twelve injections of bismarsen from Oct. 15, 1937, to Jan. 14, 1938. The last Wassermann reaction, June 30, 1938, with alcohol was 4 plus and with cholesterol 4 plus, and the Kline reaction was 2 plus. I may add that the patient was discharged to await a recall for further treatment and has as yet not been recalled. The patient has been suffering pain for months in the right leg. An x-ray diagnosis of osteomyelitis (syphilitic?) has been made. Biopsy reveals a nonspecific inflammatory process. Four years ago an identical syndrome (agonizing pain and swelling) existed for a total duration of two months, successively in the left forearm, the left and then the right elbow, disappearing spontaneously. How shall I treat this patient?

LEON PARIS, M.D., Bronx, N. Y.

ANSWER.—The evidence offered by the inquirer is hardly enough from which to make concrete suggestions. In view of the x-ray evidence and the previous positive Wassermann reaction, the patient should be given the benefit of antisyphilitic treatment. The previous treatment was unbalanced, in that the amount of arsphenamine received was inadequate. The patient should be given at least eight doses of arsphenamine and sixteen injections of bismuth, and with this treatment the pain in the leg should disappear if the osteomyelitis is of syphilitic origin. It is sometimes necessary to remove sequestrum surgically from syphilitic osteomyelitis. If the therapeutic test is positive, at least three more similar courses should be given. On the other hand, osteomyelitis in a patient with syphilis may be due to some other type of infection.

EARACHE AND MENSTRUATION

To the Editor:—A white woman aged 23, married, has two living children, none dead, has had no miscarriages and is in general good health. Her chief and only complaint is earache. About ten days before each menstrual period is due she begins to have a slight pain in the right ear; the pain becomes progressively worse until it is almost unbearable. The pain begins to subside until by the time the menstrual flow has started it has entirely ceased. There is no more pain for another month. The pain is always more severe at night. The patient started menstruating at 14; she has always been regular, every twenty-eight days, and usually menstruates for four days. She has never had any pelvic pain—not even the slightest cramps—at her periods. She had never had any pain in the ear prior to the beginning of menstruation but has had it every month since. She has had two children; in each of her pregnancies she had no earache. The youngest child is 5 months of age. One day after the birth of this child the earache began and ran through a cycle similar to a premenstrual cycle. The menstrual periods have not become reestablished since the birth of the last child but each month she has had the earache. Complete physical examination is essentially negative, with the exception of a moderate retroflexion of the uterus; the uterus is freely movable. There is no record of pelvic examination prior to the birth of the first child. Do you think that all the pain is referred and due to the retroversion, or that it is a delayed pain due to ovulation? Also do you think surgical correction of the retroversion will be of any benefit? Exercises, including the knee-chest position, have had no effect. Thank you for any information you may give.

M.D., North Carolina.

ANSWER.—It is quite unlikely that the premenstrual pain in the ear is referred from a retroflexed uterus. It appears, however, that this patient exhibits a unique example of the so-called nasogenital relationship. There is considerable evidence at the present time that the nasal mucosa is involved in ovarian function (Rosen, S., The Nasogenital Relationship, *Arch. Otolaryng.* **28**:556, 1938). Experimentally pseudopregnancy in rats can be produced by several sorts of stimulation of the nasal mucosa. Clinically it is well known that congestion and vasomotor changes of the nasal mucosa, especially that of the turbinates, is manifested during the premenstrual period. It is conceivable that in this patient the congestion of the nasal mucosa occurring in the second half of the menstrual cycle may effect the orifice of the right eustachian tube, thus, resulting in pain which is referred to the ear. Possibly the tissue about the orifice may be responsive to the ovarian hormones through some anomaly.

It is recommended that a thorough nasopharyngeal examination be made at the height of the patient's distress. If mucosal changes are found, it is suggested that the patient be treated as in premenstrual tension with progesterone in doses of 5 mg. intramuscularly twice a week during the premenstrual period. Vasoconstrictor drugs may also be tried.

POSSIBLE TRICHOMONAS PYELITIS

To the Editor —A woman aged 33 gives a history of a great deal of pain in the right side She has had her gallbladder removed, has had several complete and thorough examinations of the kidneys and x-ray examinations with oral dye and intravenous dye, but no definite pathologic change has ever been demonstrated. She recently had a complete hysterectomy, at which time there was no evidence of any other abnormality in the abdomen A number of years ago she had an attack of pyelitis but has been free from it until subsequent to this last operation, and, while still in the hospital, she had another severe attack. This has been repeated during the last two months, with several attacks with chills and fever, but they do not last long She has been under treatment with prontylin (sulfanilamide) and prontosil (the disodium of salt of 4 sulfamido phenyl-2'-azo-7' acetylamino 1'-hydroxynaphthalene-3',6' disulfonic acid) and mandelic acid, alkalization and the like. Recently a specimen of urine was sent to a laboratory in New York and returned with the statement that it showed an ameboid growth with pear shaped flagella thought to be Trichomonas vaginalis It was not a catheterized specimen but a vaginal plug was used *so as to get no contamination.* These were found again subsequently, and were followed by an attack of chills and fever. I believe that it is a fact that this growth does invade the bladder and attaches itself to the bladder wall, but I am wondering if it is known whether they progress up to the kidney pelvis and do the same thing there? If this is true, what is the treatment? I will appreciate any advice you can give me in reference to this.

M D., Wisconsin.

ANSWER.—From the history and observations given, there are still other possibilities than that of Trichomonas vaginalis pyelitis. The organism in question may be closely imitated by the so-called Bodo caudatus. This organism carries two flagella instead of the four of Trichomonas, is considerably smaller and cigar shaped and has no undulating membrane. It is frequently a contaminant of urine that has been allowed to stand for some time. In order to make a diagnosis Trichomonas pyelitis the trichomonas organism should be discovered in a freshly obtained catheterized specimen from the suspected kidney. If this is not possible, at least a bladder specimen should be positive for this organism. A good way to find Trichomonas in a smear is to mix one drop of 0 1 per cent of saffron with a thoroughly centrifuged sediment of the suspected urine. When examined wet under coverglass, Trichomonas will appear clear.

Retrograde pyelography with plates made in both horizontal and upright positions are also indicated, together with cultures of each kidney.

Trichomonas pyelitis is a rare condition but a few cases have been reported. Suggested treatment is lavage of the affected kidney pelvis with 2 per cent mercurochrome once or twice a week followed by vesical instillation of 1 : 1,000 silver nitrate. Also it is of value to lower the *p*H by the use of ammonium chloride, sodium acid phosphate or whatever acidifying agent is available. It might also be suggested that lavage of the kidney could be done with 1 per cent silver nitrate. The source of infection should be looked for in the cervix and vagina and in the genitals of the male sexual partner.

PREGNANCY AND MARITAL SYPHILIS

To the Editor —A secundigravida primipara aged 25 expects confinement May 10. Her husband contracted syphilis four years ago (prior to marriage) and, because of lack of cooperation, has received only spasmodic treatments for the disease, consequently the Wassermann reaction of his blood is still 4 plus *The patient's Wassermann reaction has always been negative, however, because of the husband's history, she received adequate and accepted therapy during her first pregnancy, which terminated in a stillbirth, the baby being grossly normal and the placenta negative for spirochetes Labor was easy and spontaneous.* The patient is now four and one half months pregnant *Her Wassermann reaction is negative and the husband's is 4 plus* Should this patient be treated as having syphilis in order to insure the birth of a living child? If she never did contract syphilis from the husband (he had been partially treated), would *injections of neoarsphenamine* or bismuth or both have an actual harmful effect on the fetus or mother or both? In short, should this woman receive antisyphilitic therapy? Any suggestions would be greatly appreciated.

FRANK J CLARKE, M.D , Brooklyn

ANSWER—Naturally if this patient did not have syphilis injections of neoarsphenamine and bismuth would not be necessary It is not felt that they would have any harmful effect on the fetus or mother, however, and since the husband's syphilis is of such recent date—five or six years at the most—he is still in the period of possible relapse *Also, since he had inadequate treatment, it seems advisable to treat the patient up until the birth of the child* In a case of this type it probably would be well to have an exclusion *test done on the mother.* It may be that, because of her pregnancy, the disease is partially under control for the time being and that the test would reveal nothing but that she has a low grade type of syphilis. On that account and because of the possible danger to the child, treatment for syphilis is recommended. It should be started with a course of arsenicals, followed with a short course of bismuth and ending up with arsenicals until the birth of the child.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 20 22. Sec., Dr. J. N. Baker, 517 Dexter Ave, Montgomery.

ARIZONA: *Basic Science.* Tucson, June 20. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson *Medical* Phoenix, July 5-6. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Medical (Regular).* Little Rock, June 8-9. Sec., State Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, 317 State Line, Texarkana *Medical (Eclectic).* Little Rock, June 8-9. Sec, Dr. Clarence H. Young, 1415 Main St, Little Rock.

CALIFORNIA: *Written examinations.* San Francisco, July 10-13, Los Angeles, Aug. 7-10, and Sacramento, Oct. 16 19. *Oral examinations* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, August 7, and San Francisco, Nov. 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento

COLORADO: *Basic Science* Denver, June 7-8. Sec , Dr. Esther B. Starks, 1459 Ogden St , Denver. *Medical.* Denver, July 10-12. *Applications must be filed on or before June 20.* Sec , Dr. Harvey W. Snyder, 831 Republic Bldg , Denver.

CONNECTICUT: *Basic Science* New Haven, June 10. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven *Medical (Regular).* Hartford, July 11-12. *Endorsement.* Hartford, July 25. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, July 11-12. Sec , Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, July 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St , Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 26 27. *Medical.* Washington, July 10-11. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA Jacksonville, June 19-20. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA. Atlanta, June 7-8 Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 3-4. Dir , Bureau of Occupational License, Mr. H B. Whittlesey, State Capitol Bldg , Boise.

ILLINOIS: Chicago, June 20 22 and Oct. 17-19. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 20 22. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Medical.* Iowa City, June 6 8. *Basic Science.* Des Moines, July 11. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, State Department of Health, Capitol Bldg , Des Moines.

KANSAS: Kansas City, June 13 14. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, June 7-9. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. Third St., Louisville.

LOUISIANA: New Orleans, June 1-3. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans

MAINE: Augusta, July 11-12. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical (Regular).* Baltimore, June 20 23. Sec., Dr. John T. O'Mara, 1215 Cathedral St , Baltimore. *Medical (Homeopathic).* Baltimore, June 20 21. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS Boston, July 11-13. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F *State House, Boston.*

MICHIGAN: Ann Arbor and Detroit, June 14-16. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA. *Basic Science. Minneapolis, June 6-7.* Sec , Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis *Medical* Minneapolis, June 20 22. Sec , Dr. Julian F. Du Bois, *350* St Peter St., St Paul.

MISSISSIPPI Jackson, June 21-22. Asst Sec., State Board of Health, Dr R N. Whitfield, Jackson.

MISSOURI: St. Louis, June 1-3. Sec , State Board of Health, Dr. Harry F. Parker, State Capitol Bldg

MONTANA *Reciprocity* Helena, ena, Oct. 3 4. Sec , Dr. S A Cooney, 216 P

NEBRASKA Omaha, June 8-9. J Boards, Mrs Clark Perkins, State House, Lincoln.

NEW HAMPSHIRE. Concord, Sept 14 15 Sec., Board of Registration in Medicine, Dr. T P. Burroughs, State House, Concord.

NEW JERSEY: Trenton June 20-21. Sec , Dr. Earl S Hallinger, 28 W. State St , Trenton

NEW MEXICO Santa Fe, Oct. 9 10. Sec , Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe

NEW YORK: Albany, Buffalo, New York, and Syracuse, June 26 29. Chief, Bureau of Professional . Hamilton, 315 Education Building, State

NORTH CAROLINA ly D. James, The

No s, July 5 8 Sec , Dr. G M Williamson, 4½ S

OHIO Sec , State Medical Board, Dr. H. M. Platter, 21 W Broad St , Columbus

OKLAHOMA Oklahoma City, June 14. Sec , Dr. James D. Osborn Jr , Frederick.

OREGON *Medical.* Portland, June 20 22 Sec , Dr Joseph F. Wood, 509 Selling Bldg , Portland *Basic Science.* Corvallis, July 8, and Portland, Oct. 28 Sec , State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA Philadelphia and Pittsburgh, beginning July 5 ly 7-8 Dir , Bureau of Professional Licensing 358 Education Bldg , Harrisburg.

P Sept. 5. Sec , Dr. O. Costa Mandry, Box 385

RHODE ISLAND: Providence, July 6 7. Sec , Dr Robert M. Lord, 366 State Office Bldg , Providence.

SOUTH CAROLINA: Columbia, June 27. Sec., Dr. A. Earle Boozer, 505 Saluda Ave , Columbia

SOUTH DAKOTA. Rapid City, July 18-19. Director, Medical Licensure, Dr. G. J. Van Heuvelen, State Board of Health, Pierre.

TENNESSEE: Memphis, June 15-16. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Austin, June 19-21. Sec., Dr. T. J. Crowe, 918 Mercantile Bldg., Dallas.

UTAH: Salt Lake City, June 26-28. Dir., Department of Registration, Mr. G. V. Billings, 326 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 14-16. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 21-23. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WEST VIRGINIA: Bluefield, July 5. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Basic Science.* Milwaukee, June 3. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Milwaukee, June 27-30. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, May 31. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, May 20, page 2086.

Washington January Examination

Mr. Dave S. Cohn, acting director, Department of Licenses, reports the written examination held by the State Board of Medical Examiners at Seattle, Jan. 9-11, 1939. The examination covered seven subjects and included seventy questions. Thirteen candidates were examined, all of whom passed. Seven physicians were licensed by reciprocity and four physicians were licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.
College of Medical Evangelists		(1938)
Northwestern University Medical School	(1938),	(1938)*
Rush Medical College		(1937)
University of Illinois College of Medicine		(1926)
Harvard Medical School		(1925)
Tufts College Medical School		(1921)
Ohio State University College of Medicine		(1938)†
University of Oregon Medical School		(1938)†
Dalhousie University Faculty of Medicine		(1935)
McGill University Faculty of Medicine		(1934)
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1931)
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn		(1920)

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Stanford University School of Medicine		(1935)	California, (1936) Minnesota
University of Colorado School of Medicine		(1933)	Colorado
Washington University School of Medicine		(1932)†	Missouri
University of Oregon Medical School		(1937)	Oregon
University of Pennsylvania School of Medicine		(1933)	Minnesota
University of Wisconsin Medical School		(1936)	California

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists	(1938),	(1938)†	N. B. M. Ex.
Harvard Medical School		(1932)	N. B. M. Ex.
University of Oregon Medical School		(1934)	N. B. M. Ex.

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship. License has not been issued.

† License has not been issued.

Rhode Island January Examination

Mr. Robert D. Wholey, chief, Division of Examiners, reports the oral, written and practical examination held by the Board of Examiners in Medicine at Providence, Jan. 5-6, 1939. The examination covered twenty subjects and included fifty questions. An average of 80 per cent was required to pass. Seven candidates were examined, all of whom passed. Seven physicians were licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.
Georgetown University School of Medicine		(1937)
Johns Hopkins University School of Medicine		(1936)
Tufts College Medical School		(1932), (1937)
Temple University School of Medicine		(1934)
University of Virginia Department of Medicine		(1937)
Université de Genève Faculté de Médecine		(1936)

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Medicine		(1937)	N. B. M. Ex.
Georgetown University School of Medicine		(1935)	N. B. M. Ex.
Johns Hopkins University School of Medicine		(1935)	N. B. M. Ex.
Harvard Medical School		(1933)	N. B. M. Ex.
Tufts College Medical School		(1937, 2)	N. B. M. Ex.
Université de Lausanne Faculté de Médecine		(1920)	N. B. M. Ex.

New York Endorsement Report

Mr. Herbert J. Hamilton, chief, Bureau of Professional examinations, reports forty-two physicians licensed by endorsement from Jan. 9 through Feb. 14, 1939. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine		(1925)	Puerto Rico
College of M			N. B. M. Ex.
Yale Univers			N. B. M. Ex.
Georgetown			
(1937, 2) N. B. M. Ex.			
Loyola University School of Medicine		(1938)	New Jersey
University of Louisville School of			N. B. M. Ex.
Tulane University of Louisiana Schc			siana
Johns Hopkins University School of			ticut,
(1934) Maryland			
University of Maryland School of Medicine and College of Physicians and Surgeons		(1937)	Maryland
Harvard Medical School	(1923) N.B.M. Ex.,	(1934)	Ohio
Tufts College Medical School		(1934)	New Jersey
University of Minnesota Medical School		(1932)	Minnesota
St. Louis University School of Medicine		(1938)	Tennessee
Albany Medical College		(1935)	N. B. M. Ex.
Columbia University College of Physicians and Surgeons		(1932), (1937)	N. B. M. Ex.
Cornell University Medical College		(1937)	Virginia
Long Island College of Medicine		(1935)	N. B. M. Ex.
New York Medical College and Flower Hospital		(1937, 3)	N. B. M. Ex.
New York University College of Medicine		(1936)	N. B. M. Ex.
University of Buffalo School of Medicine		(1931)	N. B. M. Ex.
Eclectic Medical College,		(1938)	Ohio
University of Cincinnati		(1934)	Ohio
Hahnemann Medical Col ila- delphia		(1936)	New Jersey
University of Pennsylvania School of Medicine		(1934)	N. B. M. Ex.
University of Toronto Faculty of Medicine		(1929)	Ontario
Medizinische Fakultät der Universität Wien		(1923)	New Jersey, (1925) Austria
National University of Athens School of Medicine		(1920)	Ohio
Regia Università degli Studi di Catania. Facoltà di Medicina e Chirurgia		(1936)	New Jersey
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1936)	New Jersey
Regia Università di Napoli Facoltà di Medicina e Chirurgia		(1932)	New Jersey
First Moscow Medical Institute		(1921)	U. S. S. R.

Ohio Reciprocity and Endorsement Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports seventeen physicians licensed by reciprocity and two physicians licensed by endorsement, Jan. 17, 1939. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University School of Medicine		(1935), (1938)	Illinois
Rush Medical College		(1936)	W. Virginia
State University of Iowa		(1931)	Iowa
University of Louisville		(1936)	Kentucky
Harvard Medical School		(1937)	Maine
lical School		(1936)	Michigan
of Medicine		(1938)	Missouri
ol of Medicine		(1938)	Missouri
of Medicine		(1926), (1928)	New York
ool of Medicine		(1935)	Oklahoma
ool of Medicine		(1912), (1930)	Penna.
Pennsylvania		(1937)	Penna.
edical School		(1936)	Louisiana
Regia Università degli Studi di Firenze. Facoltà di Medicina e Chirurgia		(1936)	New York

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard Medical School		(1920)	N. B. M. Ex.
University of Oregon Medical School		(1931)	N. B. M. Ex.

South Dakota January Report

Dr. G. J. Van Heuvelen, director, Medical Licensure, reports the written examination held at Pierre, Jan. 17-18, 1939. The examination covered thirteen subjects and included 100 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. One physician was licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Physicians and Surgeons of Chicago		(1905)	76.1
School of Medicine of the Division of Biological Sciences		(1936)	88.9
University of Minnesota Medical School		(1935)	86.7
Creighton University School of Medicine		(1933)	88.7

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1934)	W. Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Minnesota Medical School		(1937)	N. B. M. Ex.

Book Notices

Lead in Food. By G. W. Monier-Williams, O.B.E., M.C., M.A., Ministry of Health, Reports on Public Health and Medical Subjects, No. 88. Paper. Price, 1s. Pp. 51. London: His Majesty's Stationery Office, 1938.

The problem of lead in foods is attracting a great deal of attention and the British Ministry of Health deserves credit for sponsoring the present brief but authoritative account of what is known about the subject. The author has reviewed the literature on the absorption, excretion and storage of lead in the body. The section on lead in the body includes a discussion of the use of alloys, solders, enamels and glazes containing lead in connection with the manufacture, storage, transportation or cooking of food; the use of ingredients in the production of which materials containing lead have been used, or which have been manufactured in lead lined vessels; the presence on fruits and vegetables of spray residues containing lead arsenate or other lead compounds; the exposure of food to dust containing lead, such as that produced by the weathering of lead paint, and the amount of lead in sea foods. The author describes a modification of the diphenylthiocarbazone (or dithizone) method for the determination of minute amounts of lead. The lead is isolated from the ashed material by means of dithizone but subsequently is converted to the sulfate and finally estimated colorimetrically as the sulfide. Data are provided on the lead content of a number of foods as determined by this method. In a list of 118 foods analyzed, thirty-five are reported as having a lead content that is nil. In the light of recent investigations in the United States, practically every food that has been examined has been found to contain a detectable amount of lead. It would seem that the author's method was not sensitive enough to detect the traces which other methods have been able to determine. There is considerable interest to the author's conclusion about the limits for lead in foods from the point of view of public health. The opinion is advanced that a total intake of 1 mg. of lead daily, presumably by adults, must be regarded with suspicion and efforts should be made to eliminate the sources of lead.

Leben und Ernährung. Von Dr. Max Winckel. Bücher der Hygiene und Volksernährung, Band I. Herausgegeben von Max Winckel. Paper. Price, 1.80 marks. Pp. 86. Berlin: Deutsche Verlagsgesellschaft m. b. H., 1938.

During times of stress proclamations are issued by governments or words of advice are offered by patriotic individuals which relate to the selection of foods. Usually the suggestions are bad in either case. They can be excused only because of the exigencies of the situations which produce them. More than a century ago there occurred the famous recommendation made in France about subsistence on gelatin, which two scientific commissions later showed to be impossible. More recently there were during the World War restrictions on the dietary habits of all people. Even America felt the effects to a moderate extent. Recipe booklets for wheatless bread are interesting items for the collection of any nutritionist interested in the history of diets. So also are accounts of disasters resulting from the misguided advice to eat such substances as rhubarb leaves. The accounts of human dietaries in Germany and Austria during the World War are replete with examples of the horrible effects of war, particularly on children. The present book of dietary advice to the German people may be excusable on the basis of what must be done to feed the people, but it is neither scientific nor completely accurate. It is understood from the foreword that it is the first of a series of monographs on food products intended for the average German reader. The other monographs in the series will be on the garden and health, biochemistry of the kitchen, the daily diet of the family, diet kitchens and subsistence of the masses, and nutrition of the mother and child. The present book is a tract devoid of illustrations or charts but containing many italicized statements. It is obviously propaganda by the German state to persuade people that restriction of calories and the eating of foods which are available rather than those which are more difficult to obtain is nutritionally advantageous. The reader is told repeatedly that it is his responsibility to the state to maintain himself in excellent nutritive condition. This is to be done by reducing the daily intake of calories and increasing the consumption of those products which are readily available in present day Germany. It is recommended that the fat content of the diet should be reduced from its present average level for the adult of 100 Gm. daily to 80 Gm. and that the calories should be reduced from 3,200 to 2,900 each day. It is also recommended that the daily protein content of the diet should be reduced to 80 Gm. and should be secured from milk and potatoes instead of meat. For the most part coffee and tobacco are banned. While some of the arguments presented have some factual basis, for many assertions the support is relatively poor. But the reader is assured that by following the advice which is given he will aid the führer in his "deliverance" program for national socialist Germany.

The Surgery of Oral and Facial Diseases and Malformations: Their Diagnosis and Treatment Including Plastic Surgical Reconstruction. By George Van Ingen Brown, D.D.S., M.D., C.M., Plastic Surgeon, Children's, St. Mary's, Columbia, and Milwaukee County Hospitals, Milwaukee, Wisconsin. Fourth edition. Cloth. Price, $10. Pp. 778, with 1,031 illustrations, including 12 colored plates. Philadelphia: Lea & Febiger, 1938.

Although this edition contains a few less pages than previous editions, it is much more complete. The author has utilized his extensive clinical experience with pathologic conditions about the head and neck, and especially of the face and mouth, to present what comprises largely the sum and substance of present day information concerning faciomaxillary diseases and surgical procedures for their alleviation. As stated in the preface, the subjects are presented in such order and with sufficient descriptive matter that the book is well adapted to students' requirements in classroom instruction; at the same time it is suitable for practitioners. It is also arranged in such a manner as to supply a reliable source of reference for the diagnosis and treatment of pathologic changes in the oral and facial regions and also to serve as an operative guide for those specializing in the surgical procedures of these regions. The chapters dealing with oral and facial neoplasms and diseases of other types have been revised and condensed, and a number of chapters concerned with plastic operations of the various portions of the face and neck have been added. In addition the chapters on harelip, cleft palate and other congenital defects and deformities have been made more complete. The text is elucidated and rendered more graphic by a greatly increased number of illustrations, which are decidedly better than those contained in previous editions. A number, however, and especially some of the colored plates, do not approach the high standard of the rest of the work. In general the subject matter is clearly and concisely presented, and the author is an authority in this field. The book should be a valuable addition to any medical library.

An Introduction to Bacteriological Chemistry. By C. G. Anderson, Ph.D., D.Bact., Lewis Cameron Teaching Fellow, Bacteriology Department, University of Edinburgh. Cloth. Price, $4. Pp. 278. Baltimore: William Wood & Company, 1938.

This well written, compact and well organized textbook is the outcome of a course of lectures on the subject. The first five chapters discuss hydrogen ion concentration, oxidation-reduction and the general composition of bacteria, fungi and yeasts briefly but clearly. The next four chapters deal with the nutrition of bacteria, treating growth factors, autotrophic and heterotrophic bacteria, and adaptive and constitutive enzymes. The subject of bacterial respiration is especially well developed from the point of view of the fundamental chemical reactions involved. Nitrogen metabolism is discussed from the point of view of assimilation, sparing action and the usual paths of deaminization and step by step oxidation. Carbohydrate metabolism and alcoholic fermentation are presented from the truly modern biochemical view. The specific and remarkable activities of some fungi in fermentation processes and some of the industrial applications are considered briefly. The proteins of micro-organisms and lipins are treated briefly but satisfactorily. The polysaccharides in these forms are discussed satisfactorily under the subdivisions of true complex polysaccharides and specific soluble aldobionic acid derivatives. The unsatisfactory state of our knowledge of the chemistry of bacterial pigments is emphasized. Antigens, haptens, antibodies, complement and the mechanism of antigen-antibody reactions the

author treats in the main on the chemical basis, which has developed as a result of Landsteiner's investigations. A practical discussion of the isolation and identification of metabolic products and an excellent index close the book. The author rarely refers to original papers, but in most cases the chapters close with a few references to monographs or review articles. Every bacteriologist and biochemist could well afford to read this brief but excellent treatment of a complex and rapidly developing aspect of bacteriology.

Der Rheumatismus: Sammlung von Einzeldarstellungen aus dem Gesamtgebiet der Rheumaerkrankungen. Herausgegeben von Professor Dr. Rudolf Jurgens, Stellv. Direktor der Universitatsklinik fur natürliche Heil- und Lebensweisen Berlin. *Band I: Übungstherapie bei rheumatischen Erkrankungen.* Von Geheimem Sanitätsrat Dr. P. Kohler. *Band II:* Anleitung zur klinischen Analyse des Infektiosen Rheumatismus. Von Professor Dr. med. A Slauck, Chefarzt des Landesbades und Leiter des Rheumaforschungsinstituts in Aachen. Boards. Price, 5 marks each Pp. 100, with 22 illustrations; 78, with 6 illustrations. Dresden & Leipzig: Verlag von Theodor Steinkopff, 1938.

The author believes that physical and occupational therapy play an important part in the treatment of rheumatism; therapy serves as an aid to physiologic healing. One chapter is devoted to the functional role of bones, joints, muscles and nerves. The formulation of a logical plan of action is necessary for each case. The questions which must be considered specifically are the need for rest or exercise, position, the use of traction, extension or hyperextension and the application of some form of strapping or bandage. A good expository outline briefly evaluates passive and active exercises, both local and general, relaxation, circulatory factors, combination exercises and group exercises. Chronic arthritis can be alleviated by specific forms of physical therapy. The final chapter in the first volume consists of an outline of regional exercises and may serve as a ready reference for routine procedures. The second volume is by Dr. Slauck, who is chief of the national baths and head of the research institute for rheumatism at Aachen. His purpose is to clear a way for the general practitioner through the confusion, since the general practitioner is the first to see patients with rheumatism and is in a position to institute early therapy. Prophylaxis is difficult, since one cannot anticipate which source or focus will give rise to the rheumatic condition. Slauck believes that acute rheumatic fever has a focal source of infection. The chief foci, in his opinion, are sinuses, teeth and tonsils, which cause a "focal toxicosis" which spreads by the hematogenous route. In cases of early involvement the foci must be found and eradicated before any other treatment is considered. This is true also in cases of chronic rheumatism, but physical therapy and balneotherapy may be started at once. The author states that too much should not be expected of antifocal therapy.

Pathologische Histologie: Ein Unterrichtskurs für Studierende und Arzte. Von Dr. Max Borst, o. o Professor der allgemeinen Pathologie und der pathologischen Anatomie an der Universitat Munchen. *Third edition. Paper. Price, 75 marks.* Pp. 522, with 361 illustrations. Berlin: Julius Springer, 1938.

This textbook, which first appeared in 1921, was described by Borst as an attempt to develop a book which would emphasize pathologic histology. He said at that time, furthermore, that a better understanding of etiology, pathogenesis and function would require a more detailed microscopic analysis of morbid processes. This edition is an amplification of the material with these ends in view. Almost all the illustrations are in color. They are, however, not photomicrographs but are mostly drawings which at best are poor substitutes for reality. The book deals essentially with special pathology, and no attempt is made to present a general point of view. The author has given a brief and incomplete description of the normal structure of each organ, seemingly an unnecessary feature for the student, who presumably has studied histology before beginning his studies of pathology. The general treatment of the particular diseases is extremely brief and there are no references to the works of others. The main value lies in the concentration on histologic pathology, and many pathologists will be interested in the way Borst handles this phase of pathology. As a textbook for American students, however, the book is entirely too skimpy and inadequate to be of much value.

The British Encyclopaedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects. Under the General Editorship of Sir Humphry Rolleston, Bt., G.C.V.O., K.C.B., M.D. *Volume X:* Poisons Legislation to Rosacea. Cloth. Price, $12 Pp. 694, with 91 illustrations including 11 plates. Toronto & London: Butterworth & Co. (Publishers), Ltd., 1938.

This volume covers such important topics as poliomyelitis, postmortem examinations, pregnancy, diseases of the prostate, psychiatry and psychoanalysis, pyelitis, radiology, refraction, resuscitation and rheumatic infection. The consistency and uniformity of the discussions are amazing when one considers the vast scope of the encyclopedia. It is perhaps due to the general editorship of Sir Humphry Rolleston and the high order of the groups of consultants and associate editors that this result has been achieved. Unfortunately this volume suffers, as have other encyclopedias, from the fact that medical progress is now so rapid that some of the material is well nigh obsolete by the time it is published. Thus the article on poliomyelitis makes no reference whatever to the recent attempts to block the path of entry by caustic solutions, nor is there any reference in the article on psoriasis to recent endeavors to control the condition by high doses of vitamin.

A Textbook of Neuro-Radiology. By Cecil P. G. Wakeley, D.Sc. F.R.C.S., F.R.S.E., Senior Surgeon, King's College Hospital and West End Hospital for Nervous Diseases, and Alexander Orley, M.D., D.M.R.E., Radiologist, West End Hospital for Nervous Diseases, London. Cloth Price, $8. Pp. 336, with 229 illustrations. Baltimore: William Wood & Company, 1938.

An adequate compendium of neuroradiology would be welcome to neurologists as well as to roentgenologists. However, this volume, a first attempt at supplying the need, does not succeed. The text contains many quotations from the literature but does not impress one as representing a thorough and detailed experience in the field. Further evidence for this assumption is the paucity of good illustrative roentgenograms of the skull demonstrating individual pathologic processes The text is written in a terse style and conditions of interest are too briefly discussed. The book is not a substitute for a knowledge of the literature. It is not highly recommended but may be of some use for beginners in the field until they acquire personal experience.

Silikosen i den danske Industri. Af V. Stub-Christensen. [Silicosis in Danish Industry.] Denne Afhandling er af det lægevidenskabelige Fakultet antaget til offentlig at forsvares for den medicinske Doktorgrad, København. Paper. Pp. 312, with 70 illustrations. Copenhagen: Levin & Munksgaard, 1937.

A thesis in connection with the acquisition of a doctor of medicine degree, this book embraces a three year study at the Silkeborg Sanatorium in Denmark. The period of observation ended in 1932, although publication was not made until 1937. The author says that much less concern was exercised over silicosis, asbestosis and other forms of pneumoconiosis in Denmark than in several other countries. Appraised at this later time, his own grasp of such diseases and his understanding of the underlying pathologic change appear to have been far in advance of the general level throughout the world in 1931. The major industries studied were sandblasting, molding (foundries), stone cutting, sandstone and granite cutting, millstone work, cement making, the manufacture of cleansing powders, metal grinding, including instrument grinding, and brick making. The book has four major divisions: the general clinical and laboratory aspects of dusty lung diseases, a description of the industries involved, a careful recording of case histories by industries, and the presentation of seventy beautiful illustrations, chiefly roentgenograms but including reproductions of gross and microscopic tissue preparations. The lament often arises that roentgenograms of silicotic chests cannot be produced with high fidelity. The ones in this book are far superior to those usually found. There is a fine presentation of the cases of 300 disabled workers, of whom 70 per cent were decidedly disabled and 30 per cent mildly so. Sixty-two per cent had silicosis, 3 per cent tuberculosis alone and 13 per cent silicotuberculosis. Because of language difficulties the book cannot be generally recommended to the physicians of the United States, but for physicians, public health workers and others concerned in the international aspects of dusty lung diseases here is the Danish entry.

A Textbook of Pathology for Use in Schools of Nursing. By Armin V. St. George, M.D., Lecturer in Pathology, Bellevue School of Nursing, New York City. Second edition. Cloth. Price, $1.75. Pp. 238, with 20 illustrations. New York: Macmillan Company, 1938.

The author presents pathology clearly, covering the majority of the material that is included in the standard textbooks. In great part it is expressed in a form that is too brief and inadequate for present day teaching requirements in training schools for nurses. The chapter on the urinary tract stands out above the others. There is an anatomic, physiologic, pathologic and clinical correlation which gives one a fairly good insight into the various entities included under the broad heading Bright's disease. The concluding chapter is an added useful feature describing essentially clinical pathologic methods and their interpretations.

Laboratory Manual of Hematologic Technic Including Interpretations. By Regena Cook Beck, M.A., M.D., Pathologist to Stuart Circle Hospital and Director of the Stuart Circle Hospital School of Medical Technology, Richmond, Virginia. With a foreword by Frank W. Konzelmann, M.D., Professor of Clinical Pathology, Temple University, Philadelphia, Pa. Cloth. Price, $4. Pp. 389, with 79 illustrations. Philadelphia & London: W. B. Saunders Company, 1938.

A number of concise and comprehensive textbooks on hematology have recently been written, but this is the first comprehensive textbook on hematologic technic. While written expressly as a manual for technicians, it will undoubtedly find a greater field of usefulness. The data are current and well organized. The author has been able by careful editing to present a maximum amount of well illustrated material in a minimum of space. At the end of each chapter are lists of questions for the purpose of aiding the reader to fix the salient facts. Lists of defined terms throughout the book will enable the technician to become familiar with a workable hematologic vocabulary. The book is highly recommended as a hematologic manual for laboratory technicians and a convenient source of information on hematologic procedures for medical students and physicians.

Reflektorische und algetische Krankheitszeichen der Inneren Organe. Von Professor Dr. K. Hansen und Dr. H. von Staa. Paper. Price, 26 marks. Pp. 270, with 127 illustrations. Leipzig: Georg Thieme, 1938.

This monograph is concerned with the well known investigations of Head and Mackenzie, some of the observations of Knotz and further observations by the authors on reflex and pain symptoms in diseases of various organs. The introduction deals with the historical development of the subject. The next discussion is devoted to methods. The difference in the size of the pupils was recorded by infra-red photography. The photographs are instructive and sharply defined. Many physicians will be surprised at the finding of mydriasis on the same side in 88 per cent of all cases of unilateral organic disease. Other unilateral symptoms noted were widening of the palpebral aperture, facial spasm, postural changes, asymmetrical respiratory motions, and herpes. The authors describe their technic of detecting differences in tissue tension (besides muscle). Vasomotor disturbances, pilomotor reflexes, referred pain and, finally, the so-called viscerovisceral reflexes are described. The greatest part of the monograph is devoted to case reports and tables concerning reflex and pain symptoms of disease in various organs. There are abundant schematic diagrams and an adequate bibliography. The basic clinical material is well documented and analyzed, and the neurologic analysis of the described symptoms is well done. The monograph represents a carefully conducted study which should interest a large number of practicing physicians.

Mental Nursing in Observation Wards. By I. M. Sclare, L.R.C.P.S., Mental Observation Wards, Stobhill Hospital, Glasgow, N. Foreword by A. S. M. Macgregor, O.B.E., M.D., D.P.H., Medical Officer of Health, Glasgow. Cloth. Price, $2. Pp. 259. Baltimore: William Wood & Company, 1938.

This volume was written for a special group of nurses, those who are working with mental patients in general hospitals. It does not seem to fit its purpose adequately and is probably not as good a book for educating mental ward nurses as those produced in this country by Sands and Noyes. It is a brief summary of the various types of psychoses. Not much detail is given in the matter of nursing and the special care of patients. A short chapter dealing with what the author calls normal psychology is a much too brief sketch of basic psychodynamics. The chapter on the anatomy and physiology of the nervous system is too short to be of much value. The last chapter is even more cursory and deals with the duties of nurses in mental observation wards. The volume is too inadequate to give a nurse much idea of her duties. Either the work done in the observation wards in the British Isles is not as thorough as that done in hospitals such as Bellevue and Cook County, or this book is not a fair demonstration, for it certainly does not cover the involved technics required for properly dealing with the patients brought into the general hospital to be cured in a short time or to be committed permanently to hospitals for the insane. The style is good and the diction simple, but the book seems to serve no purpose in our American mental health program.

Anatomia del neonato. Da Francesco Bellelli. Prefazione del Prof. Sen. Giulio Salvi. Paper. Price, 30 lire. Pp. 229, with 109 illustrations. Naples: G. U. F. "Mussolini" Sezione Editoriale, 1938.

An "Anatomy of the Newborn" should be a welcome contribution not only to anatomists but to obstetricians and pediatricians as well. Bellelli's book represents one of the first attempts to gather the hitherto scattered data from original articles, textbooks of anatomy and handbooks. The bibliography comprises 163 titles, most of which refer to contributions by Italian authors. The pertinent literature is fairly considered throughout the book, although there are certain omissions. For instance, Scammon and Calkin's valuable data on body dimensions of the newborn are not included. One misses a consideration of specific growth rates and of the relative position of the newborn with respect to prenatal and postnatal growth rates of the body as a whole or of the various systems. Only the general changes in the major proportions between birth and adulthood are discussed. The largest part of the book constitutes a compilation and discussion of previously published observations. Likewise most of the illustrations are taken from previous authors. Their quality leaves something to be desired. It is regrettable that the author has failed to supply much needed original ones in this field in spite of the many dissections which he apparently has made. The book is concerned only with descriptions of gross anatomy and topographic relations. The subject matter is subdivided into ten chapters, on definition of newborn, external form and body proportions, osteology, articulations, myology, angiology, splanchnology, glands of internal secretion, neurology, and skin and sensory organs. The author defines newborn as born at term and having accomplished for the first time all or some of the elemental vital acts.

Archiv und Atlas der normalen und pathologischen Anatomie in typischen Röntgenbildern. Röntgenatlas der Asbestose der Lungen. Von Prof. Dr. Erich Saupe. Fortschritte auf dem Gebiete der Röntgenstrahlen, Ergänzungsband LIV. Herausgegeben von Prof. Grashey. Paper. Price, 19.50 marks. Pp. 99, with 52 illustrations. Leipzig: Georg Thieme, 1938.

In this monograph Saupe introduces his thesis with a brief historical account of the mineral asbestos and a chapter devoted to its geology, mineralogy, chemistry and technology. Subsequent chapters consider the pathologic anatomy of the disease asbestosis, its clinical symptoms, signs, complications, x-ray appearances, prognosis and therapy. There are chapters on the difference in individual susceptibility to the dust, the medical and technical methods for control of the disease and the asbestos body and its clinical significance when found in the sputum. The author stresses the important points adequately. The mineral is classed as a fibrous magnesium silicate which on inhalation causes diffuse fibrosis of the pulmonary tissue. The fibrosis is most pronounced in the interalveolar and interlobular septums of the lung. Clinically there is no characteristic subjective or objective evidence. In cases of far advanced involvement there are often a chronic slightly productive cough, appreciable dyspnea, decreased chest resonance and fine or coarse vesicular breath sounds. The monograph gives a detailed description of the x-ray appearances of the disease. In the early stages, or first degree asbestosis, an increase is noted in the pulmonary markings at the base of the lung. As the disease progresses these markings become more prominent and a fine mottling appears, which in the late stage, or third degree asbestosis, imparts to the roentgenogram a diffuse haziness. These various changes are depicted in the atlas, in which forty-four case histories are presented. The roentgenographic reproductions are exceptionally good, although in numerous instances they do not

allow visualization of the changes described in the text. This is pardonable, since at best it is difficult to reproduce the distinctive morphologic details shown on the x-ray film. The bibliography is recent and sufficient for further study of the subject. The monograph should prove of distinct value to all those who have to do with pulmonary disease due to the inhalation of dust, for it provides a brief and concise discussion of what is known about asbestosis.

Lærebok i generell bakteriologi og serologi. Av Th. Thjøtta, Dr. med. [Textbook on General Bacteriology and Serology.] Cloth. Pp. 384, with illustrations. Oslo: Fabritius & Sønners Forlag, 1938.

The history of bacteriology, the morphology and growth of bacteria, infection and immunity and hypersensibility are considered. The presentation is systematic and comprehensive but not dogmatic. The author is evidently a good teacher; his style is lucid and lively. Besides instructive illustrations of technical matters, mostly photographs, are portraits drawn by the author of many of the investigators referred to in the text, with thumbnail biographic sketches in footnotes. A companion volume will follow, dealing with special bacteriology and immunology. This one gives an excellent summary of general bacteriology and serology in their relation to practical medicine.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Failure to Discover Redislocation of Shoulder Joint.—The plaintiff injured his right shoulder and twelve days later, May 29, employed the defendant, a physician, to treat him. The defendant examined him with the aid of a fluoroscope and found a subglenoid dislocation of the right shoulder joint. The physician, according to his own testimony and that of his nurse, reduced the dislocation by manipulation. He did not examine the plaintiff further to determine whether reduction had been accomplished other than to observe the freedom of movement of the joint when the plaintiff placed his right hand on his opposite shoulder and on the top of his head. There was evidence that he warned the plaintiff of the danger of redislocation and advised him to refrain from working and to return in three days. Later, the plaintiff suffered a redislocation of his right shoulder joint, apparently while still under the care of the defendant although he had also consulted a chiropractor. In September roentgenograms, which the defendant for the first time caused to be taken, showed a dislocation of the right shoulder joint. By that time the muscles of the injured arm had begun to atrophy and an operation, the success of which was doubtful, was necessary if the dislocation was to be reduced.

For failure to discover the redislocation the plaintiff sued the defendant. From an order of the trial court overruling his motion for a directed verdict and from a judgment in favor of the plaintiff, the physician appealed to the Supreme Court of Oklahoma.

The testimony of the two parties as to what occurred was conflicting. The plaintiff claimed that he derived no relief from pain on his first visit to the defendant and that he returned for treatment five or six times during the ensuing four months, always insisting that there was still something wrong with his arm and, until his visit in September, receiving assurances from the defendant to the contrary. The defendant, however, testified that the plaintiff did not return for treatment after May 29 as directed but remained away until September. The Supreme Court could not agree with the defendant's contention that the evidence was insufficient to warrant the trial court in submitting the case to the jury. The testimony adduced by the plaintiff tended to show that the defendant attended the plaintiff at various times between May and September and that the plaintiff's right shoulder joint was redislocated during that period but the physician failed until September to discover its existence. If, said the court, by methods known to the physician a redislocation could have been discovered and he failed to use such methods, then he was guilty of negligence.

Although the medical testimony established that in most cases of this type a physician can ascertain by manipulation, such as the defendant claimed he used, whether or not a shoulder joint is dislocated, some of the testimony tended to show that the use of roentgenograms is probably the best method of making this determination. By his own testimony the defendant in effect admitted that, if there was any doubt as to whether or not a dislocated shoulder had actually been reduced, it would be negligence to fail to take roentgenograms. In the judgment of the court, therefore, the evidence, when considered in the light of every reasonable inference favorable to the plaintiff, was sufficient to raise a question in reasonable minds as to whether or not the defendant had been negligent.

The defendant contended that, even though he was negligent, there was no evidence from which the jury could determine whether the condition of the plaintiff's arm was due to the character of the original injury or to the defendant's lack of care and skill in treating it. This contention, answered the Supreme Court, ignored the undisputed fact that the condition of the dislocated shoulder joint was aggravated by failure to reduce it and by allowing it to remain dislocated for some months, and that the plaintiff's chance of permanent complete recovery was thereby greatly decreased.

In the opinion of the court, the evidence warranted a verdict in favor of the plaintiff. The judgment of the trial court in favor of the patient was therefore affirmed.—*Stagner v. Files (Okla.), 78 P. (2d) 418.*

Society Proceedings

COMING MEETINGS

American Association for Thoracic Surgery, Los Angeles, July 5-7. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of Industrial [illegible], Cleveland, June 5-8. Dr. V. S. Cheney, [illegible], Union Stock Yards, Chicago, Secretary.

American Dermatological Association, Montebello, Canada, May 31-June 3. Dr. Fred D. Weidman, University of Pennsylvania Medical Laboratories, Philadelphia, Secretary.

American Neurological Association, Atlantic City, N. J., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Buffalo, N. Y., June 5-8. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Physiotherapy Association, Denver, June 25-30. Mrs. Eloise T. Landis, 2065 Adelbert Road, Cleveland, Secretary.

American Proctologic Society, Brooklyn, N. Y., June 25-27. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

American Urological Association, White Sulphur Springs, W. Va., May 29-June 1. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Maine Medical [illegible] Springs, June 25-27. Dr. F. R. Carter, 22 Ars [illegible]ry.

Massachusetts M [illegible] June 6-8. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.

Medical Library Association, Newark, N. J., June 27-29. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Minnesota State Medical Association, Minneapolis, May 31-June 2. Dr. B. B. Souster, Lowry Medical Arts Bldg., St. Paul, Secretary.

Montana, Medical Association of, Butte, June 28-30. Dr. Thomas L. Hawkins, 50 North Main St., Helena, Secretary.

National Gastroenterological Association, New York, June 1-2. Dr. G. Randolph Manning, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, Boston, June 26-29. Dr. Charles J. Hatfield, 50 West 50th Street, New York, Secretary.

New Hampshire Medical Society, Manchester, June 8-9. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 6-8. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

Pacific Coast Oto-Ophthalmological Society, San Francisco, June 19-22. Dr. C. Allen Dickey, 450 Sutter St., San Francisco, Secretary.

Pacific Northwest Medical Association, Spokane, Wash., June 26-29. Dr. C. W. [illegible] 407 Riverside Avenue, Spokane, Wash., Secretary.

Rhode [illegible] Providence, June 7-8. Dr. Guy W. Wells, 124 [illegible]ce, Secretary.

Vancou[illegible] Summer School, Vancouver, B. C., June 6-9. [illegible]3 Medical Dental Bldg., Vancouver, B. C., Secretary.

West Virginia State Medical Association, White Sulphur Springs, July 10-12. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

8: 305-344 (March) 1939

Clinical Types of Circulatory Failure and Their Treatment. W. G. Harrison Jr., Birmingham —p 305
Use of Living Fascial Transplants in Certain Types of Hernias. J. L. McGehee, Memphis, Tenn —p 309
Problems in Diagnosis of Hyperthyroidism. T. S. Claiborne, Atlanta, Ga —p 316
Puerperal Sepsis. T. M. Boulware, Birmingham —p 318.

American Journal of Diseases of Children, Chicago

57: 489 738 (March) 1939

Giant Cell Pneumonia of Infancy as Manifestation of Vitamin A Deficiency. B. Chown, Winnipeg, Manitoba —p 489
Effects of Whooping Cough on Tuberculosis. M. Siegel, New York, and Esther W. Goldberger, Staten Island, N. Y. —p 506
*Hypothyroidism and Cretinism in Childhood. VI. Influence of Thyroid Therapy on Mental Growth. A. W. Brown, I. P. Bronstein and Ruth Kraines, Chicago —p 517.
Immunologic Response to Ingestion of Foods by Normal and by Eczematous Infants. V. W. Lippard, New York —p 524
Experimental Paralysis in Monkeys Completely Recovered from Poliomyelitis Produced by Cultures of Material from Patients with Measles. J. A. Toomey, Cleveland, and H. M. Weaver, Detroit —p 541.
Effect of Yeast Extract (Vitamin B Complex) on Growth and Development of Premature Infants. H. R. Litchfield, J. Lichterman, I. Knoll and I. Kurland, Brooklyn —p 546
Growth in Children with Mongolism. Four Year Study of Eight Patients. A. A. Werner, J. Lewald, G. A. Johns and D. Kelling, St. Louis —p 554
*Diphtheria Scratch Test. M. Grozin, Flushing, N. Y. —p 564
Anamnestic Reaction of Tuberculin. Preliminary Report. J. B. Novak and J. S. Kruglick, Chicago —p 570
Diabetes Insipidus in Children. Critical Review of Etiology, Diagnosis and Treatment, with Report of Four Cases. J. Warkany and A. G. Mitchell, Cincinnati —p 603

Thyroid Therapy in Hypothyroidism and Cretinism.—Brown and his colleagues studied psychologically twenty-nine cretins and four "juvenile hypothyroid" children who were being actively treated with thyroid. The psychologic tests were given over a period of from one to seven years to determine by quantitative measurement both the amount and the nature of their mental development. These observations support the following conclusions. 1. Cretins if treated are not all predestined to a fixed low mental age. A small proportion of them may develop normally. 2. There is evidence that early recognition of the abnormal condition and active and persistent treatment thereafter are the important factors in producing ultimate mental development. 3. There are a number of factors which may account for the failure of some children to respond to treatment even though it is initiated early. 4. In general, there was a slight increase in the intelligence quotient during the period of treatment. The increase was greatest for those who began treatment early. Even with treatment, most of the children remained severely retarded, having intelligence quotients below 70. The chances are that at maturity their mental level will not be much above 10 or 11 years. 5. There is no evidence that cretins have any special aptitudes or abilities. The retardation seemed general. 6. The mental growth curves seemed to have the same general shape as the curve for the average child except that they were at a lower level. 7. Examination of a number of the siblings indicated that the cretins did not come from families of low intellectual status. 8. In a study of thirteen cretins there appeared to be some relation between development of carpal bones and mental age.

Diphtheria Scratch Test.—The diphtheria scratch test is performed and read in the same manner as the Pirquet test for tuberculosis, except that diphtheria toxin is used. The work that Grozin reports is based on investigations carried out by Reh. The scratch test was performed as a routine on 100 children at the Queens General Hospital and was found to compare favorably with the Schick test. Regardless of the illness for which these patients were admitted to the hospital, there was never any unfavorable reaction to the test. The material used for testing was a toxin containing 30 flocculating units per cubic centimeter, originally of 1,200 minimum lethal doses per cubic centimeter. The results as compared with those of the Schick test were as follows: There was complete agreement in 92 per cent of the cases. In one case there were a positive Schick reaction and a negative reaction to the scratch test. However, this patient had been immunized with 1,200 units of antitoxin after the positive Schick reaction and the scratch test was done several days later. As to the other cases in which there was disagreement, the Schick reaction was negative and the scratch test positive in four cases and the Schick reaction questionably negative and the reaction to the scratch test positive in two cases.

American Journal of Hygiene, Baltimore

29: 61-120 Section A (March) 1939. Partial Index
45-118 Section B
45-110 Section C
47- 82 Section D

Section A

Tuberculosis in the Negroes of Georgia: Economic, Racial and Constitutional Aspects. G. D. Williams, St. Louis, and J. D. Applewhite, Macon, Ga.—p. 61.
*Relation of Mortality from Certain Respiratory Diseases to Climatic and Socio-Economic Factors. L. P. Herrington and I. M. Moriyama, New Haven, Conn —p. 111.

Section B

Neutralization Tests with Serums from Poliomyelitis Patients in Los Angeles. J. F. Kessel, T. D. Stimpert and R. T. Fisk, Los Angeles. —p. 45.
Variations in Strains of Poliomyelitis Virus. F. D. Stimpert and J. F. Kessel, Los Angeles —p. 57.
Agglutinins for Shigella Alkalescens in Serums of Normal Human Individuals and of Patients With and Without Shigella Alkalescens Infections. E. Neter and R. S. Gilfillan, Buffalo.—p. 67.
Production and Standardization of Diagnostic Antipneumococcus Serums. H. W. Lyall and Helen R. Odell, Albany, N. Y.—p. 103.
Types of Hemolytic Streptococci Found in Scarlet Fever Patients and in Throats of Grammar School Children. J. H. Bailey.—p. 107.

Section C

Numerical Relations Between Young Red Cells and Parasites Throughout the Patent Period in Infections with Plasmodium Cathemerium. R. Hewitt, Baltimore —p. 45.

Section D

*Trichinosis in the Chicago Area. M. Hood and S. W. Olson, Chicago. —p 51.
Prevalence, Distribution and Intensity of Infestation of Ascaris Lumbricoides, Trichocephalus Trichiura, Hymenolepis Nana, Enterobius Vermicularis and Hymenolepis Diminuta in Fifty-Six Counties of Florida. W. S. Leathers, A. E. Keller, Nashville, Tenn., and W. A. McPhaul, Jacksonville, Fla —p 57.
Blood Chemistry in Human Trichinosis. H. B. Pierce, E. Hartman, W. J. Simcox, T. Aitken, A. B. Meservey and W. B. Farnham, Burlington, Vt —p. 75

Mortality from Respiratory Diseases.—Herrington and Moriyama studied the statistical relationship between mortality from several diseases of the respiratory system and certain climatic and socio-economic factors in the United States Registration Area (forty-four states) for the period from 1921 to 1930, inclusive. The diseases selected for study were influenza, bronchopneumonia, lobar pneumonia and asthma. In view of the high incidence of bronchopneumonia during the first year of life, mortality rates for bronchopneumonia have been classified in two age groups (less than 1 and more than 1 year of age). States with high influenza mortality are all Southern states, while low mortality rates are, in general, shown by the states along the North Atlantic seaboard. The states having high mortality rates for bronchopneumonia and lobar pneumonia are located in the northeastern section of the country. There is no evidence of a geographic distribution in the group of states with low pneumonia death rates. In asthma mortality New York, Massachusetts and three other New England states are among the five states showing low rates. There does not appear to be a definite regional concentration of states with high mortality rates from asthma; two Southwestern states, Arizona and Colo-

rado, lead the list. The asthma death rate in Arizona is conspicuously high as compared to the rates of other states. Bronchopneumonia and lobar pneumonia mortality are associated with the more densely populated urban areas. The coefficients in the climatic panel indicate that all the respiratory disease mortality rates are associated with normal temperature. There is no evidence of a significant association between normal temperature and pneumonia mortality in the zero order correlation analysis, but both bronchopneumonia (more than 1 year) and lobar pneumonia are highly and negatively correlated with normal temperature. Influenza mortality, on the other hand, is definitely associated with normal temperature. Asthma is not directly correlated with normal temperature but is definitely correlated with solar radiation. In the socio-economic panel all the pneumonias are decidedly associated with some index of urbanization or population density. Influenza, on the other hand, is inversely correlated with the degree of urbanization. These results clearly show that there is a definite difference in the spatial distribution of the diagnoses of pneumonia and influenza, respectively. In every case except that of asthma the socio-economic group of factors is of greater statistical importance than the climatic group of variables.

Trichinosis in the Chicago Area.—In an attempt to determine the incidence of trichinosis in the Chicago area Hood and Olson carried out the digestion and pressed muscle methods on from 10 to 20 Gm. of diaphragms of 428 unselected necropsies performed at several Chicago hospitals. With these methods 16 per cent of the diaphragms were found infected with the larvae of Trichinella spiralis. Of the 428 samples investigated, forty-eight were from infants less than 1 year of age. Four (8.3 per cent) of these contained trichina larvae.

American Journal of Medical Jurisprudence, Boston

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Legal Medicine in Europe. A. R. Moritz, Boston.—p. 73.
Some Problems in Psychiatric Expert Testimony. W. Overholser, Washington, D. C.—p. 76.
The Institute of Legal Medicine of the University of Copenhagen and Its Organization. K. Sand, Copenhagen, Denmark.—p. 84.
Forensic Firearms Identification. J. E. Hoover, Washington, D. C.—p. 88.
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The Cowan Adolescent Personality Schedule: Its Function in Psychologic Diagnosis. R. L. Brigden, Wichita, Kan.—p. 97.
The United States Public Health Service Narcotic Hospitals. L. Kolb, Washington, D. C.—p. 100.
Business Problems of the Medical Profession. J. A. Slaughter, San Francisco, and L. S. Trigg, Los Angeles.—p. 104.
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American Journal of Medical Sciences, Philadelphia

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The Healing of Cavities. W. Pagel, Cambridge, England, and F. A. H. Simmonds, South Mimms, England.—p. 281.
*Antianemic Effect of Yeast in Pernicious Anemia. M. M. Wintrobe, Baltimore.—p. 286.
*Vitamin C Deficiency: Clinical and Therapeutic Problems: Case Study of Six Patients in One Family. Teresa McGovern, Catherine F. Gannon and I. S. Wright, New York.—p. 310.
Determination of Codehydrogenases I and II (Cozymase) in the Blood of Diabetics in Severe Acidosis. R. W. Vilter, Sue Potter Vilter and T. D. Spies, Cincinnati.—p. 322.
Relation of Potassium to Periodic Family Paralysis. G. D. Gammon, J. H. Austin, Margaret D. Blithe and C. G. Reid, Philadelphia.—p. 326.
Some Different Types of Essential Hypertension: Their Course and Prognosis. N. M. Keith, H. P. Wagener and N. W. Barker, Rochester, Minn.—p. 332.
Postmortem Weight of the "Normal" Human Spleen at Different Ages. E. B. Krumbhaar and S. W. Lippincott, Philadelphia.—p. 344.
Significance of Peripheral Circulatory Disturbances for Development of Osteo-Arthritis. D. H. Kling, Los Angeles.—p. 358.
*Specific Treatment of Pneumococcus Type II Pneumonia: Including Use of Horse and Rabbit Antipneumococcus Serums and Sulfanilamide. J. W. Brown, San Francisco, and M. Finland, Boston.—p. 369.
*Specific Treatment of Pneumococcus Type V and Type VII Pneumonias: Id. M. Finland, Boston, and J. W. Brown, San Francisco.—p. 381.
Personality Type of Patients with Toxemias of Late Pregnancy. L. G. McNeile, Los Angeles, and E. W. Page, Berkeley, Calif.—p. 393.

Antianemic Effect of Yeast in Pernicious Anemia.—Wintrobe gave dehydrated brewers' and bakers' yeast, as well as extracts of these substances, to fifteen patients with pernicious anemia in relapse and to eight with little anemia. Maximal hemopoietic responses occurred in five patients given dehydrated brewers' yeast in amounts of 1 or 2 Gm. daily per kilogram of body weight. Submaximal effects occurred in two other patients who subsequently were found to respond inadequately to liver. Little response was observed in three patients who likewise failed to respond to oral liver therapy. In only one patient was liver extract, given by mouth, more effective than brewers' yeast and in one resistant patient desiccated hog stomach was somewhat more effective than brewers' yeast. Nine patients receiving from 0.3 to 0.8 Gm. of yeast daily per kilogram of weight as maintenance therapy have remained well to date, from four to ten months. A bakers' type of yeast failed to cause well marked hemopoietic effects in six patients, four of whom subsequently did not respond even to oral liver therapy but two of whom responded to brewers' yeast. Reticulocytosis occurred in two patients given yeast extracts parenterally but a significant increase in the number of red corpuscles did not follow. A significant hemopoietic effect has not been produced by the oral administration of extracts of yeast which have been prepared so far. The author presented his observations because of the bearing they may have on an understanding of the disease pernicious anemia rather than with the purpose of proposing a new form of treatment.

Vitamin C Deficiency.—McGovern and her associates cite the cases of a mother and five children in good financial circumstances who presented varying degrees of hypovitaminosis C, resulting from a familial distaste for and consequent restriction of foods rich in this vitamin, citrus fruits. Since the mother required daily about 500 mg. of crystalline ascorbic acid intravenously to bring about chemical saturation and the disappearance of scorbutic symptoms and later relapsed while receiving 1,000 mg. orally each day, the authors raise the question whether this is due to a metabolic peculiarity of this individual which changes the vitamin into a nonantiscorbutic form or whether the potency of the synthetic substance may be altered by mechanical handling, storage conditions or as yet unrecognized factors in the methods of administration, or, thirdly, whether a deficiency of some factor other than synthetic vitamin C produced the scorbutic-like syndrome in this patient. After this patient had been under treatment for five months they made studies of her five adult children, all of whom complained of lack of strength and frequent respiratory infection. Since diagnosis of their mother's vitamin C deficiency, fruit juices had been taken about twice a week. Vitamin C saturation tests showed that all were subnormal or low-normal, and with the capillary fragility test two exhibited marked fragility, two marginal and one normal. A course of treatment with large doses of crystalline ascorbic acid was followed by normal responses in every case and disappearance of symptoms.

Specific Treatment of Types II, V and VII Pneumonia.—Brown and Finland used specific serums, sulfanilamide or both in the treatment of 148 cases of type II, eighty-one of type V and seventy-nine of type VII pneumonia. The mortality among the 148 patients treated with serum was 19 per cent as compared to 36 per cent among sixty-four contemporary patients not treated with serum. Only 14 per cent of 121 patients treated with serum before the end of the fourth day died. The greatest reduction in mortality appeared to be in patients between 20 and 60 years of age. The deaths among the serum treated patients occurred chiefly in patients with other serious complicating conditions and in those who were in poor general condition when the treatment was begun. Untoward reactions to serum injections were more frequent in type II cases than in the type I cases. Concentrated rabbit serums were used in the treatment of nine patients, including four with bacteremia. None of these patients died. The experience with sulfanilamide in eight suggests that this or similar drugs may have some usefulness as an adjunct to specific serum in the treatment of certain severe type II cases. Among the eighty-one patients with type V pneumonia treated with serum the death rate was 10 per cent as compared with 41 per cent among 234 patients not treated with serum, which included contemporaneous cases and those occurring in the six years before the introduction of specific serum. Following serum treatment, clinical improvement was rapid and complete. Deaths occurred only when specific treatment was undertaken in the face of severe complicating conditions or when it was begun after the

fifth day in bacteremic cases. The death rate among the seventy-nine patients treated with serum who had type VII pneumonia was 12 per cent as compared with 29 per cent among 160 earlier and contemporary patients not given serum. Type VII cases were more frequently atypical and, because this type is relatively frequent in sputum or in pharyngeal cultures of patients without pneumonia, caution is required in the choice of proper cases for specific treatment. Concentrated antipneumococcus rabbit serums were used for eleven patients. The data indicate that the rabbit serums are probably as effective as horse serums. More data are necessary to determine any superiority of the one over the other. Too few cases have been treated with sulfanilamide to evaluate the place of this drug in the treatment of pneumococcic pneumonias of types V and VII. Sulfanilamide or similar drugs may prove to be valuable adjuncts to serum treatment, particularly in bacteremic cases in which treatment is begun late in the disease. They may also be useful in cases when only serums of low potency are available. Further studies of their use in adequately controlled cases are desirable.

American J. Obstetrics and Gynecology, St. Louis

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Influence of Hormone Activity of Ovaries on Character of Tubal Contractions as Determined by Uterine Insufflation: Clinical Study. I. C. Rubin, New York.—p. 394.
Role of Uterus in Production of Manometric Fluctuations During Uterotubal Insufflation (Rubin Test). S. Wimpfheimer and M. Feresten, New York.—p. 405.
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Fifteen Year Study of Cesarean Section in the Woman's Hospital in the State of New York. R. L. Barrett, New York.—p. 434.
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*Food Habits of Mothers of Congenitally Malformed Children: Report of 545 Families. D. P. Murphy and Anna DePlanter Bowes, Philadelphia.—p. 460.
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Granuloma Venereum of Cervix Uteri: Statistical Study. E. R. Pund, Georgia Brawner Huie and V. A. Gotcher, Augusta, Ga.—p. 477.
New, Nonirritating Opaque Medium for Uterosalpingography: II. Elimination of Acacia. R. H. McClellan, P. Titus, R. E. Tafel and E. C. Lory, Pittsburgh.—p. 495.

Retained Cervical Stump.—During a recent clinical and pathologic survey of carcinoma of the cervix occurring in the Gynecological Service of the Johns Hopkins Hospital between 1893 and 1935, Henriksen observed that the incidence of true stump carcinoma following subtotal hysterectomy was really low. In this period of forty-two years, 4,300 uteri were removed subtotally because of myomas and 2,250 for other causes of a benign nature. Only 157 patients returned because of complaints relative to the stump. Of these 157 patients, twenty-six were found to have a primary carcinoma of the stump. This figure would be nearly tripled if those patients were included in whom cancer was found either at the time of hysterectomy or within one year following the surgical intervention. There has been no definite attempt to follow these patients and the data are therefore relative rather than factual. The fact that only 2.4 per cent (157 patients) of the 6,550 patients returned to the hospital with complications referable to the stump, and that of these only twenty-six had cancer, indicates that the incidence of stump cancer is so low as to be of relatively little import. There is no evidence that subtotal hysterectomy predisposes to cancer of the stump or that the residual stump is more susceptible to malignant changes than the cervix of a complete uterus. The author does not feel that the 0.45 per cent incidence is sufficient reason to advise the total operation with its morbidity-mortality rate of from 2 to 5 per cent. With proper preoperative and postoperative treatment of the cervix, total hysterectomy as a prophylactic against cancer of the stump is probably rarely indicated.

Food Habits of Mothers of Congenitally Malformed Children.—Murphy and Bowes obtained dietary facts from 545 mothers who had given birth to malformed children. Questions were planned which might be the means of assembling information about the regular food habits of this group of mothers and the changes they made in their diet during pregnancy. 1. About 35 per cent of these women took no milk during pregnancy. 2. About 20 per cent took 1 quart or more of milk daily. 3. About 20 per cent had two servings daily of leafy vegetables, and only 10 per cent reported having from two to four servings daily of other vegetables. 4. Citrus fruit was taken once daily by 18 per cent, and 13 per cent had about two servings of other fruit daily. 5. About 25 per cent used too much bread and only 17 per cent used whole grain bread regularly or often. 6. Excessive use of coffee, tea or alcoholic beverages was not indicated by the reports given. 7. Approximately 40 per cent of these women had an inadequate diet when pregnant with their malformed offspring. 8. Among the mothers using an inadequate diet, anemia was found twice as frequently as among those using an adequate diet. 9. Anemia in the women who gave birth to congenitally malformed children was found four times as often as in a control series. 10. The present observations offer no proof that an inadequate diet or anemia is a predisposing cause for the occurrence of congenital malformations. However, both characteristics were observed with unusual frequency.

American Journal of Ophthalmology, St. Louis

22: 239-356 (March) 1939

Melanosarcoma of Iris. W. B. Doherty, New York.—p. 239.
Mecholyl and Prostigmine in Treatment of Glaucoma. S. T. Clarke, Boston.—p. 249.
The Retina in Septic and Chronic Endophthalmitis of Ectogenous Origin. H. D. Lamb, St. Louis.—p. 258.
*Occupation in Relation to Cancer of the Eye and Adnexa, with Practical Points for the Ophthalmologist. Laura A. Lane, Ann Arbor, Mich.—p. 267.
Contrast Sensitivity as Criterion of Visual Efficiency at Low Brightness-Levels. M. Luckiesh and F. K. Moss, Cleveland.—p. 274.
Treatment of Gonorrheal Ophthalmia. A. G. Bower and W. Frank, Los Angeles.—p. 277.
Lectures on Motor Anomalies: VII. Paralyses: General Symptomatology. A. Bielschowsky, Hanover, N. H.—p. 279.
Results of Vitamin D Complex Treatment of Keratoconus: Preliminary Study. A. A. Knapp, New York.—p. 289.
Problems in Diagnosis of Abscess and Tumor of Orbit. W. L. Benedict, Rochester, Minn.—p. 292.

Occupation and Optic Cancer.—Lane presents a report on the relation of occupation to 1,000 cases of cancer of the eye. The cases were equally divided between carcinomas and malignant melanomas. The material was obtained from the records of twenty-two eye clinics in the United States and Canada, four institutions devoted exclusively to the study and treatment of cancer, the private records of many eminent ophthalmologists and from medical services of large industrial plants producing chemicals, oils, carbon products and gas. Every case studied has been verified by biopsy or microscopic section of the tumor. More than 154 different occupations were represented. The following general classification was made: exposure to oils and lubricants, exposure to sunlight, to sunlight and the elements, to sunlight and tar, to sunlight and chemicals or irritants, to chemicals, to coal, pitch and tar, to radioactive substances, to metals and miscellaneous occupations. Not all the occupations showed an increased distribution above that found in the average general cancer rate per thousand cases. Occupations in which workers are exposed to oils and having relation to the automotive field show some increased distribution. Printers, plumbers and steam fitters, who use oils more or less in their work, do not show any such increase. Workers exposed to sunlight, the elements, pitch and tar and chemicals show a large distribution. Especially to be noted is the large number of farmers and of laborers who form 85 per cent of the 155 cases in this group. In the miscellaneous group of patients whose work is more or less sedentary and presents no great occupational hazards there is a rather startling increase, particularly in the domestic and personal service occupations, more than one third of the entire 1,000 patients being housewives. Individually the clerical occupations show no increase but taken as a group they do. Likewise the manufacturing and mechanical industries as a group show considerable increase. A small select group of skilled artisans (exposure to metals), mostly of the male sex, show no individual increase in cancer of the eye, but the group as a whole shows a slight increase. The average age of the 500 patients having ocular carcinoma was 57.15 years. The

average age of those with malignant melanomas (sarcoma) was 48.5 years. There were 201 women among the 500 persons with carcinoma and 214 among the 500 with sarcoma. There is an excess of 170 men; however, five of the seven occupational groups had occupations in which, as a rule, only men are engaged. Much of the material was drawn from large industrial centers, which may possibly account for the predominance in men. The ophthalmologists when taking histories of cancer of the eye should inquire how long a patient has followed his occupation; likewise whether any other occupation was followed previous to the present occupation and if so how long that occupation was pursued. These questions often have an important medicolegal bearing. The exact nature of the duties of the occupation should be noted. Details are of importance in solving the cancer problem. Eye clinics, unfortunately almost without exception, have not been in the habit of following up their tumor cases.

American Journal of Surgery, New York

43: 657-852 (March) 1939

New Method of Joint Measurement and Review of Literature. F. J. Wiechec and F. H. Krusen, Rochester, Minn.—p. 659.
Rhythmic Surgery: Arrangement of Operating Room. W. H. Lawrence and C. H. Berry, Summit, N. J.—p. 669.
Malignant Tumors of the Testicle: Review of Eighty-Three Cases. C. C. Higgins and W. I. Buchert, Cleveland.—p. 675.
*Lymphogranuloma Venereum in the Female: Clinical Study of Ninety-Six Consecutive Cases. R. Torpin, R. B. Greenblatt, E. R. Pund and E. S. Sanderson, Augusta, Ga.—p. 688.
Levator Hernia, Perineal and Pudendal. F. C. Yeomans, New York.—p. 695.
Use of Prolonged Anesthesia in 100 Rectal Cases. L. G. Bodkin, Brooklyn.—p. 698.
*Studies on Absorbability of Catgut. R. R. Bates, Joliet, Ill.—p. 702.
Value of Pitressin in Abdominal Surgery, with Special Reference to Dosage and Technic. P. C. Potter and R. S. Mueller, New York.—p. 710.
Acute and Chronic Cicatrizing Enteritis (Regional Ileitis). A. M. Dickinson, A. Vander Veer 2d and J. J. Clemmer, Albany, N. Y.—p. 714.
Infiltrative Anesthesia in Surgery of the Gallbladder. F. B. McCarty, Chicago.—p. 728.
*Iodine Metabolism and the Hypothyroid State. J. W. Hinton, New York.—p. 734.
Low Back Pain and Spina Bifida Occulta. R. J. Dittrich, Fort Scott, Kan.—p. 739.

Venereal Lymphogranuloma in Women.—Torpin and his associates made a study of ninety-six consecutive cases of venereal lymphogranuloma in women (only four were white women) and found the cases to fall into four overlapping groups: genital, inguinal, anorectal and urethral syndromes. Various therapeutic measures are recommended. A specific has as yet not been found. Sulfanilamide has proved a valuable adjunct to therapy. It is of value in checking the rectal leukorrhea that is so often attendant on rectal stricture, it aids in the healing of ulcerations and it helps drainage from ischiorectal abscesses, sinus tracts and draining buboes to cease. However, thus far the authors have observed but little effect on the secondary lesions themselves, such as rectal stricture, elephantiasic vulvae or papillary excrescences and growths about the genitalia.

Absorbability of Catgut.—Bates subjected healthy adult dogs to gastro-enterostomy under standard surgical conditions. The gastro-enterostomies and the abdominal wounds were each closed with the suture to be studied, and at intervals of twenty-four hours, four days, one week, two weeks and four weeks the wounds were examined grossly for the state of healing, functioning of the suture, fragments of catgut and peritoneal adhesions. Both the gastro-enterostomy and the abdominal wound in each case were examined microscopically after being blocked in celloidin. Not only were typical wounds provided by making gastro-enterostomies, but also the comparative rates of wound healing in the intestine and in the abdominal wall could be studied. None of the dogs had grossly infected abdominal wounds. 1. Employing chromic catgut, studies with 000 sutures showed filmy omental adhesion at twenty-four hours. Grossly, a beginning self support in the wounds was observed in four days. Fibroblasts had appeared by this time. The catgut demonstrated enough tensile strength to continue functioning for fourteen days in both gastro-enterostomies and abdominal wounds. At the end of twenty-eight days about half of the catgut had disappeared. 2. The size 3 chromic suture was inconstantly associated with adhesions. With it both gastro-enterostomy and abdominal wounds healed at about the same rate. At four days there was no gross healing. Small green masses of necrotic tissue had collected about the knots of catgut. Fibroblasts appeared by this time. At eight days the poorly healed wounds contained frayed suture, having little if any function, and after twenty-eight days half of the catgut was phagocytized. 3. The size 1 chromic suture was associated with inconstant peritoneal adhesions. At four days, fibroblasts began to appear in spots. The suture exhibited appreciable tensile strength up to the fourteenth day, after which swelling and fraying reduced it to uselessness; suture particles were present at the twenty-eighth day. Abdominal wounds and gastro-enterostomies healed at about the same rate. 4. Plain catgut, size 000, produced prompt, severe and persistent gross reaction in both kinds of wounds. At four days the catgut had lost all holding power and repeated eviscerations occurred. By eight days the last microscopic traces of catgut were fast disappearing and only then did fibroblasts begin to appear. The gastro-enterostomies all held, however, through their critical period. 5. Size 3 plain catgut in wounds caused much reaction. At four days there was no gross healing in either type of wound. The suture was weak and swollen, and half of it was gone. By the eighth day fibroblasts appeared and by the fourteenth day the catgut had disappeared. Healing occurred at parallel rates in the two kinds of wounds, and peritoneal adhesions were found in some cases and not in others. 6. The more commonly used size 1 plain catgut in both types of wounds was not greatly different from the larger catgut, except that grossly there was somewhat less reaction. The suture functioned no longer than four days, and frayed strands persisted for two weeks. From the first, a wide zone of round cells hastened phagocytosis. The fibroblasts appeared after eight days. Regardless of the size of the suture employed, plain catgut resulted in slower healing and more irritation than chromic catgut. At any day examined, the histologic sections showed a wider zone of round cell infiltration around the plain catgut than around the chromic catgut. True, the larger the plain suture the greater the reaction around it; but there was as much infiltration around the smallest plain suture as around the largest chromic suture. The smallest amount of tissue reaction, the earliest appearance of fibroblasts and the most rapidly healing wounds occurred when the 000 chromic suture was used. The most violent reaction, the most retarded appearance of fibroblasts and wounds which exhibited edema the longest and healed the worst occurred when size 3 plain catgut was employed.

Iodine Metabolism and Hypothyroidism.—Hinton states that thyroid dysfunction may result either from a lack or from an excess of the substances (tyrosine and iodine) from which thyroxine, the active principle of the gland, is formed. An excess of tyrosine and a diminution of iodine might result in a form of thyroxine containing less iodine than normal, and a type of hyperthyroidism would be produced. If, on the other hand, not enough tyrosine was available to mobilize the iodine, a colloid type of goiter might result or there could be hypothyroidism without thyroid enlargement. Such disturbances could be brought about by intestinal disorders, dietary irregularities, scarcity of iodine in the diet or dysfunction of the tissues normally responsible for oxidizing excess of tyrosine. Either an excess or an abnormal side product of the amino acids would be found in the latter case. The early stages of hypothyroidism produce most bizarre symptoms and for that reason the condition is frequently overlooked. The clinical problem in hypothyroidism is provided by the vague symptoms so commonly attributed to some other organ or organs. One should suspect hypothyroidism when patients present dry skin with falling hair or baldness, apathy, general weakness and nervousness when fatigued, i. e., the fatigue coming on late in the afternoon or early evening. Somnolence and constipation are common complaints. It is at times necessary to treat a patient as hypothyroid, although the metabolism may be reduced only to the lower limits of normal, if one is clinically certain of the diagnosis. The lassitude is more marked on arising in the morning, improves during the middle of the day and returns in the late afternoon or evening. Abdominal pain (more than likely typical of peptic ulcer) is frequently associated with the period of lassitude, as are mental depression and irritability. The periodicity of the pain is lacking. Vomiting is occasionally encountered,

usually when the patient is extremely tired. The hypothyroid patient rarely shows any improvement on an ulcer diet, in spite of ulcer symptoms. Obviously, not all patients suffering from the symptoms of ulcer have definite hypothyroidism. Yet some do, and if one is careful to evaluate the symptoms of hypothyroidism these cases can be diagnosed. A basal metabolism will usually verify the diagnosis. The treatment should consist of thyroxine (1 mg.) intravenously once a week, with 0.065 Gm. of thyroid extract orally twice or three times a day. It is important to continue the thyroxine administration intravenously at weekly intervals over a relatively long period: from eight to ten weeks. This may be governed by the clinical course of the patient. From the clinical results obtained from thyroxine administration it would seem that the therapeutic effects lie in the tyrosine radical of the molecule and not in the iodine content of thyroxine. After the patient is free from symptoms and his metabolic determination is normal, he must be made to realize that this state will not continue unless thyroid medication is taken at intervals over a period of months and perhaps years. Improvement is due to a general stimulation of the metabolic processes. Thyroxine tablets, 1/80 or 1/60 grain (0.0008 or 0.001 Gm.), twice a day may prove beneficial in patients who will not tolerate thyroid by mouth.

American Review of Tuberculosis, New York

39: 275-418 (March) 1939

Blastomycosis (American Blastomycosis, Gilchrist's Disease): I. Review of Literature. D. S. Martin and D. T. Smith, Durham, N. C.—p. 275.
Climatic and Socio-Economic Factors in Mortality from Pulmonary Tuberculosis. I. M. Moriyama and L. P. Herrington, New Haven, Conn.—p. 305.
*Treatment of Tuberculosis by Tuberculin Desensitization. H. S. Willis and T. R. Jocz, Northville, Mich.—p. 318.
Bronchial Catheterization. I. E. Rudman, Philadelphia.—p. 329.
Paravertebral Aspiration of Tuberculous Psoas Abscess. F. C. Warring Jr. and E. M. Kent, Shelton, Conn.—p. 338.
Factors of Healing, Latency and Progression in Pulmonary Tuberculosis. H. C. Sweany, Chicago.—p. 348.
*Resistance to Tuberculosis: I. Factors Associated with the Bacteria. K. C. Smithburn, New York.—p. 371.
Id.: II. Variations Dependent on the Age of Host and on Resistance Induced by Vaccination. K. C. Smithburn, New York.—p. 383.
Demonstration of Tubercle Bacilli by Culture and by Guinea Pig Inoculation: Comparative Study. A. Guggenheim and M. Finkelstein, Denver.—p. 397.
Tuberculosis Survey in Florida. A. J. Logie, Jacksonville, Fla.—p. 408.

Tuberculin Desensitization for Tuberculosis.—Willis and Jocz used tuberculin supplemented by surgical collapse in the treatment of fifteen patients who had intractable tuberculosis and who obtained no improvement from prolonged bed rest in a sanatorium. These patients were of low skin sensitivity. They were given tuberculin daily in rather rapidly increasing doses over a period of several months. The smallest dose given was 0.1 cc. of 1:1,000,000 dilution and the largest was 1 cc. of undiluted tuberculin. As a rule the initial dose was 0.1 cc. of 1:10,000 dilution. Doses were increased by 0.1 cc. daily. Old tuberculin and trichloroacetic precipitate tuberculin (TPT) were used interchangeably and each was used in each case. Fourteen of the patients so treated had pulmonary tuberculosis and one had tuberculous epididymitis. The clinical course was characterized by one or more exacerbations, by persistent lack of improvement or by unremitting, slow progression. The patients had had an average of three and one-half years of sanatorium care (from one and one-half to seven years) before tuberculin therapy was instituted, which consisted of daily subcutaneous doses of tuberculin given on a scale of increasing amounts and maintained at the patient's limit of tolerance. The doses did not produce demonstrable focal or general reactions, although local reactions accompanied the full doses. Several of the patients might have weathered the disease without tuberculin. However, despite good sanatorium care and good collapse therapy they were prone to relapse or to be stubbornly unresponsive to treatment. At the beginning of the period of treatment three of the fifteen were temporarily improved over their admission status, in eight the condition was stationary and four were worse. At the end of treatment eight were improved, five showed no change and two were worse. In the "improved" group only those were included in whom x-ray evidence of receding disease could support clinical evidence and in whom tolerance to moderate exercise was clear. These patients remained in the sanatorium an average of seventeen and one-half months after tuberculin treatment. At discharge the condition of one was classified as arrested, of five as apparently arrested, of two as quiescent and of three as improved; two patients died and two remain in the hospital and will die. At present, from three to four years after cessation of treatment, seven have the disease in an arrested form and two apparently arrested; two are unimproved (still in the hospital) and four are dead. The authors emphasize the fact that the study was undertaken solely as an experiment; that they do not recommend the general use of tuberculin therapy; that they believe daily injections of rather rapidly increasing concentration of tuberculin in the chronic, "sluggish" case of pulmonary tuberculosis with low tuberculin sensitivity will lead frequently to distinct improvement, and that, if tuberculin is employed at all, the patient should continue under adequate sanatorium and collapse care. The therapeutic use of tuberculin should never be instituted in place of a sanatorium regimen and collapse therapy but always as supplemental to such a program. Unskilful use of this drug may lead to disaster.

Resistance to Tuberculosis.—In his experimental studies Smithburn found that differences in the survival time of animals occurred according to whether tubercle bacilli were inoculated subcutaneously, intravenously or intracerebrally. With the intracerebral route of inoculation the survival time was shortest and individual variation in survival time was least. Comparable groups of animals inoculated intracerebrally with the same dose of the same suspension of organisms did not exhibit significant differences in mean survival time. Comparable groups of animals inoculated with different doses of the same suspension of organisms did exhibit significant differences in survival time. Comparable groups of animals inoculated with the same doses of organisms differing in virulence also showed significant differences in survival time. From his results the author concludes that resistance, as expressed by survival time following inoculation, may be profoundly affected by the virulence of the organisms, the number of them gaining access to the body and the route by which they enter the body.

Archives of Dermatology and Syphilology, Chicago

39: 387-616 (March) 1939

*Precancerous Dermatosis and Epithelioma in Situ. H. Montgomery, Rochester, Minn.—p. 387.
Mal de Meleda: Review of Literature and Report of Four Cases. H. D. Niles and Margaret M. Klumpp, New York.—p. 409.
Blennorrhagic Balanitiform Keratoderma: Report of Three Additional Cases, Including One of Buccal Involvement. W. L. Sherman, F. Blumenthal and J. Heidenreich, Eloise, Mich.—p. 422.
Onychodystrophy Caused by Cervical Rib. L. C. Rubin and A. C. Cipollaro, New York.—p. 430.
Kerion Celsi of the Scalp in an Adult. J. A. Benson, Ann Arbor, Mich.—p. 434.
Criteria for Histologic Diagnosis of Keratosis Follicularis (Darier): Report of Case with Vesiculation. I. R. Pels and M. H. Goodman, Baltimore.—p. 438.
Tuberculoid Leprosy. B. Sáenz and J. C. Palomino, Habana, Cuba.—p. 456.
LXXXV.—Treatment of Lupus Vulgaris by Injections of Starch U. S. P. (Corn Starch): Report of Case. R. L. Kile, St. Louis.—p. 471.
*"Winter Eczema of the Arms." H. D. Niles, New York.—p. 474.
Extramammary Paget's Disease and Intra-Epidermal Carcinoma. H. Pinkus, Detroit, and S. E. Gould, Eloise, Mich.—p. 479.
Rhinoscleroma: Report of Two Cases. C. A. Simpson, Washington, D. C., and F. A. Ellis, Baltimore.—p. 503.
Karaya Gum as Cause of Urticaria. R. Bowen, Oklahoma City.—p. 506.
*Inadequacy of the Laughlen and the Ide Test in Diagnosis of Syphilis. J. M. Flood and Verna Mayer, Philadelphia.—p. 510.
Pemphigus Controlled by Vitamin D. H. King and C. M. Hamilton, Nashville, Tenn.—p. 515.
Sensitiveness of Skin to Roentgen Rays Following Ingestion of Arsenic. C. W. Laymon and H. Cumming, Minneapolis.—p. 518.
*Sulfanilamide Treatment of Syphilitic Interstitial Keratitis: Preliminary Report. I. L. Sandler, Washington, D. C.—p. 528.

Precancerous Dermatosis and Epithelioma.—As a working basis Montgomery limits the term "precancerous dermatosis" to true but infrequent Bowen's precancerous dermatosis, senile keratosis, keratosis resulting from arsenic, tar or radiation and various forms of leukoplakia of the mucous membrane of the mouth and genitalia, including the so-called erythroplasia of Queyrat. He shows that in 20 per cent or more of all these conditions epithelioma develops, usually of squamous cell type and, beginning in situ, is associated with various phenomena of dyskeratosis and keratinization of individual cells simulating

most closely the histologic picture of Bowen's disease. The conditions are all interrelated by their common histologic picture and hence a possible common carcinogenic factor. Precancerous dermatoses are not to be confused with the relatively rare epithelioma in lesions of lupus vulgaris, psoriasis, lichen planus and pseudo-epitheliomatous hyperplasia. In many cases of precancerous dermatosis, histologic transitions between a benign and a malignant process may be seen in the same section. The peculiar or distinctive and predominant histologic feature of epitheliomas in situ with the phenomena of Bowen's disease, together with their relatively long duration as such, without clinical or histologic evidence of malignant invasion, the author believes, justifies the grouping of true Bowen's disease, senile keratosis, keratosis resulting from arsenic, tar and irradiation and in most cases leukoplakia of the mucous membranes under the title "precancerous dermatosis."

"Winter Eczema of the Arms."—During the last three winters Niles encountered several patients with a peculiar eruption which, he believes, has not been previously described. The lesions were limited to the extensor surfaces of the arms and occasionally extended to the forearms and shoulders. They consisted of roughly round and circumscribed dry red scaly patches, varying in size from that of a pea to that of a dime. Itching was marked, moderate or absent and when present followed rather than preceded the appearance of the patches. In all cases the eruption appeared at the onset of cold weather. In some cases there had been a similar eruption during previous winters which did not respond to various types of therapy during the winter but disappeared spontaneously before summer and recurred the following fall. The patients bathed daily and the majority twice a day. In no instance was there a personal or family history of allergy. All the patients were in the third or fourth decade of life. So far the daily use of an ointment originally prescribed by Deeks for mycotic infections, combined with less frequent bathing, use of a superfatted soap and careful drying of the affected areas has resulted in a cure in one or two weeks. The other measures when combined with the use of some other ointment proved ineffective. The lesions were purposely reproduced in a few patients by stopping the use of the ointment and superfatted soap and allowing more frequent bathing without careful drying. This second eruption disappeared rapidly with the same treatment that was used for the original condition.

Laughlen and Ide Tests for Syphilis.—Flood and Mayer checked the Laughlen and the Ide test against the Kline slide precipitation test, the Kahn standard test and a two tube Kolmer complement fixation test. There was absolute and relative agreement of the last three tests, 100 per cent in the series studied. In the nonsyphilitic group the Laughlen and control tests agreed for 307 of 314 specimens, or 97.78 per cent. The Ide test was performed on 257 specimens, with an agreement on 246 specimens, or 95.72 per cent. This indicates that the Laughlen and Ide tests are less specific than the standard test used. In the cases of treated syphilis 507 specimens were used for the Laughlen and 404 specimens for the Ide test. There was agreement on 387 specimens with the Laughlen test and on only 232 specimens with the Ide test. The Kahn, Kline and Kolmer tests remained positive in 108 cases, while the Laughlen test was negative and in 163 cases while the Ide was negative. The Laughlen and the Ide test were positive while the control tests were negative in twelve and nine cases respectively, or 2.37 and 2.23 per cent. Thus it is evident that the Laughlen and Ide tests become negative during treatment sooner than the standard tests. The Laughlen test gave an agreement in fifty-one of fifty-seven cases of untreated early syphilis and failed to detect the disease in six cases in which the control tests gave positive results. The Ide test was less satisfactory, detecting the disease in only eighteen of forty-three cases. Neither the Laughlen nor the Ide test was positive in the cases in which the control tests were negative. Of 147 specimens from patients with untreated late syphilis the Laughlen test agreed on ninety-five. There were forty-eight cases in which the Laughlen reaction was negative and the Kahn, Kline and Kolmer tests positive. In only four cases was the Laughlen reaction positive and the control negative. The Ide test was inferior to the control tests in that agreement was present in only forty of 118 cases. There were seventy-five cases in which the Ide test was negative and the control test positive. The opposite was true in only three cases. The Ide test is satisfactory for the examination of spinal fluid but the Laughlen test grossly fails when the spinal fluid is not concentrated.

Sulfanilamide in Interstitial Keratitis.—Sandler reports a case of relapsing resistant syphilitic interstitial keratitis which responded dramatically to sulfanilamide. The patient was given an intramuscular injection of 5 cc. of prontosil and 10 grains (0.65 Gm.) of sulfanilamide three times daily. In forty-eight hours there was a decided improvement of the conjunctival congestion, photophobia and lacrimation, and in ninety-six hours these symptoms disappeared completely. Up to the time of the report the keratitis has not relapsed.

Archives of Internal Medicine, Chicago

63: 433-608 (March) 1939

Hemochromatosis: Report of Case with Necropsy and Analysis of the Liver. G. Flaum and G. H. Stueck Jr., New York.—p. 433.
Rate of Removal of Thorium Dioxide from Blood Stream. H. L. Harrington and C. Huggins, Chicago.—p. 445.
Intubation of the Human Small Intestine: XII. Treatment of Intestinal Obstruction and Procedure for Identifying the Lesion. W. O. Abbott, Philadelphia.—p. 453.
*Influence of Exercise on Cardiac Output in Congestive Heart Failure. J. McGuire, Rose Shore, V. Hauenstein and F. Goldman, Cincinnati.—p. 469.
Dermatomyositis with Scleroderma, Calcinosis and Renal Endarteritis Associated with Focal Cortical Necrosis: Report of Case in Which the Condition Simulated Addison's Disease, with Comment on Metabolic and Pathologic Studies. J. H. Talbott, E. A. Gall, W. V. Consolazio and F. S. Coombs, Boston.—p. 476.
*Relation of Hyperthyroidism to Hypertension. J. D. Bisgard, Omaha.—p. 497.
*Chronic Constrictive Pericarditis: Dynamics of Circulation and Results of Surgical Treatment. H. J. Stewart and G. J. Heuer, New York.—p. 504.
Ascorbic Acid in Blood and Urine After Oral Administration of Test Dose of Vitamin C: Saturation Test. Grace A. Goldsmith, New Orleans, and G. F. Ellinger, Mount Vernon, Wash.—p. 531.
Intraperitoneal Pressure During Treatment with Artificial Pneumoperitoneum: Clinical Study. A. L. Banyai, Wauwatosa, Wis.—p. 547.
Variable Symptom Complex of Undetermined Etiology with Fatal Termination, Including Conditions Described as Visceral Erythema Group (Osler), Disseminated Lupus Erythematosus, Atypical Verrucous Endocarditis (Libman-Sacks), Fever of Unknown Origin (Christian) and Diffuse Peripheral Vascular Disease (Baehr and Others). E. C. Reifenstein, E. C. Reifenstein Jr. and C. H. Reifenstein, Syracuse, N. Y.—p. 553.
Meningococcic Septicemia: Report of Five New Cases. R. W. Heinle, Cleveland.—p. 575.
Is Iron Excreted by the Gastrointestinal Tract of the Dog? Histologic Study. S. Maddock and C. W. Heath, Boston.—p. 584.
Bright's Disease: Review of Recent Literature. W. S. McCann, Rochester, N. Y.—p. 590.

Influence of Exercise on Cardiac Output.—McGuire and his co-workers determined the effects of exercise on cardiac output, stroke volume, oxygen consumption and arteriovenous oxygen difference of five normal subjects, four patients with compensated cardiac disease and five patients with cardiac decompensation. For the controls the average increase in cardiac output following exercise was 2.07 liters per minute, for patients with compensated heart disease it was 1.21 liters per minute and for patients with decompensation it was 0.75 liter per minute. The work performed was essentially the same for all groups. The average stroke volume of the normal subjects increased 19 cc. per beat after work, for the patients with compensated cardiac disease it was 14 cc. and for the patients with cardiac decompensation the average increase was only 4 cc. No constant change in the arteriovenous oxygen difference following exercise occurred in any of the groups. For the normal subjects the average increase in oxygen consumption with work was 148 cc. per minute; for those with compensated heart disease it was 111 cc. and for patients with cardiac decompensation it was only 92 cc. The pulse rate was accelerated moderately after exercise in the normal subjects and in the patients with decompensation. The data suggest to the authors that in patients with severe cardiac decompensation under the conditions of the experiments the cardiac output is not increased with effort to the same degree as it is in normal persons and that relative inability to increase the cardiac output may have an important bearing on the pathogenesis of congestive heart failure.

Relation of Hyperthyroidism to Hypertension.—In a series of 265 cases which Bisgard studied he observed that hyperthyroidism was associated with true essential hypertension

in approximately 8 per cent and with elevations of the systolic pressure above the physiologic level (above 150 mm. of mercury) in 30 per cent. Following relief of hyperthyroidism he states that there were two types of cases: (1) cases of fixed or established essential hypertension, in which the blood pressure and the course of the vascular disease were not significantly influenced by relief of hyperthyroidism, and (2) cases of latent or labile essential hypertension, in which the blood pressure showed considerable reduction after relief of hyperthyroidism or approached a normal level and maintained this level for a long period. In some cases of the second type the pressure subsequently ascends. In these cases there is excessive response in blood pressure to exercise and to the cold pressor test of Hines and Brown. It is suggested that in these cases hyperthyroidism merely precipitates or exaggerates hypertension which is latent. In both types of cases there is arteriolar disease, differing only in degree. The disease is more advanced in the first type, rendering the vascular bed inadequate for even a normal volume of blood flow. In the second type the disease may be designated as pretensive hypertension, which in time progresses to the condition of the first type.

Constrictive Pericarditis and Circulation.—Stewart and Heuer present the clinical manifestations of nine cases of chronic constrictive pericarditis. Partial pericardiectomy was performed in seven. This syndrome should be considered when there are signs of congestive heart failure in the absence of the usual causes of failure. Three of the patients appear to be "cured," three others are greatly improved and the seventh is convalescing. Studies of the circulation show that this syndrome is associated with a decrease in the cardiac output per minute and per beat, a rise in the venous pressure and a slowing of the velocity of the blood flow. These alterations are related to the obstruction to the flow of blood into the heart, that is to interference with diastolic filling and to the interference with contraction by the thickened, adherent pericardium. With pericardial resection and the subsequent clinical improvement the measurements of the circulation undergo parallel changes toward or to normal. There is parallelism in these cases between the clinical manifestations and the objective measurements of the circulation. The authors recommend surgical intervention.

Bulletin New York Academy of Medicine, New York

15: 131-220 (March) 1939

Heat Loss from the Human Body. E. F. Du Bois, New York.—p. 143.
Medical-Surgical Splenopathies. A. O. Whipple, New York.—p. 174.
Hemolytic Jaundice: Its Diagnosis, Behavior and Treatment. W. P. Thompson, New York.—p. 177.
Congestive Splenomegaly (Banti's Syndrome). L. M. Rousselot, New York.—p. 188.
Diagnostic and Therapeutic Considerations in Management of Idiopathic Thrombocytopenic Purpura. R. H. E. Elliott, New York.—p. 197.

Canadian Public Health Journal, Toronto

30: 69-118 (Feb.) 1939

Epidemiology and Etiology of Pneumonia. A. L. McKay, Toronto.—p. 69.
Pneumonia in Ontario. A. H. Sellers, Toronto.—p. 73.
Antipneumococcus Rabbit Serum in Treatment of Pneumonia. W. P. Warner, Toronto.—p. 82.
Serum Treatment of Pneumococcic Pneumonia. H. I. Kinsey, Toronto.—p. 86.
Age Distribution of the Population in Relation to Mortality. M. C. MacLean, Ottawa, Ont.—p. 91.
Treatment of Lobar Pneumonia with Antipneumococcus Rabbit Serum. E. A. Broughton, Toronto.—p. 98.
Further Observations on Brucellosis In and Around Vancouver. C. E. Dolman, Vivienne Hudson and D. G. B. Mathias.—p. 100.
Social Services and Public Health. E. H. Blois.—p. 105.

Connecticut State Medical Society Journal, Hartford

3: 105-154 (March) 1939

Perforation of the Urinary Bladder: Report of Case. K. T. Phillips, Putnam.—p. 105.
Differential Diagnosis and Treatment of Ulcerative Colitis. Z. Bercovitz, New York.—p. 107.
Chiropractic Menace Defeated. L. W. Bortree, Colorado Springs, Colo.—p. 116.

Delaware State Medical Journal, Wilmington

11: 35-50 (March) 1939

The Problem of Heart Disease as It Stands Today. T. M. McMillan, Philadelphia.—p. 35.
Therapeutics of Iron and Copper. E. Podolsky, Brooklyn.—p. 44.

Illinois Medical Journal, Chicago

75: 93-188 (Feb.) 1939

Finer Uses of the Cross Cylinder in Refraction. P. A. Halper, Chicago.—p. 115.
Carcinoma in Clinically Benign Gastric Ulcer. M. Mass and F. Steigmann, Chicago.—p. 120.
Venereal Disease: Some Reflections. J. H. Beard, Urbana.—p. 122.
Cleft Palate Surgery. L. W. Schultz, Chicago.—p. 127.
Pediatric Treatment of Otologic Sepsis, Including Meningitis. P. L. Aries, Chicago.—p. 131.
Value of the Routine Electrocardiogram. J. B. Berardi, Dwight.—p. 136.
Etiologic and Therapeutic Factors Involved in Chronic Blepharoconjunctivitis. N. K. Lazar, Chicago.—p. 141.
Venereal Disease Control. G. G. Taylor, Chicago.—p. 146.
Syphilis Control Program of the Illinois Department of Public Health. N. Toomey, Springfield.—p. 148.
Chronic Nasal Sinusitis and the External Ethmoid Frontal Sphenoid Operation. I. Muskat, Chicago.—p. 153.
Causes of Internal Hemorrhoids. C. J. Drueck, Chicago.—p. 159.
Nasal Septum Surgery in Children. M. H. Cottle, Chicago.—p. 161.
*Huntington's Chorea as Psychiatric and Social Problem in Illinois. E. I. Falstein and T. T. Stone, Chicago.—p. 164.
Present Status of Shock Treatment of "Functional" Psychoses. A. A. Low, Chicago.—p. 169.
Attempt at Laboratory Control of Scarlet Fever by Hemolytic Streptococcus Cultures. M. H. Seifert, Wilmette.—p. 174.
End Results in Treatment of Chronic Suppurative Otitis Media. G. E. Shambaugh Jr., Chicago.—p. 180.

Huntington's Chorea in Illinois.—While completing an exhaustive study of Huntington's chorea from the genealogic, sociologic, clinical, pathologic and laboratory standpoints, Falstein and Stone found that in Illinois the choreic state hospital population remains more or less constant from year to year. Equal numbers of male and female choreic persons with a positive family history have been admitted to the Elgin State Hospital; for the state of Illinois as a whole there have been more female than male admissions, though the difference is not great. The age incidence so far as onset of symptoms is concerned includes every decade up to the ninth, except the first, with the largest number of cases in the fifth. Anticipation is not a constant characteristic of the disease; on the contrary, it appears to be the exception to the rule and is to be expected usually when neuropathic stocks are interbred. Because of the relatively late onset of the disease, many of the patients are married and the eugenic problem is made more difficult as a result. The nationalities represented by the Elgin and other Illinois state hospital cases include German, English, Scotch, Irish, Slavonic, Scandinavian, Lithuanian, Italian, Jewish and Negro groups, with many mixtures as well. There is a surprising number of Germans. About four times as many patients are admitted from urban districts as from rural. Regular choreic centers have been noted in various counties in the state. Although contributing only from 0.1 to 0.2 per cent of the general state hospital population in Illinois, Huntington's chorea presents a chronic problem from the social and psychiatric points of view, offering no practical prospects of solution at this time.

Journal of Allergy, St. Louis

10: 209-316 (March) 1939

Slowly Absorbed Gelatin-Epinephrine Mixture. W. C. Spain, M. B. Strauss and A. M. Fuchs, New York.—p. 209.
*Slow Epinephrine in Treatment of Chronic Asthma. J. A. Murphy and C. A. Jones, Philadelphia.—p. 215.
Serial Studies of Blood Sugar, Blood Pressure and White Blood Cell Count in Allergic Shock. G. L. Waldbott, M. S. Ascher and S. Rosenzweig, Detroit.—p. 220.
Heterophile Antibody Determinations in 148 Allergic and 107 Nonallergic Persons. M. W. Sinclair, Bluefield, W. Va., and J. W. Thomas, Richmond, Va.—p. 228.
Sensitization of Skin Induced by Turbinal Pollen Application, Resulting in Facial Acne: Case Report. I. S. Kahn, San Antonio, Texas.—p. 235.
Relief of Severe Intractable Bronchial Asthma with Cyclopropane Anesthesia: Report of Case. N. E. Meyer and S. Schotz, New York.—p. 239.

Slow Epinephrine for Chronic Asthma.—Murphy and Jones used slow epinephrine in the treatment of nine cases of intractable chronic asthma. It was apparently as rapid and efficient for the relief of attacks as is ordinary epinephrine hydrochloride. In the patient with chronic intractable asthma slow epinephrine seems to present certain advantages that are not obtainable from the ordinary solutions of epinephrine. The

advantage is in the reduction of the number of injections required to give relief. This does not mean a reduction in the actual amount of epinephrine required. At times the absolute amount is actually increased. The physical nature of the preparation allows larger doses to be given at a single injection. Because a night's supply can be given at one time, some patients, who otherwise had to arise on the hour and inject themselves, have been able to sleep through an entire night. That this is not a coincidental occurrence is shown by the fact that withdrawal of the slow epinephrine necessitated return to frequent injections of the regular solution.

Journal of Immunology, Baltimore

36: 193-254 (March) 1939

Quantitative Studies on Neutralization of Pathogenic Agents in Tissues by Circulating Antibodies: I. Time Factors. U. Friedemann and B. Zuger, Brooklyn.—p. 193.

Id.: II. Concentration Factors: New Method for Determination of Coefficient of Distribution of Antitoxins Between Blood and Tissue Fluid. U. Friedemann, B. Zuger and A. Hollander, Brooklyn.—p. 205.

Id.: III. Permeability of Cerebral Capillaries to Antibodies. U. Friedemann, B. Zuger and A. Hollander, Brooklyn.—p. 219.

Id.: IV. Specific Factors Combining Power of Test Dose and Susceptibility of Experimental Animal. U. Friedemann and B. Zuger, Brooklyn.—p. 231.

Fractionation of Globulins of Types I and II Antipneumococcus Horse Serum. Arda Alden Green, C. F. McKhann, I. Kapnick and Kathleen R. Fahey, Boston.—p. 245.

Journal Industrial Hygiene & Toxicology, Baltimore

21: 57-108 (March) 1939

Ventilation in the Granite Industry. E. C. J. Urban, Barre, Vt.—p. 57.

Increasing the Portability of the Bausch & Lomb Dust Counter. L. Silverman and C. R. Williams, Boston.—p. 67.

Physiologic Response to Isopropyl Ether and to a Mixture of Isopropyl Ether and Gasoline. W. Machle, E. W. Scott and J. Treon, Cincinnati.—p. 72.

Dupuytren's Contraction Among Upholsterers. K. D. Smith and W. E. Masters, Columbus, Ohio.—p. 97.

New England Journal of Medicine, Boston

220: 365-406 (March 2) 1939

*Treatment of Pneumococcus Type III Pneumonia with Specific Serum and Sulfanilamide. M. Finland and J. W. Brown, Boston.—p. 365.

Comments on Clinical Studies in Patients with Kidney Diseases. G. C. Prather, Boston.—p. 373.

Injection of Lipiodol as a Guide in Estimating the Healing of Acute Empyema Cavities. H. L. Cabitt and A. Hurwitz, Boston.—p. 376.

Neurosurgery. D. Munro, Boston.—p. 380.

Treatment of Type III Pneumonia with Serum and Sulfanilamide.—Finland and Brown used specific serum and sulfanilamide, separately or in combination, in the treatment of fifty-six cases of type III pneumonia. The patients had an acute pulmonary infection with evidence from physical and x-ray examinations of either lobar or atypical (broncho) pneumonia. In each case type III pneumococci were obtained either from blood cultures or from specimens of sputum. The therapeutic serums used were mostly concentrated rabbit serums. They were given intravenously in graded doses. Sulfanilamide was usually given by mouth, but in occasional cases of severe illness it was given subcutaneously in 0.8 per cent solution in physiologic solution of sodium chloride. The usual dose was 8 Gm. during the first eight to twenty-four hours and then from 6 to 8 Gm. daily, given in equal divided doses at intervals of four hours together with the same or half the amount of sodium bicarbonate. The dose was decreased or omitted when definite improvement was evident. The clinical results, when the effect of treatment on the death rate and on the duration of the acute disease is considered, are not impressive. However, they do indicate that one is dealing with two useful therapeutic agents. The appreciably lower death rate in the nonbacteremic cases suggests that blood invasion may have been prevented by treatment in some of them. There were three recoveries from bacteremia. It is possible that two of these patients would have recovered spontaneously, since antibodies developed after the sulfanilamide therapy, but this was not true in the third case. Bacteriologic, immunologic and necropsy observations in some of the fatal cases suggest that both the drug and the antiserum, but particularly the combination of the two, had a marked curative effect on the type III infection. Adequate causes for death, apart from the specific infection, were found in an appreciable number of the fatal cases. While it is yet too soon to draw final conclusions, the circumstances suggest that the combination of specific serum and sulfanilamide is a useful and effective means of combating pneumococcus type III pneumonia.

Ohio State Medical Journal, Columbus

35: 241-356 (March) 1939

Hyperparathyroidism. H. F. Koppe, Dayton.—p. 257.

An Unusual Cause of Acute Intestinal Obstruction. C. M. Rambo, L. Lasky, Zanesville, and J. F. Iden, Dresden.—p. 261.

"Irritative" Treatment of Schizophrenia. G. H. Williams Jr., Helen Kingsbury and D. E. Bixby, Cleveland.—p. 262.

Cod Liver Oil and Vaseline Treatment of Burns. I. C. Berlien, Detroit, and J. R. Davis, Toledo.—p. 267.

Treatment of Tetanus: Further Observations. J. H. Lazzari and S. O. Freedlander, Cleveland.—p. 270.

Diagnostic and Prognostic Value of a Quantitative Test of Blood Serum. C. DeCourcy and O. F. Thuss, Cincinnati.—p. 273.

Differential Diagnosis of Right Upper Quadrant Pain. H. S. Applebaum, Cleveland.—p. 278.

Physician's Duties and Relationships in Industry. A. J. Tronstein, Newark.—p. 281.

Use of Corpus Luteum in Gynecology. D. T. Feiman, Canton.—p. 288.

Carcinoma of the Cervix Uteri. G. J. Searle, Mansfield.—p. 290.

Malignant Sebaceous Cysts: Case Report. S. Seltz, Cincinnati.—p. 294.

Precautions in Administration of Horse Serums. J. Forman, Columbus.—p. 295.

Public Health Reports, Washington, D. C.

54: 373-412 (March 10) 1939

*Association Between Rheumatic Fever and Exophthalmic Goiter. M. P. Schultz.—p. 373.

Breast and Lung Carcinoma in "A" Stock Mice. J. J. Bittner.—p. 380.

Complement Fixation Reaction of Lleras in Leprosy. S. H. Black and H. Ross.—p. 392.

Rheumatic Fever and Exophthalmos.—Schultz cites literature which shows that rheumatic fever and exophthalmic goiter frequently occur in the same individuals and that the sequence in which the two diseases become manifest varies. In the first of the two cases that the author describes exophthalmic goiter antedated rheumatic fever by seven years; in the second the former condition developed five years after the onset of rheumatic fever. The relationship of exophthalmic goiter to rheumatic fever appears to be more intimate than it is generally thought to be. Long intervals of time may separate the development of the two diseases in the same person. In such instances the latter disease does not act as an incitant of the metabolic disturbance. The frequent association of these two diseases in the same individual may be due to the presence of an underlying constitutional anomaly contributing to the development of the two.

Texas State Journal of Medicine, Fort Worth

34: 659-726 (Feb.) 1939

Most Frequent Causes of Vomiting in Infancy. R. A. Strong, New Orleans.—p. 665.

Infantile and Childhood Eczema: Clinical Picture and Treatment. J. L. Pipkin, San Antonio.—p. 676.

Role of Sensitivity in Infantile Eczema. B. Swinny, San Antonio.—p. 680.

The Problem of the Eczematous Child to the Pediatrician. J. A. Nunn, San Antonio.—p. 682.

Appendicitis in Children. G. A. Tittle, Dallas.—p. 684.

*Geographic Location of 500 Texas Toxic Goiters. C. Phillips, Temple.—p. 688.

Impressions Gained in Analyzing 10,000 Lumbar Spines. R. H. Millwee, Dallas.—p. 690.

X-Ray Therapy, a Prophylactic Agent in Prevention of Cancer. R. C. Curtis, Corsicana.—p. 694.

Roentgenologic Consideration of the Colon. R. G. Giles, San Antonio.—p. 698.

Toxic Goiters in Texas.—Phillips gives an analysis of 514 toxic goiters originating in Texas. They are of the exophthalmic, hyperplastic or toxic adenoma type and represent carefully studied pathologic material resected at operation. The cases are those from the surgical department of one hospital in Bell County observed between 1920 and 1938 and are part of a larger study of goiters of all kinds. The 514 cases were from 135 of the 254 counties in the state. The distribution was so widespread that no particular conclusions are to be drawn as to the existence of a goiter belt in Texas. No relationship is found between the occurrence of these goiters and geologic formations, rivers or recorded iodine content of drinking waters.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

55: 211-276 (Winter) 1938

Air as a Conductor of Electricity. A. M. Tyndall.—p. 211.
Syphilis in the Tropics. T. F. Hewer.—p. 217.
A Guide Dog for the Blind. F. W. Willway.—p. 235.
Drinker's "Iron Lung" and Other Artificial Respirators. J. A. Nixon. —p. 239.

British Journal of Ophthalmology, London

23: 145-224 (March) 1939

Iritis Boeck (Sarcoid of Boeck in Iris). G. Osterberg—p. 145.
Night Blindness. Katharine Tansley.—p. 161.
Chemical Equilibrium of Interstitial Fluids and Aqueous Humor. J. D. Robertson.—p. 170.
Bilateral Mesial Superficial "Deficiency" of the Sclera (Scleral Plaques). B. Graves.—p. 191.
Significance of Errors of Refraction in Chronic Blepharitis of Children. E. J. Somerset.—p. 205.

British Journal of Radiology, London

12: 65-128 (Feb.) 1939

Simple Radiographic Methods for Localization of Foreign Bodies. J. E. Brailsford.—p. 65.
Applications of Stereoradiographic Centering Apparatus in Otology and General Surgery: I. Radiographic Analysis in Otology. C. Chaussé. —p. 76.
Id.: II. Combined Method for Localization and Extraction of Radiopaque Objects by Means of the "Light Compasses." C. Chaussé.—p. 87.
Punctate Epiphysial Dysplasia Occurring in Two Members of the Same Family. D. G. Maitland.—p. 91.
Relative Grading of Primary and Secondary Carcinoma. I. A. B. Cathie. —p. 94.
Congenital Malformation of the Cervical Spine (Klippel-Feil Syndrome). J. Lavelle.—p. 96.
Operation and Characteristics of Quartz Mercury Vapor Lamps for Ultraviolet Irradiation. G. N. Peel.—p. 99.
Beam Direction in X-Ray Therapy. J. L. Dobbie.—p. 121.

British Journal of Surgery, Bristol

26: 457-660 (Jan.) 1939

Evolution and Development of Surgical Instruments. C. J. S. Thompson. —p. 457.
*Relation of Lymphatic Vessels to the Spread of Cancer. J. H. Gray.—p. 462.
Intrapelvic Cysts, Probably of Mesonephric Origin. A. R. H. Oakley. —p. 496.
Epidermoids Arising in the Diploe of the Bones of the Skull. G. F. Rowbotham.—p. 506.
Obturator Hernia: Its Etiology, Incidence and Treatment, with Two Personal Operative Cases. C. P. G. Wakeley.—p. 515.
Simple Nonspecific Ulcer of Cecum. J. R. Cameron.—p. 526.
Carcinoma of Jejunum: Acute Intestinal Obstruction. F. M. Heggs.—p. 532.
Sarcoma of the Small Intestine with Unusual Features: Two Cases. D. L. Lewis.—p. 540.
Adamantinoma of the Tibia. R. G. Thomas.—p. 547.
Nonmalignant Stenosis of the Esophagus. G. G. Turner.—p. 555.
Hypertelorism: Notes on Three Cases. H. P. Pickerill.—p. 588.
Hyperostoses in Relation with the Meningiomas. G. F. Rowbotham.—p. 593.
Leaking Nonspecific Aneurysm of Common Iliac Artery, with Effective Treatment by Wiring. W. C. Whiteside.—p. 624.
Volvulus of the Stomach Ending in Perforation. K. C. Gharpure.—p. 630.
Volvulus of the Stomach Associated with a Rare Form of Diaphragmatic Hernia. W. C. O. Hill and M. Paul.—p. 632.

Lymphatic Vessels and Cancer.—Gray has developed a new method of injecting lymphatic vessels, using thorium dioxide sol, which allows study of the lymphatic system under various conditions. The method has been applied in twenty cases of operable cancer backed by control experiments on normal tissues and in some cases associated with injection also of the blood vessels. The deductions from these investigations are summarized by him along the same lines as those used in the British Empire Cancer Campaign Reports for 1936 and 1937. 1. The mode of spread of cancer to lymph glands is generally by means of lymphatic emboli of cancer cells carried along in the lymph stream. 2. The results indicate that cancer of its own accord does not generally stimulate new formation of lymphatic vessels except in cases in which there is substantial formation of stroma belonging to the cancer or associated precancerous changes involving the laying down of new connective tissue in relation to epithelium and when lymph glands are interfered with either by the presence within them of cancer deposits or by the abnormal state brought into being in some unknown manner by the presence of a cancer peripherally. Further work is necessary to provide proof for these phenomena, but the evidence obtained points to its being correct. 3. By the foregoing statements the author does not mean to imply that there is any evidence from his work for a lymphotropic theory of cancer. The ordinary effects of cancer in appreciable masses on the local lymphatic vessels are not lymphotropic but purely indifferent mechanical effects, leading ultimately to compression and disappearance of the lymphatic vessels within the interior of a cancer. Lymphatic thrombosis plays a small part in these phenomena. 4. Cancer cells generally do not remain for any length of time within the lumen of a lymphatic vessel; that is, the spread of cancer cells by their growth as cords in the lumens of lymphatics is an unusual phenomenon in cases of operable cancer. When it does occur, such permeation seems to be generally only of microscopic extent. The claim that destruction of permeated lymphatics and their contained cancer cells by thrombotic changes does occur could not be confirmed. 5. Based on anatomy and physiology, it seems that the focal lymph glands will be the first and most likely seat of glandular cancer metastasis. Subsidiary or collateral glands may also be involved, though it is to be expected that this will follow involvement of the ordinary focal lymph glands.

British Medical Journal, London

1: 313-370 (Feb. 18) 1939

Makers of John Hunter. W. S. Handley.—p. 313.
Chemotherapy of Gonorrhea. R. Marinkovitch.—p. 317.
*Chemotherapy of Gonococcic Vulvovaginitis, with Special Reference to Sulfapyridine. D. Kathleen Brown.—p. 320.
*Weil's Disease in Glasgow Sewer Workers. R. D. Stuart.—p. 324.
Treatment of Brucella Melitensis Infection with Prontosil. J. E. Debono. —p. 326.

Sulfapyridine in Gonococcic Vaginitis.—Brown treated twenty-seven cases of gonococcic vulvovaginitis with sulfapyridine, thirty-one with sulfanilamide and six with another sulfanilamide compound (uleron). All the patients treated were from 3 to 10 years of age. The duration of treatment was cut down to only four days for girls receiving sulfapyridine and to ten days for those receiving sulfanilamide. Perhaps the chief advantage of sulfapyridine is that there is no necessity for local treatment apart from merely swabbing the vulva with one part of acriflavine in 1,000 parts of glycerin for the first two or three days. Improvement is apparent within a few hours in some cases treated with sulfapyridine and always within two or three days for both sulfapyridine and sulfanilamide. Discounting the ten immediate failures treated with the three drugs, there were no relapses in *fifty-four cases* while the children remained in the home. In no case in which the rectal tests were negative at the beginning of treatment did infection occur later in the rectum. One of the patients treated with sulfanilamide showed a wart; otherwise no complications developed. Thirty-four girls remained well for from five to thirteen months, fourteen for from three to nineteen weeks and there were six late relapses.

Weil's Disease in Glasgow Sewer Workers.—Stuart points out that in the last three years in Glasgow three men appear to have died from Weil's disease and a fourth has been ill but has recovered. In the present group of workers six out of a total of thirty-six show evidence of past infection, fully supporting the evidence of Fairley and of Alston and others that leptospiral infection is definitely an occupational risk in sewer workers. Probably it will be found that Weil's disease is only an occupational risk of sewer workers in large cities in which the men actually enter the ducts. In smaller towns the work is mainly on the surface and the risk of infection must be infinitely less. Laboratory diagnosis in the first week of the disease is difficult but should always be attempted, since serum therapy is so valuable at this stage. Prophylaxis in sewer workers is difficult. Adequate vaccination with an efficient antigen will probably be the ultimate *solution*. This is highly successful in protecting experimental animals but is still largely experimental in man.

Guy's Hospital Reports, London

88: 371-500 (Oct.) 1938

*Experiences with Use of Intrabronchial Radon in Treatment of Bronchial Carcinoma. R. C. Brock and R. J. Cann.—p. 371.
Basal Celled Carcinoma of the Trachea: Report of Two Cases. R. J. Cann.—p. 392.
Nature of Badly Functioning Kidneys and Their Relation to the Urogenital Column of Cellular Tissue. A. R. Thompson.—p. 403.
Some Aspects of Cancer of the Prostate. A. R. Thompson.—p. 418.
Some Observations on Clinical Value of Gastroscopy. G. A. M. Lintott.—p. 422.
Fascial Spaces of the Palm: Contribution to Their Surgical Anatomy. J. E. Spalding.—p. 432.
Pneumoperitoneum: Report of Two Cases, with Remarks on Causation of Pain Referred to Shoulder After Perforation of Peptic Ulcer. J. E. Spalding and S. H. Wass.—p. 440.
Polyarticular Osteo-Arthritis in a Young Man, Associated with Chondro-Osseous Dystrophy. L. C. Thomson.—p. 446.
Study of Relation Between Nephritis and Nephrosis. C. G. Pantin.—p. 456.
Suppuration in Hip Joint. W. H. Bowen.—p. 482.
*Repeated Tuberculin Tests. J. R. Forbes.—p. 490.

Treatment of Bronchial Carcinoma with Intrabronchial Radon.—In view of the high percentage of cases of bronchial carcinoma that are unsuitable for radical surgical intervention, it is important to consider the value of other methods of treatment in the relief of symptoms and prolongation of life. Therefore Brock and Cann report their results in twenty-five cases in which the surface application of radon seeds by means of intrabronchial containers was used. In many the benefit that followed was slight or temporary or was obscured by the progress of some other feature of the disease, such as the development of local or distant metastases. For this reason the authors are not making a separate record or analysis of all the cases but have selected six for individual mention, as each of these illustrates some point of importance. In five of these six the average survival after treatment was thirteen and one half months, the longest being twenty-one months. The sixth patient died after several months of a comfortable existence. The definite improvement as a result of the treatment with radon or radium in each of the cases is most striking and instructive and should compel one to continue energetically in developing this form of treatment in selected cases. It seems that the best results of intrabronchial radon therapy are to be expected in cases of squamous cell bronchial growths in elderly men, which are naturally rather slow growing. Intrabronchial radon should not be used in preference to radical surgical intervention in curing a patient who is fit or suitable to undergo an operation.

Repeated Tuberculin Tests.—Forbes studied, in normal subjects, the results of repeated intracutaneous tuberculin tests at intervals of one, two, three, four and six weeks. The results show the almost constant occurrence of supersensitization after the first test when the test is repeated at an interval of less than three weeks. After this early increase, sensitivity tends to decline gradually under the influence of frequent repeated testing. The results, however, are by no means uniform and unexpected variations of sensitivity are common. It is emphasized that, because of the considerable variability of sensitivity in normal subjects as shown by repeated tuberculin tests, great caution must be observed in attempting to relate the results of such tests to the course of the disease in tuberculous patients.

Indian Journal of Medical Research, Calcutta

26: 597-850 (Jan.) 1939. Partial Index

Investigations on Variation of Vibrios in the House Fly. R. B. Lal, S. C. Ghosal and B. Mukherji.—p. 597.
Observations on Hemolysis by Vibrios. A. N. Goyle.—p. 611.
Calory Requirements of South Indian Children. B. G. Krishnan.—p. 631.
Relation of Inorganic Phosphate to Carbohydrate Metabolism in Normal and Diabetic Subjects. J. P. Bose and U. N. De.—p. 645.
Abstinence Symptoms in Opium Addiction and Role of Glucose in Their Treatment. R. N. Chopra and S. C. Ganguly.—p. 699.
True Achlorhydria and Anemia. R. G. Dhayagude and V. N. Khadilkar.—p. 705.
*Tetrachlorethylene in Treatment of Hookworm Disease, with Special Reference to Toxicity. P. B. Fernando, M. D'Silva, G. K. B. Stork and Grace R. Sinnatamby.—p. 759.
Cancer in India. V. Nath and K. S. Grewal.—p. 785.
Complement Fixation in Leprosy with Witebsky, Klingenstein and Kuhn (W. K. K.) Antigen: New Technic. S. D. S. Greval, J. Lowe and R. Bose.—p. 843.

Tetrachlorethylene in Hookworm Disease.—Fernando and his co-workers studied the anthelmintic activity of tetrachlorethylene in 111 patients, ranging in age from 2 to 70 years. The drug was found to be effective against hookworm, a dose of 8 cc. being the most effective. It had a slight action against roundworms. The toxicity of tetrachlorethylene has been studied and no appreciable toxic action was observed on the cardiovascular, respiratory, hepatic and renal organs, even after doses of 8 cc. In a few cases, doses of 6 cc. and more have produced symptoms of giddiness, faintness and weakness, and in one case symptoms of narcosis. These effects were only temporary. Doses of from 4 to 5 cc. may be safely given to adults, and two such treatments at intervals of ten days may be expected to cure even severe cases of ancylostomiasis. Children may be given tetrachlorethylene in doses of from four to five times the age in minims. Tetrachlorethylene, in view of its low toxicity and efficacy, is a valuable drug in the mass treatment of ancylostomiasis.

Journal of Physiology, London

95: 1-238 (Feb.) 1939. Partial Index

Touch, Pain and Tickling: Electrophysiologic Investigation on Cutaneous Sensory Nerves. Y. Zotterman.—p. 1.
Choline Esterase in Voluntary Muscle. D. Nachmansohn.—p. 29.
*Functional Disorganization of Kidney in Disease. R. A. McCance and E. M. Widdowson.—p. 36.
Actions of Quinine on Skeletal Muscle. A. M. Harvey.—p. 45.
Composition of Particles Seen in Normal Human Blood Under Dark-ground Illumination. J. J. Elkes, A. C. Frazer and H. C. Stewart.—p. 68.
Maintenance of Pregnancy in Hypophysectomized Rabbit by Administration of Estrin. J. M. Robson.—p. 83.
Prolongation of Red Cell Life by the Spleen. J. G. Stephens.—p. 92.
Size of Spleen in Relation to Blood Sedimentation Rate. J. G. Stephens.—p. 132.
Creatinine, Sugar and Urea Equilibrium Between Plasma and Lymph, Aqueous Humor, Cerebrospinal Fluid and Gastric Secretion After a Hypertonic Injection of These Solutions. J. D. Robertson and P. C. Williams.—p. 139.
Liberation of Histamine from Skeletal Muscle by Curare. M. Alam, G. V. Anrep, G. S. Barsoum, M. Talaat and E. Wieninger.—p. 148.

Functional Disorganization of Kidney in Disease.—According to McCance and Widdowson, renal function tests with inulin on five patients have shown the following during diabetic coma, Addison's disease and chronic nephritis: 1. The creatinine/inulin clearance ratios may be much below 1. 2. The urea/inulin clearance and the urine/plasma urea ratios may be extremely low. 3. Dextrose may be almost absent from the urine when the dextrose in the plasma is more than 550 mg. per hundred cubic centimeters and when inulin is passing freely into the urine. 4. The percentage of urinary sodium and chloride may be low in spite of extremely high plasma values. 5. Other functions of the kidney such as the excretion of ammonia may be unimpaired. The two possible explanations of these results are (1) that they are due to excessive reabsorption by the tubule cells caused by the loss of some normal restraining influence and (2) that the dextrose and chloride results are due to a pronounced fall in the glomerular filtration rate in kidneys with relatively normal tubules.

Lancet, London

1: 369-430 (Feb. 18) 1939

Makers of John Hunter. W. S. Handley.—p. 369.
*Suppurative Pneumonitis and Lung Abscess: Value of Radiology. A. Garland and F. R. Berridge.—p. 375.
Fibrocystic Disease of Bone with Skin Pigmentation and Endocrine Dysfunction. K. Robson and J. W. Todd.—p. 377.
Treatment of Pneumonia with 2-(p-Aminobenzenesulfonamido) Pyridine (Sulfapyridine). A. L. Agranat, A. O. Dreosti and D. Ordman.—p. 380.
Use of Stored Blood for Transfusion. G. A. Elliott, R. G. Macfarlane and J. M. Vaughan.—p. 384.
Collection and Transfusion of Preserved Blood: Improved Technic. C. R. Boland, N. S. Craig and A. L. Jacobs.—p. 388.

Suppurative Pneumonitis and Lung Abscess.—Garland and Berridge state that only sixteen cases of suppurative pneumonitis have been seen at a large general hospital in two years. In six cases a cavity was never demonstrated throughout the illness. The series included eleven males and five females. Assuming that oral sepsis is more common in males, it might be argued that this preponderance corroborates the view that dental sepsis is an important etiologic factor. The disease was confined to the right lung in ten cases, and for anatomic reasons septic material finds access easier on that side. Seven cases were associated directly or indirectly with inhalation anesthesia.

In eight cases the suppurative pneumonitis followed acute pneumonia and in the remaining case the origin was uncertain. It appears that something more than mere tissue necrosis is required to produce an abscess in acute pneumonia, and the conception of an area of gray hepatization breaking down into a true abscess is probably incorrect. Every case of pulmonary suppuration must pass through a preceding stage of inflammation. This presuppurative stage, especially in cases of aspiration of septic material, has been termed "pneumonitis." Kerley has observed that this condition may clear up without proceeding to abscess formation. Suppurative pneumonitis is a stage further, when actual pus is present in the lung but not necessarily in the form of a localized abscess. The true pathology and morbid histology of suppurative pneumonitis are not yet known. The authors point out that suppurative pneumonitis is quite distinct from the "simple pneumonitis" described recently by Morton Gill. The x-ray appearances of suppurative pneumonitis are not pathognomonic. It is the demonstration of a fluid level which usually first draws attention to an abscess cavity. Although differential diagnosis from a tuberculous cavity is not usually difficult, the x-ray appearances are sometimes inconclusive. Reliance must then be placed on clinical evidence and especially on the character of the sputum and its bacteriologic content. Similarly, confusion may arise when congenital cystic disease of the lung is complicated by pneumonia. A cavity obscured by pneumonitis or by effusion may sometimes be defined by using a Potter-Bucky diaphragm. Occasionally even in the acute stage of lung abscess physical signs of a cavity are present and are of invaluable diagnostic assistance. Conservative measures were adopted in every case, spontaneous healing was awaited and surgical intervention was avoided as far as possible. In only one case was there cause to regret adherence to medical treatment. A young adult with suppurative pneumonitis was treated by bronchoscopic aspiration of the pus, bronchiectasis developed and recovery has not occurred eighteen months after the onset and in one other patient after twenty-four months. One patient died. Here operation had been regarded as contraindicated, for the patient was suffering from a series of complications following acute intussusception. Operation was also withheld in a middle aged man in poor general health and in this patient bronchiectasis developed. In one case an incision into an area of suppurative pneumonitis revealed merely a lung oozing pus and no definite abscess cavity. Eleven patients recovered completely. However, fibrosis developed in two; one is presumably of a permanent type. It appears that one is on firm ground in advocating operation only when there is x-ray evidence of an abscess cavity. Progressive enlargement of the cavity represents an absolute indication for operative treatment. Operation becomes imperative when the patient's general state is deteriorating or when it is believed that the condition is becoming chronic. An empyema complicating any stage of the disease is, of course, always treated surgically.

Medical Journal of Australia, Sydney

1: 173-208 (Feb. 4) 1939

Points of Contact of Human and Veterinary Preventive Medicine. H. R. Seddon.—p. 173.
Treatment of Mental Disease by Electrotherapy. E. A. Elliott.—p. 180.
Physical Therapy in Disease and Deformity of Childhood. H. Crawford. —p. 183.
Physiotherapy and Posture, with Some Remarks on Postural Anatomy. R. S. Lahz.—p. 186.
Metropathia Haemorrhagica. H. H. Schlink.—p. 189.

South African Medical Journal, Cape Town

13: 79-114 (Feb. 11) 1939

Cazuela, a General Practitioner's Potpourri. J. F. Haegert.—p. 81.
The Nutrition Problem in South Africa. E. H. Cluver.—p. 83.
Some Nutritional Problems Among the Bantu in South Africa. F. W. Fox.—p. 87.
Occipitoposterior Position of the Vertex and "Deep Transverse Arrest" of the Head. W. H. Maxwell.—p. 95.

13: 115-146 (Feb. 25) 1939

Why Not a Carr's Splint? M. A. Lautré.—p. 117.
Abnormalities of the Urinary Tract of Clinical Importance in General Practice. R. C. Begg.—p. 121.
Treatment of Hemorrhoids with Negative Galvanism. C. G. L. van Dyk. —p. 124.
Sleeping Sickness from Bechuanaland: Case. M. J. Broderick and A. Pijper.—p. 127.

Chinese Medical Journal, Peiping

54: 491-592 (Dec.) 1938

Left Occipitoparietal Brain Tumor with Observations on Alexia and Agraphia in Chinese and in English. R. S. Lyman, S. T. Kwan and W. H. Chao.—p. 491.
Preparation and Clinical Use of Bacillus Pertussis Vaccine. J. P. Wu, F. T. Chu and C. L. Tsao.—p. 517.
Studies on Sparganum of Diphyllobothrium Erinacei in Regard to Immunity and Regeneration. L. C. Feng, R. Hoeppli and H. J. Chu.—p. 530.
Isolation of Typhus Rickettsia from Infected Animals on Zinsser Agar-Tissue Mediums. S. H. Zia, P. Y. Liu and K. H. Pang.—p. 547.
Notes on Aedes (F) Togoi Yamada as Met With in the Colony of Hongkong. R. B. Jackson.—p. 559.
Depression of Nasal Bridge and Its Plastic Treatment. M. L. Hu.—p. 563.
Schistosoma Turkestanicum in North China. H. F. Hsü.—p. 568.
Superficial Punctate Keratitis: Report of Three Cases. Y. T. Cheo.—p. 571.
Hookworm in Shaoyang, Hunan. G. H. Pearson and C. T. Yang.—p. 574.

55: 1-92 (Jan.) 1939

*Treatment of Gonorrhea with Uleron. H. E. Shih and C. C. Wen.—p. 1.
Relapsing Fever: Clinical and Statistical Study of 337 Cases. H. L. Chung and F. C. Chang.—p. 6.
Duration of Life of Fossil Man in China and the Pathologic Lesions Found in His Skeleton. F. Weidenreich.—p. 34.
Attempts to Immunize Rats and Mice Against Cysticercus Fasciolaris. L. C. Feng and R. Hoeppli.—p. 45.
Plague Work in Fukien, China (December 1935 to November 1936). Y. N. Yang, E. Landauer, C. K. Koo and P. C. Lin.—p. 55.
Calculus in Female Urethra. C. S. Huang.—p. 74.

Treatment of Gonorrhea with a Sulfanilamide Compound.—Shih and Wen used uleron, a sulfanilamide compound, in the treatment of sixty cases (seven acute and fifty-three subacute or chronic) of gonococcic urethritis in the male. Of the seven patients with acute gonococcic urethritis, six sought treatment during the first week of infection and one during the second. Intracellular gonococci were found in stained smears from the urethral discharge of all the patients, and pus and shreds were present in the urine. Of the fifty-three cases of subacute or chronic gonococcic urethritis, the duration of the disease was less than one month in nine, up to a year in twenty-three and between two and forty years in twenty-one. All these patients had previously been given some form of urinary antiseptic, which had been administered orally, subcutaneously, intravenously or locally. Frank urethral discharge was present in forty-one cases, the gonococcus was demonstrable in fifty, and shreds in the urine were found in the specimens of all the cases. The drug was administered in two or three courses separated by intervals of a week. Each course consisted of 12 Gm. of uleron, which was given in 1 Gm. doses three times a day for four days. If the smear was still positive for gonococci after the first course, a second course was given after an interval of seven days. Even though the smear was negative, usually a second course was given as a measure of caution. In resistant cases a third course was given after another interval of seven days. During the intervals if the urethral discharge was absent or became less profuse the urethra was irrigated every other day with a 1:8,000 or 1:5,000 solution of potassium permanganate. In general, the immediate effects of uleron were as remarkable as those of sulfanilamide. Symptoms disappeared promptly, especially dysuria in the acute cases and urethral discharge in the chronic cases. The stained smears from the fossa navicularis became negative for gonococci in two of the acute cases after from 27 to 36 Gm. of the drug had been taken, and in fifteen of the subacute and chronic cases after only 12 Gm. of the drug had been taken. Rapid subjective improvement was often deceiving. One of the acute cases was pronounced cured, one improved and five were unimproved; of the subacute and chronic, twelve were considered cured, twenty-five improved and sixteen unimproved. The percentages of the cured and improved cases are lower than those reported by other workers, but this may be accounted for by the strict criteria which were adopted in evaluating the results. Comparing these results with those obtained by the use of sulfanilamide, the author is impressed by the fact that the subacute and chronic cases seem to respond more readily than the acute cases and that for subacute and chronic gonococcic urethritis uleron seems to be a better agent than sulfanilamide. None of the cases of chronic gonorrheal

prostatitis were benefited by the drug. In the dosage employed, uleron appeared to be nontoxic and well tolerated. Patients who are treated with this preparation should be kept under careful observation until they are truly cured of the disease.

Journal de Radiologie et d'Electrologie, Paris

23: 49-96 (Feb.) 1939. Partial Index

Posology of Anti-Inflammatory Roentgen Therapy. J. Huguet.—p. 49.
Multiple Disseminated Calcifications in Lung in Mitral Disease. E. Munk.—p. 58.
False Gallbladder Fixed in Abnormal Position. J. Aimard.—p. 69.
*Roentgen Therapy of Morton's Disease. R. Ledoux-Lebard.—p. 71.
Simple Roentgenographic Technic and Easy Interpretation for Diagnosis of Tumors of Acoustic Nerve. J. Dereux and H. Monnier.—p. 73.

Roentgen Therapy of Morton's Disease.—Ledoux-Lebard points out that the disorder first described by Morton in 1876 is characterized by a typical plantar pain, which is localized at the fourth metatarsophalangeal articulation. He says that Pollosson of France described it under the term anterior metatarsalgia. This metatarsalgia seems to be familial in some cases, but it cannot be definitely stated whether the disorder is truly hereditary or whether there is only a hereditary anatomic predisposition. The exciting cause is usually a trauma, either continuous, such as the wearing of too narrow footwear, or sudden, such as may occur in the course of a fall during dancing or jumping. The disorder is more frequent in women than in men, for of thirty-nine cases reported in the literature thirty concerned women, and of eleven cases observed by the author nine concerned women. In case of sudden onset, a violent pain is felt in the anterior metatarsal region and usually at the fourth metatarsophalangeal articulation. In most cases the pain remains localized here but occasionally it involves also the second and third but never the first metatarsus. As a rule the disorder is unilateral, the right foot being more frequently involved than the left one. Since objective anatomic signs are absent it is difficult to establish the pathogenesis. The treatment is still undecided, but the author mentions periarticular injections of iodized poppyseed oil, infiltration with procaine hydrochloride according to Leriche's method, the wearing of orthopedic footwear and various surgical operations. He thinks that surgical operations should not be employed until roentgen therapy and the aforementioned injections have been tried. On the basis of his own experiences he regards roentgen therapy as the method of choice. Of the cases in which he used roentgen rays, nine could be observed for a sufficient length of time (more than two years) to permit an estimation of the results; seven of these nine were completely cured and another one was greatly improved; the remaining one was not benefited. The author irradiates the antero-external portion of the plantar surface and centers the rays on the head of the fourth metatarsal bone. He utilizes rays of medium penetration filtered through 5 mm. of aluminum, and he applies them in weekly doses of 200 roentgens for from four to six times. In most cases one series of treatments proved adequate, but in four cases three series had to be applied at intervals of two months.

Journal d'Urologie Médicale et Chirurgicale, Paris

47: 97-176 (Feb.) 1939

Vesical Exstrophy and Masculine Epispadias: Treatment by Prerectal Pelvic Transposition of the Bladder. H. Godard.—p. 97.
*Study of Renal Function After Conservative Operations for Reno-Ureteral Lithiasis. R. Gonzalez.—p. 110.
Uretero-Intestinal Anastomoses in Incurable Vesicovaginal Fistulas. E. Gonzalez Pastor and E. Rioseco G.—p. 128.
Tuberculosis and Renal Cysts. De Langre.—p. 138.
Vesical Diverticulum Containing More Than 1,200 Calculi and Treated by Diverticulum and Resection of Neck of Bladder. H. C. E. M. Houtappel.—p. 141.
Case of Crossed Renal Ectopy with Lithiasis. E. Dragonas and G. Cambassis.—p. 144.
Fistula and Cyst of Persisting Urachus: Case. Gonzalez Pastor and R. Gonzalez.—p. 148.

Renal Function After Operations for Reno-Ureteral Lithiasis.—Gonzalez says that the lesions produced by calculi, once their cause is eliminated by conservative surgery, nearly always show a favorable development and that anatomic as well as functional restitution of the upper urinary apparatus is to be hoped for. It is understood, of course, that the lesions are not grave and that the processes are not infectious or destructive, for such cases exceed the possibilities of conservative surgery. In patients who had undergone conservative operations the author compared the outcome of the pyelographic and functional examinations made at the time of their entrance to the hospital with the outcome of the same tests at the time of their dismissal. In the patients with septic lithiasis with impaired renal function, dilatation and other lesions, no change for the better is observed in the functional condition following the surgical operation. Patients who have been operated on return after a certain time to ask advice regarding disturbances which cannot be attributed to a relapse of the lithiasis but which are the result of the lesions caused by the calculus at the beginning of the disease. This induced the author to examine the renal function at later dates, namely three months after the operation, a year after it and in some cases at later dates. In the course of these functional tests he examined the quantity of urine, the chloride and urea concentrations, the elimination of phenolsulfonphthalein and the sediment. The x-ray examination comprised, in addition to the direct roentgenography of the urinary apparatus, ascending pyelography with a contrast medium or pneumo-ureteropyelography. The author describes the outcome of these tests in seven cases. He found that reno-ureteral lithiasis produces in the different branches of the upper urinary tract anatomic lesions the importance and extension of which depend on three factors: (1) the calculus and its localization, (2) the time that has elapsed and (3) the process of infection. He also cites animal experiments carried out by Hinman and shows that the less damaged the renal parenchyma is the more apt it is to receive the physiologic stimuli which govern the function and the reparation; that the reparation of the lesions is inversely proportional to the time that has elapsed since the changes developed; that in the cases in which one kidney remains healthy this kidney alone is capable of satisfying the demands of reparation. This explains why the lesions of the diseased kidney remain stationary. To be sure, the author recognizes the limitations of animal experiments and in the conclusion he stresses that patients with anatomic and functional lesions do not regain their function after the conservative operations and that the changes tend to increase progressively. He stresses the necessity of a complete anatomic and functional examination of the upper urinary apparatus in order to determine the degree of the changes caused by the reno-ureteral lithiasis. The prognosis must take into account the lesions as well as the time of development. The surgical treatment must be selected in accordance with the diagnosis.

Presse Médicale, Paris

47: 337-360 (March 4) 1939

Surgical Treatment and Results of Ablation in Cancer of Rectum. J. Charrier and J. Gouzi.—p. 337.
*General Biologic Action of Toad Venom. R. Cornilleau.—p. 340.

Action of Toad Venom.—According to Cornilleau the venoms, particularly those of the cobra, the bee and the toad, have been given considerable attention in recent years. His own studies were made on toad venom. He says that the tonic action of toad venom on the heart, if not actually questioned, has at least been minimized by some authors. In this connection he calls attention to Lutembacher's report in the *Presse médicale* (46:1469 [Oct. 5] 1938; abstr. THE JOURNAL Nov. 26, 1938, p. 2054), in which that author emphasized that toad venom is inferior to digitalin and ouabain. Cornilleau admits that for quick and strong action ouabain is the medicament of choice; however, neither digitalin nor ouabain can be used for continuous treatment, because their prolonged use involves the dangers of accumulation. He thinks that the best treatment combines the different medicaments, using the classic heart tonics at the onset and employing toad venom for the maintenance treatment. It is essential to distinguish between alcoholic and aqueous solution of toad venom. Lutembacher used the alcoholic type and observed nausea; Cornilleau, however, uses the aqueous solution of the toad venom. After citing experiments with solution of toad venom on frogs, cats and mice, he stresses the stimulating effect of toad venom on the glandular secretions. The introduction of the venom into the human organism, he says, brings into play extremely complex biochemical reactions, which operate by way of the sympathetic. At any rate, its polyvalence cannot be doubted and that is why the medication with this substance always effects an improvement in the general condition.

Schweizerische medizinische Wochenschrift, Basel

69: 233-260 (March 18) 1939

Significance of Bovine Type for Tuberculosis During Childhood. T. Baumann.—p. 233.
What Role Is Played by Anachoresis in Immunity to Tuberculosis? A. Ascoli.—p. 241.
*Relapses After Apparently Successful Pneumothorax Treatment. W. Behrens.—p. 242.
Chemotherapy of Surgical Tuberculosis. H. Buchler.—p. 247.
Hyperpyretic Moisture, Normal and Hyperpyretic Saturation Deficit and Discharge of Water From Lung at Various Body Temperatures Determined at Several Swiss Stations Located at Different Altitudes. J. Kollarits.—p. 252.
Case of Grave Tuberculous Sepsis. M. Künsch.—p. 254.

Relapses After Pneumothorax Treatment.—Behrens says that statistical reports indicate that the late results of pneumothorax therapy are not entirely satisfactory. Apparent cures, that is, cases in which relapses result, are more frequent than is indicated in the literature. The author describes his observations in five such cases that were observed by him in the course of the last two years. Two were under his control more or less continuously, whereas the other three came under his observation following completion of the pneumothorax therapy and after a relapse had occurred. He shows that these observations indicate how the late results can be improved. He emphasizes that the mere transformation of a cavity into a closed focus is insufficient. Under favorable conditions, that is, in the presence of a small new cavity and a sufficiently long maintenance of the pneumothorax therapy, cure may thus be effected. However, the aim of pneumothorax therapy is the complete cicatrization of the cavity, and this can be effected with some degree of certainty only in cavities with elastic walls, that is, in relatively new lesions (early cavity, elastic round cavity). Tertiary cavities, especially after they have reached a certain size, are unsuitable objects. In practice it is often extremely difficult to estimate the pathogenesis and age of a cavity or of a tuberculous process for which pneumothorax therapy seems indicated. Therefore, if pneumothorax therapy is decided on, all measures must be employed to realize its aim. Incompletely closed foci of caseation may lead to dissemination and exacerbation even in the course of pneumothorax therapy, and this danger becomes greater when the pulmonary collapse subsides; that is, when the pneumothorax is discontinued. The author shows that all detachable adhesions must be severed as early as possible, because only thus will the formation of a vascularized, fibrillar scar tissue become possible and only such tissue represents true cicatrization of a tuberculous cavity. At what stage and with what method the cautery is to be performed and whether this or that strand is to be severed has to be decided by the physician in each case.

Archivio Italiano di Urologia, Bologna

15: 533-634 (Dec.) 1938. Partial Index

Inflammation of External Male Genitalia: So-Called Genital Spontaneous Gangrene. R. Ascoli.—p. 565.
*Colon Bacterial Vaccines in Treatment of Infectious Cystitis. M. Patriarca.—p. 583.

Vaccine in Infectious Pyelocystitis.—According to Patriarca the most frequent cause of pyelocystitis is infection with pyogenic bacteria, especially colon bacilli. Several treatments, especially the administration of bacterial vaccines, have been resorted to. The author carried on a comparative study of the results of the administration of bacterial vaccines or methenamine in two groups of patients. The clinical and pathologic conditions were the same for the patients in the two groups. The patients had either bacterial vaccines or methenamine for ten consecutive days during which they had no other treatment. Forty-five patients of one group had polybacterial colon vaccine, which was administered by the intramuscular route. Six patients in the other group had intravenous injections of methenamine in daily doses of 10 cc. of a 40 per cent solution. The results were evaluated by the evolution of the condition as verified by microscopic examination of the urine and the behavior of cultures, which were made before and after completion of the treatment. The author found that: 1. Polybacterial colon vaccines control pyelocystitis more rapidly than the injections of methenamine. In both cases the disease may recur. Recurrences are also controllable by either treatment, with better results from colon vaccines than from methenamine. 2. Control of the infection lasts longer after the administration of colon vaccines than after treatment by methenamine. 3. Polybacterial vaccines are more effective than those prepared with only one variety of colon bacillus. The vaccine is harmless and does not provoke phenomena of intolerance.

Folia Medica, Naples

25: 113-172 (Feb. 15) 1939. Partial Index

Relation Between Regulations of Body Temperature and Metabolism of Carbohydrates. N. Festa.—p. 117.
*Ascorbic Acid in Tumoral Tissues. E. Bartolomucci.—p. 126.

Ascorbic Acid in Tumors.—Bartolomucci made quantitative determinations of ascorbic acid in tumoral and peritumoral tissues in twenty cases. He resorted to Tillmans' (2-6-dichlorophenol-indophenol), Martini-Bonsignore's (methylene blue) and Ferrari-Buogo's (precipitation of sulfydryls) technics. He found that the amount of ascorbic acid in tumoral and peritumoral tissues is increased in relation to normal tissues. Cancerous tissues contain more ascorbic acid than tissues of benign tumors. The smaller the amount of fibrous connective tissue in the stroma of a given tumor the greater the amount of ascorbic acid in the tissues. The amount of ascorbic acid in tumoral and peritumoral tissues starts increasing after infiltration of the tissues has taken place. It is moderate in benign conjunctivomas and greater in cancers, epitheliomas and sarcomas.

Jornal dos Clinicos, São Paulo

20: 17-32 (Jan. 30) 1939

*Relation Between Thyroids and Leukemia. A. Marques.—p. 17.
Semeiology of Blood in Surgery. E. Alvaro.—p. 22.

Pathogenesis of Leukemia.—Marques believes that there is a pathogenic relation between dysthyroidism and leukemia. The common pathogenic factor for the two conditions is a disturbance of the nervous sympathetic system. In either condition endocrine, leukopoietic and metabolic disorders exist. The author reports two cases of chronic leukemia. One of the patients had symptoms of hyperthyroidism. Thyroidal lesions of the type of colloidal goiter were found during the necropsy in both cases.

Deutsches Archiv für klinische Medizin, Berlin

183: 363-474 (Feb. 7) 1939. Partial Index

Demonstration of Undigested Cells from Gastric Juice. W. Hauth.—p. 363.
Constitutionally Conditioned Changes in Granules of Leukocytes. A. Alder.—p. 372.
Behavior of Indican in Organism with Especial Consideration of Its Elimination by Healthy and Diseased Kidneys After Tolerance Test. P. Schlierbach.—p. 387.
Pathogenesis and Clinical Aspects of Meningococcic Sepsis. K. Bingold.—p. 422.
*Night Blindness as Symptom of Thyrotoxicoses and of Hepatic Diseases. K.-H. Zaffke.—p. 433.

Night Blindness in Thyrotoxicosis and Hepatic Diseases.—Zaffke points out that night blindness or the impairment of the dark adaptation is a regular symptom of vitamin A deficiency. He measured the dark adaptation by means of the Birch-Hirschfeld apparatus. Examining the dark adaptation in twenty-two patients with disorders of the thyroid, he found that in all typical cases of thyrotoxicosis the adaptation curve is pathologic and indicates night blindness. Since recent investigations have demonstrated that fully developed thyrotoxicosis is accompanied by anatomic impairment of the liver and since it is known that the liver is important for the storage of vitamin A, the author assumes that the night blindness which is observed in thyrotoxicosis is a result of the thyrogenic impairment of the liver. In order to determine whether hepatic lesions as such are accompanied by night blindness that is brought on by deficiency in vitamin A, he tested the dark adaptation in twelve patients with various hepatic disturbances. He found that night blindness differs in severity in various hepatic disorders such as catarrhal icterus, engorged liver, cholecystitis and hepatic cirrhosis. The degree of impairment of the dark adaptation seems to be dependent on the severity of the hepatic impairment. The severest and most characteristic disturbances in the dark adaptation are observed in hepatic cirrhoses. Here the curve is so characteristic that it repre-

sents an important aid in the differential diagnosis of hepatic cirrhosis from other diseases of the liver. To what extent the examination of the dark adaptation represents a functional test of the liver is still under investigation.

Deutsche medizinische Wochenschrift, Leipzig

65: 241-280 (Feb. 17) 1939. Partial Index

Thyrotoxic Crisis, Thyrotoxic Coma. H. W. Bansi.—p. 241.
Indications for Arteriography and Ventriculography in Space-Limiting Intracranial Processes. W. Tönnis.—p. 246.
Thymol as Antigen. K. Hansen.—p. 249.
Genealogical Investigations in Thrombo-Angiitis Obliterans. F. Parkes Weber and H. Huber.—p. 256.
Treatment of Bronchial Asthma. W. Heinen.—p. 260.
Synthetic Testicular Hormone in Treatment of Psychic Manifestations of Senility in Men and Women. O. L. Weiss.—p. 261.
*Atabrine in Treatment of Giardiasis (Lambliasis). P. De Muro.—p. 262.

Atabrine in Treatment of Lambliasis.—Following a review of the various therapeutic methods that have been recommended for the treatment of lambliasis, De Muro points out that in 1937 Galli-Valerio suggested the use of atabrine. The excellent results obtained by Galli-Valerio induced De Muro to resort to atabrine in fifteen cases of lambliasis. Eight of the patients had chronic colitis, two had rectitis and five had intestinal, hepatic and biliary symptoms. The mode of administration of atabrine was the same as that which the author employed in patients with malaria; that is, for adults three tablets was the daily dose. This dose was divided into two or three parts, each one of which was administered immediately after meals. The medication was continued for from five to eight days. In two cases the atabrine was administered by intramuscular injection (one ampule containing 0.3 Gm. daily) but, since this mode of administration seemed to be less effective, the author recommends the oral medication. Undesirable secondary effects of the atabrine therapy were observed in only two of the cases. One patient had mild abdominal pains and another one showed yellowish discoloration of the skin and of the scleras. This yellowish discoloration is not the result of impairment of the hepatic cells but rather of the accumulation of acridine in the subcutaneous tissue. In addition to the atabrine the patients were given biliary and pancreatic preparations. The stools of the patients were examined twice a week and duodenal specimens were examined two or three times. In thirteen cases the examination of stools and duodenal contents gave negative results after five days of treatment. In the two cases in which the intramuscular administration was employed the stools were likewise normal but the duodenal specimens were not. The disappearance of the organisms was accompanied by a great improvement in the general condition and by normalization of the stools. The author concludes that, although his material is not sufficiently large to permit a final evaluation, the observations prove that atabrine exerts a parasiticidal action on Giardia intestinalis.

Klinische Wochenschrift, Berlin

18: 225-264 (Feb. 18) 1939. Partial Index

Behavior of Hepatic Glycogen During Ether Anesthesia and Its Modification by Water-Soluble Vitamins. H. J. Lauber and T. Bersin.—p. 232.
Chemical Studies on Urine of Patients with Icterus. A. Müller.—p. 235.
Problem of Micro-Analytic Demonstration of Lead in Body Fluids. H. Beck and G. Straube.—p. 242.
Habituation to Vitamin Deficiency. Anna Lánczos.—p. 244.
*Correlations Between Vitamins B1 and C. M. Kasahara, Y. Nishizawa and S. Hirao.—p. 246.
*Value of Congo Red Test in Cancer Patients. W. Schröder.—p. 248.

Correlations Between Vitamins B_1 and C.—Kasahara and his associates report studies on animals, which they summarize as follows: 1. The antineuritic action of vitamin B_1 is intensified by the simultaneous administration of vitamin C. 2. The growth promoting factor of vitamin B_1 is influenced by the simultaneous administration of vitamin C. 3. Vitamin B_1 exerts a protective action on scorbutic guinea pigs. The authors conclude from these observations that vitamins B_1 and C are synergistic.

Congo Red Test in Cancer.—Schröder investigated the value and the usefulness of the congo red test as a functional test of the reticulo-endothelial system on fifty patients with cancer. In the individual case, the outcome of the test does not permit reliable prognostic conclusions. Although the storage capacity of the reticulo-endothelial system corresponds on the average to the general condition and to the existing defense powers, it does not furnish more information than does the general appearance of the patient or than can be learned from the other methods of clinical examination. Moreover, the method has a considerable margin of variations and of error. The author reaches the conclusion that although the congo red test has value as a scientific experiment it is of no practical value in the examination of cancer patients.

Medizinische Klinik, Berlin

35: 233-268 (Feb. 24) 1939. Partial Index

Treatment of Ophthalmoblennorrhea Neonatorum in General Practice. R. Scheerer.—p. 233.
Symptomatology of Disease of Mesenterial Lymph Nodes, Especially of Tuberculosis of These Nodes. W. Neumann.—p. 242.
Is There an Enterogenic Beriberi? H. Schroeder.—p. 245.
Value of Dextrose Clysters. K. Schwartzer.—p. 246.
*Sodium Chloride Content of Serum and Changes in Blood During Venous Thrombosis. G. Russo.—p. 248.
Puncture of Spleen as Diagnostic Method in Aleukemic Lymphadenosis. F. Velasco Montes.—p. 249.

Serum Sodium Chloride and Venous Thrombosis.—Russo mentions changes in the vascular walls, retardation of the velocity of the blood current and changes in the composition of the blood as the three factors that play a part in the development of spontaneous venous thrombosis. Many investigators ascribe the most important role to changes in the blood and recently it has been suggested that connections exist between thrombosis and dietetic or therapeutic measures, such as low sodium chloride intake and diuretic medicaments. A reduction in the sodium chloride content of the blood has been regarded as a factor that might favor the pathogenesis of thrombosis. This problem of a possible connection between hypochloremia and spontaneous venous thrombosis is of great practical importance, because in disorders in which venous thrombosis is frequent such as in circulatory insufficiencies and in certain disorders of pregnancy, salt-free diets are quite frequently employed. To throw some light on this problem the author studied the sodium chloride content of the serum in forty-four cases of thrombosis. He did not detect hypochloremia in any; the sodium chloride values were not lower than in healthy persons and so he rejects the suggestion that a chloride deficiency of the blood is a causal factor in spontaneous thrombosis. Moreover, a review of cases of hypochloremia and animal experiments on chloride deficiency failed to disclose a tendency to thrombosis. Regarding the effect on the blood of the withdrawal of sodium chloride by a salt-free diet or by diuretics and regarding the influence which withdrawal of sodium chloride has on the inspissation of the blood, on the acceleration of the coagulation and on the pathogenesis of venous thrombosis, the author says that the point of attack of the dehydration procedures is in the tissues and that, in view of the tendency of the blood to maintain its composition unchanged, the sodium chloride and water contents are not greatly modified. Moreover, the sodium chloride content of the blood has slight influence on the viscosity of the blood. The author does not believe that the development of venous thromboses in patients with heart disease is connected with the dehydration procedures. Only in exceptional cases may diuretic measures cause inspissation of the blood and a tendency to thrombosis.

Monatsschrift für Kinderheilkunde, Berlin

77: 153-314 (Feb. 17) 1939. Partial Index

Regulation of Erythrocytic Blood Picture by Sympathetic: Studies on Anemias. H. Kinkel and Gertrud Kinkel-Diercks.—p. 153.
Relation Between Sun Spots and Incidence of Diphtheria: Contribution to Epidemiology of Diphtheria. S. Belák.—p. 190.
Are Böttner's and Kauffmann's Tests Suitable Methods for Determination of Cardiac Function in Children? K. Kummer.—p. 203.
Colostrum Corpuscles. P. Forssell.—p. 213.
*Early Diagnosis of Congenital Hypothyroidism. F. Linneweh.—p. 228.
Investigations on Vitamin C Content of Cerebrospinal Fluid: Problem of Vitamin C Metabolism During Childhood. J. W. Camerer.—p. 240.

Early Diagnosis of Congenital Hypothyroidism.—Linneweh thinks that the majority of the cases of hypothyroidism that occur during childhood are congenital. In view of the fact that the one or more symptoms of congenital hypothyroidism

can frequently be traced back to the first months of life, it is surprising that the diagnosis of congenital hypothyroidism is made so rarely. This is deplorable because of the importance of early diagnosis and adequate therapy for the later development of persons with congenital hypothyroidism. Hypothyroidism does not show the same characteristic aspects in nurslings as it does in children; either the symptoms are less severe or there are signs which, considered by themselves, do not indicate the hypothyroid origin, although, considered together, they clearly demonstrate a hypofunction of the thyroid. The abortive or monosymptomatic forms (isolated dwarfism, Hirschsprung's disease and so on) are disregarded by the author. It has been observed that the weight at birth is 500 Gm. greater in the children with hypothyroidism than in the other children of the same family; this is probably due to an accumulation of water. Among the first postpartum symptoms of hypothyroidism are cold skin, tendency to constipation and thick tongue. The latter may be so large that it closes the open mouth and makes sucking difficult. The food intake is small because the metabolism is impaired. Intestinal tonus and motility are impaired. Moreover, the stools are less copious than is the case in normal children. The result of these disturbances in the digestive process is the persistent constipation, a symptom which, in young nurslings, is especially surprising. Another manifestation of congenital hypothyroidism is the quiet and apathic behavior of the nursling. Disturbance in growth is another sign of congenital hypothyroidism. Especially noteworthy is the retardation in the growth in length. At the age of 6 months the deficit in length may be 6.5 cm. One of the most characteristic signs of hypothyroidism is the retarded appearance of the nuclei of the carpal cones, but this symptom may lead to the erroneous diagnosis of rickets. As a result of this mistaken diagnosis, valuable time may be lost in unsuccessful vitamin D therapy. In this connection the author points out that nurslings with untreated hypothyroidism never develop rickets but that rickets may develop after the hypothyroidism has been treated. The anemia that is characteristic for hypothyroidism is observable also in nurslings, but it is of mild degree and, in view of the fact that mild anemias are comparatively frequent in nurslings, it is of no diagnostic value for hypothyroidism. Further, the author discusses the metabolic aspects of congenital hypothyroidism. He shows that the basal metabolism is of no value either for the diagnosis or for the control of the glandular therapy in nurslings with hypothyroidism, because of the lack of a comparative value and because of difficulties in method. The cholesterol content of the blood serum of nurslings with hypothyroidism shows a different behavior from that of older children and adults with this disorder. Whereas in children and adults the cholesterol content is increased during hypothyroidism, in nurslings with hypothyroidism it is below normal and rises to normal values during administration of thyroidin. From the observation that the cholesterol content of the blood serum of nurslings with hypothyroidism corresponds to that of the newborn, it is concluded that the physiologic increase in the cholesterol content after birth is a function of the thyroid.

Zeitschrift f. menschliche Vererbungslehre, Berlin

22: 669-812 (Jan. 23) 1939

Frequency of Occurrence of Irregular Gene Formulas for Quantitative Values of Cristae Cutis (Dactylograms) in Parents and Children. Ingeborg Metzner.—p. 669.
Criticism of New Theory of Heredity of Groups of Iso-Agglutination of Dawood Matta. L. J. Pauwen and P. Monreau.—p. 699.
Investigations on Pathologic Correlations: II. Hereditary Ataxia. H. Leers and E. Scholz.—p. 703.
*Dupuytren's Contracture as Example for Concurrent Action of Hereditary and Environmental Factors for Development of Variable Characteristic. K. Deckner.—p. 734.
Predisposition to Convulsion and Genotype. H. Nachtsheim.—p. 791.

Heredity and Environment in Dupuytren's Contracture.—Deckner says that Dupuytren's contracture is an especially suitable example for a study of the variable, hereditary physical characteristics, which become manifest only after completion of individual development. The following are the reasons why it can serve as an example of the concurrent action of hereditary and environmental factors: 1. Dupuytren's contracture develops in the majority of cases only after the subject has passed beyond the developmental years. 2. The hereditary character and the mode of transmission of Dupuytren's contracture have been demonstrated and explained in numerous genealogical trees. The number of manifestations (penetration) varies under dominant transmission. 3. The type of manifestation is subject to great fluctuations. 4. The localization of the disease process on the hands involves the possibility of great differences in the action of external influences, corresponding to the greatly differing exertion of the hands in various occupational groups. Hands are especially exposed to external influences and to accidents of all types. In estimating the historical development of the different theories regarding the pathogenesis of Dupuytren's contracture, the author evaluates hereditary factors, the effect of hyperexertion and trauma, and finally neurogenic influences. Further, he discusses the possible action of metabolic diseases. Giving his attention to the morphologic behavior of Dupuytren's contracture, he takes up the anatomic aspects, the relations to muscular torticollis and to induratio penis plastica and then compares the condition to tumors of the palmar aponeurosis. After reviewing the literature on the frequency and the age of manifestation of Dupuytren's contracture, the author gives his attention to the part played by hereditary and environmental factors in its development, emphasizing that the action of environmental factors, even in cases of severest exertion of the hands, can never have even approximately the importance of the hereditary factors; the latter must be regarded as of decisive significance. Environmental factors increase the number of manifestations only slightly; they may induce an earlier manifestation or, in some unusual cases, they may determine the manifestation entirely. In the final part of his paper the author demonstrates the forensic importance of the problem discussed, particularly in suits regarding compensation. He stresses that Dupuytren's contracture cannot be considered as an occupational disease.

Klinicheskaya Meditsina, Moscow

17: 1-144 (No. 1) 1939. Partial Index

*Cardiac Alterations in Hypertensive Disease. S. S. Vayl.—p. 3.
Roentgenologic Diagnosis of Tumors of Large Intestine. P. D. Tarnopolskaya and A. S. Rubinovich.—p. 19.
Vitamin C in Internal Diseases. S. M. Ryss.—p. 34.
Osteogenous Nephropathies and Nephrogenous Osteopathies. A. V. Rusakov.—p. 46.
Myocardial Reactions in Acute Nephritis. V. F. Zelenin, I. B. Kabakov and P. N. Stepanov.—p. 55.

Cardiac Alterations in Hypertensive Disease.—Vayl selected for a microscopic study sixty-one cases in which death resulted from hypertensive disease not complicated by arteriosclerosis or atherosclerosis of the coronary arteries. This series contained (1) a group of fourteen hypertensive patients from 20 to 38 years of age and (2) forty-seven patients from 40 to 68 years of age. A microscopic study with various staining methods was made of portions of the heart, the upper sympathetic plexus, the cervical ganglion of the vagus, the stellar ganglion and the solar, thoracic and lumbar plexuses. Altogether, some 6,000 slides were examined. He concludes that the primary phenomenon in hypertensive disease is the rise of the blood pressure and vascular spasm. The morphologic lesions of the blood vessels and of the parenchyma of the various organs with considerable alterations in the heart follow later. Cardiac alterations consist of lesions of the muscle fibers, the vessels, the interstitial tissue and the nervous apparatus. At the same time one must consider the lesions of the vegetative nervous system concerned in the innervation of the heart. Fatty degeneration of the heart was rather insignificant. The author attaches a great deal of importance to the focal destructive changes in the various muscle fibers (micromyomalacia). These may be multiple and may be localized in portions of the myocardium having a particular functional significance. Occasionally larger areas of destruction of muscle tissue were seen, sometimes accompanied by leukocytic infiltration. Lesions of the blood vessels presented a hypertrophy of the muscle wall with consequent destructive alterations, sclerosis and mild hyalinosis and in alterations of hyperergic character analogous to

the malignant nephrosclerosis of Fahr. In the interstitial tissue mild lymphoid infiltrations were found and insignificant sclerotic alterations as well as alterations of hyperergic character expressed in fibrinoid necrosis of collagenous fibers with a consequent development of hystiocytic granuloma undergoing scar transformation. Alterations of the nervous apparatus of the heart consist of lesions of ganglionic cells and of nerve fibers. The most marked lesions of the vegetative system were observed in the cervical plexuses of the sympathetic trunk, next in the ganglion nodosum of the vagus nerve, in the thoracic and lumbar sympathetic plexuses and in the solar plexus. In some of the cases the alterations in the vegetative nervous plexuses are quite marked and consist of lesions of the ganglion cells, nerve fibers and vessels. The lesions of the vegetative nervous system, once developed, influence the state of the blood pressure and the cardiac activity. The author feels that it would be faulty to look to the myocardium alone as the cause of cardiac failure in hypertensive disease. The cardiac failure involves alterations in the musculature, mesenchyma, vessels, nerve ganglions and conduction apparatus.

Acta Medica Scandinavica, Stockholm

98: 441-627 (Feb. 22) 1939. Partial Index

Vitamin B_1 in Treatment of Nervous Diseases. N. Holmin.—p. 444.
Observations on Blood Regeneration in Man: Rise in Red Blood Cells in Pernicious Anemia After Specific Treatment. E. Schiødt.—p. 449.
*New Diagnostic Features in Four Lead Electrocardiogram of Angina Pectoris. C. L. C. van Nieuwenhuizen, H. A. P. Hartog and E. Matthijssen.—p. 468.
Experimental Therapeutic Modification of Central Nervous Paralyses. Z. Brüll.—p. 500.
*Malignant Cases of Weil's Disease with Especial Reference to Early Diagnosis. S.-G. Sjöberg.—p. 536.
Secondary Wave of Contraction a Forgotten Muscular Phenomenon (Phenomenon of Schiff-Auerbach). G. Myhrman.—p. 542.
*Effect of Adrenal Cortex Extract on Basal Metabolic Rate in Thyrotoxicosis. J. S. Richardson.—p. 583.

Four Lead Electrocardiogram in Angina Pectoris.—Van Nieuwenhuizen and his associates maintain that in order to improve the diagnosis of cardiac defects it is necessary to increase the knowledge of the electrocardiographic method. In this report they call attention to nine typical changes of the electrocardiogram in angina pectoris. Two of these, the Pardee-Q and M shaped and W shaped ventricular complexes, were known before but the other seven are described here for the first time. The Pardee-Q, the "notch at the foot of RS" (positive S), the saddle shaped ST curve and the high T wave are based on a clockwise rotation of the electrical axis. Three hundred and fifty-five tracings, in which the described deviations have been found, were collected from 5,500 four lead electrocardiograms. The Pardee-Q was found in 1 per cent of all the curves. In 84 per cent of the cases, coronary sclerosis could be assumed. In nearly half the cases, cardiac failure was present. Almost half the patients suffered from angina pectoris. The deep Q in lead 3 is an important diagnostic aid. The M or W shaped ventricular complexes were seen ten and sixty-three times, respectively. Coronary sclerosis could be assumed in more than 75 per cent of the cases in which these complexes were present. In the remaining cases myocarditis, thyrotoxicosis and other disorders existed. The W shaped complexes coincided almost always and the M shaped complexes coincided always with myocardial impairment. The "notch at the foot of RS" (the positive S wave), is due in 85 per cent to coronary sclerosis; for the rest it is found in rheumatic heart disease, diphtheria, syphilis and tonsillitis. Thus the positive S indicates a distinct disturbance in the blood supply of the heart muscle. The saddle shaped ST segment, mostly together with a positive S, was found in about 2 per cent of all the curves (102 cases); 34 per cent of the patients with this deviation suffered from angina pectoris and 26 per cent had complaints which could be attributed to cardiac failure. In 64 per cent coronary sclerosis existed, in 80 per cent organic disorders of the heart muscle. In 10 per cent anginous complaints existed which were supposed to be a consequence of hypervagotonia. A saddle shaped ST segment is therefore a serious warning to give the heart muscle and coronary arteries a thorough examination. The abnormally high T wave is based (apart from its occurrence in thyrotoxicosis and mitral stenosis) in more than three fourths of the cases on organic heart disease, half of which is coronary sclerosis. In younger persons, hypervagotonia may be the cause of this phenomenon. Atrioventricular block, bundle branch block, arborization block and atypical bundle branch block (Wilson) are frequently based on coronary sclerosis. In the thoracic lead, deviations are found mostly in aged persons and rarely in young persons. Here again the deviations are (apart from bundle branch block, arborization block and atypical bundle branch block) the following: 1. Types which are similar to the C I type (posterior infarction): in contrast to what is seen in acute thrombosis, ST here runs less high above the iso-electric level. 2. Types which are similar to C II: a rectilinear descending, followed by a short rising part of the ST curve. The latter eventually continued into a positive afterstroke. In contrast with the C II type, a Q wave generally appears here and ST usually takes off almost at the iso-electric level. 3. The coronary sclerosis type: a deep Q, low R, deep negative T wave, perhaps frequently a symptom of an old posterior infarction. 4. The deep Q IV, in older persons, when longitudinal position of the electrical axis and mitral stenosis can be excluded and especially when dilatation of the left ventricle exists. The authors conclude that in patients of every age with real anginal complaints one of the features mentioned is almost always found in the electrocardiogram.

Malignant Weil's Disease.—Sjöberg gives a detailed clinical history of a case of Weil's disease which terminated in death. At an early stage of the illness the clinical course gave reason to suspect Weil's disease. The influenza-like beginning, the gradual onset and then the rapid increase in jaundice, the septic temperature with stupor, hypotension and collapse, and finally the enlarged liver, albuminuria and hematuria, anuria and uremia are all symptoms of Weil's disease with a malignant course. Hyperglycemia, although a rare symptom of Weil's disease, was also found in this case. The author further cites two similar cases of Weil's disease that were observed at his clinic by Holmgren in 1934 and 1935. He stresses the factors which these cases had in common with the case described. The bacterioserologic examination of the patient whose history is reported corroborated the diagnosis. The culture of the blood yielded spirochetes; guinea pigs that were given intraperitoneal injections of the patient's urine showed on necropsy the typical changes of Weil's disease; moreover, the postmortem examination of the patient's liver yielded spirochetes. To be sure the agglutination test was negative, but, considering the early stage of the disease, this does not contradict the diagnosis. The author thinks that, although Weil's disease is not common in Sweden, more cases might be recognized at an early stage if blood cultures were made more often. An early diagnosis is important, particularly if serotherapy is to be employed.

Adrenal Cortex Extract in Thyrotoxicosis.—Richardson says that the idea that preparations of endocrine glands other than the thyroid might be of therapeutic value in exophthalmic goiter is not a new one. From 1921 onward reports have appeared in which clinical and experimental evidence was brought forward in support of the theory that adrenal insufficiency is the underlying factor of thyrotoxicosis. After reviewing some of these reports the author says that, in view of the favorable experimental and doubtful clinical evidence, it was decided to investigate the effect of a preparation of the adrenal cortex. All patients were kept at complete rest in bed for at least ten days prior to the administration of the extract. It was injected at 6 a. m. and 6 p. m. on two successive days in 5 cc. doses at first and, in later cases, in 10 cc. doses, making 40 cc. in all (1 cc. is equivalent to 75 Gm. of dried cortex). The basal metabolic rate estimations were made at 9 a. m. under standard conditions of strict rest while fasting. Seven patients were treated with the extract, with a definite alteration in the basal metabolic rate in six. No significant symptomatic improvement was noted, and the blood pressure and pulse rate were unchanged. It is suggested that adrenal cortex extract has an effect on the basal metabolic rate in thyrotoxicosis but that at the present time such medication has little practical application.

THE STUDENT SECTION

of the

Journal of the American Medical Association

voted to the Educational Interests and Welfare of Medical Students, Interns and Residents in Hospitals

SATURDAY, MAY 27, 1939

That the Undergraduate College Should Give the Future Doctor

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A college president might be expected to come before a group of learned men in a spirit of great humility at a time when the American college is under fire as it is today. Articles are being printed to show that business men do not value college graduates highly. Professional schools are complaining of the recruits who come up to them from these institutions. And one group of educational experts making one of the endless number of surveys under which we suffer in silence has made the profound discovery that students know less when they complete their college course than they did when they began!

However, I do not feel particularly apologetic. If any social organization in the United States does not need to be on the defensive, it is the undergraduate college. True, it has its weaknesses, but what organization does not, and what organization works more tirelessly to eliminate such weaknesses? There is no more misunderstood organization. It must attempt to be all things to all men. Furthermore, the same public which criticizes it most severely forces on it countless thousands of uneducable young men and women who retard its work and lower its standards.

Perhaps the business and industrial leaders who were not keen for college graduates are looking for a lower type of recruits. Perhaps the professional schools which criticize so strongly those who come into them from the undergraduate colleges are in some measure seeking an excuse for their own lack of educational effectiveness. And what about the survey organizations which discover that the student leaving college has acquired nothing of value in his four years of experience because he cannot pass certain examinations as successfully as he did at the beginning of his freshman year? It would be equally logical for a doctor to decide that a patient is malnourished because when he uses a stomach pump on him ten hours after a meal he discovers no undigested food in the patient's stomach. Education is a digestive process. Obviously the average freshman can pass a better examination than the brilliant graduate out of college several years.

Education is more than the acquisition of knowledge. It is the translation of knowledge into wisdom. Any one who from the inside, year after year, watches students come into college uncertain, uncouth, uninterested in the things of the mind, uncertain in character, and who sees the majority of them graduating four years later intellectually alert, mannerly, with well formed characters and well trained bodies, realizes that the undergraduate college is rendering a service of inestimable value to contemporary civilization. The general public makes the mistake of assuming that the college is a vocational institution where tricks of this, that and the other trade may be acquired, and not an institution for the building of those foundations which make for effective membership in society and for the abundant life.

Let us therefore approach this question of what the undergraduate college should give the future doctor with the realization that the doctor must be more than a medical or surgical technician and that if he is to be a true success he must develop those attributes which make his influence on his generation beneficial and constructive.

The ancient Hippocratic Oath which most young men and women repeat on the day of their graduation from medical school proclaims "With purity and with holiness, I will pass my life and practice my art." The ethical standards of the doctor, his general culture, his devotion as a citizen are no less to be considered than his technical ability.

In past days it is probable that too much emphasis has been placed on so-called pre-

Read before the Thirty-Fifth Annual Congress on Medical Education and Licensure, Chicago, Feb. 14, 1939.

medical subjects and too little on development of habits of thought and mental attitudes and on ability to translate knowledge into wisdom.

One criticism of premedical education recently made was that the student is older than he should be when he enters the medical school. Thus, when he has completed his course, taken essential graduate work and served his internship, he has the disadvantage of years. There is some truth in this contention; but if we appreciated what education really is and did not confuse it with schooling, if the importance of the home as an educational institution were realized, this weakness would be overcome. The first five years in the life of an individual are probably the most fateful in his life. It is then that the brain expands most rapidly and every experience registers deeply. Our preschool education is being more and more disregarded and mishandled in the average home. If the proper influence were thrown around the child in those early days, the eight years of elementary schooling could easily be reduced to seven, the four years of secondary schooling to three and, for the best students, the college course to three, a total gain of three years. However, it must not be forgotten that the college must provide the future medical student with the minimum of chemistry, biology and physics; that in addition to these tool subjects there are others that are essential for him to have and which cannot be reduced too greatly if his preparation is to be effective.

THE ORIGINAL IMPULSE

When the student comes to the college and announces himself as a premedical student, great care should be exercised as to his orientation, and as soon as possible it should be determined whether or not he really has the qualifications which should send him into medicine. Some time ago, at Lafayette College, we had sixty students who were looking forward to medicine as a profession. It occurred to us that we did not know a great deal about their background. We therefore called them together to ascertain some essential facts. In the first place we found that twenty-two had decided on the medical profession before they began their high school course, that twenty-eight decided to be doctors while in high school and that only ten had made their decision in college. In other words, for many of them the impulse to be doctors was a hangover from childhood. They had looked forward to being doctors at a time when others of their playmates had thought to be policemen or firemen was the thing. We found that 25 per cent of these young men were sons of physicians, whereas 10 per cent of the prelegal students were sons of lawyers. Whether this indicated that their fathers were urging them into their footsteps to take up an established practice we do not know. In any event we had these students talked to by medical deans; we had them taken through the laboratories and dissecting rooms of medical schools and in other ways we showed them the road which they had to travel for their objectives. As a result, a few changed their course and prepared for other activities

The undergraduate college should guard against too early specialization and the pursuit of ideas which will lead later in life to vocational maladjustment. It seems obvious that the medical profession, because of the great development of scientific knowledge, has suffered from too early and complete specialization. To the layman it appears that too many doctors today look on their patients as cases, not as human beings.

I have named the tool subjects in the college to which the premedical student must pay attention. There is a second group of subjects which are partial tool subjects for the physician. Certainly he should have a fine foundation in psychology, which will give him a helpful approach to the patient. He should have free-hand drawing and, for satisfactory office organization, some knowledge of accounting. Another group of subjects almost equally important for him are literature and the social sciences. Scientific achievement in America is at a new high but culture is near a new low. A physician to have influence in his community, and to be looked up to with respect, must have command of good English and an appreciation of good books, good paintings and good music. These accomplishments lift a man above his environment and give the doctor needed serenity and poise. Certainly from the pursuit of general history he can learn much of the progress of medicine and of the effect of health conditions on civilization during the centuries That college which has the proper system of physical education, where all the students through remedial classes and organized games are built up scientifically, has an asset of the highest value in a work which is both physically and nervously exacting.

The lack of refined manners is proving a handicap to many men technically efficient. Beyond the curriculum subjects the undergraduate college should give the premedical student training in manners.

Talking with a head of a New York hospital board not long ago, I learned that 200 men had applied for internship there, of whom nine were to be chosen. After ascertaining the professional knowledge and looking over the personal elements in the candidates they made the final

choice on ascertaining what books and music and plays these men enjoyed. Not only did such an examination prove the breadth of culture but it also suggested an emotional stability which is not the possession of those who find their recreation in exciting and enervating entertainment of different kinds.

Briefly, what the medical schools should receive from the undergraduate colleges is men and women with a limited amount of preprofessional training but with broad culture, good physiques and nervous systems, and the proper character to uphold the ethics of the profession.

Medical History In the Undergraduate Curriculum

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Thomas Jefferson, early in the nineteenth century, recognized the value of a knowledge of medical history and advised[1] that it be included in the list of fundamental sciences considered essential in the training of the medical practitioner of his day. It was not, however, until the present century that any sustained interest was shown in the subject. During the past few years the number of publications dealing with this cultural aspect of medicine has increased. All but seven of the eighty-four schools in the Association of American Medical Colleges now offer some form of instruction in medical history to the undergraduate.[2] While there is little variation in the manner of presentation of other subjects in the medical curriculum through the use of lecture and laboratory, little uniformity has been noted in the arrangement of the course covering the history of medicine. For this reason the many undergraduates continued to regard one of the most valuable and stimulating fields of study with indifference.

Another important factor behind the lack of popularity of medical history in some medical schools is undoubtedly the manner in which it is presented. Reviewing the subject in a series of lectures in which dates and events are read in chronologic sequence by the faculty member delegated to the task fails invariably to arouse the slightest spark of interest among students. The opinion is taken away with the first lecture that medical history is indeed dry. Rows of empty benches are soon evident. Other schools have entrusted the series of lectures to more stimulating members of the faculty, who have succeeded in organizing adequate courses of instruction in this field. They have proved that much can be gained by delving into the facts of the past. Medical history in their hands has been shown to be more than a pleasant by-path apart from the main road of student travel. A leading example may be found at Johns Hopkins University School of Medicine, where systematic instruction extends over the four years of the curriculum. This well rounded course of study is duplicated in few universities of the world. Its value, in time, cannot fail to be reflected in the attitude, the ethics, the writings, the conversations and the adaptability to social changes; in short, the general culture of the graduate. One has only to compare a modern student heavily burdened with a host of unrelated facts, biochemical, anatomic, physiologic or clinical, to one whose scientific thoughts are well saturated with the historical spirit to detect at once the difference.

In the organization of a suitable course in medical history, many points must be taken into consideration. Most important is the selection of the person from the faculty to give the course. On this hinges success or failure. Eminent scholars of medical history are seldom obtainable except on rare occasions for single lectures. Consequently the assignment goes to the member of the teaching staff who has shown more than the ordinary interest in medical history. The bulk of his time, however, continues to be taken up by the teaching and the practice of his own specialty. Medical history must remain an avocation with opportunities for research sharply limited.

Efforts should at first be confined to a preparation of material for the lectures. If he realizes his limitations and handles the subject with enthusiasm, success will be assured. When success comes, it is essential for the instructor to remain on the ground floor in his relationship to his new subject. In other words, he must realize that, whatever fame he may have acquired as a physician or surgeon, he is still an amateur medical historian. If he must write in his spare hours, he should exercise great care in the selection of his topics.[3] Later I will touch on a method that I have used to improve

Read before the Section on Medical History, College of Physicians, Philadelphia, March 13, 1939.

1. Burwell, Sidney: History of Medicine: Its Introduction into General Medical Curriculum, South. M. J. 25:427-430 (April) 1932.

2. Kiser, E. F.: A Method of Examination in the History of Medicine, J. A. Am. M. Coll. 14:115 (March) 1939.

3. Sigerist, H. E.: Bull. Inst. Hist. Med. 4:2, 1936.

the course for the student, at the same time safely satisfying this urge for medical historical investigation.

In the beginning of the course of instruction in this field, the fact will soon be evident that few medical students retain from high school or college enough knowledge of history to form a suitable background. Relationships between medical and other sciences must be pointed out. The student should be made to realize that the history of medicine is but a part of civilization as a whole and that it cannot be understood fully unless some knowledge is obtained of the social, cultural, political and economic backgrounds of the different periods studied. The method of acquiring historical knowledge should be stressed [4] and the student should be stimulated to investigate suggested topics. Increasing familiarity with libraries will result, and this in turn will aid in establishing a method of research of great value in later years. At all times the student must realize the direct application of a knowledge of medical history to the many problems of practice of the future.

A UNIFYING FACTOR

How to use the time allotted to medical history most advantageously is another problem of organization. Sigerist [5] believes that the minimum of time needed to cover the entire field, even in outline, is twelve hours. However, a shorter course may be possible and prove satisfactory if cooperation is obtained from other departments and the structural framework is supplemented when the opportunity presents itself. Medical history should act as one of the unifying factors in the school; for, after all, it is just as important to the biochemist, the anatomist, the physiologist and the pathologist as it is to the physician and surgeon and other clinical teachers. For, as Sudhoff states,[6] "only an ophthalmologist could write a history of his specialty that would be really worthy of the name. Only a surgeon could write a history of surgery that could be taken seriously. A suggestive and stimulating history of disease can only be written by a practitioner who is thoroughly familiar with its manifestations at the bedside." In other words, a faculty member who possesses the qualifications to teach any specialty in a medical school should be able to cooperate with the medical historian by outlining for the student in an interesting manner the history of his specialty.

In the department of medicine countless opportunities will arise on ward walks with small sections of students to dwell for a short time on the lives and the classic descriptions of disease of pioneer investigators. The newer medical textbooks have small historical sections that make the task easier. Major's recent work,[7] now in its second edition, is an excellent guide to the teacher using this method in the wards.

During the past six years at the Woman's Medical College of Pennsylvania I have given a series of lectures on the history of medicine to the second year class, comprising the first seven weeks of a course listed in the college catalogue as "Introductory Medicine." These lectures represent the first contact that the student has with the department of medicine. I believe that the best introduction to medical science (or any science) is a brief outline of the history of its development. In this short period of seven weeks, one can paint the main trends in medicine's development only in broad strokes. Few digressions from the main stream of progress are possible, but I do call attention to the many tributaries in which much pleasant sailing is possible. The following arrangement of the lectures has been adhered to since the course was begun:

Lecture 1. The Beginning: Prehistoric Medicine; Egyptian Medicine.
Lecture 2. Medicine in Ancient Greece and Rome.
Lecture 3. Medieval Medicine.
Lecture 4. Medicine in the Renaissance.
Lecture 5. The Seventeenth Century.
Lecture 6. Medicine in the Eighteenth and Nineteenth Centuries.
Lecture 7. Medicine in America.

I have recently found the syllabus published by Sigerist [5] most useful. The book list for student reading here given is carefully selected and up to date and I have used it as it stands.

Since the classes at the Woman's Medical College of Pennsylvania are small, it has proved most convenient to divide the hour into three parts: The first part, consisting of one half hour, is given over to the formal lecture. During the next fifteen minutes lantern slides are shown; these include prints, manuscripts, photographs and the like from the usual sources. During the final fifteen minutes, books related to the subject of the day are discussed. In some instances, when available, the first editions are shown. Reprints and more recent popular treatises on the subject are exhibited to familiarize the student with the book. By-ways of investigation are pointed out and questions are answered pertaining to the lecture.

A method of examination in medical history has recently been proposed.[2] A written examination of any kind, including a compulsory thesis, would defeat the purpose of the course as outlined in this presentation. The ones engaged in the teaching of medical history are attempting to add something to the undergraduate's equipment other than dates, facts or

4. Nevins, Allan: The Gateway to History, New York, Appleton-Century, 1938.
5. Sigerist, H. E.: On the Teaching of Medical History, Bull. Inst. Hist. Med. 2:123-139, 1934.
6. Sudhoff, Karl: Essays in the History of Medicine, New York, Med. Life Press, 1926, p. 51.
7. Major, R. H.: Classic Descriptions of Disease, ed. 2, Springfield, Ill., Charles C. Thomas, Publisher, 1938.

formulas that can be committed to memory for a brief space and then forgotten. The seed when planted needs time to grow. The extent of this growth in the short span of time to graduation eludes detection by any type of written examination or compulsory thesis. If proof is needed of the value of the course, it may perhaps be sought in the manner of approach to some of the questions in the final examination in medicine, if this is oral. Certainly the time allotted to medical history in most medical schools is already too meager to warrant the use of any fraction of it for any type of examination.

During the last few years one can detect an increasing interest in the course on medical history as it has been outlined here, and for that reason I have sought to relieve the monotony of the slides by the insertion, in selected places, of short motion picture films. With the aid of a local amateur theatrical company, acted scenes from the lives of historic and well known medical characters were attempted. I have used films as part of the teaching equipment during the last four years.

The addition of these scenes to the lectures stimulated interest in the course. Even with the hour shifted to 8 a. m. during the past two years, attendance has been close to 100 per cent. Therefore I believe that the films have served their purpose well. In addition, I believe that they have been of inestimable value to the subject matter of medical history in affording a means of harmlessly spending one's enthusiasm. If I have stimulated by this means even a few students to continued investigation in the field of medical history, I am satisfied, for no one knows where that will lead.

Comments and Reviews

FORMAL EDUCATION OF EMINENT MEN

Many investigators assert that the highly educated man is the average rather than the exception among persons of great historical importance. Prof. Mapheus Smith [1] of the University of Kansas has reviewed the evidence in an article concerned with formal education in the lower and higher schools. Reliable information on 29,389 persons reporting their educational background was found in Who's Who in America for 1934-1935, of whom 74.7 per cent were graduated from higher educational institutions, 86.5 per cent had attended such institutions, and 92.8 per cent had attended high schools or their equivalent. From the same source were found data over a long period of years showing the trends in educational experience of eminent persons. The significant fact brought out in the tabulations was the rapid increase in the proportion of college graduates since 1916. Before that time the proportion of college graduates had varied between 57.4 per cent and 61.4 per cent. Throughout the period of thirty-five years, college nongraduates varied within limits of 15.5 and 11.6 per cent. The proportion who had no more than secondary education rose consistently from 1899 to 1910 and then steadily declined after 1916. The proportion of those who were self educated rose to a peak in 1910 and declined to the lowest point in 1928. Nearing's study of 2,000 persons listed in Who's Who in America, 1914-1915, considered representative of the younger generation of American genius, revealed that 77.4 per cent had a four year college education, 86.9 per cent had attended college, and only 13.1 per cent had no college education. There is little difference between Nearing's figure for those who attended college for at least a short time (86.9 per cent) and the figure for the total number of persons in Who's Who in America for 1934-1935 (86.5 per cent).

In the first edition (1934-1935) of America's Young Men is a list of important men, most of whom are under 40 years of age; 95.2 per cent of them had attended college and 86.9 per cent were college graduates; in the second edition of this biennial list, 97.3 per cent had attended college and 88.3 per cent were college graduates. In view of the fact that the percentage of younger leaders with college education found by Nearing in 1914-1915 was almost identical with that for all leaders twenty years later, Smith predicts that the Who's Who in America group in 1954-1955 will be almost entirely from a college background.

In the interpretation of these data, one must take into account the general increase in college education in the United States, which was from 687 male college graduates per hundred thousand males 22 years of age and over in 1880 to 1,137 in 1920, an increase of more than 65 per cent. This figure is greater than the increase in the percentage of persons listed in Who's Who in America with a college education. The national trend toward more education partially explains the trend toward more formal education for prominent men in the present generation.

PROMINENT WOMEN

There is evidence indicating that a somewhat smaller percentage of prominent women are college trained than is true of men. Of 1,622

1. Smith, Mapheus: The General Formal Education of Eminent Men, Scient. Monthly 46:551 (June) 1938.

women listed recently in Who's Who in America, only 52 per cent of those on whom sufficient data were given were graduated from colleges and universities or their equivalents. Another 19.1 per cent attended college without graduating, making a total of 71.2 per cent with some college education, compared with 74.7 per cent graduates and 86.5 per cent with some college training in the total Who's Who in American group. American women, Smith writes, appear to exhibit an inverse relationship between degree of recognition and degree of education. In view of the change in educational background for the total Who's Who in America group in thirty-five years, it seems likely that the difference between the educational background of women of different levels of recognition will be transitory and is largely due to age. In Who's Who in America (1901-1902) only 15.5 per cent of women listed had graduated from colleges and universities, compared with 59.1 per cent for the total group. In 1903 the figures were 23.8 per cent for women and 56 per cent for the total, and in 1934 they were 52 per cent for women and 74.7 per cent for the total. The upward trend for women has been pronounced except in the 1934-1935 period. The present difference between the sexes is not great and probably reflects the differential education of the sexes at the present time.

Some students of the subject have placed the chances for eminence of men with college education at more than a hundred times as good as those who did not have a college education. College education has been extended to increasing numbers of people who, because of the large numbers in relation to the positions of the highest social importance, cannot hope to be entered in the list of the most prominent persons unless that list is broadened. The trend signifies, it is said, that college education does not mean as much for eminence as it once did in this country, unless the definition of eminence is extended to more people.

THE TRENDS ARE CLEARCUT

From his analysis, Smith arrives at the conclusion that the trends toward more advanced education and away from lower limits of education and from self education are clearcut; also that at present there is only a small sex difference in the education of persons in Who's Who in America. A man with college education has many more chances for eminence than one whose education is not extended beyond the lower level. There are, however, many persons still doubtful whether education is responsible in any way for eminence. They say that persons who receive a formal college education have certain qualities of mental capacity and personality which are important in reaching eminence, as well as the opportunity to go to college. Those who would most likely become eminent because of qualities not due to education per se are the persons who are most likely to obtain a formal education.

Education in schools has not been necessary for the development of most of the greatest men of any historical period, if by greatest is meant the foremost ten or twenty. The things that make education formal may have had nothing whatever to do with the result.

Education, however, seems to do in a shorter length of time and more uniformly some things of unquestionable importance. It provides opportunities for contacts with experts along a certain line, experts with whom the potential man of achievement might only with difficulty come in contact outside the university. The time required to obtain the fundamentals of subjects is shortened by the organization of the curriculum. College gives more leisure for study than can be obtained in almost any other way for large numbers of people. It provides companions in study, opportunities for discussions and the joint solution of difficulties; then entrée to leading persons in certain fields is gained through universities through contact with lesser persons. Education adds to one's prestige, so that one makes progress faster. Nevertheless, such a fortunate situation is difficult to obtain.

Self education is still possible in extreme instances, as is education within the family as a first step to achievement along many lines. With the advancement of specialization, such opportunities decrease until it is possible that even the most favorable circumstances outside college will fail to produce a great scientist or other types of leaders. Formal education is more important today in many fields than formerly, and it has not reached the limit of development.

BENJAMIN FRANKLIN

Abridgment of an article by Dr. Robert D. Wright, assistant surgeon, U. S. Public Health Service, published in the *Health Officer*, February 1939.

A recent biography of Franklin by Carl Van Doren creates a new interest in this first American scientist, who to many is not known as a pioneer in medical knowledge. Benjamin Franklin was not a physician but his contributions to medicine were greater than those of many of his contemporaries who claimed the title. The profession may claim Franklin, for he was a member of the Royal Medical Society of Paris, an honorary member of the Medical Society of London, and he held membership in several medical societies in the United States.

Franklin approached medicine as he did everything—with a searching curiosity. His contributions were presented with a disarming naturalness, as if what he explained was too

obvious not to be already known. Hardly a field of medical knowledge escaped the interest of his insatiable curiosity. His medical ideas diluted by a thousand other interests and presented without pomp or attempt at effect lie buried beneath his greatness as a philosopher and statesman.

RAISING FUNDS

Franklin helped found the first hospital and the first medical school in America. The method of raising funds for America's first hospital devised by Franklin has been copied by many hospitals and other agencies to this day. According to his own account:

"I not only subscribed to it myself, but engaged heartily in the design of procuring subscriptions from others. Previously, however, to the solicitation, I endeavored to prepare the minds of the people by writing on the subject in the newspapers, which was my usual custom in such cases. . . .

"The subscriptions afterwards were more free and generous; but beginning to flag, I saw they would be insufficient without some assistance from the Assembly, and therefore proposed to petition for it, which was done. . . .

"This condition carried the bill through; for the members, who had opposed the grant, now conceived they might have the credit of being charitable without the expense, agreed to its passage, and then, in soliciting the subscriptions among the people, we urged the conditional promise of the law as an additional motive to give, since every man's donation would be doubled; thus the clause worked both ways. The subscriptions accordingly soon exceeded the requisite sum, and we claimed and received the public gift, which enabled us to carry the design into execution. A convenient and handsome building was soon erected; the institution has by constant experience been found useful, and flourishes to this day; and I do not remember any of my political manoeuvres, the success of which gave me at the time more pleasure, or wherein, after thinking of it, I more easily excused myself for having made use of cunning."

The medical department of the College of Philadelphia, which had been founded by Franklin, was organized through the labors of Drs. John Morgan and William Shippen in 1766, when systematic lectures were begun in this, the first medical school in the United States.

ARTICLES ON EATING AND DRINKING

Probably Franklin's earliest published observations on medical subjects were his lines on drinking written at the age of 16 and published in the *New England Courant* under the pseudonym of Silence Dogood. He became a vegetarian under the influence of a book by "one Tyron" and learned how to cook his own food in order to carry on this fad. But he left off in a most laughable manner which he can best describe:

"In my first voyage from Boston, being becalm'd off Block Island, our people set about catching cod, and hauled up a good many. Hitherto I had stuck to my resolution of not eating animal food, and on this occasion I consider'd with my master Tyron, the taking every fish as a kind of unprovoked murder, since none of them had or ever could do us any injury that might justify the slaughter. All this seemed very reasonable. But I had formerly been a great lover of fish, and, when this came hot out of the frying-pan, it smelt admirably well. I balanced sometime between principle and inclination, till I recollected that, when the fish were opened I saw smaller fish taken out of their stomachs; then thought I, 'If you eat one another, I don't see why we mayn't eat you.' So I din'd upon cod very heartily, and continued to eat with other people, returning only now and then occasionally to a vegetable diet. So convenient a thing it is to be a reasonable creature, since it enables one to find or make a reason for every thing one has a mind to do."

INTEREST IN HYGIENE

In a time when little was known of hygiene, Franklin was a champion of moderation in eating and drinking, of fresh air, of daily exercising, of frequent bathing.

Interest in fresh air led him to investigate the heating and ventilation of houses. Until Franklin's time smoky chimneys were the rule. One of Franklin's queries for the Junto (that eighteenth century Rotary Club which he founded and kept alive for thirty years) was "How may a smoky chimney be best cured?"

In 1742 Franklin published an essay, "New-Invented Pennsylvania Fire Places," in which he describes the advantages of a new type of cast iron heating apparatus. The "Franklin burner" is still a reality in some American homes, and modern builders are rediscovering a Franklin principle in the construction of living room fireplaces.

John Adams wrote of an incident that occurred in 1776 when circumstances compelled him to bunk with Franklin:

"At Brunswick, but one bed could be procured for Dr. Franklin and me, in a chamber little larger than the bed, without a chimney, and with only one small window. The window was open, and I who was an invalid and afraid of the air of night, shut it close. 'Oh!' says Franklin, 'don't shut the window, we shall be suffocated.' I answered I was afraid of the evening air. Dr. Franklin replied, 'The air within this chamber will soon be, and indeed is now, worse than that without doors. Come,

open the window and come to bed, and I will convince you. I believe you are not acquainted with my theory of colds?' Opening the window, and leaping into bed, I said I had read his letters to Dr. Cooper, in which he had advanced, that nobody ever got cold by going into a cold church or any other cold air, but the theory was so little consistent with my experience, that I thought it a paradox. However, I had so much curiosity to hear his reasons that I would run the risk of a cold. The Dr. then began a harangue upon air and cold, and respiration and perspiration, with which I was so much amused that I soon fell asleep, and left him and his philosophy together, but I believe they were equally sound and insensible within a few minutes after me, for the last words I heard were pronounced as he was more than half asleep. I remember little of the lecture, except that the human body, by respiration and perspiration, destroys a gallon of air in a minute; that two such persons as were now in that chamber, would consume all the air in it in an hour or two; that by breathing over again the matter thrown off by the lungs and the skin, we should imbibe the real cause of colds, not from abroad, but from within."

FRANKLIN AND SMALLPOX

Almost every one contracted smallpox in Franklin's day. The practice of inoculation was introduced into America about 1721 through the interest of Cotton Mather and was first performed by Dr. Boylstone at Boston. Franklin was an apprentice printer on the *New England Courant,* edited by his brother James. The *Courant* opposed inoculation, but Franklin was throughout his life a champion of the practice. He wrote:

"In 1736 I lost one of my sons, a fine boy of four years old, by the smallpox, taken in the common way. I long regretted bitterly, and still regret that I had not given it to him by inoculation. This I mention for the sake of parents who omit that operation on the supposition that they should never forgive themselves if a child died under it, my example showing that regret may be the same either way, and that, therefore, the safer should be chosen."

In 1759 Franklin persuaded Dr. William Heberden of London to write about inoculation as a preventive of smallpox. Franklin wrote a four page preface which is a masterpiece of statistical persuasion:

"About 1753 or 54, the smallpox made its appearance in Boston, New England. It had not spread in the town for many years before, so that there were a great number of the inhabitants to have it. At first, endeavors were used to prevent its spreading, by removing the sick, or guarding the house in which they were; and with the same view Inoculation was forbidden; but when it was found that these endeavors were fruitless, the distemper breaking out in different quarters of the town, and increasing, Inoculation was then permitted.

"Upon this, all that inclined to Inoculation for themselves or families hurried into it precipitately, fearing the infection might otherwise be taken in the common way; the numbers inoculated in every neighborhood spread the infection likewise more speedily among those who did not chuse Inoculation; so that in a few months the distemper went thro' the town, and was extinct; and the trade of the town suffered only a short interruption, compar'd with what had been usual in former times, the country people during the seasons of that sickness fearing all intercourse with the town.

"As the practice of Inoculation always divided people into parties, some contending warmly for it, and others as strongly against it; the latter asserting that the advantages pretended were imaginary, and that the Surgeons, from views of interest, conceel'd or diminish'd the true number of deaths occasion'd by Inoculation, and magnify'd the number of those who died of the smallpox in the common way: It was resolved by the Magistrates of the town, to cause a strict and impartial enquiry to be made by the Constables of each ward, who were to give in their returns upon oath; and that the enquiry might be made more strictly and impartially, some of the partisans for and against the practice were join'd as assistants to the officers, and accompany'd them in their progress through the wards from house to house. Their several returns being received, and summed up together, the numbers turn'd out as follows:

Had the Smallpox In the Common Way of *These* Died			
Whites	Blacks	Whites	Blacks
5,059	485	452	62

Received the Distemper By Inoculation of *These Died*			
Whites	Blacks	Whites	Blacks
1,974	139	23	7

"It appeared by this account that the deaths of persons inoculated, were more in proportion at this time than had been formerly observed, being something more than one in a hundred. The favourers of Inoculation however would not allow that this was owing to any error in the former accounts, but rather to the Inoculating at this time many unfit subjects, partly through the impatience of people who would not wait necessary preparation, lest they should take it in the common way; and partly from the importunity of parents prevailing with the Surgeons against their judgment and advice to inoculate weak children, labouring under other disorders; because the parents could not immediately remove them out of the way of the distemper, and thought they would at least stand a better

chance by being inoculated than in taking the infection as they would probably do, in the common way.

"The Surgeons and physicians were also suddenly oppressed with the great hurry of business, which so hasty and general an Inoculation and spreading of the distemper in the common way must occasion, and probably could not so particularly attend to the circumstances of the patients offered for Inoculation."

LEAD POISONING

Franklin suspected lead as the cause of "Dry Bellyach, with loss of the use of the limbs." In a letter to Benjamin Vaughan, he summarized evidence worthy of a modern textbook:

"The first Thing I remember of this kind was a general Discourse in Boston, when I was a Boy of a Complaint from North Carolina against New England Rum, that it poison'd their People, giving them the Dry Bellyach, with Loss of the Use of their Limbs. The Distilleries being examin'd on the Occasion, it was found that several of them used leaden Still-heads and Worms, and the Physicians were of Opinion, that the Mischief was occasioned by the use of Lead. The Legislature of Massachusetts thereupon pass'd an Act, prohibiting under severe Penalties the Use of such Still-heads and Worms thereafter. Inclos'd I send you a Copy of the Acct. taken from my printed Law-book. . . .

"Being in Derbishire at some of the Furnaces for Smelting of Lead Ore, I was told, that the Smoke of those Furnaces was pernicious to the neighboring Grass and other Vegetables; but I do not recollect to have heard anything of the Effect of such Vegetables eaten by Animals. I may be well to make the Enquiry.

"In America I have often observ'd that on the Roofs of our shingled Houses, where Moss is apt to grow in northern Exposures, if there be any thing on the Roof painted with white lead, such as Balusters, or Frames of dormant Windows, etc., there is constantly a Streak on the Shingles from such Paint down to the Eaves, on which no Moss will grow, but the wood remains, constantly clean and free from it. We seldom drink Rain Water that falls on our Houses; and if we did, perhaps the small quantity of Lead descending from such Paint might not be sufficient to produce any sensible ill Effect on our Bodies. But I have been told of a Case in Europe, I forgot the place, where a whole Family was afflicted with what we call Dry Bellyach, or Colica Pictonum, by drinking Rain Water. It was at a Country-Seat, which, being situated too high to have the Advantage of a Well, was supply'd with Water from a Tank, which received the Water from the leaded Roofs. This had been drunk several Years without Mischief; but some young Trees planted near the House growing up above the Roof, and shedding their leaves upon it, it was suppos'd that an Acid in those Leaves had corroded the Lead they cover'd and furnish'd the Water of that with its baneful Particles and Qualities.

"When I was in Paris with Sir John Pringle in 1767, he visited La Charité, a Hospital particularly famous for the Cure of that Malady, and brought from thence a Pamphlet containing a List of the Names of Persons, specifying their Professions or Trades, who had been cured there. I had the Curiosity to examine that List, and found that all the Patients were of Trades, that, some way or other, use or work with lead, such as Plumbers, Glaziers, Painters, etc., excepting only two kinds, Stonecutters and Soldiers. These I could not reconcile to my Notion, that Lead was the cause of that Disorder. But on my mentioning this Difficulty to a Physician of that Hospital, he inform'd me that the Stonecutters are continually using melted Lead to fix the Ends of Iron Balustrades in Stone; and that the Soldiers had been employ'd by Painters, as labourers, in Grinding of Colours.

"You will see, that the Opinion of this mischievous Effect from Lead is at least above Sixty Years old; and you will observe with Concern how long a useful Truth may be known and exist, before it is generally receiv'd and practis'd on."

NOT A DOCTOR, IN HIS OWN ESTIMATION

Franklin never considered himself a physician. In a letter to his parents, Franklin apologized for meddling in medical matters:

"Honored Father and Mother:

"I apprehend I am too busy in prescribing and meddling in the doctor's sphere, when any of you complain of ails in your letters. But as I always employ a physician myself, when any disorder arises in my family, and submit implicitly to his orders in everything, so I hope you consider my advice, when I give any, only as a mark of my good will, and put no more of it in practice than happens to agree with what your doctor directs."

EXPOSURE OF MESMERISM

Franklin's most memorable medical exploit was his exposure of Mesmerism, a quackery whose financial success is rivaled only by such nostrums as faith healing and "patent medicines." Mesmer came to Paris after being forced to leave Vienna for practicing his fraudulent animal magnetism. Among the gay and idle French nobility of Paris, "the laying on of hands" became a rage. Finally, the king appointed Franklin and four celebrated physicians from the Faculty of Paris to investigate the practice of animal magnetism. Franklin appears to have been the guiding spirit of the investigation. Using the experimental method,

the commission subjected selected patients suffering from a variety of maladies to the action of supposed animal magnetic fluid, with negative results.

SURREPTITIOUS WRITINGS

Franklin seems never to have reached a peace with his passions. He told his illegitimate son, William, "all that was known of whatever excesses there were." The most famous of Franklin's surreptitious writings is his "Advice to a Young Man on the Choice of a Mistress." This famous letter was purchased by the United States government at a cost of $30,000.

"Marriage is the proper remedy. But if you will not take this counsel and persist in thinking a commerce with the fair sex inevitable, then I repeat my former, advice,—in all your amours you should prefer old women to young ones. . . .

"In every animal that walks upright the deficiency of the fluid that fills the muscles appears at the highest part. The face first grows lank and wrinkled, then the neck, then the breasts and arms, the lower parts continuing to the last as plump as ever, so that, covering all above with a basket, and regarding that only which is below the girdle, it is impossible to know of two women an old from a younger. And as in the dark all cats are grey, the pleasure of corporeal enjoyment with an old woman is at least equal and frequently superior, every knack being by practice capable of improvement. But still, I advise you to marry directly."

DISCOVERY OF BIFOCAL LENSES

One of his casual discoveries was bifocal lenses. He wrote:

"I imagine it will be found pretty generally true, that the same Convexity of Glass through which a Man sees clearest and best at the Distance proper for Reading, is not the best for greater Distances. I therefore had formerly two Pair of Spectacles which I shifted occasionally, as in travelling I sometimes read, and often wanted to regard the Prospects. Finding this Change troublesome, and not always sufficiently ready, I had the Glasses cut, and half of each kind associated in the same Circle.

"By this means, as I wear my Spectacles constantly, I have only to move my Eyes up or Down, as I want to see distinctly far or near, the proper Glasses being always ready. This I find more particularly convenient since my being in France, the Glasses that serve me best at Tables to see what I eat, not being the best to see the Faces of those on the other Side of the Table who speak to me; and when's one's Ears are not well accustomed to the Sounds of a Language, a Sight of the Movements in the Features of him that speaks helps to explain, so I understand French better by the help of my Spectacles. . . ."

Franklin died quietly at the age of 84.

NATURE AND THE DOCTOR

Abridgment of the convocation address by Dr. Peyton Rous, delivered at the University of Michigan Medical School, Oct. 1 and published in Science Nov. 25, 1938.

Every good doctor is a naturalist. It is no accident that so many medical students have ranged through the fields as boys for rocks or plants or that John Hunter while at the zenith of his London practice took time to inquire into the structure and economy of whales. To be an ardent observer seems the best of qualifications for the study of medicine.

The three tasks set every human creature, to see, to know and to do, are notably difficult in the case of the physician: he has to perceive disease phenomena, to understand them, and to cure or at least make them tolerable, preventing future instances. The difficulty has been that sick and well alike have forced the doctor to act before he could know and to assume, for practical purposes, that he knew before it was possible for him to perceive. Furthermore, he has had to be infallible: error could have no place in the reckoning. Throughout countless years, people all about the doctor have cried to him "Why don't you do something?" and disease has cried even louder. He has had to do it, to do his ignorant and erring best. This is still his situation as concerns not a few ills. Each case of paralysis agitans, every inoperable cancer that he sees goads him toward action. He must still treat the insane without knowing why they are insane. Yet now at last he has to a large extent worked things round into their proper order and, what is even more important, he sees where next to direct his energies and how to bring them to bear.

This happy state of affairs is essentially recent. He has become a passionately enterprising observer. He invents instruments and technics with complete assurance that they will disclose things worth while, though he may not know what.

The sick have always had more signs and symptoms standing plain to view than the doctor was able to note, even when he had only the outside of the human creature to scrutinize. For generations doctors have been schooled more earnestly in observation than any other large group of men. A keen doctor can still discern new signs and symptoms in diseases long held wholly familiar. It was only yesterday in medical time that those little spots on the inside of the mouth were pointed out which help so much in the recognition of measles. Of late it has become plain that even the doctor has perceived but a small part of the mental workings of healthy man, let alone those of the sick, and that there are reaches of thought far beyond its immediate spectrum. One might have supposed that some of those subtle individuals existing in all ages, to whom guile has been

a pastime and thinking a diversion, would have discovered these reaches and made them familiar. The opportunities were there and the technical means, namely sharp and capable mentalities. The impediment lay in the second of the doctor's tasks, that of interpreting what he saw. Observing seems less necessary when all is sufficiently explained, and what one sees looks different in the light of explanations. He propounded "systems" of medicine (textbooks still flaunt the term) which were so beautifully imagined that they made further search for the causes of disease an impertinence.

THE STUDENT SEES KNOWLEDGE

This effort to explain phenomena before they were fully perceived was not unique with the doctor. It has been the bane of discovery in every field all along. While man is a curious animal, the vice of his curiosity is the ease with which it can be satisfied. Now we try to be dissatisfied with explanations for phenomena not wholly understood, but are we always successful? To the medical student that textbook still seems most worth while which explains best. And he admires those instructors who appear bright and sure in their replies, detesting such as wander uncertainly through the laboratory, qualifying their answer to every question and obviously oppressed with what they do not know. The student sees knowledge as exquisitely sharp and clear because his instructors have not had time to dwell on its blurred outlines and nuances.

This confidence that knowledge is precise cannot last more than a year or two; it is shaken out and away by the facts that buffet the young practitioner from every side. As he goes on with his life he sees the impossible prove real so often that he becomes a humble as well as an ardent observer. The discovery of the roentgen rays may be said to have ushered in a medical era characterized by increasing surprise and humility. It is difficult to realize that only a generation ago men deemed cod liver oil a household remedy perpetuated by superstition and doubted whether sunlight had any virtue beyond the psychic. They then thought of foods wholly in terms of fats, carbohydrates and proteins, mentioning salts, condiments and spices merely for completeness sake, since there were no calories in them and calories were what counted. In that confident period the doctor had suddenly learned so much through his own efforts that he had become mind proud. Now the empirical good has once again made its weight felt and we are again prepared to take hints from the past experience of the race on how to maintain health and to assume there may be reason in them, though we know it not.

In those dark ages of medicine when thinking made things so, there were immense opportunities for the wrong sorts of men, those who had the endowment of visionaries, oftentimes religious. The desire to do good is a magnificent reason for wishing to become a doctor, but it is no sign of fitness. Certainly one would not care to have a great poet or artist as one's physician, no matter how much he knew. For what these see they transmute. A little poet, a minor artist, those who draw their main strength from the sensitive perception of realities, yes, they will do better than well in coping with disease; and there have been many such among good physicians. But the visionary is an unnaturalist; as a doctor he runs amuck. He becomes the most dangerous and effective of all quacks, limpidly sincere and often lovable as a person, carrying his fellow mystics along with him joyfully and dominating ignorant folk through the vigor of his convictions. In the old days the honest mystic had every chance to do the harm of his beliefs. Now he stifles in the atmosphere of medicine, its facts harry him, and he seeks the wide air of occupations in which there are more unconsidered variables.

Nevertheless, as is well known, misbegotten, a priori philosophies explaining all of disease and all its cure are still rife in civilized communities. But now doctors as a class go free of them. It is the laity among whom they make play. Yet a clever new thought affecting the interpretations or treatment of disease will always take strong hold on the doctor. Anybody who scans that microcosm THE JOURNAL for the last thirty years can follow the rise and fall of many an alluring idea. It spreads swift as a contagion, is acclaimed, is utilized everywhere, but at long last begins a lingering disappearance from the literature. Where are the opsonic index, the ninhydrin reaction of yesteryear? The clever idea spreads so fast not only because of the urgency of human need, though this is the prime reason, but because doctors are still school men in some degree, easily governed by ingenious thoughts, rising with enthusiasm to notions that are attractive, and loving to think and work and discuss in company.

Though the doctor can no longer be a metaphysician, much less a mystic, in his interpretation of disease processes, he yet must recognize the force of the mystical point of view. He knows that the mystic has a place and a power in human affairs, that he constitutes a saving opposition to received ideas, leavens the human lump. Yet he realizes also that the mystic cannot be a wise physician.

The third of the doctor's tasks, that of setting things right, is the only one that the public really cares about. Here in all ages there has been the physical devil to pay whenever idea has prevailed over fact. Too often the physician has been unable to see that his triumph of mind over matter was an empty one.

Even when the old doctor was not empowered by rationalization, when they had not made of him a doctrinaire, there yet existed a strong reason why he should persist in a way of treatment that appeared to do harm. Take Benjamin Rush, for example, a hard headed, sensible man. He was at his wit's end to treat yellow fever in Philadelphia in 1793 when he found, while searching for what had been done previously, that a Scotch physician had thought violent purgation to be effective in the Virginia epidemic of 1743. Thenceforth Rush purged and bled with all the energy of a courageous and devoted character. So doing he gave impetus to the American school of bleeders, and they continued to take toll until far into the next century.

THE PARADE OF EFFICIENCY

There was the more reason for the old doctor to hold fast to his ideas, because both his ignorance and the public forced on him the role of seer. The sick have always thought of doctors not as they are but as they would wish them to be. They place trust, they are not prepared to excuse. He has accepted this reliance on him as implicit in his situation, and the result has been not an absurdity but a relationship fine in human values. The doctor has had to be self confident to gain best results. The gold-headed cane of the eighteenth century doctor, his dignity, the ritual formality of his visits to the sickroom, though aiding the patient's state of mind, often trapped him into thinking too well of his own abilities and fenced him in this way from nature. The parade of efficiency in the modern hospital, its cool and silent whiteness, its swiftness in action, the deference to the chief on "rounds," the whole arresting contrast with the outside world, mean more than a task undertaken with the ailing body and release for the patient from responsibility for himself—they imply that things will actually be done with more understanding and more surely than in any other sphere of human effort. But while in this way they help the sick, to no negligible extent they bring risk to the doctor. Their effect on him might be damaging were it not warded off by the disclosures of the clinical laboratory, the x-ray department, the postmortem room, which keep him chastened and effective.

We no longer see disease as disorder, though the term still holds place as a synonym. We perceive that, no matter how abnormal a body state may be, it is still natural. To the scientist even the iridescence of decay, the scum on the pool, are the expression of laws which might be termed wholesome if the word had any meaning in such connection. And with the extension of this view to the public has come a vast relief. For sickness was indeed appalling when it seemed to come out of nowhere and to be obedient to nothing. The special horror of the pestilences was that they walked in darkness. This horror is felt still in relation to a few diseases, notably cancer, but even in these the doctor can perceive laws. To the public yellow fever is now only a virus disease transmitted by mosquitoes, and the plague a bacterial infection. Such knowledge would be fortifying, even if they came again.

The doctor himself has become the complete realist that he has always wanted to be. Facts are his familiars and mold his thought. He still cures in many ways that he does not understand, but now he begins to feel a slight humiliation when so doing. In his primary task of observation he is more than ever behind. Despite all his instruments he is still hampered by sheer inability to perceive, while furthermore the scope of the perseptible has broadened incredibly. It provides one of the greatest of present dangers to the doctor's relations with nature. So much of detail there is for him to look on and realize as to bring risk that at times he may not see the organism as a whole. Yet this is his culminating duty. The wisest physicians will always be general practitioners in the sense that they deal in thought with the whole case.

In the eighteenth century the activities of the doctor as a field naturalist sometimes brought great discovery. Withering was the very man to have been told that a "wise woman" in a nearby village cured dropsy with decoction of herbs. There were more than twenty of them in the mixture, yet, as he remarked, the problem presented no difficulties. Withering, who knew botany, had already produced a compendium of British plants that was to be used for generations after him. Jenner did not have a casual chat with a milkmaid and then take a fling at vaccination. Living in the country and keen about animals of all sorts, his observations convinced him that cowpox and the "grease" in horses represented smallpox in an innocuous form; and after his first successful inoculation he waited nine years, rejecting material after animal material, before he got one that seemed right in his experienced view. With it he made the test which justified publication.

Now as field naturalists we roam chiefly within the body. Bacteriology has supplanted botany, and the habits of organs seem more important than those of animals. It has dawned on us that the happenings in animals and plants have far greater meaning for us than their forms would imply. The same insulin that works in the codfish will save a diabetic man. What takes place within animals and plants is our own vital concern. Nothing in medicine has bettered so much throughout the years as the doctor's relations with nature. Now he is more of a naturalist than ever.

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items to be considered for publication in the Student Section.

Student Wins State Society Prize

The Iowa State Medical Society awarded its annual Baldridge-Beye Memorial Prize of $100 April 25, during the annual meeting in Des Moines, to Ray E. Trussell, junior student in the State University of Iowa College of Medicine, Iowa City. The prize is given annually by the state society to that student of the State University of Iowa College of Medicine who presents the best thesis on his original investigations. Mr. Trussell's thesis was entitled "Hypersensitivity as a Factor in Chronic Monilia Vaginitis."

A Home for Cook County Interns

The West Side Hospital building, 1850 Harrison Street, has been sold to Cook County and will be remodeled for use as a home for the interns of Cook County Hospital, Chicago, and for the treatment of outpatients. The West Side Hospital was a 165 bed hospital established in 1896. The hospital's license was revoked in June 1938 by the Chicago Board of Health, which, according to newspaper reports, had on several occasions ordered the hospital to renovate the institution and make changes in accordance with the board's recommendations. Although the hospital's license was restored later, the hospital operated on a deficit, and Federal Judge Holly, in March 1939, ordered the trustees of the hospital to begin negotiations for its sale.

Student Awarded Ricketts Prize

The Howard Taylor Ricketts Prize at the University of Chicago has been awarded to George Hartley Jr. for work on the local formation of antivaccinial antibodies by the skin. After inducing macrophages to converge by injecting a substance into the skin, then injecting cowpox virus into this area, Hartley was able to show that antibody capable of neutralizing vaccinia virus appeared before it could be demonstrated in the blood. The practical implications of the experiments hinge on the possibility of building up "local" defenses in the body so that micro-organisms entering the body may be more effectively localized and more quickly destroyed.

The Ricketts Prize was established in 1913 in honor of Dr. Howard Taylor Ricketts, bacteriologist at the University of Chicago, who contracted typhus fever while studying that disease in Mexico and died May 3, 1910. The Ricketts prize is awarded annually on the anniversary of Dr. Ricketts' death to a student in the department of pathology or bacteriology for notable research.

Tenth Anniversary of Premedical Club

The tenth anniversary of the founding of the Pre-Medic Club of the Central Y. M. C. A. College, Chicago, was celebrated Friday evening May 26, in the Lincoln Room, to which students in the medical and dental schools of Chicago were invited. The principal address was given by Dr. Karl A. Meyer, medical superintendent of Cook County Hospital. The activities of this club have consisted of bimonthly meetings, tours of medical interest, yearly exhibits and public health campaigns in the college and the publishing of the *Pre-Medical Journal*. Richard Alpert is chairman of the board of directors for this semester, and David Rumack is president of the club.

Course on Medical Ethics

The school of medicine of Louisiana State University, New Orleans, began a series of lectures on medical ethics March 24, to be continued seven weeks. The first lecture was given by Dr. James T. Nix, dean, Graduate School of Medicine, New Orleans, and his subject was "Personal Relations Between Physician and Patient." Dr. Asahel J. Hockett, superintendent of Touro Infirmary, will discuss hospital administration with particular reference to the introduction of the student to internship. Other lecturers included: Louis J. Bristow, superintendent of the Southern Baptist Hospital, on what the hospital expects of its staff; Dr. George S. Bel, director of the Charity Hospital of Louisiana, New Orleans, on the relation among physicians as set down by codes of ethics, and Dr. Isidore Cohn, professor of surgery at the Graduate School of Medicine, on fee splitting.

These lectures followed a series of lectures on medical economics, which in turn followed lectures on medical jurisprudence, all of which were given for the first time at the school this year.

Evenings of Fine Music

Students and members of the faculty of the University of California Medical School, San Francisco, have enjoyed a series of evenings of fine music at the school from the Holbrook Memorial Phonograph Collection of the University of California. The April concert was devoted to the works of Chopin, and the May to those of Tchaikovsky. The March program included the works of Strauss, Mozart, Verdi, Puccini, von Weber and Wagner.

The Mayo Lecture at Michigan

The annual William J. Mayo Lecture at the University of Michigan Medical School, Ann Arbor, was delivered April 28 by Dr. Harold I. Lillie of the division of otolaryngology of the Mayo Foundation, Rochester, Minn., on the subject "Correlation of the Special Practice of Otolaryngology with the General Practice of Medicine."

The Capps Prize Awarded

The $400 Joseph A. Capps Prize in medical research of the Institute of Medicine of Chicago has been awarded for 1938 to Dr. Broda O. Barnes, who graduated from Rush Medical College, Chicago, in 1937, for his paper on "Observations on the Adrenogenital Syndrome." The prize, founded by the late Dr. Edwin R. LeCount, is awarded annually for the most meritorious investigation in medicine completed by a graduate of a recognized medical school in Chicago within two years after the completion of an internship or of one year of laboratory work.

Internships in the Marine Hospitals

The U. S. Public Health Service desires to receive applications for appointments as second year interns in the marine hospitals operated by the service. Applicants must not be over 30 years old, must have graduated from accredited medical schools and must have completed one year's internship at approved hospitals by next June. Second year internships at marine hospitals are similar to residencies in general hospitals. Appointees will receive a gross pay of $1,800 a year,

from which a deduction of $690 a year will be made if quarters, subsistence and laundry are furnished. Those assigned to the federal penal and correctional institutions will receive $1,620 a year, from which $240 will be deducted if quarters, subsistence and laundry are furnished. It is especially desired to receive applications from candidates who are interested in the service as a career, and appointments will be made with the understanding that opportunity will be afforded to take the next examination for appointment as assistant surgeon. The rank of assistant surgeon corresponds in pay and allowances to that of first lieutenant in the U. S. Army. Those who wish to make application should communicate at once with the Surgeon General, U. S. Public Health Service, Washington, D. C., stating definitely that they are interested in a second year internship and giving the earliest date of their availability.

First Annual Lecture

Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, gave the first annual lecture for the faculty and students of Columbia University College of Physicians and Surgeons, New York, under the auspices of Iota chapter of Nu Sigma Nu April 12. Dr. Fishbein's subject was "The Social Aspects of Modern Medicine."

Regional Convention of Medical Students

The first annual New England Regional Convention of the Association of Medical Students was held at Harvard Medical School, Boston, April 1-3. Dr. Harold E. MacMahon, professor of pathology and bacteriology, Tufts College Medical School, Boston, made the introductory speech; Dr. Hugh Cabot, formerly professor of surgery in the Graduate School, University of Minnesota, discussed "Problems of Medical Care." The following afternoon a symposium on the distribution of medical care was presented by D. V. Brown, Ph.D., assistant professor of industrial relations, Massachusetts Institute of Technology; George Perrott, secretary, Interdepartmental Committee to Coordinate Health and Welfare Activities, and Dr. Elliott P. Joslin, clinical professor of medicine, emeritus, Harvard Medical School. Dr. John P. Peters, professor of medicine, Yale University School of Medicine, addressed the dinner meeting. Clinics arranged for this meeting were held by Dr. Tracy J. Putnam, professor of neurology, Harvard Medical School, on "Dyskinesias," and by Dr. Siegfried J. Thannhauser, associate professor of medicine, Tufts College Medical School, on "Liver Disease."

Student Analysis of the Faculty at Louisiana

An analysis by the staff of the *Tiger*, a student publication, assisted by Elizabeth McFetridge, medical editor, of the educational qualifications of the nearly 200 members of the teaching staff of Louisiana State University School of Medicine shows that graduates of fifty-nine American medical schools and thirteen foreign medical schools and eighty-four American hospitals are represented in the undergraduate training or in teaching experience. Seventy-nine members of the faculty graduated from Tulane University of Louisiana School of Medicine, New Orleans, six from Johns Hopkins University School of Medicine, Baltimore, five each from Rush Medical College, Chicago, and the University of Tennessee College of Medicine, Memphis, and three each from the University of Pennsylvania School of Medicine, Philadelphia, University of Minnesota Medical School, Minneapolis, and the University of Louisville School of Medicine. Forty-six members of the faculty have B.A. degrees, fifty-nine members have B.S. degrees, fifteen have M.A. degrees, and seventeen have Ph.D. degrees.

Intern-Staff Dinner at University Hospital

A dinner meeting attended by interns, assistant residents and staff members of professorial rank of the University Hospital, Ann Arbor, Mich., was held March 21. Some of the senior staff members recalled conditions in the hospitals before regular intern appointments were customary and when senior students assisted physicians by carrying out some of the duties now assigned to the interns. Improvements in intern training and developments in residencies in the specialties were discussed. Some members of the present intern staff were called on for suggestions and criticisms in regard to the intern service. This was a profitable event, and plans are being made for frequent meetings of this sort in the future.

New Department of Medical Economics and Postgraduate Instruction

A new department of medical economics and postgraduate instruction has been created at the Indiana University School of Medicine, Indianapolis. The chairman will be Dr. Cyrus J. Clark, who also will be associate professor of cardiology. The additional personnel of the new department will be as follows:

Dr. Leonard A. Ensminger, professor of orthopedic surgery and assistant in medical economics and postgraduate instruction.

Dr. Louis H. Segar, clinical professor of pediatrics and assistant in medical economics and postgraduate instruction.

Dr. Jacob K. Berman, assistant professor of surgery and assistant in postgraduate instruction.

Dr. Howard B. Mettel, assistant professor of pediatrics and assistant in medical economics and postgraduate instruction.

Dr. John E. Owen, assistant professor of surgery and assistant in medical economics and postgraduate instruction.

Dr. Ernest O. Asher, associate in medicine and assistant in medical economics and postgraduate instruction.

Dr. Kenneth G. Kohlstaedt, associate in medicine and assistant in medical economics and postgraduate instruction.

Dr. Walter P. Morton, associate in genito-urinary surgery and assistant in medical economics and postgraduate instruction.

Dr. William N. Wishard Jr., associate in genito-urinary surgery and assistant in medical economics and postgraduate instruction.

James E. Moffat, Ph.D., professor of economics.

Dr. Thomas S. Cullen Retires as Professor

Dr. Thomas S. Cullen has retired as professor of gynecology at Johns Hopkins University, Baltimore, which position he has held for almost twenty-two years, and will receive the title of professor emeritus. Dr. Cullen was born at Bridgewater, Ont., in 1868 and graduated from the University of Toronto Faculty of Medicine in 1890 as a silver medalist. He served as chairman of the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, 1914-1915, and has been a member of its Board of Trustees since 1929.

Annual Reunion at University of Cincinnati

The Annual Reunion of the College of Medicine of the University of Cincinnati will be held Saturday June 10. Dr. Robert H. Kotte, president of the alumni, and a committee are in charge of the program. At 9:30 a. m. rounds will be made in the surgical service with Dr. Mont R. Reid, in the pediatric service with Dr. A. Graeme Mitchell and in the medical service with Dr. Marion A. Blankenhorn. A banquet will be held at 7 o'clock in the evening at the Netherland Plaza Hotel. The principal speaker will be Dr. Carl A. Wilzbach, commissioner of health of Cincinnati. The 1939 Reunion has been affectionately dedicated to Dr. John C. Oliver. Dean Alfred Friedlander will present the graduating class, the members of which will be inducted into the alumni association.

New Professors at Washington University

Dr. Dalton K. Rose, associate professor of genito-urinary surgery, Washington University School of Medicine, St. Louis, has been made full professor and head of that division in the department of surgery. Dr. Rose was born in 1886 and graduated from Washington University School of Medicine in 1915. Dr. Robert A. Moore, assistant professor of pathology at Cornell University Medical College, New York, has been appointed Edward Mallinckrodt professor of pathology and head of the department at Washington University School of Medicine, St. Louis. Dr. Moore was born in Chicago in 1901 and received his M.D. degree from Ohio State University, Columbus, in 1928.

Gold-Headed Cane Bestowed on Honor Graduate

The University of California Medical School, Berkeley, has revived the custom of "handing down the gold-headed cane" in a special ceremony symbolizing the custom of English physicians of long ago of carrying gold-headed canes, in the hollow heads of which they carried herbs to protect themselves from disease. The medical student thus honored was Warren L. Bostick of San Diego, who was given a gold-headed cane; Warren E. Jones of Sacramento and William R. Rosanoff, Los Angeles, were given copies of the earliest edition of a book by Macmichael describing the cane ceremony and giving the history of its recipients. A new cane is to be presented next year to the honor graduate in the same manner. Dr. Herbert C. Moffitt, clinical professor emeritus, who made the presentation speeches, was also given a gold-headed cane in recognition of fifty years of service with the university. Dr. Moffitt was the honor graduate of the university in the class of 1889.

National Board Questions in Surgery and Public Health

Following are the questions used by the National Board of Medical Examiners in surgery and public health in part two of the examination held Sept. 12-14, 1938:

MEDICINE

Answer questions 1 and 2 and three of the remaining four: 1. What involvement of the nervous system is most commonly associated with pernicious anemia? What are the signs, symptoms and differential diagnostic features? 2. Contrast the physical signs of pneumothorax with those of massive collapse of the lung. 3. What are the signs and symptoms of acute morphine poisoning? Outline the treatment. 4. Discuss the etiology and describe the course of granulocytopenia. 5. Discuss the etiology and diagnosis of abscess of the liver. 6. What is the significance of albuminuria?

PUBLIC HEALTH

Answer four of the following questions: 1. Discuss the etiology, mode of transmission and methods of prevention of trichinosis. 2. What advice should be given to the mothers in a community in which an epidemic of measles is prevalent? 3. Name three virus diseases and discuss the methods of control of one of them. 4. How may a room recently occupied by a patient with scarlet fever be made safe for subsequent occupancy? 5. Name six diseases that may be treated or prevented by the administration of serums, toxins, antitoxins or vaccines. State which one of these substances would be used in each disease mentioned, and describe in detail the procedure of administration in one.

Prize for Qualifications for Successful Physician

An annual prize of $100 has been established by the Zeta chapter of Nu Sigma Nu at Northwestern University Medical School, Chicago, to be awarded on the basis of scholarship, personality and general qualifications for the making of a successful physician. The Committee of Award is composed of Dr. Irving S. Cutter, dean; Dr. Loyal Davis, professor of surgery; Dr. Andrew C. Ivy, professor of physiology and the active president of Zeta chapter of Nu Sigma Nu. In addition to the money prize, the fraternity will place a bronze tablet in the medical school library on which the names of the winners will be inscribed in chronologic order. The first award will be made to a senior of the 1939 graduating class.

Professor Urey to Succeed Professor Sherman

Harold C. Urey, Ph.D., professor of chemistry at Columbia University, New York, has been appointed executive officer of the department of chemistry for a term of three years beginning July 1. He will succeed Henry C. Sherman, Ph.D., who has been head of the department for twenty years and who will now devote his time to research and teaching. Dr. Urey was born in 1893 and received his Ph.D. degree from the University of California in 1923. He was awarded the Willard Gibbs Medal in 1934 for the discovery of "heavy water" and received the Nobel Prize in Chemistry in 1934. He is the author of numerous articles on subjects dealing with the structure of atoms and molecules. Dr. Sherman was born in Virginia in 1875 and received his Ph.D. degree in 1897 from Columbia University. He is the author of many books, the latest being "Chemistry of Food and Nutrition," published in 1937.

Graduate Course in Otolaryngology

A two weeks postgraduate course in otolaryngology at Indiana University School of Medicine, Indianapolis, in April was attended by thirty-four physicians from twenty-two states, some as far away as Maine and California. The course, said to be the only one of its kind in this country, was created mainly through the efforts of Dr. John F. Barnhill seven years ago. The chairman of the course this year was Dr. Carl H. McCaskey.

Dr. Cowie of Michigan Honored

Dr. David Murray Cowie, professor of pediatrics and infectious diseases at the University of Michigan Medical School, Ann Arbor, was honored on his sixty-sixth birthday by the members of the University of Michigan Pediatric and Infectious Disease Society who were present in Ann Arbor for their seventeenth annual meeting. A watch was presented to Dr. Cowie at a dinner given Nov. 11, 1938, by the members of the society as an expression of their appreciation for his inspiration and guidance during the many years that he has had charge of instruction in pediatrics at the university.

California's Premedical Club

Members of the faculty of the University of California Medical School lectured on personal hygiene, mental hygiene, nutrition and physiology to premedical students on the campus of the University of California, Berkeley, May 1. The talks were under the auspices of the Premedical Club.

Virginia Personal

Dr. Patrick H. Drewry Jr. has been appointed assistant professor of neuropsychiatry at the Medical College of Virginia at Richmond. He is now in London studying under a fellowship from the Rockefeller Foundation. He expects to begin his work at the college next spring when the new hospital, which will have an active psychiatric service, will have been completed.

Lectures on Social and Economic Aspects of Medicine

Western Reserve University School of Medicine, Cleveland, offered a series of lectures on the social and economic aspects of medicine, a forum discussion primarily for medical students but open to others interested. The series, presented on Tuesdays and Fridays from March 17 to May 9, was divided into three parts: "A Dynamic Society Encounters Medical Problems," "The Medical Billion and Where It Goes" and "Democracy Feels Its Way." Among the lecturers were:

Dr. Richard A. Bolt, Cleveland, Sickness and Disability as a National Problem, March 17.
Dr. Roscoe D. Leas, Cleveland, Science Advances: Adequate Medical Care Today and Yesterday, March 24.
Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, The American Medical Association Views Health Insurance, April 25.
Mr. H. van Y. Caldwell, executive secretary, Cleveland Academy of Medicine, Voluntary Prepayment Plans for Medical Care in the United States, April 28.
Dr. Ralph C. Williams, Washington, D. C., Group Medical Care for Low Income Farm Families, May 2.
Dr. Sidney M. McCurdy, Columbus, Medico-Social Aspects of Workmen's Compensation.
Charles-Edward A. Winslow, Dr.P.H., New Haven, Conn., Medical Care for the Nation.

Dr. Rogoff Appointed Professor of Endocrinology

Dr. Julius M. Rogoff, recently visiting professor of physiology in the Division of Biological Sciences, University of Chicago, has been appointed professor of endocrinology at the University of Pittsburgh School of Medicine. A special laboratory of experimental endocrinology has been established for Dr. Rogoff's research. Dr. Rogoff graduated in medicine in 1908 at Cleveland College of Physicians and Surgeons, the Medical Department of Ohio Wesleyan University, later merged into Western Reserve University. From 1913 to 1934 he was a member of the faculty of Western Reserve, joining the University of Chicago in 1935 as research associate in physiology. The new laboratory will be supported by the G. N. Stewart Memorial Fund.

Reunion of Presbyterian Hospital Interns

A reunion of former Presbyterian Hospital interns and residents in connection with a two day clinic program for Rush Medical College Alumni will be held June 12 in Chicago. Among those who will take part in the program will be Dr. Russell M. Wilder of the Mayo Clinic, Rochester, Minn.; Dr. Fred M. Smith, head of the department of theory and practice of medicine, University of Iowa, Iowa City; Dr. George M. Curtis, head of the department of research surgery, Ohio State University, Columbus, and Dr. Waltman Walters of the Mayo Clinic.

Annual Lecture at Yale

The first annual lecture for faculty and students at Yale University School of Medicine, New Haven, Conn., under the auspices of the local chapter of Nu Sigma Nu, was delivered April 28 by Dr. Perrin H. Long, associate professor of medicine at Johns Hopkins University, Baltimore, on "The Experimental and Clinical Use of Sulfanilamide, Sulfapyridine and Allied Compounds." Prior to the lecture, a banquet in honor of Dr. Long was given at the "Graduates' Club."

Medical College of Virginia

Mrs. Malcolm Perkins has given $1,000 to the college for a fellowship in immunology and Dr. Edwin D. Vaughan has been appointed to this fellowship for the current year.——Mrs. Annie R. F. Frayser recently gave $2,000 to the college in memory of her son, the late Dr. Benjamin Hobson Frayser, Lexington, Ky., to establish a medical student loan fund.——A grant to the college to provide a resident artist has been made by the Carnegie Corporation of New York. Mr. George H. Murrill has been selected and is now working on murals for the clinic and laboratory building. Murals are also being planned for the library building.

Dr. Graham Honored

A dinner was held at Riley Hospital, Indianapolis, May 8 in honor of Dr. Alois B. Graham, who will retire in June after forty years as a member of the faculty of Indiana University School of Medicine, Indianapolis. The board of trustees of the university presented a gold medal to Dr. Graham. Among the other speakers were the mayor of Indianapolis and the dean of the school of medicine. Dr. Graham is a former president of Marion County Medical Society and of the Indiana State Medical Association and a former chairman of the Section on Gastro-Enterology and Proctology of the American Medical Association.

University of Michigan Health Service

The University of Michigan Health Service celebrated its twenty-fifth completed year of work in a special program recently for which 300 invitations were issued to former staff members and to a selected list of the faculty and friends. In the evening Dr. Harold S. Diehl, dean of the division of medical sciences, University of Minnesota, gave a lecture on "Significance of the Student Health Movement." At the banquet, President Ruthven announced the final arrangements which will provide the health service with a new building designed to provide ample space for an expanded program.

Connecticut Personal

Dr. Stanhope Bayne-Jones, dean of Yale University School of Medicine, New Haven, recently was a guest of the faculty of the School of Tropical Medicine at San Juan, Puerto Rico, where he gave a lecture on "Recent Advances in Cancer Research."

Florida Personal

Dr. Leo C. Gonzales, Jacksonville, director of venereal disease control of the Florida State Board of Health, lectured before Alpha Epsilon Delta, national honorary premedical fraternity, at the University of Florida, Gainesville, recently, on "Methods to Control Venereal Disease in the United States."

Robert J. Terry Lecture

The first Robert J. Terry Lecture was delivered by Dr. Lewis H. Weed, professor of anatomy at Johns Hopkins University School of Medicine, Baltimore, May 17, at the Washington University Medical School, St. Louis. The subject of Dr. Weed's address was "Anatomy in the Medical Curriculum."

Minnesota Personal

Dr. Walter C. Alvarez of the Mayo Clinic, Rochester, Minn., gave the address at the dedication of the new $450,000 building of Hahnemann Medical College, Philadelphia, February 28. On this occasion the honorary degree of doctor of science was conferred on Dr. Alvarez.

Fellowships Awarded

Awards totaling $12,500, including traveling fellowships, scholarships and fellowships, were given to fourteen men for the coming academic year, according to an announcement from Harvard Medical School, Boston, recently.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

Vol. 112, No. 22
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Chicago, Illinois

June 3, 1939

BURNS IN CHILDREN

A METHOD OF TREATMENT AND ITS RATIONALE

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AND
LEON GOLDMAN, M.D.
SAN FRANCISCO

The knowledge gained from clinical and experimental observations during recent years has caused us to change our conception of the subject of burns. Not satisfied with all the aspects of existent therapy, we have adopted some and revised other features of prevalent methods in order to combat the manifold effects of an extensive burn. We have combined the tannic acid, silver nitrate and gentian violet methods of local treatment, because this combination complies with our understanding of the subject and, in our opinion, produces the best results in the many children treated for burns at the San Francisco city and county and the University of California hospitals.

Statistics reveal startling facts concerning burns in children. In the United States approximately 40 per cent of all deaths from burns occur in children under 15 years of age, and 75 per cent of these deaths occur in children under 5 years. Stoves, grates, hot water, steam and matches are the chief agencies of injury. In children under 5, scalds head the list of fatal burns, most of them occasioned by the propensity of young children to pull containers of hot liquids from stoves or tables. The fault lies with the adult who negligently permits these agents of death to be placed within the reach of a child.

The mortality from burns as a whole has decreased more than 60 per cent during the past twenty years, as shown in the accompanying table. The actual number of serious burns in homes has declined for various reasons, among them the diminishing use of the coal stove, the replacement of gas burners and oil lamps by electricity and the education of adults by safety workers. The medical profession has done its share in reducing the number of fatalities by the introduction of newer methods for the treatment of burns.

Our experience has convinced us that the prognosis for all burned children should be guarded. We wish to emphasize also that one cannot foretell, from the size of the burn, what degree of toxicity may follow (fig. 1). The chemical equilibrium is so easily disturbed in children, with changes in the volume of the blood and the osmotic pressure resulting from increased capillary permeability, that their narrow reserves may be depleted if not safeguarded early. Shock invariably is present in children with diffuse burns. The necessity for prompt hospitalization of such children therefore is evident.

Not long ago the hypothesis of the absorption of decomposed proteins was upheld by many authorities as the explanation of all the symptoms which occurred during the different phases following burns. As a result of subsequent experimental work, however, it is known that the clinical course of a patient with a severe burn represents a procession of several intermingling phases which cannot be explained on the basis of any one theory.

PRIMARY PHASE: TRAUMATIC SHOCK

In children, burns involving only a small area may be associated with shock, while extensive burns always are followed by this phenomenon. Such shock presents the identical clinical picture of traumatic or surgical shock and is characterized by loss of body heat, cold moist skin, rapid pulse and fall in blood pressure. This phase usually is transient but may be prolonged or even become fatal if not recognized and treated properly.

SECONDARY PHASE: CONCENTRATION OF BLOOD

Underhill and his co-workers [1] had the opportunity of studying twenty-one patients who were burned in a theater and found that, within a few hours, their blood became greatly concentrated. The hemoglobin content of the seriously burned patients was elevated to as high as 209 per cent. These authors concluded that when a hemoglobin content of 125 per cent is reached and sustained the maintenance of life becomes precarious and that a sustained hemoglobin content of 140 per cent is fatal.

The concentration, they pointed out, would so interfere with the functioning of the blood that it would produce failing circulation, inefficient carrying of oxygen with consequent oxygen starvation of the tissues, a fall of temperature and, finally, suspension of vital activities. They further showed that this stage may not reach its peak until thirty-six hours after the burn and may explain the early death of patients who survive the initial period of shock. Underhill, Kapsinow and Fisk [2] found that concomitantly with this change the nonprotein nitrogen level of the blood

From the University of California Surgical Service at the San Francisco Hospital, Division of the San Francisco Department of Public Health, and from the Department of Surgery, University of California Medical School.

1. Underhill, F. P.; Carrington, G. L.; Kapsinow, Robert, and Pact, G. T.: Blood Concentration Changes in Extensive Superficial Burns and Their Significance for Systemic Treatment, Arch. Int. Med. **32**: 31 (July) 1923.

2. Underhill, F. P.; Kapsinow, Robert, and Fisk, W. E.: Studies on the Mechanism of Water Exchange in the Animal Organism, Am. J. Physiology **95**: 302, 315, 325, 334 and 339 (Nov.) 1930.

was elevated and the level of blood chlorides was lowered; they concluded that the degree of concentration of the blood is an index of the patient's condition. In their opinion, this phenomenon explains the great part of the picture during the first twenty-four to thirty-six hours. These conclusions were also reached by Blalock [3] and Beard and Blalock [4] by experimental means. By the forcing of fluids during this period, the volume of the blood, as well as the cardiac function, is brought to normal. Recognition of this phase of the clinical picture, with suitable treatment, has helped greatly to lessen the early mortality in our cases of severe burns.

In spite of adequate treatment for shock and the concentration of the blood, and despite lack of evidence of infection under the eschar, occasionally a patient's condition may become critical during the first three or four days after a burn. In an attempt to explain deaths during this phase, Underhill showed experimentally that the intraperitoneal temperature may rise to 110 F. in animals with diffuse burns of the trunk. He felt that this penetration of heat to the abdominal cavity might play a significant part in the production of the pathologic appearance of the viscera usually attributed to toxemia from the burned area.

Because clinical, pathologic and experimental conditions occasionally simulate insufficiency of the adrenal cortex, Wilson, Rowley and Gray [5] suggested the use of adrenal cortex extract. They cited the cases of two critically ill children who they felt had been definitely benefited by this therapy.

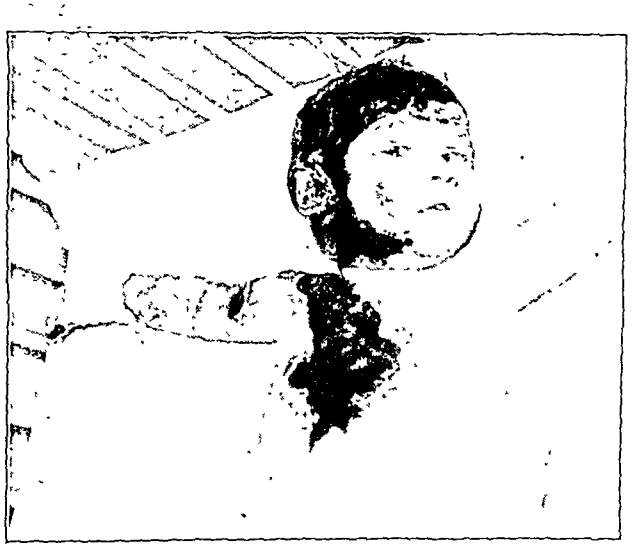


Fig. 1.—Third degree scald in a child 14 months of age, involving only 7 per cent of the surface of the body. He was treated by the tannic acid method. There was a moderately severe febrile reaction, with severe toxemia during the first week, although only a small area was involved. The child experienced convulsions, drowsiness and oliguria, but the urinary sediment was constantly normal.

It is evident that considerable doubt exists as to the cause of death in the small percentage of well treated patients with either slight or extensive burns who die in the first seventy-two to ninety-six hours.

3. Blalock, Alfred: Experimental Shock: VII. The Importance of the Local Loss of Fluid in the Production of the Low Blood Pressure After Burns, Arch. Surg. **22**: 610 (April) 1931.

4. Beard, J. W., and Blalock, Alfred: Experimental Shock: VIII. The Composition of the Fluid Which Escapes from the Blood Stream After Mild Trauma to an Extremity, After Trauma to Intestines and After Burns, Arch. Surg. **22**: 617 (April) 1931.

5. Wilson, W. C.; Rowley, G. D., and Gray, N. A.: The Acute Toxemia of Burns, Lancet **1**: 1400 (June 20) 1936.

TERTIARY PHASE: TOXEMIA

There are two main hypotheses to be considered in attempting to explain the deaths which occur later. The older presupposed that there was some substance liberated from the burned area which made its way into the blood stream and produced the toxemia. Different authors have described a variety of split proteins as the causative agents of this toxic reaction.

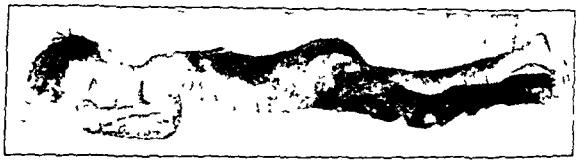


Fig. 2.—Third degree gasoline burn involving 45 per cent of the surface of the body in a boy 12 years of age. Shock, concentration of the blood and hypochloremia occurred. Septic toxemia from large infected granulating areas caused a marked elevation of temperature and pulse rate. Urinalysis showed nothing abnormal except the faintest possible trace of albumin. After the use of azochloramid dressings and daily baths the infection subsided. A steplike improvement followed each grafting of skin. Small deep grafts were used. Several transfusions were necessary.

Robertson and Boyd [6] burned the skin of rabbits. The burned skin was removed and grafted on unburned rabbits, and toxemia was said to have developed in the unburned rabbits, while control animals showed no change. The futility of attempting to graft burned skin from one animal to another is obvious to one familiar with dermal transplantations. Harrison and Blalock [7] repeated this work but were unable to produce signs of toxemia. Robertson and Boyd injected an extract of burned skin into guinea pigs and claimed to have produced a toxic syndrome which corresponded exactly to that seen in a burned patient. Kapsinow [8] repeated this work and found that the alcoholic content of the extract was sufficient to cause the symptoms in the animal, casting doubt on the theory that primary and secondary proteoses are present and produce toxemia, as advocated by Robertson and Boyd. He was unable to produce toxicity by injecting blood from burned patients into animals and performed other experiments to show that this idea was not tenable.

Averages of Annual Death Rates from Burns per Hundred Thousand (Conflagrations Excepted), with a Comparison of the Years 1911-1915 with the Years 1931-1935 (from the Metropolitan Life Insurance Company)

	White				Negro				Percentage Change 1931-1935 Since 1911-1915			
	Males		Females		Males		Females		White		Negro	
Age, Yrs	1931 to 1935	1911 to 1915	1931 to 1935	1911 to 1915	1931 to 1935	1911 to 1915	1931 to 1935	1911 to 1915	Males	Females	Males	Females
1-74	3.1	6.8	3.3	9.6	5.3	11.4	7.1	18.6	—54.4	—65.6	—53.5	—61.8
1- 4	11.7	43.5	13.9	39.3	16.1	73.3	22.6	76.3	—73.1	—64.6	—78.0	—70.4
5- 9	1.9	7.0	4.3	12.7	2.9	10.2	10.3	30.1	—72.9	—66.1	—71.6	—65.8
10-14	1.0	1.3	1.0	3.9	0.5	2.3	3.6	7.9	—23.1	—74.4	—78.3	—54.4
15-19	1.1	0.9	0.6	2.8	0.6	2.6	1.3	6.4	+22.2	—78.6	—76.9	—79.7
20-24	1.5	1.5	1.3	3.6	2.8	2.7	1.4	8.0	....	—63.9	+ 3.7	—82.5
25-34	2.1	1.7	1.1	3.6	4.1	3.6	2.7	5.5	+23.5	—69.4	+13.9	—50.9
35-44	2.6	3.3	1.6	5.0	3.1	4.5	3.0	7.2	—21.2	—68.0	—31.1	—58.3
45-54	2.9	3.3	2.4	7.9	5.6	4.4	7.5	13.7	—12.1	—69.6	+27.3	—45.3
55-64	4.0	5.2	4.9	10.7	8.5	6.1	13.4	17.5	—23.1	—55.1	+39.3	—23.4
65-74	7.7	8.2	10.4	24.5	28.3	20.8	24.8	46.9	— 6.1	—57.6	+36.1	—47.1

6. Robertson, Bruce, and Boyd, G. L.: The Toxemia of Severe Superficial Burns, J. Lab. & Clin. Med. **9**: 1 (Oct.) 1923; Toxemia of Severe Superficial Burns in Children, Am. J. Dis. Child. **25**: 163 (Feb.) 1923.

7. Harrison, W. G., and Blalock, Alfred: A Study of the Cause of Death Following Burns, Ann. Surg. **96**: 36 (July) 1932.

8. Kapsinow, Robert: Toxin of Extensive Superficial Burns, New Orleans M. & S. J. **85**: 195 (Sept.) 1932.

In 1924 Davidson,[9] working on the hypothesis that the toxemia of burns resulted from the absorption of broken down proteins from the site of the burn, introduced the use of tannic acid to coagulate the burned tissue and prevent toxic absorption. Working on the same hypothesis, Bettman[10] modified this method by applying silver nitrate, after an initial application of tannic acid, to shorten the period of the formation of the eschar and, by so doing, to prevent the absorption of the supposed split protein material.

In 1930 Underhill and his co-workers proved experimentally by injection of dyes and lethal doses of strychnine into the burned areas that no absorption from these areas occurred within the first twenty-four to thirty-six hours. They proved that instead fluids entered the burned tissue from the blood stream because of increased permeability of the capillaries. Reabsorption of this edema fluid then proceeded slowly for from five to six days. These authors felt that the early toxic symptoms resulted from dehydration, increased concentration of the blood and loss of blood chlorides and serum protein and concluded that an elevation of temperature after the first twenty-four to thirty-six hours is not the result of any absorption of decomposed protein from the burned areas but is caused by infection.

Aldrich[11] in 1933 proved to his satisfaction that the so-called toxemia which occurs from twelve to thirty-six hours after the burn is the result of infection. By extensive bacteriologic studies he found that after the first period of twelve hours material from 10 per cent of the severely burned areas yielded positive cultures with beta hemolytic or gamma streptococci as the predominating organism. This was also true of the large majority of minor burns. With obvious signs of sepsis, the concentration of these organisms increased until, after from forty-eight to fifty-six hours, pure cultures of streptococci could be obtained. In fatal cases, cultures of the blood showed streptococci and examination of the viscera showed evidence compatible with acute infection or sepsis. Aldrich introduced the use of a 1 per cent aqueous solution of gentian violet because of its bactericidal and bacteriostatic effect on gram-positive cocci as well as its escharotic value. He recognized the good results of the use of tannic acid but felt that they were due to the sealing off of the burn by a sterile eschar, with consequent prevention of infection, rather than to the lessening of absorption of broken down proteins. Recently Aldrich advocated the use of brilliant green with acriviolet (a mixture of acriflavine with gentian violet) because of its superior bactericidal and bacteriostatic properties.



Fig. 3.—The method of removing a large graft from a small child. This is impossible in many cases unless the Blair suction retractor is used.

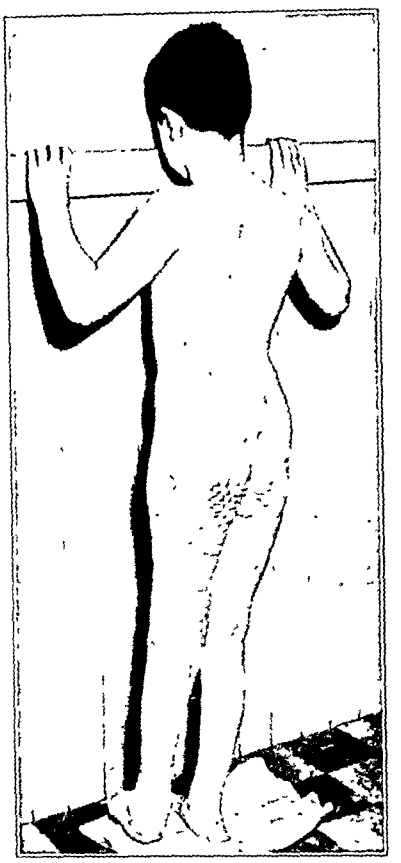


Fig. 4.—The patient shown in figure 2 eighteen months after the burn, showing healing by means of small deep grafts.

These clinical and experimental conclusions have been fortified by our observations and experiences and have stimulated changes in our therapy from time to time. At different periods we have stressed first one method and then another. The method to be described has been followed long enough to prove its value if it is carried out properly. In general it is planned to meet the successive phases of burns and their complications as they occur.

EARLY THERAPY

We always employ special nurses in the early period.

Shock.—No local therapy is instituted until this initial phase is corrected. The condition is combated by the usual means of heat, sedatives, fluids administered parenterally and transfusions of blood. A transfusion is always given to a patient with severe burns during the first few hours, even if he appears to be in excellent condition.

Tannic Acid Bath.—After the successful alleviation of shock, local therapy is started. For some time we used the tannic acid spray method. It was given up because many hours were required for the formation of the eschar, the patient was kept moist for too long a time and the method was difficult to use for burns which covered the dorsal as well as the ventral surfaces of the body.

Tannic acid jellies, although excellent for emergency dressings, usually require two or three applications for the formation of an eschar, over a period of from twenty-four to seventy-two hours. Frequently, with the change of dressings, portions of the eschar are pulled away, allowing infection to enter.

9 Davidson, C. E.: Tannic Acid in the Treatment of Burns, Surg., Gynec. & Obst. 41:202 (Aug.) 1925.

10 Bettman, A. G.: Tannic Acid and Silver Nitrate Treatment in Burns, Surg., Gynec. & Obst. 62:458 (Feb. 15) 1936.

11. Aldrich, R. H.: The Role of Infection in Burns, New England M. J. 208:299 (Feb. 9) 1933.

We now favor the use of the tannic acid bath as described by Wells.[12] It helps to combat shock, facilitates débridement and starts formation of the eschar. Enough tannic acid powder is placed in a warm bath (from 90 to 100 F.) to give a muddy color. After an initial burning sensation of short duration, the patient usually relaxes completely in the tub. All blebs, previously applied unguents and loose necrotic tissue are removed gently by means of sterile forceps and scissors. The surrounding skin is cleansed with gauze soaked in green soap and water. During the débridement and cleansing of the burned area, which usually last from sixty to ninety minutes, the bath is changed two or three times as necessary to dispose of the débris.

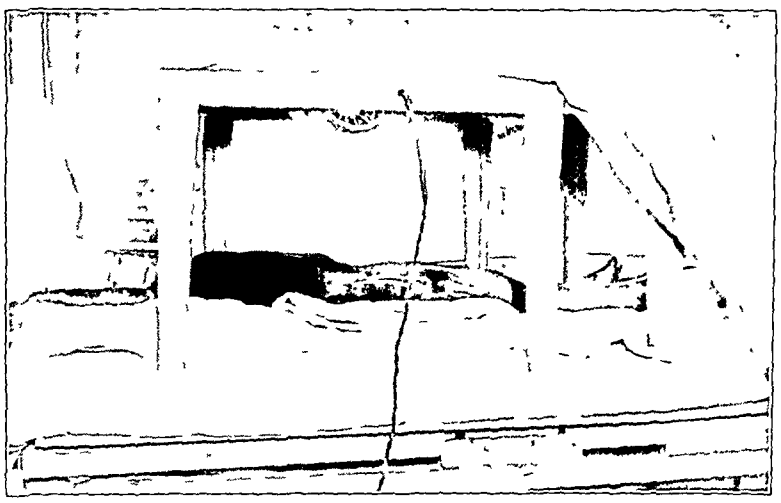


Fig. 5.—H. S., a girl 7 years of age, with 20 per cent of the body involved by second and third degree burns, immediately after tanning. Shock, concentration of blood and hypochloremia occurred. She was treated by the tannic acid bath, silver nitrate and gentian violet method.

Although treatment by the production of an eschar was introduced in 1925, we still see many severely burned patients treated by means of unguents. We emphatically condemn their use in cases of severe burns. This is the one type of initial treatment which may interfere with modern therapy. If there is any suspicion that the burn may be extensive or deep and no escharotic preparations are available, it is far wiser to wrap the patient in clean linen and rush him to an institution where proper therapy can be carried out than to treat him with unguents.

Mentioned only to be condemned is vigorous débridement of burns or excision of the burned area with the patient under anesthesia. These methods, in our hands, have tended to induce or aggravate shock. We place exsanguination followed by transfusions in the same category. These procedures are too radical.

Silver Nitrate.—After satisfactory débridement, the patient is dried with sterile towels. Gauze soaked in 10 per cent solution of silver nitrate is then applied by blotting it on the burned area. An immediate tan is produced. This saves from twelve to seventy-two hours, required for the production of a tan by other methods, and seals the burned area long before infection can take hold. The element of time is extremely important, as the treatment of a burn should conform to the general surgical principle that an open wound must be closed within six or eight hours if it is to be considered free from contamination. No cases of poisoning from the absorption of silver have been encountered, the reason probably being that little absorption occurs from the burned areas at this time.

The patient is then placed on a sterile sheet, pressure being kept off the burned areas. Particular emphasis is laid on the fact that the burn should be treated as a sterile surgical wound. If every precaution is not taken, the eschar will soon show varying degrees of infection. A large cradle is placed over the child to keep the bed clothes away from the burn (fig. 5). The temperature of the tent is usually kept around 85 or 90 F. in order to keep the patient comfortably warm and the eschar from becoming moist.

Gentian Violet.—The entire burned area, including its edges, is treated with a 1 per cent aqueous solution of gentian violet applied with sterile gauze pledgets several times a day for the first few days. In this manner the surface of the burn and the surrounding skin are kept free from organisms. It is important to give this treatment three or four times a day in order to keep dry small fissures or other areas which might otherwise become moist as a result of pressure, motion or perspiration (fig. 2).

With deep burns completely encircling the hands or fingers, the tannic acid and silver nitrate method is not used, because of the danger to the circulation by its constricting action. In this location, gentian violet alone or saline compresses should be substituted.

Prevention of Dehydration and Concentration of the Blood.—During the early phase, most patients will take fluids by mouth, but, if they are unable to do so, fluids should be administered parenterally to combat dehydration, concentration of the blood and loss of chlorides. Fluids such as fruit juices, broth and milk should be forced. For children with large burned areas, it is our policy to give transfusions during the first twenty-four hours as prophylaxis against the recurrence of shock.



Fig. 6.—H. S., three weeks after the burn, showing the remaining eschar, which is still dry and free from infection.

We do not advocate the use of continuous intravenous therapy, because of the danger of thrombophlebitis, bacteremia and septic emboli. The intake of fluids and the urinary output should be recorded carefully. If edema ensues, the quantity of fluids should be lessened. In our experience, oliguria has been the first sign of renal injury, usually occurring after a few days; in only a few cases have we been able to demonstrate casts and red blood cells in the urine except as a terminal finding.

12. Wells, D. B.: The Aseptic Tannic Acid Treatment of Diffuse Superficial Burns, J. A. M. A. **101**: 1136 (Oct. 7) 1933.

LATE THERAPY

As a rule, within seven to fourteen days the edge of the eschar starts to loosen and curl up. If the burn is no deeper than second degree, epithelium creeps in from the sides and from residual islands beneath the eschar, covering the burned area. As the eschar loosens, it is trimmed away and gentian violet is applied. If purulent material collects under a portion of the eschar, the eschar is removed locally and that part of the burn is painted with gentian violet several times a day. Following this routine carefully, we have seen no spread of the infection under the eschar.



Fig. 7.—H. S.; the clean granulating surface is ready for skin grafting six and a half weeks after the burn

After three weeks we assume that the remaining eschar covers third or deep second degree burns and that spontaneous epithelization will not occur. This densely adherent eschar therefore is removed to allow the formation of granulation tissue. At first we applied compresses to all eschars, feeling that this was the simplest manner of removing them. Many patients, however, still had adherent eschar even after two weeks of this treatment, so, although we still remove small areas by means of compresses, for large areas we favor excision of the eschar with the patient under light anesthesia. If necessary we combat operative shock by preoperative transfusion. After the eschar is removed, the burned area is treated as a wound and the formation of granulation tissue is encouraged in preparation for the grafting of skin.

Present day advertising may mislead the inexperienced to feel that the qualities of certain products are sufficient to heal a burn during this stage. Although this may be true of minor burns, it is never true of severe burns; these always result in wounds denuded of epithelium and must be treated as such.

It is extremely important to anticipate and combat late complications such as anemia, septic toxemia and contractures. If large granulating areas are present for a long time, the patient soon presents a picture of exhaustion despite an abundant diet and transfusions. The best means of preventing such difficulties is to graft skin over all granulating areas as soon as feasible.

Preparation for grafting is carried out by means of daily tub baths, the application of saline compresses and saline jelly and the use of diluted solution of sodium hypochlorite or azochloramid. We have found the last to be of considerable value in treating large infected granulating areas. Only one dressing is required daily, and the patient usually shows an increase in appetite, requires fewer sedatives and shows an improvement in morale as compared with those who have several painful changes of dressings each day. We feel that the lives of many of our most severely burned patients have been saved by this method.

Whenever possible we recommend the covering of granulating areas by grafts of intermediate thickness, after the method of Blair and Brown [13] (fig. 3). With very large areas it may be impossible to use this type of graft because of insufficient donor skin. In such cases we use the small deep grafts of Davis [14] (fig. 4).

Patients who are recovering from severe burns do not tolerate a great deal of surgical work. For those showing exhaustion one must plan short procedures with light anesthesia, often preceded by transfusions.

In the correction of healed contractures —which frequently cannot be prevented— every attempt is made to use grafts of intermediate thickness for repair.[15] Although this type of graft has limitations, it is amazing how frequently and efficaciously it may be used, and by this method many involved extensive procedures may be avoided. We have found that only a small proportion of our patients require the use of grafts of the full thickness of the skin or pedicles of skin and subcutaneous tissue.

REPORT OF CASE

H. S., a girl aged 7 years, was admitted to the University of California Hospital Feb. 2, 1937, with severe burns over the right side of the thorax, axilla and abdomen. Immediately after the accident (8:15 p. m.) she was rushed to an emergency hospital, where a tannic acid and merthiolate jelly (amertan) was applied and a sedative given. She entered the University of California Hospital an hour later, in shock, and was wrapped in a sterile sheet and hot blankets. Having sufficiently recovered from shock by 10:30 p. m. (two and a half hours after the burn) she was placed in a tannic acid bath for about ninety minutes. During this time she was completely relaxed and free from pain. The bath was changed three times before débridement was complete.

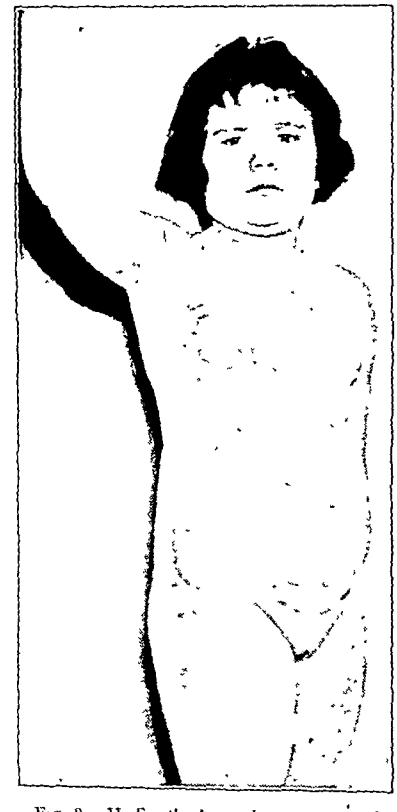


Fig. 8.—H. S.; the burned area is entirely healed two weeks after the application of split grafts and two months after the burn.

She was dried with sterile towels and painted with a 10 per cent solution of silver nitrate followed by a 1 per cent aqueous

13. Blair, V. P., and Brown, J. B.: The Use and Uses of Large Split Skin Grafts of Intermediate Thickness, Surg., Gynec. & Obst. **49**: 82 (July) 1929.

14. Davis, J. S.: The Small Deep Graft, Ann. Surg. **89**: 902 (June) 1929; **91**: 633 (April) 1930.

15. Blair, V. P.; Brown, J. B., and Hamm, W. G.: Early Care of Burns and Repair of Their Defects, J. A. M. A. **89**: 1355 (April 16) 1932.

solution of gentian violet. Within half an hour her eschar was complete and she was placed on a sterile sheet, naked under a cradle from which was suspended an electric light bulb (fig. 5). It was computed that she had suffered second and third degree burns of 20 per cent of the total surface of the body.

During this period fluids were forced by mouth and a clysis of 500 cc. of Ringer's solution was given, as well as a transfusion of 350 cc. of whole blood. The hemoglobin content was 110 mg. and the plasma chloride content 495 mg. per hundred cubic centimeters of blood. The red blood cell count was 6,000,000. Two days later the plasma chloride content was 574 mg. Urinalysis gave consistently negative results throughout her stay in the hospital.

For the first few days her temperature and pulse rate remained somewhat elevated. Within seven days after the burn there had developed a mild secondary anemia which improved after a transfusion of blood. The eschar began to lift at the edges by the seventh day. The elevated portions were trimmed away and the adherent edges were painted with gentian violet. On the twenty-fourth day the remaining eschar (about 35 per cent) was removed with the patient under light anesthesia (fig. 6).

After the removal of the eschar, she was placed in a tub bath for two or three hours each day for nineteen days before her granulations were considered clean enough to permit the grafting of skin. After each tub bath the granulating areas were dressed with strips of fine mesh gauze, 4 by 8 inches in size, saturated with a mixture of one part of azochloramid in glyceryl triacetate (triacetin) to three parts of Peruvian balsam. We have found that one dressing of this mixture daily is adequate to prevent infection. For two days before grafting, compresses of physiologic solution of sodium chloride were applied to the area.

On the nineteenth day after the removal of the eschar, four large split grafts were removed from the left thigh by the Blair method and sewn into the defect on the thorax (fig. 7). A spica bandage of dressings, gauze roll bandages and wide adhesive tape was sufficient for immobilization. Rubber tubes were included in the dressings to allow the introduction of warm saline solution. The dressings were changed for the first time on the third day; then daily dressings were done, pressure being reapplied for seven days. The patient was discharged from the hospital March 28, eleven days after the grafting was done and fifty-five days after the burn (fig. 8). One month after discharge, the motions of the shoulder girdle were normal.

SUMMARY

1. The prognosis of severe burns in children is so uncertain that all children with such burns should be hospitalized promptly.

2. The mortality of burns has been lessened greatly because of the improved therapy now in use.

3. The use of unguents in the treatment of severe burns has been condemned.

4. The tannic acid bath, silver nitrate and gentian violet method is the treatment of choice for the early local treatment of burns.

5. A review of the literature reveals experimental and clinical evidence to suggest that infection rather than absorption of toxic products is the cause of late toxemia in cases of burns.

6. Few constitutional changes occur if infection is prevented by the early formation of a sterile eschar.

7. The early grafting of skin over granulating areas is urged for the prevention of septic toxemia and contractures.

8. The use of grafts of intermediate thickness (Blair) is recommended whenever possible.

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FRACTURES OF THE SPINE COMPLICATING METRAZOL THERAPY

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Convulsive therapy was first advanced by Ladislaus von Meduna of Budapest, Hungary. He conceived this form of therapy on the basis of reports as to the infrequency of the occurrence of both epilepsy and schizophrenia in the same individual and the fact that patients known to have schizophrenia had greatly improved or had recovered when spontaneous epileptic seizures developed. Meduna [1] said "The theoretical basis for the therapy with cardiazol lies in the assumption that a certain biochemical antagonism exists between the convulsive state and the schizophrenic process."

Meduna first experimented with animals, producing convulsions by injecting camphor. Jan. 2, 1934, he gave his first injection of a 25 per cent solution of oleum camphoratum to a patient for the purpose of producing a convulsion. He [2] found one patient in whom he could not produce a convulsion with camphor, so metrazol (cardiazol) was substituted. Cardiazol, or metrazol, is an analeptic, and these are the European and American trade names, respectively, for pentamethylentetrazol, which was synthesized by Prof. K. F. Schmidt [3] of Heidelberg, during experiments directed at the synthesis of water-soluble substances having the therapeutic properties of camphor. Meduna's [2] report on the result of cardiazol therapy with twenty-six schizophrenic patients was submitted for publication in January 1935.

The treatment was first introduced to this country by Dr. Emerick Friedman [4] of Buffalo City Hospital, who reported a series of twenty cases at the meeting of the American Psychiatric Association in May 1937. In November 1937 Kennedy [5] gave a report of 1,000 cases that had been treated throughout Europe. Several hundred cases of metrazol treatment have been reported in this country, and we have had verbal reports of at least 200 cases that have not appeared in the literature. With the rapidly increasing popularity of this form of therapy, it would seem reasonable to assume that as many as 4,000 patients have received some form of convulsive therapy.

Since Nov. 18, 1938, seventeen patients (three males, fourteen females) have received metrazol therapy at Butler Hospital. The number of convulsions produced in each case has varied from two to fifteen, with a total of 117 convulsions for the entire group. Eight of the patients treated have complained at some time of pain in the back. Such complaints have occurred most frequently after the first or second convulsion, although one patient did not complain of pain until three weeks

From Butler Hospital.

1. von Meduna, Ladislaus: The Significance of the Convulsive Reaction During the Insulin and Cardiazol Therapy of Schizophrenia, J. Nerv. & Ment. Dis. 87: 133-139 (Feb.) 1938.

2. von Meduna, Ladislaus: Versuche über die biologische Beeinflussung des Ablaufes der Schizophrenie, Ztschr. f. d. ges. Neurol. u. Psychiat. 152: 235-262, 1935.

3. Schmidt, K. F., cited by Kennedy.[5]

4. Friedman, Emerick, cited by Walk and Mayer-Gross.[6]

5. Kennedy, Alexander: Convulsion Therapy in Schizophrenia, J. Ment. Sc. 83: 609-629 (Nov.) 1937.

after treatment was discontinued. This symptom has varied from slight discomfort to severe pain. Several of the patients have exhibited localized tenderness to light percussion over the involved portions of the spine. Only one patient complained of severe pain, and this was of short duration. This patient also presented evidence of having difficulty in body movements and, the first for whom roentgenograms were made, presented symptoms more severe than those observed in any other patient. The roentgenograms showed compressed fracture of the eleventh and twelfth dorsal vertebrae. This was considered a rare and unfortunate occurrence, the first of its nature reported in the history of metrazol therapy. However, subsequent x-ray examinations revealed compressed fractures of the dorsal spine in all patients who had complained of backache.



Fig. 1 (case 1).—Obvious compression fracture of the body of the twelfth dorsal vertebra, upper portion, with zone of increased density; slightly compression of the anterior inferior portion of the body of the eleventh vertebra, and slight kyphosis.

A brief report on the patients complaining of pain in the back, with a report of the x-ray examinations, will best convey the problem that is being called to the attention of those employing convulsive therapy.

REPORT OF CASES

CASE 1.—A. L., a man aged 48, who had three convulsions, the first Nov. 30 and the last Dec. 7, 1938, complained after the first convulsion of slight pain in his back, which increased after the second treatment. Immediately after the third convulsion, while still very confused, he gave evidence of experiencing severe pain. This lasted for approximately thirty minutes, with occasional attacks in decreasing frequency for three hours. At this time the pains were localized high over each lumbar region several inches from the midline. The patient refused to stay in bed after the first six hours and presented symptoms simulating lumbago. There was a subsidence of symptoms from day to day. When closely questioned, the patient spoke of transient pain in the anterior abdominal wall. It was for this reason that an x-ray examination was made December 15.

Physical and neurologic examinations revealed a questionable rigidity of the muscles of the back and patchy areas of mild hyperesthesia over the twelfth dorsal root distribution bilaterally, most noticeable on the right.

On x-ray examination December 15 the body of the eleventh dorsal vertebra showed a partial compression fracture of the anterior portion inferiorly. There was definite buckling near the anterior-inferior angle, with localized condensation of the bone. The body of the twelfth dorsal vertebra showed a more extensive compression fracture, with definite concavity of the upper surface and a uniform diffuse zone of condensation extending across the entire upper surface. The anterior margin of the body of the twelfth vertebra was distinctly lower than the posterior margin. Likewise the vertical margin on the left was narrower than the corresponding right margin. There was slight lateral scoliosis at the junction of the eleventh and twelfth bodies in the anteroposterior views. In the lateral views, there was slight but distinct kyphosis at the same level, with definite narrowing of the anterior and particularly the posterior portion of the intervertebral space. No other evidence of fracture or dislocation could be seen in the vertebrae examined. The posterior portions of the lower five ribs appeared to be intact.

CASE 2.—J. O., a woman aged 30, who had her first convulsion Nov. 23, 1938, and her fifteenth and final one Jan. 16, 1939, occasionally mentioned interscapular pain in the back after the first or second treatment. During the second and third weeks in January her complaints became more pronounced, for the most part being expressed just before treatments, when she was somewhat apprehensive. January 20 the patient mentioned pain in the anterior part of the chest, for which reason treatment was omitted that day. In response to later questioning on the same day, all symptoms were minimized, the patient being unable to state definitely in which chest wall the pain was experienced. She thought x-ray examination unnecessary.

Physical examination gave negative results. Neurologic examination revealed patchy areas of slight hyperesthesia over the sixth and seventh dorsal root distribution.

On x-ray examination January 20 the fourth and fifth dorsal vertebrae showed slight compression fractures of their bodies, with definite irregular condensation just below the superior surface of each body. The body of the sixth dorsal vertebra had a compression fracture of somewhat greater degree. There was a definite wedge formation of this body, with a narrow anterior vertical margin. This body also presented a zone of increased density just below its superior surface. The body of the seventh dorsal vertebra showed a slight compression fracture along its upper part, with irregularity of the superior surface and a zone of increased density below it. This vertebra showed a slightly lower lateral margin on the left side as compared with the right. The fifth body, on the other hand, showed a narrower right margin as compared with the left. There was slight kyphosis in this region centering at the level of the wedge-shaped sixth body. There was also moderate S-shaped lateral scoliosis in this region, with slight rotation. The intervertebral spaces did not seem to be appreciably changed in size, although there was slight narrowing anteriorly.

The remaining upper and lower dorsal vertebrae did not show any evidence of fracture, dislocation or other bony injury. The bony portions of the ribs also appeared to be intact.



Fig. 2 (case 2).—Compression fractures of the bodies of the fourth, fifth, sixth and seventh dorsal vertebrae, all showing concavity with zones of increased condensation in the upper portions. The body of the sixth vertebra shows distinct wedge shape.

CASE 3.—E. O., a woman aged 41, who had two convulsions, Jan. 13 and Jan. 20, 1939, complained of slight interscapular pain for three or four hours after the first treatment.

After the last seizure she complained of the same pain and has continued to experience some discomfort.

Physical and neurologic examinations gave negative results except to reveal some tenderness to slight percussion over the upper part of the dorsal spine.

On x-ray examination January 23 the bodies of the fifth and sixth dorsal vertebrae showed slight compression fractures of their superior portions. There was irregularity along the superior surfaces of both bodies, with a slight localized increase of calcium deposition. The process was slightly more marked in the fifth body. The anterior portions of the interspaces

between the fourth, fifth and sixth vertebrae showed slight narrowing. No other fracture or dislocation could be detected in the dorsal vertebrae. The ribs also appeared to be intact.

CASE 4.—L. G., a woman aged 31, who had a total of eleven convulsions from Nov. 18 to Dec. 23, 1938, began early in the course of treatment to complain of interscapular pain in her back. After treatment was discontinued she mentioned that about the only time she noticed pain was when playing the piano for long periods. This patient was discharged from the hospital Jan. 17, 1939.

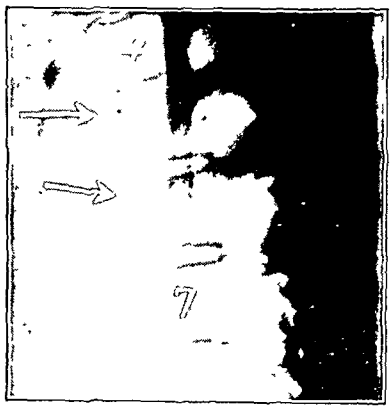


FIG. 3 (case 3).—Slight compression fracture of the superior portion of the body of the fifth dorsal vertebra and probable compression fracture of the upper portion of the body of the sixth vertebra.

Because of the fractures discovered in other cases of pain in the back, she was called into the hospital. The history while she was out of the hospital was that on turning her trunk she occasionally experienced discomfort.

Physical and neurologic examinations gave negative results.

On x-ray examination January 24 the bodies of the fifth and seventh dorsal vertebrae showed definite compression fractures. Both these bodies showed wedge formation, which was slightly more apparent in the seventh. There was a distinct increase in calcium deposition just below the superior margin of the seventh body, indicating slight reparative reaction. Slight narrowing was seen in the anterior portions of the intervertebral spaces from the fourth to the seventh vertebrae. Slight kyphosis was noted on the lateral view. The remaining dorsal vertebrae and the ribs showed no evidence of fracture, dislocation or other bony injury.

CASE 5.—L. S., a woman aged 48, who had five convulsions between Dec. 9 and Dec. 30, 1938, during this time complained of backache. She was discharged Jan. 3, 1939. A member of the hospital personnel visited her home January 12 and reported that she was complaining of pain in her back. On account of this she was called into the hospital January 24.

Physical and neurologic examinations gave negative results.

On x-ray examination January 24 the body of the fifth dorsal vertebra presented a definite but slight compression fracture involving the superior portion chiefly. There was a definite decrease in the vertical height of the body, with a slight bulging at the anterior superior margin. There was a zone of increased calcium deposition just below the superior surface. This indicated a slight reparative reaction. The superior surface of the body of the sixth dorsal vertebra showed slight irregularity and increased thickening, suggesting a probable slight compression fracture. The interspaces between the fourth, fifth and sixth vertebrae showed slight narrowing anteriorly. There was no definite kyphosis. The remaining dorsal vertebrae showed no evidence of definite bony injury or disease. The ribs all appeared to be intact.

CASE 6.—A. H., a woman aged 52, who had three convulsions Jan. 13, 16 and 20, 1939, for the first time on January 24 mentioned having pain in her back, which she attributed to a mild infection of the respiratory tract. In response to questioning January 26, she showed little concern but admitted having noticed a disturbance after each treatment and described it as discomfort with no definite pain. The greatest discomfort was observed when she was sitting to have her hair dressed.

Physical and neurologic examinations gave negative results.

On x-ray examination January 27 the body of the seventh dorsal vertebra showed a distinct compression fracture of its upper portion, with definite but slight wedge formation. The anterior surface of this body was slightly lower than the posterior surface. The superior surface was irregular and just below it was a zone of slightly increased density. In one of the lateral views the superior surface of the body of the sixth dorsal vertebra seemed slightly irregular and suggested the possibility of slight compression. The evidence, however, was not definite. The remaining dorsal vertebrae and the ribs showed no evidence of definite fracture or other bony injury.

CASE 7.—D. D., a woman aged 35, who had eleven convulsions from Nov. 23, 1938, to Jan. 30, 1939, spoke on a few occasions of her back hurting during the first part of the treatment. Both January 24 and 26 she denied having any pain in the back except slight discomfort in the early morning.

Physical and neurologic examinations gave negative results.

On x-ray examination January 27 the bodies of the fifth and sixth dorsal vertebrae showed compression fractures involving their upper portions. There was definite concavity of the superior surfaces of both of these bodies, with a definite zone of condensation adjacent. The concavity was more pronounced in the body of the sixth vertebra, which also showed slight wedging. The anterior surface of this body was definitely lower in height than the posterior surface. Slight kyphosis was visible in the lateral view, centering at the level of the body of the sixth vertebra. The remaining dorsal vertebrae did not show any positive evidence of bony injury. The ribs likewise appeared to be intact.

CASE 8.—L. G., a woman aged 48, who had eight convulsions from Nov. 18 to Dec. 23, 1938, made no complaint whatever and was discharged from the hospital Jan. 3, 1939. Her husband, while on a business visit to the hospital January 28, casually mentioned that his wife had some pain in her back and sides which was attributed to unaccustomed housework and digestive disturbance.

Physical examination disclosed slight tenderness over the lower half of the dorsal spine. It has as yet been impossible to have the patient in for neurologic examination.

On x-ray examination January 28 the tenth dorsal vertebra showed a very marked compression fracture of its body, with considerable wedge formation, the anterior surface being approximately two thirds the height of the posterior surface. There was considerable condensation in the upper half of the body, especially close to the compressed superior surface. There was likewise definite anterior bulging in the neighborhood of the anterior superior angle. The left margin of the body was distinctly lower in height than the right margin. The interspace between the ninth and tenth vertebrae appeared to be slightly narrowed, especially anteriorly. The seventh dorsal vertebra showed a partial compression fracture involving its superior surface, with concavity and slight condensation just below the surface. The remaining dorsal vertebrae did not show any evidence of fracture, dislocation or other bony injury. In the lateral views there did not appear to be any obvious kyphosis at the level of the injured tenth vertebra.

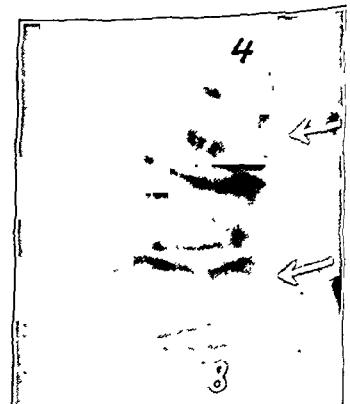


FIG. 4 (case 4).—Compression fractures of the bodies of the fifth and seventh dorsal vertebrae. Both show slight wedge formation but especially the seventh. There is slight kyphosis.

With the cases as reported, it is seen that in 100 per cent of all cases in which there was a complaint of pain in the back there was definite pathologic change of traumatic origin in one or more dorsal vertebrae. Of the seventeen patients treated, these represented all who complained of pain in the back (47 per cent); none of the other patients had x-ray studies. There had

been no variation of the usual procedures in this series which would account for any greater occurrence of such complications. However, I have not heard of any one previously reporting observations of this nature.

Walk and Mayer-Gross [6] reported: "The more severe injuries which we have found recorded, and all of which occurred with cardiazol (metrazol), are fractures of the neck of femur, including one bilateral case (Kerstens); various fractures of the humerus, again including one bilateral case (Kraus); fractures of the scapula (Briner); dislocations of the shoulder and of the jaw." In addition we have heard of cases of fractures of the transverse processes of the spinal vertebrae.

The literature occasionally mentions the presence of pain in the back but gives no special attention to it; e. g. Briner,[7] "Sometimes muscle cramps appear, predominantly in the back"; Walk and Mayer-Gross,[6] "In others the complaint was of pains in the limbs, back or head, persisting after recovery from the fit," and Kennedy,[5] "Patients who can cooperate say that they are tired and sometimes complain of backache." We have heard verbal statements to the effect that a large percentage of all patients have complained of pain in the back.

The end result and associated complications of the condition here reported are yet to be seen. As a late complication, even with some of the patients who might not have sustained a fracture, symptoms resulting from a herniated or ruptured intervertebral disk will have to be considered. Mixter and Ayer [8] in reporting what was considered a typical case history of herniation of a disk into the lumbosacral canal said: "The present symptoms are similar to pain experienced six years ago which came on suddenly when lifing a heavy bale of cloth, necessitating bed rest for five weeks. In the intervening four years he has been well and active." Walsh and Love [9] noted an intermittence of symptoms in 86 per cent of cases of protrusions of the lumbar disk, the average duration of symptoms before operation being six years.

In view of the relatively short period during which convulsive therapy has been employed, the average delay in the occurrence of distressing symptoms due to herniation of an intervertebral disk and the demonstrable pathologic change in the cases here reported, the possibility of damage to the intervertebral disk cannot be discarded. It would be interesting as well as beneficial to make iodized oil and spinal fluid protein studies to determine the absence or presence of any disk herniation. Also, an x-ray examination of metrazol-treated patients not complaining of pain in the back would be of interest in comparison with these that have shown definite changes in the vertebral bodies.

This preliminary report directs attention to a previously undescribed condition, compression fracture of the vertebrae resulting from metrazol convulsive therapy. The problem of combating this detrimental feature of an otherwise beneficial therapy in the treatment of mental illness is being studied with orthopedic and roentgenologic consultants, and the results obtained will be presented in a later contribution.

6 Walk, Alexander, and Mayer Gross, W.: Observations on Convulsion Therapy with Triazol, J. Ment. Sc. **84**: 637-663 (Sept.) 1938.

7 Briner, Otto: Results of Convulsion Therapy in the Psychiatric Clinic in Berne, Am. J. Psychiat. **94**: 167-171 (May Supplement) 1938.

8 Mixter, William J., and Ayer, James B.: Herniation or Rupture of the Intervertebral Disk into the Spinal Canal, New England J. Med. **213**: 385-393 (Aug. 29) 1935.

9 Walsh, M. N., and Love, J. G.: Proc. Staff Meet., Mayo Clin. **13**: 203-205 (March 30) 1938.

COMMENT

By Dr. Isaac Gerber (consultant roentgenologist to Butler Hospital): Compression fractures in the upper half of the dorsal spine are relatively uncommon. In this group of eight cases, a complete series of stages in the production of compression fracture has been obtained. The fractures vary from the very obviously advanced compression seen in cases 1 and 8 to the very minimal changes observed in case 6. Some of the changes were so slight as to warrant a label of questionable (body of the sixth dorsal vertebra in case 5). In all cases, however, at least one vertebral body showed characteristic injuries sufficient to warrant a positive diagnosis of compression fracture of some degree.

At first it was thought that the extent of injury to the dorsal vertebrae was proportional to the number of convulsions produced. Patient 2, for example, who had fifteen convulsions, had the widest extent of damage, covering four vertebrae. Likewise patient 3, with two convulsions, showed only slight changes in two adjacent vertebrae, which could easily have been overlooked. More careful analysis, however, showed that one of the most advanced lesions occurred with only three convulsions (case 1). It seems probable therefore that the severity of the individual convulsions may be as important as the number.



Fig. 5 (case 8).—The body of the tenth dorsal vertebra shows a marked compression fracture with considerable wedge formation. The body of the seventh vertebra shows partial compression of the superior surface with definite concavity and slight condensation just below the surface.

The mechanism of the force producing these fractures consists of repeated violent flexions of the body with both the clonic and the tonic convulsions. The concavities noted on the upper surfaces of many of the damaged bodies are probably due to pressure from the nucleus pulposus in the intervertebral disk.

The production of repeated trauma to the vertebral bodies by a series of closely spaced convulsions constitutes a state very much resembling the supposed etiologic factor in the production of Kümmell's disease. This disease is a peculiar osteitis of the vertebral body with wedge-shaped deformity, which at present is believed to result from repeated strains or slight trauma. Further consideration will have to be given to this aspect in the closer analysis and study of these cases, which will be made later.

By Dr. Henry F. McCusker (visiting orthopedist at Rhode Island Hospital): In this series, the majority of the fractures occurred in an uncommon location, the level of the fifth, sixth and seventh dorsal vertebrae. Compression fractures of the bodies of the dorsal verte-

brae usually occur in the upper five or in the lower three vertebrae. The usual precipitating trauma is a fall with the spine thrown into sharp anterior flexion, the jackknife position. In those convulsions which I have observed, the forward flexion occurring during the clonic phase appeared neither violent nor of sufficient range to be termed jackknifing. Whether these fractures were caused by trauma during a single convulsion or were the end result of repeated trauma suffered during successive convulsions cannot be answered with any degree of certainty, but symptoms referable to the back occurred early in the course of treatment in several of the cases. Incidentally, it should now be apparent that careful x-ray examination should be made in every case no matter how slight the backache. The slight symptom alone may deceive the physician as to the presence of this serious lesion.

Because of the high incidence of these fractures occurring during treatment, some method must be devised to control the motions of the spine during the convulsive state. A modification of the curved Bradford frame to which the patient can be strapped is now under consideration, but the details have not yet been worked out completely. Until the patient can be protected by adequate apparatus this form of treatment must necessarily be suspended.

The majority of the cases here reported show but slight disability from the spinal lesion. At this time it is impossible to prophesy what late results may ensue, such as the formation of definite kyphosis due to further collapse of the involved vertebral bodies (Kümmell's disease) or further narrowing of the intervertebral spaces with consequent symptoms due to disturbance of the intervertebral disks. X-ray reexamination every three months at least will be required until complete healing of the fractures has occurred.

SUMMARY

1. Seventeen patients were treated, eight of whom complained of backache.

2. All patients complaining of pain in the back, regardless of its mildness, showed x-ray evidence of compressed fractures and constituted 47 per cent of the patients treated.

3. Pain usually appears early in the course of the treatment, though in one of the eight cases it did not develop until three weeks after the treatment had been discontinued.

4. Slight tenderness on percussion of spinous processes was present in some of the cases.

5. Patients 1, 2 and 8 presented symptoms suggestive of root pain, patients 1 and 2 having ill defined areas of hyperesthesia. Circumstances have prevented examination of patient 8.

6. Disabling effects are practically nonexistent only patient 1 showing evidence of disability, and this being slight.

7. It is questionable whether the fractures are the result of a single severe convulsion or repeated convulsions.

8. The question of late complications resulting from herniation or rupture of the intervertebral disk cannot as yet be answered.

9. All fractures here seen were confined to the dorsal vertebrae.

TRAUMATIC COMPLICATIONS OF CONVULSIVE SHOCK THERAPY

A METHOD OF PREVENTING FRACTURES OF THE SPINE AND LOWER EXTREMITIES

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AND
A. E. BENNETT, M.D.
OMAHA

Convulsive shock therapy has been employed for several years in the treatment of severe psychoses without sufficient attention being paid to undesirable complications.[1] We are reporting seven cases of spontaneous fractures which have occurred during the convulsions induced by metrazol (pentamethylenetetrazol). We shall also suggest a procedure for preventing most of these catastrophes.

Lehndorff [1a] was the first to report fractures resulting from the severe muscular contractions associated with tetanus. Later Sonntag [2] reported fractures of the elbow and dislocations of the shoulder, Baisch [3] discussed fractures of the femoral neck and Wilhelm [4] described fractures of the forearm. All these fractures occurred during tonic convulsive seizures of tetanus. Roberg [5] made a comprehensive study of the spinal changes and concluded that the forces exerted by tetanic muscular contractions produced compression fractures of the midthoracic vertebral bodies, usually those of the fifth and sixth vertebrae, in definite contrast to ordinary traumatic compression fractures, which center about the body of the first lumbar vertebra.



Fig. 1 (case 1).—Impacted fracture of the right femoral neck.

The muscular contractions associated with tetanus are comparable to those induced by convulsive shock therapy as used in the treatment of psychoses. Meduna and Friedman [6] recently collected 3,000 cases of shock therapy and found that in 1.1 per cent there was evidence of "mechanical complications." No mention,

Read before the Central Neuropsychiatric Hospital Association, Chicago March 17, 1939.

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1. Since our report was submitted for publication an important contribution has been made by Polatin, Philip; Friedman Murray M., and Harris, Meyer M.: Vertebral Fractures Produced by Metrazol Induced Convulsions, J. A. M. A. **112**: 1684-1687 (April 29) 1939.

1a. Lehndorff, Heinrich: Deformitaten der Wirbelsäule und der Rippen im Verlaufe eines schweren Tetanus, Wien. med. Wchnschr. **67**: 2477 2489, 1907.

2. Sonntag, Erich: Die bisherigen Erfahrungen ueber den Wundstarrkrampf in dem jetzigen Kriege, Ergebn. d. Chir. u. Orthop. **10**: 1-6, 1918.

3. Baisch, K.: Fall von chronischem Tetanus, Deutsche med. Wchnschr. **42**: 1624-1626, 1917.

4. Wilhelm, Theodore: La cyphose tétanique, J. de chir. **22**: 293 (Oct.) 1923.

5. Roberg, O. Theodore: Spinal Deformity Following Tetanus, J. Bone & Joint Surg. **19**: 603-629 (July) 1937.

6. von Meduna, Laszlo, and Friedman, Emerick: The Convulsive Irritative Therapy of the Psychoses, J. A. M. A. **112**: 501-508 (Feb. 11) 1939.

however, was made of the nature or severity of these complications. From our own experiences, we are convinced that in this form of therapy injuries to the skeletal system occur much more frequently than is generally appreciated. The fact that psychotic patients are often uncooperative may contribute to the recognition of only major accidents. Since we have encountered three fractures in a series of some 800 shock treatments, a restudy is being made of some of the

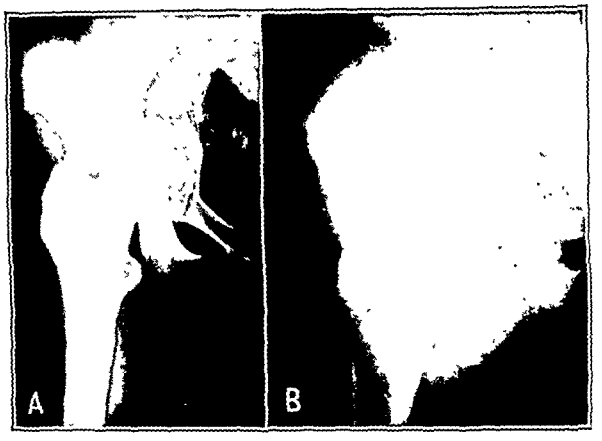


Fig. 2 (case 2).—*A*, fracture of the right acetabulum with intrapelvic dislocation of the femoral head. *B*, appearance after reduction, showing an additional chip fracture of the femoral head.

earlier cases, and old fractures and injuries are being found. We believe that the frequent complaints of backache after treatment formerly thought to be muscular in origin very likely are from vertebral trauma, e. g. in cases 3 and 4. A high incidence of fractures will naturally deter the use of this very valuable procedure. Metrazol has proved most useful in the treatment of severe depressive psychoses.[7] The problem is so important that preventive measures must be devised if the treatment is to survive.

The following cases are representative of the mechanical accidents that can occur during a metrazol shock. All treatments were given by neuropsychiatrists who are thoroughly familiar with this form of therapy and in institutions well equipped for such procedures.

CASE 1.—A man aged 22, given a course of insulin shock therapy for catatonic schizophrenia in September and October 1937 and, because of a mild relapse, one metrazol shock October 26, was subsequently discharged in spite of a vague ache in the right hip. On return examination, November 3, he was still not using or bearing weight on the right leg. Physical examination revealed the right leg in 15 degrees external rotation and 20 degrees flexion contracture, the right leg three-fourths inch shorter than the left, the trochanter above Nelaton's line and axial compression of the femur painless. Roentgenograms of the pelvis disclosed an impacted fracture of the right femoral neck in 20 degrees varus, the lateral view showing good alinement (fig. 1).

CASE 2.—A woman aged 21, with hebephrenic schizophrenia, was given a fourth metrazol shock Feb. 12, 1939, and during the convulsion a crumbling sound was heard, referred from the pelvis. Physical examination disclosed a narrowed right hip area, with depressed trochanter and three-fourths inch shortening of the right leg. Roentgenograms revealed a fracture of the right acetabulum with intrapelvic dislocation of the femoral head (fig. 2 *A*). With the patient under avertin anesthesia, the fracture and dislocation were reduced by manipulation and strong fracture table traction as described by Orr.[8] Roentgenographic recheck gave satisfactory results, showing an additional chip fracture of the femoral head (fig. 2 *B*). A steel pin was inserted through the proximal crest of each tibia and immobilization carried out with a double hip spica cast. Thirty pound traction to a cross bar was instituted. Subsequent studies of the blood showed calcium 10.9 mg. and phosphorus 3.5 mg.

CASE 3.—A man aged 36, given two metrazol shocks for a depressive psychosis, had severe pain in the upper part of the back, aggravated by coughing, sneezing and deep breathing, after the second treatment. At physical examination he was tender along the muscles of the back on both sides of the spinous processes from the fourth to the tenth thoracic vertebra. The spinous processes were tender, and pain was produced on contraction of the serratus magnus and the trapezius muscles bilaterally. The impression given was that these muscles had been strained. Short wave heat therapy and a tight chest binder with shoulder straps were used. The patient returned Feb. 21, 1939, with the pain in the back unchanged. Roentgenograms disclosed moderate compression fractures of the sixth and seventh thoracic vertebral bodies (fig. 3). A Bohler hyperextension plaster cast was applied, with relief of symptoms. Subsequent studies of the blood showed 11.9 mg. of calcium and 3.5 mg. of phosphorus.

CASE 4.—A man aged 31, with reactive depression of nine months' duration, was given three metrazol shocks. Persistent pain in the back followed treatment, with radiation around the right side of the chest. Roentgenograms disclosed slight compression of the fifth and sixth thoracic vertebral bodies, with a small chip fracture (fig. 4).

CASE 5 (Dr. W. L. Sucha).—A man aged 53 was treated for paranoid schizophrenia by means of metrazol shock. During the sixth shock, Dr. Sucha heard a crunching sound in the pelvis. Roentgenograms disclosed an intrapelvic dislocation of the left femoral head secondary to a fractured acetabulum, a duplicate of that shown in figure 2.

CASE 6 (Dr. J. W. Martin).—A woman aged 42 was having her twentieth metrazol shock for a manic-depressive psychosis when a soft grating was heard, apparently coming from the right shoulder. Roentgenograms disclosed an avulsion fracture of the lesser tuberosity (fig. 5).

CASE 7 (Dr. W. L. Sucha).—A woman aged 49 during a second metrazol shock, Aug. 17, 1939, sustained a supracondylar fracture of the femur (fig. 6).

CASE 8 (Dr. W. L. Sucha).—A man aged 23, six months before treatment had sustained a severely comminuted fracture of the elbow. During shock treatment April 15, 1938, the elbow was refractured.



Fig. 3 (case 3).—Moderate compression fractures of the sixth and seventh thoracic vertebral bodies.

One might well ask Is some predisposing factor, unrecognized at present, complicating the picture in shock therapy? A plausible consideration is the possible presence of bone atrophy. Steiner[9] mentioned two middle-aged men in whom multiple pelvic fractures developed spontaneously on the basis of starvation osteomalacia. It is not unreasonable to expect moderate dietary difficulty in psychotic patients, with resultant osteoporosis, but there was no such provoca-

7. Bennett, A. E.: Convulsive Shock Therapy in Depressive Psychoses, Am. J. M. Sc. **196**: 420-428 (Sept.) 1938.

8. Orr, H. Winnett: Osteomyelitis and Compound Fractures of the Pelvis, Surg., Gynec. & Obst. **59**: 673-679 (April) 1932.

9. Steiner, P.: Hungerosteomalazie mit multiplen spontanfrakturen des Beckens, Wien. med. Wchnschr. **77**: 972 (July 16) 1927.

tive factor in any of the reported cases, as all the patients were well nourished. In cases 2 and 3, in which the value for blood phosphorus was below the adult minimum, osteoporosis may have been present and have contributed toward the severe acetabular shattering.

To relieve the body of severe stresses to which it is subjected during a therapeutic convulsion, we have instituted the following prophylactic treatment to remove the potential forces of the lower extremity and spinal flexor muscular contractions: From thirty minutes to an hour before injection of metrazol, 10 mg. of pontocaine hydrochloride[10] or 100 mg. of procaine hydrochloride dissolved in 4 cc. of spinal fluid obtained by puncture between the first and second lumbar vertebrae by means of a 22 gage needle is slowly reinjected intraspinally.



Fig. 4 (case 4).—Slight compression of the fifth and sixth thoracic vertebral bodies, with a small chip fracture.

This transient anesthesia, with complete sensory and motor paralysis of all thoracic and lumbar segments, wears off in about an hour after the convulsion. The convulsive shock ensues without contraction of the anesthetized areas. In order to reinforce the cerebral anoxic affect we prolong the period of apnea by holding the mouth and nose tightly closed for from thirty seconds to a minute after the tonic spasm is over. Since shock therapy is given every three days for about five to eight injections in the treatment of affective psychoses, the spinal anesthetic offers no serious drawback to the treatment. With the spinal and lumbar muscles relaxed, one then has only to pay careful attention to the upper extremities, and at the onset of the tonic spasm both arms are held adducted against the wall of the chest.



Fig. 5 (case 6).—Avulsion fracture of the lesser tuberosity.

For schizophrenic patients who require a larger number of metrazol shocks we have not as yet experienced mechanical complications with the technic we employ. We first induce hypoglycemic shock, at the onset of coma administer metrazol and immediately follow with the administration of hypertonic dextrose solution. The tetanic spasm seems less severe after insulin shock has set in, and this may very likely be a factor in preventing fractures with this group of patients.

Because of these hazards of treatment and for other reasons mentioned elsewhere by one of us,[7] we are still inclined to disagree with those who recommend this type of therapy for home, office or general hospital management. Only in a well equipped psychiatric department under most careful supervision can it be administered successfully and some of these serious complications be prevented.

10. Supplied by the Winthrop Chemical Company, Inc., for investigative purposes.

CONCLUSIONS

1. The muscular contractions of shock therapy may be classed with those of tetanus in their severity and subsequent pathologic change. We believe that future studies will reveal a higher incidence of fracture complications, especially spinal, than has previously been suspected.

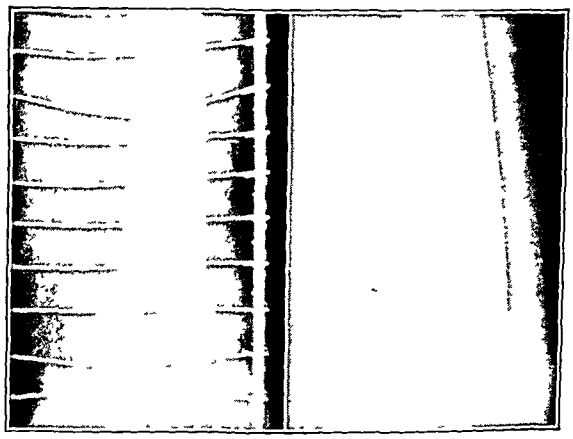


Fig. 6 (case 7).—Supracondylar fracture of the femur.

2. Preliminary studies of the blood calcium and phosphorus would indicate the presence of osteomalacia in advanced stages only.

3. Persistent pain in any region of the body following shock therapy should call for immediate roentgenologic examination.

4. Spinal anesthesia induced prior to shock therapy prevents severe fractures of the spine and lower extremities. Because of the present hazards of convulsive shock therapy, its use should be restricted to well equipped psychiatric departments.

527 Medical Arts Building.

Manson and Winged Insects.—The life of Manson may well be regarded as an epoch, for he initiated a new era in medicine, viz., the association of the spread of disease in man with the agency of winged insects. This was such a revolutionary conception that it could only be gradually accepted by the majority of the medical profession, and still more gradually by the lay public. It may be argued that there were others before the subject of this biography who had in some hazy way associated certain diseases with the presence of insect life, but there it remained more as a nebulous idea than as a concrete and proven fact. Manson did more than this: he started and fathered the teaching of a new department of medicine—Tropical Medicine—of which he is now justly regarded as the greatest master of all time.—Power, Sir D'Arcy: British Masters of Medicine, Baltimore, William Wood & Co., 1936.

PREOPERATIVE ROENTGEN DIAGNOSIS OF GALLSTONE ILEUS

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Preoperative roentgen diagnosis of intestinal obstruction due to gallstone has only rarely been recorded in the literature. In a series of 3,064 cases of intestinal obstruction reported by the British Medical Association [1] the incidence of gallstone as the causative factor was twenty-eight cases, or 0.9 per cent. In none of these cases was a diagnosis reported as having been made preoperatively. Wilms [2] reviewed the available statistics in Germany and found gallstones as the cause of obstruction in 2.1 per cent of cases. Sante [3] found four cases in 287 of obstruction of the bowel. The operative mortality varies between 40 and 50 per cent, and most surgeons believe that delay in operating is largely responsible for the high death rate. A review of the literature reveals only seven cases [4] in which a definite diagnosis of gallstone ileus was established prior to operation; these are listed in the accompanying table.

Preoperative Roentgen Diagnosis of Gallstone Ileus

Author	Sex	Age	Symptoms	Roentgen Examination (A) Following Barium Sulfate Meal (B) No Contrast Medium Given	Operation
Lüdin	♀	70	Pain, vomiting	(A) Gastric retention, distention of small bowel, opaque oval shadow corresponding to gallstone seen in small bowel	Jejunolithotomy; gallstone 4.5 cm. in diameter noted in lower end of small bowel, autopsy showed a cholecystoduodenal fistula
McWhorter	♀	63	Epigastric pain, vomiting	(B) First examination: small, spherical, dense shadow with a faint oval shadow about it	Cholecystectomy; cholecystoduodenal fistula noted, no gallstones seen
				Second examination, after increase in severity of symptoms: the same shadow noted previously in the gallbladder region was seen on the right, in the region of the ileocecal valve; bowel distention was noted	Enterostomy; gallstone in region of ileocecal valve
Brocq, Brodin and Aime	♀	50	Abdominal pain and soreness, vomiting	(A) Normal stomach, peculiar bulb with no contractive power, barium sulfate did not fill bulb uniformly but only about the periphery	Enterostomy with extraction of calculus; death 1 day later; cholecystoduodenal fistula
Crane	♂	80	Pain, vomiting, abdominal distention	(A) Large calculus in region of duodenojejunal junction, causing distention of duodenum; contrast medium noted in gall bladder, common duct and bile duct	Jejunolithotomy; gallstone removed from intestine, death resulted four days later
Kaiser	♀	55	Obscure abdominal pain	(A) Fluoroscopy showed dilated loops of small bowel filled with barium sulfate, with a filling defect in the duodenal bulb	Jejunolithotomy; stone in distal portion of jejunum; death four days later; autopsy showed cholecystoduodenal fistula
Schele	♂	64	Anorexia, distention, pain, vomiting	(A) Delayed emptying, gastric retention, duodenal dilatation; contrast medium noted in biliary ducts and gallbladder, gallstone noted in region of duodenojejunal flexure	Jejunolithotomy; roentgen examination after operation showed barium sulfate and air in gallbladder
Safwenberg	♂	79	Abdominal pain, vomiting, indigestion	(A) Fluid level, distention of small bowel, evidence of gallstone in region of small bowel surrounded by opaque medium	Enterostomy, autopsy showed cholecystojejunal fistula
	♀	60	Pain in region of kidney, vomiting	(B) Stone with concentric ring shadow lying in distended jejunal loop	Enterolithotomy; death two days later

In cases of intestinal obstruction running an obscure course, x-ray examination may often be advantageously undertaken in order to establish the diagnosis. Numerous investigators advocate x-ray examination in all cases of obstruction except those in which there is diffuse peritonitis. Thus fluoroscopic examination and a film of the abdomen in the erect position may furnish evidence of fluid levels or abnormal collections of gas. Ochsner [5] pointed out that great caution should be exercised in the oral administration of barium sulfate because of the danger of making the ileus more acute. The x-ray scout film may show the stone early, before distention of the loops of bowel has occurred. Isolation and identification of the shadow caused by the stone after distention is difficult, so that in most cases only a diagnosis of ileus of the small bowel can be made. Bécheț,[6] Guillemin,[7] Santy,[8] Vidgoff [9] and Moulonget [10] have described cases in which x-ray examination established a diagnosis of ileus and in which at operation or autopsy impacted gallstones were seen in the intestine. In addition to the usual signs of ileus, the barium sulfate meal may demonstrate the fistulous tract between the gallbladder and the bowel.

REPORT OF CASE

A white woman aged 67, admitted to the Massachusetts Memorial Hospitals March 28, 1938, complaining of nausea and vomiting for six months, stated that she had had "gallstones" for twenty-seven years. About eleven years before she had had two severe attacks of jaundice with pain in the right upper quadrant. For the past six months she had noted epi-

From the Department of Radiology, Massachusetts Memorial Hospitals, George Levene, M.D., Director

1. Report from Annual Meeting of British Medical Association, Brit. M. J. **2**: 993 (Nov. 18) 1925
2. Wilms, Max: Der Ileus, Stuttgart, Ferdinand Enke, 1906
3. Sante, L. R.: Intestinal Obstruction, Am. J. Roentgenol. **34**: 744-754 (Dec.) 1935
4. These were reported by
   Lüdin, M.: Schweiz. med. Wchnschr., 1926, p. 382
   McWhorter, G. L.: Acute Obstruction of Small Intestine Due to Gallstone, Arch. Surg. **19**: 915-921 (Nov.) 1929
   Brocq, P., Brodin, P., and Aime: Un cas d'ileus biliaire, Bull. et mem. Soc. nat. de chir. **55**: 1194-2000 (Nov. 23) 1929
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5. Ochsner, Alton: X-ray Diagnosis of Ileus, Surg., Gynec. & Obst. **56**: 719-727 (April) 1933
6. Bechet, Michael, Fournier, J., and Debreil, J.: A propos de la radiographie abdominal sans preparation dans l'occlusion intestinale aiguë, Bull. et mem. Soc. nat. de chir. **61**: 456-461 (March 30) 1935.
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8. Santy, P.: Zentralbl. f. Radiol. (ref.) 11, 1931, Stenose pyloro duodenale par migration cystico duodenale d'un volumineux calcul, Lyon chir. **28**: 376-380 (May-June) 1931
9. Vidgoff, I. J.: Acute Intestinal Obstruction Due to Gallstones, Am. J. Surg. **19**: 458-461 (March) 1933
10. Moulonget, P.: La radiographie abdominale sans preparation dans l'occlusion intestinale aiguë, Bull. et mem. Soc. nat. de chir. **60**: 1405-1412 (Dec. 29) 1934

gastric distress with the taking of food, accompanied by marked gastric eructations. Vomiting occurred every two or three days, with ejection of large amounts of food containing remnants of the previous day's meal. The patient had lost 30 pounds (13 Kg.) during the last six months.

March 23 epigastric distress became markedly increased and in the evening there was a gradual onset of pain in the right upper quadrant, radiating to the right flank and thigh. The pain increased in intensity and became so severe as to cause the patient to cry out in agony. During the night the pain diminished, the right upper quadrant and thigh, however, remaining quite tender. This episode was followed by nausea and continued vomiting of bile, mucus and fecal material. No food could be retained. In the morning March 27 and 28 there were repeated attacks of cyanosis and dyspnea.

On admission the patient appeared rational, well developed, well preserved, obese but dehydrated, and acutely ill. She was very restless and her reflexes were hyperactive. Trousseau's

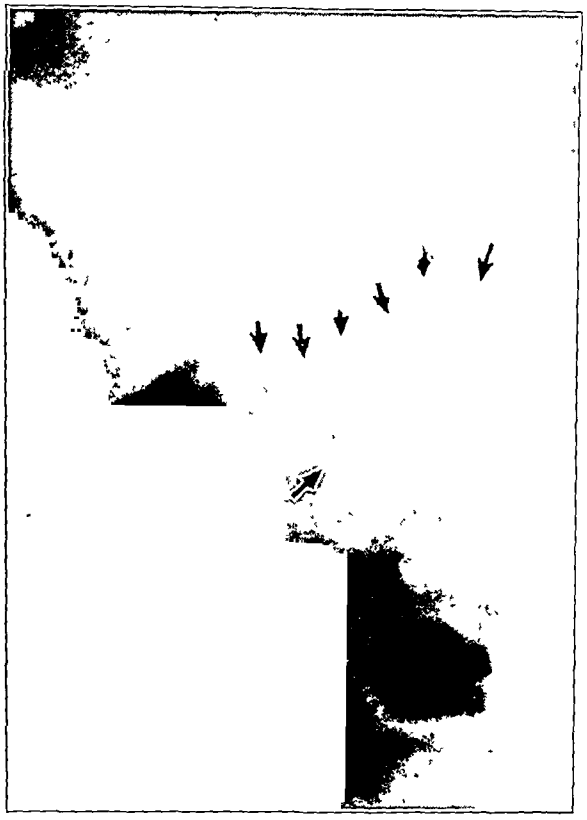


Fig. 1.—Upper right quadrant, showing gallstones. Note the gas surrounding the large stone (arrows).

sign and a carpal spasm were elicited when the cuff of the blood pressure apparatus was inflated about her arm. The respirations were slow and shallow and the lips were cyanotic. The blood pressure was 80 systolic and from 30 to 40 diastolic. The heart sounds were poor. The abdomen was obese but was not distended.

The patient was given 2,000 cc. of saline solution, and Wangensteen suction was begun. X-ray examination showed several more or less opaque circular shadows in the right upper quadrant which had the definite appearance of gallstones. The stomach showed a moderate amount of gas in the fundus, the remaining contour being defined by a small amount of gas. The large bowel could be identified by its gas content but no loops of small intestine were visualized, the absence of gas in the duodenal loop being particularly significant. Careful inspection of the film showed the gallstones in more or less compact formation with a faint halo of gas, indicating that these were contained in the same viscus. The diagnosis based on x-ray examination was obstruction of the duodenum by gallstones.

An operation performed March 31 by Dr. Milo C. Green revealed multiple stones in the fundus of the gallbladder, one large stone lying transversely in the first portion of the duodenum, approximately 1¼ inches from the pyloric sphincter. The stones were removed. After a posterior gastrojejunostomy

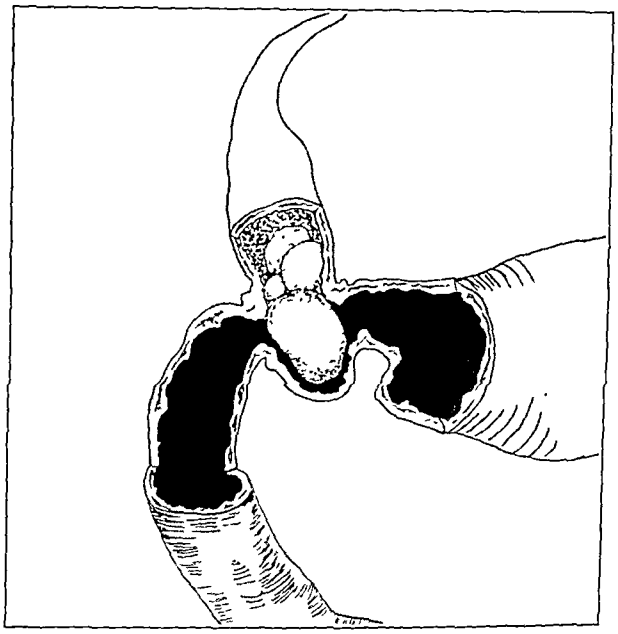


Fig. 2.—Stomach obstructed by a large single stone which has passed through the perforation in the gallbladder into the duodenum.

the gallbladder was freed from its firm adhesions to the liver. Through the stoma of the cholecystoduodenal fistula, four faceted gallstones were removed from the gallbladder and the



Fig. 3.—The stones after removal.

large single stone was extracted from the duodenum. The cholecystoduodenal fistula was then reconstructed.

The postoperative convalescence was uneventful except for the occurrence of a mild phlebitis of the left leg, which disappeared in five days.

While intestinal obstruction due to gallstones is less common than other forms of ileus, the possibility must be borne in mind since successful operation depends on early diagnosis. It is our opinion that in most cases of obstruction due to gallstones these are calcium stones. This can best be explained by the fact that perforation of the gallbladder is a result of chronic involutionary changes, during which there has been sufficient deposition of calcium to render the stones radiopaque.

The distribution of gas shadows is important. Gas proximal to the stone with no gas in the lumen distal to it should be considered strong evidence of mechanical obstruction due to stone.[11]

MASSIVE PULMONARY COLLAPSE TREATED WITH ARTIFICIAL PNEUMOTHORAX

REPORT OF A CASE

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Since William Pasteur[1] first described pulmonary atelectasis following diphtheria and then discussed its occurrence following surgical procedures[2] massive collapse of the lung has been frequently recognized by the medical practitioner.

The causes, symptoms and signs of this condition are well known and adequately described in the modern textbooks. The prognosis as to life when the condition is uncomplicated is usually excellent, although death may occur in debilitated subjects if collapse occurs in more than one lobe or bilaterally.[3] The greatest danger in pulmonary atelectasis is the secondary development of pneumonia. Since pneumonia in itself is a serious disease, it becomes important either to prevent pulmonary atelectasis or to relieve it as soon as possible when it does occur. In this brief report we shall confine ourselves to the therapy of the condition after it has occurred and make no mention of prophylaxis.

The methods of therapy usually employed at present, for postoperative collapse particularly, are apparently fairly effective. All more or less aim to release the secretions that may be obstructing the bronchi of the affected lung. These therapeutic measures consist of (1) loosening of any tight dressings, (2) induction of deep breathing with 10 per cent carbon dioxide in oxygen every fifteen or thirty minutes, (3) induction of hard coughing with the affected side uppermost by severe manual percussion of the chest, (4) postural drainage of the bronchus by assumption of a 10 per cent Trendelenburg position of the bed for from fifteen to thirty minutes every three or four hours,[4] (5) intravenous administration of a 10 per cent solution of sodium iodide to aid in the loosening and expulsion of bronchial secretions, (6) bronchoscopic treatment to remove any bronchial plug[5] (a difficult, dangerous and unpractical procedure in inexperienced hands) and rolling of the patient back and forth on the unaffected side[6] (which is quite difficult for an already acutely ill patient and has not proved overly successful).

The possibility of inducing artificial pneumothorax on the affected side in treating pulmonary collapse was first suggested by Elliott and Dingley[7] in 1914. At that time they wrote: "It is conceivable that the worst cases of cyanosis and pain might be relieved by an intrapleural injection of oxygen in order to restore the balance of volume and push back the displaced heart and the overdistended lung. Fortunately, these urgent cases are rare, and we have had no occasion to try this method since the possibility of such a line of treatment occurred to us." Unfortunately, nothing was done to carry out this far sighted suggestion until 1927, when Gordon Wilson,[8] speaking on atelectasis at the American Climatological and Clinical Association, suggested partial pneumothorax as an aid in diminishing an elevated negative pressure or making a negative pressure positive to assist in forcing an obstructing agent out of the bronchus. The entire procedure was placed on a more rational basis when it was learned shortly after that patients with pulmonary collapse characteristically had an increased negative pressure in the pleural cavity of the affected side.

Elkin[9] in 1927 presented three cases of atelectasis all with an increased negative intrapleural pressure on the side affected, but did not resort to introduction of air for treatment. In 1928 Habliston[10] reported four cases of atelectasis due to different causes with increased negative pressure in the pleural cavity on the affected side. (One case was again reported, in 1930, by Ashbury.[11]) This important accompaniment of atelectasis was substantiated later by Coryllos and Birnbaum.[12]



Fig. 1.—View taken Nov. 8, 1937.

The average normal intrathoracic pressure is approximately minus 70 mm. of water on inspiration and minus 40 mm. of water on expiration. Aron[13] found in thirty-six normal adults an average pressure of minus 79.6 mm. of water on inspiration and minus 34.29 mm. on expiration. The approximate average intrathoracic pressure on the atelectatic side in the cases reported in the literature is from minus 150 to minus 250 mm.

11. Since the completion of this paper, three additional cases have been noted in the literature in which the preoperative diagnosis of gallstone ileus was made.

1. Pasteur, William: Respiratory Paralysis After Diphtheria as a Cause of Pulmonary Complications with Suggestions as to Treatment, Am. J. M. Sc. **100**: 232, 1890.
2. Pasteur, William: Lancet **2**: 1351 (Nov. 7) 1908; Arch. Middlesex Hosp. **12**: 13 (Nov.) 1910; Lancet **1**: 1329 (May 20) 1911.
3. Hirschboeck, F. J.: Postoperative Massive Collapse of the Lung, Am. J. M. Sc. **164**: 268 (Aug.) 1922.
4. Christopher, Frederick, editor: Textbook of Surgery, ed. 1, Philadelphia, W. B. Saunders Company, 1936, p. 1005.
5. Jackson, Chevalier, and Lee, W. E.: Acute Massive Collapse of the Lung, Ann. Surg. **82**: 364 (Sept.) 1925.
6. Sante, L. R.: Massive Collapse of the Lung, J. A. M. A. **88**: 1539 (May 14) 1927.
7. Elliott, T. R., and Dingley, L. A.: Lancet **1**: 1305, 1914.
8. Wilson, Gordon: Tr. Am. Climat. & Clin. A., 1927, p. 205.
9. Elkin, D. C.: Ann. Surg. **86**: 885 (Dec.) 1927.
10. Habliston, C. C.: Intrapleural Pressures in Massive Collapse of the Lung, Am. J. M. Sc. **176**: 830 (Dec.) 1928.
11. Ashbury, H. E.: Recurrent Massive Collapse of the Lung, Due to a Benign Intrabronchial Tumor, Am. J. Roentgenol. **21**: 452 (May) 1929.
12. Coryllos, P. N., and Birnbaum, G. L.: Alveolar Gas Exchanges and Atelectasis, Arch. Surg. **21**: 1214 (Dec.) 1930.
13. Aron, quoted by Lord, Frederick T.: Diseases of the Bronchi, Lungs and Pleura, ed. 2, Philadelphia, Lea & Febiger, 1925, p. 718.

of water on inspiration and from minus 75 to minus 150 mm. on expiration. In one of Habliston's cases the pressure was minus 442 mm. of water on inspiration and minus 337 mm. on expiration.

Habliston used artificial pneumothorax on the affected side in two of his reported cases, with quick relief in both and a startling result in one, in which an intrabronchial tumor causing the collapse was expectorated two days after air was injected into the pleural cavity. In the other case the condition was due to pulmonary tuberculosis. This constituted the first report in the literature of the successful treatment of massive collapse by artificial pneumothorax. In 1930 Moorman [14] reported a case of pulmonary collapse in a white girl following an abdominal operation, quickly relieved by the introduction of 300 cc. of air into the pleural cavity on the affected side. Schindler and Gnagi [15] in 1938 reported a case of massive collapse of the lung in a child of 12 following an appendectomy, with complete and almost immediate reexpansion of the lung following the introduction of air into the pleural cavity on the affected side. As far as we can tell there are no other cases on record wherein this procedure was attempted.



Fig. 2.—View taken Oct. 14, 1938, at the time the diagnosis of massive collapse of the left lung was made.

REPORT OF CASE

M. M., a Negro man aged 41, had been in this hospital continuously since October 1935. The diagnosis was far advanced pulmonary tuberculosis, dementia paralytica and aneurysm of the thoracic aorta (fig. 1). Until the present incident he had been doing fairly well with bed rest and antisyphilitic therapy.



Fig. 3.—View taken Oct. 16, 1938, after reexpansion of the lung.

Early in the evening of Oct. 14, 1938, he suddenly became acutely dyspneic without apparent pain. At physical examination he was seen to be fairly well nourished, was sitting up in bed, was acutely dyspneic and was obviously in distress. The temperature was 100 F., the pulse rate 120, the respiratory rate 46 and the blood pressure 100 systolic, 75 diastolic. There was moderate cyanosis of the nail beds and lips. There was no pulsation of the jugular vein and no dependent edema, and the liver was not palpable.

The relevant physical signs were confined to the chest. There was limited excursion of the entire left side of the chest, with dulness to percussion over the whole left lung. The breath sounds were absent on the left. The right side of the chest was resonant to percussion, and the breath sounds came through strongly. The left border of the heart was found to be in the sixth interspace at the left midaxillary line by palpation of the maximal apical impulse. The right border could not be outlined by percussion. The heart sounds were of fair quality and the rhythm regular, with a rate of 120 a minute at the apex and wrist. There was no murmur audible. A diagnosis of massive collapse of the left lung was made. This was corroborated immediately by fluoroscopic and radiographic examination (fig. 2). The shift of the mediastinum to the left was readily apparent. It was thought that the collapse of the lung was due to obstruction of the left main stem bronchus by the aortic aneurysm, although pulmonary tuberculosis as an etiologic factor could not be ruled out.

The patient was closely watched for twelve hours. On the morning of October 15 he was worse, with increasing dyspnea. The temperature was 100 F., the pulse rate 130 and the respiratory rate 48. The chest signs were essentially the same as before. At this time it was decided to carry out artificial pneumothorax on the affected side. With a standard pneumothorax machine, 500 cc. of air was injected into the left pleural cavity at an approximate rate of 50 cc. a minute, with no immediate untoward result. The initial pressure was minus 160 mm. of water on inspiration and minus 80 mm. on expiration. At the completion of the procedure the average pressure was plus 15 mm. of water.

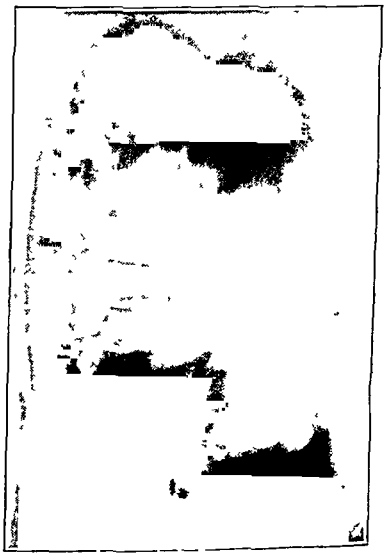


Fig. 4.—Lateral view, showing pneumothorax clearly; taken when figure 3 was taken.

Several hours later the patient was somewhat improved, and the evening of the same day saw a lessening of the dyspnea and almost complete disappearance of the cyanosis. The next morning, October 16, he was seen lying quietly in bed in apparent comfort with no dyspnea or cyanosis. The temperature was 98.6 F., the pulse rate 100 and the respiratory rate 22. The left side of the chest was now resonant to percussion, while the breath sounds came through strongly with many moist rales. The right side was resonant to percussion, with normal breath sounds. The left border of the heart could now be outlined 10 cm. to the left of the midsternal line. The heart sounds were unchanged. Fluoroscopic and radiographic examination of the chest was repeated, and the left lung was seen to be almost completely reexpanded, with a resultant shift of the mediastinum back to its normal position (fig. 3). There was an area of pneumothorax on the left behind the aneurysm (fig. 4).

November 3 the patient was in good condition, with no recurrence of his atelectasis.

COMMENT

It is obvious that in relieving this patient's atelectasis we have not brought about a change in his underlying condition, but we feel that we have prolonged his life, for he might have died as a result of persistent massive pulmonary collapse. Although the result in this case might be called somewhat startling, its value lies in demonstrating the possibility of using artificial pneumo-

14. Moorman, L. J.: Massive Collapse of the Lung with a Case Report, Ann. Int. Med. 3: 1024 (April) 1930.
15. Schindler, J. A., and Gnagi, W. B., Jr.: Postoperative Pulmonary Atelectasis: Report of a Case Treated by Artificial Pneumothorax, Ann. Int. Med. 11: 2276 (June) 1938.

thorax generally for massive collapse of the lung. The method is easy to carry out and mechanically rational. Since all patients with pulmonary atelectasis show increased negative intrapleural pressure, it seems likely that the cyanosis and dyspnea are due primarily to a displacement of the heart and great vessels and to an acute overdistention of the unaffected lung. In cases of atelectasis following abdominal operations, presumably resulting from bronchial obstruction, the marked increase of intrapleural negative pressure can serve only to draw the entire obstructing medium more firmly and deeply into the bronchus, thus perpetuating a vicious cycle. Introducing air into the pleural cavity serves to break the cycle, tends to push the mediastinum back to its original position and probably would enhance the expulsion of the obstructing medium (see Habliston's case of intrabronchial tumor expectorated on the second day following artificial pneumothorax).[10]

Mistakes.—An investigator who draws false conclusions early in his research may see the whole structure of the work topple, for here conclusions follow in sequence and an early fallacy affects all; moreover, his work is placed on record and is submitted to close and critical supervision. To a physician, mistakes, if not too frequent, are of little consequence—they are indeed inevitable; they do not shake self-confidence as they do in the case of the research worker—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

PERFORATING ULCERS OF FEET, WITH OSSEOUS ATROPHY

IN A FAMILY WITH OTHER EVIDENCES OF DYSGENESIS (HARELIP, CLEFT PALATE): AN INSTANCE OF PROBABLE MYELODYSPLASIA

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AND
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An arresting example of the influence of heredity in disease is the development of the same chronic pathologic process in two or more members of a family when they reach a specified age. The family in the two cases herein reported furnishes such an example.

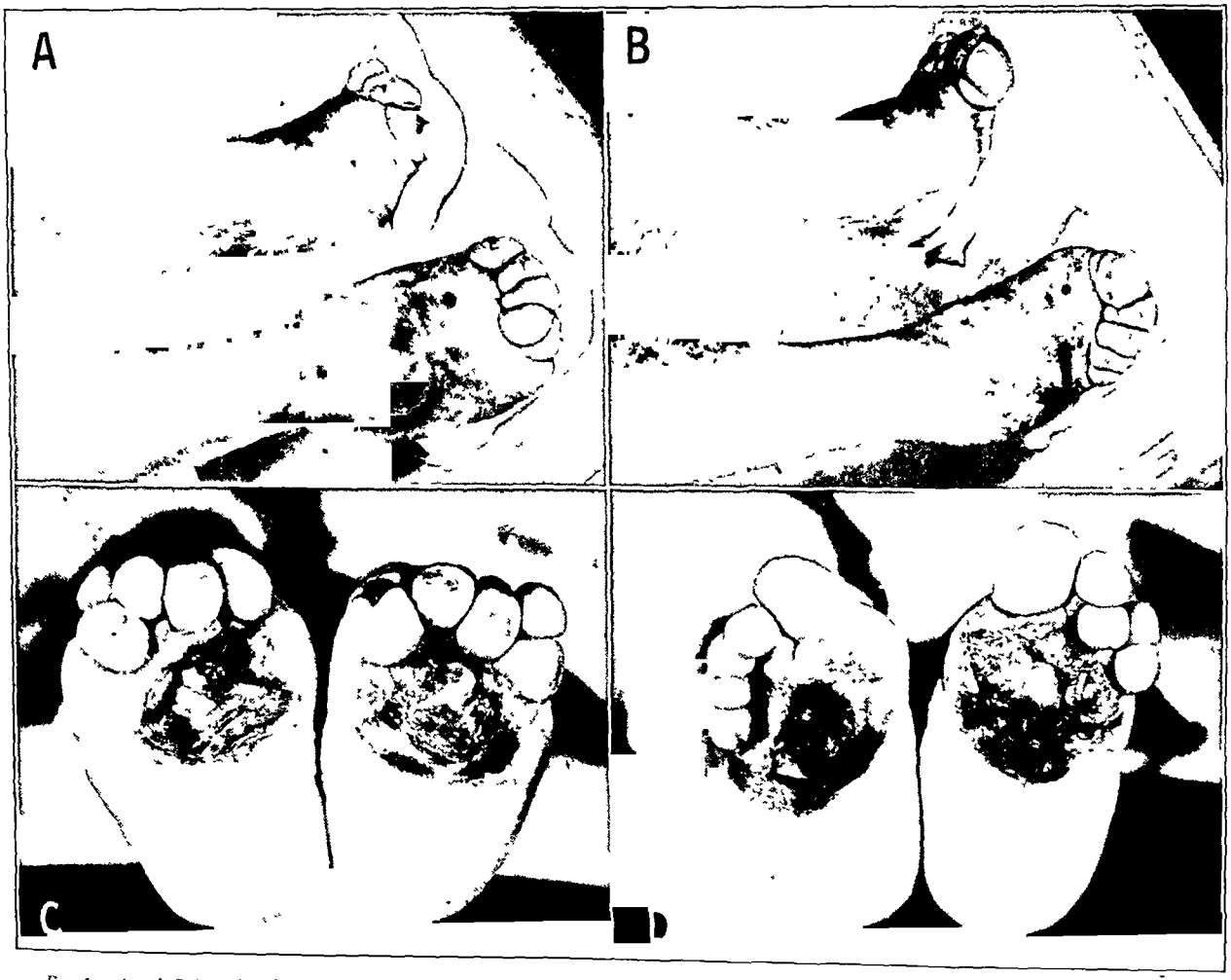


Fig. 1.—*A* and *C*, lateral and plantar aspects of the lower extremities of R. D., *B* and *D*, similar aspects of the lower extremities of H. D.

In October 1937 Dr. J. Torrance Rugh of the department of orthopedics received a letter from two young men claiming that they "were very interesting cases" and would like to be studied and treated at this hospital. Through the courtesy of Dr. Rugh the patients, once admitted, were transferred to the medical service, where the following studies were conducted. Only the two principal cases will be dwelt on at length and simple mention made of relevant points in the histories of other members of the family.

Aided by a grant from the J. Ewing Mears Research Fund.
From the Department of Medicine, Jefferson Medical College and Hospital.

REPORT OF CASES

CASE 1.—*History.*—H. D., a white man, single, aged 27 (D-17 on the pedigree chart), with no occupation, at the age of 18 noticed a small blister which had appeared on the sole of the right foot followed within two weeks by one on the sole of the left foot. The blister broke down, an ulcer formed and enlarged and a piece of bone was extruded about a month after the onset. He wore at this time a size 5½ shoe. He could then distinguish between heat and cold on the skin of the feet but, as the process spread, sensation for pain, heat and cold disappeared; if he persisted in walking while sequestrums were extruding he felt some discomfort. The loss of sequestrums continued at about the rate of two bony spicules a month. The feet began to shorten and become rigid and apparently fixed at the ankle. At present if he does not use his feet for several weeks the ulcers eventually become smaller and heal over the entire surface; walking about for a few days, however, is enough to start the ulcerative process over again. The skin of the feet perspires excessively. His general health has been excellent and outside of this disability he has no other complaints. For a time he did amateur boxing, but the necessity of resting every few weeks to allow the ulcers to heal has restricted his activity considerably.

Examination.—The patient is an intelligent person with good general muscular development. In the mouth there is an overriding canine tooth on the left upper maxilla. Examination of the chest and abdomen is negative. There is slight cyanosis of the finger tips. Arm and forearm reflexes are prompt and active and sensation is normal. Distal to both knees there is a dusky pink, patchy discoloration and scaliness of the skin. The lower third of both legs, as well as both feet, are covered with fine perspiration. Both feet are short, in the anterior half especially, the toes appearing to spring directly from the middle portion of the foot without the intervening metatarsals (fig. 1 *B*). This gives the foot the appearance of a horse's foot ("pferd fuss" of Bruns). About the base of the first toe, the skin is folded over the invaginated toe. On the sole of each foot there is a punched out ulcer with a moist granulating base and sharply limited margins measuring 5 by 2 cm. on the right foot and 6 by 3 cm. on the left (fig. 1 *D*). The skin over both knees and on the soles is loose and wrinkled, more markedly on the left side. Both dorsalis pedis arteries are easily palpated, the pulse being full and forcible and apparently equal on the two sides. There are no muscular atrophies or contractures and the muscular strength is normal. There is hypesthesia to touch reaching almost anesthesia over the five toes bilaterally. Sensation of pinprick is almost lost over the feet and is felt more and more up toward the thighs, where it is still slightly impaired. Temperature sense (heat and cold) begins to be impaired just distal to both knees and is completely lost distally to the middle of both legs. Vibratory sense is intact, but the sense of position of the toes is lost. The corneal, laryngeal and pharyngeal reflexes are equal and active. The deep reflexes are equal and hyperactive (+4). The abdominal, cremasteric and achilles tendon reflexes are absent. There are no demonstrable pathologic reflexes or ankle clonus. Oscillometric readings are normal in both thighs and legs; in the feet they are above normal. The temperature, pulse and respiratory rates are normal. The basal metabolic rate is +11; urinalysis is negative; a blood count revealed 87 per cent hemoglobin, 4,810,000 erythrocytes and 11,900 leukocytes, with a normal differential count. Wassermann and Kahn reactions of the blood are negative. The blood sugar is 75 mg. per hundred cubic centimeters of blood, nonprotein nitrogen 24.4 mg., calcium 11.2 mg., phosphorus 3.7 mg. and phosphatase 3.8 mg.

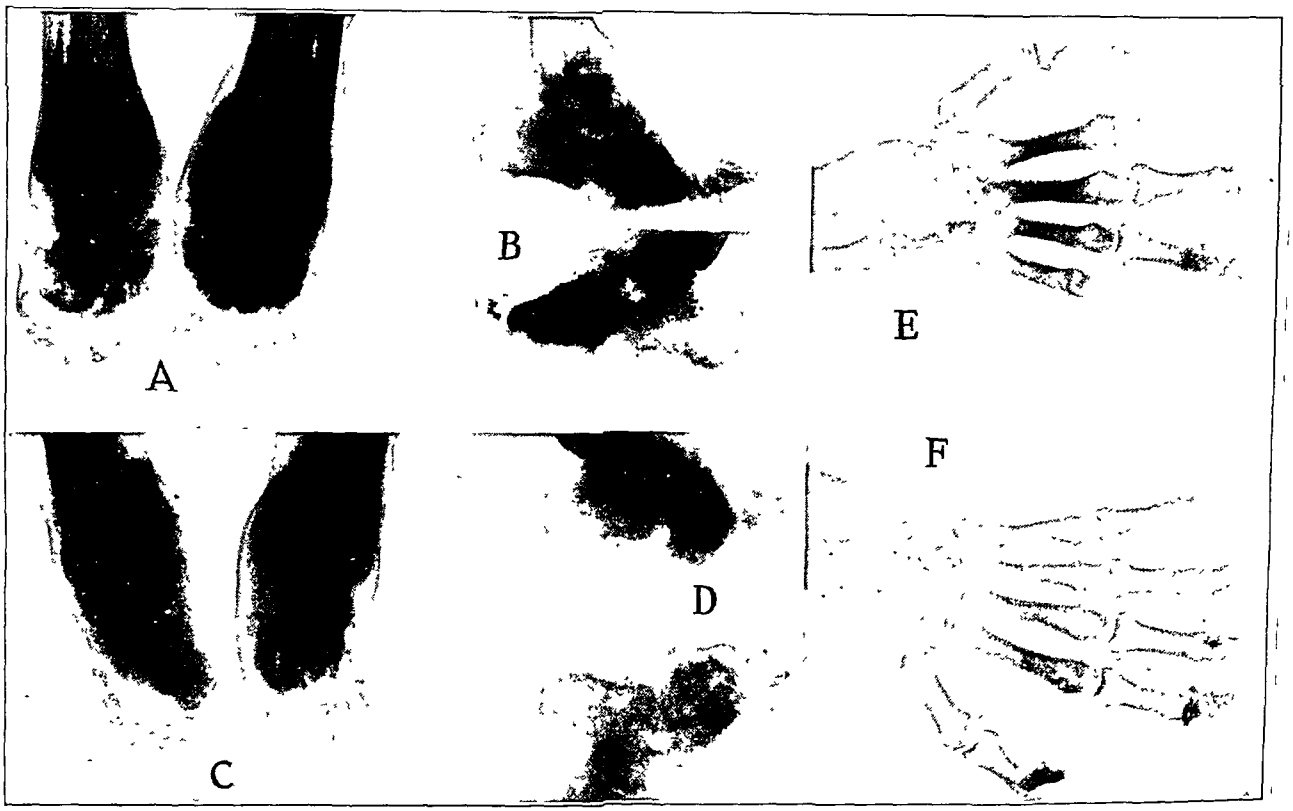


FIG. 2.—Appearances of feet of R. D. (*A* and *B*) and of H. D. (*C* and *D*) and of the right and left hand (*E* and *F*) of A. D., the father of the two boys.

Roentgenologic examination[1] revealed a spina bifida occulta involving the upper segment of the sacrum. When iodized oil was injected into the spinal canal, no obstruction to the flow of oil or any other abnormality was demonstrated. The bones of the skull have a normal appearance and so have the paranasal sinuses, clavicles, scapulas, ribs, lungs and the lumbar vertebrae, the bones of the pelvis, the radiuses, ulnas, carpals and all the phalanges of the fingers. The sella turcica is a little flattened.

The pelvis and calices of both kidneys as visualized by injection of a radiopaque substance are normal. Metatarsals and

1. The roentgenologic examinations were conducted under the direction of Dr. John Farrell. A neurologic examination of three of the patients was performed by Dr. J. C. McNerney.

phalanges are very much deformed and largely destroyed (fig. 2 *C* and *D*). The fibulas show a little roughening and thickening along their margins.

CASE 2.—*History.*—R. D., a man aged 24, single (D-18 on the pedigree chart), brother of patient 1, at the age of 17 noticed a small blister on the sole of his foot (he is uncertain which foot). It was soon followed by a blister on the other foot, ulceration and extrusion of sequestrums. The rest of the history is essentially the same as that of his brother.

Examination.—This patient is slightly thinner than his brother but of fairly good general development. There are no significant abnormalities in the head, neck, chest and abdomen except for a soft systolic murmur at the apical area of the heart. There is cyanosis and curving down of all finger nails and slight clubbing of the fingers. The skin of the lower third of the legs and feet has a dusky hue and is scaly and covered with beads of perspiration in the dorsum of the foot. The legs and feet (fig. 1 *A* and *C*) have, as a whole, an appearance almost identical with those of his brother. The plantar ulcer on the right foot measures 3.5 by 3.5 cm., while that on the left measures 5 by 5 cm. The dorsalis pedis pulses are full and bounding on both sides. There are no muscular atrophies or contractures, and the muscular strength is normal. Sensation to touch is lost over all the toes and is impaired up to a level just above the knees. There is hypesthesia to pinprick from a level about the union of the upper and middle thirds of the thighs distally, ending with almost anesthesia over the toes. There is complete loss of temperature sense over the distal two thirds of the leg and the entire foot. The vibratory sense, bone, position and deep muscle sense are intact. All reflexes are present except the achilles tendon reflex. The deep reflexes are all hyperactive. No reaction of degeneration is present in the muscles of the legs or feet. The temperature, pulse and respiratory rates are normal. The blood pressure is 120 systolic, 68 diastolic. Oscillometric readings are normal for both lower extremities. The basal metabolic rate is +10. The blood count is 78 per cent hemoglobin, 4,500,000 erythrocytes and 8,900 leukocytes, with a normal differential count. The Wassermann and Kahn reactions of the blood are negative. The blood sugar is 79 mg., nonprotein nitrogen 25 mg., calcium 11.5 mg., phosphorus 4.1 mg. and phosphatase 5.2 units. Urinalysis is negative.

Roentgen examination shows normal bones of the skull, the pelvis, hands, femurs, radiuses, ulnas, paranasal sinuses and thoracic and lumbar vertebrae. The sella turcica is a little smaller than usual. The metatarsals are much deformed and largely destroyed and there are only remnants of the phalanges (fig. 2 *A* and *B*). The fibulas show a little roughening and thickening along their margins as though there were some periosteal involvement. An intravenous urogram and the injection of iodized oil in the spinal canal yielded negative results. There was no evidence of spina bifida.

There is only one more brother in a family of twelve children; T. D., aged 22 (D-19), leads an active life and has no complaints except that his feet get cold easily during the winter. There are no physical abnormalities except in the lower extremities; the skin over the inner surface of both legs has scaly patches, and the toes of both feet have a dusky bluish discoloration, most marked in the right third and left great toes. There are five black blister-like areas with a cornified base over the right third toe, plantar surface of the right fifth toe and both first metatarsals, and over the dorsal surface of the fourth left toe. There is a fine perspiration over both great toes. The left foot is colder than the right. Pulsation of the dorsalis pedis artery is full and equal. Light touch is felt over the entire skin surface bilaterally. There is hypesthesia to pinprick starting from about 3 cm. above the ankle distally on both sides, most marked over the first, second and fifth toes. Temperature sense is lost over all the toes. Muscle, bone, vibratory and position senses are intact. Superficial and deep reflexes are present, active

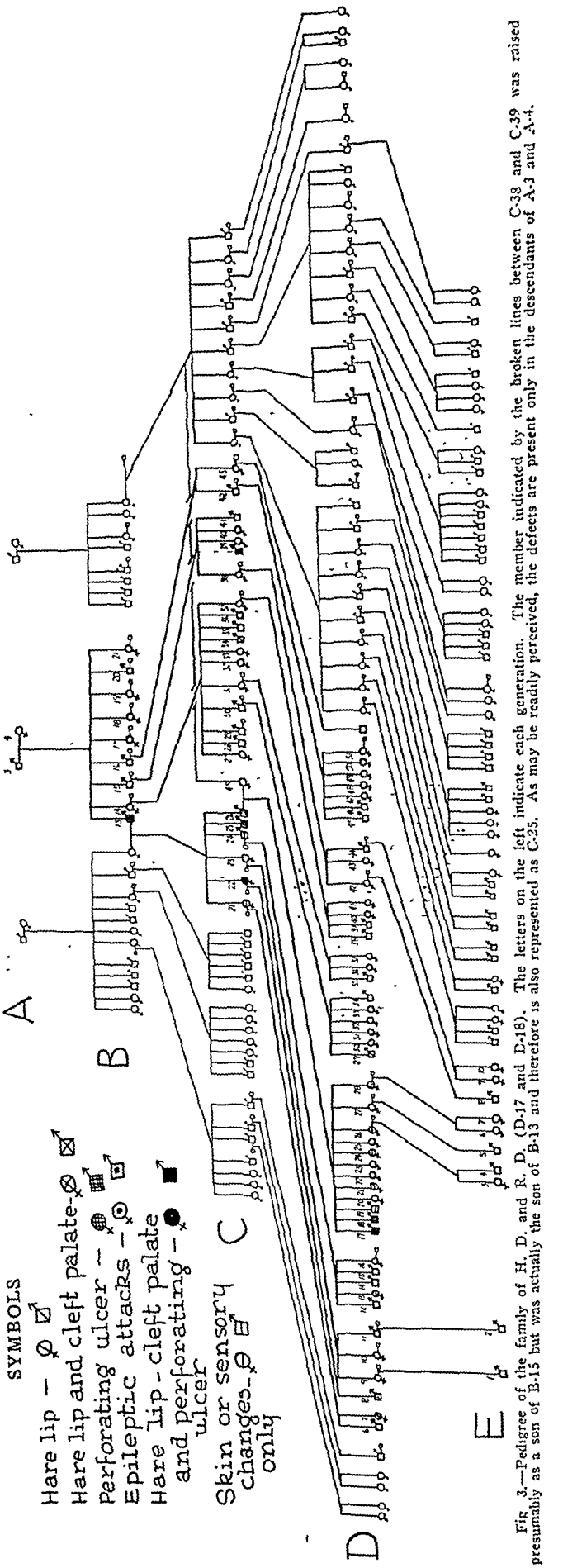


Fig. 3.—Pedigree of the family of H. D. and R. D. (D-17 and D-18). The letters on the left indicate each generation. The member indicated by the broken lines between C-38 and C-39 was raised presumably as a son of B-15 but was actually the son of B-13 and therefore is also represented as C-25. As may be readily perceived, the defects are present only in the descendants of A-3 and A-4.

and equal. The deep reflexes are all hyperactive (+ 4). Roentgenologic examination was negative except for the demonstration of a slight bifidity of the spine in the first sacral segment.

Of the nine sisters of these boys only one, E. S. (D-28) was known to have any ulceration of the feet. She died at the age of 25 of heart disease resulting from attacks of rheumatic fever. For six months before her death she had a large ulcer on the plantar surface of her toes similar to those on the feet of the two boys. Another sister, I. D. P., aged 30, married (D-26) had attacks of epileptic-like convulsions with transient loss of consciousness. Neurologic examination yielded negative results except for hyperactive deep reflexes and the presence of a small area of hypesthesia to touch and loss of temperature sense at the tip of the great toes. Of the seven remaining sisters, one, aged 23 (D-27) is in good health; she is married and has two boys one of whom (E-6) has a harelip; two sisters, one aged 15, J. D. (D-21) and another aged 14, M. D. (D-24) have hyperactive deep reflexes and dusky, cyanotic, scaly lower legs and feet but no other changes; the other four sisters are under 13 and when examined did not seem to have any abnormalities.

In the brothers' own generation there were no other members showing similar deformities. A paternal cousin, A. D., a girl aged 16 (D-13), had had several epileptic attacks and hyperactive deep reflexes. Another paternal cousin, G. D. McG., a girl aged 15, (D-7) was born with a harelip, which was later repaired successfully. At present she still has four deciduous teeth. Examination of the other cousins on the paternal side was negative.

In the third generation, the father of our two patients, A. D., aged 53 (C-26), had ulcers on both feet beginning at the age of 16. Spicules of bone discharged through these ulcers at intervals. In most respects the ulcers behaved as in his two sons. He continued to work hard throughout all this period; at times the ulcers became infected and cellulitis of the legs developed, with a high fever. At 35 the right foot had to be amputated above the ankle joint, and soon afterward the left foot was also amputated. All told, he has had six amputations in the lower limbs within the past ten years; he has also had ulcers in several fingers from which spicules of bone would extrude spontaneously or he would extract them himself with pliers. At the present time he has no index or little finger on the right hand and a few of the fingers appear shortened, as if some of the phalanges were missing. There is complete loss of temperature sense in the hands and forearms. There is marked hypesthesia in the hands extending up and gradually disappearing toward the shoulder. There is loss of temperature and pain sense below the knee to the end of the stump, which extends about 20 cm. below the knee and is ulcerated in several areas. On roentgenologic examination there is no evidence of spina bifida. The lumbar vertebrae and bones of the pelvis are normally developed. The distal and part of the middle phalanx of the fourth finger on the right hand are absent. Some changes are beginning to appear in the distal phalanx of the first finger of the same hand. In the left hand the distal phalanges of all fingers except the first and second are absent, and a good part of the middle phalanges are destroyed (fig. 2 *E* and *F*). The patient had a brother, C. D. (C-25), who also had ulcers on both feet from early adolescence and died at the age of 31 of diabetes. In the pedigree chart he is represented as a brother of A. D., though he was brought up as a son of A. D.'s paternal uncle. This accounts for the designation in the broken line of C-39 in figure 3. If C. D. had been a son of B-15 it would have been the only instance of the defect being transmitted through nonaffected parents. All members of the family who were interviewed were emphatic, however, in saying that C. D. was actually A. D.'s brother on his father's side, though born of a different mother. A younger brother of the father of our patients, D. D., aged 51 (C-24), has never suffered from any ulcerations; a physical examination of this man disclosed, however, definite impairment of the temperature and touch sense in a small area on the plantar and medial sides of the great toes, and hyperactive deep reflexes. All of this man's five children are in good health with the exception of one daughter, A. D. (D-13).

Of the three sisters of the father of our patients, one is apparently normal in every respect, her children and grandchildren also being normal. Of the other two, one A. D. McG., aged 42 (C-21), has hyperactive deep reflexes and small areas of loss of temperature and touch sense in the big toes. The other sister, L. D. J., aged 46 (C-22), is the only patient in the group who has all the defects. She was born with a harelip and complete cleft palate. For the past six years she has had several ulcers on the plantar surface of the left big toe and on the sole of the same foot. The ulcers are not as large as those of her nephews, but they have many of their external characteristics; they have healed and broken out several times in the past few years. Her deep reflexes are hyperactive and there is hypesthesia to touch, in some places amounting to anesthesia, with almost complete loss of temperature sense over all the toes and the plantar surface of the left foot and up to a point just below the ankle. In the right foot similar changes were noted, but over a more restricted area. She had only one child. This baby (D-8) was born with a harelip and complete cleft palate and died soon after birth.

In the second generation the only member of the family affected was T. D. Jr. (B-13), who died at the age of 42, the paternal grandfather of our two patients. According to information obtained from his wife, T. D. Jr. was the youngest in a group of nine children and the only one who had the disease. The ulcers on his feet began also in late adolescence and progressed to the point at which he had to have several toes and later both feet amputated. The man's wife states that just previous to the birth of her husband his father had contracted a venereal disease which she blamed for her husband's defect and accounted for the fact that previously born brothers and sisters had neither inherited nor transmitted the defect. T. D. Jr. had a sister, L. D. C., aged 70 (B-14), who had a baby (C-34) born with a harelip.

Of the first generation little is known. Our two patients and their grandmother had been told that our patients' great grandfather, T. A. D. (A-3), died at about the age of 80 and that just before he died gangrene of the feet developed. Up to that time, however, he had had no ulcers of the feet.

COMMENT

Tabes dorsalis, leprosy, syringomyelia and spina bifida occulta were considered as possibilities in the differential diagnosis. The strongly hereditary nature of the disease, the uniform date of onset, the absence of a positive history of contact and the negative sero-

logic examinations seem to exclude syphilis and leprosy from consideration. Though there are several instances of the appearance of syringomyelia in several members of one family, the fact that the disturbances first began in the lower extremities and the regularity of the age at which the onset of the disease took place seem to constitute points in favor of the hypothesis that the disturbance was due to an insufficiency or defect in the formation of the central nervous system rather than to an abnormal proliferation of neoplastic tissue in the cord. The trophic disturbances found in syringomyelia are so similar to those found in cases of spina bifida occulta that only the actual demonstration of the spina bifida can establish the diagnosis. All efforts made in that direction with our patients and their nonaffected relatives yielded, with one exception, a negative result. The exception (H. D., D-17 on the pedigree chart) did have, as shown by a roentgenogram, a spina bifida occulta; his brother, though similarly affected, did not have it. Such mild defects are, according to roentgenologists, too frequently noted in normal persons to warrant attaching much importance in this instance as being connected with the actual cause of the disease.

There are three outstanding features of this group of cases: (*a*) the hereditary trait, (*b*) the appearance of certain of the manifestations at about the same period of life and (*c*) the occurrence of developmental defects other than plantar ulceration in persons of the same family. One of the earliest reports of this condition is that by Bruns,[2] who described it as a familial symmetrical gangrene and arthropathy. The father and mother of the family he reported were over 70 years old and both healthy. There were five children, four boys and one girl. All were affected except the first born, a boy. The onset in all the affected children was at the same age, 17, with ulcers on the soles of both feet. Bruns attributed the trophic ulcers to a chronic progressive process in the lumbosacral region of the spine or in the cauda equina. One of his patients died as a result of infection but there was no autopsy.

The cases reported by Price [3] and Smith [4] are other examples of the same disturbance. Riley [5] reported a family in which there were several members, male and female, suffering with recurring ulcers of the feet appearing first at adolescence. In this family the mother was apparently the transmitter of this condition and more than half of her children, male and female, were affected.

Riley discusses at length the differential diagnosis between syringomyelia and myelodysplasia, a term advanced by Fuchs [6] to designate the clinical syndrome characterized by deformities of the feet with trophic and vasomotor disturbances, changes in the skin, spina bifida and syringomyelic sensory disturbances as well as other defects. The same condition has been described by Bremer [7] under the name "status dysraphicus" to indicate a disturbance in the closure mechanism of the primitive neural tube. In the group of defects listed by Bremer are also sternal malformations, kyphoscoliosis and other developmental anomalies. The association of harelip and cleft palate with trophic defects of the feet, present in our group, has not been recorded previously so far as we know; it fits well with the conception that the underlying disturbance must be referred to an embryologic maldevelopment. As pointed out by Riley,[6] syringomyelia is usually marked by a slow insidious progress with involvement and destruction of the ventral horn cells adjacent to the intramedullary neoplasm, while the syndrome of myelodysplasia presents a more static state of affairs with less evidence of progress, the outstanding disturbances being associated with trophic and vasomotor control. A differentiation between the two conditions from the clinical point of view may be impossible, and a description of pathologic changes in the cord in these cases is still wanting. Though familial and hereditary features are not uncommon in syringomyelia, they are not as outstanding as in the few reported cases of myelodysplasia.

SUMMARY

Trophic and vasomotor disturbances with dissociated sensory changes, usually of the lower and sometimes of the upper extremities, were found in most of the male and in a few of the female members of a family some of the members of which also had harelip and cleft palate. The trophic changes first became apparent as a perforating ulcer of the feet and began at about the same age. The syndrome seems best attributed to an organized dysgenesis of the central nervous system of the type described by Fuchs under the term myelodysplasia.

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6. Fuchs, Alfred: Ueber den klinische Nachweis kongenitaler Defektbildungen in den unteren Rückenmarksabschnitten ("Myelodysplasia"), Wien. med. Wchnschr. **59**: 2142 and 2262, 1909.

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THE CLINICAL APPLICATION OF TESTOSTERONE

WALTER M. KEARNS, M.D.

MILWAUKEE

The milestones along the march of knowledge of the testicular hormone were marked in 1849 by Berthold's [1] injection of testicular tissue into capons, with production of the secondary male characteristic of comb growth; in 1889 by Brown-Séquard's [2] attempt at rejuvenating himself by injection of crude watery extracts of dog or guinea pig testes; in 1911 by Pezard's [3] intraperitoneal injection into capons of crushed hog testes, with the production of comb growth; in 1927 by McGee's [4] injection of alcoholic extract of the lipoid fraction of bull testes and its detection in a five day assay on capons; from 1930 to 1938 by the development of a method for the extraction of androgens from the urine with quantitative assay on

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Read before the annual meeting of the State Medical Society of Wisconsin, Sept. 15, 1938, at Milwaukee.

The testosterone propionate for this study (oretone and oretone ointment) was supplied by the Schering Corporation.

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3. Pezard, A.: Sur la détermination de caractères sexuels secondaires chez les gallinaces, Compt. rend. Acad. d. sc. **153**: 1027, 1911.

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capons by Koch, Gallagher, Domm and Womack;[5] in 1931 by Butenandt's[6] extraction from the urine of androsterone in pure crystalline form; in 1935 by the preparation by Laqueur and his co-workers[7] of testosterone, the form in which the hormone occurs in the testes, and in 1935 by the observation by Laqueur and his co-workers[8] of the still unidentified substance, an acidic and fat-soluble substance which appears in the testes, the adrenals and the urine and has the property of greatly activating testosterone. The identification of the x substance may be an important step in the advancement of therapy with androgenic hormones.

During the past three years several investigators have isolated and prepared a large number of androgens. Koch[9] listed over thirty androgenic substances which had been described, all closely related and similar structurally to the estrogens and cholesterol.

Until two years ago the results in male hormonal substitution were unsatisfactory. It is true that some temporary relief had been recorded at San Quentin prison after Stanley's[10] injection of testicular mush into the musculature of the anterior abdominal wall,

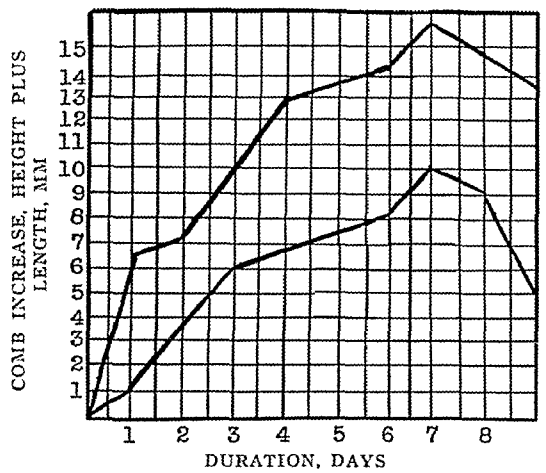


Chart 1.—The curves indicate the comb growth in two series of five capons which received injections of two different extractions of androgens from a six day specimen of urine from a normal student. The specimen was equally divided into two parts. With one part Koch's method was used, acid hydrolysis with a minimum of heat followed by benzene extraction in the new Koch apparatus (upper curve, 31.7 capon units a day). With the other half, extraction with dibutyl ether was employed (lower curve, 14.3 capon units a day). A comparison of the curves indicates the higher yield obtained with the benzene method.

but the procedure was never widely accepted. Nor was the isolation of testosterone from the bull's testicle of any great clinical help, since there is little storage of hormone in the tissue and only minute amounts are extractable. The yield is so small that it would require the rendering of 100 bull testicles for the daily maintenance of one castrate. Not until the recent commercial production of testosterone has an effective method been available.

Since the isolation and identification of testosterone and the perfection of a method of synthesis by degradation of sterols, the hormone has been placed on the market by several drug houses. Some esters of testosterone have been proved to be more potent and more prolonged in their effect than the free hormone. Testosterone propionate is the combination offered by the manufacturers.

The advent of these potent preparations has resulted in exaggerated claims and theories which expand beyond the limits of reasonable speculation. The medical literature is already being cluttered with premature reports demonstrating a lack of knowledge that may result in confusion on the part of the physician attempting to gain an understanding of a most complicated and profound problem. Koch's[9] thorough review of the subject of male hormones is a most exhaustive and enlightening treatise. It is well worth reading by all physicians.

MATERIALS AND METHODS

During the past ten months my associates and I have made an experimental study of testosterone and testosterone propionate. With the aid of Dr. Joseph Bock, professor of biochemistry at Marquette University Medical School, we have been able to make extractions of urine for androgenic activity for various types of patients, including castrates and patients with postpubertal cryptorchidism. Extractions and assays were made before and after treatment with testosterone administered by injection and by inunction. In recent extractions the ingenious method of Koch, in which benzene is used as the extracting agent, has been closely followed. In our hands benzene has proved to be the best solvent and the Koch still a most efficient method (charts 1 and 2). Assays have been made by injections into capons or by the application of an alcoholic extract to the capon's comb and recorded in terms of international capon units. More recently assays have been made by the colorimetric method described by the Callows and Emmens[11] and by Oesting.[12] The Oesting colorimeter has been adopted.

INDICATIONS

Caution in the choice of patients must be exercised, as the possibility of overstimulation and glandular imbalance must be kept in mind. Testosterone must not be injected indiscriminately into every knave who aspires to emulate the sex behavior of the cock or the squirrel. Because of the possibility of the later atrophy of the testicles, long periods of treatment of adolescent boys and young men must be avoided unless clinical evidence of hypogonadism and low urinary output of the androgens has been demonstrated.

CASTRATES

Six castrates were recalled from my past practice and that of two other urologists, Dr. Warren Leaper and Dr. James King. These patients had previously made the rounds of several physicians and received the usual

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futile ministrations with orally administered and injected preparations, ending in despair. They were broken men—nervous, apprehensive, depressed, unable to concentrate and devoid of libido, with pale sallow thin wrinkled skin—bearing their crosses tenaciously but at best barely able to hold part time positions. True to form, these patients had had definite shrinkage in the size of their prostate glands, in some instances to such a degree that the gland was indiscernible by digital rectal examination.

Basal metabolism tests, tests for blood cholesterol, Aschheim-Zondek tests with assay of the urine for gonadotropic substance and sugar tolerance tests were repeated periodically. Originally these patients deviated in varying degrees from the normal, with a lowered basal metabolic rate, increased dextrose tolerance and a lowered blood cholesterol content. The Aschheim-Zondek test has not been positive in a single instance. A sufficient number of recent tests to indicate any decisive changes have not yet been completed.

The most sensitive clinical indicators of testicular function are the seminal vesicles and the prostate gland. Carl R. Moore,[13] Callow and Deanesly[14] and McCullagh[15] have called attention to the prompt atrophy of the prostate after castration. Experimentally, in castrated male animals the administration of androgenic agents elicits a prompt response in the increase in size of the atrophic prostate and seminal vesicles.

The injection of testosterone propionate produced a change in the patients as definite and pleasing as anything in my experience. Ten mg. administered twice weekly has completely rehabilitated them. With two, injections of 5 mg. twice weekly were sufficient. Increased strength and endurance, a desire to expand their work, the appearance of libido, erections, ejaculations, ability to copulate and an increase in the growth of the beard have all been observed in their return to normality. After from three to six weeks the prostate gland regenerates perceptibly, and it approaches the normal size in from six to eight months. One very religious patient, working as an orderly in a local hospital, threatened to discontinue treatment because of the appearance of annoying erections, and he would have deserted had it not been for the concomitant appearance of well-being and ability to work without extreme exhaustion. Foss[16] reported that a castrate while receiving 140 mg. of testosterone in a week acquired priapism which was unrelieved by intercourse but abated several days after the dose had been diminished.

TESTOSTERONE IN OINTMENT

About six months ago, on the suggestion of Dr. Carl R. Moore[17] of the University of Chicago, testosterone as an inunction was employed with castrates. Moore[18] has more recently reported on the potency of androgenic substance applied to the skin of animals.

Three of the castrated patients and two patients with cryptorchidism who were given testosterone ointment (each centimeter containing 2 mg. of free testosterone) have reported excellent results, at least equal to the effect obtained with injections. With the application of 2 cc. each day the dose applied to the skin was somewhat more than the injected amount. The total average weekly dose administered to the castrates was 20 mg. by injection and 28 mg. by inunction. Patients are directed to rub the ointment vigorously for twenty minutes into a hairless area of skin, preferably on the anterior abdominal wall. The application is made each day at bedtime.

Corroborating the good clinical outcome, proof of the absorption of the substance by the human skin was obtained through the demonstration of increased androgenic activity in the urine (chart 3).

The potency of many drugs administered through the skin by inunction is well known to the physician. Through the ages the treatment of syphilis rested mainly on the mercurial inunction because of its proved

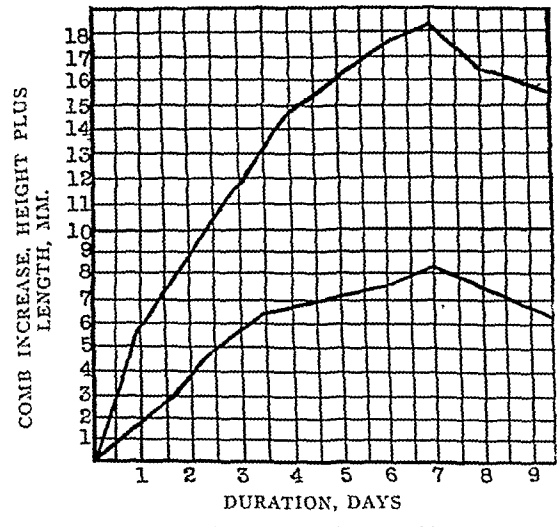


Chart 2.—These curves of comb growth in capons illustrate the markedly diminished excretion of androgens in an elderly patient with melancholia and prostatic hypertrophy (lower curve, 5.3 capon units a day) as compared with the excretion of a normal student (upper curve, 37.3 capon units a day). In each case the extraction was performed on a five day specimen of urine. Testosterone propionate injected in 25 mg. doses markedly alleviated the mental symptoms in the patient.

prompt and prolonged therapeutic action. As evidence of absorption of the mercurial through the intact skin, toxic gingival, intestinal and renal manifestations frequently developed when proper reserve was not exercised in its administration.

Macht[19] has recently reported the result of a long and careful study on the absorption of drugs and poisons through the skin and mucous membranes. He commented on the sound rationale underlying many of the older therapeutic procedures employing inunction, pointing out the benefits and dangers as well.

The problem in substitution therapy with testosterone is to arrange the administration so as to imitate the steady continuous activity of the normal glands and avoid alternation of deficiency and wasteful excess of the hormone. In an ointment the hormone is slowly and continuously available to the body. It is possible that this method of administration of androgens may have wide-

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spread acceptance. At any rate, for patients who have difficulty in reaching the physician it offers an effective form of treatment.

POSTPUBERAL CRYPTORCHIDISM

Two patients with postpuberal cryptorchidism, 23 and 32 years of age, have been treated. In both there was retarded development of the secondary male characteristics associated with atrophy of the testicles. Each patient had the appearance of a boy of 16 years, with small face, slender build, high pitched voice and no hair on the face or in the axillae, with typical eunuchoid bodily form, with full hips and girdle distribution of fat, and with arm span greater than body height. The patient of 32 had a small amount of pubic hair. The penis was less than 2 inches in length and of very small caliber. After one year of treatment with antuitrin-S no change was observed. The patient married during this course of treatment and his efforts at intercourse were unsatisfactory. Eight months ago treatment with testosterone propionate was instituted in injections of 25 mg. twice weekly. The penis enlarged remarkably and in six months had more than doubled its size. Intercourse with well defined orgasm is now being carried out three times weekly in a gratifying manner. The

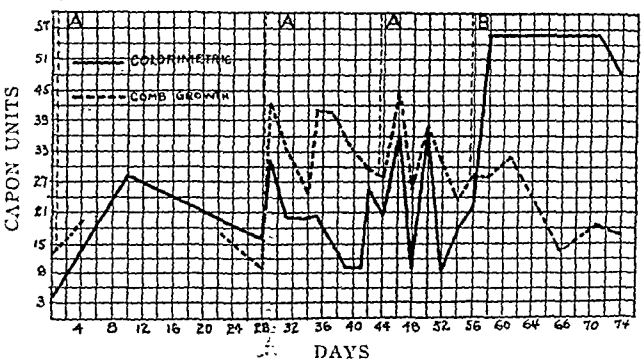


Chart 3.—A comparison of the results obtained in assaying, in duplicate, twenty-three urinary extractions, part of each extract by the colorimetric method and another part of each extract by capon comb growth response after topical application. *A* indicates 50 mg. of testosterone and *B* testosterone ointment. The extractions were made on twenty-four hour urinary specimens from a eunuchoid collected at intervals during a seventy-four day period. The broken line charts the results in terms of average comb factor increase following five daily applications of alcohol solution of extract to the comb of two capons. Each extraction of the androgenic substance was made up to 20 cc. in 70 per cent alcohol, and 3 cc. of this was applied daily for five days, a total of 1.5 cc., or 7.5 per cent of the total extraction, applied to each capon comb. The average percentage increase of comb factor (factor = the square root of the length multiplied by the height of the comb in millimeters) was recorded except on the tenth day, when the containing vial was broken. The solid line charts the results on the same extracts obtained by colorimetric assays translated into international capon units. Note the parallelism between the colorimetric assay and the comb growth response beginning on the first day before treatment was started and the continuance of the parallelism through the period when several intramuscular injections of 50 mg. each of testosterone crystals were made. With the institution on the fifty-fourth day of inunction treatment (8 mg. of testosterone a day) a wide deviation occurred, with apparently the presence of substance in the urinary extracts producing a much greater change in the colorimetric readings than in the capon comb response. The decrease in the output of androgens during the last three days of observation, recorded in both methods of assay, was caused by the omission of treatment every other day.

other patient, 23 years of age, has experienced a similar good result. In both patients the prostate gland has grown appreciably and axillary hair and a small amount of hair on the upper lip have appeared. The experience of Riches [20] and more recently that of Vest and Howard [21] demonstate the need of larger maintenance doses for this type of patients, approximately double the dose used for castrates. Kenyon administered 25 mg. of testosterone propionate intramuscularly from five to seven times weekly for from twenty-eight to ninety-five days to four eunuchoids.[22] Thereafter three of them received from 10 to 25 mg. from three to seven times weekly, with interruptions for 152, 108 and 160 days respectively. In all instances there were an early increase in the frequency of erections and a marked increase in the size of the prostate as early as the twelfth day. The penis elongated from 1 to 2 cm. in all but one case. Changes in the hair of the face, pubis and thighs and deepening of the voice occurred promptly with the large dose used. Moreover, Kenyon observed nitrogen and sodium retention and a slight increase in the body weight.

Twenty-five mg. twice weekly proved in our cases to be the minimal dose for maintenance of well-being and continuance of gradual improvement.

A larger dose of ointment is also required for eunuchoids. Four cc. of ointment (2 mg. per cubic centimeter) is applied daily. The total weekly dose reaches approximately 56 mg. of testosterone, which compares with the injected dose of 50 mg. a week. While the response to either method of administration occurs less promptly than in the castrate, the effect is no less definite. In fact the objective sign of penile growth offers a definite indicator of the effect. A reduction of dose results in a less satisfactory clinical course.

In this type of patient, as in the castrate, there is an unquestionable indication for endocrine therapy, because unmistakable deficiency is recognizable clinically and the reassuring response to treatment is readily observed. In these two groups the effect of testosterone may be truly called rejuvenation. The physician may now humanely corral and treat with testosterone these morbid semi-invalids with as much precision as he would use in treating with insulin patients with advanced diabetes. Testosterone may not contain all the components of testicular secretion, but it does control dramatically some processes associated with its deficiency.

SUMMARY

1. In castrated patients and in those with hypogonadism due to cryptorchidism the administration of testosterone brings about an effective substitution.

2. Beneficial results have been obtained through the intramuscular injection of testosterone propionate and equally good results through the inunction method with free testosterone in a greaseless base.

238 West Wisconsin Avenue.

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Men of First-Rate Ability.—There are questions which concern the elucidation of disease and its processes in man which are among the hardest that human intelligence and endeavor have to answer. Clinical Science especially requires, for the solution of its many and varied problems, men of first-rate ability. To the younger generation the opportunities now offering, the security that is assured, are of a kind undreamt of a few years ago. The days are passing when a worker was inevitably forced away from the work of his choice to find his livelihood in practice. The time is approaching very nearly to us when it will be impossible for men spending long years in the successful solution of problems in Clinical Science to fail to draw around them at least a few eager young workers from their own teaching institutions, when it will be impossible for them to remain isolated intellectually, and surrounded only by students preoccupied by more directly practical pursuits and interests.—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

EFFECT OF VITAMIN K ON THE CLOTTING TIME OF THE PROTHROMBIN AND THE BLOOD

WITH SPECIAL REFERENCE TO UNNATURAL BLEEDING OF THE NEWLY BORN

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PART 1

The desirability of finding some agent which might materially lessen the incidence of cerebral accident and unnatural bleeding in the neonatal period prompted this study of the effect of vitamin K concentrate on the prothrombin-clotting time and the clotting time of the blood of the newly born. Before presenting our results it seems advisable to review briefly the history of vitamin K concentrate.

During work on sterol metabolism in the chick, Dam [1] in 1929 observed that diets deficient in certain respects gave rise to a disease which closely resembled scurvy. In this disease spontaneous bleeding occurred in the affected animals, clotting time was markedly prolonged and the plasma prothrombin was reduced to extremely low levels. Later he and his co-workers [2] suggested that this condition, which failed to respond to ascorbic acid administered either orally or subcutaneously, was a deficiency disease brought about by exclusion from the diet of a certain antihemorrhagic factor which he termed vitamin K. This substance was found to be fat soluble and to occur in the easily soluble nonsterol fraction of unsaponifiable matter. Hog liver fat and alfalfa proved to be excellent sources for the substance, which in solubility and heat resistance appeared to be somewhat akin to vitamin E. Marked differences between this vitamin, however, and other known vitamins were apparent. These workers [3] also reported methods of concentrating and assaying this new antihemorrhagic factor.

Somewhat later, but independently, Almquist and his associates [4] described the same hemorrhagic disease in the chick and, in addition, developed a method of concentrating the antihemorrhagic factor contained in alfalfa meal. A quick method of assay was then reported by them,[5] and shortly thereafter a clear, colorless, crystalline substance containing one or more benzene rings and having a potency eight times that of the fraction remaining in the solution was isolated.

Clinical trial of extracts rich in so-called vitamin K naturally followed closely in the wake of experimental work. Hawkins and Brinkhaus [6] in their work on the cause of bleeding in dogs with bile fistulas found the plasma prothrombin markedly decreased in these animals and expressed the belief that the low prothrombin level was responsible for the hemorrhagic propensity. They found that the feeding of bile, with a sufficient diet, would increase the plasma prothrombin and that afterward the bleeding ceased.

Butt, Snell and Osterberg [7] of the Mayo Clinic reported striking results in the use of vitamin K and bile in the treatment of the hemorrhagic diathesis in cases of obstructive jaundice. Dam and Glavind [8] also reported favorable results in such cases but predicted that purpura and hemophilia, as well as other allied conditions in which the plasma prothrombin content is not lowered, would not respond to such therapy, a suggestion which has since been borne out.

The modus operandi of vitamin K in increasing the plasma prothrombin has not yet been elucidated. It is assumed that the product is absorbed by the intestinal tract in the presence of bile (it being fat soluble), but nothing is yet known concerning its metabolism after assimilation. The fact that bile is necessary for its absorption, however, accounts for the inability of a patient stricken with obstructive jaundice to absorb the vitamin; hence the low prothrombin content of the plasma. Both Dam and Almquist have observed that vitamin K can be produced by bacterial action in the intestine, and this appears to be the explanation for the failure of certain animals to acquire hemorrhagic disease though fed on a diet deficient in vitamin K.

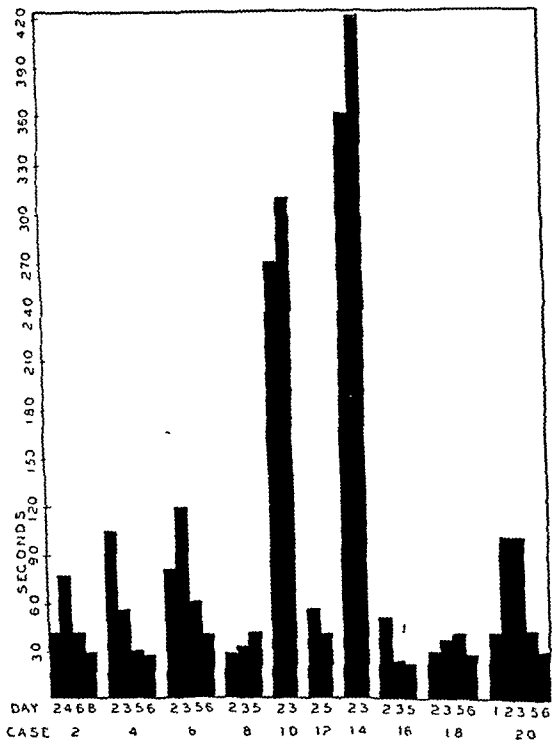


Chart 1.—Prothrombin clotting times for the control infants.

From the Department of Pediatrics, University of Virginia Department of Medicine

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8. Dam, Henrik, and Glavind, Johannes: Vitamin K in Human Pathology, Lancet **1**: 720 (March 26) 1938

In this work we employed the method devised by Quick and his co-workers [9] for determining the prothrombin-clotting time. This method has been used by Snell, Butt and Osterberg [10] of the Mayo Clinic in their work on the hemorrhagic diathesis in jaundice, and it is their belief that, while it is a relatively simple procedure, it is accurate within practical limits and, as the originators contend, a very good index of the prothrombin level, since this time varies inversely with the prothrombin content of the blood.

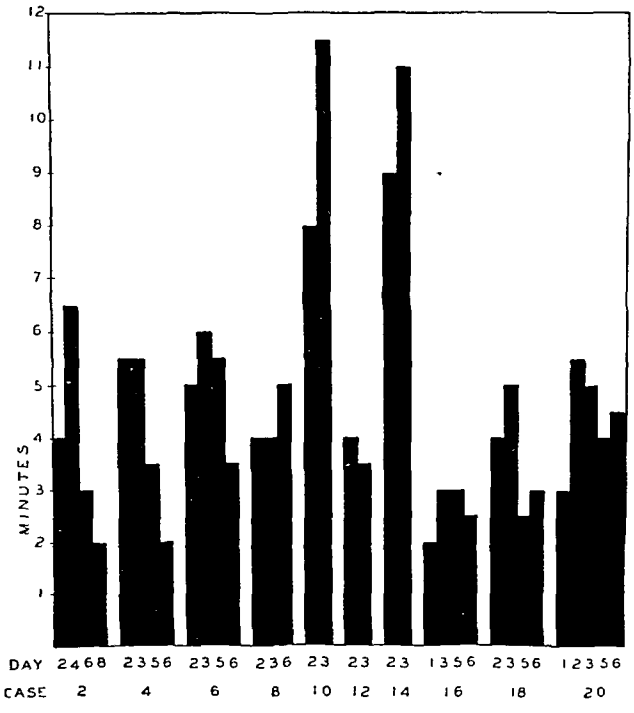


Chart 2.—Blood clotting times for the control infants

Brinkhaus, Smith and Warner [11] have found the prothrombin level of the newly born to vary considerably in different infants and in the same infant at different ages. These workers have further shown that for normal newly born infants the prothrombin values vary from 14 to 39 per cent of the level found for normal adults, while in a case of hemorrhagic disease the prothrombin level was extremely low, in fact less than 5 per cent of the adult norm.

With this work in mind it seemed logical to believe that vitamin K, which so materially affects the prothrombin level in jaundiced patients, might conceivably be effective in raising the prothrombin content of the newly born infant's blood and thereby prevent both spontaneous hemorrhage or that initiated by the trauma of labor. It is but a step further to postulate, should this be effective, that birth trauma may be minimized by administering this substance to the mother either before or shortly after labor has set in.

Twenty newly born infants served as subjects for the first part of this investigation. For ten control infants the prothrombin-clotting time and the clotting time of the blood were determined at varying intervals during the first week of life. To ten other infants vitamin K concentrate [12] was administered orally, at the end of twenty-four hours 1 cc., at the end of forty-eight hours 0.5 cc. and at the end of seventy-two hours 0.5 cc. The clotting times of the blood and the prothrombin were determined at intervals identical with those of the controls, the capillary tube method being used.

In all cases the prothrombin-clotting time was determined according to the method of Quick, blood specimens being obtained from the anterior longitudinal sinus. All such determinations were done by Dr. O. R. Kelly of the department of clinical laboratories of the University of Virginia Hospital.

Because of the meager knowledge concerning the prothrombin content of the blood of the newly born and the even more meager knowledge concerning the prothrombin-clotting time, it was necessary to establish our own controls. Although we had only ten, we obtained significant information from them. Chart 1 shows the prothrombin-clotting rate at various intervals in the first week of life for the ten control infants.

It seems obvious (1) that the blood of newly born infants differs markedly as regards the prothrombin-clotting time, unusually high rates being common, (2) that the blood of individual infants varies markedly on different days of life as regards the prothrombin-clotting time, (3) that the blood of certain infants is peculiarly deficient in prothrombin as determined by the prothrombin-clotting rate and that the period of most marked deficiency is between the ages of 48 hours and 72 hours and (4) that after the fifth day the rate tends to fall to an apparently common level. The last fact strongly suggests a relationship between hemorrhagic disease of the newly born and the prothrombin content of the blood, in that hemorrhagic disease rarely occurs after the fifth day of life, the time at which the prothrombin-clotting rate of the control infants appeared to approach a common level.

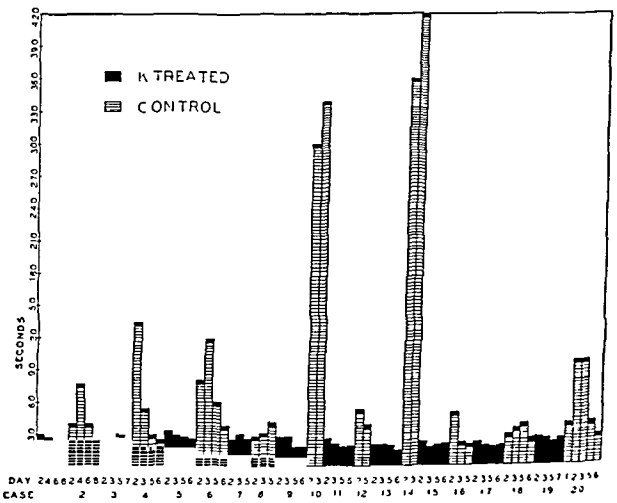


Chart 3.—Prothrombin clotting times for the control and treated infants

Chart 2 shows the blood-clotting time at various intervals in the first week of life for the ten control infants. All time intervals conform with those employed in the determinations of the prothrombin-clotting times. It seemed obvious (1) that the blood

9 Quick, A. J., Stanley Brown, Margaret, and Bancroft, F. W.: A Study of the Coagulation Defect in Hemophilia and in Jaundice, Am. J. M. Sc. 190: 501-511 (Oct.) 1935.

10 Butt, H. R.; Snell, A. M., and Osterberg, A. E.: Further Observations on the Use of Vitamin K in the Prevention and Control of the Hemorrhagic Diathesis in Cases of Jaundice, Proc. Staff Meet., Mayo Clin. 13: 753-764 (Nov. 30) 1938; footnote 7.

11 Brinkhaus, K. M.; Smith, H. P., and Warner, E. D.: Plasma Prothrombin Level in Normal Infancy and in Hemorrhagic Disease of the Newborn, Am. J. M. Sc. 193: 475 (April) 1937.

12 The vitamin K concentrate used in this study was furnished by the Abbott Laboratories and is now available for general use.

of newly born infants differs markedly as regards the clotting time, (2) that the blood of individual infants varies markedly on different days of life as regards the clotting time, (3) that the highest clotting times occur at from 48 hours to 72 hours, (4) that no high clotting times are encountered after the sixth day of life and (5) that as the prothrombin-clotting time rises or falls so does the blood-clotting time rise or fall. This fact may well explain the high clotting time of the blood in hemorrhagic disease of the newly born.

In chart 3 the prothrombin-clotting times for ten control infants are staggered with the prothrombin-clotting times for ten infants treated with vitamin K. It is a significant and striking fact that no unusually high rates were observed for the latter infants and no unusual daily variation. In fact the highest rate encountered for these infants was 40 seconds. Apparently vitamin K concentrate will markedly lower the prothrombin-clotting time in the first few days of life and maintain it at a safe and surprisingly common level.

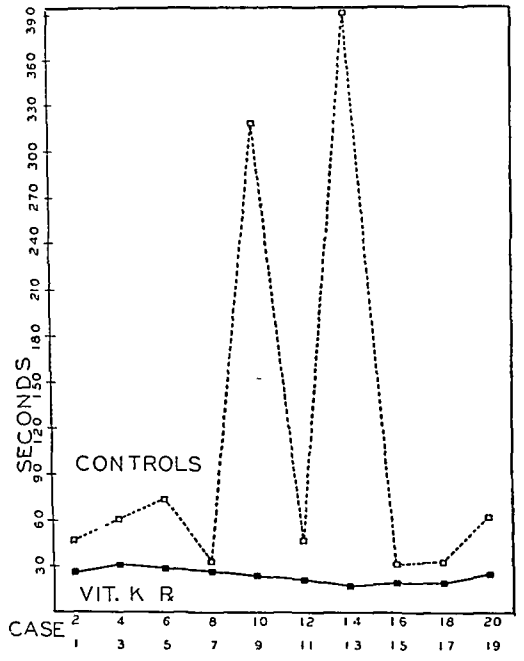


Chart 4.—Average prothrombin-clotting times for the control and treated infants.

In chart 4 the mean prothrombin-clotting times of the ten control infants are plotted in the form of a curve and a similar curve is plotted for the ten infants treated with vitamin K. The low level for the treated infants and the very even curve are most apparent.

We do not know what should be considered a safe prothrombin level. Butt, Snell and Osterberg in their report concerning the use of vitamin K in the preparation of certain patients with jaundice for operation said that a prothrombin-clotting time of more than thirty seconds was an indication for vitamin K therapy and a ten second fall in the rate evidence of a decided effect of vitamin K. The dramatic effect of this vitamin possible in the newly born would seem to be but the expression of a real need for prothrombin occurring at this age. It is not difficult to see why some of the control infants might have bled when subjected to the trauma of labor and delivery, and it is not difficult to see why spontaneous hemorrhage occurs at this age. On the other hand, it seems unlikely that spontaneous hemorrhage will occur in any infant receiving vitamin K and having prothrombin-clotting rates such as those recorded here.

In chart 5 the clotting times of the blood for the ten control infants are staggered with the clotting times of the blood for the ten infants treated with vitamin K. The generally lower level of the clotting time of the treated infants is apparent, with none of the daily variations so noticeable for the controls.

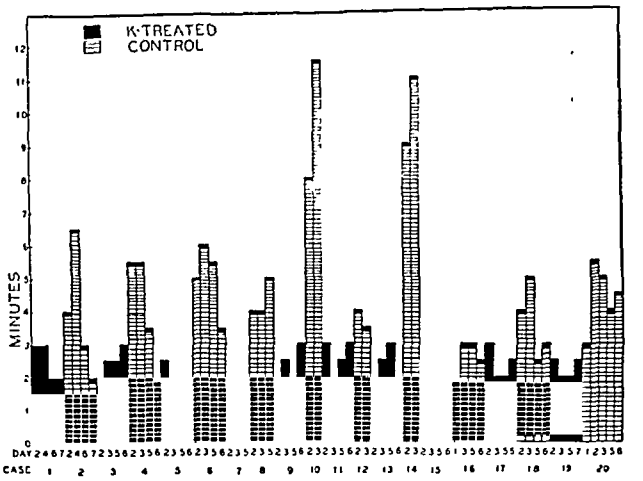


Chart 5.—Blood-clotting times for the control and treated infants.

The mean blood-clotting times of the ten controls and of the infants treated with vitamin K are expressed in curves in chart 6. The generally lower clotting time and its strikingly common level for the treated infants is very evident. Apparently vitamin K concentrate will consistently lower the clotting time of the blood in the first few days of life and maintain it at a common lower level. It is hard to visualize spontaneous hemorrhage

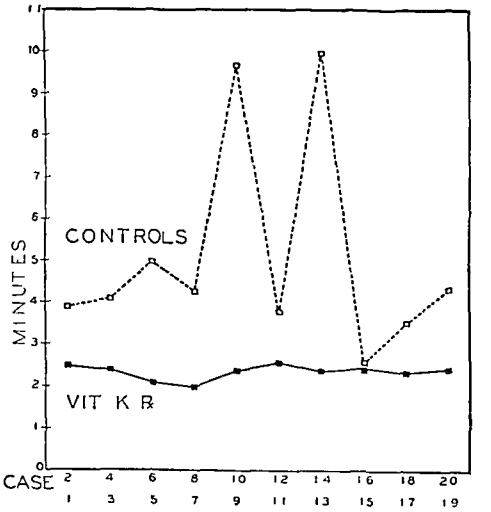


Chart 6.—Average blood-clotting times for the control and treated infants.

in the treated infants, with clotting times markedly lower than the supposed clotting time of the normal newly born infant.

The rapidity with which vitamin K concentrate reduces the prothrombin-clotting time and the blood-clotting time in a suitable case is remarkable, as shown in the following history:

CASE 1.—T., a baby girl, was born in the University of Virginia Hospital Feb. 12, 1939, of a syphilitic mother who had

received suitable treatment. At the time of the baby's birth, the mother's Wassermann reaction was negative. The infant appeared normal in every respect and the weight was 2,770 Gm. On the afternoon of February 15, the third day of life, the prothrombin-clotting time was found to be five and one half minutes and the coagulation time eight minutes. Two cc. of a concentrate rich in so-called vitamin K was administered by mouth. Two hours later the prothrombin-clotting time had dropped to forty seconds and the coagulation time from eight minutes to five minutes. Throughout the hospital stay the prothrombin-clotting time and the blood-clotting time remained consistently low, and on the seventh day the former was twenty-four seconds and the latter three minutes (chart 7).

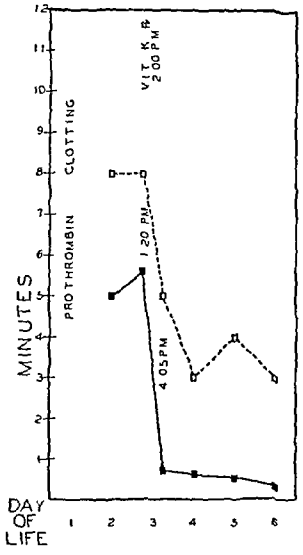


Chart 7.—Clinical data in case 1.

COMMENT

The whole subject of unnatural bleeding at the time of birth and in the first week of life is in a very confused state. No satisfactory classification of hemorrhage occurring at this time is available. This confusion has largely to do with what is or is not hemorrhagic disease of the newly born, at best only a clinical syndrome rather than a disease entity.

Because of its frequency and disastrous consequences, intracranial hemorrhage originating at the time of labor and delivery causes the greatest concern. We have always felt that trauma played only a secondary role in normal labor and delivery and that certain infants possess an inherent tendency to bleed under the stimulus of moderate trauma. Unusually high prothrombin-clotting and blood-clotting times may well account for such unnatural bleeding tendencies. Certainly symptoms and signs of intracranial hemorrhage frequently are not observed until many hours after delivery, and this suggests slow hemorrhage from a small bleeding point. The presumptive and factual evidence presented in this report suggests that vitamin K concentrate if administered immediately after birth may serve to check such bleeding and render harmless a slow oozing hemorrhage, which otherwise might well cause death or permanent mental and physical crippling.

In the prevention and treatment of spontaneous hemorrhage, concealed or apparent, associated with a high prothrombin-clotting and blood-clotting time and appearing within the first week of life, vitamin K concentrate should prove effective. The following case is presented as further factual evidence that vitamin K concentrate will check unnatural bleeding associated with a prolonged prothrombin-clotting and blood-clotting time.

CASE 2.—D., a baby girl born Feb. 12, 1939, in the University of Virginia Hospital, weighed 3,345 Gm. and appeared normal in every respect. On the second day after birth at 3:30 p. m. blood was removed from the longitudinal sinus. The prothrombin-clotting time was found to be six minutes. Blood from a puncture wound of the heel showed a clotting time of nine minutes. Slow oozing from this wound lasted for twelve hours. At 9:30 the following morning puncture of the fontanel was again done, and the prothrombin-clotting time was found to be seven minutes and the blood-clotting time eleven minutes. Two cc. of a concentrate rich in so-called vitamin K was administered by mouth. One and one half hours later the prothrombin-clotting time had dropped from six minutes to fifty-five seconds and the blood-clotting time from eleven minutes to four minutes. Oozing from the puncture wound of the heel ceased promptly after administration of vitamin K. Throughout the hospital stay the prothrombin-clotting time and the blood-clotting time remained consistently low, and on the seventh day the former was twenty-three seconds and the latter three minutes (chart 8).

We are unable to suggest what may be the effect of vitamin K on hemorrhage not associated with a high prothrombin-clotting time and blood-clotting time. It seems unlikely that any beneficial effects will result, since the disturbance in such cases appears not to be a matter of the clotting of blood but rather a change in the walls of small blood vessels which renders them permeable so far as their contents are concerned. In our experience cases of this nature are rare.

There would seem to be important surgical significance in the facts presented in this report. In view of the high prothrombin-clotting and blood-clotting times so commonly encountered in newly born infants, it would seem wise to administer vitamin K before any contemplated surgical operation at this age period. This simple precaution should greatly lessen the chance of unpleasant and serious bleeding at the time of and after operation. Even the simple operation of circumcision has at times been associated with serious and even fatal hemorrhage.

Believing as we do that trauma plays only a secondary role in many of the cases of intracranial hemorrhage associated with apparently easy and normal labor, we are engaged in a study to determine whether or not vitamin K administered to the mother before and after the onset of labor will materially affect the prothrombin-clotting time and the blood-clotting time in the newly born infant. The results obtained so far in this uncompleted investigation are most encouraging and will be published in the near future. If the prothrombin-clotting time and the blood-clotting time of the infant can be lowered by administration of vitamin K to the mother, the therapeutic application suggests vast possibilities. If the desired effects cannot be obtained through the mother by oral administration, it seems not unlikely that a preparation of vitamin K suitable for intravenous use will be available. At least one study is under way which has for its object the production of a suspension or colloidal solution for intravenous use.

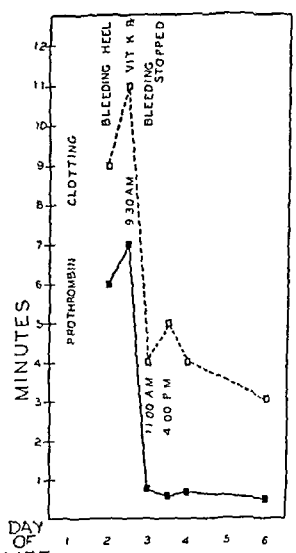


Chart 8.—Clinical data in case 2.

It is hardly necessary to stress the necessity of finding some means whereby the incidence of intracranial hemorrhage occurring at the time of birth may be materially lessened. Concerning this important subject we quote from Grulee and Bonar.[13]

13. In Brenneman, Joseph: Practice of Pediatrics, Hagerstown, Md., W. F. Pryor Company, Inc., vol. 1, chapter 42, p. 59.

We see, therefore, that of the deaths of the newborn, between 25 and 40 per cent may be attributed to intracranial hemorrhage, and that the number of cases of intracranial hemorrhage in maternity hospitals varies with the hospital but that it is probably as frequent as 1 to 25 or as low as 1 to 150 deliveries. If we were to estimate the number of deaths in the population at large from any one disease, or type of injury, we would be appalled to find that it occurred as frequently as 1 to 150 individuals.

This statement does not take into account the large army of mental and physical cripples who were so unfortunate as not to die as a result of their cerebral accident. A relatively short trial in any large lying-in hospital should prove or disprove the suggested therapeutic value of vitamin K concentrate and its possible effect on the present unhappy picture.

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STUDIES IN BLOOD PRESERVATION

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I REPARTITION OF POTASSIUM IN CELLS AND PLASMA

Dulière[1] reported in 1931 a constant enrichment in the serum potassium of blood kept in contact with cells over a period of days.

The manifestations of potassium poisoning have been well known since Blake's[2] observation in 1840. The symptoms in both cold[3] and warm[4] blooded animals have been reported. Such poisoning is not peculiar to the animal kingdom, for alterations in the concentration of potash in certain plant cells or in the mediums in which they live profoundly affect many of their normal reactions.[5]

Because of this, an investigation of the loss of potassium from cells and its increase in the plasma, as one of the abnormalities of stored blood, was felt necessary. An investigation seemed doubly imperative on account of the recent rapid rise of "blood banks," together with the growing conviction that blood kept too long is dangerous, as judged by an occasional severe reaction, a greater incidence of post-transfusion jaundice and an occasional unexplained death.

Normally human red cells contain twenty times as much potassium as there is in the plasma. It is the chief mineral base of cells. Naturally factors altering this distribution would make available an ever increasing amount of potassium in the serum of preserved blood.

FIRST SERIES

The first group of experiments was designed to check Dulière's statement. Two samples of the same human venous blood were collected with aseptic precautions and kept in pyrex flasks stoppered with cotton, in the dark, in a refrigerator at 4 C. in the following manner:

EXPERIMENT 1.—The blood, 250 cc., was kept under liquid petrolatum.

EXPERIMENT 2.—The blood, 250 cc., was mixed with 2.5 per cent solution of sodium citrate in sufficient quantity to make a mixture containing 0.31 Gm. per hundred cubic centimeters of blood.

At the same time a 5 cc. sample was mixed with heparin (Connaught) in a centrifuge tube and spun for one hour. This served as the sample for base line determinations.

Portions of the serum or plasma were pipetted off at twenty-four hour intervals for five days and then at approximately weekly intervals for a month. With each analysis, material for culture was taken and streaked on blood agar plates. These were observed for growth at the end of twenty-four and forty-eight hours.

Potassium determinations were done by the argenti-cobaltinitrite modification[6] of the method of Kramer and Tisdall,[7] the final colorimetric readings being made on the Evelyn photoelectric colorimeter.[8] The value given is the mean of two aliquots. Cell volume was determined by Sanford-Magath tubes spun for one hour at 2,000 revolutions per minute.[9] Specific gravity was measured by the method of Barbour and Hamilton.[10] The plasma protein content was calculated by the formula of Weech, Reeves and Goettsch.[11]

The following experiment is typical of the series as to method and results:

Dr. Drew is a Fellow in Surgery, Rockefeller Foundation

This study was made possible by a grant from the Blood Transfusion Betterment Association

From the Department of Surgical Pathology of Columbia University College of Physicians and Surgeons

Data presented at the Eleventh Annual Graduate Fortnight, the New York Academy of Medicine, Oct. 24-Nov. 4, 1938

Owing to lack of space, this article has been abbreviated for publication in THE JOURNAL by the omission of several tables. The complete article appears in the authors' reprints

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EXPERIMENT 1.—*Blood kept under oil without a preservative.* The blood of the donor, Dr. J. S., was of group B.

Procedure.—In addition to the determinations, which served to provide basic values, made at the time of the bleeding, eight other sets of analyses were made, and the results were expressed in four ways (table 1):

1. Column 4; actually observed; serum potassium as milligrams per hundred cubic centimeters of serum.

2. Column 5; by calculation as milligrams of potassium in the serum of 100 cc. of blood. This figure for practical purposes gives at a glance the actual amount of serum potassium in every hundred cubic centimeters of blood on any given day when preserved in the stated manner.

3. Column 6; by calculation as milligrams of potassium given off into the serum by each hundred cubic centimeters of cells. This figure is theoretically more convenient for comparative purposes, as it obviates the differences created by bloods whose cell volumes may vary markedly from normal.

4. Column 7; as percentage of potassium which has diffused out of the cells.

Each day's values represent the sum of the increments to that particular day, care being taken throughout to estimate the amount of potassium removed in the various test samples. At each sampling a note was made concerning the presence and degree of hemolysis.

TABLE 1 (experiment 1).—*Blood Kept Under Oil Without Preservative*

1	2	3	4	5	6	7	8
			Milligrams of Potassium				
			Observed Value per 100 Cc. of Serum*	Sum of Increments		Percentage of Cell Potassium Diffused Out	Hemolysis (Observed)
				Per 100 Cc. of Blood	From 100 Cc. of Cells		
Date	Sample	Days					
3/27/38	1	1	40.0	8.7	16.0	4.5	0
3/28/38	2	2	68.6	21.1	39.2	11.0	0
3/29/38	3	3	83.0	27.2	51.0	14.2	0
3/30/38	4	4	100.8	35.1	64.7	18.3	0
3/31/38	5	5	133.2	48.6	89.7	25.3	0
4/ 9/38	6	14	200.0	76.1	140.5	39.6	++++
4/15/38	7	20	206.4	78.6	145.2	40.9	++++
4/29/38	8	34	225.0	86.0	158.0	44.8	++++

* Values uncorrected for sample removed.

Values.—

Basic Values: hematocrit reading, 54.3 per cent cells and 45.7 per cent serum; plasma potassium, 21 mg., whole blood potassium, 202 mg. and cell potassium (calculated), 354 mg., per hundred cubic centimeters; specific gravity of plasma, 1.0274, and plasma proteins, 6.87 Gm. per hundred cubic centimeters.

Calculation:

(*a*) For base line or zero values: blood sample, 250 cc.; serum volume, 250×0.457 (percentage of serum) $= 114.4$ cc.; determined serum potassium, 21 mg. per hundred cubic centimeters, and total potassium in original serum, 24 mg.

(*b*) For first day's increment: blood sample, 2 cc.; serum potassium (observed value), 40.0 mg. per hundred cubic centimeters; potassium in 2 cc. sample, 0.8 mg.; potassium in residual serum, $114.4 - 2 \times 0.4 = 45$ mg.; total potassium in serum after twenty-four hours, $45 + 0.8 = 45.8$ mg.; increase in total potassium in serum in twenty-four hours, $45.8 - 24$ (originally present) $= 21.8$ mg.; increase in serum potassium of 100 cc. of blood in first twenty-four hours, $21.8 \times \frac{100}{250 \text{ (cc.)}} = 8.7$ mg.; amount of potassium given off in first twenty-four hours by each hundred cubic centimeters of cells, $21.8 \times \frac{100}{250 \text{ (cc. of blood)} \times 0.543 \text{ (percentage of cells)}} = 16$ mg., and percentage of cell potassium diffused out into serum in first twenty-four hours, $\frac{16 \text{ (amount lost)}}{354 \text{ (original cell potassium)}} = 4.5$.

In a similar manner each day's results were determined and expressed as the sum of the increments.

Results.—These are shown in chart 1 and table 1.

In each of the two flasks there was a steady rise in the serum or plasma potassium. In the hematocrit tube, however, for the few days observed, the increment was less and suggested that either heparin was a markedly superior preservative or the slow diffusion was the result of some other factor.

In each instance there was discernible discoloration of the supernatant fluid by the fifth day and obvious gross hemolysis by the fourteenth.

The data in table 1 suggest that blood kept under oil at a constant temperature loses in the first week at least 25 per cent of its cell potassium, at the end of three weeks about 40 per cent and from that time on diminishing quantities. In more practical terms, such blood at the end of the first week contains in the serum of each hundred cubic centimeters of blood at least 50 mg. of potassium and any time after two weeks at least 75 mg., the amount gradually increasing.

SECOND SERIES

The second group of experiments was designed (1) to check the results of the first series, (2) to ascertain the effect of trauma (such as shaking) on the rate of loss of potassium from cells and (3) to see what effect the shape of the container had on the rate of diffusion. The blood of the donor, Dr. G. S., was of group O. Five hundred cc. of blood was collected and placed in three pyrex flasks.

EXPERIMENT 3.—The blood, 150 cc., was kept under oil without an anticoagulant.

EXPERIMENT 4.—The blood was placed in a Sanford-Magath hematocrit tube containing heparin and spun for an hour.

EXPERIMENT 5.—The blood, 150 cc., was mixed with 50 mg. of heparin.

EXPERIMENTS 6 and 6B.—The blood, 200 cc., was mixed with the usual sodium citrate solution.

These flasks were treated in a manner similar to the first set. The results are shown in table 2.

From the observed values, none of the anticoagulants prevented the loss of potassium from the cells. The rate of diffusion appeared a little slower in the citrated blood. There was a distinct difference in the heparinized bloods (chart 2), that in the container with the larger interface showing the more rapid diffusion. This indicates that the shape of the container and not the anticoagulant was probably the cause of the slow diffusion in the heparinized blood in the first series. Here again, agitation by vigorous shaking hastened the process of diffusion (chart 3).

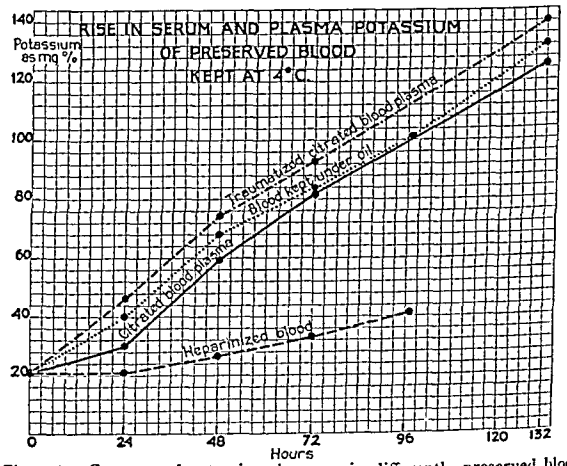


Chart 1.—Contrast of potassium increase in differently preserved bloods. Both the citrated blood and the blood stored under oil were in Erlenmeyer flasks. The heparinized blood was kept in a centrifuge tube. Data from experiment 1, table 1.

THIRD SERIES

In the third series four samples of fresh venous whole blood were preserved in 2.5 per cent solution of sodium citrate, 3 per cent solution of sodium citrate, Peyton Rous solution [12] and the Russian citrate solution.[13]

EXPERIMENT 7.—*Blood preserved in 2.5 per cent solution of sodium citrate.* The blood, from a professional donor, G. W., was of group O. To 125 cc. was added 17.5 cc. of 2.5 per cent solution of sodium citrate to give a mixture containing 0.31 Gm. per hundred cubic centimeters of blood. Each day a 2 cc.

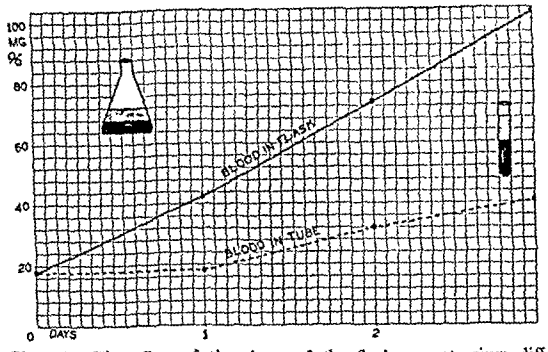


Chart 2.—The effect of the shape of the flask on potassium diffusion. Data from experiments 4 and 5, table 2.

sample was removed from the supernatant fluid without disturbing the cells and the potassium content determined as in experiment 1.

The results are tabulated in table 3 and graphically represented in charts 4 and 5.

EXPERIMENT 8.—*Blood preserved in 3 per cent solution of sodium citrate.* The donor was the same as in experiment 7 and the procedure was the same except that 15 cc. of a 3 per cent solution of sodium citrate in sterile water was used as the preservative for 125 cc. of blood. The gram percentages are exactly the same, 0.31.

The results are tabulated in table 4 and graphically represented in chart 5.

EXPERIMENT 9.—*Blood preserved in Russian citrate compound.* The blood of the donor, Dr. C. R. D., was of group O. Fifty cc. was added to an equal quantity of preservative made up according to the following formula: sodium chloride 7 Gm., sodium citrate 5 Gm., potassium chloride 0.2 Gm., magnesium sulfate 0.004 Gm. and distilled water 1,000 cc. The rate of diffusion was determined as in experiments 7 and 8.

The results are tabulated in table 5 and graphically represented in chart 5.

EXPERIMENT 10.—*Blood preserved in Peyton Rous compound.* The blood of the donor, Dr. J. S., was of group B. To 150 cc. was added 250 cc. of 5.4 per cent solution of dextrose in distilled water and 100 cc. of 3.8 per cent solution of sodium citrate. The high percentage of sodium citrate in this preservative contraindicates its use for transfusions; the cells, however, may be resuspended in saline solution and used. The results are shown in table 6 and chart 5.

SUMMARY, PART I

1. There is a daily increase in the amount of potassium present in the serum or plasma of whole blood kept in vitro under aseptic bacteriostatic conditions.

2. The transference of potassium from cells to plasma begins at the time of withdrawal from the blood stream. The rate is rapid at first and gradually diminishes.

3. The total amount found in the serum at the end of ten days reaches 25 per cent of the total potassium content of the red blood cells in the fresh state and at the end of thirty days may exceed 50 per cent.

4. The rate at which the potassium is given up by the cells is greatly increased by shaking.

5. The rate of potassium diffusion is evidently influenced by the shape of the container. The larger the interface area, the more rapid the diffusion (chart 2).

6. Hemolysis appeared at varying times in the different samples; none was present in the sample preserved in the Peyton Rous compound.

7. Changes observed in these experiments were not due to bacterial infection.

8. Sodium citrate in a mixture containing 0.31 Gm. per hundred cubic centimeters of blood is more effective as a preservative than the more complex Russian citrate compound.

9. The citrate-dextrose mixture of Peyton Rous prevents loss of hemoglobin from the cells but not loss of potassium.

II. A COMPARISON OF THE RATES AT WHICH CELLS LOSE POTASSIUM AND HEMOGLOBIN

In the third series of experiments, repeated attempts to measure accurately the small amounts of hemoglobin in the plasma of only slightly hemolyzed bloods were unsuccessful with the usual acid hematin methods such as those of Helige and Sahli. With the Pulfrich photometer, however, small daily increments were demonstrable with greater consistency. The method used is a modification of that described by Heilmeyer.[14] The content of hemoglobin may be calculated in grams per hundred cubic centimeters of plasma and then reexpressed as grams lost from the cells per hundred cubic centimeters of blood.

The potassium determinations were done as described in part I, the cultures on blood agar plates and the

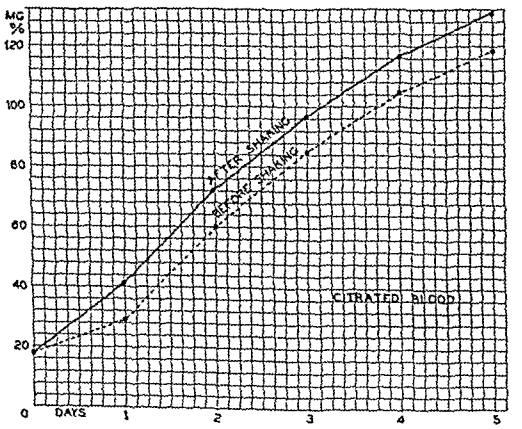


Chart 3.—Effect of shaking on preserved blood. Data from experiments 6 and 6B, table 2.

p_H determinations first by titration and then checked by means of a Helige glass electrode potentiometer which had been calibrated by buffers.

EXPERIMENT 11.—*Blood preserved in diluted Russian citrate compound.* The blood of the professional donor, J. F., was of group O.

Equal parts of blood and diluted preservative were mixed by adding 125 cc. of blood to 125 cc. of preservative which con-

12. Rous, Peyton, and Turner, J. R.: The Preservation of Living Red Blood Cells in Vitro: I. Methods of Preservation, J. Exper. Med. **23**: 219-237 (Feb.) 1916.

13. Goodall, J. R.; Anderson, F. O.; Altimas, G. T., and MacPhail, F. I.: An Inexhaustible Source of Blood for Transfusion and Its Preservation, Surg., Gynec. & Obst. **66**: 176-178 (Feb.) 1938.

14. Heilmeyer, Ludwig: Medizinische Spektrophotometrie, Jena, Gustav Fischer, 1933, p. 86.

tained 875 mg. of sodium chloride, 625 mg. of sodium citrate, 25 mg. of potassium chloride and 0.5 mg. of magnesium sulfate.[13]

The blood and the preservative were checked for initial p_H values, which were compared with the p_H of the mixture at the end of the experiment.

Hemoglobin determinations were done at the first suggestion of hemolysis. Cultures were taken at well spaced intervals.

The zero value used in determining the daily increments of hemoglobin was 40 mg. in the plasma from 100 cc. of blood. This quantity is our normal value for blood which has been centrifuged for one hour.

The basic values were as follows: hematocrit reading, 45.6 per cent cells and 54.4 per cent plasma; plasma potassium, 17.6 mg., whole blood potassium, 192.0 mg. and cell potassium (calculated), 400.0 mg. per hundred cubic centimeters; specific gravity of plasma, 1.0253; plasma proteins, 6.25 Gm. per hundred cubic centimeters; p_H of blood, 7.3 and p_H of preservative, 7.4

The results are tabulated in table 7.

EXPERIMENT 12.—*Blood preserved in sodium citrate and adrenal cortex extract.* The blood of the professional donor, J. F., was of group O. To 125 cc. was added 15 cc. of a 3 per cent solution of sodium citrate and 10 cc. of adrenal cortex extract, the mixture being treated like that of experiment 11.

TABLE 7 (experiment 11).—*Blood Preserved in Diluted Russian Citrate Compound*

		Milligrams of Potassium			Percentage of Cell Potassium Diffused Out	Mg. of Hemoglobin in Plasma per 100 Cc. of Blood	Culture (Blood Agar)
		Observed Value per 100 Cc. of Plasma	Sum of Increments				
Date	Days		Per 100 Cc. of Blood	From 100 Cc. of Cells			
9/23/38	1	19.2	9.7	21.2	5.3	..	0
9/24/38	2	26.3	20.5	44.9	11.2	..	..
9/25/38	3	27.8	22.8	50.0	12.5	..	..
9/26/38	4	37.3	37.0	81.0	20.3	..	..
9/27/38	5	40.1	41.4	90.0	22.5	..	0
9/28/38	6	47.7	52.3	114.7	28.7	..	..
9/30/38	8	50.3	56.1	123.0	30.7	..	..
10/ 2/38	10	53.6	60.9	133.5	33.4	..	..
10/ 4/38	12	60.9	71.4	156.5	39.1	..	..
10/ 6/38	14	67.5	80.7	177.0	44.3	..	..
10/ 8/38	16	74.1	90.0	197.4	49.3	..	0
10/10/38	18	80.1	98.4	215.8	54.0	..	..
10/12/38	20	81.9	100.8	221.0	55.3	0.7	..
10/14/38	22	84.0	103.8	227.5	56.9	103.0	..
10/16/38	24	92.7	115.7	253.7	63.4	341.0	..
10/18/38	26	100.3	126.0	276.0	69.0	533.0	0
10/20/38	28	106.5	134.3	294.6	73.6	692.0	..
10/22/38	30	107.3	135.4	296.8	74.2	813.0	..
10/24/38	32	109.0	137.7	302.0	75.5	1,172.0	..
10/31/38	39	111.6	140.2	307.5	76.9	1,708.0	..
11/ 7/38	46	123.0	155.5	342 0	85.4	2,242.0	..
11/14/38	53	128.3	162.3	356.0	89.0	3,157.0	0
11/18/38		$p_H = 7.31 \pm 0.05$ as determined by glass electrode					

EXPERIMENT 13.—*Blood preserved in undiluted Russian citrate compound.* The blood of the professional donor, J. F., was of group O. The procedure was similar to that of experiment 11 except that only one half the quantity of preservative was used and no distilled water was added. The 12.5 cc. of preservative contained 312.5 mg. of sodium citrate, to make a mixture containing 0.228 Gm. per hundred cubic centimeters of blood. The results are shown in table 9.

EXPERIMENT 14.—*Blood preserved in Grey's buffered solution.* The blood of the professional donor, J. F., was of group O. The procedure was the same as that in experiment 11 except that 112.5 cc. of blood was used and 12.5 cc. of preservative prepared according to Grey.[15] The results are shown in table 10.

Table 11 shows at a glance the difference in rates of hemolysis in the four types of preservative. The increases of each are expressed in grams in the plasma of 100 cc. of blood and then as percentage of hemoglobin lost from the cells.

Table 12 expresses the percentage loss of potassium from cells.

The information gained shows that none of the preservatives prevented an increase in plasma potassium,

TABLE 11.—*The Difference in Rates of Hemolysis*

	Experiment 11; Diluted Russian Citrate Compound		Experiment 12; Solution of Sodium Citrate and Adrenal Cortex Extract		Experiment 13; Undiluted Russian Citrate Compound		Experiment 14; Grey's Buffered Solution	
(Samples collected Sept. 22)	Hemoglobin in Plasma		Hemoglobin in Plasma		Hemoglobin in Plasma		Hemoglobin in Plasma	
Date	Days	Gm.	Per Cent	Gm.	Per Cent	Gm.	Per Cent	Gm.	Per Cent
10/12/38	20	0.001	0.005	0.078	0.52	0.115	0.76	0.025	0.17
10/14/38	22	0.175	1.17	0.094	0.63	0.164	1.09	0.078	0.52
10/16/38	24	0.344	2.29	0.190	1.27	0.259	1.73	0.116	0.77
10/18/38	26	0.524	3.49	0.254	1.69	0.354	2.36	0.164	1.09
10/20/38	28	0.684	4.56	0.376	2.51	0.477	3.18	0.238	1.59
10/22/38	30	0.812	5.41	0.502	3.35	0.651	4.34	0.342	2.28
10/24/38	32	1.150	7.67	0.716	4.77	0.981	6.54	0.436	2.91
10/26/38	34	1.319	8.79	0.802	5.35	1.133	7.55	0.598	3.99
10/28/38	36	1.488	9.92	0.888	5.92	1.285	8.57	0.760	5.07
10/30/38	38	1.697	11.31	1.223	8.15	1.493	9.95	1.061	7.07
11/ 7/38	46	2.236	14.91	1.674	11.60	2.105	14.03	1.463	9.75
11/14/38	53	3.135	20.90	2.151	14.34	3.526	23.50	1.673	11.15

and of the preservatives analyzed sodium citrate functioned best. The blood kept under oil manifested the same changes. The reason underlying the mechanism of potassium loss is obscure; the finding of an increase in ammonia may prove significant.

Amberson[16] has shown that hemoglobin itself is not toxic to the vertebrate body if it has been freed from stromas, and if the solution was properly balanced infusions containing from 12 to 14 per cent caused no abnormal reaction. The quantities present in the plasma of the most hemolyzed bloods under our observation have not approached this figure.

TABLE 12.—*Percentage Loss of Potassium from Cells; Comparison of Different Preservatives*

Days	2.5% Solution of Sodium Citrate	3% Solution of Sodium Citrate	Russian Citrate Compound	Peyton Rous Compound	Diluted Russian Citrate Compound	Solution of Sodium Citrate and Adrenal Cortex Extract	Undiluted Russian Citrate Compound	Grey's Buffered Solution
7	18.7	18.8	23.1	19.0	30.5	20.4	26.2	28.1
14	32.8	28.7	40.9	37.2	44.3	34.1	38.2	42.3
21	44.3	40.8	60.0	44.2	56.1	51.7	49.5	53.3
30	48.7	44.7	66.0	53.4	74.2	62.3	58.1	61 2

These potassium levels were confirmed in the laboratory of Dr. Robert F. Loeb on samples submitted Oct. 4, 1938.

SUMMARY, PART II

1. The erythrocytes of preserved blood lose potassium at different rates, depending in part on the type of preservative. This loss begins before the diffusion of hemoglobin. Hence the degree of hemolysis cannot be used as an index of potassium loss.

2. A high degree of potassium diffusion may be present in the complete absence of hemolysis (table 7).

III. THE TOXICITY OF POTASSIUM

With the observed increase of potassium in the plasma of stored blood, a reinvestigation of the toxic action of this base was deemed necessary.

15. Grey, Temple: Buffered Citrate Solution in Blood Transfusion, Lancet 2: 1431 (Dec. 18) 1937.

16. Amberson, W. R.: Blood Substitutes, Biol. Rev., Cambridge Philosophical Soc. 12: 48-86, 1937.

The literature on the subject is abundant,[17] and some of the lethal doses are tabulated in tables 13 and 14.

Six years after Blake's[2] discovery that injections of potassium caused cardiac arrest in dogs, Bouchardat and Stuart-Cooper[18] in a series of fifty experiments established the lethal doses for fish, frogs, fowl, dogs and rabbits. Although this work was done in 1846,

TABLE 13.—*Lethal Doses of Potassium (Gustav Bunge, 1871)*

Animal	Weight Kg	Dose, Gm.	Salt	Time of Death	Authority
1. Introduced into Stomach					
Rabbits		3	KCl	30 min.	Guttmann
		1 6 4	KCl	40 70 min.	Bunge
Dogs	6	10 20	KCl	1 hr.	Podkopaew
		45	KNO_3	1½ hrs	Orfila
2. Subcutaneous Injection					
Rabbits		1 1 5	K_2CO_3 / KCl / KNO_3	15 20 min.	Guttmann
	1 2	4			
	2 0		KCl / KNO_3	47 355 min.	Falck
	1.2	3	KCl	1½ hrs.	Bunge
Cats		8	KCl	1¼ hrs.	Bunge
3. Intravenous Injection					
Rabbits		0 23	KCl	Immediate	Grandeau
Dogs		0 3	KNO_3	Immediate	Traube
		1-1 5	KCl	Immediate	Grandeau
		0 1	KCl	Immediate	Bunge
		0 0 1	KCl		Podkopaew
4. Intra Arterial Injection					
Dogs		1.5	KCl		Podkopaew

the conclusions are valid today, namely that the toxic action of potassium depends on the mode of administration, the rate of injection, the amount of potassium in the salt used and the individual resistance of the animal.

Concerning the toxicologic effects of potassium there are many contradictory data, owing in part to the choice of the animal. There is, however, fairly uniform agreement that small doses of potassium increase, while large doses weaken and paralyze, the normal functions of the nervous, glandular and muscular systems.

TABLE 14.—*Lethal Intravenous Doses of Potassium (Since Bunge)*

Year	Authority	Animal	Salt	Mg. of Potassium per Kg
1881	Feltz and Ritter	Dog	KCl	48
1883	Bochefontaine	Dog	KCl	100
1892	Dogiel	Dog	KNO_3	20
1906	Bouchard and Oliver	Dog	KCl	39 90
1910	Joseph and Meltzer	Dog	KCl	38 3
1938	Marenzi	Dog	KCl	20

Most authorities attribute death to cardiac paralysis: Claude Bernard,[19] Traube,[20] Grandeau,[21] Aubert and Dehn,[22] Bohm,[23] Dogiel,[24] Feltz and Ritter,[25] Bochefontaine,[26] Binet,[27] Hald,[28] Mathison,[29] Howell,[30] Gross[31] and Wiggers.[32]

Electrocardiograms taken in the course of conditions associated with hyperpotassemia[33] or after ingestion,[34] injection,[35] perfusion[36] or topical application[32] of potassium salts show a variety of changes. These range from slowing of the rhythm, decrease in PR interval and low voltage, to bundle branch block, ventricular fibrillation and cardiac arrest.

The respiratory and cardiac centers are other focal points of potassium action. Hooker[37] had demonstrated, by infusing the medulla of dogs, that an increasing concentration of potassium over calcium in the spinal fluid is followed by both respiratory and cardiac arrest.

Vascular smooth muscle is constricted by an increase in potassium concentration.[38] Of importance is the recent experimental work of Katz and Linder,[39] who reported coronary dilatation with small doses and complete occlusion with larger doses of potassium. In this condition, sodium salts caused relaxation of the constricted vessels.

The effect of potassium on blood pressure depends on the manner of injection and amount of the salt injected.[40] In general a decline in blood pressure occurs with intravenous[41] and a rise with intra-arterial medication.[42]

Aubert and Dehn,[22] however, reported a rise with very small intravenous doses. Mathison[29] has confirmed both the pressor and depressor effects of potassium salts.

Toxic oral doses are promptly vomited, and with certain animals ligation of the esophagus[43] was necessary to demonstrate that absorption from the gastro-

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35 Chamberlain, F., S[illegible]lder, J., and Zwemer, R. L. To be published.

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intestinal tract may be toxic. The lethal doses, however, are from seventy to a hundred times the intravenous ones.

ANIMAL EXPERIMENTS

To test again the toxic action of potassium, the rabbit and dog were selected. The former has a high and the latter a low potassium content of the blood cells.

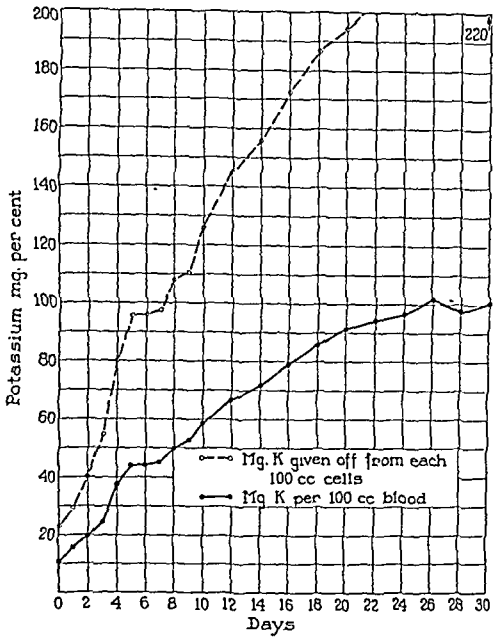


Chart 4.—Preservative: 70 cc. of a 2.5 per cent solution of sodium citrate for each 500 cc. of blood. The diffusion of potassium is expressed in two ways: (*a*) the amount given off from 100 cc. of cells (theoretical) and (*b*) the increase in the potassium in each hundred cubic centimeters of blood. Data from experiment 7, table 3. The points for this chart were obtained by adding the initial base line values to the daily increments expressed in the table. This chart shows the actual amount of potassium in each hundred cubic centimeters of blood. In giving a transfusion of 1,000 cc. of this blood on the thirtieth day one would be giving 1 Gm. of potassium. Under such circumstances extreme caution would need to be exercised, for example in the rate of injection.

TABLE 15.—*Rabbits Given Injections of Solution of Potassium Chloride*

Rabbit	Weight, Kg.	Concentration of Solution as Gm. per 100 Cc.	Amount Injected as Cc.	Place and Speed of Injection	Potassium Chloride as Gm.	Potassium as Mg. per Kg.	Results
1	2.01	0.381	550	Peritoneum Slowly	2.1	547	Died on seventh day
2	2.0	0.381	500	Peritoneum Slowly	1.96	514	Revived and given another injection on twelfth day
3	2.5	0.381	40	Jugular vein Rapidly	0.152	32	Convulsion; died at once
4	2.36	0.381	40	Jugular vein Rapidly	0.152	34	Convulsion; died at once
5	2.0	0.381	50	Jugular vein Rapidly	0.19	49	Convulsion; died in few minutes
2	2.0	1.16	42	Jugular vein Slowly	0.487	128	Convulsion; died in 15 min. 5 sec.

In our first set of experiments five rabbits were used. In three the potassium chloride solution was injected rapidly into the jugular vein, with immediate death after a generalized convulsion. In two the solution was injected into the peritoneum; one lived a week and the other recovered and was given an intravenous injection on the twelfth day. The results are given in table 15.

In the second group of experiments four dogs were used in an attempt to determine more accurately what part the speed of injection plays in the production of toxic symptoms. A typical protocol is presented in table 16. The actual lethal dose was given when 275 cc. (138.5 mg. of potassium per kilogram) of fluid had run in. The additional 25 cc. was accidental and may account for the excessive rise shown by the last value for plasma potassium. The gradual fall in the specific gravity and protein content of the plasma may be considered as an indication of blood dilution. The changes in the cell volume as recorded by hematocrit readings are more difficult to explain. The initial fall represents dilution and the secondary rise a sudden transport of fluid from the blood.

A summary of the experiments on dogs is presented in table 17.

TOXICITY IN MAN

The literature is very meager regarding the toxic action of potassium on man. Orfila [43] in 1818 reported the following cases:

A man with periodic fever took 1½ ounces (45 cc.) of potassium nitrate, thinking it was epsom salt, and died in ten hours.

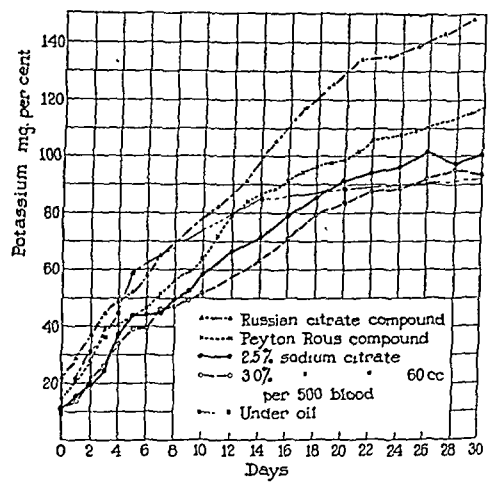


Chart 5.—Comparison of increase in plasma potassium in differently preserved bloods. The actual amounts of potassium in the plasma of 100 cc. of blood on any given day are shown. The points were obtained as in chart 4. The data are from experiments 1, 7, 8, 9 and 10, tables 1, 3, 4, 5 and 6.

A woman aged 40, suffering from heartburn, took 3 or 4 drachms (11 to 15 Gm.) of potassium sulfide in 4 ounces (120 cc.) of water by mistake. Severe vomiting ensued, followed by unconsciousness, the presence of black blood in the capillary system, especially of the lips and eyelids, and paralysis of the left side of the body. The action of the heart was barely perceptible and then failed. Autopsy showed the mouth and esophagus to be clean; the gastric mucosa was not greatly involved, except that here and there it was dry and red, with sulfur precipitates.

Many other cases were reported; when death was rapid the picture was one of shock and when it was delayed one of severe gastro-enteritis.

Bunge [43] observed that small doses do not affect the pulse or temperature.

Kylin [44] in 1925 injected from 0.15 to 0.8 Gm. of potassium chloride intravenously and reported a fall in the blood sugar content.

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Arden [45] in 1934 recorded a case in which 15 Gm. of a potassium salt was taken by mouth. Muscular weakness, paresthesia of the hands and feet and a metallic taste in the mouth appeared in forty minutes and lasted from three to four hours.

Electrocardiographic tracings after the ingestion of potassium salts equivalent to 4.3 Gm. of potassium element have been reported.[31]

5. Recovery may be effected by artificial respiration, cardiac massage, the use of oxygen, injections of salt solution [46] and administration of cortical extract in large doses.[35]

COMMENT

The employment of preserved blood has increased during the past twenty years because of its numerous advantages.[47]

TABLE 16.—*Infusion into Dog of Isotonic (1.16 Gm. per Hundred Cubic Centimeters) Solution of Potassium Chloride*

Time	Elapsed Time in Minutes	Infusion	Hematocrit Reading, Percentage of Cells	Specific Gravity of Plasma	Plasma Proteins, Gm. per 100 Cc.	Whole Blood Potassium as Mg. per 100 Cc.	Plasma Potassium as Mg. per 100 Cc.	Source of Blood	Comment
10:25 a. m.		Before anesthesia	49.0	1.0262	6.56	24.5	22.7	Leg vein	Blood for base line slightly hemolyzed; given 30 mg. per Kg. of pentobarbital sodium
10:35 a. m.	0	After anesthesia; infusion started	44.6	1.0248	6.09	20.1	14.0	Leg vein	
10:44 a. m.	9	After 100 cc.	38.9	1.0240	5.81	24.2	20.2	Jugular vein	*Rate of infusion 20 drops a minute after first 30 cc.*
11:29 a. m.	54	After 200 cc.	40.2	1.0237	5.72	36.8	40.1	Jugular vein	Cyanotic, with irregular paired respirations, during a period when fluid went in too fast
11:39 a. m.	64	After 275 cc.	47.4	1.0231	5.52	49.2	62.1	Jugular vein	Convulsion, stopped breathing, sphincters relaxed; heart fibrillating
11:41 a. m.	66	After 300 cc.*	38.6	1.0195	4.28	67.0	172.0	Right side of heart	Heart stopped; blood clear; no hemolysis

At death Potassium in cerebrospinal fluid from basal cistern, 51.8 mg. per hundred cubic centimeters and in urine, 74.4 mg. per hundred cubic centimeters

Autopsy heart dilated, no pericardial effusion, bladder full; no petechial hemorrhages

* 25 cc. accidentally run in rapidly after convulsion

TABLE 17.—*Dogs Given Injections of Isotonic (1.16 Gm. per Hundred Cubic Centimeters) Solution of Potassium Chloride*

Dog	Weight, Kg.	Solution Injected as Cc.	Potassium Chloride Injected as Gm.	Potassium as Mg. per Kg. of Body Weight	Time, Minutes	Plasma Potassium Before Injection, Mg. per 100 Cc.	Plasma Potassium at Death, Mg. per 100 Cc.	Comment
1	9.8	100	1.16	62.1	3½	18.9	99.5	Pentobarbital sodium anesthesia, 30 mg. per Kg.; fluid run rapidly into vein by infusion; died after convulsion
2	10.3	120	1.392	73.0	18½	22.8	51.5	No anesthesia; fluid administered by syringe, 10 cc. at a time, slowly; died after a convulsion
3	8.8	100, some leakage into tissue	1.16	61.0	33	18.8	26.0	Pentobarbital sodium; infusion; young dog; died suddenly
						15.5	25.6	Spinal fluid
4	12.0	275	3.19	139.0	64	22.7	172.0	Pentobarbital sodium; fluid run in slowly by infusion; died after convulsion
							51.0	Spinal fluid

SUMMARY, PART III

1. The parenteral administration of potassium is associated with toxic manifestations of both muscular and nervous tissue together with a depression of the central nervous system.

2. The almost specific action of potassium is on the heart and circulation, with disturbances varying from diminished cardiac output to immediate diastolic arrest.

3. We have reaffirmed the lethal doses for animals previously reported.

4. The rate of injection is of particular importance, for when the potassium is given slowly several times the usual lethal dose is tolerated.

Of the many preservatives used, none tested prevented the diffusion of potassium from cells. In several hemolysis was slower and in one it did not take place at all, yet the diffusion of potassium was not altered. The remainder showed definite hemolysis; in some it started as early as the fifth day. All this illustrates the inadequacy of present methods of storage.

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Although the observation that red blood cells lose potassium is not new,[48] no attempts have been made to prevent this loss. One of the problems of the future therefore is an attempt to keep blood under such conditions that both diffusion of the salts and hemolysis are prevented. The required knowledge may come through a better understanding of the laws which govern cell metabolism, diffusion and surface phenomena.

Naunyn[49] in 1868 first described the toxic properties of laked blood. His observations have been reaffirmed by many subsequent investigators, beginning with Landois,[50] but the nature of the toxic substance or substances has yet to be revealed.

Phemister[51] and Phemister and Handy[52] reported that there was something in slightly laked bloods which caused vasodilatation and in more severely traumatized blood which caused vasoconstriction. It was not histamine, not products of the disintegration of epinephrine and not the pituitary principle, nor did it develop as the result of changes in oxygen, carbon dioxide or hydrogen ion concentration, shifts in temperature or exposure to light or air. Petroff and his associates[53]

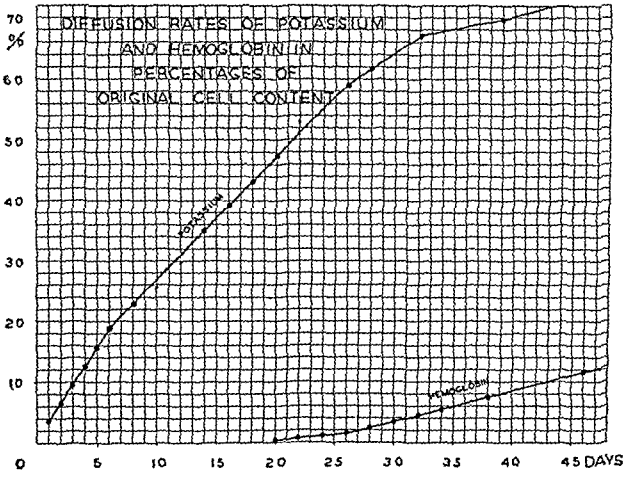


Chart 6.—Blood preserved in solution of sodium citrate and adrenal cortex extract. These curves illustrate that diffusion of potassium occurs before diffusion of hemoglobin and indicate the necessity of criteria other than hemolysis in assaying the various types of preservatives.

have observed such vasoconstriction of the splenic, renal and pulmonary vessels following the injection of hemolyzed blood but did not isolate the causative factors. Amberson[16] has established the fact that the toxic factor is not hemoglobin.

Kronecker[54] as long ago as 1882 suggested that the toxic effects of laked blood were due to its high potassium content. The finding of a large increase in the plasma potassium of preserved blood again raises this question. The intravenous lethal dose for man has not been observed. Studies on animals suggest that a rapid transfusion of from 3 to 5 liters of blood with a plasma content of 100 mg. per hundred cubic centimeters would be necessary to kill an adult. Blood preserved for thirty days by the methods now in use would contain potassium at this level, but it is unlikely that such quantities of stored blood would be used except as a slow continuous drip. It is probable, however, that such blood often may be used in quantities sufficient to cause toxic manifestations from its high potassium content.

The rapid administration of large quantities of blood preserved too long may be dangerous in conditions associated with hyperpotassemia, specifically in the dehydration of cholera,[55] intestinal obstruction,[56] intestinal fistula[57] and severe burns.[7]

Likewise its use seems contraindicated in both renal[58] and hepatic insufficiency[59] as well as in those diseases in which potassium retention is manifest, such as typhoid, influenza and pneumonia.[7]

In certain disorders of the ductless glands linked with disturbances in salt metabolism,[60] such as parathyroid tetany[61] and the collapse state of addisonian crises,[62] the giving of highly potassic blood may be dangerous.

On the other hand, in conditions of hypopotassemia, or potassium lack, preserved blood may find a specific use.

Finally, in hemorrhage and shock,[63] in which the need for blood is greatest and in which preserved blood finds its greatest usefulness, its improper use would seem to carry the greatest danger.

This study has been limited to potassium and hemoglobin. No claim is made that in potassium alone lies the noxiousness of preserved blood. Observations

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regarding the relative toxicities of magnesium,[64] ammonia and phosphorus will be reported subsequently.

CONCLUSIONS

1. There is a daily increase in the plasma potassium of preserved blood kept under aseptic, bacteriostatic conditions, with increments reaching as high as 1,000 per cent.

2. None of the preservatives tested prevent this diffusion of potassium from the cells, the lowest rates being found in blood preserved in a mixture containing 0.3 Gm. of sodium citrate per hundred cubic centimeters.

3. Agitation, such as shaking, hastens the loss of potassium from the cells.

4. The shape of the container markedly influences the rate of potassium diffusion; the greater the interface area between the cells and the supernatant plasma, the greater the rate of diffusion. This suggests that tubular containers may be preferable to wide-bottomed flasks.

5. There is no parallel between the rates of diffusion of potassium and hemoglobin; hence the degree of hemolysis cannot serve as an index of plasma potassium.

7. In pathologic states associated with potassium retention or sensitivity, the use of blood preserved too long seems ill advised.

Clinical Notes, Suggestions and New Instruments

SULFANILAMIDE IN THE TREATMENT OF OTITIS MEDIA

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The efficacy of sulfanilamide in the treatment of acute otitis media due to the beta hemolytic streptococcus has been tested on eighty-eight patients and the results controlled by a similar group who were not given sulfanilamide. In both of these groups a red, protruding tympanic membrane was incised early in the course of the disease or the opening in a spontaneously ruptured membrane of the drum was enlarged to secure adequate drainage. The only difference in the treatment was the administration of sulfanilamide. The accompanying table shows the monthly incidence of otitis media due to the beta hemolytic streptococcus throughout the year and the striking difference in the number of mastoid operations and other complications in the two groups. The effect of the drug on the duration of the discharge was striking; those given sulfanilamide recovered in one third the time.

To obviate the possible objection that the results in these two groups of patients are due to a seasonal difference in the virulence of the infecting organism, I have listed for each month the number of patients given sulfanilamide and those who did not receive sulfanilamide. They are about evenly divided. The table also shows that infections of the ear are most common in December, January, February and March, although in two of the four cases in which septicemia developed the infection began in June in one and in November in one.

The total number of patients observed was 183. Most of these were treated in the outpatient department and their home care was inadequate.

Of ninety-five patients who had a paracentesis but were not given sulfanilamide, sixty-six required a mastoid operation.

Of eighty-eight patients who had a paracentesis and were given sulfanilamide, only seven required a mastoid operation.

Of ninety-five patients who were not given sulfanilamide, four had septicemia; three of these recovered after operation and one died.

Of eighty-eight patients who were given sulfanilamide, none had complications.

The average duration of otorrhea of ninety-five patients who were not given sulfanilamide was sixty-five days.

The average duration of otorrhea of eighty-eight patients who were given sulfanilamide was twenty-three days.

The sulfanilamide, with an equal amount of sodium bicarbonate, was always given by mouth. Provided the patient is seen daily, I have found that a safe and effective dose is 10 grains (0.65 Gm.) three times a day for the first four days and 5 grains (0.3 Gm.) three times a day thereafter. If the patient is in the hospital and is watched closely for the first signs of toxicity, and if the severity of the infection warrants a larger amount of the drug, the dosage for both adults and children may be increased for a limited period up to 20 grains (1.3 Gm.) per kilogram of body weight. It is desirable to keep the concentration of sulfanilamide in the blood at a constant level, and for this reason frequent small doses are given rather than larger doses at longer intervals. The drug is rapidly excreted through the kidneys, and the best results are obtained by limiting the intake of fluids.

There are certain toxic symptoms that should be looked for by the nurses and physicians. All patients receiving sulfanilamide in adequate doses are cyanotic, but this is not a sign of toxicity. The undesirable effects of the drug are:

1. Increasing weakness and lassitude: If the general condition warrants it, the dose should be reduced or the drug discontinued for a few days.

2. Loss of appetite: The same consideration should be given as for 1.

3. Nausea and vomiting: Sulfanilamide should be discontinued and intravenous dextrose and saline solution given.

4. Fever, which decreases when the drug is withdrawn and increases when it is begun again: If the patient's general condition is good and local conditions in the wound do not explain a continued low grade septic temperature, discontinuance of the drug may be tried for a few days.

5. A progressive fall in hemoglobin: Transfusions should be begun and the dosage reduced or the drug discontinued.

6. Dermatitis, especially the exfoliative type: Sulfanilamide should be discontinued.

7. Severe hemolytic anemia with jaundice: Sulfanilamide should be discontinued and a transfusion given.

8. Agranulocytosis: Sulfanilamide should be discontinued and a transfusion given.

Monthly Incidence of Otitis Media Due to the Beta Hemolytic Streptococcus

	Beta Hemolytic Streptococcus Otitis Usual Treatment, No Sulfanilamide			Beta Hemolytic Streptococcus Otitis Usual Treatment Plus Sulfanilamide		
	Monthly Distribution of Cases	Number of Cases Requiring Mastoidectomy	Complications	Monthly Distribution of Cases	Number of Cases Requiring Mastoidectomy	Complications
January	19	16	0	21	2	0
February	16	14	2*	19	1	0
March	13	9	0	15	1	0
April	7	5	0	8	1	0
May	8	5	0	7	0	0
June	5	2	1*	4	1	0
July	4	1	0	1	0	0
August	0	0	0	0	0	0
September	1	0	0	1	0	0
October	6	3	0	0	0	0
November	2	0	1*	1	0	0
December	14	11	0	11	1	0
	95	66	4	88	7	0

* Positive blood culture.

The appearance of any one of these eight symptoms is a warning that the patient does not tolerate the drug well, and the decision as to whether the dose should be reduced or the drug discontinued depends on the seriousness of the infection and the general condition of the patient. Reduction of the dose or discontinuance of the drug should be considered when one or more of the first four symptoms appear, but it is imperative to discontinue giving sulfanilamide when any of the last four symptoms make their appearance.

64. Joseph, D. R., and Meltzer, S. J.: The Comparative Toxicity of the Chlorides of Magnesium, Calcium, Potassium and Sodium, J. Pharmacol. & Exper. Therap. 1: 1-26, 1909-1910.

From the Otolaryngological Department of the Johns Hopkins Hospital.

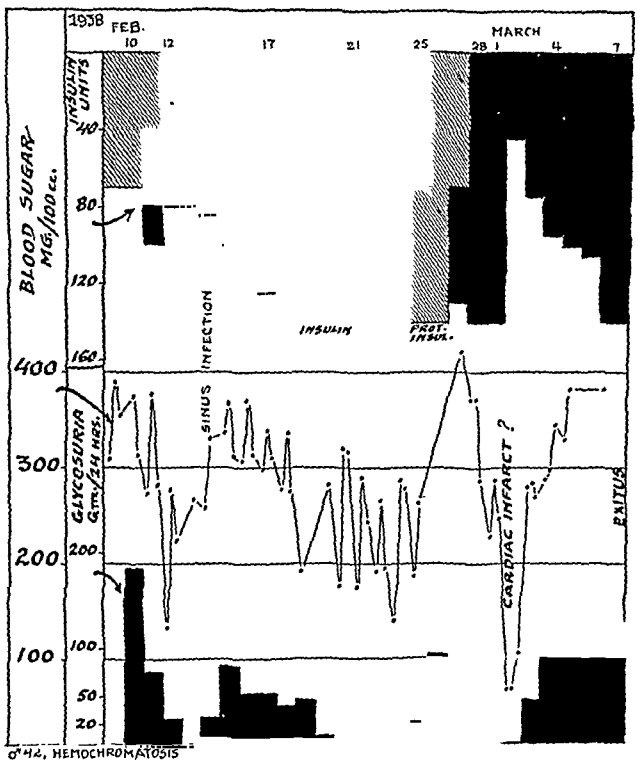
HEMOCHROMATOSIS WITHOUT PIGMENTATION OF SKIN

RESISTANCE TO PROTAMINE ZINC INSULIN

HENRY J. JOHN, M.D., CLEVELAND

When one is confronted with a case of diabetes, enlarged liver, palpable spleen and ashy gray color of the skin the presumptive evidence is that one is dealing with a case of hemochromatosis. To prove this one can perform a biopsy of the skin, and if this shows the pigment the diagnosis is settled.

In the case I am reporting there were severe diabetes, an enlarged liver, a palpable spleen and an ashy gray color. A biopsy of the skin showed no pigmentation. Clinically the condition was hemochromatosis, but the lack of pigment in the skin raised a question. The patient was a man aged 42 who had diabetes of a year's standing. He had always been dark but more so in recent years. His brother was dark skinned but had no diabetes. His general health was always excellent until April 1937, when he began to lose weight, and at this point slight polydipsia and polyuria developed. A few weeks later the diabetes was discovered and he was treated unsuccessfully with a dietary regimen. From three to four months before admission he was put on insulin; the symptoms improved but loss of weight persisted. The loss of weight was from 275 to 185 pounds (125 to 84 Kg.) at the time I first saw him, Feb. 3, 1938, when the sugar content of his blood morning, noon and night was 309, 389 and 353 mg. per hundred cubic centimeters on 40, 0 and 30 units of protamine zinc insulin a day. He was a man of robust build, larged boned and somewhat under par. The blood pressure was 110 systolic and 80 diastolic. The temperature and pulse rate were normal. The skin was dark and scaly. There were tenderness over the right frontal sinus and a mucopurulent nasal discharge. The Wassermann reaction was negative. The icterus index was 10. The urea nitrogen content of the blood was 23.2 mg. and the cholesterol content 226 mg. per hundred cubic centimeters. The electrocardiogram showed a shifting pacemaker and occasional dropped beats, some slurring of QRS group and slight elevation of $S\text{-}T_1$, $S\text{-}T_2$ and $S\text{-}T_4$. X-ray examinations showed a bulge in the region of the left ventricle, with no general enlargement. The right frontal sinus was partly cloudy. Roentgenograms of the bones showed slight osteoporosis, with a small calcified lesion anterior to the cervical vertebrae. The chest was clear.



Diabetic status.

The diabetic status can be followed from the chart. The average sugar content of blood on 70 units of protamine zinc insulin at the start was around 350 mg. per hundred cubic centimeters, and the patient was losing nearly 200 Gm. of sugar in the urine. A change over to increasing doses of insulin reduced the average sugar level of the blood to about 200 mg. and the glycosuria to zero on the fourth day in the hospital. At this time the sinus infection was aggravated; roentgen treatment to the sinus was used, and during the infection the sugar content of the blood rose to its original level, although the urine's twenty-four hour excretion was on the average about 50 Gm. The insulin intake was raised to 140 units a day (four doses), and on this the sugar level of the blood dropped to an average of about 250 mg., and the glycosuria nearly subsided. It was at this point that I substituted protamine zinc insulin, an equivalent dose of two injections a day. The sugar content of the blood rose promptly, and excretion of sugar rose over 100 Gm. Again insulin was substituted, and on March 2 the patient had what was thought to be a cardiac infarct, and the sugar content on that day dropped to a low level of 69, 68 and 104 during the day. The insulin intake was reduced as low as 65 units and gradually raised to the former dose. The patient left the hospital on the afternoon of March 7 and died the next day of cardiac failure when he got up from bed against advice.

Here then was a man relatively insensitive to protamine zinc insulin. The impression was definitely that of hemochromatosis but biopsy of the skin failed to confirm it. It was left to autopsy to settle the question definitely.

At autopsy hemochromatosis of the liver, spleen, pancreas, kidney, heart, adrenal glands and portal, peripancreatic and periaortic lymph nodes was seen. There were marked atrophy and infiltration of the pancreas by fat, slight "bronzing" of the skin, splenomegaly (45 Gm.), ascites (1,500 cc.), hydrothorax (1,500 cc. on the right and 500 cc. on the left), edema of subcutaneous tissues, hypertrophy and dilatation of the heart (550 Gm.), fatty degeneration of the heart and mural thrombus of the apex of the left ventricle. A recent infarct was evident in the right kidney. There were passive hyperemia of the gastrointestinal tract, dilatation of the umbilical vein, moderate dilatation of the esophageal veins and acute fibrinous pleuritis and compression atelectasis of the right lower lobe.

Microscopic examination of the heart showed a large amount of pigment deposited principally at the nuclear poles, but in some fibers extending throughout the length of these; this proved to be hemosiderin. Stains for hemofuscin gave negative results. There were an enormous number of fat droplets within the muscle fibers; there was no evidence of infarction.

The pancreas too showed an enormous amount of fatty tissue, an increase in the connective tissue and a diffuse infiltration of pigment in this overgrown connective tissue. The islets of Langerhans were relatively large and well defined and contained an enormous number of granules of pigment. The epithelium of the acini was heavily laden with the pigment, as were the interstitial tissues.

The kidneys, liver, lymph nodes, lungs and spleen showed hemosiderin, which was absent in the other organs.

Hemochromatosis is comparatively rare. This is the first case which I have encountered among 4,941 cases of diabetes. Diabetes in these patients is secondary to hemochromatosis, which precedes and the pigment of which eventually incapacitates the insulogenic apparatus to diabetic status. The primary rise in the sugar level of the blood in these cases is likely due to the interference with the storage of glycogen in the liver, which is enlarged from fatty degeneration and the cells of which are filled with pigment. The cardiac action is interfered with from the same cause. It is easy to see how the individual cells of the cardiac muscle become incapacitated when the pigment practically crowds out the intracellular mass. Heart failure is bound to come if any additional strain is put on the heart, as was the case here. Practically all of the classic picture was present in this case: enlarged liver, enlarged spleen, ascites, abdominal pain, diarrhea, vomiting, impotence, somnolence and apathy, low blood pressure, cardiac failure and diabetes. The only varying factor was the fact that no pigment could be demonstrated either in biopsy of the skin or at postmortem examination in the presence of the ashy gray color which was so typical. The other point in question was the

large dose of insulin needed for control and the relative insensitivity to protamine zinc insulin. The protamine zinc insulin was not used during the active stage of sinus infection, so that could not be explained on this basis, but about a week after the infection had subsided. It is possible that protamine zinc insulin may not be as effective as insulin in hemochromatosis, a point which will have to be determined by further observations.

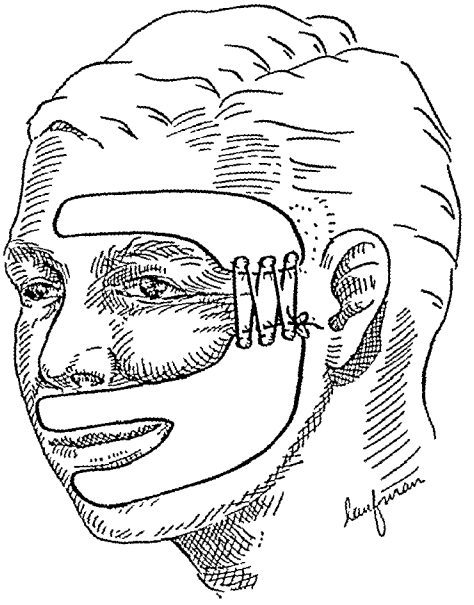
10515 Carnegie Avenue.

THE PRESERVATION OF MUSCLE FUNCTION IN BELL'S PALSY

PHILIP LEWIN, M.D., CHICAGO

The same orthopedic principles that apply to other lesions of the peripheral nerves should apply in Bell's palsy, namely, maintenance of muscular tone until return of nerve function, thereby keeping the muscle receptive to nerve impulses if, as and when they reappear.

Most textbooks on neurology offer descriptions of the etiology, pathology and diagnosis of the lesion but are strikingly inadequate with regard to treatment. My purpose here is to describe a method of splinting some of the facial muscles.



Adhesive plaster splints with string, producing overcorrection of deformity.

Bell's palsy may follow exposure to cold, as in sleeping in a drafty room or riding by an open window in a train or automobile. The onset is usually sudden, with pain behind the ear and in the neck. The palsy may be recognized when the patient awakens in the morning, at which time all or any one of the facial muscles may be affected. Fever may or may not be present.

In a typical advanced case the forehead cannot be wrinkled, the buccinator muscles cannot be contracted and whistling is impossible. The upper lid cannot be firmly closed and may be completely paralyzed. The nasolabial fold is obliterated. There is no apparent atrophy. The amount of facial paralysis varies in each case, and the reaction of degeneration determines this quantitatively.

Recovery occurs in a variable time. It may be hastened by physical therapy and by galvanism applied to the nerve and muscles. The upper facial fibers may get into the lower division and each wink of the eye may cause a twitch of the muscles about the mouth. The usual order of regeneration is the buccinator, the zygomatic and the superior levator muscle. Anastomosis with the hypoglossal or accessory nerves has been tried in cases in which there has been very little recovery, but with little success.

REPORT OF A CASE

A man aged 49 had facial palsy of the right side, apparently due to exposure to the wind and rain while riding in a motor car three days previously. He was seen by Dr. L. J. Pollock, who confirmed the diagnosis and prescribed court-plaster splinting. A search of the literature failed to reveal a pattern as a guide. One was therefore designed and made in the surgical dressing department of Michael Reese Hospital, a likeness of which is shown in the accompanying illustration. The splint is made of adhesive plaster with hooks such as gynecologists use in making abdominal binders for postoperative patients. After ten days of splinting the patient was given a series of galvanic treatments by Dr. Pollock five days apart. A complete recovery followed.

55 East Washington Street.

ANGINA PECTORIS AND SPASM OF THE CARDIA WITH PAIN OF ANGINAL DISTRIBUTION ON SWALLOWING

JOSEPH EDEIKEN, M.D., PHILADELPHIA

The similarity of the pain of angina pectoris and the pain due to certain lesions of the gastrointestinal tract is not unusual and is well known. Furthermore, the immediate cessation of an attack of angina pectoris following eructation of gas and, conversely, the initiation of an attack following a heavy meal or gaseous distention is not uncommon.

My purpose in this communication is to report a case of angina pectoris in which there was evidence of coronary and aortic disease and spasm of the cardia and in which attacks of pain similar in final distribution, but occasionally somewhat different in initial location, was produced by swallowing. Although the two types of pain were very similar in character and distribution, they differed in provocative causes and mode of relief.

B. D., a white woman aged 67, seen May 6, 1937, had suffered from chronic arthritis, hypertension and angina pectoris for a number of years, but the latter condition had been worse during the past few years. On effort or excitement a severe substernal pain would develop, radiating down both arms to the fingers and associated with a feeling of suffocation. Two weeks before this examination, following a severe emotional upset, similar attacks developed on swallowing, so that she had been afraid to eat solid food. The only point of difference between the attacks on effort and those on swallowing was that the latter sometimes started in the fingers and radiated upward to the chest. She experienced the same sense of suffocation as during the attacks on effort.

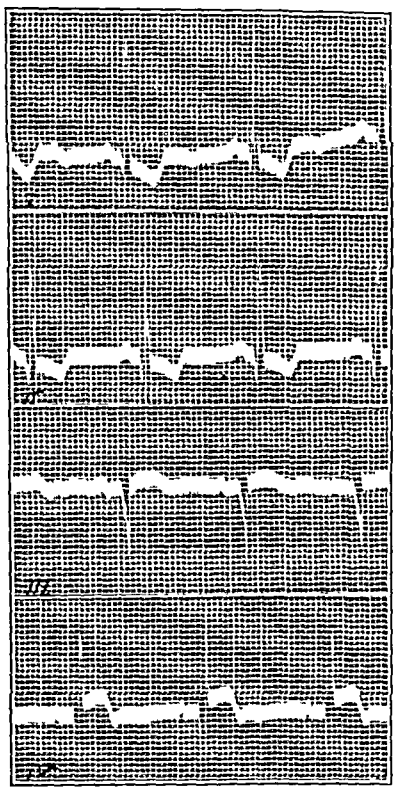
On physical examination the patient appeared quite ill. The pupillary reflexes were normal; the retinal vessels were sclerotic. There were several bad looking teeth. The chest was emphysematous and there were rales at both bases. The heart did not appear enlarged nor was the supracardiac area widened. There was a loud, rasping systolic murmur at the apex and base. The first sound at the apex was faint; the second aortic sound was accentuated. The blood pressure was 184 systolic, 76 diastolic. The peripheral vessels were sclerotic. The liver was not enlarged but there was slight pretibial edema.

The electrocardiogram presented here showed evidence of advanced myocardial disease and the orthodiagram showed the heart to be of normal size, but the apex was rounded, suggesting left ventricular hypertrophy. The region of the pulmonary artery was prominent and the left auricle was enlarged in the oblique and lateral views. The blood count showed 95 per cent hemoglobin, 4,950,000 red cells and 10,800 white cells, of which 72 per cent were polymorphonuclear leukocytes. The urine was normal except for a faint trace of albumin and an occasional hyaline cast. The blood sugar was 88 mg. per hundred cubic centimeters of blood, and the urea nitrogen 14 mg. The Wasserman reaction of the blood was negative.

Bed rest was advised and the patient placed on a prescription containing theophylline, phenobarbital and small doses of digitalis. She was also given an alkaline powder after meals and glyceryl trinitrate 1/100 grain (0.0006 Gm.) for the attack. One

From the Edward B. Robinette Foundation, Medical Clinic, Hospital of the University of Pennsylvania.

week later, May 14, she complained bitterly of attacks of pain on swallowing unrelieved by glyceryl trinitrate. These were so severe that she refused everything but liquids, which did not cause as severe pains as solids. She was therefore placed on extract of belladonna and extract of hyoscyamus, of each one-twelfth grain (0.005 Gm.) four times a day, in addition to the aforementioned drugs. Improvement was marked, and on June 11 she was entirely free of pains and was permitted out of bed. X-ray examination of the stomach and duodenum by Dr. Louis Edeiken July 7, seven weeks after treatment with antispasmodics, revealed that the esophagus was displaced posteriorly by an enlarged left auricle. The extreme lower end of the esophagus was narrow but its outline was regular. There was definite delay in the passage of the opaque mixture and a slight hesitancy in the passage of the opaque capsule at the lower end of the esophagus. The stomach showed that considerable air had been swallowed with the ingestion of the barium meal. The stomach was normal in size, shape and position, freely mobile, flexible and not tender; peristalsis was regular and active, and the stomach emptied itself within six hours. No deformities were observed. The bulb of the duodenum was regular in outline and normal. At the six hour examination the stomach was completely empty and the head of the barium column was in the terminal ileum; at the twenty-four hour examination the head of the column was in the rectum.



Electrocardiogram taken May 6, 1937. Chest lead taken with right arm electrode at apex and left arm electrode at angle of scapula. Elevation of ST interval in lead 4 may be due to digitalis.

Thereafter she was entirely free from attacks on swallowing but continued to have attacks on effort and excitement. These attacks were relieved by glyceryl trinitrate. September 11 she reported that attacks were few in number and only on effort. She was again seen October 4 after her return from the seashore. She had a few attacks on effort but attacks on swallowing had again developed. She admitted, however, that she had not taken medication for several weeks because she had been away from home. She was again placed on belladonna and hyoscyamus and November 20 reported attacks only on effort. She felt fairly well until April 10, 1938, when she began to have severe attacks of pain without any definite relationship to meals, effort or excitement. April 29 she reported that the attacks were almost continuous and she was again advised to go to bed. May 4 a coronary occlusion developed and she died May 9. Postmortem examination was not permitted.

This case is of interest because of the acute onset of pain on swallowing, complicating angina pectoris of long duration. The attacks of pain provoked by swallowing and effort were very similar in character and distribution and each was also accompanied by a sense of suffocation. Although the mechanism of the attack on swallowing appeared to be different than that on effort, the data on hand do not permit their differentiation with any degree of certainty. Electrocardiographic changes during the different attacks might have been helpful in proving the single or multiple origin of the various attacks, but unfortunately these were not obtainable. Two possible explanations for the attacks of pain following swallowing present themselves: (1) the pain was due to spasm of the cardia and (2) the attack was angina pectoris induced by the esophageal abnormality.

The association of cardiospasm with aneurysm, aortitis and angina pectoris has been noted by Verbrycke,[1] who reported twenty-three cases. In his series, cardiospasm was not accompanied by pain. The occurrence of dyspnea, cough, palpitation and anginal pain in cardiospasm, however, has been reported by Starling and Camps,[2] but in their cases the esophagus was markedly dilated and dilatation of the cardia was followed by relief of cardiac and respiratory symptoms. It is conceivable that a dilated esophagus, when distended by food, may exert considerable pressure on the mediastinal structures. X-ray examination in our case indicates that pressure was not responsible for the acute onset of pain on swallowing. Spasm of the cardia was noted, which in contrast to cardiospasm is considered by Friedenwald and Morrison[3] as a mild degree of obstruction in the lower end of the esophagus, temporary in character and unassociated with dilatation of the esophagus, a condition which frequently, as in our case, follows an emotional upset.

Esophageal pain similar in character and distribution to that of angina pectoris is stated to have been produced experimentally. The Jacksons[4] have concluded from their experiments on dogs that pain originating in the portion of the esophagus and adjacent mediastinum that lies between the horizontal midline of the heart and the upper opening of the thorax radiates down one or both arms. Morrison,[5] in his experiments on normal students, has shown that, regardless of the site of the local balloon distention in the esophagus, pain of anginal distribution can be produced by distention in the upper, middle or lower portion of the esophagus. Morrison states that temporary changes in the electrocardiogram follow balloon distention of the esophagus.

Our data do not warrant considering spasm of the cardia as the sole cause of pain on swallowing. The chief differences between the two types of attacks of pain were as follows: The attacks of long standing angina pectoris were induced by effort or excitement, relieved by rest and glyceryl trinitrate and uninfluenced by antispasmodics. The attacks that followed swallowing were not influenced by rest or glyceryl trinitrate but were relieved by antispasmodics. These observations suggest that spasm of the cardia was a significant factor in the mechanism responsible for the attacks of pain after swallowing. We have been unable to find a report of a similar case in the literature, although von Bergmann[6] has found by x-ray examination that dilatation of the esophagus at or just above the cardia is frequently found in patients with angina or "anginoid" symptoms.

SUMMARY

1. A woman had spasm of the cardia which complicated effort angina of several years' duration. Evidence of coronary disease, aortic disease and spasm of the cardia was demonstrated by electrocardiogram and x-ray examination.

2. Attacks of pain on swallowing were very similar in character and distribution to those of angina pectoris provoked by effort or excitement, except that sometimes the former started in the fingertips and radiated to the chest, whereas the latter always started in the chest.

3. Rest in bed was followed by relief of anginal attacks but did not influence the pain on swallowing until antispasmodics were given; conversely, antispasmodics relieved the pain on swallowing but attacks on effort or excitement persisted.

4. The observations made in this case suggest that attacks of pain of paroxysmal incidence and the distribution and character of angina pectoris may be initiated by esophageal spasm.

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4. Jackson, D. E., and Jackson, H. L.: Experimental and Clinical Observations Regarding Angina Pectoris and Some Related Symptoms, J. Lab. & Clin. Med. **21**: 993-1006 (July) 1936.
5. Morrison, L.: Personal communication to the author.
6. von Bergmann, G.: Das "epiphrenale Syndrom," seine Beziehung zur Angina pectoris und zum Kardiospasmus, Deutsche med. Wchnschr. **58**: 605-609 (April 15) 1932.

MECONIUM ILEUS

E. W. ADAMSON, M.D., AND JACK R. HILD, M.D., DOUGLAS, ARIZ.

In 1919 a case of intestinal obstruction in a newborn infant, caused by inspissated meconium, was described by Bullowa and Brennan.[1] Hughes[2] described a similar case in 1922. Since then, others have described the condition; Dodd[3] in 1936 reported the twenty-second case and gave a summary of the cases previously described. In six cases, including her own, necropsies revealed pathologic changes in the liver or pancreas, affecting the secretion of bile or pancreatic juice. Lack of either of these secretions was thought to be the causative factor.[3] The terms "meconium ileitis" and "meconium ileus" are both used as descriptive of the condition. The latter seems more appropriate.

REPORT OF CASE

The case here reported is one of meconium ileus and, in addition, presented an ileocolic intussusception that undoubtedly had existed before birth:

An infant girl was the third living child born to a healthy mother by spontaneous delivery. The mother was in labor one hour and ten minutes after entering the hospital. The previous children were living and well. Nothing abnormal was observed in the infant until thirty-six hours after birth, when she refused to nurse and began to regurgitate freely, with much mucus in the vomitus. An enema was attempted and a jelly-like substance with some blood was obtained by rectum. It is to be noted that up to this time no bowel movement had occurred. Colonic flushing was repeated, only a small amount of mucus and blood being obtained. The nurse then noted that the abdomen was hard and distended, with visible peristaltic waves. Physical examination revealed no other abnormalities. A diagnosis of intussusception with complete obstruction was made and immediate laparotomy was decided on.

Thirty-eight hours after birth the baby was taken to the operating room. Under local infiltration with 0.5 per cent procaine hydrochloride a lower midline incision was made. The last inch of the ileum was found invaginated into the cecum and many dense adhesions bound the inner and middle layers of the intussusception firmly together. It was reduced with some difficulty. The ileum showed marked enlargement for about 18 inches above the ileocecal junction, the distention being due to a dense mass of putty-like consistency which it was found impossible to move. The distended ileum was opened and an attempt, which failed, was made to remove the contents. The mass was composed of yellowish meconium with a consistency of thick wax. A catheter was purse-stringed into the enterostomy and the wound partly closed.

Following operation there was continued regurgitation and nothing but bloody mucus was obtained by colonic flushing. There was no drainage from the enterostomy tube. Death occurred twenty-one hours after the laparotomy and fifty-nine hours after the baby was born.

COMMENT

This case is unique in that there was really a mechanical obstruction as well as "meconium ileus." The adhesions binding the inner and middle layers of the intussusception together were so dense that it was impossible to decide on the length of time it had existed, except in a general way. It seems safe to say that the adhesions were much more than thirty-eight hours old at the time of operation.

The relation between the intussusception and the distended ileum, filled with waxlike meconium, is not clear. Since twenty-two cases of meconium ileus have been reported, with no evidence of other cause of obstruction, it would seem plausible to assign a secondary role to the intussusception—the result of violent peristaltic movements attempting to move the mass of waxy, inspissated meconium.

1060 G Avenue.

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2. Hughes, E. E.: Acute Intestinal Obstruction Due to Inspissated Meconium, Brit. J. Child. Dis. **19**: 32 (Jan.-March) 1922.
3. Dodd, Katherine: Intestinal Obstruction Due to Meconium Ileus in a Newborn Infant, J. Pediat. **9**: 486 (Oct.) 1936.

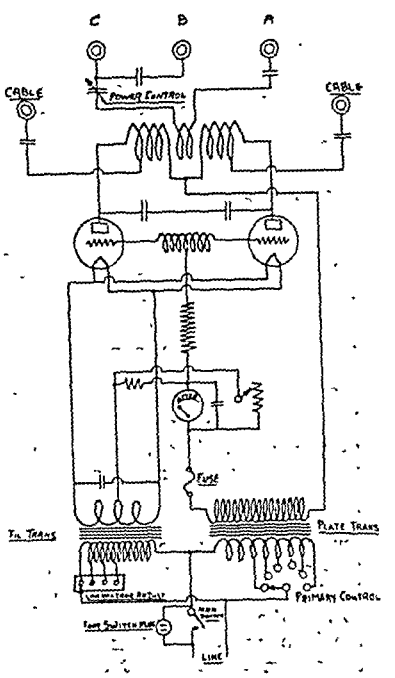
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

ALOE SHORT WAVE UNIT, TYPE CSC, ACCEPTABLE

Manufacturer: A. S. Aloe Company, 1819 Olive Street, St. Louis.

The Aloe Short Wave Unit, Type CSC, is recommended for medical and minor surgical procedures. It is similar to the Council accepted Aloe Short Wave Diatherm, Type CSW (THE JOURNAL, Sept. 4, 1937, p. 793) except for the addition of an inductance cable outlet, thus providing for coil, cuff and pad technics. The semiportable walnut finished unit with side handles is available with a walnut cabinet or chrome stand.



Schematic diagram of circuit.

Generating a 12 meter wavelength, the unit utilizes two tubes in a self-rectifying, push-pull, tuned plate, tuned grid oscillating circuit. The output circuit is inductively coupled to the plate circuit and is controlled by a variable air condenser in series with one patient terminal. The electrical parts are licensed under patents owned by the Electrical Research Products, Incorporated. (Cuff electrodes are manufactured under patent 2,110,392.)

Transformer temperature tests were carried out on the unit by an investigator for the Council. The machine was operated for a period of two hours under a load of 250 watts as measured by the lamp load. The final temperature of the transformer was 93 C. by the resistance method and 80 C. by the thermometer method. A power input of 750 watts was required and the electromotive force across the line was 110 volts. The final temperature by the thermometer method comes within the limits of safety. The firm submitted data concerning power measurements made by the calorimeter method.

In addition, the firm submitted evidence to support the ability of the unit to generate heat deep within the tissues. In the cuff technic the electrodes were made of a stiff resilient metal so that they embraced the thigh with a springlike action. The dimensions were 2⅜ by 25 inches (upper cuff) and 2⅜ by 18½ inches (lower cuff). The metal strip used in the electrodes is 1½ inches wide. The average distance between cuffs was: right, 7¾ inches; left, 7½ inches. Average spacing was: right, 1 inch; left, ⅞ inch. Room temperature was 74 F.; humidity was about 42 per cent.

Average of Five Tests by Calorimeter Method

Line voltage	120 volts
Plate current	360 milliamperes (2 tubes)
Input	996 watts
Output	402 watts

When the coil technic was tested, the distance between each coil was approximately 1 inch. About one-half inch of spacing was used to separate the coil from the skin. The average thigh circumference was about 19¼ inches. The room temperature was approximately 75 F., the humidity around 48 per cent.

The unit was tried out clinically by a qualified investigator, who reported that the apparatus gave satisfaction when used for cuff and coil technic.

Average Temperatures of Six Observations

Cuff Technic			
Deep Muscle		Rectal	
Initial	Final	Initial	Final
97.3	107.3	99.0	99.2
Coil Technic			
Deep Muscle		Rectal	
Initial	Final	Initial	Final
98.7	105.7	99.7	99.8

In view of the foregoing report, the Council on Physical Therapy voted to accept the Aloe Short Wave Unit, Type CSC, for inclusion in its list of accepted devices.

MARTON GALVANIC APPARATUS NOT ACCEPTABLE

Manufacturer: Tremont Laboratories, 110 West Fortieth Street, New York.

The Marton Galvanic Apparatus is designed primarily for the removal of hair, although units are available for iontophoresis as well. Duplex units supply currents for both procedures, whereas Simplex units deliver current only for depilation. Both types are available in cabinet or portable models. Standard equipment includes one dozen insulated electrodes, arm-band indifferent electrode, a multiple electrode holder, and cords to accommodate twelve needles.

The firm claims that the use of an insulated electrode with blunt point offers a fundamental improvement over older types of equipment. Thus, to aid the operator in gaging depth of penetration, a coating of contrasting color is superimposed on the electrode shaft reaching to within 2.5 mm. of the blunt end. The manufacturer claims that the blunt point enables the operator to maneuver the needle into the hair follicle more readily thus preventing its penetrating farther than the hair bulb. The insulation reaches to within 1 mm. of the end of the electrode, so that the current is concentrated at the point of application in the bulb, without destruction of surrounding tissue, according to the firm.

The manufacturer claims that twelve electrodes may be used at the same time by means of a multiple electrode holder consisting of a head band with twelve needles attached; that this band is attached to the patient; and that if the patient's head moves slightly the needles are not pulled from place.

The unit operates on ordinary house current, either direct or alternating. It supplies an unfluctuating, nonirritating, smooth current, according to the firm. An automatic time switch is included. This turns the current on after the needle has been inserted and turns it off after the set period of exposure has elapsed. The firm states that two minutes will generally suffice.

The unit was investigated in a clinic acceptable to the Council and was reported only fairly satisfactory. The investigator reported that insulated electrodes are not new to the profession.

One advertising pamphlet was submitted, "Superfluous Hair blights the happiness of many a woman." The advertisement contains several questionable statements. "Galvanic depilation originated for ingrown eyelashes. Unsuccessful in hypertrichosis"; "Depilation by the galvanic needle . . . more likely than not resulted in a permanent disfigurement worse than the original." In the opinion of the Council, it is the operator rather than the machine that is responsible for scarification, if present.

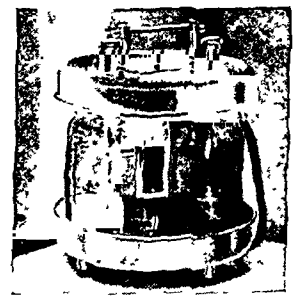
The advertisement reads that "courses are given by expert instructors." If individuals take short courses in the technic of depilation and they do not operate under the direction of physicians, such individuals may do much harm.

In view of the foregoing report, the Council on Physical Therapy voted to reject the Marton Galvanic Apparatus for inclusion in its list of accepted devices because the unit did not perform satisfactorily and, in addition, the advertising matter distributed with it contains misleading, unwarranted or exaggerated statements.

WISCONSIN OXYGEN HUMIDIFIER ACCEPTABLE

Manufacturer: Scanlon-Morris Company, Madison, Wis.

The purpose of the Wisconsin Oxygen Humidifier is to add sufficient water vapor to oxygen administered by the oropharyngeal catheter method to supply moisture to the mucous membranes. It is equipped with a water gage to register the flow in liters per minute. The equipment consists of three quart-size mason jars resting on a metal tray (9 inches in diameter with one-half inch edge) with a similarly shaped cover bolted to a center stem to hold the jars in place. A convenient carrying handle is supplied. Quart-size mason jars are used, to permit quick replacement in case of breakage. These jars screw into standard tops fastened to the cover of the humidifier. Metal parts are chrome finished. Rubber tubing connects the humidifier to the oxygen tank and to the catheter.



Wisconsin Oxygen Humidifier.

The pressure of the tank oxygen is reduced by means of the Linde Oxygen Therapy Regulator, Type R-51 (accepted by the Council on Physical Therapy, THE JOURNAL, June 9, 1934, p. 1941). The oxygen then passes through the humidifier jar, which has been previously filled with water to a marked level. Here a mixing chamber containing porcelain beads breaks it into fine bubbles calculated to pick up all the moisture possible. In the next jar there is a water flow gage to serve as an additional check on the cylinder flow gage, indicating the approximate flow in liters per minute. The firm claims that the additional gage is important because the spring type may still register flow in spite of complete obstruction, whereas the water type indicates no flow under similar circumstances. A third jar is provided to trap any excess water droplets so that they will not be carried to the patient. The flow gage jar and the humidifier jar are equipped with filling cups to permit ready replacement of water that is removed by evaporation.

The unit was submitted to a qualified investigator appointed by the Council. The evidence submitted by the firm was examined carefully and the device was tried clinically and found to give satisfactory service.

In view of the foregoing report, the Council on Physical Therapy voted to include the Wisconsin Oxygen Humidifier in its list of accepted devices.

ABDOMINAL SUPPORTS, CORSETS, SPECIAL SUPPORTS AND TRUSSES

At its annual meeting, January 13-14, the Council on Physical Therapy discussed the question of further consideration of abdominal supports, corsets, special supports and trusses. After due deliberation, the Council voted to discontinue its activity with regard to these products. It was pointed out that certain fundamentals about the construction and fitting of these products are not given careful attention and that such devices, useful for therapeutic purposes, should be prescribed individually.

In the opinion of the Council, the therapeutic value of these products is achieved only when they are fitted properly to the individual patient from an anatomic and physiologic point of view. It was the opinion of the Council, after careful deliberation, that corsets and abdominal supports, as they are now sold and fitted, do not receive the attention of specialists and that the therapeutic purpose for which they were originally considered by the Council has been lost sight of.

Therefore the Council will no longer give consideration to various makes of abdominal supports, corsets, special supports and trusses (effective at once) but will sponsor a series of articles relative to the use of these appliances from the standpoint of orthopedic surgery. The Council will ask those firms having accepted products to delete the seal or any mention of Council acceptance from their advertising matter and descriptive literature by Jan. 1, 1940.

PYREXON INFRA-RED HEAT RAY APPLICATOR NOT ACCEPTABLE

Manufacturer: Pyrexon Ray Corporation of America, 331 Fourth Avenue, New York.

The Pyrexon Infra-Red Heat Ray Applicator was submitted for consideration of the Council on Physical Therapy by the Pyrexon Ray Corporation of America. The heat applicator is a relatively small portable baker for use in the home or hospital. The Home Model measures approximately 16½ by 12 by 5 inches. It weighs about 6½ pounds. The heating element is concealed in a housing consisting of copper sheeting stretched across a wooden frame with asbestos protective covering between wood and copper, and also between copper and the patient. The firm states that this type of covering prevents baking or scorching the skin and permits the heat to penetrate into the tissues without much surface effect.

There is a two coil heating element, one part rated at 100 watts, the other at 75 watts and both at 110 volts. The power input is approximately 175 watts at full load. One of the coils is attached to a thermostat, which is calibrated at 145 F. It is placed on top of the thin insulated packing. The thermostat cuts off the 75 watt coil, thus leaving the device running on 100 watts when the temperature becomes too high.

Physical data presented by the firm indicate that the burners generate infra-red radiation at approximately 85,000 angstroms in wavelength.

In the advertising pamphlet submitted, "Presenting the Pyrexon Heat Applicators for Home Use," it is recommended for use in cases of sciatica, lumbago, neuritis and contusions. Critical evidence to support the efficacy of this device when used therapeutically to treat these conditions has not been submitted.

The baker itself was investigated in a clinic acceptable to the Council. The report stated that the baker must be in contact to secure necessary heating and that heating effects were not as comfortable as with other bakers. The supporting legs were not secure.

In view of the foregoing report, the Council on Physical Therapy voted not to include the Pyrexon Infra-Red Heat Ray Applicator in its list of accepted devices because the unit is not an efficient heater and it is advertised in a manner which is not in the interest of the public welfare.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry of the American Medical Association held its thirty-fourth annual meeting at the Association headquarters Friday, March 17, 1939. Those in attendance were Drs. David Barr, J. Howard Brown, S. W. Clausen, H. N. Cole, C. W. Edmunds, Morris Fishbein, E. M. K. Geiling, Ernest E. Irons, Paul Nicholas Leech, Perrin H. Long, G. W. McCoy, Stuart Mudd, E. M. Nelson, W. W. Palmer, William C. Rose, Elmer L. Sevringhaus and Torald Sollmann. In addition, the following members of the Council on Foods attended the meeting: Dr. George R. Cowgill, Dr. James S. McLester, Dr. Tom Spies and Dr. Franklin C. Bing.

Dr. Torald Sollmann was reelected chairman of the Council and Dr. W. W. Palmer was reelected vice chairman.

Among the many items discussed, the following may be of interest both to physicians and to manufacturers:

Liver Preparations.—Standardization of liver preparations, both U. S. P. preparations and nonofficial preparations, was the subject of discussion. The Council voted that a suitable statement of standards referring to the method of determining potency under the auspices of the U. S. P. Anti-Anemia Preparations Advisory Board be prepared with a view of substitution for the detailed descriptions now appearing in New and Nonofficial Remedies.

Antiseptics and Disinfectants.—The referee for antiseptics discussed the necessity of informing the medical profession concerning the new evaluation of bacteriostatic powers of the mercurial preparations. It was found that many of these preparations, investigated in the laboratory of one of the referees for the Council, would not kill bacterial spores within twenty-four hours' exposure under relatively ideal conditions. Since these bacteriostatic substances are not bactericidal in the pure state it would not be expected that they would be more active in the presence of organic serum. This led to further investigation, on which the conclusion has been reached that such products may have distinct usefulness because they are highly bacteriostatic and will prevent growth, are good preservatives in biologic products and may even be good antiseptics, when that term is defined as something which is not necessarily highly germicidal. They may be considered to have "disinfectant" rather than "germicidal" properties. It seemed probable that phenylmercuric subnitrate, in which the mercury is attached apparently to a different ion, has essentially the same degree of activity as the other mercurials.

The topic of inadequacy of phenol coefficient tests for the evaluation of antiseptics or disinfectants was presented to the Council by one of the referees. It was pointed out that the following paragraphs from circular No. 198 of the United States Department of Agriculture has frequently been overlooked by those interested in evaluation of bactericidal and bacteriostatic agents:

> There are certain types of germicidal agents, such as many of the mercury compounds, which give very high results by phenol coefficient tests. Due to the high inhibitory value of such substances in preventing growth in the subcultures, these figures are frequently misleading. For germicides used in the disinfection of such objects as surgical instruments, this is of particular importance and must be taken into account. Failure to appreciate this characteristic of certain compounds is much more likely to lead to error when Staphylococcus aureus is used rather than Eberthella typhi as the test organism. That false values may not be obtained for products of this type, or for any other disinfectant giving suspiciously high results, the subcultures should contain very large amounts of medium or they should be retransferred by carrying at least four loopfuls from the first subculture to a second tube of broth, as recommended by Shippen.
>
> Other groups of disinfectants in common use, for which the phenol coefficient method of testing is not well adapted, are those compounds containing chlorine as the active agent as well as oxidizing agents in general. These are affected so materially by the presence of organic matter that a phenol coefficient statement may grossly misrepresent their value under practical conditions of use and is very apt to be misleading to the consumer when placed on the label.

In the case of mercurial disinfectants an unduly high and misleading phenol coefficient is given, because the retransfer method was omitted. The same is true of certain silver compounds. It was further pointed out that any bacteriologic tests for mercurial compounds and the like alleging bactericidal properties should be made under conditions of actual application to supplement a test under simplified and arbitrary conditions. For instance, it has been found that mercurials are rendered completely inert bacteriologically by the addition of relatively larger amounts of normal horse serum, and therefore to get a therapeutic result in serum would require many times the lethal dose of a mercurial.

In view of this discussion the Council voted that a further statement be published at a later date reemphasizing that the phenol coefficient is an inadequate basis for judging the antiseptic value of nonphenolic agents and needs to be supplemented by tests under conditions of actual use. It was also pointed out that the same necessity for evaluating antiseptic substances in every possible way by at least approximating the actual conditions of use applies also to various dusting powders. Some of the well known nonaccepted dusting powders were found by tests to be wholly inactive under certain conditions when tested by more critical methods.

The word "preservative" was defined by the Council (for purposes of declaring the presence of preservatives on the labels of serum and vaccines and the like) as follows: "a preparation present in, or added to, a product for the purpose of destroying and/or inhibiting the multiplication of micro-organisms."

Revised Edition of Glandular Therapy.—The Council considered radical revisions of the book on glandular therapy, par-

ticularly in view of the newer advances in this field since the first edition, published at the close of 1935. The Council authorized the editorial committee to confer and to ask various authorities in respective fields to cooperate in this matter.

Digitalis.—The matter of digitalis, and particularly the use of such terms as "digitalis unit," "cat unit" and the like received attention. The Council voted that the subject be given further consideration.

Contraceptives.—The Councils' Committee on Contraceptives reported progress in the consideration of this subject. The report of this committee appears in the annual Reports of Officers (THE JOURNAL, April 8, p. 1358).

Labeling of Vitamin Dosage in Terms of Drops.—It was brought out that the drops of vitamin preparations of various manufacturers vary considerably because of the various types of droppers with the preparations. It is therefore hard to make comparative estimates of the relative potency of the products in terms of the prescribed dosages. There has been a tendency on the part of some of the manufacturers to exploit the claim that their bottle of vitamin preparation holds more drops than other bottles. To overcome in part this tendency, the Council voted that the label of liquid preparations containing vitamins should indicate the correct unitage of the product in terms of units per gram, or per cubic centimeter, as may be proper, and in addition that the approximate number of units yielded by a drop from the dropper provided be indicated.

Thiamin Chloride.—The Council voted to recognize the higher unitage for thiamin chloride, namely, a gram of crystalline thiamin chloride (crystalline vitamin B_1 [hydrochloride]) contains 333,000 U. S. P. units. The Council, therefore, announces that it will recognize claims for this unitage for the crystalline substance.

Proposed Names for New Vitamins.—The Council again pointed out the necessity of careful choosing by investigators of new names for vitamins which will not conflict with the rules of the Council on nomenclature, particularly with regard to therapeutically suggestive names. The Council has arranged for cooperative consideration with two scientific societies concerned and trusts that when scientific names are coined for such vitamins as vitamin K and others after the substance is isolated the selection will be one of an acceptable type.

Barbituric Acid and Its Derivatives.—The Council was asked by the House of Delegates to report on certain matters in reference to barbital and barbital derivatives. The first report has already been published in THE JOURNAL ("A Study of the Promiscuous Use of the Barbiturates," April 8, p. 1340). There is in preparation a second report on data collected from hospitals in various cities. The report will give information as to the reasons for addiction, duration of the addiction and frequency of use. It was pointed out that there are still certain data needed before the second report can be published.

Medical Patents.—The Council discussed informally the conference on medical patents held previously but took no action.

Pharmacopeial Convention of 1940.—It was called to the attention of the Council that the pharmacopeial convention will be held in 1940. It was thought advisable that THE JOURNAL emphasize at an appropriate time the importance of the medical profession's participating in the pharmacopeial convention and that this importance be stressed to the various medical schools and universities and other groups that send delegates to the convention; that there is need for revision of the methods of the pharmacopeial convention. It should be further emphasized that the Board of Trustees of the American Medical Association has authorized adequately close cooperation with the board of trustees of the U. S. pharmacopeial convention with a view to correcting some of the undesirable features which were noted in the convention in 1930.

Crystalline Zinc Insulin.—The Council discussed extensively the complex problems concerned with this subject. Certain important actions were taken which may be the subject of a separate report.

Aminophylline in Treatment of Diseases of Coronary Artery.—Statements in medical literature that aminophylline is effective in reducing the number and severity of attacks in disease of the coronary artery were reported. The referee felt that the evidence is not sufficient to justify any change in the therapeutic status of the product. The Council concurred.

Sulfapyridine.—The Council gave further consideration to sulfapyridine and endorsed the reports of the referees that sulfapyridine be accepted for inclusion in New and Nonofficial Remedies (for description, see THE JOURNAL, May 6, p. 1831). The topics discussed under this heading included the name, toxic reactions, estimated dosages, and reports of and the reason for the present high prices of this product.

Immune Globulin.—The Council voted that necessary steps should be taken for reinvestigation of this product with relationship to the matter of the name, to increased uses and to other points that are of importance, including a report on the various purified fractions of the globulin as related to its actions.

Therapeutic Research.—The Council voted that the Committee on Therapeutic Research be thanked formally for its painstaking effort and for the active productivity of the work which it fosters. A concise report of the work of the Committee on Therapeutic Research appears in the annual Reports of Officers, THE JOURNAL, April 8, p. 1380.

Acquisition of Pharmaceutical Concerns by Patent Medicine Interests.—The Council gave further attention to the question of acquisition of pharmaceutical concerns by patent medicine interests. Several examples were discussed but no action was taken. The Council decided however to continue its previous policy, namely, to be very watchful of companies acquired by nostrum interests or closely associated financially with nostrum interests. In those instances in which the Council has information that the best interests of either the public or the medical profession are being jeopardized by a house under such control and having Council-accepted products, immediate action will be taken, particularly in relation to the application of rule 11 to the firms concerned.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

MERCUPURIN.—An aqueous solution containing molar equivalent quantities of the sodium salt of β-methoxy-γ-hydroxymer curi-propylamide of trimethyl cyclopentane, dicarboxylic acid and of theophylline. (The mercurated organic acid is the same as that of which mercurin-N. N. R. is the partial sodium salt. Its specific name is N(γ-hydroxymercuri-β-methoxy) propyl-d-α-camphoramic acid and its structure is given under mercurin). Evidence is given that the theophylline in mercupurin is chemically combined with the mercurial.

Actions and Uses.—Mercupurin is a potent diuretic. It is perhaps less toxic and more active than the purine-free mercurial diuretics. It has been demonstrated that when theophylline is combined with the mercurial, sloughs and venous thrombosis occur with less frequency and severity. Clinical experiments suggested that the presence of theophylline enhances the rate and completeness of absorption, so that the drug is effective and well tolerated by intramuscular as well as intravenous administration. Studies by a number of investigators give indication that Mercupurin is an efficient diuretic. Supplementary administration of acidic salts, such as ammonium chloride, tends to increase the diuresis.

Mercupurin is used to remove excess fluid in edema of congestive heart failure, nephrosis, and cirrhosis of the liver with ascites. It is contraindicated in advanced chronic nephritis and acute renal disease. Care should be taken not to restrict the intake of sodium chloride too drastically, as copious diuresis may give rise to the symptoms associated with hypochloremia.

Dosage.—Mercupurin is supplied in a concentration of 10 per cent (weight/volume) with respect to the sodium salt of the mercurated organic acid and 3.53 per cent with respect to anhydrous theophylline. Each cubic centimeter of mercupurin represents 39 mg. of mercury in non-ionizable form.

Manufactured by Chinoin Laboratories, *Ujpesta, Hungary (Campbell Products, Inc., New York, N. Y., distributor).* U. S. patent 2,116,872 (May 10, 1938; expires 1935). U. S. trademark No. 315,683.

Ampoules Mercupurin, 1 cc.: Each ampule contains 1.1 cc. of mercupurin

Ampoules Mercupurin, 2 cc.: Each ampule contains 2.2 cc. of mercupurin

Mercupurin is a nearly colorless, odorless, bitter tasting aqueous solution whose *pH* lies between 8 5 and 9.0. The specific gravity of the ampule solution is not less than 1 068 nor more than 1 072 at 25 C. The index of refraction at 25 C. for the D line of sodium is 1 3550 (0 0002). The observed optical rotation of the ampule solution is $\alpha = -4\ 5$ (±0 1) when measured in a 200 mm. tube using a sodium lamp.

Transfer 5 cc. of the ampule solution, accurately measured, to a tared beaker and evaporate the solution to dryness over phosphorus pentoxide in a vacuum desiccator: the total dry residue is not less than 135 nor more than 145 mg. per cubic centimeter. Acidify 5 cc of the ampule solution, accurately measured, with 1 cc of concentrated sulfuric acid, carefully evaporate the excess liquid and incinerate in an electric muffle furnace to constant weight using 900 C. as the end temperature for not more than ten minutes the amount of sodium sulfate is not less than 13 nor more than 15 mg per cubic centimeter. Test for free mercuric and other heavy metal ions, sulfates, halides and arsenic as described under mercurin (which see) using 2 cc. of ampule solution Decompose about 10 cc. of ampule solution with hydrogen sulfide as described under mercurin the same crystalline product is obtained, namely N allyl d-α camphoramic acid, m p. 158 C.

Determine nitrogen by the Pregl micro Kjeldahl procedure. each cubic centimeter of mercupurin contains not less than 13 nor more than 17 mg. of nitrogen Pipette 5 cc. of the ampule solution into a platinum dish and determine the mercury content as described under mercurin (which see) each cubic centimeter contains not less than 38 nor more than 40 mg. of mercury. Dilute 5 cc. of mercupurin, accurately measured, with 15 cc. of water, add 5 cc. of 10 per cent ammonium hydroxide and 6 cc of a 10 per cent solution of silver nitrate. Heat gently on the water bath until the precipitate coagulates. Filter, wash with hot water, and dissolve the precipitate in 10 cc. of 10 per cent nitric acid Dilute to 100 cc. and titrate with 0 1 normal ammonium thiocyanate solution using two drops of a saturated solution of *ferric ammonium sulfate* as indicator 1 cc of 0 1 normal ammonium thiocyanate solution is equivalent to 18 0 mg of anhydrous theophylline. Mercupurin contains not less than 34 nor more than 37 mg. of anhydrous theophylline per cubic centimeter

IODOBISMITOL WITH SALIGENIN (See New and Nonofficial Remedies, 1938, p. 151).

Ampoules Iodobismitol with Saligenin, 2 cc · Each ampule contains from 0 115 to 0 133 Gm of sodium iodobismuthite (equivalent to 0 024 to 0 027 Gm. metallic bismuth) and from 0 318 to 0 258 Gm of sodium iodide dissolved in propylene glycol containing 4 per cent saligenin and 0 1 per cent glacial acetic acid.

Iodobismitol with Saligenin, 50 cc. Bottle · Each 2 cc. contains from 0 115 to 0 133 Gm of sodium iodobismuthite (equivalent to 0 024 to 0 027 Gm. of metallic bismuth) and from 0 318 to 0 258 Gm of sodium iodide dissolved in propylene glycol containing 4 per cent saligenin and 0 1 per cent glacial acetic acid

Manufactured by Cutter Laboratories, Berkeley, Calif., by license of Stanford University. U. S patent 1,890,508 (Dec 13, 1932, expires 1949) and 1,927,210 (Sept. 19, 1933, expires 1950). No U. S. trademark.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

FOULDS' EGG ALPHABETS

Manufacturer—The Foulds Milling Company, Libertyville, Ill.

Description—Noodles in the shapes of letters of the alphabet, prepared from durum flour, egg yolk, water and salt.

Manufacture.—Durum flour, egg yolk, salt and water are mixed and kneaded under corrugated steel rolls, run through dough breaks (rollers) and forced through dies to form the desired shapes, dried and packaged.

Analysis (submitted by manufacturer).—Moisture 10 2%, total solids 89.8%, ash (salt free) 0 7%, sodium chloride (NaCl) 1 1%, fat (ether extract) 5.3%, protein (N × 6 25) 15.3%, lipoid phosphoric acid (dry basis) (P_2O_5) 0.13%, estimated egg solids on the moisture-free basis 6 6%, carbohydrates (by difference) 67.4.

Calories.—3 8 per gram; 108 per ounce.

CARIBBEAN BRAND STRAINED BANANAS

Manufacturer.—Caribbean Canning Company, Inc, 1332 Whitney Building, New Orleans.

Description.—Canned, strained, ripe banana.

Manufacture.—Green bananas are stored in a dark humid atmosphere, first at 20 C. and later at 23.9 C. until the desired degree of ripeness is developed. This is indicated by the odor of the fruit and by the complete disappearance of green color and the appearance of flakes of brown on the deep yellow skin. The ripe fruit is peeled, mechanically sliced, dipped in sugar syrup to prevent discoloration, drained, strained and packed into cans. The filled cans are heated for five minutes at 100 C., sealed and heat processed.

Analysis (submitted by manufacturer).—Moisture 74.5%, total solids 25 5%, ash 0.6%, fat (ether extract) 0.7%, protein (N × 6 25) 1.3%, crude fiber 0.4%, carbohydrate other than crude fiber (by difference) 22 2%, reducing sugars as invert 7.7%, sucrose (copper reduction method) 12 6%, starch (by difference) 1.9%, acidity as malic 0 25%, *pH* 4 88.

Calories.—1 0 per gram; 28.4 per ounce.

N B C BRAN

Manufacturer.—The National Biscuit Company, New York.

Description.—Milled wheat bran; flavored with sucrose, malt extract, salt and water extract of prunes.

Manufacture.—Wheat bran, which has been run through a high-speed hammermill, is mixed with water, sucrose, prune concentrate, malt extract and salt, cooked in a revolving steam pressure cooker, ground and run through forming machines and a screen scalper to form "nuggets," which are cooled, dried, toasted and packaged.

Analysis (submitted by manufacturer).—Moisture 2.7%, total solids 97.3%, ash 6.4%, fat (ether extract) 2.1%, protein (N × 6.31) 12 0%, crude fiber 8 8%, carbohydrates other than crude fiber (by difference) 68 0%, reducing sugars (as dextrose) 2.03%, sucrose 12.5%, iron (Fe) 0 018%, phosphorus (P) 1.36%.

Calories.—3 39 per gram; 96 per ounce.

Vitamins.—Approximately 1 5 international units of vitamin B_1 per gram.

(1) DAIRY DISTRIBUTERS BRAND EVAPORATED MILK

(2) DAIRY DISTRIBUTERS BRAND VITAMIN D EVAPORATED MILK

Manufacturer.—Watertown Milk Cooperative, Watertown, Wis.

Distributor.—Dairy Distributers, Inc, Milwaukee, a wholly owned subsidiary of the Watertown Milk Company.

Description.—(1) Canned unsweetened evaporated milk. (2) Canned unsweetened evaporated milk fortified by the addition of 325 U. S. P. vitamin D units from Vitex Concentrate per 14½ ounce can.

Manufacture.—Whole milk is carefully inspected and tested at the company plant by state and company inspectors before acceptance. The milk is preheated and filtered Vitex Vitamin D Concentrate to the extent of 325 U. S P. units per 14½ ounce can of the finished evaporated milk is added for the vitamin D milk only. The milk then is evaporated under vacuum, homogenized, cooled, standardized to meet government requirements, filled into cans, sealed and sterilized.

Analyses (submitted by manufacturer).—(1) Moisture 74 1%, total solids 25.9%, ash 1.6%, fat 7.8%, protein (N × 6 38) 7.8%, lactose (by difference) 8 7%, total acidity as lactic 0 3%. (2) Moisture 74 0%, total solids 26 0%, ash 1.6%, fat 7 8%, protein (N × 6 38) 7 8%, lactose (by difference) 8 8%, total acidity as lactic 0 3%

Calories.—(1) and (2) 1.4 per gram; 39.8 per ounce.

CRADLE BABY BRAND STRAINED AND SEEDLESS BLACK RASPBERRY JAM

Manufacturer.—Glaser, Crandell Company, Chicago.

Description.—Canned strained black raspberry jam sweetened with sucrose. The jam may contain small amounts of added acid and/or pectin.

Manufacture.—Black raspberries from Michigan are handled as described for Cradle Baby Brand Strained and Seedless Grape Jam (THE JOURNAL, April 8, 1939, p. 1343).

Analysis (submitted by manufacturer).—Moisture 31.3%, total solids 68.7%, water insoluble solids 0 4%, water soluble solids 68 3%, ash 0 3%, protein (N × 6 25) 0 4%, crude fiber 0 1%, carbohydrates other than crude fiber (by difference) 67.1%, acidity 0.8%.

Calories.—2.70 per gram; 77 per ounce.

THE CASE OF BRINKLEY VS. FISHBEIN

PROCEEDINGS OF A LIBEL SUIT BASED ON AN ARTICLE PUBLISHED IN *HYGEIA*

(Concluded from page 2153)

DEPOSITION OF LESLIE DYE CONN

The deposition of Leslie Dye Conn indicates that he is a resident of Little Rock and that he was graduated from Vanderbilt University School of Medicine in 1907, having previously had three years at Gate City Medical College, Texarkana, Arkansas, in 1901, 1902 and 1903. He was licensed to practice in Arkansas and Oklahoma in 1903, and in Texas in 1913. He was employed by Dr. Brinkley in Del Rio to do physical examinations, and he is now employed in Little Rock doing rechecks on the patients. On cross examination, he stated that complete records are kept of the patients and that about 90 per cent of the patients have shown improvement. It was his opinion that the operations were, in general, successful.

TESTIMONY OF C. B. WARDLOW

C. B. Wardlow testified that he lives in Del Rio, Texas, and is in the ranch business, managing a wool house, and that the reputation of Brinkley was good. On cross examination, it was brought out that he is in partnership with Brinkley.

TESTIMONY OF F. M. ROSE

F. M. Rose stated that he is in the ranch business and has practiced dentistry for fourteen years, and that the reputation of Brinkley is good.

TESTIMONY OF ORVILLE BARNES CHANDLER

Orville Barnes Chandler stated that he is a physician, living in Little Rock, Ark., and working in the Brinkley Hospital. The testimony proceeded:

Q.—In what capacity? *A.*—As physician working in the building in charge of the x-ray and laboratory work and also I am doing the postoperative surgical dressing, checking out patients and advising them what their diet should be after leaving and the medications that are necessary.

Q.—Now, Doctor, let's get what your medical education, what medical education you have had, please, sir? *A.*—Well, I had five years in Vanderbilt University with the degree of Doctor of Medicine on the 14th day of June 1916.

Q.—And then what other studies, if any, have you had subsequent to that time? *A.*—Well, following my graduation I took my internship in Vassar Hospital, Poughkeepsie, New York. That was an eighteen months internship, and I served fourteen months of it and quit the internship and went in the army; I was called as First Lieutenant in the Medical Corps of the army. I went to Fort Riley and had my training there, squads east and west, and from there I was assigned as examiner in x-ray in that camp, and after examining all of the officers and men that claimed x-ray experience and turning in a report on their examinations I was sent to New York, the Cornell School of Military Roentgenology for further instruction as an assistant instructor myself. From there—

Q.—Doctor, tell us what roentgenology is, please, sir, explain that to the jury? *A.*—Well, every one knows what x-rays are, at least knows of them. The x-ray was discovered by Conrad Roentgen of Wurzburg, Bavaria, in 1895 or '96. The medical profession, in order to pay him courtesy, the courtesy that was due him for his scientific work, called it the roengen ray instead of x-ray, so roentgenology is purely and simply a discourse on x-ray.

Q.—All right, go ahead, Doctor, and tell us what further studies or experience you have had? *A.*—I went into the Louisville base hospital at Camp Taylor, Kentucky, as x-ray man in the base hospital, x-ray department, along with others; served there from April until the 1st of September and then from there I was sent to North Carolina and worked there along with Stephens and Moschcowitz, who were two of a committee of three from the surgeon general's office to study empyema, and their x-ray man was ordered away and I was ordered to take his place. We worked there until we cleaned up the empyema cases and then flu broke out and I took charge over the base hospital at Camp Dodge, commencing work on the 4th of October. I stayed there until the 19th of the next July, through the flu epidemic and the gradual decline of the size of the hospital. Then they ordered me from Camp Dodge to Fort McPherson, Georgia, to help take care of those that were coming back. I stayed there from the 21st of July until about the 1st of October, I don't remember the exact date of the order now, but it was around that time, and we were ordered, they ordered me to Hampton, Virginia, to the Old Soldiers' Hospital, which had been turned into a hospital for shell shocks. I was there about a month and ordered to Governors Island for discharge.

Q.—You then received your discharge from the army? *A.*—Yes.

Q.—Now, then, Doctor, since that time have you had any special occasion for study in any clinics or elsewhere? *A.*—Well, I had had so much x-ray work in the army service I figured I would follow that in civil life. I went back to Des Moines, where my family was, and made arrangements for office space and bought an x-ray machine from the Victor x-ray people of Chicago, to be delivered as soon as they could fill the order. I then went back to New York for postgraduate work in skin and cancer work, because I figured I would need it in days to come.

Q.—Now, Doctor, then did you or not continuously from that time until the time you went with Dr. Brinkley engage in the practice of your profession as a physician and surgeon? *A.*—I have been in medical practice every day from that period all along.

Q.—Yes, sir. *A.*—With the exception of about, well, November and December and about half of January, when I first came to Texas I was hanging around San Antonio waiting for the report from Washington to get back, and I was finally informed that I was crowding the age limit too much and the war college had ruled against me on account of age, in regard to my getting back in the army, and then I had to get out and start digging for myself in private life. I started on the 18th of January in South Texas in the general practice.

Q.—Then when was it that you went with Dr. Brinkley? *A.*—Well, that was about, it will be three years the 6th of this coming April.

Q.—Then in April of 1936 was that, Doctor? *A.*—It will be. It was the 6th of April, 1936, that I commenced working for him.

Q.—And, now, tell us, Doctor, what societies or organizations you have been a member of in the past and explain just what those are? *A.*—Well, I have been a member of the North American Radiological Society, a member of the American Medical Association, both the state and county societies, while I was in the Twin Cities. I was a member of the Twin Cities Urinological Society. Those sections where I was I was hooked up with the medical men wherever I was working.

Q.—What do you mean by the Twin Cities, Doctor? *A.*—Minneapolis and St. Paul.

Q.—Was that a society composed of urinologists? *A.*—Not all urinologists, but men interested in urinology.

Q.—Now, then, Doctor, what has been your work and the nature of your work since you have been with Dr. Brinkley, please? *A.*—I was hired by Dr. Brinkley to do his x-ray work and was asked if I would be willing to help out some with the other work if I wasn't overworked in the x-ray department. And I was immediately assigned to do surgical dressings, which I have continued on through. I still have charge of the x-ray work, which I read the plates and make diagnoses and fluoroscopic work. I do that myself. I take care of the diagnoses work, but I don't do the technical work of making the plates. I supervise it.

Q.—Is all of the laboratory work, including the x-ray and the fluoroscopic work and the pathological work done under your supervision? *A.*—Well, I am normally in charge of the laboratory. They have a technician that is a well qualified young fellow that does the technical work and looks after the tests and everything of that kind himself.

Q.—Who is that, please? *A.*—Mr. Kirschberg.

Q.—You mean with reference to the pathology? *A.*—He looks after the clinical and pathological work, and the only time that I am called in is perhaps when he wants me to O. K. his findings on pathological tissue or something like that.

Q.—Now, Doctor, tell us how the hospital is equipped for doing that sort of work? *A.*—Well, we have modern equipment, the latest type of Westinghouse shockproof units in the hospital where I am.

Q.—Is all of that, during the time that you have been with Dr. Brinkley has all of that equipment been kept up to the best standard possible? *A.*—The equipment that I am working with or have in my hands now was bought new when we opened the hospital in Little Rock. The instruments that I worked with at first here in the Roswell Hotel were shipped to Little Rock later and put in the Country Club Hospital, and that way I have an entirely new unit to work with now.

Q.—But was the equipment which was here in the hospital here of the best type available? *A.*—A Victor diagnostic outfit in good shape, I kept it that way. If anything was needed I added to it in the way of accessories and things like that if they were needed.

Q.—Has Dr. Brinkley given any instructions with reference to any new equipment as it may be needed or any new type or changes which may come out from time to time in the type of equipment you have occasion to deal with in your work? *A.*—He told me he wanted me to keep my laboratory up to date and he has never so far refused to get anything I asked for in the way of new equipment or new accessories.

Q.—Were those his instructions from the first time you went with him? *A.*—That has been my understanding right along.

Q.—Have you or not during the time that you have been with Dr. Brinkley had occasion to observe and examine the patients who come there to the hospital? *A.*—Certainly.

Q.—Doctor, have you or not had occasion to observe and know their condition when they came there? *A.*—I have examined the patients, I was the only examiner in the Little Rock Hospital for the first month of the hospital's existence.

Q.—And did you or not also make examinations here at Del Rio? *A.*—Nothing; only the x-ray is all I had anything to do with here.

Q.—And have you had opportunity to examine the patients upon their discharge from the hospital after their operations? *A.*—I check them all out.

Q.—I will ask you to state, Doctor, from your experience with and observation of the patients there whether or not the operation for prostatic trouble which is done by Dr. Brinkley or under his supervision is or not, in your opinion, beneficial to the patients? *A.*—Seeing the patients as they go out, hearing their statements and noting the size of their prostate and condition of it, comparing it with what the record shows they had when they came in, I would have to say there was a greater portion of them showed some improvement.

Q.—Then is or not, in your opinion, the operation beneficial to the patient? *A.*—Well, I should say so if that is the only thing they have had to get that improvement.

Q.—Have you or not also, Doctor, had occasion to examine the patients on return, on their returns at subsequent times? *A.*—Rechecks I have had a few, not many, because most of that work went out to the other hospital.

Q.—But you have had some occasion to make examinations for patients who returned for rechecks? *A.*—Yes, sir.

Q.—In your opinion, Doctor, is the operation generally successful? *A.*—Well, as far as I can see it is. There are certain types of conditions that it takes time, and at the end of seven days we can't—no one could expect to see a prostate that was 2 or 3 inches in diameter shrink up to its normal size in seven days' time unless it had been just a swollen prostate.

Q.—Well, such as you have seen on recheck? *A.*—You see, a person who comes in with three plus or three minus, a three plus or three minus prostate, a good large prostate that is boggy, more or less soft, swollen as it were, it may decrease quite a bit within a week's time. By the end of a year perhaps it is back to normal.

CROSS EXAMINATION

By Mr. Reynolds:

Q.—Dr. Chandler, as I understand it, now, you are doing just surgical dressing and then reading x-rays, is that it? *A.*—That is part of it; I am just generally checking out the patients and giving them their instructions to go home on.

Q.—Is it you who determines whether the patient is ready to leave the hospital? *A.*—Mainly; I notice any change, and if I don't feel they are in shape to be checked out I call attention of that to Dr. Osburn, and he is final on it.

Q.—How long are the patients generally there now? *A.*—Usually figure one week's time.

Q.—What types of incisions are you now dressing? *A.*—Skin incisions.

Q.—Where are they? *A.*—In the front part of the scrotum and one on the other side.

Q.—And what is the length of them? *A.*—After the skin is drawn up it is, perhaps, an inch to inch and a half.

Q.—Have you ever seen Dr. Brinkley perform his prostate operation? *A.*—No, sir, not close enough to tell anything about it; I pass through the room.

Q.—Has he ever told you completely what it is? *A.*—No, sir; I am not interested in that part of it in anyway.

Q.—Then, you really don't know what kind of treatment is being given to the patient so far as his operation is concerned? *A.*—Underneath the skin. I have treated the incisions after they were sewed up.

Q.—But you don't know the nature of the operation itself from first hand knowledge? *A.*—Not first hand, seeing or helping or anything of that kind; I couldn't tell you the details of the operation.

Q.—And you don't make any of the diagnoses, do you? *A.*—No, sir. I simply report what I find on the x-ray picture.

Q.—How many x-ray pictures a week do you imagine you read? *A.*—Right now?

Q.—Yes, sir, now? *A.*—Well, it is hard to say; perhaps, in rush weeks it would be thirty, forty or fifty a day.

Q.—Now, when a person comes in there for treatment do you always x-ray them irrespective of what they are there for? *A.*—The bladder area, yes, sir.

Q.—How many x-ray shots do you make? *A.*—Make one, drain the bladder, refill it with sodium iodide solution and make a second one as a routine.

Q.—Then when you read thirty or forty a day, that means there are fifteen to twenty new patients a day? *A.*—Maybe it would mean that and maybe not; if that same patient comes in and gets his two routine plates and gives a history of sinusitis, or something of that kind, maybe I have to x-ray his sinuses or heart condition, or something of that kind.

Q.—Dr. Brinkley doesn't treat heart conditions, does he? *A.*—No, sir; but we want to know the condition of the patient before we start anything.

Q.—Is it you who diagnoses whether or not there is cancer of the prostate gland? *A.*—That is made by the examining physician, and the final is by the laboratory check, if we are able to check up on it in any way.

Q.—What part of it is it that you do there in that connection? *A.*—Well, if we have a bioscopy made I sometimes have to pass on that, but that is all I have to do with it.

Q.—Are you the main one that passes on the bioscopy? *A.*—Yes, sir.

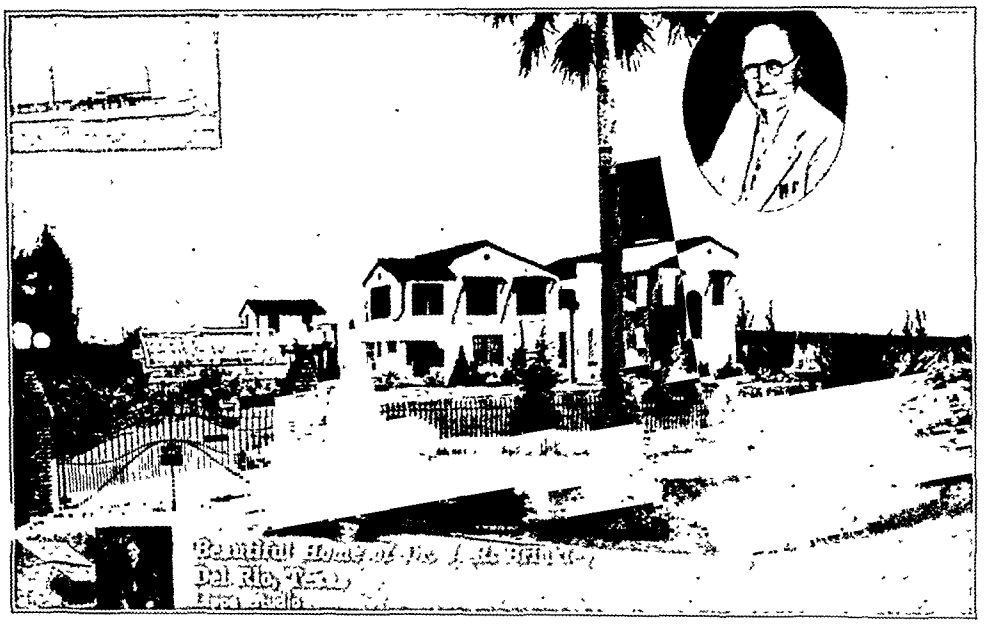
Q.—Incidentally, tell the jury what a bioscopy is so it is clear? *A.*—Well, it is hardly a good practice, but it is done by old medical men, surgeons, at least; you have to get a piece of suspected cancerous tissue with as little traumatism and aggravation of the original mass as possible, put it into a freezing machine, freeze it and then slice it in two thin slices and place those under the microscope, after they have been stained, and make the diagnosis.

Q.—And you yourself are the one that finally says "this man has a cancer of the prostate" or "he doesn't have"? *A.*—I would under those conditions, but a man can make a diagnosis, often times—

Q.—I mean where the bioscopy is done? *A.*—Yes, sir.

Q.—What is done with the patients that you find do have the cancerous condition? *A.*—I don't know. They are advised to have cancer treatment.

Q.—Not at your hospital? *A.*—No, sir.



Reproduction of a postcard sold in Del Rio.

Q.—As a matter of fact, they are sent to another doctor there in Little Rock, aren't they, or do you know? *A.*—They might be advised to go there, but I don't know as any of them are ever sent there; a man is allowed to go to who he pleases on that deal.

Q.—Doctor, how long has it been since you were a member of the North American Radiological Association? *A.*—Oh, I guess it was about—I don't remember the exact years on that, but along about 1928 or 1929.

Q.—You weren't a member for several years before you went to Dr. Brinkley, is that right? *A.*—I was a member from, I think it was, around 1922 until I had financial straits that just tied me down until I couldn't keep up the bills, that is all.

Q.—How was it that you happened to go to Dr. Brinkley? *A.*—I was left stranded down at San Antonio with a wife and three kids, and I started in trying to make a living in South Texas, and there was next to nothing to start with, and I bucked the game over at the little town of Weslaco in the Winter Garden the best I could, and then I went to Karnes City, and from there to Poteet and finally into San Antonio, and in my messing around when I stopped at Karnes City for a spell I met a young fellow by the name of Alvis working in a drugstore there, and I got him out of a rut and got him started, and he happened to drive into Del Rio and start working for Jim Shearn over here in a drugstore, and Dr. Brinkley's x-ray man flew the coop for some unknown reason, I don't know why, and this boy knew my financial straits and he wanted me to come over and do x-ray work because he heard that I did that, and that is how I got there.

Q.—Since you were a member of the Twin City Urological Society, I assume you have done work in that field? *A.*—Only the x-ray side.

Q.—You don't know anything about the theory of the secretions of the glands? *A.*—Most every doctor gets some theory in his school life, but that is all.

Q.—What is your understanding in the function of the gland as to where the male sex hormones are produced?

THE COURT.—I don't think you should go into anything like that with this witness

Mr Reynolds —I will withdraw that.

Q —Who is your laboratory man? *A* —Garrett Kirschberg.

Q —Have you ever heard of anything such as a licensed laboratory technician? *A* —I have heard of a registered

Q —Not a licensed? *A* —That is right

Q —Registered? *A* —Registered with the International Society.

Q —A registered laboratory technician? *A* —Laboratory and urological technician, there are both, I don't remember the exact wording of the titles.

Q —Now, you are on a straight salary with Dr. Brinkley *A* —Yes, sir

Q —At the present time? *A* —Yes, sir.

Q —Doctor, in treating a person who has some residual urine, that urine is drawn off and that person feels many per cent better, doesn't he, a great deal better? *A* —Temporarily, until it fills up again

Q —And in the ordinary course of events it is quite a little time before it fills up again, that is, an average case? *A* —A few hours, perhaps

Q —Now, if you removed the residual urine for an elderly gentleman and gave him a week's rest in bed, why without doing anything more he is going to be in much better shape, isn't he? *A* —Possibly some better.

Q —And what I want to know, Doctor, is it your opinion as a medical man that tying off of the efferent ducts between the testes and the epididymis has any effect whatever on the size of the prostate gland? *A* —I don't know anything about that operation

Q —You have never heard of it in connection with the Brinkley Hospital? *A* —I have heard of it, but I couldn't swear that it is done, I didn't see it

Q —Do you have any reason to believe it is not done? *A* —No, sir.

THE COURT —That is speculation

RE-DIRECT EXAMINATION

By Mr. Morriss Sr.:

Q —Doctor, how long did you say it would take the bladder to fill up if you were to empty the bladder, where a patient couldn't do it? *A* —If you emptied the bladder and got it absolutely minus of anything, only the natural moisture on the inside there, and your kidneys were working it would be a few hours until he would have the same amount, and he wouldn't be able to pass but a little amount, and when he got his usual residue the overflow would pass

Q —That emptying doesn't have any immediate effect of curing a man? *A* —No, sir. He specified that you keep him in bed a week and keep it empty.

Q.—Then, that way, would that be of any permanent benefit, likely, or would that be temporary? *A* —Nature naturally repairs itself if you help it some, and he would be better off and be improved at the end of a week That is what he asked me

Q —That wouldn't have anything to do with the reducing of the prostate gland? *A* —I wouldn't think so

Witness excused

TESTIMONY OF L. C. CALDWELL

L. C. Caldwell testified that he operates the Val Verde Tourist Courts, that he is corporation judge of the city of Del Rio, and that the general reputation of Brinkley in the community is good He stated that many of the patients coming to the Brinkley Hospital had stopped at his tourist courts.

TESTIMONY OF J. TRAVELSTEAD

J. Travelstead testified that he is editor of the Del Rio *Evening News* and that the reputation of Brinkley is good. On cross examination, he stated that he is a close friend of Dr. Brinkley's and that he had given Brinkley liberal space, and that Brinkley had bought liberal space in his newspaper.

TESTIMONY OF DR J A MC DONALD

Dr. J. A. McDonald testified that he is a doctor of dental surgery, a member of various dental organizations, has lived in Del Rio twenty-one years and has known Brinkley since 1931 and that his reputation is good On cross examination, he stated that he is the dentist for the Brinkley family.

TESTIMONY OF W. PAINTER

W. Painter stated that he is a bus operator, living in Uvalde, Texas, and has been engaged in such a capacity for fifteen years, and that the reputation of Brinkley is good and that he is a peaceable, law-abiding citizen He also stated that he in his business has hauled patients in and out of Del Rio.

TESTIMONY OF JOHN DOBKINS

John Dobkins testified that he is in the automobile business in Del Rio and that the reputation of Brinkley is good On cross examination he testified that Brinkley was one of his customers.

The defense then offered in evidence a considerable number of exhibits in the form of pamphlets, circulars and other materials issued by Brinkley, and also the book entitled "Life of a Man," written by Clement Wood.

TESTIMONY OF J. H. MC COY

J. H. McCoy testified that he is investigator for the firm of Loesch, Scofield, Loesch & Burke of Chicago, and that in the course of his investigation he met a man named Crawford in the penitentiary in McAlester, Okla.; that he interviewed Crawford and was present when Mr. Burke took the deposition for the American Medical Association and Mr. Jackson for Brinkley, Mr. Jackson representing Dr. Brinkley. Mr. McCoy stated that he had not at any time made any promise to Mr. Crawford, that he had not paid him any money and that he has never seen Mr. Crawford since the time the deposition was taken.

DEPOSITION OF LESLIE DYE CONN

Mr. Harrell, representing the American Medical Association, read additional material from the deposition of Leslie Dye Conn, as follows:

DIRECT EXAMINATION

Questions by Mr. Harrell:

Q —Do all of those patients come to the country hospital rather than the city hospital? *A* —Yes, sir. They're supposed to, at least As far as I know, they do

Q —I mean by that they go out there for recheck? *A.*—Yes, sir.

Q —And is there any one else at the Country Club Hospital, besides yourself, who conducts those examinations? *A* —No, sir.

Q —Those recheck examinations? *A* —No, sir.

Q —Is there any operating done out at the Country Club Hospital? *A* —When they overflow up in town they do; once in a while

Q —Do they overflow up in town very often? *A* —Very often? Why, doggone, we can't take care of them

Q —Business is booming, huh? *A* —You ought to work a while and find out. Oh, we do take care of them, but then we are sure overflowed.

Q —Doctor, the patients who come to the Country Club Hospital for recheck, for what ailments have those patients received medical attention or surgical attention? *A* —For what ailments have they received—

Q —Yes? *A* —Those that I handle are for the prostate

Q —Those that you handle have all previously had operations for prostate? *A* —Yes, sir—or take. medical treatment for prostate

Q —Do you have many patients that take medical treatment for the prostate rather than surgical? *A* —Not many.

Q —Do you know what the medical treatment for the prostate is? *A* —Yes, sir.

Q.—As administered by Dr. Brinkley? *A* —Yes, sir.

Q —Would you tell us what it is? *A* —No, sir. It is not my privilege

Q —Well, why won't you tell us? *A* —Because it was given to me in confidence, and I am keeping it that way.

Q —Is it a secret treatment? *A* —Well, if he wants you to know it he'll tell you Now, that is all—

Q —But, at any rate, you refuse to divulge it, is that right? *A* —Yes, sir, that's right

Q —But you do know what it is? *A* —I do—at least, I know what he told us

Q —Did he also tell you not to divulge it to any one? I mean—by "he," I mean Dr. Brinkley. *A* —I can't tell you the conversation that took place—just don't remember it right now."

TESTIMONY OF DR. MORRIS FISHBEIN

Dr. Morris Fishbein was then called to the stand as a witness in his own behalf. He testified as follows:

DIRECT EXAMINATION

By Mr. Reynolds:

Q —Dr. Fishbein, now, for the purpose of the record, you are the defendant in this case, again, Dr. Fishbein? *A* —Yes, sir.

Q —Doctor, have you ever authorized the expenditure of any funds, either your own or those of the American Medical Association, for the purpose of paying it to, giving it to or delivering it to a prospective witness in any legal proceeding? *A* —Absolutely not.

Mr Morriss Sr —We object to that as incompetent, irrelevant and immaterial to any purpose in this case.

THE COURT —Overrule the objection

Mr. Morriss Sr.—Note our exception.

A —Absolutely not.

Q.—Dr. Fishbein, prior to the time you came down here on this lawsuit had you ever heard of the deposition of James E. Crawford? *A.*—I had never heard of Mr. Crawford's deposition prior to the time I came to attend this suit.

Q.—Now, Dr. Fishbein, is there any recognized and recorded medical evidence that the goat gland implanted in the testes has the same effect of the administration of male sex hormones?

Mr. Morriss Sr.:—We object to that for the reason that it is not a matter that is proper at this time; the plaintiff had put on his case and the defendant put on its rebuttal and went into all of those matters at the time and put on their testimony, and the plaintiff has put on the rebuttal, and it is not proper now, of course, to seek the advantage of putting on this kind of testimony.

THE COURT:—I think it is proper to rebut Dr. Brinkley's testimony.

Mr. Morriss Sr.:—His testimony was in rebuttal, it was their rebuttal testimony, and if we are going to rebut back and forth—

THE COURT:—You can have sur-rebuttal, can't you?

Mr. Morriss Sr.:—I don't think it is proper.

THE COURT:—As I remember, when you had Dr. Brinkley on the stand he was asked about that and he said he was inclined to think that that was the effect of the insertion of those goat glands but that he may in his own enthusiasm, I believe he expressed it, have been mistaken.

Mr. Morriss Sr.:—This witness and other witnesses expressed their ideas about it.

THE COURT:—You can't close up their case, and they have a right to rebut your case if they want to.

Mr. Morriss Sr.:—We think it is not a proper practice after they had their case, a proper practice to undertake to go back on the stand after the plaintiff had closed the case in rebuttal.

THE COURT:—Dr. Fishbein has been on the stand once, and this makes the second time, and Dr. Brinkley was on twice.

The Witness:—Twice.

Mr. Morriss Sr.:—We don't think it is a legal criterion, and we object to it because it is a matter that has been gone over and because it is not proper in any sur-rebuttal.

THE COURT:—Nobody is quicker than the Court to stop the testimony when they try to indulge in repetition, and you know that, and I have been doing it all week, but I think they have a right to ask the question, and I will overrule the objection.

Mr. Morriss Sr.:—We make the further objection to this testimony that it is incompetent, irrelevant and immaterial to any issue in this case, and it is collateral. If it were for the purpose of contradicting anybody—it is wholly a side issue and it is incompetent to establish any issue in this case.

THE COURT:—My understanding is, and I presume they do introduce it for the purpose of contradicting Dr. Brinkley's testimony, and if it wasn't for that purpose I woudn't admit it.

Mr. Morriss Sr.:—It is on a collateral matter, and, further, it is hearsay

THE COURT:—Go ahead.

Q.—Is there any accepted, recordable evidence, recorded evidence that the goat gland implanted in the testes has the same effect as the administration of the male sex hormone?

Mr. Morriss Sr.:—That calls for a conclusion "is there any recorded acceptable evidence," and it would call for the speculation and conclusion, and that is certainly improper, in addition to the other reasons.

Q.—To your knowledge?

THE COURT:—Overruled.

A.—I do not know of any article published anywhere in all of the medical literature that I have seen that shows there is the slightest resemblance between the action of the implanted goat gland and the administration of the male sex hormone.

Q.—Is there any evidence that any of the Steinach operations, either 1 or 2, as defined here, produces the same effect as the giving of the male sex hormone?

Mr. Morriss Sr.:—The same objection, may it please the Court, to all of that, and for the reason that it is not the best evidence.

THE COURT:—I don't know about that.

Mr. Reynolds:—I will confine it as to if he knows.

THE COURT:—I don't know whether the witness is qualified to testify as to what the Steinach operations are.

Q.—Dr. Fishbein, have you made any study of the literature on the production and the effect and the manufacture and the administration of sex hormones and sex hormone preparations? *A.*—I have.

Q.—Will you state what? *A.*—I am a member of the Council on Pharmacy and Chemistry, which regularly examines the constituents and studies claims of all gland products used in the practice of medicine, and it regularly publishes its report concerning the status of such glandular preparations in the practice of medicine; I have also made a study of the Steinach operations and have published a report on the various operations used for the purposes of rejuvenation.

Q.—All right, now, Doctor, I will ask you if in connection with your work you have found any acceptable evidence that any of the Steinach operations produce the same effect as giving the male sex hormone?

Mr. Morriss Sr.:—May it please the Court, to ask whether he has found, in the first place, calls for his opinion and conclusion about which he is not qualified to give, and in the second place, what he has found to be the best evidence, and, in the third place, he wants to know if it is acceptable to him and he is going to be the criterion; further, it calls for a conclusion and is incompetent.

THE COURT:—I think, possibly, your question is framed improperly, counsel, and I will sustain the objection to it in the form that it is in.

Q.—Dr. Fishbein, has there been any literature in connection with your work of that kind that has come to your attention advancing the theory that either of the Steinach operations produce the same effect as giving the male sex hormone?

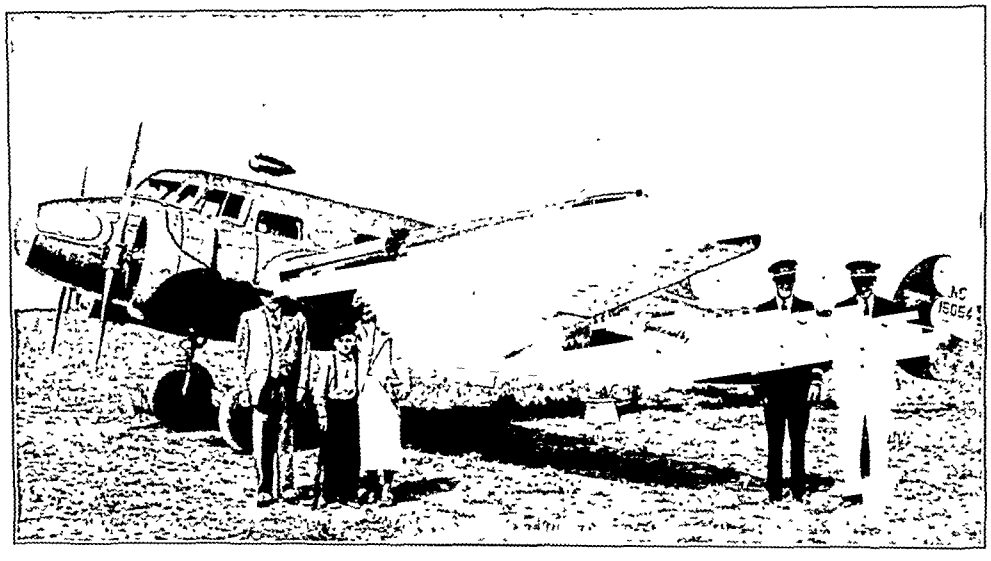
Mr. Morriss Sr.:—The literature would be the best evidence, and there is no accounting for the absence of the best evidence; that objection, in addition to all of the others.

THE COURT:—Overruled.

Mr. Morriss Sr.:—Note our exception.

A.—The published reports of the Council on Pharmacy and Chemistry and the published reports of the investigators who have from time to time performed operations similar to the Steinach operation are preponderantly—

Mr. Morriss Jr.:—The answer shows itself to be hearsay and to come through several different—



The Brinkley airplane, the family and the pilots.

THE COURT:—I don't think you listened to it, Doctor. The question wouldn't require the character of answer you are making.

Mr. Morriss Jr.:—We move that the answer be stricken and that the jury be instructed not to consider it.

THE COURT:—Yes, sir. The answer, so far as it has gone, will be stricken.

A.—No.

Q.—Have there been reports of investigation, so far as you know, directly to the contrary?

Mr. Morriss Sr.:—The same objection, may it please the Court, and the reports we think would be the best evidence, and it would be hearsay and a conclusion, and for all the reasons we have objected to it.

THE COURT:—What is your question?

Mr. Reynolds:—If for no other purpose—I think there are several others—but if for no other we pursued this line of testimony on the ground of the Doctor's good faith in making the statements about the plaintiff in this case.

THE COURT:—I know, but I don't think the Doctor or the plaintiff either one had any idea about the Steinach operation when they started out on this business. That is a matter that has come up here in your examination of Brinkley when you asked about those various doctors and he started talking about Dr. Steinach and other doctors elsewhere, and I think the form of your question now is improper in regard to that. I think that this witness having qualified as an expert you could ask him generally if he knows as a medical man whether the Steinach operation is commonly accepted by the physicians, and let him answer yes or no and explain it if he wants to and then get through with it in that way.

Mr. Reynolds:—Your honor has put the question better than I could.

Q.—Doctor, will you answer the question as put by the Judge? *A.*—I have written a report on various rejuvenation operations, of which the Steinach is one type. To explain myself, in that report I make the statement—

Mr. Morriss Sr.:—Just a minute.

THE COURT:—I wouldn't go into the report, just state what you know now.

A.—As a result of my studies of the results of the Steinach operation I find it doesn't have the effects of the administration of the male sex hormones.

Q.—What is the scientific name for the product generally used as the male sex hormone? *A.*—Testosterone propionate.

Q.—Is this made out of testicular properties or not?

Mr. Morriss Sr.:—We object to that.

THE COURT:—Overruled.

Mr. Morriss Sr.:—Note our exception.

A.—It is not.

Q.—Is it derived in anyway from goat gland tissue? *A.*—It is not.

Witness excused.

At this point the defense rested its case.

March 28

The plaintiff moved that the Court direct a verdict for John R. Brinkley, and the Court discussed with the attorneys the question of the nature of the charge to be given to the jury by the Court; next came the addresses to the jury by the representatives of the plaintiff and the defendant, after which the judge made to the jury the following charge:

IN THE DISTRICT COURT OF THE UNITED STATES FOR THE WESTERN DISTRICT OF TEXAS DEL RIO DIVISION

J. R. BRINKLEY
vs.
MORRIS FISHBEIN
} No. 202-Law.

CHARGE OF THE COURT

R. J. MCMILLAN, Judge. Delivered March 29, 1939.

Now, gentlemen, I am going to give you the charge of the Court, and while in charging you it is going to be necessary for me to read from various books and papers which I have here on the bench, still the Court's charge will be oral and you will have no written charge to take into retirement with you. Accordingly, I ask you to give me good attention in order that you may remember the Court's charge as well as possible when you come to discuss the law and the facts in the privacy of the jury room.

At the outset, I want to give you some conception as to the function of a federal judge in charging the jury. Many of you may have served in cases on the state court dockets where the practice is very different from what it is here. There the judges are not allowed to comment upon the weight of the evidence or express any opinion with regard to it. Here, if the Court comments fairly and makes it clear to the jury that they are the triers of the facts, he is not only allowed to discuss the evidence with the jury but it is his duty to do so.

The Supreme Court of the United States in a famous case decided not so long ago said this about the matter:

"In a trial by jury in a federal court, the judge is not a mere moderator, but is the governor of the trial for the purpose of assuring its proper conduct and of determining questions of law. In charging the jury, the trial judge is not limited to instructions of an abstract sort. It is within his province, whenever he thinks it necessary, to assist the jury in arriving at a just conclusion by explaining and commenting upon the evidence, by drawing their attention to the parts of it which he thinks important; and he may express his opinion upon the facts, provided he makes it clear to the jury that all matters of fact are submitted to their determination. Sir Matthew Hale thus described the function of the trial judge at common law: 'Herein he is able, in matters of law emerging upon the evidence, to direct them; and also, in matters of fact to give them a great light and assistance by his weighing the evidence before them, and observing where the question and knot of the business lies, and by showing them his opinion even in matters of fact; which is a great advantage and light to laymen.' Under the Federal Constitution the essential prerogatives of the trial judge as they were secured by the rules of the common law are maintained in the federal courts.

"This privilege of the judge to comment on the facts has its inherent limitations. His discretion is not arbitrary and uncontrolled, but judicial, to be exercised in conformity with the standards governing the judicial office. In commenting upon testimony he may not assume the role of a witness. He may analyze and dissect the evidence, but he may not either distort it or add to it."

So you see the province of the Court here is not only to instruct you with regard to the law, but to assist you as far as he properly can with regard to the facts in the case. I make that statement to you for the reason that one of the counsel yesterday in arguing to you seemed to be under the impression that the Court had no function here except abstractedly to tell you what the law is. Such is not the case.

In this case the plaintiff sues the defendant for damages which he claims to have sustained by reason of the publication in a periodical of an allegedly libelous article, and he states not only that he has sustained actual damage by reason of humiliation, and injury to his reputation, both as a man and in his profession, but that he is entitled to what we call exemplary or punitive damages.

He alleges that this article was published in the February 1938 issue of the magazine *Hygeia*. While I dislike to take the time, yet in view of the instructions I am going to give in connection with the matter it is necessary for me to sketch with you briefly the part of the article charged on.

It is charged, substantially, under the heading of Modern Medical Charlatans that "in John R. Brinkley quackery reaches its apotheosis"; "He continues to demonstrate his astuteness in shaking shekels from the pockets of credulous Americans, notwithstanding the efforts of various governmental departments and agencies." It goes on to assert that upon the removal of his radio station he departed for Mexico and he is now broadcasting at Villa Acuna; that all sorts of efforts have been made, without success, to remove him from the air; that he reads the symptoms of patients and then by remote control prescribes the pill that they should use. You send him your dollar and you get your pill; that he has performed peculiar operations at the hospital, one of the main ones of which is the compound prostate operation for elderly gentlemen; that he has a high pressure man in his front office who makes sure that those who come to the hospital will have the money to pay in advance for the work and so forth. Most of the business seems to come through the mail, and it is time for the Post Office Department to do something with regard to the use of the United States mail by Dr. Brinkley in defrauding the public. Then it states the amount that he is supposed to have made out of his various quackeries; that he is the possessor of certain yachts, and travels abroad, and then it makes the allegation with regard to the fact that they do not mix and mingle with the passengers on the boats.

It is unnecessary for me to read the article to you verbatim because it has been read to you several times, and in sketching it to you I have said enough to recall to you the contents of the part which is declared on in plantiff's pleading. Those parts which are declared on do not constitute the entire article, but they are the only parts which the plaintiff alleges damaged him. And, accordingly, while you may consider the entire article as I shall say to you later for other purposes, you will only consider the elements of damages, if any, that may have flowed from that part of the article charged on in the pleading.

To this complaint the defendant responds by substantially two defenses. In the first place he says that the article is true; in the second he says that should the article chance in any particular to be in error or false, it relates to a matter of public concern and one with regard to which he was under the duty to write, and that it constitutes under all the facts and circumstances of the case a fair comment and criticism, and such being true it falls under the privilege accorded to articles of that kind by the statute.

So the issues are made up in that way, and they become comparatively simple, though the statment of the law with regard to them is not so simple.

The Texas statute with regard to libel provides in part and substantially in article 5430 of the Annotated Code that a libel is a defamation expressed in printing or writing tending to blacken the memory of the dead, or tending to injure the reputation of one who is alive, and thereby expose him to public hatred, contempt or ridicule, or financial injury, or to impeach the honesty, integrity, or virtue, or reputation of any one, and thereby expose such person to public hatred, ridicule, or financial injury.

Under this definition of libel it is of course obvious that this article falls under the heading of one which would be known as libelous per se, that is to say, that if the statments were made in that article they would upon their face be libelous and defamatory unless they were in some other way explained or justified.

Now, article 5431 of this same title of the Texas Statutes says that in any action for libel, in determining the extent and source of actual damage and in mitigation of exemplary or punitive damage, the defendant may give in evidence, if specially pleaded, all material facts and circumstances surrounding such claim of damage and the defense thereto, and also all facts and circumstances under which the libelous publication was made, and may also give in evidence, if specially pleaded in mitigation of exemplary or punitive damage, the intention with which the libelous publication was made. Then follows a statement of law to which I call your attention.: The truth of the statement, or statements, in such publication shall be a defense to such action.

The statute then goes on further to deal with the matter, and in article 5432 it treats of privileged matters. By privileged matters we mean things that are written or said upon occasions which are privileged. That is to say, upon an occasion for which the party cannot be held to account. To illustrate the matter for you I might give you a few examples: For instance, a congressman speaking in the halls of Congress at Washington cannot be held to account for what he says there. It is considered good public policy to allow him to talk without restraint, and he has the privilege. The occasion is privileged and he is not liable in damages for it. The same thing is true with regard to members of your legislature. To bring the matter more closely home to you, the same thing is true with regard to proceedings here in court. The judge of the court could not be held liable elsewhere for any remarks made in the trial of a case in court, nor could the attorneys be held liable for pleadings filed or remarks made in argument, nor could any member of the jury be held liable for anything that he might say in the jury room in the discussion of the case.

So far as the libel laws are concerned, that, gentlemen, is what we mean by privileged. The occasion is under certain circumstances supposed to be privileged, and the general effect of it is this, as I have just said to you, the proof of the truth of an article is a defense, whether the article is privileged or not, but if the article be one which is privileged then there is no liability whether it is true or not. The question of malice or lack of malice does not enter into it.

Accordingly, the Texas statute, which has recently been amended, says substantially and in part as follows: The publication of the following matters by any newspaper or periodical shall be deemed privileged and shall not be made the basis of any action of libel. Then after setting out several matters with which we are not concerned it says this: A fair and reasonable comment or criticism of matters of public concern, published for general information. So you will have observed that the truth of the article published constitutes a complete defense, or even though the article should not be true, if it constitutes a publication in a newspaper or periodical of a matter relating to something of public concern and published for general information and is a fair and reasonable comment or criticism with regard thereto, then it is privileged and the party publishing the article or writing it for publication cannot be held liable in damages for it.

The plaintiff in this case has chosen to base his suit on individual sentences and groups of sentences selected from different portions of the magazine article. In your consideration of the defense of truth made by defendant you should consider the publication as a whole insofar as the remaining portions of the magazine article cast light upon the meaning of the specific portions of the article made the basis of the plaintiff's suit. The sting of the language complained of, that is, the statement of the portion of the article which is the subject of this suit, is, in my opinion, the charge that the plaintiff is a quack and a charlatan, and the further charge that he is using the mails to defraud.

The words quack and charlatan have substantially the same meaning. Many definitions can be found in the dictionaries or in the reports of the courts. A common definition of the word quack is to make vain and loud pretensions, especially of medical ability; to boast, to vaunt aloud or be a boastful pretender to medical skill or to make extravagant claims for a cure-all; to advertise with fraudulent boasts. You are not limited, of course, to these definitions that may be found in a dictionary. In considering the matter, the words used in the article are to be construed in the way they would be construed and understood by the ordinary reader of the magazine, keeping in mind the general class of people who would read a magazine of the kind in which this article was published, and if you find that the sting or substance of the specific portions of the article complained of is substantially true, then you will return a verdict for the defendant.

As I have said to you, the defendant takes two grounds of defense. In the first place, that that which he has published is true, and in the second place the entire article and the portions of which the plaintiff complains of was written as and constitutes a fair and reasonable comment and criticism of matters of public concern, published for general information.

You will find that certain portions of the published matter of which plaintiff complains is substantially true; in fact, certain portions he has testified to on the stand and has admitted their truth, at least in substance. Now, if you find those portions which have not been admitted true, or which you do not find to be substantially true from the evidence, constitute a reasonable and fair comment or criticism with regard to matters of public concern when viewed in the light of the statements in the article which you find to be substantially true, your verdict should be for the defendant, even though you find such other matters of comment and criticism to be false.

In this connection I instruct you that in order to establish the defense of truth of the article it is not necessary for the defendant to show literatim and verbatim that every word in the article is literally true. If the substance of it be true, that is to say, if the part of it which is injurious be true, if it be substantially correct, then the defendant has made out a defense, despite the fact that there may be certain particulars in which the article would be in error. In other words, it is the sting of the article, the general purport of it, that is to be considered. For instance, to give you a homely illustration of the matter, suppose I should say that you had backed your truck up to my pasture and cut my fence and stolen twenty-seven sheep from me and carried them off. If on being sued in the matter I could only prove that you had stolen eighteen, what I had said wasn't literally true because I said you had stolen twenty-seven, while as a matter of fact you had only taken eighteen. But the libelous feature of the statement doesn't consist in the exact number of the sheep, it consists in the allegation of the theft of the sheep. If it was proved that eighteen were taken, that would constitute a defense to the action, despite the statement made was that twenty-seven were taken. In other words, if the substance of the article is established as substantially true, then should it be true that there are one or two misstatements which do not change the general tenor of the article, that doesn't affect the defense of truth, in the light of the law.

Now, the defendant contends that the matters dealt with in the article complained of were matters of public interest and of public concern, published for general information. It is

obvious, of course, that matters of public health are matters of public concern. We see that evidenced every day by the laws of the country, by the conversations of the people, by the articles which appear in magazines and newspapers. It is evidenced by the fact that the state has and exercises the power to license those parties who practice medicine, and it is an offense in most jurisdictions to practice medicine without a license. We constantly see people prosecuted for that. The state has and exercises the power to license pharmacists, people who compound prescriptions and dispense them to be used in the treatment of the sick. The same is true, collaterally, with regard to the practice of law. It is a matter that affects the public interest, and the state has prescribed certain standards for it and it is an offense to practice law without a license.

Accordingly, it occurs to me that as a matter of fact, and in discussing the facts with you, anything in a general way which affects the public health is a matter of public concern.

Now, it might be reasonably argued and might be true that an individual doctor who was pursuing his practice in the ordinary way in some town wouldn't be such a matter of public concern that any one would be justified in writing an article about him, but if a doctor extends his practice to cover the country, advertises his ability not only in writing but over the radio and attracts to the place where he practices his profession an unusually large number of people, that is to say, a number entirely disproportionate as far as one doctor would be ordinarily concerned, then his activities do become a matter of public concern, and should it happen that his practice is of such a character that the public health is affected one way or another thereby the parties would be entitled to write about it, and if the comments constituted a fair and impartial criticism there would be no liability. On the other hand, of course, the individual citizen has his rights. Among those rights is the one which entitles him to be protected against libel or slander, and if the comment or criticism is not impartial or is not fair, then despite the fact that it may be a matter of public concern there would be liability for it.

The defendant further contends that the plaintiff by his advertisements invited the people to submit to his system of treatment, and that if he, the defendant, really believed it to be of little or no value then he had the right to maintain that it was so and that even if in drawing inferences of bad intention he fell into error, yet if he wrote honestly and with the intention of exercising his vocation as a public writer fairly and with reasonable moderation, he is entitled to a verdict. Here is a man bringing forward what he professes to be new systems of treatment and inviting the public to consult and patronize him as the only effective means to cure certain ailments. In doing this he challenges public criticism, and if a public writer, using a reasonable degree of temper and moderation, as behooves any one that makes imputations upon others, thus discussing the subject in the exercise of his vocation, falls into error as to the facts or the inferences and goes beyond the limits of strict truth, he is nevertheless privileged. The occasion is a privileged one, and if the privilege is exercised honestly, faithfully and with reasonable regard to what truth and justice require, and if the comment or criticism is fair and reasonable, then though he may exceed the limits of what he can legally prove to be the truth he is protected from liability.

In connection with your consideration of the defense put forward by the defendant that the portions of the article complained of and taken together with the remainder of the article constitute reasonable and fair comment and criticism of matters of public concern, published for general information, you may consider the question as to whether or not the plaintiff's conduct is unprofessional in its nature. In determining what is professional and not professional conduct of the physician you may take into consideration the rules of ethics followed by the great majority of medical men and which are recognized generally in their profession. Most people know in a general way what you mean by ethics, but few of us think or speak in terms of definitions, and it is well sometimes to refresh our memory or knowledge by looking to definitions. Webster's Dictionary says with regard to ethics that it is "the science which treats of the nature and laws of the actions of intelligent beings, these actions being considered in relation to their moral qualities; the science which treats of the nature and grounds of moral obligation; the science of human duty" and secondly, "a particular system of principles and rules concerning the duty, whether true or false; rules of practice in respect to a single class of human actions; as social ethics; newspaper ethics," and so forth. And in speaking with regard to the word ethical he says it is "relating to morals; treating of morality; containing precepts of morality," and so forth. The term as applied to the liberal professions such as the practice of medicine or the practice of law is generally understood to mean that course of conduct pursued by recognized moral practitioners either of medicine or of law.

It doesn't necessarily follow that every slight deviation or change by a doctor or a lawyer from what the general body of the doctors or lawyers do would be unethical, but if his course of conduct was far beyond and contrary to the course of conduct which the other members of his profession followed, then you would say that he was unethical either in the practice of medicine or in the practice of law.

As the evidence here shows, it has practically always been considered unethical for physicians to advertise, that is to say, to advertise further than to call the attention of the public to the fact that they were there ready to practice, and by some character of card giving their location or address, or if they specialize in some particular kind of practice to so advise the public. Advertisements by which prizes are offered to secure patronage or by which claims are made of superior skill or ability are not ethical, and you may consider those matters in this case in passing on the question as to the truth or falsity of the charge. In other words, it is one of the component elements that go to make up the question as to whether this man would be classified as a quack or not. It is not entirely determinative, but it may be that it is entitled to consideration. Accordingly, in determining what is professional and unprofessional conduct by a physician you are entitled to take into consideration the rules of ethics followed by the great majority of the medical men and which are generally recognized in their profession. The conduct of the plaintiff Brinkley should not be measured against his own personal ideas with regard to what is proper. It should be measured against the ethics and approved conduct of physicians generally, and to such extent that his conduct as a physician varies from the rules of ethics recognized and observed generally he becomes subject to criticism, and criticism of his conduct is privileged unless unduly excessive and the terms of the criticism are unreasonable or unfair.

The defendant, as I have said, put forward as a defense to this article the contention that the article complained of is a fair comment and criticism of matters of public concern, published for general information. The defendant wrote the article in question as editor of a magazine of national circulation, published by a voluntary organization to which a large number of licensed physicians in the United States belong. You therefore have to consider the question as to whether or not the portions of the article complained of by the plaintiff, when taken in their context and in connection with the remainder of the magazine article, constitute a reasonable and fair comment and criticism of the plaintiff and his medical practices. In determining this matter you should bear in mind that if you find it is true that the plaintiff is taking large sums of money from the public through pretending to have medical skill and that he does not have such skill and is thus preying upon the ignorance of a large number of people, the defendant would be justified in using strong language in denouncing the plaintiff, and you should bear in mind that ridicule is often the strongest weapon in the hands of a public writer, and if it is used in a way to emphasize matters with respect to which strong and definite language would, in the very nature of the occasion, be used, then it does not in any way render the comment or criticism unreasonable or unfair.

In other words, if you should find that the nature of the matters to be discussed is such as to warrant criticism or condemnation, then the defendant is not required in writing to write a mere colorless article, stating simply and only matters of fact as a newspaper reporter might in describing a fight or fire or something of that variety. He is entitled to put in his article, if it is reasonably and properly done, what you would call punch. As the courts have held with regard to matters of this kind, ridicule or sarcasm are frequently effective, and if they are justified by the facts then there is no liability for their use.

Of course, you are the triers here of the facts, and it is for you to determine whether upon the facts as you have heard them here this article constitutes a fair and reasonable comment or criticism of Dr. Brinkley and his activities. If you are of the opinion that his activities are of such a character as to render them a matter of public concern and that his conduct is unethical and that his claims are unwarranted then you are entitled to consider the question as to whether the defendant in writing this article has expressed his comment and opinion in such terms as fairly to carry those facts home to the public generally. There is no use blinking the fact that this article was intended to have a wide circulation. It was intended to carry the defendant's viewpoint of Dr. Brinkley's operations to everybody that he could get it to. If his viewpoint is correct, then his purpose and his action are highly laudable. On the other hand, if his viewpoint was incorrect and he proceeded upon a false premise, then his purpose and object was not laudable and he is liable in damages.

The burden is upon the defendant, Dr. Morris Fishbein, to prove his defense, namely, the substantial truth of the charges sued on and the claim of privilege that the article sued on was not more than a fair and reasonable comment on a matter of public concern, by a preponderance of the evidence.

You are instructed that if you believe and find from the evidence that the statements of fact contained in the portion of the article sued on are not true, and if you further find and believe from the evidence that such statements were not justified as privileged communications as defined to you in the Court's charge, then in such event you must find and return a verdict for the plaintiff and you must assess such damages as you may find under the Court's charge as herein given you either actual or actual and exemplary. In this connection you are charged that damages are presumed by the law to flow from any libelous statement concerning another. And if it is libelous and not justified plaintiff is entitled to recover such actual damages as would ordinarily flow from or be occasioned by such libelous statement, including damages for humiliation, mental anguish and suffering and injury to his feelings and for injury to his reputation, both personally and professionally, whether there is proof of damages in such respects or not.

We have in law what are known as exemplary or punitive damages. They are damages which are not intended to cover any actual or special damages that have been sustained. They are not intended to put you back in the place that you were before you were injured but are intended by way of exemplification or punishment or by way of reprisal. They operate in effect as a sort of private fine, and those damages are only allowed in libel cases where actual damages are found to have been sustained and further where actual malice is shown to have existed. By malice we mean ill will, bad or evil motive or such gross indifference to the rights of others as will amount to wilful or wanton conduct. Malice cannot be inferred merely from the fact of the publication. As said in Texas Jurisprudence, "While the existence of actual or express malice is not presumed as a matter of law, and must be proved, it need not be proved by direct or extrinsic evidence; evidence of facts and circumstances from which it is reasonably inferable is sufficient to show its existence. It may be inferred from the relation of the parties, the circumstances attending the publication, the language used, and from the words or acts of the defendant before, at or after the time of the communication; but there must be evidence from which the jury can infer malice existing at the time of publication and actuating it. Malice is not implied or presumed from the mere fact of the publication, nor may it be inferred alone from the character or vehemence of the language used, nor found from the falsity of the statement alone."

Now, it is not possible to give you any exact yardstick by which you can measure damages, in a case of this kind, should you find the plaintiff is entitled to recover. The law allows recovery for certain damages of an intangible sort which you cannot press down into a corner and determine like you can certain other damages. If you should kill your horse you could prove the damages exactly by proving the market value of the horse, but if I should hurt your feelings nobody knows exactly what damages have been occasioned you by having your feelings hurt. Accordingly, when you come to consider the question of the damages that somebody suffers by reason of humiliation or by reason of injury to his reputation, either personally or professionally, that is a matter which has to be left to the good judgment and discretion of the jury. Of course, in dealing with injuries to professional reputation, if special damages were alleged and proved, that is, you showed that a man actually lost something specifically, it could be recovered, but there is no such proof here in this case.

When it comes to the question of the measure of damages that would be applied should you conclude to allow punitive or exemplary damages, that again is a matter which is not susceptible of ascertainment by any rule of thumb. They have to be damages in such an amount as you would consider a sufficient punishment for doing a wanton or malicious thing, and of such a character as to deter other people from doing the same thing.

In passing upon this question of damages, should you come to the matter of damages, should you conclude that there is any liability here upon the defendant, then you are entitled to take a great many things, as I view it, into consideration. This plaintiff here claims humiliation by reason of the publication of an article which accuses him of being a quack, and which states that he is getting large quantities of business through the mails and probably should be investigated for violation of the mail fraud statutes. In other words, he says that he has been humiliated, his feelings have been hurt, that he has been shamed and that he has been injured both in his reputation with his neighbors and in his reputation as a doctor. Accordingly, when he says that, he puts in issue not only his reputation, his feelings as they exist now, but he puts in issue practically the entire course of his professional life.

Now, I am discussing this matter with you not from the law standpoint but from the standpoint of the facts, which, as I read to you in the decision from the Supreme Court of the United States, it is my duty to do.

There is no doubting the fact that this plaintiff has been the subject matter of a great deal of trouble and controversy and difficulty in many places in this country and abroad. The question as to his ethics as a physician and his right to practice medicine has been up not only once or twice but several times. He has been tried in Kansas on the issue as to whether his conduct was of such a character that his right to practice there should be canceled, and the evidence shows it was canceled. There was a general cancellation of licenses in Connecticut, and his and a number of other eclectic doctors' licenses were canceled. There has been some character of cancellation or some character of proceedings against him in the state of California. His right to continue to broadcast over the station which he had in Kansas has been investigated and discontinued by the United States government. Some character of a degree that was conferred upon him or a certificate of some character, I am not clear exactly what it was, by some university in Italy has been canceled. It is manifest from his own evidence and the evidence here that this is not the first time that articles of this kind have been written about him. In fact, it is testified here that a suit between him and this same party, Dr. Fishbein, was maintained in Kansas some few years ago and depositions from that suit have been offered here in evidence. According to his own testimony he has been convicted of a violation of the law with regard to the sale of alcoholic spirits and was assessed a fine and some jail sentence, which jail sentence I believe he states he did not serve.

He has published a book, or rather he got some man, according to his evidence, to write a book about him called "The Life of a Man," and according to his evidence he has circulated this book and is circulating it. I don't believe he says he ever sold it, but it has been in general circulation and he says that he has given many copies of it away. Now, in this very book which he has written about himself and which he is circulating he quotes from the opinion of the Supreme Court of Kansas in sustaining the action of the board in canceling his license to practice medicine, in which it there says "The Supreme Court was hardly impartial in its denial of Brinkley's claim, since it went beyond the charges in purporting to express them; holding that they held that Brinkley was 'an empiric without moral sense, and having acted according to the ethical standards of an impostor, the licensee has performed an organized charlatanism until he is capable of preying on human weakness, ignorance and credulity to an extent quite beyond the invention of the human mountebank' . . . who was 'fleecing the defective, the ailing, the gullible and the chronic medicine takers who are moved by suggestion, and is scandalizing the medical profession and exposing it to contempt and ridicule.'"

This part of the book was offered here in evidence, and of course you are entitled to consider it.

Now, I do not comment upon that in order to applaud any court for writing anything of that kind. Nor is it called to your attention as tending to substantiate in any way any fact that is stated therein, but the thing that occurs to me about it is that if a man feels he is capable of humiliation by virtue of an article of the character sued on here, then why would he in a book of his own copy a thing like that said about him and give it currency? In other words, you have to consider, as one of the old English law lords said, the question as to what reputation a man has in passing upon the question as to the amount of damages that are sustained.

In Jones on the Law of Evidence this quotation occurs, "Lord Ellenborough long since tersely stated the doctrine which still prevails: 'Certainly a person of disparaged fame is not entitled to the same measure of damages with one whose character is unblemished, and it is competent to show that by the evidence.'"

Now, those are matters which are entitled to consideration in passing upon the question as to whether this article, if libelous, has occasioned damages. You can very readily see that if you take a person of a very retiring, shrinking, modest disposition and make some false, scandalous and ugly charge against him you might humiliate and hurt him terribly. On the other hand, if you take somebody who has been on the firing line all his life and had that kind of thing said about him time and time again, the saying of it another time might not hurt him any more than water rolling off a duck's back. It is frequent that men in public life who are constantly abused and libeled, because of their position, have become so accustomed to it that any humiliation or shame with regard to such matters has long since ceased to exist. It doesn't mean that if the article is libelous and untrue it is justified, but I am discussing it with you now purely and simply from the standpoint of the extent of the injury, if any. You are entitled to consider the background of the doctor. He has apparently made no secret of his background. In passing upon the question as to whether his reputation has been injured with other people you are entitled to consider the question as to whether these same things or things of this same character have been said before and general circulation given to them. It doesn't mean the party who says them again would not be liable for damages if they were libelous, but it does mean that you are entitled to consider those questions in passing upon the extent of the damages.

In cases in which articles are found to be libelous, but no actual damages result, nominal damages follow as a matter of law. Upon nominal damages punitory damages may be cumulated if, as I have told you before, it is found that the article is libelous and that malice, as I have defined that term to you, existed in connection with it.

Now, the defendant says another thing here which he is entitled to have called to your attention, and that is he believed these things he said in this article were true. To support that contention the Court allowed evidence here with regard to certain sources or avenues of information which he consulted or examined. Those things were not allowed to come in as tending to prove the truth of the facts set out either in those articles or in those reports but were allowed to come in evidence, as I told you at the time, for the purpose of determining the question of the defendant's good faith. That is to say, the law says that if I libel you by publishing something that is false, then I am liable to you for damages, but if at the time I published it I did it in good faith and I believed it to be true and I had reasonable grounds upon which to base my belief of the truth of the charge, then the jury can consider those facts by way of mitigation of damages, that is to say, by way of reduction of damages; and that I charge you is the law with regard to that phase of the matter.

Does that sufficiently cover your requested charge on that phase of it?

Mr. Morriss Jr.:—Yes, sir.

THE COURT:—You are, of course, the exclusive judges of the credibility of the witnesses, of the weight to be given to their testimony and of the facts proven. The law in the case you must receive in this charge from the Court and be governed thereby.

Insofar as I have discussed the evidence with you or made any comments with regard to it or expressed any opinions with regard to it, I did so for your assistance, and if my comments or expressions or opinions are in harmony with your views then you may accept them, otherwise you may reject them, for as to the facts you are the triers thereof, bound only by your conscience and by your oaths as jurors.

This case has been tried at some length and it has been thoroughly and conscientiously developed and argued by counsel for both sides, and it would be idle to say it isn't a case of some public interest because we all know it is. Whenever a man assumes the prominence that the plaintiff in the case has and a man has the prominence of the defendant in the case and they meet upon the legal battleground, naturally it attracts the attention of the public. There are many people who are interested one way or the other in the outcome of it. I don't think there is any monopoly of opinion on either side, but what I want to convey to you now is the same idea I have been attempting to convey to you all the time during the trial, that you are not interested or concerned here one way or the other with regard to what anybody on the outside thinks about this. It doesn't make any difference to you whether anybody is pro or con, either for the defendant or for the plaintiff. It is your business to courageously here consider this evidence and the law as the Court has given it to you and return a verdict which you think speaks the truth. I don't want you to consider or discuss anything that has not come out here in evidence. Let us have no chance of a mistrial of this case by virtue of any juror doing any independent testifying on his own account. You are entitled to apply to the solution of the question submitted to you your knowledge and experience of a lifetime, but one juror is not entitled to narrate to the other jurors some independent fact which he thinks or conceives that he knows about the matter that has not come out here in evidence, and if he has such a fact in his mind he must disregard it himself in passing upon the case.

I have had forms of verdict prepared for your convenience. In one form of verdict you will find for the plaintiff and there is a blank left in which you may insert, if you find damages. There is another blank left in which you can insert, if you find the plaintiff is entitled to it under the instructions I have given you, the amount of exemplary or punitive damages. There is another form in which you find for the defendant, Morris Fishbein. In either event your verdict must be signed by the foreman, and your verdict must be unanimous. I will let you select your own foreman.

CONCLUSION

At this point the jury withdrew from the room, while the attorneys presented their objections to the charge made by the Judge.

After about four hours the jury returned a verdict for the defendant, Dr. Morris Fishbein.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Eight dollars per annum in advance

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SATURDAY, JUNE 3, 1939

HEARINGS ON THE WAGNER HEALTH BILL

On May 25 and 26 representatives of the American Medical Association appeared before the subcommittee of the Senate Committee on Education and Labor in the Senate Office Building in Washington to present the point of view of the House of Delegates of the American Medical Association relative to this proposed legislation (see Proceedings of the St. Louis session, this issue, page 2295). Preliminary to the hearings, a day was given over to consideration of the material to be presented and the manner of presentation. The first statement was made by Dr. Rock Sleyster, President of the Association. Dr. Edward H. Cary, Chairman of the Legislative Committee, presented the various speakers to the Senate Committee. Dr. Walter Donaldson offered the report adopted without a dissenting vote by the House of Delegates, after which the factual data of medical care were outlined by Dr. R. G. Leland, Director of the Bureau of Medical Economics. A general statement in opposition to the Wagner Health Bill on the basis of current conditions in American medical practice was next presented by Dr. Haven Emerson of Columbia University. Hospital service in the United States was discussed by Dr. R. L. Sensenich of South Bend, Ind., a member of the Board of Trustees, and by Dr. Wingate Johnston of Winston-Salem, N. C. Dr. Milton Robb of Detroit considered the relationship of public health education to the progress of medical care, and Dr. Robert L. Benson of Portland, Ore., outlined the method of care of the indigent in Oregon. A statement prepared by Dr. Walter Vest concerning compensation for loss of wages during illness and medical service in relationship thereto was given to the committee for its consideration.

At another session Dr. Charles Gordon Heyd of New York indicated the manner in which this legislation might serve as an introductory step to a complete compulsory sickness insurance system, and the closing consideration was made by the editor of THE JOURNAL. Participating in the discussions associated with this presentation were Drs. Olin West, Secretary and General Manager of the Association; W. C. Woodward, Director of the Bureau of Legal Medicine and Legislation; W. D. Cutter, Secretary of the Council on Medical Education and Hospitals; Frank Crockett of Lafayette, Ind., member of the Legislative Committee, and Holman Taylor of Fort Worth, Texas, Secretary of the Texas State Medical Association and member of the Judicial Council of the American Medical Association.

During the course of the hearings, many senators at various times listened to the statements that were being made, including Senator Murray (Vermont), Ellender (Louisiana), Taft and Donahey (Ohio), Thomas (Utah), Holman (Ore.) and Davis (Pennsylvania). Opportunity was also afforded for members of the delegation to confer with other senators relative to the objectives of this bill. Two medical members of the Congress—Drs. Smith of Ohio and Austin of Connecticut—expressed opposition to this legislation, and Austin made a personal appearance before the committee. Congressman Smith is scheduled for a later appearance. Also on the days devoted to the hearings of the representatives of the American Medical Association there appeared Mr. Homer Folks of the New York State Charities Aid Association, who approved the bill, and Dr. C. C. Lund, who appeared in opposition on behalf of the Massachusetts State Medical Society.

During the course of the hearings Senator Wagner of New York interrogated at considerable length all the physicians who appeared, apparently endeavoring to obtain suggestions as to amendments to the measure or other means by which it might be made suitable. Large numbers of persons were in attendance and the statements made were widely disseminated in the press and over the radio. It is expected in a future issue of THE JOURNAL to present a condensed account of the statements made and the questions and answers brought out by the discussion. At this time the indications appear to be that the Wagner Health Bill will not receive final consideration during the present session of Congress.

COLOSTRIC ANTIBODIES

The demonstration by Schneider and Szathmary[1] of Budapest of an abrupt rise in specific antibody titer of the blood serum of newborn calves following the first feeding of colostrum is confirmatory evidence in support of current belief as to the mechanism of postpartum transfer of maternal immunity. Veterinarians suggested long ago for the prevention of tuberculosis the immediate separation of newborn calves from their diseased mothers in infected herds, the young to be reared by healthy foster mothers or by artificial feeding. In spite of the most careful hygienic measures, however, almost all calves thus isolated developed gastrointestinal disease, joint disease or septicemia, fully 80 per cent of them dying within the first few days. Necropsies

1. Schneider, L., and Szathmary, J.: Ztschr. f. Immunitätsforsch. 94:458, 465 (Dec.) 1938.

showed that these deaths were not due to the ordinary contagious diseases but to invasion of the living tissues with the commoner environmental saprophytes. Evidently the calf at birth is unprepared to resist invasion by numerous species of micro-organisms which do not cause recognizable disturbance in adult cattle.

Later it was demonstrated that newborn calves will remain free from saprophytic infections if allowed one natural feeding before separation from the tuberculous mothers. In this first feeding the calves do not obtain the usual milk but a specially secreted premilk or colostrum. One colostric feeding is usually sufficient to immunize a newborn calf against the usual subpathogenic environmental flora. Fully 90 per cent of all calves thus immunized may be successfully raised by artificial feeding. Veterinarians concluded from this observation that there is present in the premilk or colostrum some highly efficient hormone, enzyme, bacteriophage or other protective substance, especially designed to counteract the organisms which invade at birth. The nature of this hypothetic colostric bacteriostat is unknown, although Theobald Smith [2] and his co-workers found that calves given one or more initial feedings with normal adult cow serum acquire the same degree of postpartum immunity.

Most of the later attempts to determine the nature of this lactic substance have been directed toward the isolation and identification of hypothetic "inhibins," "lysozymes" or "transformins" [3] in normal milk. The Hungarian veterinarians, however, adopted a new method of approach, studying the specific antibody titer of both colostrum and newborn calves. Several weeks before the expected delivery, pregnant cows were immunized against both typhoid bacilli and diphtheria toxin. By the end of this duplex immunization the cows had 170 antitoxin units per cubic centimeter in their blood stream and a 1 : 100 antityphoid agglutinin titer. Samples of colostrum withdrawn at this stage showed a 1 : 5,000 agglutinin titer and 1,400 antitoxin units per cubic centimeter, an average of from ten to fifty times the antibody titer of the maternal blood. Theoretically, therefore, 1 cc. of colostrum would be the equivalent of from 10 to 50 cc. of blood serum in the oral transfer of acquired maternal immunity.

Before the first natural feeding the newborn calves showed no trace of typhoid agglutinin in the blood stream and less than 0.02 unit of diphtheria antitoxin per cubic centimeter. This confirms the conclusions of numerous previous workers, who have postulated that transplacental interchange of serum proteins does not take place because of the primitive nature of the bovine placenta. The Hungarian veterinarians found that within ninety minutes after the first feeding of colostrum the average agglutinin titer of the newborn calves had risen to 1 : 1 and the antitoxin titer to 0.25 unit per cubic centimeter of blood serum. By the end of the first twenty-four hours of normal feeding the average serologic titers of the calves was 30 per cent of that of the maternal blood. By this time the colostrum had been replaced by normal milk, which did not contain detectable traces of specific agglutinin though still containing 2 per cent of the colostrum titer of diphtheria antitoxin. By the end of two weeks this antitoxin titer had fallen to 0.97 per cent of the average concentration of colostrum, which trace of diphtheria antitoxin continued to be secreted in the milk for at least forty-five days.

The Hungarian serologists conclude from their data that colostric immunity is not due to the implantation of some esoteric hormone in the gastrointestinal tract, as previously assumed, but to a simple transfer of ordinary humoral antibodies. The mechanisms by means of which these antibodies are mobilized, concentrated or locally synthesized in the colostrum have not yet been determined. The apparently quantitative absorption of these colostric proteins from the gastrointestinal tract of newborn calves also awaits explanation. Further studies of colostric titer and rate of gastrointestinal absorption are promised for other animal species, including rodents, which have the human type of placenta.

2. Smith, Theobald: J. Exper. Med. **51**: 473 (March) 1930. Smith, Theobald, and Little, R. B., ibid., p. 483.
3. *Jones, F. S., and Simms, H. S.:* J. Exper. Med. **51**: 327 (Feb.) 1930. Allmendinger, W.: Inaugural Address, Tübingen, 1936. Dold, H.; Wizemann, E., and Kleinen, C.: Ztschr. f. Hyg. u. Infektionskr. **119**: 525 (May 28) 1937.

MECHANISM OF THE INSULIN RESPONSE IN NONDIABETIC MALNOURISHED PATIENTS

Since Pitfield [1] reported in 1923 that infants suffering from inanition gained in weight and in general health following the injection of insulin, this treatment of malnutrition in nondiabetic patients has been widely used. Allen and his co-workers,[2] Blotner [3] and Ellman [4] observed the effect of insulin therapy in cases of pulmonary tuberculosis, generalized arthritis or unexplained malnutrition of adult patients. They reported improvement in appetite, in weight gained and in the general appearance of well being.

The mechanism by which insulin may bring about a better state of nutrition has not been generally understood. The theories which have been postulated include direct stimulation of the stomach or of the vagus nerves which produces hunger contractions, depression of the blood sugar level which results in increase in the hunger contractions, and improved absorption and utilization of food by increasing the amount of one or all of the

1. Pitfield, R. L.: Insulin in Infantile Inanition, New York M. J. **118**: 217 (Aug.) 1923.
2. Allen, F. M.: Insulin in the Treatment of Tuberculosis, J. A. M. A. **101**: 1797 (Dec. 2) 1933; Insulin and Tuberculosis: A Partial Review of the Literature, Am. Rev. Tuberc. **34**: 230 (Aug.) 1936. Allen, F. M.; Douglass, S. A.; Warren, E. L., and Pottinger, W. E.: Insulin in Treatment of Tuberculosis, Am. Rev. Tuberc. **34**: 257 (Aug.) 1936.
3. Blotner, Harry: Observations on Effect of Insulin in Thin Persons, J. A. M. A. **100**: 88 (Jan. 14) 1933; Change Produced in Fat Tissue by Use of Insulin in Malnutrition, ibid. **100**: 1235 (April 22) 1933; Late Results Following Use of Insulin in 100 Cases of Malnutrition, New England J. Med. **218**: 371 (March) *1938.*
4. Ellman, Philip: Use of Insulin in Nondiabetic Malnutrition, Practitioner **138**: 613 (May) 1937.

digestive juices (this hypothesis assumes that the improved appetite which has been observed following insulin therapy is secondary to the improvement in food utilization and not an effect on the stomach per se). Freyberg [5] suggested that the improvement in appetite accompanying the administration of insulin was purely psychologic.

The theory most widely accepted conceives that the increase in gastric motility and in subjective hunger sensation is directly brought about by a lowered blood sugar level which follows the administration of insulin. In 1916 Carlson [6] reported that the blood sugar level was inversely related to hunger contractions. Later, inhibition of normal hunger contractions resulting from an elevation of the blood sugar level with the intravenous administration of dextrose was reported.[7] Similar inhibition of the main stomachs of animals with Heidenhain pouches when dextrose was administered intravenously has been shown.[8] Mulinos,[9] however, was unable to find any inhibition of hunger contractions from the intravenous administration of dextrose. Quigley and Hallaran [10] confirmed the observation that dextrose did produce an inhibition of hunger contractions but reported that this lag was of only one to two minutes' duration. Motility returned immediately, though the blood continued to show hyperglycemia. Hunger contractions, these observers noted, invariably increased when the blood sugar level dropped below normal.

Scott and his co-workers [11] have reported that, within the range of experimental error, no variations in the blood sugar level of human subjects were found either preceding, during or after normal hunger periods. While this observation would justify the conclusion that the level of the blood sugar bears no causal relation to the normal "hunger periods" of man, it does not refute the evidence of many investigators [12] that hunger contractions, as evidenced by an increased motility of the empty stomach, consistently follow the injection of insulin, either intravenously or subcutaneously. This hypermotility occurs in so short a time after the injection of the insulin that it is not reasonable to assume that the primary etiologic factor is decrease in the level of the blood sugar. Wilder and Schlutz [12] demonstrated that the hypermotility which followed subcutaneous administration was rapidly abolished by atropine in doses of 0.5 mg. given subcutaneously, although the blood sugar level remained lower than that found during the insulin hypermotility of the stomach. Quigley and Halloran also showed that the insulin action increasing the motility of the empty stomach is destroyed when the vagus nerves are sectioned.

These various studies may justify the conclusion that insulin has a direct effect on gastric motility through stimulation of the vagus nerves. However, the lowering of the blood sugar level following the administration of from 12 to 20 units of insulin, as reported by Quigley,[13] may be an additional factor in increasing or prolonging gastric motility and subjective hunger sensation.

The improvement in nutrition of patients suffering from chronic debilitating diseases following the administration of insulin may nevertheless be brought about by a more complicated process than merely an increase in appetite. Okada and his colleagues [14] have demonstrated that decrease in blood sugar below the normal level does produce an increase in the amount of gastric, biliary and pancreatic secretion. Lueders and Watson [15] have reported a measurable increase in the potency of the pancreatic enzymes following the administration of insulin. They have further demonstrated a reduction of the digestive secretions and a diminution of gastric motility when dextrose is placed in the duodenum or administered intravenously. Lueders has also found evidence of improved digestion from examination of the stools of patients before and during insulin treatment.

There would seem then to be sufficient factual evidence to justify the conclusion that the mechanism of improved nutrition from insulin therapy includes direct stimulation, by way of the vagus nerve, producing increased motility and more acute subjective sensations of hunger and depression of the blood sugar below the normal level, causing additional or prolonged hunger contractions. These two factors may then be responsible for the immediate increase in appetite and willingness to partake of food which is usually manifested within fifteen to twenty minutes after the subcutaneous injection of the insulin. A third factor in the mechanism of the insulin response may be the increase in the amount of the digestive secretions, resulting in better digestion, absorption and utilization of the components in the patient's diet.

5. Freyberg, R. H.: Study of Value of Insulin in Undernutrition, Am. J. M. Sc. **190**: 28 (July) 1935.

6. Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago University Press, 1916.

7. Bulatao, E., and Carlson, A. J.: Contributions to Physiology of Stomach Influence of Experimental Changes in Blood Sugar Level on Gastric Hunger Contractions, Am. J. Physiol. **69**: 107 (June) 1924.

8. Templeton, R. D., and Quigley, J. P.: Action of Insulin on Motility of Gastrointestinal Tract: Action on Heidenhain Pouch, Am. J. Physiol. **91**: 467 (Jan.) 1930.

9. Mulinos, M. G.: Gastric Hunger Mechanism: Influence of Experimental Alterations in Blood Sugar Concentration on Gastric Hunger Contractions, Am. J. Physiol. **104**: 371 (May) 1933.

10. Quigley, J. P., and Hallaran, W. R.: Independence of Spontaneous Gastrointestinal Motility and Blood Sugar Levels, Am. J. Physiol. **100**: 102 (March) 1932.

11. Scott, W. E.; Scott, C. C., and Luckhardt, A. B.: Observations on the Blood Sugar Level Before, During and After Hunger Periods in Humans, Am. J. Physiol. **123**: 243 (July) 1938.

12. Regan, J. F.: Action of Insulin on Motility of Empty Stomach, Am. J. Physiol. **104**: 90 (April) 1933. Wilder, R. L., and Schlutz, F. W.: Action of Atropine and Adrenalin on Gastric Tonus and Hypermotility Induced by Insulin Hypoglycemia, Am. J. Physiol. **96**: 54 (Jan.) 1931. Simici, D.; Guirea, G., and Dimitriu, C.: L'action de l'insuline sur la motilité et l'evacuation de l'estomac a l'état normal et pathologique, Arch. d. mal. de l'app. dig. **17**: 17 (Jan.) 1927. Quigley, J. P.; Johnson, V., and Solomon, E. I.: Action of Insulin on Motility of Gastrointestinal Tract: Action on Stomach of Normal Fasting Man, Am. J. Physiol. **90**: 89 (Sept.) 1929.

13. Quigley, J. P.: Action of Insulin on the Gastric Motility of Man, Proc. Soc. Exper. Biol. & Med. **26**: 769 (June) 1929.

14. Okada, Seizab[illegible]; Tsukahara, Toshio, and Ooinoue, Tatsuo: [illegible] Neuroneural Regulation of Gastric Pancreatic [illegible] Arch. Int. Med. **43**: 446 (April) 1929; Panc[illegible] Mechanism of Digestive Juices, ibid. **45**: 783 ([illegible]) 1930.

15. Lueders, C. W., and Watson, M. E.: The Effect of Insulin Therapy on Pancreatic Enzymes in Malnutrition, Arch. Int. Med. **49**: 330 (Feb.) 1932.

Current Comment

FRACTURE OF THE SPINE DURING METRAZOL THERAPY FOR DEMENTIA PRAECOX

In this week's issue of THE JOURNAL (page 2240) appears another contribution concerned with fracture of the spine complicating metrazol therapy. Incidentally, the paper by Bennett and Fitzpatrick was received previously to the article by Polatin and his co-workers, which was published in THE JOURNAL April 29. Obviously convulsive therapy represents a difficult technic. It is susceptible to serious complications and is therefore one that should never be undertaken except under the best of controlled conditions. The report by Bennett and Fitzpatrick, first presented at a meeting of the Boston Society of Psychiatry and Neurology on February 16, indicates that eight out of seventeen patients treated by this technic complained of backache and that each of these patients showed x-ray evidence of compressed fractures affecting the spine. In this connection, the technic for preventing this complication described by Hamsa and Bennett in this issue (page 2244) merits attention. Apparently spinal anesthesia induced prior to shock therapy may be able to prevent severe fractures of the spine and lower extremities.

BROMO-SELTZER

Under the dangerous drug section of the new Federal Food, Drug and Cosmetic Act, the Food and Drug Administration has initiated action against Bromo-Seltzer. . This prompt action against a large manufacturer indicates a desire to enforce the laws equally on all violators. Bromo-Seltzer, which is an acetanilid-bromide preparation, is alleged by the government to be misbranded "in that it is dangerous to health and because of the failure of the labeling to reveal facts material with respect to the consequences which may result from the use of the article and the failure to bear warnings against use in those pathological conditions, or by children where its use may be dangerous to health, or against unsafe dosage, or methods, or duration of administration, in such manner and form as are necessary for the protection of users." The allegations are based on provisions that went into effect last June. Similar provisions against dangerous drugs were not contained in the Food and Drugs Act of 1906 as amended. The Emerson Drug Company has indicated that it will contest the action of the Food and Drug Administration. In its answer to the charges, the concern denies that Bromo-Seltzer is dangerous. It states that it has been used for many years by millions of people without injurious results. The lack of scientific basis for these statements is evident to those who consult the scientific medical literature. Since 1906 THE JOURNAL has carried repeated references to injury from Bromo-Seltzer. The manufacturers have lately conducted a vigorous advertising campaign in what seems to be a wofully inadequate attempt to "build up" acetanilid without pointing out dangers that arise from its indiscriminate use. To provide a front of scientific plausibility, this exploitation utilizes a number of scientific studies which seem to have little or no bearing on the fundamental objections to Bromo-Seltzer. Presumably the large resources of the Emerson Drug Company will be made available in the contest of this issue. No doubt the Food and Drug Administration will present the scientific justification for the allegations in the stipulation. The case will be a test of what may be anticipated in the way of public protection from the new drug act.

THE PROCEEDINGS OF THE BRINKLEY TRIAL

In this issue of THE JOURNAL appears the final instalment of the proceedings of the case of *Brinkley* v. *Fishbein*, in which the verdict was awarded by the jury to the editor of *Hygeia*. Most significant is the charge of Judge R. J. McMillan to the jury which rendered the verdict in this case. The entire charge merits most careful consideration; indeed, some of the statements might well be read to the senior class of every medical college in this country. Particularly to be considered is that section of the charge dealing with medical ethics. Here the judge said, and it is repeated for emphasis:

> In determining what is professional and not professional conduct of the physician, you may take into consideration the rules of ethics followed by the great majority of medical men and which are recognized generally in their profession. . . . The term as applied to the liberal professions, such as the practice of medicine or the practice of law, is generally understood to mean that course of conduct pursued by recognized moral practitioners either of medicine or law.
>
> It doesn't necessarily follow that every slight deviation or change by a doctor or a lawyer from what the general body of the doctors or lawyers do would be unethical, but if his course of conduct was far beyond and contrary to the course of conduct which the other members of his profession followed, then you would say that he was unethical either in the practice of medicine or in the practice of law.
>
> As the evidence here shows, it has practically always been considered unethical for physicians to advertise, that is to say, to advertise further than to call the attention of the public to the fact that they were there ready to practice, and by some character of card giving their location or address, or if they specialize in some particular kind of practice to so advise the public. Advertisements by which prizes are offered to secure patronage or by which claims are made of superior skill or ability are not ethical, and you may consider those matters in this case in passing on the question as to the truth or falsity of the charge. In other words, it is one of the component elements that go to make up the question as to whether this man would be classified as a quack or not. It is not entirely determinative, but it may be that it is entitled to consideration. Accordingly, in determining what is professional and unprofessional conduct by a physician you are entitled to take into consideration the rules of ethics followed by the great majority of the medical men and which are generally recognized in their profession. The conduct of the plaintiff Brinkley should not be measured against his own personal ideas with regard to what is proper. It should be measured against the ethics and approved conduct of physicians generally, and to such extent that his conduct as a physician varies from the rules of ethics recognized and observed generally he becomes subject to criticism, and criticism of his conduct is privileged unless unduly excessive and the terms of the criticism are unreasonable or unfair.

Thus a Federal Court has recognized the significance of medical ethics for the protection of the public, and the jury after due consideration placed its approval on the right of the public to have the protection that medical ethics affords.

ORGANIZATION SECTION

PROCEEDINGS OF THE ST. LOUIS SESSION

MINUTES OF THE NINETIETH ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT ST. LOUIS, MAY 15-19, 1939

(Concluded from page 2178)

HOUSE OF DELEGATES

Third Meeting—Wednesday Afternoon, May 17

The House of Delegates was called to order at 1:50 p. m. by the Speaker, Dr. H. H. Shoulders.

Presentation of Minutes

It was moved by Dr. Arthur T. McCormack, Kentucky, seconded by Dr. J. Newton Hunsberger, Pennsylvania, and carried, that the House dispense with the reading of the minutes.

Report of Reference Committee on Legislation and Public Relations

Dr. Holman Taylor, Chairman, presented a report of the Reference Committee on Legislation and Public Relations, which, as amended, reads as follows:

The report of the Committee on Legislative Activities covers in an informative manner two principal items of concern to the medical profession, namely the Veterans' Administration and medical relief through the Farm Security Administration. Your reference committee has considered these matters and wishes to report as follows:

1. Veterans' Administration: It is clear from the history and the statistics cited in the report that the purpose of the Veterans' Administration is primarily that of providing adequate accommodations for veterans entitled to medical and hospital service. It is anticipated that the peak of requirement of medical service will be reached in 1949 or 1950. A steady increase in available hospital beds will be incurred until that time. The profession is now in no position to object to the present rate of increase. We are advised that the Veterans' Administration has heretofore given due consideration to the counsel of our liaison groups, of whatsoever makeup, and that there has been no particular embarrassment between them. It is our information that the present contention of those in authority at Washington is that after the peak of demand has passed the surplus hospital beds shall be used for the domiciliary care of veterans not able to provide for themselves. It is the opinion of your committee at this time that this would be the proper use to make of these facilities. Your committee, however, would call the attention of this House of Delegates to the ease of conversion of veterans' hospitals into hospitals for the care of the public in general under some plan of socialized medicine. There seems to be no recommendation that can be advantageously made in this connection at this time.

2. Medical Relief Through Farm Security Administration: The report is very clear and specific in dealing with this problem. It occurs to your reference committee that the main requirement in this matter is a better understanding with the Farm Security Administration and a very definite coordination of effort between county and state medical associations, under the advice and counsel of the Bureau of Medical Economics of the American Medical Association. At the present time the practice of the Farm Security Administration is to make an agreement for medical service either with county medical societies or with state medical associations, as convenience may dictate. Your committee is advised, however, that the Farm Security Administration would prefer dealing with state medical associations primarily and with county medical societies secondarily. Your reference committee recommends that all agreements for medical service under the Farm Security Administration should be made with county medical societies under master agreements with the state medical associations, and that in such agreements the metes and bounds from the angle of medical ethics and medical economics should be set up. In order that there may be coordination of effort and uniform observance of the economic and ethical factors involved, it is further recommended that county medical societies send two copies of their respective agreements to their respective state medical associations, one of which should be forwarded to the Bureau of Medical Economics of the American Medical Association. The Trustees are requested to provide through the Bureau of Medical Economics for such statistical and other information as may be of service to state medical associations and county medical societies. The procedure recommended here should be looked on as an opportunity rather than a requirement.

There are many reasons why some effort should be made to direct developments in the matter of medical service for Farm Security Administration clients and similar groups. The procedures involved furnish an admirable setup for very objectionable practices in the direction of socialized medicine, so called. Under the agreements involved in the system, no practice should be allowed which is objectionable from the angle of socialized medicine. These practices have all been definitely and clearly set out in various pronouncements of the House of Delegates of the American Medical Association. Certainly, there should be freedom of choice of physician, and certainly there should be no intervention of a third party, between the patient and his physician; neither should there be any direction by any agent of the government as to the nature of treatment to be accorded the patient by his physician. It will be appreciated that in the present state of the changing order there will likely be changes in economic and ethical factors involved, which will accentuate all the greater necessity for close supervision of such matters.

Your reference committee heartily commends the announced attitude of the American Farm Bureau Federation, as preservative of the practice of medicine as we know it and as we believe our people want it.

Respectfully submitted.

HOLMAN TAYLOR, Chairman.
L. G. CHRISTIAN.
K. S. J. HOHLEN.
THOMAS P. FARMER.
G. HENRY MUNDT.

The report of the reference committee was adopted as amended on motion of Dr. Taylor, duly seconded and carried.

Report of the Reference Committee on Reports of Officers

Dr. William H. Myers, Georgia, presented the following supplementary report:

Teaching in Schools of Chiropody or Podiatry: Your reference committee approves the position taken by the Judicial Council in its supplementary report with regard to teaching the subjects of chiropody or podiatry.

Respectfully submitted.

FLOYD S. WINSLOW, Chairman.
WILLIAM H. MYERS.
JAMES Q. GRAVES.
ELBRIDGE J. BEST.
FORREST J. PINKERTON.

Dr. Myers moved that the report be adopted and the motion was seconded by Dr. Arthur J. Bedell, Section on Ophthalmology.

After discussion, it was moved that the report of the reference committee be laid on the table. The motion was seconded by Dr. Felix J. Underwood, Mississippi, and carried.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. John H. Fitzgibbon, Chairman, presented the following report:

In order to consider adequately the correspondence with the National Medical Association, Inc., referred to this committee by the House of Delegates on May 15, your reference committee arranged a conference with official representatives of that association, namely Drs. Carl G. Roberts, Roscoe C. Giles and Clarence H. Payne.

These representatives have brought to your committee's attention certain problems which it is mutually agreed must be considered as inimical to the welfare of colored physicians and the people whose medical welfare they have at heart. Among these problems are:

1. The erroneous impression created by publicity bearing on the question of membership in the American Medical Association.

2. Certain discriminatory attitudes said to exist which deny to competent members of the colored profession participation in governmentally directed health projects involving medical service to the patients of colored physicians.

With respect to the matter of membership in the American Medical Association, your committee desires to reemphasize the fact that membership in the various component county societies should not be denied to any person solely on the basis of race, color or creed. Attention is called to the fact that there are now a large number of colored physicians in the membership of the American Medical Association whose qualifications meet the professional requirements.

Notwithstanding the broad principle referred to, it is recognized that every component county medical society has the right of self government in local matters and membership.

Your reference committee desires to speak with emphasis regarding discrimination against any competent and qualified physician, regardless of race, color or creed, which interferes with his right as a physician to serve those who desire to consult him. This House of Delegates has consistently gone on record as insisting on the right of the citizen to choose his own physician and your reference committee feels that no discrimination should be tolerated.

Respectfully submitted.

John H. Fitzgibbon, Chairman.
J. Newton Hunsberger.
Grant C. Madill.
Charles W. Roberts.
W. F. Braasch.

Dr. Fitzgibbon moved that the report of the reference committee be adopted, and the motion was second by Dr. Charles W. Roberts, Georgia.

After discussion, it was moved by Dr. John M. Birnie, Massachusetts, seconded by Dr. James E. Paullin, Section on Practice of Medicine, that the report of the reference committee be rereferred to the Board of Trustees for clarification and resubmission to the House at this session.

Report of Reference Committee on Miscellaneous Business

Dr. Henry C. Macatee, Chairman, presented the following report, which was adopted on motion of Dr. Macatee seconded by Dr. A. T. McCormack, Kentucky, and carried.

Your reference committee recommends that the resolutions dealing with the Army Medical Museum and Library submitted by Dr. H. C. Macatee, District of Columbia, be amended by substituting the words "the House of Delegates of the American Medical Association" for the words "the Medical Society of the District of Columbia," and by omitting the last paragraph.

Your reference committee recommends the adoption of the resolution in accordance with its suggested amendments.

Respectfully submitted.

Henry C. Macatee, Chairman.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. Charles E. Mongan, Chairman, presented the following report:

1. Resolutions Proposing Amendments to the By-Laws Governing the Council on Medical Education and Hospitals: Your reference committee has given these resolutions a great deal of consideration. On Tuesday, May 16, 1939, a hearing was held, which was attended by the President, the President-Elect, the Secretary and many Fellows of the American Medical Association. At this well attended meeting the matter was fully presented and the importance of the Council on Medical Education and Hospitals was fully demonstrated. Its work seems to be well in hand and admirably executed. All phases of the question that had been presented at the hearing of the committee were gone over in executive session. The evidence for the proposed change in the By-Laws of this organization was well weighed.

Your reference committee has come to the conclusion that the Council on Medical Education and Hospitals, as provided for in the By-Laws, is working most auspiciously for the welfare of the American Medical Association, for medical education and for security of the public.

Your reference committee does not, therefore, recommend the amending of the By-Laws by the adoption of the proposed resolutions.

2. Resolution on Prescribing of Radium: After careful consideration of the subject matter of the resolution and the action of the House of Delegates of the American Medical Association in 1938 at which the recommendation of the Judicial Council was approved, your reference committee believes that a careful reading of the report of the Judicial Council, which was to the effect that a physician prescribing for a patient without examining the said patient is performing an unethical act, will show that there was nothing expressed in the opinion of the Judicial Council regarding the owning or leasing of radium other than the relationship of the lessor to the user of the radium.

Your reference committee would invite the careful attention of each member of the House of Delegates to the exact wording of the resolution adopted by the House of Delegates in the 1938 session.

Your reference committee reiterates the language of the report of the Reference Committee on Amendments to the Constitution and By-Laws in 1938, which read as follows: "After due consideration of the matter, your committee feels that the phraseology should remain. Any exceptions to the general principle involved would defeat its purpose."

Your reference committee recommends, therefore, that the resolution presented by the Illinois State Medical Society be not adopted.

Respectfully submitted.

Charles E. Mongan, Chairman.
Edgar A. Hines.
T. K. Gruber.
Felix P. Miller.
E. G. Wood.

Dr. Mongan moved the adoption of Section 1 of the report of the reference committee, recommending that the By-Laws be not amended in accordance with the resolutions. The motion was seconded by Dr. H. B. Everett, Tennessee, and lost after discussion.

On motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and

carried, the first section of the report of the reference committee was rereferred to that committee for further consideration and subsequent report.

The second section of the report of the reference committee, dealing with the resolution on the prescribing of radium, was adopted on motion of Dr. Mongan, seconded by Dr. Harvey F. Garrison, Mississippi, and carried.

Proposed Amendment to the Constitution

Dr. George Edward Follansbee, Chairman, Judicial Council, presented the following proposed amendment to the Constitution, which must lay over until the 1940 session for action:

Resolved, That the Constitution of the Association be amended by the insertion of the words "holding the title Doctor of Medicine or Bachelor of Medicine" between the words "associations" and "are" in article 8, section 1, third line.

Executive Session—Wednesday Afternoon, May 17

A motion to permit county and state officers vouched for by the delegates from the respective states and representatives of certain organizations interested, as well as the administrative personnel of the American Medical Association, to attend the Executive Session was duly seconded and carried.

The Sergeants-at-Arms polled the House, after which the House went into Executive Session at 3:30 p. m., with Dr. H. H. Shoulders, Speaker, presiding.

Report of Reference Committee on Consideration of the Wagner National Health Bill

Dr. Walter F. Donaldson, Chairman, presented the following report, which was adopted without a dissenting vote, on motion of Dr. Donaldson, seconded by Dr. H. B. Everett, Tennessee, and carried:

Your reference committee has carefully considered the bill designated as S. 1620, "A Bill to provide for the general welfare by enabling the several states to make more adequate provision for public health, prevention and control of disease, maternal and child health services, construction and maintenance of needed hospitals and health centers, care of the sick, disability insurance and training of personnel; to amend the Social Security Act; and for other purposes."

History of Wagner Health Bill

This bill was introduced by Senator Robert F. Wagner of New York, Feb. 28, 1939, and is commonly referred to as the Wagner Health Bill. The bill itself provides that, if it is enacted, it may be cited as the "National Health Act of 1939." The purposes of the bill are sufficiently stated in the title, but the bill itself must be recognized as a proposed amendment to the Social Security Act of 1935. The bill is intended to make effective a national health program recommended by the Interdepartmental Committee to Coordinate Health and Welfare activities.

The House of Delegates of the American Medical Association, at its special session in Chicago, Sept. 16 and 17, 1938, adopted five recommendations made by a special committee that had been appointed to consider and report on the National Health Program. It is important that this fact be borne in mind, for the bill now under consideration, which was drafted long after those recommendations were adopted and at a time when they were presumably known to the proponents of this bill, does not recognize either the spirit or the text of those recommendations. Any criticism of this bill by the Association is not to be construed, therefore, as a repudiation of any of the principles adopted at the 1938 special session of the House of Delegates.

Analysis of the Bill

S. 1620 proposes to amend title V of the Social Security Act —Grants to States for Maternal and Child Welfare—and title VI—Public Health Work and Investigations—and proposes to add to the Social Security Act certain new titles: namely, title XII—Grants to States for Hospital and Health Centers; title XIII—Grants to States for Medical Care, and title XIV—Grants to States for Temporary Disability Compensation.

Already some individuals and organized groups in the United States have appeared before the Senate subcommittee which has this bill under consideration and have urged its immediate enactment. Although the stated objectives of the Wagner Health Bill are generally recognized as desirable, your committee cannot approve the methods by which these objectives are to be attained.

Repeatedly, physicians and all other qualified professional groups have recommended the coordination and consolidation of the health activities of the federal government. The Wagner Health Bill leaves existing and proposed preventive and curative medical services widely scattered through several federal agencies.

This bill does not in any way safeguard the continued existence of the private practitioners who have always brought to the people the benefits of scientific research and treatment.

It does not provide for the use of the thousands of vacant beds now available in hundreds of church and community general hospitals.

The Wagner Health Bill proposes an extensive program in the field of "health, diagnostic and treatment centers, institutions and related facilities," without defining their functions.

This bill proposes to make federal aid for medical care the rule rather than the exception, since it does not specifically limit its benefits to persons unable to pay for adequate medical care.

The Wagner Health Bill does not recognize the need for suitable food, sanitary housing and the improvement of other environmental conditions necessary to the continuous prevention of disease and promotion of health.

This bill insidiously promotes the development of a complete system of tax supported governmental medical care, thus undermining and debasing present standards of medical services.

The House of Delegates in September 1938 urged compensation for the loss of wages during sickness. The Wagner Health Bill deviates from this suggestion by proposing to provide medical services in addition to compensation.

The Wagner Health Bill would authorize an enormous expansion of governmental medical services and therewith ultimately unlimited appropriations for its health program. The funds necessary would be so great as to increase still further the present burdensome general taxation.

The Wagner Health Bill provides for supreme federal control. Rules and regulations must be promulgated by the Chief of the Children's Bureau in the Department of Labor, the Surgeon General of the Public Health Service, the Federal Emergency Administrator of Public Works, and the Social Security Board. These federal agents are given authority to disapprove plans proposed by the individual states.

The House of Delegates at its September 1938 session approved the expansion of preventive and other medical services when the need could be shown. The Wagner Health Bill prescribes no method for determining the nature and extent of the needs for which it proposes allotments of funds.

The provisions in the Wagner Health Bill that have never been considered by the House of Delegates are the authorization of appropriations for studies, investigations and demonstrations, and the creation of federal and state advisory councils.

Conclusions

The Wagner Health Bill, as judged by the considerations that have been here presented, is inconsistent with the fundamental principles of medical care established by years of scientific professional medical experience, and in the opinion of your committee it is therefore contrary to the best interests of the American people.

For years the health of the people of the United States, as measured by sickness and death rates, has been better than that of most foreign countries, and this improvement has been continuous. The fortunate health conditions in the United States

cannot be dissociated from the standards and methods of medical practice that have prevailed under the present system of medical practice.

No other profession and no other organization have done more for the prevention of disease, the promotion of health and the care of the sick than have the medical profession and the American Medical Association. No other groups have shown more genuine sympathetic interest in human welfare.

The contribution of the individual members of the American Medical Association to medical care is universally regarded as monumental in total volume. The contribution of the American Medical Association, through a program of medical education and the activities of its numerous councils which safeguard medical service, gives abundant proof of interest in the problems of the national health. It has given continued consideration to these problems, whereas others show concern with these proposals because of a present but, it is to be hoped, a temporary need for relief. These are the groups which request revolutionary legislative action as indispensable for the extension and further diffusion of health facilities.

In view of its record and in consideration of the responsibility which American social history and the nature of medical care have imposed on the medical profession, the American Medical Association would fail in its public trust if it neglected to express itself unmistakably and emphatically regarding any threat to the nation's health and well-being.

The American Medical Association must therefore, speaking with professional competence, oppose the Wagner Health Bill.

RECOMMENDATIONS

Nevertheless, recognizing the soundness of the principles stated in the recommendations adopted by the House of Delegates at its special session in 1938, namely the expansion of preventive medicine and public health where need can be shown, the extension of medical care for the indigent and the medically indigent where the need can be demonstrated, with local determination of needs and local control of measures to supply these needs, your committee would urge the development of a mechanism for meeting these needs within the philosophy of the American form of government and without damage to the quality of medical services.

This question, as it relates to the aid to be given by an individual state to its own counties, municipalities or other local political units, is not immediately before this Association. The answer is to be found in the individual state constitutions and state statutes. Counties, townships and municipalities are creatures of the individual states and can be molded and guided by the state for its own purposes. The individual state, itself, is not a creature of the federal government. The federal government is, as a matter of fact, a creature of the individual states.

The fundamental question is how and when a state should be given financial aid by the federal government out of the resources of the states as a whole, pooled in the federal treasury. Disasters such as floods, dust storms, fire and epidemics have long been recognized as justifying such federal aid. No state or person has ever been heard to object to the use of funds out of the federal treasury for such purposes. No one has ever proposed however that, because federal aid is extended under such conditions to a state in distress, a corresponding aid must be extended to every other state regardless of its need. Nor has any one ever been heard to say that federal aid to a state in distress, because of flood, dust storm, fire or epidemic, shall not be extended unless and until the suffering state has produced from its own treasury a stated amount of money to aid in affording the relief. The development of such bizarre thinking may be traced to those who have originated within comparatively recent years the granting of federal subsidies—sometimes referred to as "grants in aid"—to induce states to carry on intrastate activities suggested frequently in the first instance by officers and employees of the federal government. The use of federal subsidies to accomplish such federally determined activities has invariably involved federal control. Any state in actual need of financial aid from the federal government for the prevention of disease, the promotion of health and the care of the sick should be able to obtain aid in a medical emergency without stimulating every other state to seek and to accept similar aid and thus to have imposed on it the burden of federal control.

The mechanism by which this end is to be accomplished, whether through a federal agency to which any state in need of federal financial assistance can apply or through a new agency created for this purpose or through responsible officers of existing federal agencies, must be developed by the Executive and the Congress, who are charged with these duties. Such method would afford to every state an agency to which it might apply for federal assistance to enable it to care for its own people without involving every other state in the Union or the entire government in the transaction and without disturbing permanently the American concept of democratic government.

SUMMARY

1. The Wagner Health Bill does not recognize either the spirit or the text of the resolutions adopted by the House of Delegates of the American Medical Association in September 1938.

2. The House of Delegates cannot approve the methods by which the objectives of the National Health Program are to be obtained.

3. The Wagner Health Bill does not safeguard in any way the continued existence of the private practitioners who have always brought to the people the benefits of scientific research and treatment.

4. The Wagner Health Bill does not provide for the use of the thousands of vacant beds now available in hundreds of church and community general hospitals.

5. This bill proposes to make federal aid for medical care the rule rather than the exception.

6. The Wagner Health Bill does not recognize the need for suitable food, sanitary housing and the improvement of other environmental conditions necessary to the continuous prevention of disease.

7. The Wagner Health Bill insidiously promotes the development of a complete system of tax supported governmental medical care.

8. While the Wagner Health Bill provides compensation for loss of wages during illness, it also proposes to provide complete medical service in addition to such compensation.

9. The Wagner Health Bill provides for supreme federal control; federal agents are given authority to disapprove plans proposed by the individual states.

10. The Wagner Health Bill prescribes no method for determining the nature and extent of the needs for preventive and other medical services for which it proposes allotments of funds.

11. The Wagner Health Bill is inconsistent with the fundamental principles of medical care established by scientific medical experience and is therefore contrary to the best interests of the American people.

12. The fortunate health conditions which prevail in the United States cannot be dissociated from the prevailing standards and methods of medical practice.

13. No other profession and no other group have done more for the improvement of public health, the prevention of disease and the care of the sick than have the medical profession and the American Medical Association.

14. The American Medical Association would fail in its public trust if it neglected to express itself unmistakably and emphatically regarding any threat to the national health and well being. It must therefore, speaking with professional competence, oppose the Wagner Health Bill.

15. The House of Delegates would urge the development of a mechanism for meeting the needs for expansion of preventive medical services, extension of medical care for the indigent and the medically indigent, with local determination of needs and local control of administration, within the philosophy of the American form of government and without damage to the quality of medical service.

16. The fundamental question is how and when a state should be given financial aid by the federal government out of the resources of the states as a whole, pooled in the federal treasury.

17. The bizarre thinking which evolved the system of federal subsidies—sometimes called "grants-in-aid"—is used to induce states to carry on activities suggested frequently in the first instance by officers and employees of the federal government.

18. The use of federal subsidies to accomplish such federally determined activities has invariably involved federal control.

19. Any state in actual need for the prevention of disease, the promotion of health and the care of the sick should be able to obtain such aid in a medical emergency without stimulating every other state to seek and to accept similar aid, and thus to have imposed on it the burden of federal control.

20. The mechanism by which this end is to be accomplished, whether through a federal agency to which any state in need of federal financial assistance can apply, or through a new agency created for this purpose or through responsible officers of existing federal agencies, must be developed by the Executive and the Congress, who are charged with these duties.

21. Such a method would afford to every state an agency to which it might apply for federal assistance without involving every other state in the Union or the entire government in the transaction.

22. Such a method would not disturb permanently the American concept of democratic government.

Respectfully submitted.

WALTER F. DONALDSON, Chairman.
FREDERIC E. SONDERN.
WALTER E. VEST.
FRED W. RANKIN.
E. H. CARY.
HENRY A. LUCE.
HOWARD L. SNYDER.

On motion of Dr. E. L. Merritt, Massachusetts, seconded by Dr. Holman Taylor, Texas, and Dr. Virgil E. Simpson, Kentucky, and carried, a rising vote of thanks was extended by the House to the committee for the excellent work done.

On motion of Dr. H. A. Luce, Michigan, seconded by Dr. Peter Irving, New York, and carried, the House arose from Executive Session at 4:05 p. m.

The Speaker stated that the House had proceeded with the regular order of business prior to the Executive Session because the Reference Committee on Consideration of the Wagner National Health Bill had not been ready to report.

Dedication of Ephraim McDowell-Jane Todd Crawford Memorial Home

Dr. Irvin Abell, Retiring President, invited the members of the House of Delegates to attend the dedication of the Ephraim McDowell-Jane Todd Crawford Memorial Home at Danville, Ky., on Saturday, May 20, at 2 p. m.

On motion of Dr. William H. Myers, Georgia, seconded by several delegates and carried, the House recessed at 4:10 p. m.

Fourth Meeting—Thursday Afternoon, May 18

The House of Delegates was called to order at 1:15 p. m. by the Speaker, Dr. H. H. Shoulders.

Report of Reference Committee on Credentials

Dr. Deering G. Smith, Chairman, stated that a total of 168 delegates had been seated.

Roll Call

The Secretary called the roll and announced that more than a quorum had responded.

Presentation of the Minutes

It was moved by Dr. A. T. McCormack, Kentucky, seconded by Dr. George W. Kosmak, New York, and carried, that the House dispense with the reading of the minutes.

Report of Board of Trustees

Dr. A. A. Hayden, Secretary of the Board, at the request of its Chairman, Dr. Arthur W. Booth, presented a report, which as amended reads as follows:

With reference to the report of the Reference Committee on Reports of Board of Trustees and Secretary referred to the Board of Trustees for clarification, it is recognized that every component county medical society has the right of self government in local matters, including membership, by which arrangement many Negro physicians now hold membership in the American Medical Association.

Respecting governmentally directed health projects, the Board of Trustees emphatically deprecates discrimination against any competent and qualified physician because of race, color, creed or sex, which interferes with his right as a physician to serve those who desire to consult him.

The report of the Board of Trustees was adopted as amended on motion of Dr. John Q. Myers, North Carolina, seconded by Dr. McLain Rogers, Oklahoma, and carried after discussion.

Presentation of Dr. L. E. LeSouef

The Secretary presented to the House Dr. L. E. LeSouef, President-Elect of the West Australian Branch of the British Medical Association, a member of the Federal Council of the British Medical Association of Australia and a delegate for Australia to the International Congress on Military Medicine and Pharmacy at Washington, and the Chairman, representing the House, extended cordial greetings to Dr. LeSouef.

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. Charles E. Mongan, Chairman, presented the following report, which, on motion of Dr. Mongan, seconded by Dr. John Z. Brown Sr., Utah, and carried after discussion, was adopted:

In regard to the resolutions offered by Dr. J. E. Paullin, Section on Practice of Medicine, proposing amendments to the By-Laws dealing with the Council on Medical Education and Hospitals, your reference committee proposes that the By-Laws be amended as follows: Amend chapter VIII, section 1, beginning with the sentence "The Council on Medical Education and Hospitals," line 4, page 19, and ending at the period in the ninth line on page 20 to read as follows: The Council on Medical Education and Hospitals shall consist of nine members each elected for nine years, one being elected each year: Provided three members be elected in 1940, one for nine years, one for eight years and one for seven years, and provided that the present members of the Council on Medical Education and Hospitals be continued as members until the terms for which they were elected shall have expired. The members of the Council shall be elected by the House of Delegates on nomination by the Board of Trustees, provided that the Board of Trustees shall place in nomination the names of three Fellows of the American Medical Association for each position. The members of the Council shall not be eligible for reelection. The Board of Trustees shall make their choice on the basis of securing for membership on the Council representation from general medical practice, special medical practice, medical education and graduate medical education. This Council shall prepare each year a report of its work and its recommendations, which shall be submitted to the House of Delegates.

Amend chapter IX, sec. 2, line 4, page 23, by inserting after the words "medical education" the words "including premedical, undergraduate and graduate medical education."

Respectfully submitted.

CHARLES E. MONGAN, Chairman.
T. K. GRUBER.
E. G. WOOD.
EDGAR A. HINES.
FELIX P. MILLER.

After the report of the reference committee was adopted, Dr. Mongan moved that the By-Laws be amended in accordance with the recommendation in the report of the reference committee. The motion was seconded and carried.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. John H. Fitzgibbon, Chairman, presented the following report, which was adopted on motion of Dr. Fitzgibbon, seconded by Dr. John Z. Brown Sr., Utah, and carried:

Your reference committee wishes to commend the report of the Committee on Medical Care. It believes that Dr. Leland and his associates deserve much credit for their able efforts in carrying out this survey and that the efforts and expenditure have been justified by the results.

Your reference committee agrees with the Committee on Medical Care as to the desirability of continuing this survey or making similar surveys in the future as the Board of Trustees may decide.

Your reference committee recommends that a brief summary of the results of the survey be published as soon as possible in the Organization Section of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

Respectfully submitted.

JOHN H. FITZGIBBON, Chairman.
J. NEWTON HUNSBERGER.
GRANT C. MADILL.
CHARLES W. ROBERTS.
W. F. BRAASCH.

ELECTION OF OFFICERS

The Speaker declared the next order of business to be the election of officers.

Election of President-Elect

Dr. Edward R. Cunniffe, New York, nominated for President-Elect Dr. Nathan B. Van Etten, New York, and the nomination was seconded by Drs. A. A. Walker, Alabama; John Q. Myers, North Carolina; E. G. Wood, Tennessee; J. Newton Hunsberger, Pennsylvania; H. A. Luce, Michigan; James E. Paullin, Section on Practice of Medicine; E. H. Cary, Texas; Arthur J. Bedell, Section on Ophthalmology; William R. Moloney Sr., California; Felix J. Underwood and Harvey F. Garrison, Mississippi; Walter E. Vest, West Virginia; Robert A. Peers, California; A. T. McCormack, Kentucky; W. F. Draper, United States Public Health Service; John Z. Brown Sr., Utah; Fred Moore, Iowa; Joseph F. Smith, Wisconsin, and Henry Cook Macatee, District of Columbia.

Dr. John Q. Myers, North Carolina, moved that the nominations be closed and that the Secretary be instructed to cast the unanimous ballot of the House of Delegates for Dr. Nathan B. Van Etten, and the motion was seconded by Drs. H. B. Everett, Tennessee, and A. T. McCormack, Kentucky, and carried.

The Secretary cast the unanimous ballot of the House for Dr. Nathan B. Van Etten, New York, for President-Elect of the American Medical Association, and the Speaker declared Dr. Van Etten so elected.

Election of Vice President

The Speaker announced that nominations for Vice President were in order and Dr. Harvey F. Garrison, Mississippi, placed in nomination the name of Dr. Alphonse McMahon, St. Louis. The nomination was seconded by Dr. A. T. McCormack, Kentucky.

Dr. H. A. Luce, Michigan, nominated Dr. Louis J. Hirschman, Detroit, and the nomination was seconded by Dr. C. R. Keyport, Michigan.

On motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. John Q. Myers, North Carolina, and carried, the nominations were closed.

The Speaker asked the tellers to spread the ballot, and the Secretary announced that 147 delegates had been reported present and that 135 votes had been cast, of which Dr. Alphonse McMahon, St. Louis, received 93 and Dr. Louis J. Hirschman, Detroit, 42.

The Speaker declared that Dr. Alphonse McMahon, St. Louis, having received the majority of the votes cast, was elected Vice President of the American Medical Association, and on motion of Dr. H. A. Luce, Michigan, seconded by Dr. George W. Kosmak, New York, and carried unanimously, the action was declared unanimous.

Address of President-Elect Nathan B. Van Etten

Dr. E. R. Cunniffe, New York, presented the President-Elect of the American Medical Association, who addressed the House as follows:

Mr. Speaker, Members of the House of Delegates:

The friendly expression of this House is deeply appreciated. You have conferred on me the highest honor that can be given to an American physician. Through long association with you I am well acquainted with the strength of character and maturity of judgment which you usually maintain. After choosing a long line of the most distinguished specialists for your presidency, I fear that you are slipping a little when your choice falls on a general practitioner. Perhaps you are thinking that when the distinguished psychiatrist who is now our President finishes his psychoanalysis you may want a general practitioner to administer the treatment.

I have never aspired to this office because I have always known that many of my contemporaries are vastly more competent. I have also been led to an apprehension concerning my personal safety. Last January Dr. Sleyster left the security of the wilds of Wisconsin for a visit to the dangerous city of New York. He was heavily armed against the dangers which lurk around every corner. At the end of his visit he warned me against future perils. He put his hand in his hip pocket and presented me with one of his guns, which I always carry. He says that it is the latest streamline 1939 model and he made it himself (a slingshot). You see that if anybody brings a criminal indictment against me I am fully prepared.

Yesterday you adopted a report defining your position in relation to the proposed Wagner Health Bill. It was one of the best reports ever presented to this House. It defines our position and we must stand on it. It will have small value, however, unless the whole medical profession of the United States is educated to understand it fully. Every delegate must realize his official obligation as never before and carry home to every single practitioner in his state a full consciousness of the importance of this declaration of principles. That practitioner is potentially one of the most powerful persons in the democracy. If he can be made to see his duty to his country and educate his patients to a realization of the dangers of centralized control of medical practice, your action of yesterday will be sustained.

Gentlemen of the House, in the name of welfare the practice of medicine as you know it and as you hoped it would become is to be destroyed. The functions of the most highly educated group of professionals in the world are to be taken over by bureaus operated by adventurous amateurs. The time has come for the concerted action of every doctor in the United States. Wishful thinking on the part of you leaders of medicine will not be enough; every one must do his duty.

Election of Secretary

Dr. William R. Brooksher, Arkansas, nominated Dr. Olin West, Chicago, to succeed himself as Secretary, and the nomination was seconded by Dr. A. T. McCormack, Kentucky. Dr. McCormack moved that the nominations be closed and that the Vice Speaker be authorized to cast the ballot of the House for Dr. Olin West as Secretary. The motion was seconded by Dr. H. B. Everett, Tennessee, and by several other delegates, and carried unanimously.

The Vice Speaker cast the unanimous ballot of the House for Dr. Olin West as Secretary of the American Medical Association, and the Speaker declared Dr. West so elected for the ensuing year.

Election of Treasurer

Dr. Austin A. Hayden, Secretary of the Board of Trustees, reported that the Board desired to place before the House of Delegates the nomination of Dr. Herman L. Kretschmer, Chicago, for reelection as Treasurer of the Association.

It was moved by Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. George W. Kosmak, New York, and carried, that the nomination be confirmed, and the Speaker declared Dr. Herman L. Kretschmer elected Treasurer of the American Medical Association for the ensuing year.

Election of Speaker of the House of Delegates

Dr. R. W. Fouts, Vice Speaker, took the chair and declared the next order of business to be the election of Speaker of the House of Delegates.

Dr. E. G. Wood, Tennessee, nominated for reelection as Speaker of the House of Delegates Dr. H. H. Shoulders, Nashville, Tenn., and the motion was seconded by Drs. H. B. Everett, Tennessee; A. A. Ross, Texas; Harvey F. Garrison, Mississippi; C. R. Keyport, Michigan; John Z. Brown Sr., Utah; John Q. Myers, North Carolina, and others.

Dr. W. Albert Cook, Oklahoma, moved that nominations be closed and that the Secretary be instructed to cast the ballot for Dr. H. H. Shoulders, Nashville, Tenn., as Speaker of the House, and the motion was seconded by Drs. Peter Irving, New York, and H. B. Everett, Tennessee, and carried.

The Secretary cast the unanimous ballot of the House for Dr. H. H. Shoulders, Nashville, Tenn., and the Vice Speaker declared Dr. Shoulders elected Speaker of the House for the ensuing year.

Election of Vice Speaker of the House of Delegates

The Speaker resumed the chair and announced that the next order of business was the election of a Vice Speaker of the House of Delegates.

Dr. H. L. Snyder, Kansas, nominated Dr. R. W. Fouts, Omaha, for reelection as Vice Speaker, and the nomination was seconded by Drs. Arthur J. Bedell, Section on Ophthalmology; James Q. Graves, Louisiana, and H. B. Everett, Tennessee.

Dr. McLain Rogers, Oklahoma, moved that the nominations be closed and that the Secretary be instructed to cast the ballot of the House for Dr. R. W. Fouts as Vice Speaker. The motion was seconded by Dr. W. E. Kittler, Illinois, and carried. The Secretary cast the unanimous ballot of the House for Dr. R. W. Fouts for Vice Speaker of the House, and the Speaker declared Dr. Fouts so elected for the ensuing year.

Election of Trustees

The Speaker declared the next order of business to be the election of two Trustees, each to serve five years, to succeed Drs. Roger I. Lee, Boston, and Allen H. Bunce, Atlanta, Ga., whose terms expire this year.

Dr. George Blumer, Connecticut, nominated Dr. Roger I. Lee to succeed himself as a Trustee, and the nomination was seconded by Drs. George W. Kosmak, New York; A. A. Walker, Alabama; Deering G. Smith, New Hampshire; Alfred T. Gundry, Maryland; Guy W. Wells, Rhode Island; Samuel P. Mengel, Pennsylvania; William A. Ellingwood, Maine; Walter E. Vest, West Virginia; Warren F. Draper, United States Public Health Service, and A. T. McCormack, Kentucky.

On motion of Dr. George W. Kosmak, New York, seconded by Dr. John Z. Brown Sr., Utah, and carried, the nominations were closed and the Secretary was directed to cast the ballot of the House for Dr. Roger I. Lee.

The Secretary cast the unanimous ballot of the House for Dr. Roger I. Lee, Boston, to succeed himself as a member of the Board of Trustees for a term of five years, and the Speaker declared Dr. Lee so elected.

The Speaker asked for nominations for Trustee to succeed Dr. Allen H. Bunce, Atlanta, Ga., who was ineligible, according to the By-Laws, to succeed himself.

Dr. A. T. McCormack, Kentucky, nominated Dr. E. L. Henderson, Louisville, Ky., to succeed Dr. Allen H. Bunce as Trustee of the American Medical Association and the nomination was seconded by Drs. Harvey F. Garrison, Mississippi; George M. Fisher, New York; T. K. Gruber, Michigan; Robert A. Peers, California, and E. H. Cary, Texas.

On motion of Dr. Edward M. Pallette, California, seconded by Dr. Felix J. Underwood, Mississippi, and carried, the nominations were closed and the Secretary was instructed to cast the ballot of the House for Dr. E. L. Henderson as Trustee.

The Secretary cast the unanimous ballot of the House for Dr. E. L. Henderson, Louisville, Ky., to succeed Dr. Allen H. Bunce, Atlanta, Ga., as a member of the Board of Trustees for a term of five years, and the Speaker declared Dr. E. L. Henderson so elected.

Appreciation of Trustee, Dr. Allen H. Bunce

Dr. Charles W. Roberts, Georgia, addressed the House as follows:

Mr. Speaker and Members of the House:

Sir Walter Scott in his "Love of Country" from "The Lay of the Last Minstrel" poignantly laments the unhappy ending of those whose lives are moored in the chilling fog of selfishness. Thus benighted, they sense none of the moving emotions which spring from the deeper reservoirs of the human heart. For such there is no real love of country, no plaudits for their fellows whose days are spent in fervent devotion to our American institutions. With souls so dead their passing, in the words of Scott, is "unwept, unhonored and unsung." But such laments were not spoken of the servants of the American Medical Association. I am moved, therefore, on this occasion to lay a small tribute at the feet of a group whose responsive natures lure them to perpetual battle against the enemies of life's eternal values. In this honored company we find the officers, trustees, councilmen, delegates and committees, yes, the rank and file of the membership of the American Medical Association whose high aims and purposes need no eulogy in this loyal assembly.

For we know that all great lives are not spent on fields of battle, not all great victories staged in the spotlight of public acclaim. Country and section and state and community still have the devoted services of a host of our fellow members who count it their reasonable duty to devote themselves unselfishly to the common good. Is it, then, inappropriate to yield on occasion to the patriotic impulse to applaud or to be considered as outmoded sentiment when a moment is taken to record, in the name of American medicine, a debt of gratitude which none would deny is due such an esteemed company? I hope not.

Moved, Mr. Speaker, by naught but a driving passion for the retention and preservation of our American way of life and the people's medical service, this preferred group of our fellows diligently labor with no thought of reward save a consciousness of duty well performed and a tradition bravely defended.

But may I be more specific. There are men who stand above their comrades because their restless souls yield to no defeat. Such a one is Dr. Allen H. Bunce, many years secretary of the Medical Association of Georgia and editor of its journal, leader and exemplar of the finest traditions of American medicine, loyal defender of its tenets when others were capitulating to the importunities of the ephemeral era. He has just concluded ten years of service on the Board of Trustees. We may be pardoned, I hope, for expressing, as he resumes his place among those who move in the humble places, a laudatory sentiment in your name and particularly in that of the great Southeastern section which he has so well represented. But Dr. Bunce is a young man. He looks forward. Those of us coming from the territory whose medical prerogatives he has so faithfully championed can but express the hope that his exceptional talents may suffer no obscurity because, according to custom, he must terminate his official connection with the Board of Trustees.

Moreover, speaking for myself and as one who has been privileged to live as his neighbor and thus to know of the depth and soundness of the motives which have guided his career, I am bold to voice the conviction that his contributions to the field of medical organization and clinical practice in the past will be complemented by no less fervor as he resumes the responsibilities of a mere Fellow in our beloved organization. United support of every effort directed at the preservation of

a great, free profession seems more than ever the need of the hour. To this end he will be found ready to serve whenever and wherever his colleagues may direct.

At the risk, therefore, of qualifying as a sentimentalist, I embrace the privilege of moving, and Mr. Speaker I do so move, that these comments be spread on the minutes of this House as a small token of appreciation of the spirit of service exemplified by the knights of our profession, particularly by that of the Board of Trustees on which Dr. Bunce has served with such unwavering fidelity. To him and to all who amidst the cheerless atmosphere of distrust and ill becoming complaint have nevertheless held fast to the traditions of our great calling, we pledge in a like spirit our unswerving loyalty. On their shoulders we would lay with ardent appreciation our cherished accolades.

The motion was seconded by Dr. William H. Myers, Georgia, John Q. Myers, North Carolina, Edgar A. Hines, South Carolina, John Z. Brown Sr., Utah, and Felix J. Underwood, Mississippi, and carried.

Presentation of Newly Elected Trustees

The Speaker requested Dr. Roger I. Lee and Dr. E. L. Henderson to present themselves to the chair to be recognized by the House. Dr. Lee asked to be presented from where he stood and Dr. Henderson addressed the House as follows:

Mr. Speaker and Members of the House of Delegates:

I want to thank you for the honor you have bestowed on me, and I appreciate greatly the confidence you have expressed in me. I wish to state that I will serve you to the very best of my ability.

Address of Vice President Alphonse McMahon

Dr. R. Emmet Kane, Missouri, presented Dr. Alphonse McMahon, who addressed the House as follows:

Mr. Chairman, I am actually rendered speechless and I have no notes in my pocket to refer to at this moment to help me through the situation. I don't know what to say to you except that I am very happy at the honor you have bestowed on me and I am particularly delighted at the opportunity to serve the American Medical Association in this capacity and in any other in which it may see fit to place me. I want to thank the American Medical Association again for having come to St. Louis and having given us an opportunity to provide entertainment. We feel that this year the history of the American Medical Association is one of the most momentous of all years. We think that history has been made in St. Louis by the action of this House of Delegates. Thank you again for this honor which you have given me.

Nominations for Standing Committees

Dr. Rock Sleyster, President, submitted the following nominations for standing committees:

Judicial Council: Dr. Edward R. Cunniffe, New York, to succeed himself, for a term ending in 1944; Dr. Holman Taylor, Fort Worth, Texas, to fill the unexpired term ending in 1942 of Dr. John W. Burns, deceased.

Council on Medical Education and Hospitals: Dr. Ray Lyman Wilbur, Stanford University, Calif., to succeed himself, for a term ending in 1946.

Council on Scientific Assembly: Dr. J. Gurney Taylor, Milwaukee, to succeed himself, for a term ending in 1944; Dr. Samuel P. Mengel, Wilkes-Barre, Pa., to fill the unexpired term ending in 1941 of Dr. J. C. Flippin, deceased.

The nominations of Dr. Edward R. Cunniffe and Dr. Holman Taylor for membership on the Judicial Council were confirmed on motions, duly seconded and carried.

The President stated that he was in doubt as to how the adoption of the amendments to the By-Laws at this meeting of the House affected the nomination to the Council on Medical Education and Hospitals at this session and requested a ruling.

After discussion, the Speaker ruled that with the consent of the House the amended By-Laws would take effect in 1940; that the By-Laws as in existence prior to the amendment were in existence at this time, and that the President should proceed with the nomination.

Dr. Samuel J. Kopetzky, New York, moved that the ruling of the Speaker be the sense of the House, and the motion was seconded by Dr. John Q. Myers, North Carolina, and many others, and carried.

The President's nomination of Dr. Ray Lyman Wilbur to succeed himself on the Council on Medical Education and Hospitals was confirmed on motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Felix J. Underwood, Mississippi, and carried.

The nominations of Dr. J. Gurney Taylor, Milwaukee, and Dr. Samuel P. Mengel, Wilkes-Barre, Pa., for membership on the Council on Scientific Assembly were confirmed on motions duly seconded and carried.

Election of Affiliate and Associate Fellows

The Secretary presented the following nominations for Affiliate and Associate Fellowship, which, on motions duly seconded and carried, were confirmed by the House:

NOMINATIONS FOR AFFILIATE FELLOWSHIP APPROVED BY THE COUNCIL ON SCIENTIFIC ASSEMBLY

Adams, W. J., Norfolk, Va.
Barck, Carl, St. Louis.
Barnes, J. Steele, Milwaukee.
Blickensderfer, G. M., Denver.
Boisliniere, Louis C., St. Louis.
Breid, Jacob, Spickard, Mo.
Brown, Adelaide, San Francisco.
Campbell, Given, St. Louis.
Charles, Joseph W., St. Louis.
Child, Scott P., West Plains, Mo.
Cook, Emmett F., St. Joseph, Mo.
Croskey, John Welsh, Philadelphia.
Davison, Charles, Chicago.
Gaebler, Arthur, Chicago.
Gaines, S. E., Sparta, Tenn.
Garner, R. L., Milan, Mo.
Gillman, Robert W., Detroit.
Goodwin, Edward J., St. Louis.
Grimes, W. P., Kansas City, Mo.
Hall, D. Walton, Kansas City, Mo.
Harrison, Wallace K., Chicago.
Heusinkveld, Henry J., Fulton, Ill.
Hickok, H. S., Kansas City, Mo.
Hollis, Luther T., Kansas City, Mo.
Hoxie, George H., Kansas City, Mo.
Kauffman, Frank E., Clearwater, Fla.
Kuh, Edwin J., Chicago.
Laughlin, C. E., Evansville, Ind.
Leonard, Ward H., Kansas City, Mo.
Lewis, Bransford, St. Louis.
Lewis, Robert, New York.
Link, J. J., St. Louis.
Mardorf, W. Charles, St. Louis.
Middleton, James, Kansas City, Mo.
Miel, George W., Denver.
Moore, Josiah G., Mexico, Mo.
Murphy, R. Brent, St. Louis.
Myers, John L., Kansas City, Mo.
Neff, Frank C., Kansas City, Mo.
Norberg, George B., Kansas City, Mo.
Perkins, Jay, Stockton Springs, Me.
Phillips, N. W., Clear Lake, Iowa.
Piedalue, Joseph, Lewistown, Mont.
Redmond, Thomas, St. Joseph, Mo.
Rinehart, J. S., Camden, Ark.
Robinson, Ernest F., Kansas City, Mo.
Robinson, G. Wilse, Kansas City, Mo.
Rosenwald, Leon, Kansas City, Mo.
Schwarz, L. E., Chicago.
Scott, William P., Houghton, Mich.
Sherman, Frank M., Boston.
Shumate, David L., Kansas City, Mo.
Smith, Ellsworth S., St. Louis.
Southworth, Thomas S., New York.
Stapp, Fred B., Chattanooga, Tenn.
Taylor, Alfred S., New York.
Tilton, Benjamin T., New York.
Trimble, William K., Kansas City, Mo.
Turner, B. F., Memphis, Tenn.
Veach, Patrick H., Staunton, Ind.
Wilhelm, Francis E., Kansas City, Mo.
Zulick, Thomas C., Easton, Pa.

NOMINATION OF APPLICANT FOR ASSOCIATE FELLOWSHIP FROM FOREIGN COUNTRY ADJACENT TO THE UNITED STATES, APPROVED BY THE JUDICIAL COUNCIL

Boulanger, Joseph, Edmonton, Alberta, Canada.

NOMINATIONS OF AMERICAN MEDICAL MISSIONARIES FOR ASSOCIATE FELLOWSHIP APPROVED BY THE JUDICIAL COUNCIL

Bergsma, Stuart, Taxila, Punjab, North India.
Strain, Richard E., Modesto, Calif.

NOMINATIONS FOR ASSOCIATE FELLOWSHIP APPROVED BY THE SECTIONS INDICATED

PHARMACOLOGY AND THERAPEUTICS

Lehman, Arnold J., Washington, D. C.

PATHOLOGY AND PHYSIOLOGY

Simonsen, Daisy G., Monrovia, Calif.
Visscher, M. B., Minneapolis.

NERVOUS AND MENTAL DISEASES

Slight, David, Chicago.

Address of Dr. L. E. Le Souef

The Secretary presented Dr. L. E. Le Souef, President-Elect of the West Australian Branch of the British Medical Association, who addressed the House as follows: Mr. Speaker, Mr. President, Members of this Great House of Delegates of the American Medical Association: I desire to thank you for the great honor you have conferred on me in permitting me to be present with you this afternoon. Prior to leaving Australia I was present at our board, the Federal Council, when it was dealing with very similar problems to those which have been worrying you at present, that is the question of political control and national health insurance, as we quote it, in Australia. It is interesting to me to find that your problems are similar to ours, and I think in all the great English speaking countries of the world they always will be. To me it is interesting to see you protecting and guarding the highest ethical principles of the profession, and it is of interest to me to know that those principles are international in all their objects.

I have been struck in your country with something on which I should like to compliment you. I have seen a virility of thought and a humility born of wisdom and knowledge which have indeed humbled me in my tour through the States, and I only hope that the supremacy which you have achieved today will be emulated by the rest of the world and that the rest of us will strive to surpass you.

Place of 1942 Annual Session

Dr. Austin A. Hayden, Secretary of the Board of Trustees, presented the following report of the Board:

The Board wishes to report the receipt of invitations from Atlantic City and Philadelphia for the 1942 session of the Association. Both cities have adequate facilities for accommodating a session of the Association.

Dr. Andrew F. McBride, New Jersey, extended an invitation from the Medical Society of New Jersey to meet in Atlantic City, N. J., in 1942.

Dr. Francis F. Borzell, Pennsylvania, extended an invitation from the Philadelphia County Medical Society, the city of Philadelphia, the Medical Society of the State of Pennsylvania, and the physicians of Pennsylvania to meet in Philadelphia in 1942.

The tellers spread the ballot on request of the Speaker, and the Secretary announced that 147 delegates had been reported present and that 130 votes had been cast, of which Atlantic City received 84 and Philadelphia 46. The Speaker declared that the House of Delegates had selected Atlantic City in which to hold the 1942 annual session of the American Medical Association.

NEW BUSINESS

Resolution from the Section on Ophthalmology Requesting Appointment of Special Committee to Study All Phases of Problem of Prevention of Blindness

Dr. Arthur J. Bedell, Section on Ophthalmology, presented the following resolution, unanimously passed at the executive session of the section, which was adopted on motion of Dr. Bedell, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried:

WHEREAS, It is well known that many persons are blind and that a great many have defective sight; and

WHEREAS, An analysis of the records suggests the conclusion that in many cases the sight might have been saved had adequate protective measures been employed; and

WHEREAS, The preservation of human sight is of inestimable value to the individual; and

WHEREAS, A large percentage of the blind are or become public charges; therefore be it

Resolved, That the Section on Ophthalmology petition the House of Delegates to request the Board of Trustees of the American Medical Association to appoint a special committee to study all phases of the problem of prevention of blindness and that a report of its activities be made at the 1940 session of the House of Delegates.

Resolution on Transfer of Health and Medical Activities of Children's Bureau from Department of Labor to United States Public Health Service

Dr. A. T. McCormack asked for and received the unanimous consent of the House for the presentation of the following resolution by Dr. Walter E. Vest, West Virginia:

WHEREAS, The House of Delegates has for years past urged the unification of the health and medical activities of the federal government, except for the medical services of the Army and Navy; and

WHEREAS, These activities are at present widely scattered in various governmental agencies; therefore be it

Resolved, That the House of Delegates of the American Medical Association go on record as favoring: (1) That the health and medical activities of the Children's Bureau be transferred from the Department of Labor and placed with the United States Public Health Service; and (2) That the Division of Industrial Health remain in the United States Public Health Service, where it is now.

Dr. Vest moved the adoption of the resolution. The motion was seconded by Drs. John Z. Brown Sr., Utah, Harvey F. Garrison, Mississippi, and H. B. Everett, Tennessee, and, after discussion, failed to carry. The resolution was, therefore, not adopted.

Resolution on Optometry, from the Section on Ophthalmology

Dr. Arthur J. Bedell, Section on Ophthalmology, presented the following resolution, just received by him from the section, which was laid on the table:

WHEREAS, The problem of optometry is pressing for solution; and

WHEREAS, The previous regulations passed by the House of Delegates are widely ignored and do not command general approval by the members of the section; and

WHEREAS, It is proposed to have a careful study made and the problem presented in such form that a postal vote can be obtained based on real knowledge of the facts; therefore be it

Resolved, That the Section on Ophthalmology of the American Medical Association requests that the regulations of the American Medical Association concerning the optometry problem be suspended for one year pending thorough investigation by a special committee appointed by the chairman of the Section on Ophthalmology; and be it further

Resolved, That the delegate of the section be instructed to present this resolution to the House of Delegates and use his best efforts to have the resolution adopted.

Appointments to Committee on Distinguished Service Awards

The Speaker announced that three vacancies were created on the Committee on Distinguished Service Awards by the expiration of the terms of Drs. J. W. Amesse, Colorado, and J. D. Brook, Michigan, and by the resignation of Dr. E. L. Henderson, Kentucky.

The Speaker appointed Dr. A. A. Walker, Alabama, to succeed Dr. J. W. Amesse, and Dr. John H. O'Shea, Washington, to succeed Dr. J. D. Brook, each for a term of three years expiring in 1942, and Dr. Charles W. Stone, Ohio, for the unexpired term of Dr. E. L. Henderson ending in 1941. Drs. J. F. Hassig, Kansas, and Grant C. Madill, New York, are the other two members of the committee and their terms expire in 1940. The Speaker appointed Dr. Grant C. Madill as chairman of the committee.

Message to Dr. E. J. Goodwin

Dr. A. T. McCormack, Kentucky, asked for and received the unanimous consent of the House to present a motion that the President and Secretary convey to Dr. E. J. Goodwin, St. Louis, who was for many years a member of the House, and who is at present ill, the love and affection of the House and regret at his inability to be present during the session. The motion was seconded by several delegates and carried.

Message of Appreciation

Dr. Arthur J. Bedell, Section on Ophthalmology, moved that the House rise in expression of appreciation of the gracious kindness of their hosts shown toward the members of the American Medical Association since their arrival in St. Louis. The motion was seconded by Dr. George W. Kosmak, New York, and carried unanimously by a rising vote. The Secretary was requested to communicate this action to the proper committee.

The House of Delegates adjourned at 3:50 p. m., on motion of Dr. E. G. Wood, Tennessee, seconded by Dr. George W. Kosmak, New York, and carried.

MINUTES OF THE SECTIONS

SECTION ON PRACTICE OF MEDICINE

WEDNESDAY, MAY 17—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. N. C. Gilbert, Chicago.

Dr. John S. La Due, Minneapolis, read a paper on "The Treatment of Massive Hemorrhage Due to Peptic Ulcer." Discussed by Drs. Andrew B. Rivers, Rochester, Minn.; Kendall A. Elsom, Philadelphia; Horace W. Soper, St. Louis; L. Wallace Frank, Louisville, Ky.; Willard D. Mayer, Detroit; John M. Blackford, Seattle; Manfred Kraemer, Newark, N. J.; Walter L. Palmer, Chicago; S. Kendig Wallace, Baltimore; Gordon H. Ira, Jacksonville, Fla., and John S. La Due, Minneapolis.

Dr. Curtis F. Garvin, Cleveland, read a paper on "Complications Following the Administration of Sulfanilamide." Discussed by Drs. Francis G. Blake, New Haven, Conn.; Edwin G. Bannick, Seattle; B. K. Wiseman, Columbus, Ohio, and Curtis F. Garvin, Cleveland.

Dr. George Dock, Pasadena, Calif., delivered the Frank Billings Lecture, entitled "Historical Notes on Coronary Occlusion: from Heberden to Osler."

Dr. James H. Means, Boston, read a paper on "The Symptomatology of Lymphoma: Its Endless Variety." Discussed by Drs. Ralph A. Kinsella, St. Louis; Arthur W. Allen, Boston, and James H. Means, Boston.

Drs. Louis R. Limarzi and Emil Schleicher, Chicago, presented a paper on "The Reaction of Peripheral Blood and Bone Marrow in Chronic Hemorrhage and in Essential Thrombocytopenic Purpura."

Drs. Charles A. Doan, B. K. Wiseman and Sloan J. Wilson, Columbus, Ohio, presented a paper on "The Differential Diagnosis and Therapeutic Rationale in Thrombocytopenic Purpura."

These two papers were discussed by Drs. Carl V. Moore, St. Louis; W. M. Fowler, Iowa City; Edward P. Flood, the Bronx, New York; Louis R. Limarzi, Chicago, and B. K. Wiseman, Columbus, Ohio.

THURSDAY, MAY 18—MORNING

The following officers were elected: chairman, Dr. William S. McCann, Rochester, N. Y.; vice chairman, Dr. William B. Porter, Richmond, Va.; secretary, Dr. Fred M. Smith, Iowa City; executive committee, Dr. Francis G. Blake, New Haven, Conn., Dr. N. C. Gilbert, Chicago, and Dr. William S. McCann, Rochester, N. Y.; delegate, Dr. James E. Paullin, Atlanta, Ga.; alternate, Dr. Ernest E. Irons, Chicago; members of the American Board of Internal Medicine, Dr. John H. Musser, New Orleans, and Dr. William J. Kerr, San Francisco.

Drs. L. McKendree Eaton and Samuel F. Haines, Rochester, Minn., presented a paper on "Parathyroid Insufficiency with Symmetrical Cerebral Calcifications: Report of Three Cases, in One of Which the Patient was Treated with Dihydrotachysterol." Discussed by Drs. Fuller Albright, Boston; Peter Bassoe, Chicago; Cyril M. MacBryde, St. Louis; Samuel F. Haines, Rochester, Minn., and L. McKendree Eaton, Rochester, Minn.

Dr. N. C. Gilbert, Chicago, read the chairman's address, entitled "Vasomotor Changes in the Coronary Arteries and Their Possible Significance."

Dr. G. E. Hall, Toronto, read a paper on "Coronary Artery Reflexes in Acute Occlusion."

Drs. Geza de Takats and George K. Fenn, Chicago, presented a paper on "The Mechanism of Death in Pulmonary Embolism."

These two papers were discussed by Drs. A. R. Barnes, Rochester, Minn.; Alfred Blalock, Nashville, Tenn.; James H. Means, Boston; George K. Fenn, Chicago; G. E. Hall, Toronto, and Geza de Takats, Chicago.

Drs. F. L. Chamberlain and Paul D. White, Boston, presented a paper on "The Morgagni-Adams-Stokes Syndrome with Special Reference to Prognosis and Treatment." Discussed by Drs. Drew W. Luten, St. Louis; Fred M. Smith, Iowa City; Hugo A. Freund, Detroit; George K. Fenn, Chicago, and F. L. Chamberlain, Boston.

Dr. Edward F. Bland, Boston, read a paper on "The Delayed Appearance of Heart Disease After Rheumatic Fever."

Dr. William D. Stroud, Philadelphia, read a paper on "Fifteen Years' Observation of Children with Rheumatic Heart Disease."

These two papers were discussed by Drs. Helen B. Taussig, Baltimore; T. Duckett Jones, Boston; Edward F. Bland, Boston, and William D. Stroud, Philadelphia.

FRIDAY, MAY 19—MORNING

A joint meeting was held with the Section on Pharmacology and Therapeutics.

Dr. Clarence F. G. Brown, Chicago, and Dr. R. E. Dolkart, Boston, presented a paper on "An Evaluation of Therapy of Peptic Ulcer." Discussed by Drs. Chester M. Jones, Boston; William H. Olmsted, St. Louis; Andrew B. Rivers, Rochester, Minn., and Clarence F. G. Brown, Chicago.

Dr. Elmer L. Sevringhaus, Madison, Wis., read a paper on "Treatment of the Menopause." Discussed by Drs. August A. Werner, St. Louis, and Elmer L. Sevringhaus, Madison, Wis.

Dr. M. Herbert Barker, Chicago, read a paper on "Treatment of Pneumonia." Discussed by Drs. Jesse G. M. Bullowa, New York; Francis G. Blake, New Haven, Conn., and M. Herbert Barker, Chicago.

Dr. Lewis P. Gundry, Baltimore, read a paper on "Bromide Intoxication: Report of Fifteen Cases." Discussed by Drs. C. C. Underwood, Emporia, Kan.; Elmer L. DeGowin, Iowa City, and Lewis P. Gundry, Baltimore.

Dr. H. P. Smith, Iowa City, read a paper on "Clinical and Experimental Studies on Vitamin K."

Drs. Hugh R. Butt, Albert M. Snell and Arnold E. Osterberg, Rochester, Minn., presented a paper on "The Preoperative and Postoperative Use of Vitamin K in Cases of Obstructive Jaundice."

These two papers were discussed by Drs. I. S. Ravdin, Philadelphia; John D. Stewart, Boston; E. A. Doisy, Ph.D., St. Louis; J. D. Greaves, Ph.D., St. Louis; George V. LeRoy, Chicago; H. P. Smith, Iowa City, and Hugh R. Butt, Rochester, Minn.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

WEDNESDAY, MAY 17, 1939—AFTERNOON

The meeting was called to order at 2:05 by the chairman, Dr. Henry W. Cave, New York.

Dr. Russell L. Haden, Cleveland, presented to the section through Dr. Fred W. Rankin, Lexington, Ky., a gavel made of wood from the home of Ephraim McDowell, which was accepted for the section by Dr. Frederick A. Coller, Ann Arbor, Mich. A motion was made by Dr. Coller, regularly seconded and carried, that a letter of appreciation be sent to Dr. Haden by the secretary.

Drs. Frederick A. Coller, Henry K. Ransom and Charles Sherrill Rife, Ann Arbor, Mich., presented a paper on "Reactions of the Peritoneum to Trauma and Infection: Further Experimental Studies."

Dr. Bernhard Steinberg, Toledo, Ohio, read a paper on "Stages in Peritonitis Based on the Defense Mechanism in Relation to Treatment."

Dr. George D. Lilly, Miami, Fla., read a paper on "Complications of Appendical Peritonitis."

These three papers were discussed by Drs. Claude F. Dixon, Rochester, Minn.; J. Shelton Horsley, Richmond, Va.; W. Wayne Babcock, Philadelphia; Alton Ochsner, New Orleans; Frederick A. Coller, Ann Arbor, Mich., and Bernhard Steinberg, Toledo, Ohio.

Drs. Walter M. Boothby, Charles W. Mayo and W. Randolph Lovelace II, Rochester, Minn., presented a paper on "One Hundred per Cent Oxygen: Indications for Its Use and Methods of Its Administration to Surgical Patients." Discussed by Drs. Alvan L. Barach, New York; Jacob Fine, Boston, and Walter M. Boothby, Rochester, Minn.

Drs. Loyal Davis and John Martin, Chicago, presented a paper on "Surgical Lesions in the Paratrigeminal Area." Discussed by Drs. Ernest Sachs, St. Louis, and Loyal Davis, Chicago.

Drs. Albert Behrend and Helena E. Riggs, Philadelphia, presented a paper on "Cerebral Complications Following Surgical Operation." Discussed by Drs. Henry K. Beecher, Boston; F. H. Lewy, Philadelphia, and Albert Behrend, Philadelphia.

THURSDAY, MAY 18—AFTERNOON

Drs. Alton Ochsner and Michael E. DeBakey, New Orleans, presented a paper on "Thrombophlebitis: The Etiologic Factor of Vasospasm and the Treatment by Sympathetic Block." Discussed by Drs. S. H. Sedwitz, Youngstown, Ohio; Geza de Takats, Chicago; John R. Paine, Minneapolis, and Alton Ochsner, New Orleans.

Dr. Frederic W. Taylor, Indianapolis, read a paper on "Arteriosclerotic Gangrene: Relation of the Amputation Stump to Morbidity and Mortality."

Dr. Henry H. Faxon, Boston, read a paper on "Major Amputations in Advanced Peripheral Arterial Obliterative Disease."

These two papers were discussed by Drs. Leland S. McKittrick, Boston; Geza de Takats, Chicago, and Henry H. Faxon, Boston.

Dr. Henry W. Cave, New York, read the chairman's address, entitled "Chronic Intractable Ulcerative Colitis: A Surgical Problem."

Dr. John D. Stewart, Boston, read a paper on "Control of the Hemorrhagic Tendency in Obstructive Jaundice by the Use of Vitamin K." Discussed by Drs. H. P. Smith, Iowa City; Hugh R. Butt, Rochester, Minn.; L. Wallace Frank, Louisville, Ky., and John D. Stewart, Boston.

Dr. Conrad J. Baumgartner, Los Angeles, read a paper on "Congenital Lesions of the Neck." Discussed by Drs. Herbert Willy Meyer, New York, and Conrad J. Baumgartner, Los Angeles.

Dr. Manuel Grodinsky, Omaha, read a paper on "Ludwig's Angina, Retropharyngeal Abscess and Other Deep Abscesses of the Head and Neck." Discussed by Drs. Frederick A. Coller, Ann Arbor, Mich.; Louis J. Birsner, St. Louis and Manuel Grodinsky, Omaha.

FRIDAY, MAY 19—AFTERNOON

Drs. Harvey B. Stone and Samuel McLanahan, Baltimore, presented a paper on "Surgical Aspects of Carcinoma of the Large Bowel." Discussed by Drs. James D. Rives, New Orleans; Leland S. McKittrick, Boston; Henry K. Ransom, Ann Arbor, Mich.; Claude F. Dixon, Rochester, Minn.; Frank H. Lahey, Boston, and Harvey B. Stone, Baltimore.

The following officers were elected: chairman, Dr. Thomas M. Joyce, Portland, Ore.; vice chairman, Dr. William Barclay Parsons, New York; secretary, Dr. Arthur W. Allen, Boston; executive committee, Dr. Hugh H. Trout, Roanoke, Va., Dr. Henry W. Cave, New York, and Dr. Thomas M. Joyce, Portland, Ore.; delegate, Dr. Fred W. Rankin, Lexington, Ky.; alternate, Dr. Robert S. Dinsmore, Cleveland; Board of Governors, American College of Surgeons, Dr. Fred W. Bailey, St. Louis; American Board of Anesthesiology, Dr. Ralph M. Tovell, Hartford, Conn.

Drs. I. S. Ravdin and Alfred Stengel Jr., Philadelphia, presented a paper on "Hypoproteinemia in Surgical Patients." Discussed by Drs. Chester M. Jones, Boston; Robert Elman, St. Louis, and I. S. Ravdin, Philadelphia.

Dr. Harold Lincoln Thompson, Los Angeles, read a paper on "The Immediate and Late Results of Surgical Treatment of Acute Perforation of Peptic Ulcer." Discussed by Drs. Dan C. Donald, Birmingham, Ala.; J. William Thompson, St. Louis; Charles Brown Odom, New Orleans, and Harold Lincoln Thompson, Los Angeles.

Dr. Harold L. Foss, Danville, Pa., read a paper on "Pathogenesis of Thyrotoxicosis with Crisis."

Dr. George Crile Jr., Cleveland, read a paper on "Lateral Aberrant Thyroid Tumors."

Dr. Frank H. Lahey, Boston, read a paper on "The Management of True Intrathoracic Goiter."

These three papers were discussed by Drs. Frederick A. Coller, Ann Arbor, Mich.; James H. Means, Boston; James Davidson Rives, New Orleans; Willard Bartlett Jr., St. Louis, and Harold L. Foss, Danville Pa.

SECTION ON OBSTETRICS AND GYNECOLOGY

WEDNESDAY, MAY 17—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. Harvey B. Matthews, Brooklyn.

The following papers were read as a symposium on "Lesions of the Vulva":

Dr. Rollo E. McCotter, Ann Arbor, Mich.: "The Structure of the Lower Portion of the Female Genital Tract."

Dr. Emmerich von Haam, Columbus, Ohio: "Venereal and Nonvenereal Granulomas of the Vulva."

Dr. Clair E. Folsome, Ann Arbor, Mich.: "Benign and Malignant Tumors of the Vulva."

Drs. Fred L. Adair and M. Edward Davis, Chicago: "Atrophy of the Vulva."

These four papers were discussed by Drs. Fred J. Taussig, St. Louis; Emil Novak, Baltimore; E. D. Plass, Iowa City; Rita S. Finkler, Newark, N. J.; Rollo E. McCotter, Ann Arbor, Mich., and Fred L. Adair, Chicago.

Dr. Edmund Lissack, Concordia, Mo., read a paper on "Backache During Pregnancy and Its Management." Discussed by Drs. Buford G. Hamilton, Kansas City, Mo.; G. D. Royston, St. Louis, and Joseph B. De Lee, Chicago.

Dr. E. L. King, New Orleans, read a paper on "The Role of Hypothyroidism in the Causation of Abortion, Especially of the 'Missed' Variety." Discussed by Drs. J. C. Litzenberg, Minneapolis; Jesse W. White, Pueblo, Colo., and Fred J. Taussig, St. Louis.

THURSDAY, MAY 18—MORNING

Dr. George W. Kosmak, New York, read a paper on "The Responsibility of the Medical Profession in the Movement for Birth Control." Discussed by Drs. Charles E. Galloway, Evanston, Ill.; Joseph L. Baer, Chicago; Fred L. Taussig, St. Louis; John Zell Gaston, Houston, Texas, and George W. Kosmak, New York.

Dr. Jacob Kotz, Washington, D. C., read a paper on "The Effects of Obstetric Analgesia on the Newborn Infant."

Drs. David C. Kimball, Wyman C. C. Cole and L. E. Daniels, Detroit, presented a paper on "Studies in Neonatal Asphyxia."

These two papers were discussed by Drs. C. O. McCormick, Indianapolis; Franklin F. Snyder, Chicago; Joseph B. De Lee, Chicago; L. Mason Lyons, Pierce City, Mo.; M. S. Lewis, Nashville, Tenn.; Meyer Bodansky, Galveston, Texas; G. D. Royston, St. Louis; Jacob Kotz, Washington, D. C., and Wyman C. C. Cole, Detroit.

Drs. Richard W. TeLinde and J. Donald Woodruff, Baltimore, presented a paper on "Postoperative Care of the Urinary Bladder." Discussed by Drs. George H. Gardner, Chicago, and William T. Kennedy, New York.

Dr. Harvey B. Matthews, Brooklyn, read the chairman's address, entitled "Obstetric Shock: Its Causes, Recognition and Management."

FRIDAY, MAY 19—MORNING

The following officers were elected: chairman, Dr. Ludwig A. Emge, San Francisco; vice chairman, Dr. Buford G. Hamilton, Kansas City, Mo.; secretary, Dr. Norman F. Miller, Ann Arbor, Mich.; delegate, Dr. George Gray Ward, New York; alternate, Dr. Jean Paul Pratt, Detroit; member of the Board of Governors, American College of Surgeons, Dr. Emil Novak, Baltimore.

Drs. Bernard Portis and Harold A. Roth, Chicago, presented a paper on "The Diagnosis and Treatment of Hyperthyrodism Associated with Pregnancy." Discussed by Drs. Robert D. Mussey, Rochester, Minn., and Bernard Portis, Chicago.

Dr. W. O. Johnson, Louisville, Ky., read a paper on "Diagnosis and Treatment of Varicosities of the Broad Ligament." Discussed by Drs. Thomas B. Sellers, New Orleans; Ralph R. Wilson, Kansas City, Mo., and W. O. Johnson, Louisville, Ky.

Dr. Joshua W. Davies, New York, read a paper on "Stress Urinary Incontinence and Its Relation to Cystocele." Discussed by Dr. R. J. Crossen, St. Louis.

Dr. S. Leon Israel, Philadelphia, read a paper on "A Study of Cervical Polyps." Discussed by Drs. Ludwig A. Emge, San Francisco; Harold S. Morgan, Lincoln, Neb.; Emil Novak, Baltimore; Fred L. Adair, Chicago, and S. Leon Israel, Philadelphia.

Dr. Walter T. Dannreuther, New York, read a paper on "The Treatment of Retrodisplacements of the Uterus." Discussed by Drs. Bertha Van Hoosen, Chicago; R. S. Cron, Milwaukee; Louis E. Phaneuf, Boston; Otto St. Clair Krebs, St. Louis; A. C. Hirschfield, Oklahoma City; William H. Vogt, St. Louis; Harvey B. Matthews, Brooklyn, and Walter T. Dannreuther, New York.

SECTION ON OPHTHALMOLOGY

WEDNESDAY, MAY 17—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. S. Judd Beach, Portland, Maine.

Dr. S. Judd Beach, Portland, Maine, read the chairman's address.

Dr. Allen Greenwood, Boston, read a paper on "Thoughts on Office Practice."

Dr. Walter B. Lancaster, Boston, read a paper on "A Simple Method of Plotting, Recording and Interpreting Disturbances of Ocular Motility."

It was recommended that the transactions for the coming year be dedicated to Dr. Allen Greenwood, Boston, and Dr. Walter B. Lancaster, Boston. The recommendation was adopted.

Dr. Sanford R. Gifford, Chicago, read a paper on "The Treatment of Secondary Glaucoma." Discussed by Drs. Edward C. Ellett, Memphis, Tenn.; Theodore L. Terry, Boston; Clifford B. Walker, Los Angeles, and Sanford R. Gifford, Chicago.

Drs. Everett L. Goar and Jacob F. Schultz, Houston, Texas, presented a paper on "Iridencleisis in Glaucoma." Discussed by Drs. Clyde A. Clapp, Baltimore; Thomas D. Allen, Chicago; Allen Greenwood, Boston; John Green, St. Louis; Michael Goldenburg, Chicago; Sanford R. Gifford, Chicago; John Oliver McReynolds, Dallas, Texas, and Jacob F. Schultz, Houston, Texas.

On motion duly seconded and carried, the following resolution was adopted by the section:

WHEREAS, In the latest national public health survey, it has been found that ninety persons in every 100,000 in the United States are blind, and that a vastly greater number have economically defective sight; and

WHEREAS, At a moderate estimate, in not less than one third of those who are blind the sight might have been saved had adequate protective measures been employed; and

WHEREAS, *Not only is the preservation of human sight of inestimable* value to the individual by rendering him capable of meeting the necessities of life, but a large proportion become wards of the nation instead of self-supporting citizens, thereby adding an enormous burden in taxes on those already heavily burdened people; therefore, be it

Resolved, That the Board of Trustees be requested to appoint a committee to investigate the conditions causing these losses of sight and to take such measures as will aid in diminishing the numbers who become unnecessarily blind.

Dr. Algernon B. Reese, New York, read a paper on "The Value of Early Operation in Chronic Primary Glaucoma." Discussed by Drs. Harry S. Gradle, Chicago, and Algernon B. Reese, New York.

Dr. Manual U. Troncoso, New York, read a paper on "Cyclodialysis with Metal Implant in the Treatment of Glaucoma." Discussed by Drs. Otis R. Wolfe, Marshalltown, Iowa, and Manuel U. Troncoso, New York.

THURSDAY, MAY 18—AFTERNOON

Dr. John J. Prendergast, St. Paul, read a paper on "Ocular Leprosy in the United States." Discussed by Drs. Gideon M. Van Poole, Honolulu, Hawaii; Forrest J. Pinkerton, Honolulu, Hawaii; Theodore J. Dimitry, New Orleans, and John J. Prendergast, St. Paul.

Executive Session

The section went into executive session to consider the following recommendation from the Committee on Optics and Visual Physiology:

"That the American Committee on Optics and Visual Physiology recommend to the Section on Ophthalmology of the American Medical Association that all resolutions of the American Medical Association concerning the optometry problem be suspended for one year, pending thorough investigation by a special committee; further,

"That the delegate of the section be instructed to present this resolution to the House of Delegates of the American Medical Association and use his best efforts to have this resolution adopted."

The recommendation was adopted, with fifty-three voting in favor and thirty-eight against.

Scientific Session

Dr. Frederick A. Davis, Madison, Wis., read a paper on "Primary Tumors of the Optic Nerve: A Phenomenon of von Recklinghausen's Disease; a Clinical and Pathologic Study with a Report of Five Cases and a Review of the Literature." Discussed by Drs. Percival Bailey, Chicago; Jesse M. Levitt, Brooklyn; F. Park Lewis, Buffalo; Alan C. Woods, Baltimore and Frederick A. Davis, Madison, Wis.

Dr. Theodore L. Terry, Boston, read a paper on "Malignant Melanoma of Uvea—So-Called Sarcoma: Problems in Diagnosis." Discussed by Drs. Everett C. Moulton, Fort Smith, Ark.; Allen Greenwood, Boston; Charles H. May, New York, and Theodore L. Terry, Boston.

Drs. Alan C. Woods and Earl L. Burky, Baltimore, presented a paper on "Experimental Studies on Ocular Tuberculosis: IV. Studies in the Immune-Allergic Rabbit." Discussed by Drs. Martin Hayward Post, St. Louis, and Albert L. Brown, Cincinnati.

Dr. S. Rodman Irvine, Los Angeles, read a paper on "A Study of Exfoliation of the Lens Capsule, 'Glaucoma Capsularis,' with a Report of Forty Cases." Discussed by Drs. Daniel B. Kirby, New York; Parker Heath, Detroit; Arthur J. Bedell, Albany, N. Y.; Theodore L. Terry, Boston; Harry S. Gradle, Chicago, and S. Rodman Irvine, Los Angeles.

Dr. Milton L. Berliner, New York, read a paper on "Cataract Following Inhalation of Paradichlorobenzene." Discussed by Dr. James E. Lebensohn, Chicago.

Demonstration Session

Dr. Conrad Berens, New York, presented "A Modified Perlia Test for Depth Perception at the Middle Distance," "Visual Acuity Test Applicable to Large Groups of Subjects" and "Large Square Prisms of Thermoplastic Material."

Drs. Theodore L. Terry, Boston, and R. D. Mattis, St. Louis, presented "A Plastic Transilluminator."

FRIDAY, MAY 19—AFTERNOON

Executive Session

Dr. Derrick Vail, Cincinnati, the secretary, read the report of the Committee on Compensation Tables, in which it was stated that its work had not been completed and suggested that it be continued for another year, and that the name of the Committee be changed to "Committee on Visual Economics." The report was accepted.

Dr. Walter B. Lancaster, Boston, read the report of the Committee on Optics and Visual Physiology, which was accepted.

It was moved by Dr. Arthur J. Bedell, Albany, N. Y., seconded by Dr. Lancaster, and carried, that due notice be given through THE JOURNAL in relation to the nonacceptance of the commonly used school testing instruments.

The report of the Committee on the Knapp Testimonial Fund was presented by Dr. Parker Heath, Detroit. The report was accepted.

Dr. Derrick Vail, Cincinnati, reported for the Committee on Awarding the Knapp Medal that no award would be made this year.

The report of the Committee on the American Board of Ophthalmology was read by Dr. Derrick Vail, Cincinnati. The report was accepted.

Dr. Derrick Vail, Cincinnati, read the report of the Committee on National Museum of Ophthalmic Pathology. The report was accepted.

Dr. Arthur J. Bedell, Albany, N. Y., reported as delegate of the section to the House of Delegates. He stated that the resolution adopted by the section on Wednesday morning was unanimously passed by the House; also that the recommendation adopted by the section from the Committee on Optics and Visual Physiology was tabled in the House.

Dr. Derrick Vail, Cincinnati, read the report of the Committee on Museum of Ophthalmic History. The report was accepted.

Dr. Derrick Vail read the report of the Committee on Standardization of Drugs and Instruments. The report was accepted with thanks and the committee discharged.

A vote of thanks was extended the local committee.

A report from the Joint Committee on Orthoptics was read by Dr. Derrick Vail, the secretary.

Dr. William L. Benedict, Rochester, Minn., reported for the Advisory Committee on Student Health Council that the committee had met with the Student Health Committee on three different occasions during the past year, and they had designed a student floor lamp and table-type lamp that will give the standard illumination without glare and with proper spread. The designs have been submitted to manufacturers through the National Society for the Prevention of Blindness. A uniform record card for the recording of examination of students in the Student Health Association has been printed and distributed to all colleges that partake in this organization. In order to make it more uniform, the committee has designed and written specifications for the manufacture of illuminated eye test chart holder with lamp for muscle examinations, which tests were gotten up with the aid of the Electrical Testing Laboratories of New York, submitted to the Committee on Optics and Visual Physiology, and the plan was acceptable to that committee. The report was accepted.

Dr. T. E. Sanders, St. Louis, read the report of the Exhibit Committee of the Section. The report was accepted.

The following officers were elected: chairman, Dr. Harry S. Gradle, Chicago; vice chairman, Dr. Everett L. Goar, Houston, Texas; secretary, Dr. Derrick Vail, Cincinnati; delegate, Dr. Arthur J. Bedell, Albany, N. Y.; alternate, Dr. Lawrence T. Post, St. Louis.

Dr. Sanford R. Gifford, Chicago, was reappointed to the American Committee (Joint) on Optics and Visual Physiology for three years.

Dr. Allen Greenwood, Boston, was appointed to fill a vacancy on the American Board of Ophthalmology, to serve for four years beginning Jan. 1, 1940.

Dr. Jonas S. Friedenwald, Baltimore, was appointed to the Committee on National Museum of Ophthalmic Pathology (Joint).

Dr. Georgiana Dvorak Theobald, Oak Park, Ill., was reelected to fill the vacancy of chairman of the Committee for Scientific Exhibit from the Section. Dr. Derrick Vail, Cincinnati, and Dr. Algernon B. Reese, New York, were appointed as members of the Committee.

Dr. Cassius D. Wescott, Chicago, was appointed to fill a vacancy in the Committee on Museum of Ophthalmic History. Dr. Allen Greenwood, Boston, was elected chairman of the committee.

Dr. Derrick Vail, Cincinnati, was elected to the American Council on Orthoptics, representing the section, to serve for three years; Dr. George P. Guibor, Ottawa, Ill., to serve for two years, and Dr. Harold Gifford Jr., Omaha, to serve for one year.

Dr. William L. Benedict, Rochester, Minn., was reappointed to the advisory committee of the Student Health Association.

A committee of three members was formed, representing the section, to act with similar committees to be appointed from the American Ophthalmological Society of the American Academy of Ophthalmology and Oto-Laryngology, whose function shall be the study of the problem of abstracting ophthalmic literature. To this committee, to be known as the Committee on Ophthalmic Literature (Joint), were appointed Dr. Parker Heath, Detroit, chairman, Dr. Lawrence T. Post, St. Louis, and Dr. Theodore L. Terry, Boston.

Drs. Frederick H. Verhoeff, Boston; Arthur J. Bedell, Albany, N. Y., and Clifford B. Walker, Los Angeles, were elected to constitute the Knapp Medal Award Committee.

Scientific Session

Dr. Lowell S. Selling, Detroit, read a paper on "Examinations of the Eye and Their Significance in Traffic Court Cases." Discussed by Drs. Arthur J. Bedell, Albany, N. Y.; Albert C. Snell, Rochester, N. Y., and Lowell S. Selling, Detroit.

Dr. F. Park Lewis, Buffalo, read a paper on "Ophthalmology's Place in the Prevention of Blindness." Discussed by Drs. Edward V. L. Brown, Chicago; Conrad Berens, New York, and F. Park Lewis, Buffalo.

Dr. Julian Y. Malone, Milwaukee, read a paper on "Progressive Myopia, Keratoconus and Keratoglobus: Their Etiology and Treatment." Discussed by Drs. William L. Benedict, Rochester, Minn.; Meyer Wiener, St. Louis; Theodore L. Terry, Boston, and Julian Y. Malone, Milwaukee.

Drs. Abbott M. Dean, F. W. Dean and Guy R. McCutchan, Council Bluffs, Iowa, presented a paper on "Interstitial Keratitis Caused by Specific Sensitivity." Discussed by Drs. Albert D. Ruedemann, Cleveland, and Abbott M. Dean, Council Bluffs, Iowa.

On motion of Dr. Arthur J. Bedell, Albany, N. Y., duly seconded, a rising vote of thanks was extended the chairman, secretary and other officers of the section.

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

WEDNESDAY, MAY 17—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. H. Marshall Taylor, Jacksonville, Fla.

Dr. Simon L. Ruskin, New York, read a paper on "The Arterial, Venous and Lymphatic Supply of the Nose and the Nervous and Hormonal Factors in Its Control." Discussed by Drs. O. Jason Dixon, Kansas City, Mo., and Louis J. Birsner, St. Louis.

Dr. Roy F. Nelson, Oakland, Calif., read a paper on "Sinus Surgery: Critical Analysis of Diagnosis and Technic in Operations on the Maxillary Sinus." Discussed by Drs. William Mithoefer, Cincinnati; Millard F. Arbuckle, St. Louis, and Roy F. Nelson, Oakland, Calif.

Dr. Ben L. Bryant, Los Angeles, read a paper on "Argyria Resulting from Intranasal Medication." Discussed by Dr. Gordon F. Harkness, Davenport, Iowa.

Dr. Thomas E. Carmody, Denver, read a paper on "Infection of the Mouth and Face." Discussed by Drs. August L. Beck, New Rochelle, N. Y.; Simon L. Ruskin, New York, and Thomas E. Carmody, Denver.

Dr. Gabriel Tucker, Philadelphia, read a paper on "The Management and Surgical Cure of Cancer of the Larynx." Discussed by Drs. Frederick A. Figi, Rochester, Minn.; LeRoy A. Schall, Boston; Joseph C. Beck, Chicago, and Gabriel Tucker, Philadelphia.

Dr. Austin A. Hayden, Chicago, showed slides and spoke briefly on Audiogram Standardization.

THURSDAY, MAY 18—MORNING

Executive Session

The following officers were elected: chairman, Dr. Arthur W. Proetz, St. Louis; vice chairman, Dr. F. T. Hill, Waterville, Maine; secretary, Dr. LeRoy A. Schall, Boston; executive com-

mittee, Gordon B. New, Rochester, Minn., H. Marshall Taylor, Jacksonville, Fla., and Arthur W. Proetz, St. Louis; delegate, Bert R. Shurly, Detroit; alternate, Gordon F. Harkness, Davenport, Iowa.

A letter was read regarding the tentative draft of school health policies. Drs. Bert R. Shurly, Detroit, George E. Shambaugh Jr., Chicago, and H. B. Searcy, Tuscaloosa, Ala., were appointed a committee to consider the draft.

Dr. John J. Shea, Memphis, Tenn., reported for the American Board of Otolaryngology as follows:

"The American Board of Otolaryngology held its thirty-seventh examination at the St. Louis University on May 11, 12 and 13. One hundred and eight candidates were examined, of whom eighty-four were given certificates, bringing the total to 2,889 certified otolaryngologists.

"For the information of many of the section, the board is composed of two representatives from each of the following: American Otological Society, American Laryngological Society, American Laryngological, Rhinological and Otological Society, American Academy of Ophthalmology and Otolaryngology, and the American Medical Association. This board in turn elects as associate members sufficient help for each examination.

"The minimum requirements for taking the board are one year rotating internship, one year basic training in otolaryngology and one year special internship on a certified otolaryngological service."

The report was accepted.

Scientific Session

Dr. H. Marshall Taylor, Jacksonville, Fla., read the chairman's address, entitled "Otitis and Sinusitis in the Swimmer."

Dr. Daniel S. Cunning, New York, read a paper on "Treatment of Otitic Meningitis: Surgery Plus Sulfanilamide."

Dr. John M. Converse, New York, read a paper on "Recurrence of Otitic Infections Due to Beta-Hemolytic Streptococci Following Inadequate Sulfanilamide Therapy."

These two papers were discussed by Drs. Wells P. Eagleton, Newark, N. J.; Bernard J. McMahon, St. Louis; Anchise A. Cirillo, New York, and P. Pierre Viole, Los Angeles.

Dr. V. H. Kazanjian, Boston, read a paper on "Reconstruction Following Radical Operation for Osteomyelitis of the Frontal Bone." Discussed by Drs. Harris P. Mosher, Boston, and Vilray P. Blair, St. Louis.

Dr. George E. Shambaugh Jr., Chicago, read a paper on "Diplacusis: A Localizing Symptom for Disease of the Organ of Corti; Theoretical Considerations, Clinical Observations and Practical Application." Discussed by Drs. Arthur W. Proetz, St. Louis, and George M. Coates, Philadelphia.

Dr. Edmund P. Fowler Jr., New York, read a paper on "Abnormal Movements Following Injury to the Facial Nerve." Discussed by Drs. Joseph A. Sullivan, Toronto, Canada; Ernest Sachs, St. Louis, and Edmund P. Fowler Jr., New York.

FRIDAY, MAY 19—MORNING

A joint meeting was held with the Section on Pediatrics.

Dr. John J. Shea, Memphis, Tenn., read a paper on "Rational Treatment of Sinusitis in Children." Discussed by Drs. Lee Wallace Dean Jr., St. Louis; Harris Hosen, Port Arthur, Texas; Clifford Sweet, Oakland, Calif.; T. E. Walsh, Chicago; George Piness, Los Angeles, and John J. Shea, Memphis, Tenn.

Dr. Horace J. Williams, Philadelphia, read a paper on "The Diagnosis and Treatment of Otitis Media in Children." Discussed by Drs. Dean M. Lierle, Iowa City; Borden S. Veeder, St. Louis; Charles Hendee Smith, New York; Clifford Sweet, Oakland, Calif.; Eugene Lee Myers, St. Louis, and Horace J. Williams, Philadelphia.

Drs. T. Duckett Jones and John R. Mote, Boston, presented a paper on "The Clinical Importance of Respiratory Infections in Rheumatic Fever." Discussed by Drs. William P. Wherry, Omaha; William D. Stroud, Philadelphia, and T. Duckett Jones, Boston.

Drs. George Piness and Hyman Miller, Los Angeles, presented a paper on "Upper Respiratory Allergy in Infancy and Childhood." Discussed by Drs. Francis M. Pottenger Jr., Monrovia, Calif., and George Piness, Los Angeles.

SECTION ON PEDIATRICS

WEDNESDAY, MAY 17—AFTERNOON

The meeting was called to order at 2:10 by the chairman, Dr. Edward Clay Mitchell, Memphis, Tenn.

Dr. M. Hines Roberts, Atlanta, Ga., read a paper on "A Study of Cerebral Hemorrhage in the Newborn." Discussed by Drs. Ralph M. Tyson, Philadelphia; Hugo Ehrenfest, St. Louis; Julius H. Hess, Chicago, and M. Hines Roberts, Atlanta, Ga.

Dr. Heyworth N. Sanford, Chicago, read a paper on "The Effect of Various Complementary Feedings on the Gain in Weight and Stimulation of Breast Milk During the Newborn Period." Discussed by Drs. Clifford G. Grulee, Evanston, Ill.; William J. Orr, Buffalo, and Heyworth N. Sanford, Chicago.

Dr. Edward Clay Mitchell, Memphis, Tenn., read the chairman's address, entitled "Child Health in National Defense."

Dr. Harry H. Donnally, Washington, read a paper on "Smallpox Vaccination of Infants: Revaccinations After Two to Three Years in Children Primarily Vaccinated with Culture Virus (Rivers), Compared with Those Primarily Vaccinated with Calf Lymph Virus." Discussed by Dr. Charles Armstrong, Washington, D. C.

Dr. M. G. Peterman, Milwaukee, read a paper on "Convulsions in Infancy and Childhood: A Report of One Thousand Cases." Discussed by Drs. Henry F. Helmholz, Rochester, Minn.; H. R. Cooder, Los Angeles; Clifford Sweet, Oakland, Calif., and M. G. Peterman, Milwaukee.

Dr. Warren W. Quillian, Coral Gables, Fla., read a paper on "Respiratory Infections: Types and Clinical Course as Observed in Florida Pediatric Practice." Discussed by Drs. Robert A. Strong, New Orleans, and Oscar Reiss, Los Angeles.

THURSDAY, MAY 18—AFTERNOON

Dr. Ralph M. Tyson, Philadelphia, chairman of the executive committee, presented the following resolutions, which, on motion regularly made and seconded, it was voted to approve:

WHEREAS, The American Medical Association is devoted to the best interests of all the physicians of the United States; and

WHEREAS, The Section on Pediatrics of the American Medical Association is a loyal constituent part of that Association, with interests which are identical with those of all other groups making up the American Medical Association; therefore, be it

Resolved, That we, the executive committee of the Section on Pediatrics, representing that section, do hereby indicate our wholehearted and unswerving loyalty to the American Medical Association; be it further

Resolved, That the Section on Pediatrics, through its executive committee, will endeavor to gather from the principal pediatric groups and all interested individuals engaged in the practice of pediatrics their ideas and suggestions for the advancement of the welfare of American medicine within the field of child study.

In order that the representative of the Section on Pediatrics in the House of Delegates may present such suggestions for the consideration and action of the said House of the American Medical Association.

RALPH M. TYSON, Chairman.
CLIFFORD SWEET.
EDWARD CLAY MITCHELL.

Resolved, That the Section on Pediatrics of the American Medical Association commend the American Legion for its interest in child welfare and offer its assistance for carrying out these plans where they have been prepared under pediatric leadership.

Dr. Ralph M. Tyson announced that Dr. Edward Clay Mitchell had been designated as the section representative to cooperate with the Child Health Director of the American Legion.

Speaking on behalf of the secretary of the Abraham Jacobi Memorial Fund, who was absent, Dr. Ralph M. Tyson reported that at the present time there is $7,502.62 in the treasury, and that very little money had been spent during the past year.

The executive committee recommended the appointment of Dr. Arthur H. Parmelee of Chicago and Dr. Wyman C. C. Cole of Detroit to represent the Section on Pediatrics as members of a committee from various organizations engaged in a

study on the Problems of the Fetus and the Newborn Infant. On motion regularly made, seconded and carried, the section approved the appointments as recommended.

The following officers were elected: chairman, Dr. Albert D. Kaiser, Rochester, N. Y.; vice chairman, Dr. Philip M. Stimson, New York; secretary, Dr. Hugh L. Dwyer, Kansas City, Mo.; executive committee, Dr. Clifford Sweet, Oakland, Calif., Dr. Edward Clay Mitchell, Memphis, Tenn., and Dr. Albert D. Kaiser, Rochester, N. Y.; delegate, Dr. William Weston, Columbia, S. C.; alternate, Dr. A. Graeme Mitchell, Cincinnati; representative to the Board of Pediatrics, Dr. Horton R. Casparis, Nashville, Tenn.; secretary and treasurer of the Abraham Jacobi Memorial Fund, Dr. Hugh L. Dwyer, Kansas City, Mo.

Dr. Oscar Reiss, Los Angeles, chairman of the resolutions committee, presented the report of that committee, as follows:

In behalf of the officers and members of the Section on Pediatrics of the American Medical Association here assembled in St. Louis for their ninetieth annual session, it is our privilege to offer to Dr. Jean V. Cooke, and the rest of the local contingent, our heartfelt appreciation of the magnificent hospitality they have extended to us.

We will all carry away a memory of the splendid scientific program and exhibits, and of the genial reception extended us by perfect hosts.

OSCAR REISS.
LEE FORREST HILL.
WILLIAM ORR.

Dr. Oscar Reiss moved that a copy of these resolutions be spread on the minutes of the section; regularly seconded and carried.

Dr. Henry F. Helmholz, Rochester, Minn., announced that the International Congress on Pediatrics will hold its meeting in Boston, Sept. 3, 4 and 5, 1940, and urged those who had not been solicited, and had exhibits of interest, to get in touch with Dr. Tom Mitchell. Dr. Helmholz extended thanks to the Abraham Jacobi Fund and, through it, to the section, for their generous contribution to meet the expenses of the congress.

Dr. Charles Gilmore Kerley, New York, read a paper on "Varying Manifestations of Thyroid Gland Aberrancies in Infants, Children and Adolescents." Discussed by Dr. Theodore T. Zuck, Cleveland, and Dr. Charles Gilmore Kerley, New York.

A panel discussion on the topic of "Management of Pneumonia in Infancy and Childhood" was conducted under the leadership of Dr. Charles Hendee Smith, New York, assisted by Drs. Alexis F. Hartmann, St. Louis; A. V. Stoesser, Minneapolis; Rosa Lee Nemir, New York, and Benjamin W. Carey Jr., Detroit. The subjects discussed were "Importance of Differentiating Pneumococcic (Lobar) Pneumonia and Bronchopneumonia," "Typing and Its Significance" and "Treatment: Sulfapyridine; Future of Serum; General."

FRIDAY, MAY 19—MORNING

A joint meeting was held with the Section on Laryngology, Otology and Rhinology. The proceedings are reported in the minutes of that section.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

WEDNESDAY, MAY 17—AFTERNOON

The meeting was called to order at 2:05 by the chairman, Dr. Erwin E. Nelson, New Orleans.

Dr. P. C. Jeans, Iowa City, read a paper on "Treatment with Preparations Containing Vitamins A and D." Discussed by Drs. Alexis F. Hartmann, St. Louis, and P. C. Jeans, Iowa City.

Dr. Irving S. Wright, New York, read a paper on "Treatment with Vitamin C." Discussed by Drs. S. B. Wortis, New York, and Irving S. Wright, New York.

Drs. Willard O. Thompson and Norris J. Heckel, Chicago, presented a paper on "Treatment with Male Sex Hormones." Discussed by Dr. Elmer L. Sevringhaus, Madison, Wis.; Prof. Ernst Laqueur, Amsterdam, Holland, and Dr. Willard O. Thompson, Chicago.

Dr. H. L. Smith, Rochester, Minn., read a paper on "Treatment of Auricular Fibrillation." Discussed by Drs. Roy W. Scott, Cleveland; Frank J. Hirschboeck, Duluth, Minn.; Morris Margolin, Omaha; S. A. Weisman, Minneapolis, and H. L. Smith, Rochester, Minn.

Dr. I. J. Brightman, Brooklyn, read a paper on "Treatment of Edema by Rectal Administration of Diuretics." Discussed by Dr. Harold J. Stewart, New York.

Drs. Herbert K. Ensworth and Norman H. Plummer, New York, presented a paper on "Treatment of Pneumonia with Sulfapyridine." Discussed by Drs. Russell L. Cecil, New York; H. F. Flippin, Philadelphia; F. Janney Smith, Detroit; Lawrence D. Thompson, St. Louis; Jesse G. M. Bullowa, New York; Wheelan D. Sutliff, New York, and Herbert K. Ensworth, New York.

THURSDAY, MAY 18—AFTERNOON

The following officers were elected: chairman, Dr. Irving S. Wright, New York; vice chairman, Dr. C. M. M. Gruber, Philadelphia; secretary, Dr. E. V. Allen, Rochester, Minn.; delegate, Dr. Russell L. Haden, Cleveland; alternate, Dr. George R. Herrmann, Galveston, Texas; executive committee: Drs. Russell L. Haden, Cleveland, Erwin E. Nelson, New Orleans, and Irving S. Wright, New York.

Dr. Erwin E. Nelson, New Orleans, read the chairman's address, entitled "Variability in Response to Drugs."

Drs. William J. Kerr and P. A. Gliebe, San Francisco, Mayo H. Soley, San Mateo, Calif., and Nathan W. Shock, Berkeley, Calif., presented a paper on "Treatment of the Anxiety States with Special Attention to Certain Physiologic Manifestations." Discussed by Drs. Edward G. Billings, Denver; Fred M. Smith, Iowa City; Walter Freeman, Washington, D. C., and William J. Kerr, San Francisco.

Drs. Fuller Albright, Richard Chute and Hirsh W. Sulkowitch, Boston, presented a paper on "Nonsurgical Aspects of the Kidney Stone Problem." Discussed by Dr. Charles C. Higgins, Cleveland.

Dr. Louis N. Katz, Chicago, read a paper on "The Action of Drugs on the Caliber of the Coronary Vessels." Discussed by Drs. Fred M. Smith, Iowa City; George V. LeRoy, Chicago; George K. Fenn, Chicago; Erwin E. Nelson, New Orleans, and Louis N. Katz, Chicago.

Drs. J. B. Collip, A. H. Neufeld and O. F. Denstedt, Montreal, presented a paper on "The Effects of Pituitary Extracts on Metabolism." Discussed by Drs. Elmer L. Sevringhaus, Madison, Wis., and O. F. Denstedt, Montreal.

Dr. Lester B. Dragstedt, Chicago, read a paper on "The Present Status of Lipocaic." Discussed by Dr. David H. Rosenberg, Chicago.

FRIDAY, MAY 19—MORNING

A joint meeting was held with the Section on Practice of Medicine. The proceedings are reported in the minutes of that section.

SECTION ON PATHOLOGY AND PHYSIOLOGY

WEDNESDAY, MAY 17—MORNING

The meeting was called to order at 9:05 by the vice chairman, Dr. F. W. Hartman, Detroit.

Dr. M. B. Visscher, Minneapolis, read the chairman's address, entitled "The Restriction of the Coronary Flow as a Factor in Heart Failure." Discussed by Drs. Thomas K. Lewis, Birmingham, Ala., and M. B. Visscher, Minneapolis.

Dr. J. P. Simonds, Chicago, read a paper on "Experimental Studies on the Pathogenesis of Nephritis." Discussed by Drs. Mary B. Baughman, Richmond, Va.; George Milles, Chicago; R. H. Rigdon, Nashville, Tenn., and J. P. Simonds, Chicago.

Dr. Irvine H. Page, Indianapolis, read a paper on "The Production of Persistent Arterial Hypertension by Cellophane Perinephritis." Discussed by Drs. Alvin G. Foord, Pasadena, Calif., and Irvine H. Page, Indianapolis.

Drs. Lawrence W. Smith and Temple S. Fay, Philadelphia, presented a paper on "Temperature Factor in Cancer and

Embryonal Cell Growth." Discussed by Drs. Temple S. Fay, Philadelphia; Israel Davidsohn, Chicago; Mary B. Baughman, Richmond, Va.; F. W. Hartman, Detroit, and Lawrence W. Smith, Philadelphia.

Drs. Samuel H. Geist, Udall J. Salmon and Joseph A. Gaines, New York, presented a paper on "Biologic Effects of Androgens in the Human Female." Discussed by Prof. Ernst Laqueur, Amsterdam, Holland, and Drs. Harold S. Connamacher, Maplewood, N. J., and Udall J. Salmon, New York.

Dr. Frank W. Hartman, Detroit, read a paper on "The Correlation of the Pathologic Lesions and the Anoxia Resulting from Alcohol." Discussed by Drs. M. B. Visscher, Minneapolis; Charles L. Fox Jr., Boston, and Frank W. Hartman, Detroit.

Drs. H. J. Corper, Maurice L. Cohn and A. P. Damerow, Denver, presented a paper on "Relations Between Specific Immunity, Allergy and Anaphylaxis in Tuberculosis." Discussed by Drs. Emil Bogen, Olive View, Calif.; Camille Kereszturi, New York, and H. J. Corper, Denver.

A nominating committee was appointed, consisting of Drs. George Milles, Chicago, chairman; Joseph T. King, Minneapolis, and J. P. Simonds, Chicago.

THURSDAY MAY 18—MORNING

The following officers were elected: chairman, Dr. Frank W. Hartman, Detroit; vice chairman, Dr. Carl J. Wiggers, Cleveland; secretary, Dr. J. J. Moore, Chicago; delegate, Dr. L. W. Larson, Bismarck, N. D.; alternate, Dr. J. J. Moore, Chicago; executive committee, Dr. Roy R. Kracke, Emory University, Ga., Dr. M. B. Visscher, Minneapolis, and Dr. Frank W. Hartman, Detroit.

The following papers were read as a symposium on "Sulfanilamide":

Dr. Sanford M. Rosenthal, Washington, D. C.; "Experimental Chemotherapy with Sulfanilamide and Related Compounds." Discussed by Dr. Charles L. Fox Jr., Boston.

Dr. Joseph T. King, Minneapolis: "Tissue Culture Studies on the Bacteriostatic and Antitoxic Action of Sulfanilamide." Discussed by Dr. Charles L. Fox Jr., Boston.

Drs. Jesse G. M. Bullowa, New York; Edwin E. Osgood, Portland, Ore., and Samuel C. Bukantz, New York: "Effect of Sulfapyridine Alone and with Serum and in Serum of Treated Pneumonia Patients on Pneumococcus Infected Marrow Changes."

These three papers were discussed by Drs. Sanford M. Rosenthal, Washington, D. C.; Joseph T. King, Minneapolis; L. E. Shinn, Ph.D., Pittsburgh, and I. S. Ravdin, Philadelphia.

FRIDAY MAY 19—MORNING

A joint meeting was held with the Section on Nervous and Mental Diseases.

Dr. L. S. King, Princeton, N. J., read a paper on "The Neurotropic Viruses." Discussed by Drs. Robert G. Green, Minneapolis; Richard B. Richter, Chicago, and L. S. King, Princeton, N. J.

The following papers were presented as a symposium on "Vitamin Deficiency and Related Neural Disorders":

Dr. George R. Cowgill, New Haven, Conn.: "Vitamin Deficiencies and the Nervous System: A Consideration of the Contribution of Animal Experimentation."

Dr. F. H. Lewy, Philadelphia: "The Physiologic Action of the Vitamin B Complex."

Dr. Harry M. Zimmerman, New Haven, Conn.: "The Neuropathology of Vitamin B Deficiency."

Drs. Charles D. Aring, Tom D. Spies and J. P. Evans, Cincinnati: "Clinical Aspects of Vitamin B Deficiencies."

These four papers were discussed by Drs. Arthur Weil, Chicago; Hans H. Reese, Madison, Wis.; J. M. Nielsen, Los Angeles; Leo Alexander, Boston; George R. Cowgill, New Haven, Conn.; F. H. Lewy, Philadelphia; Harry M. Zimmerman, New Haven, Conn.; Richard M. Brickner, New York, and Charles D. Aring, Cincinnati.

SECTION ON NERVOUS AND MENTAL DISEASES

WEDNESDAY, MAY 17—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Francis C. Grant, Philadelphia.

Drs. Ann S. Minot, Katherine Dodd and S. S. Riven, Nashville, Tenn., presented a paper on "The Use of Guanidine Compounds in the Treatment of Myasthenia Gravis."

Drs. Henry R. Viets and Robert S. Schwab, Boston, presented a paper on "Myasthenia Gravis."

These two papers were discussed by Drs. J. C. McKinley, Minneapolis; S. S. Riven, Nashville, Tenn.; Ann S. Minot, Nashville, Tenn., and Henry R. Viets, Boston.

Dr. Francis C. Grant, Philadelphia, read the chairman's address, entitled "The Surgical Treatment of Pituitary Adenomas."

Dr. M. C. Sosman, Boston, read a paper on "Irradiation in the Treatment of Pituitary Adenomas." Discussed by Drs. George W. Chamberlin, Philadelphia; Ernest Sachs, St. Louis, and M. C. Sosman, Boston.

Dr. Madelaine R. Brown, Boston, read a paper on "The Role of Potassium Chloride in the Treatment of Ménière's Syndrome."

Drs. A. W. Adson and M. N. Walsh, Rochester, Minn., presented a paper on "Ménière's Disease: Medical and Surgical Treatment."

These two papers were discussed by Drs. F. D. Lathrop, Ann Arbor, Mich.; John H. Talbott, Boston; M. N. Walsh, Rochester, Minn., and A. W. Adson, Rochester, Minn.

THURSDAY, MAY 18—AFTERNOON

The following officers were elected: chairman, Paul C. Bucy, Chicago; vice chairman, John F. Fulton, New Haven, Conn.; secretary, Johannes M. Nielsen, Los Angeles; executive committee: Samuel D. Ingham, Los Angeles, Francis C. Grant, Philadelphia, and Paul C. Bucy, Chicago; delegate, Henry R. Viets, Boston; alternate, R. P. Mackay, Chicago; representative to Scientific Exhibit, F. P. Moersch, Rochester, Minn.; representative on American Board of Psychiatry and Neurology, Hans H. Reese, Madison, Wis.; representative on proposed American Board of Neurosurgery, Paul C. Bucy, Chicago.

Dr. Walter Freeman, Washington, D. C., gave a report from the American Board of Psychiatry and Neurology, which was accepted.

A vote of thanks was given to Dr. Tom B. Throckmorton, Des Moines, Iowa, delegate to the House, and to Dr. Paul C. Bucy, Chicago, secretary.

Dr. Walter F. Schaller, San Francisco, read a paper on "The Post-Traumatic Psychoneurotic State and Traumatic Encephalopathy." Discussed by Drs. George W. Hall, Chicago; Sidney I. Schwab, St. Louis; Harry E. Mock, Chicago; R. P. Mackay, Chicago; Leopold Brahdy, New York, and Walter F. Schaller, San Francisco.

Drs. Stanley Cobb and M. E. Cohen, Boston, presented a paper on "The Differential Diagnosis of Anxiety Neurosis." Discussed by Drs. David Slight, Chicago; George W. Hall, Chicago; Walter F. Schaller, San Francisco, and M. E. Cohen, Boston.

Drs. H. T. Carmichael and J. H. Massermann, Chicago, presented a paper on "Results of Treatment in a Psychiatric Outpatient Department." Discussed by Drs. Lloyd H. Ziegler, Wauwatosa, Wis.; William Nelson, St. Louis; Walter Freeman, Washington, D. C.; U. G. Darling, Chicago, and H. T. Carmichael.

Dr. Tom B. Throckmorton, Des Moines, Iowa, delegate to the House, made a report on the session of the House of Delegates, which was accepted.

Dr. Joseph H. Globus, New York, read a paper on "Probable Topography of the Sleep-Regulating Center." Discussed by Drs. Percival Bailey, Chicago; John F. Fulton, New Haven, Conn., and Joseph H. Globus, New York.

Dr. J. M. Nielsen, Los Angeles, read a paper on "Delayed Paralysis of Nerves from Indirect Trauma." Discussed by Drs. L. J. Pollock, Chicago; R. B. Raney, Los Angeles; Percival Bailey, Chicago, and J. M. Nielsen, Los Angeles.

FRIDAY, MAY 19—MORNING

A joint meeting was held with the Section on Pathology and Physiology. The proceedings are reported in the minutes of that section.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

WEDNESDAY, MAY 17—AFTERNOON

The meeting was called to order at 2:05 by the chairman, Dr. Bedford Shelmire, Dallas, Texas.

Dr. Bedford Shelmire read the chairman's address, "Weeds Causing Contact Eczema."

Drs. James W. Jordon and Earl D. Osborne, Buffalo, presented a paper on "Contact Dermatitis from Opium Derivatives with Special Reference to Occupational Aspects." Discussed by Drs. M. B. Sulzburger, New York; Bedford Shelmire, Dallas, Texas, and James W. Jordon, Buffalo.

Dr. Francis W. Lynch, St. Paul, read a paper on "A Clinical Study of Acne in University Students." Discussed by Drs. Joseph Gardner Hopkins, New York; R. L. Sutton Jr., Kansas City, Mo.; J. D. Farris, Richmond, Ky., and Francis W. Lynch, St. Paul.

Dr. Merlin T.-R. Maynard, San Jose, Calif., read a paper on "Vitamin Therapy in Dermatology, With Particular Reference to Vitamin D Effects in Acne and Diseases of Altered Calcium Usage." Discussed by Drs. Arthur G. Schoch, Dallas, Texas; Joseph Grindon Sr., St. Louis; Harry M. Robinson, Baltimore; C. J. Lunsford, Oakland, Calif.; M. B. Sulzberger, New York; R. L. Sutton Jr., Kansas City, Mo., and Merlin T.-R. Maynard, San Jose, Calif.

Drs. George M. MacKee and Anthony C. Cipollaro, New York, presented a paper on "Roentgen Dosages in Dermatology Expressed in International Roentgens." Discussed by Drs. Harry R. Foerster, Milwaukee; George C. Andrews, New York; C. Guy Lane, Boston, and Anthony C. Cipollaro, New York.

Drs. W. F. Spiller and W. B. Sharp, Galveston, Texas, presented a paper on "Gentian Violet Treatment of Scalp Ringworms." Discussed by Drs. Leslie M. Smith, El Paso, Texas, and W. F. Spiller, Galveston, Texas.

Drs. Elmore B. Tauber and Leon Goldman, Cincinnati, presented a paper on "Hypertherm Treatment in Skin Diseases." Discussed by Drs. Paul A. O'Leary, Rochester, Minn.; Julian E. Benjamin, Cincinnati, and Elmore B. Tauber, Cincinnati.

Dr. George W. Binkley, Cleveland, read a paper on "Dermatofibrosarcoma Protuberans, with a Report of Six Cases." Discussed by Drs. John H. Lamb, Oklahoma City; Hamilton Montgomery, Rochester, Minn.; Fred D. Wiedman, Philadelphia, and George W. Binkley, Cleveland.

THURSDAY, MAY 18—AFTERNOON

Dr. Hamilton Montgomery, Rochester, Minn., chairman of the Committee on Scientific Exhibit, presented the report of the committee as follows:

Following Dr. O'Leary's suggestion regarding the use of colored motion pictures, it was decided to have a joint motion picture exhibit and various members of the section were asked if they cared to contribute to such an exhibit. Different subjects were chosen by or assigned to the various individuals. This is the first time that the section has tried such an exhibit. Hence it should be looked on as a preliminary effort. Some of the contributors found it difficult to get suitable subjects who were willing to have motion pictures taken of their lesions. The technical difficulties of the use of colored film in dermatology can best be worked out through experience. We hope that a start has been made in the right direction and that the section will feel it worth while continuing with a series of motion pictures next year. Any one interested in participating in a motion picture exhibit is asked to communicate with me at once, as experience shows that much time is necessary in order to work up a given subject or dermatosis properly.

If we keep up this motion picture exhibit next year, plans can be worked out and we shall take other subjects than we took this year. I wish any one would get in touch with me or the representatives from the section so that we can get started on it right away. You think it is easy to pick up a lot of patients with psoriasis or acne, even, then when you try to find them, they don't come in for a couple of months or more.

I wish to express my deepest appreciation to those who cooperated in the motion picture exhibit. In regard to the various exhibits in the section, we were, as usual, unable to accept all the applications that were received because of lack of space. Dr. Clark Finnerud, former chairman, was of great assistance to me in this phase of the work, as was also Dr. Hull.

Our bank account, as a result of the usual donation from the American Medical Association of $25 a year, remains $92.85, as compared to $88.75, as turned over to me by Dr. Finnerud last year.

The chairman appointed Drs. Everett S. Lain, Oklahoma City; Howard King, Nashville, Tenn., and A. H. Lancaster, Knoxville, Tenn., a committee to audit the books of the Committee on Scientific Exhibit.

Dr. Elmore B. Tauber, Cincinnati, reported on the International Dermatological Congress as follows:

As all of you know, the International Dermatological Congress is to meet in New York in 1940 in September. Preliminary to this meeting to make it a success from the scientific point of view, from the social point of view, unfortunately, money is necessary. You all know that Dr. Ormsby is general chairman; Dr. O'Leary is secretary general, and I am chairman of the finance committee.

We decided to have a voluntary assessment of the dermatologists of America. We wanted to make this congress a great success from every point of view from all that has gone before and, if possible, to make it even a greater one than any of the preceding ones. To do this requires a certain amount of funds. This voluntary assessment was suggested of $15 per man practicing dermatology exclusively. We have had a good deal of trouble getting this money together, but it is beginning to take better shape. So this is just another plea, but it is an urgent plea. We really need this. We want to quiet any misapprehensions that may have existed. There is no subsidizing of any man at all. The only way we shall give them anything possibly will be some social function such as a banquet or smoker or something of the sort.

We have a budget prepared of what is necessary. This budget I am going to pass around so each of you can see it. It is taken up with employees, publicity contract, communications, printing, exhibits, rental for meeting places, entertainment and possible contingencies. So we really must have this nucleus so we can start the work. Dr. O'Leary will tell you later on what has been done in both a scientific way and in the way of clearing this up. We are going to have probably anywhere from thirty to thirty-five countries represented, and in these times we certainly want to have a scientific amity, because these are troubled times and we want to show what we can do.

I am not only going to ask to pass copies of the budget around, but I have some cards which will allow you, if you haven't already done so, to put your name down for the amount that you wish to contribute. The minimum we have fixed at $15, but the sky is the limit. If you will sign these and give them to Dr. Lehmann, he will turn them over to me later on."

Dr. Lain reported that the auditing committee found the books and accounts well kept and correct.

On motion by Dr. Paul A. O'Leary, Rochester, Minn., seconded by Dr. James Herbert Mitchell, it was voted to accept the report of the Auditing committee.

Dr. C. Guy Lane, Boston, presented the following report of the American Board of Dermatology and Syphilology:

During 1938 there were two meetings of the board, one in San Francisco in June and the other in St. Louis in November at the time of the meeting of the academy.

Thirty-two candidates were examined in San Francisco and thirty-four in St. Louis, making a total of sixty-six examined. Of this number, twelve were conditioned, six failed and forty-eight passed. It is of interest to note that a total of 278 have been examined. There have been forty failures to pass the examination in the eight examinations which the board has conducted, and thirty-eight have been conditioned. About one-third of these have been certified on subsequent reexamination. There has been a total of 531 applications, and there are now 415 diplomates.

At the San Francisco meeting the resignation of Dr. Howard Morrow, submitted on account of illness, was accepted with great regret, and Dr. Paul A. O'Leary was elected for the unexpired term. At this meeting also the matter of representation of the Academy of Dermatology and Syphilology on the board was discussed. It was voted to ask the academy to designate three members for the board, subject to ratification by the American Dermatological Association and the Section on Dermatology and Syphilology of the American Medical Association, of the new plan whereby the board shall consist of a total of nine members, three each from the American Dermatological Association, the Section on Dermatology and Syphilology and the Academy of Dermatology and Syphilology, to take effect when ratified by the last one of these three.

At the St. Louis meeting Dr. George M. MacKee, New York, tendered his resignation from the board on account of illness. His resignation was accepted with great regret and Dr. J. Gardner Hopkins of New York was elected for the unexpired term. At this meeting the matter of a syllabus dealing with graduate training in dermatology and with the qualifications of preceptors were major items of business.

During the last four years ten drafts of a syllabus for graduate training have been submitted to the board for discussion. There has been a great deal of correspondence and much serious discussion over such a syllabus, and this syllabus has just been published and is now ready for distribution. The qualifications of preceptors and application blanks will be available within a short time.

At the recent meeting of the Advisory Board for Medical Specialties in Chicago in February, at which representatives of all the specialty boards met with representatives of other national organizations concerned with graduate training, several matters of importance developed.

It was voted to publish a directory of specialists containing both alphabetical and geographic listing, together with information about each board. The various boards are contributing to the publication of this directory on a refunding basis. This directory has every prospect of being self supporting when once started. Second in importance was the matter of cooperation in the evaluation of training centers as agreed on between the Council on Medical Education and Hospitals and the American Board of Radiology. The American Board of Pathology has since adopted a similar cooperative evaluation, and the other boards will probably cooperate with the Council in the actual inspection and approval of the various opportunities for graduate training throughout the country, especially with regard to the three year training requirement which has been adopted by all the specialty boards. This board is at present engaged in the study of this matter, and conferences will be held with members of the Council at this A. M. A. meeting. A third matter of importance is the announcement of a National Council of Medical Education, Hospitals and Licensure, on which the Advisory Board for Medical Specialties will have representation. This body has been created by representatives of various national organizations to deal with various phases of medical education, especially the cooperative consideration of those problems and programs of professional training with which more than one organization is concerned.

Submitted by the American Board of Dermatology and Syphilology.

C. GUY LANE, Secretary.

On motion by Dr. R. C. Jamieson, Detroit, seconded by Dr. Paul A. O'Leary, Rochester, Minn., it was voted to accept the report of the American Board of Dermatology and Syphilology.

Dr. Paul A. O'Leary, Rochester, Minn., reported for the Committee on the International Congress on Dermatology and Syphilology, as follows:

Dr. Tauber has discussed the financial situation and I think this sheet that is being passed around will probably bring out some factors that explain to you why we want $15,000 from the dermatologists. We have a tentative budget of approximately $50,000 for the congress and I know that when I say that there will be men around the country who will immediately think that we are going to import some foreign dermatologists. Dr. Tauber made that point very clear and I would like to reemphasize it again, because the men still seem to have the idea in their mind that $50,000 is too much money for a congress. I believe that as you look over the budget you will find we have been very conservative in our estimate in most of the appropriation, so that the $15,000 that we are asking for from the American dermatologists is not enough. At the moment we have an outside source that may help us very materially. If it will help us, it will be a very fine thing. If it will not help us, in other words if we do not be the contribution we are anticipating, there may be further effort to raise money from among you men. However, we don't feel that will be necessary.

I want to say that my enthusiasm during the past year has varied from hot to cold in regard to the congress, primarily because of the lack of reaction on the part of the foreigners up, I might say, until about two months ago. Since that time I have had some fifty applications for space on the volunteer program. In other words, there has been apparently, as far as correspondence might lead one to believe, a rather definite change in favor, or you might say there has been a definite evidence of demonstration of enthusiasm perhaps for the congress. So I feel that during the past two months at least we have had sufficient evidence to believe that we shall have a very definite degree of enthusiasm from the European dermatologists.

There was a notice in the last issue of the *Archives* asking for men to request a place on the volunteer program. The program is made essentially in three parts. There is to be a group of symposiums, about eleven different selected subjects, for which invited speakers from the world have been asked to participate and practically all the symposiums are filled at the moment. In fact, the only ones that have not been selected are the American.

In addition, there will be a series of volunteer papers. By volunteer papers we mean the afternoon sessions, because the symposiums will be held in the morning. In other words, there will be a one ring circus in the morning and in the afternoon probably two and maybe three. We hope we can eliminate the third and limit it to two sessions.

There will be in addition a symposium on syphilis and a meeting of the International Committee against Venereal Disease which will incorporate a few papers on gonorrhea. So that those of you who have an interest or have a thought of presenting a paper before the congress, I hope you will send in an application immediately, however not other than a title. In other words, just display, if you will, to us, now the fact that you are interested and that you may present or would like to present something before the congress.

The one different thing we are endeavoring to insist on as a program committee is that papers be limited to original work. We are not anxious for a historical review of some old dermatosis nor are we interested in a single case report; but we are interested, of course, in receiving applications from individuals who have at least an original contribution to make. So will you send those in?

At the same time, of course, we are interested in a scientific exhibit. Dr. Joseph Gardner Hopkins is going to be in charge of that exhibit and I know he feels as I do, if you will let us know as soon as possible so we may get some idea as to the amount of space necessary, it will help very materially in the organization.

On motion by Dr. Elmore B. Tauber, Cincinnati, seconded by Dr. Richard S. Weiss, St. Louis, it was voted to adopt Dr. O'Leary's report.

Dr. C. Guy Lane, Boston, made the following report for the Committee on Industrial Dermatoses:

I simply want to make a brief report of the Committee on Industrial Dermatoses, which has been acting during the past three or four years. A joint meeting was held yesterday with the committee of the American Dermatological Association and representatives of the Public Health Service. Their report of the dermatologic activities of the Council on Industrial Health was read and discussed. Plans for participation in the industrial symposium of the International Congress were also presented and discussed at that time.

The formulation of the standardizing definitions and criteria for diagnosis of industrial dermatoses was begun. There was discussion of plans for coordinating the activity in this par-

ticular field with the American Medical Association activities and those of the Public Health Service as well.

On motion by Dr. Paul A. O'Leary, Rochester, Minn., seconded by Dr. Elmore B. Tauber, Cincinnati, it was voted to adopt Dr. Lane's report.

Under new business, Dr. Fred D. Weidman, Philadelphia, stated that it would be desirable to take action on the recommendation of Dr. Lane about the members on the American Board of Dermatology and moved that the executive committee be given power to act in the matter of designation of members to the American Board of Dermatology, in accordance with the principles outlined in Dr. Lane's report, particularly with reference to the American Academy.

Dr. C. Guy Lane, Boston, requested that the motion include the approval of the plan to have only three members from this section as well as from the other three national organizations and the details of arrangement of that plan be left to the executive committee. The motion was seconded, as amended, by Dr. Hamilton Montgomery, Rochester, Minn., and carried.

Drs. Joseph V. Klauder and Alfred Cowan, Philadelphia, presented a paper on "Corneal Examination and Slit Lamp Microscopy in Diagnosis of Late Congenital Syphilis Especially in Adults." Discussed by Drs. James R. Driver, Cleveland; John McLeod, Kansas City, Mo., and Joseph V. Klauder, Philadelphia.

Drs. G. Marshall Crawford and Leon F. Ray, Boston, presented a paper on "Serologic Discrepancies in Syphilis." Discussed by Drs. C. Guy Lane, Boston; G. V. Kulchar, San Francisco; Charles R. Rein, New York; Arthur G. Schoch, Dallas, Texas, and G. Marshall Crawford, Boston.

Drs. Charles R. Rein and Fed Wise, New York, presented a paper on "Mapharsen in Treatment of Syphilis in Office Practice, A Study Based on 2,342 Injections in 113 Patients." Discussed by Drs. Girsch D. Astrachan, New York; Harry M. Robinson, Baltimore; S. William Becker, Chicago; Leon Goldman, Cincinnati, and Charles R. Rein, New York.

Dr. Robert B. Greenblatt, August, Ga., presented a paper on "Experimental and Clinical Granuloma Inguinale." Discussed by Drs. Harry M. Robinson, Baltimore; S. William Becker, Chicago; Arthur G. Schoch, Dallas, Texas; Samuel Goldblatt, Cincinnati; Fred D. Weidman, Philadelphia; W. A. De Monbreun, Nashville, Tenn., and Robert B. Greenblatt, Augusta, Ga.

Drs. Kathleen B. Muir, Evangeline Stenhouse and S. William Becker, Chicago, presented a paper on "The Action of Sodium Thiosulfate, Sodium p-Sulphydril Phenyl Sulfonate and Sodium Formaldehyde Sulfoxylate in Arsenical and Mercurial Poisoning in Rabbits." Discussed by Drs. Charles C. Dennie, Kansas City, Mo.; Samuel Goldblatt, Cincinnati, and S. William Becker, Chicago.

Dr. Theodore Cornbleet, Chicago, read a paper on "Cutaneous Carbohydrates: I. The Normal Skin." Discussed by Drs. G. V. Kulchar, San Francisco; M. B. Sulzberger, New York, and Theodore Cornbleet, Chicago.

Dr. John H. Talbott, Boston, read a paper on "Pemphigus." Discussed by Drs. Richard S. Weiss, St. Louis; C. Guy Lane, Boston; M. F. Engman, St. Louis; M. B. Sulzberger, New York; Theodore Cornbleet, Chicago, and John H. Talbott, Boston.

FRIDAY MAY 19—AFTERNOON

The chairman stated that he had received a communication inviting the members to attend the fiftieth anniversary meeting of the German Dermatological Society, August 19-21, at Würzburg, Germany.

Dr. Francis E. Senear, Chicago, moved that the chairman of the section appoint a committee of three to cooperate with those appointed from the American Dermatological Association, the Academy and the investigative society, on the matter of administration of the new act covering foods, drugs and cosmetics, with regard to reporting irritants which produce dermatoses and whereby such information would be made available. The motion was seconded by Dr. R. C. Jamieson, Detroit, and carried.

The chairman then appointed the following committee: Drs. Francis E. Senear, Chicago; C. Guy Lane, Boston, and Nelson Paul Anderson, Los Angeles.

The following officers were elected: chairman, Dr. John G. Downing, Boston; vice chairman, Dr. Richard S. Weiss, St. Louis; Secretary, Dr. C. F. Lehmann, San Antonio, Texas; delegate, Dr. Clyde Cummer, Cleveland; alternate, Dr. Harold N. Cole, Cleveland; chairman of Scientific Exhibit Committee, Dr. Hamilton Montgomery, Rochester, Minn.; representative to the American Board of Dermatology and Syphilology, Dr. Joseph Gardner Hopkins, New York.

Drs. H. L. Williams Jr., Hamilton Montgomery and William N. Powell, Rochester, Minn., presented a paper on "Dermatitis of the Ear." Discussed by Drs. James Herbert Mitchell, Chicago; M. F. Engman, St. Louis, and Hamilton Montgomery, Rochester, Minn.

Drs. William Howard Hailey and Hugh E. Hailey, Atlanta, Ga., presented a paper on "Pruritus Ani et Vulvae." Discussed by Drs. Carl W. Laymon, Minneapolis; James Herbert Mitchell, Chicago; Claude C. Tucker, Wichita, Kan.; Clark W. Finnerud, Chicago; Hamilton Montgomery, Rochester, Minn.; J. L. Kobacker, Toledo, Ohio; Joseph Grindon Sr., St. Louis, and William Howard Hailey, Atlanta, Ga.

Drs. Udo J. Wile and Harry L. Arnold Jr., Ann Arbor, Mich., presented a paper on "The Senear-Usher Syndrome." Discussed by Drs. Francis E. Senear, Chicago; Hamilton Montgomery, Rochester, Minn.; S. William Becker, Chicago, and Harry L. Arnold Jr., Ann Arbor, Mich.

Dr. Leslie P. Barker, New York, read a paper on "Generalized Herpes Zoster." Discussed by Drs. Nelson Paul Anderson, Los Angeles; Joseph Grindon Jr., St. Louis, and Leslie P. Barker, New York.

Dr. Onis G. Hazel, Oklahoma City, read a paper on "Poikiloderma Atrophicans Vasculare." Discussed by Drs. Fred M. Jacob, Pittsburgh; Fred D. Weidman, Philadelphia, and Onis G. Hazel, Oklahoma City.

On motion by Dr. Francis E. Senear, Chicago, seconded by Fred D. Weidman, Philadelphia, a vote of thanks was extended by a rising vote to the local dermatologists for a pleasant and profitable meeting.

On motion by Dr. Joseph Grindon Sr., St. Louis, seconded by several members, a vote of thanks was extended to the chairman, vice chairman and secretary for the splendid way they conducted the meetings.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

WEDNESDAY, MAY 17—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. I. C. Riggin, Richmond, Va.

Dr. I. C. Riggin, Richmond, Va., read the chairman's address, entitled "Expansion of Functions and Responsibilities of Health Departments."

Dr. Louis F. Bishop Jr., New York, read a paper on "Traumatic Heart Disease with Particular Reference to Injury." Discussed by Drs. Ray W. Kissane, Columbus, Ohio, and Louis F. Bishop Jr., New York.

Dr. Joseph W. Mountin and Harold F. Dorn, Washington, D. C., presented a paper on "Some Peculiarities in the Geography of Cancer." Discussed by E. V. Cowdry, Ph.D., St. Louis, and Drs. J. N. Baker, Montgomery, Ala.; Frederick G. Murray, Cedar Rapids, Iowa; John A. Ferrell, New York; A. G. Henderson, Imboden, Ark., and Joseph W. Mountin, Washington, D. C.

On motion made by Dr. Leopold Brahdy, New York, and seconded by Dr. John A. Ferrell, New York, the chairman was authorized to appoint a committee to study with the executive committee a tentative draft of Suggested School Health Policies and make a report to be forwarded to Dr. W. W. Bauer, director of the Bureau of Health Education of the American Medical Association. The chairman appointed the executive committee members Drs. L. D. Bristol, New York, Robert T. Legge, Berkeley, Calif.; and I. C. Riggin, Richmond, Va., and, in addition, Drs. Harold S. Diehl, Minneapolis; John A. Ferrell, New York, and J. N. Baker, Montgomery, Ala.

Dr. John H. Powers, Cooperstown, N. Y., read a paper on "The Hazards of Farming." Discussed by Drs. F. P. Helm, Topeka, Kan.; A. Girard Cranch, New York; Leopold Brahdy,

New York; Joseph W. Mountin, Washington, D. C.; J. N. Baker, Montgomery, Ala., and John H. Powers, Cooperstown, N. Y.

Drs. Mark A. Glaser and Frederick P. Shafer, Los Angeles, presented a paper on "Depressed Skull Fractures." Discussed by Drs. John H. Powers, Cooperstown, N. Y., and Mark A. Glaser, Los Angeles.

THURSDAY, MAY 18—MORNING

Dr. Julien E. Benjamin, Cincinnati, read a paper on "A Study of the Pneumonias with Reference to Overcrowding and Cross Infection." Discussed by Drs. Jesse G. M. Bullowa, New York; Emil Bogen, Olive View, Calif., and Julien E. Benjamin, Cincinnati.

Dr. Leopold Brahdy, New York, read a paper on "Tuberculosis Among Hospital Personnel." Discussed by Drs. C. D. Selby, Detroit; Harold S. Diehl, Minneapolis; Camille Kereszturi, New York, and Leopold Brahdy, New York.

The chairman presented the following report made by the committee appointed to consider the Suggested School Health Policies tentative draft:

This statement, to delineate the responsibilities of school health programs and to relate the school health program to the health programs or health activities of other groups, is hereby approved in general as a distinctly worthwhile set of principles.

We would like to recommend consideration of the following points:

(*a*) On page 7 we would suggest that noise be mentioned as a disturbing factor in school lunch rooms.

(*b*) On page 16 we question the statement that it is undesirable to conduct immunization clinics in schools. Oftentimes this is the only way it can be done.

(*c*) On page 19 we question the diseases mentioned as not being prevented by "healthful living." If we understand the meaning of "healthful living," we suggest a modification here.

(*d*) On page 20 we suggest the words "should prepare" in place of "are preparing" (as marked).

(*e*) On page 27 we suggest that thoroughness of pupil examinations be emphasized rather than frequency of examinations.

(*f*) On page 28 we suggest that investigation of cases entitled to clinic service for their children be not restricted to a "medical social worker."

(*g*) Lastly, we would recommend that the value of cumulative individual health records of school children be stressed and an outline of principles involved be described.

Respectfully submitted.

JOHN. A. FERRELL.
J. N. BAKER.
I. C. RIGGIN.
L. D. BRISTOL.
H. S. DIEHL.
W. A. SAWYER.

On motion by Dr. John L. Rice, New York, seconded by Dr. J. N. Baker, Montgomery, Ala., it was voted that the report be approved.

The report of the delegate was made by Dr. Stanley H. Osborn, Hartford, Conn.

On motion by Dr. Harold S. Diehl, Minneapolis, seconded by Dr. John A. Ferrell, New York, it was voted that the action taken last year relative to the term of service of the delegate to the House of Delegates be rescinded.

Dr. Robert E. Plunkett, Albany, N. Y., read a paper on "Tuberculosis Control." Discussed by Drs. Leverett D. Bristol, New York; Earl F. Morris, Hays, Kan.; John L. Rice, New York, and Robert E. Plunkett, Albany, N. Y.

Drs. Harold T. Hyman, Louis Chargin, John L. Rice and William Leifer, New York, presented a paper on "The Intravenous Drip Method of Therapy Applied to Syphilis." Discussed by Drs. R. A. Vonderlehr, Washington, D. C.; George V. Kulchar, San Francisco; Louis Chargin, New York, and Earl F. Morris, Hays, Kan.

Dr. Samuel Goldblatt, Cincinnati, read a paper on "The Relationship of Syphilis to Tuberculosis." Discussed by Drs. Charles C. Dennie, Kansas City, Mo.; Emil Bogen, Olive View, Calif., and Samuel Goldblatt, Cincinnati.

FRIDAY, MAY 19—MORNING

The following officers were elected: chairman, Dr. Harold S. Diehl, Minneapolis; vice chairman, Dr. Clarence D. Selby, Detroit; secretary, Dr. W. A. Sawyer, Rochester, N. Y.; executive committee: Dr. Robert T. Legge, Berkeley, Calif.; Dr. I. C. Riggin, Richmond, Va., and Dr. Harold S. Diehl, Minneapolis; delegate, Dr. Stanley H. Osborn, Hartford, Conn.; alternate, Dr. R. R. Sayers, Washington, D. C.; chairman, Committee on Section Exhibit, Dr. P. A. Davis, Akron, Ohio.

On motion by Dr. John A. Ferrell, New York, seconded by Dr. C. M. Peterson, Chicago, it was voted that the incoming chairman be requested to appoint a committee of two or four to make a study of the section and its activities and of the conditions responsible for the small attendance at the section sessions, the committee to seek the aid of the Chicago office in comparing the activities of the section with other sections and securing cooperation in formulating a program that will bring a creditable attendance to the section meetings.

Dr. Edward Matzger, San Francisco, read a paper on "Industrial Importance of Allergic Diseases to the Southern Pacific Railroad Company." *No discussion.*

Dr. C. C. Burlingame, Hartford, Conn., read a paper on "Hard Facts About Psychiatry." Discussed by Drs. W. A. Sawyer, Rochester, N. Y.; John A. Ferrell, New York, and C. C. Burlingame, Hartford, Conn.

Dr. P. A. Davis, Akron, Ohio, read a paper on "Present Status of Benzene." Discussed by Drs. A. Girard Cranch, New York; Louis Schwartz, New York, and P. A. Davis, Akron, Ohio.

Dr. Paul A. Neal, Washington, D. C., read a paper on "Dermatitis Among Plate Printers." Discussed by Drs. Louis Schwartz, New York, and Paul A. Neal, Washington, D. C.

Dr. R. V. Ellis, Minneapolis, read a paper on "Pollinosis as a Problem in Preventive Medicine." Discussed by Drs. John M. Sheldon, Ann Arbor, Mich.; Louis Schwartz, New York; John A. Ferrell, New York, and R. V. Ellis, Minneapolis.

SECTION ON UROLOGY

WEDNESDAY, MAY 17—MORNING

The meeting was called to order at 9:05 by the chairman, Dr. William P. Herbst, Washington, D. C.

Secretary Vincent J. O'Conor, Chicago, read a report from Dr. Alfred I. Folsom, chairman of the American Board of Urology.

The following papers were read as a symposium on "Injuries of the Urinary Tract":

Dr. Franklin Farman, Los Angeles: "Diagnostic and Operative Factors in Traumatic Rupture of the Kidney."

Dr. George C. Prather, Boston: "Clinical Observations Regarding Traumatic Conditions of the Kidney."

Drs. Carl F. Rusche and S. K. Bacon, Los Angeles: "Injuries of the Ureter."

These three papers were discussed by Drs. Harry C. Rolnick, Chicago; James C. Sargent, Milwaukee; Charles Y. Bidgood, Hartford, Conn.; John E. Heslin, Albany, N. Y.; Otto J. Wilhelmi, St. Louis; Franklin Farman, Los Angeles, and Carl F. Rausche, Los Angeles.

Dr. E. J. McCague, Pittsburgh: "Intraperitoneal and Extraperitoneal Rupture of the Urinary Bladder."

Dr. William R. Hornaday, Des Moines, Iowa: "Care of Traumatic Injuries of the Male Urethra."

These two papers were discussed by Drs. A. J. Scholl, Los Angeles; Edward Lester Merritt, Fall River, Mass., and William R. Hornaday, Des Moines, Iowa.

Dr. George H. Ewell, Madison, Wis.: "Traumatic 'Epididymo-Orchitis.'" Discussed by Drs. Miley B. Wesson, San Francisco; Edward Cathcart, Detroit; Leon Herman, Philadelphia, and George H. Ewell, Madison, Wis.

THURSDAY, MAY 18—MORNING

Dr. Roy E. Brackin, Kenilworth, Ill., read a paper on "A New Method of Uretero-Intestinal Anastomosis with Utilization of Peritoneum." Discussed by Drs. Waltman Walters, Rochester, Minn., and Roy E. Brackin, Kenilworth, Ill.

Dr. James T. Priestley, Rochester, Minn., read a paper on "Survival Following Removal of Malignant Renal Neoplasms." Discussed by Dr. William P. Herbst, Washington, D. C.

Dr. William P. Herbst, Washington, D. C., read the chairman's address, entitled "Renal Tuberculosis as a Community Problem."

Dr. Charles M. McKenna, Chicago, read a paper on "Hypospadias (in the Male): The Operative Technic for the Correction of Penile Deformity and Reconstruction of the Urethra." Discussed by Drs. Clinton K. Smith, Kansas City, Mo.; Vincent J. O'Conor, Chicago; Vilray P. Blair, St. Louis; Frederic E. B. Foley, St. Paul, and Charles M. McKenna, Chicago.

Dr. Max L. Rosenheim of London, England, addressed the section.

Dr. William F. Lower, Cleveland, read a paper on "Clinical Aspects of the Endocrine Functions of the Testes in Man."

Dr. James F. McCahey, Philadelphia, read a paper on "The Endocrine Function of the Testis."

These two papers were discussed by Drs. S. A. Vest, Baltimore; Walter M. Kearns, Milwaukee; William E. Lower, Cleveland, and James F. McCahey, Philadelphia.

FRIDAY, MAY 19—MORNING

The following officers were elected: chairman, Dr. Frederic E. B. Foley, St. Paul; vice chairman, Dr. Thomas J. Kirwin, New York; secretary, Dr. Vincent J. O'Conor, Chicago; delegate, Dr. H. Carey Bumpus, Pasadena, Calif.; alternate, Dr. George C. Prather, Boston.

Drs. Eli A. Miller, Denver, and Mischa J. Lustok, Spivak, Colo., presented a paper on "Genital Tuberculosis." Discussed by Drs. Homer C. Hamer, Indianapolis, and Mischa J. Lustok, Spivak, Colo.

The following papers were read as a symposium on "Urinary Calculi":

Dr. Charles C. Higgins, Cleveland: "Factors in Recurrence of Renal Calculi"

Dr. Rubin Flocks, Iowa City: "Calcium and Phosphorus Excretion in the Urine of Patients with Renal or Ureteral Calculi."

Drs. Herman L. Kretschmer and Ralph C. Brown, Chicago: "Do Alkalis Used in the Treatment of Peptic Ulcer Cause Kidney Stones?"

These three papers were discussed by Drs. John Morrissey, New York; Roy J. Holmes, Miami, Fla.; Charles C. Higgins, Cleveland, and Ralph C. Brown, Chicago.

Dr. Gershom J. Thompson, Rochester, Minn., read a paper on "The Treatment of Ureteral Calculus with Particular Reference to Transurethral Manipulation."

Dr. John Duff, New York, read a paper on "Ureteral Meatotomy: Its Significance and a New Technic."

These two papers were discussed by Drs. E. P. Alyea, Durham, N. C.; H. Carey Bumpus, Pasadena, Calif.; Frederic E. B. Foley, St. Paul, and Vincent J. O'Conor, Chicago.

The section expressed its appreciation to the St. Louis Urological Society for its hospitality.

SECTION ON ORTHOPEDIC SURGERY

WEDNESDAY, MAY 17—MORNING

The meeting was called to order at 9 o'clock by the chairman, Dr. Oscar L. Miller, Charlotte, N. C.

Dr. E. J. Berkheiser, Chicago, read a paper on "Excision of Patella in Cases of Hypertrophic Arthritis." Discussed by Drs. A. H. Meyer, Memphis, Tenn.; Jacob Kulowski, St. Joseph, Mo.; Frank Murphy, Chicago; J. Albert Key, St. Louis; John P. Stump, New York; Garrett Pipkin, Kansas City, Mo., and E. J. Berkheiser, Chicago.

Dr. Francis M. McKeever, Los Angeles, read a paper on "Tuberculosis of the Knee in Infancy and Childhood." Discussed by Drs. W. P. Blount, Milwaukee; R. B. Osgood, Boston; Halford Hallock, New York; Frank R. Ober, Boston, and Francis M. McKeever, Los Angeles.

Drs. Edward L. Compere, Samuel W. Banks and William N. Krigsten, Chicago, presented a paper on "Regeneration of the Growth Epiphyses of Long Bones." Discussed by Drs. Willis C. Campbell, Memphis, Tenn.; J. Albert Key, St. Louis, and William N. Krigsten, Chicago.

Drs. Fremont A. Chandler and John R. Norcross, Chicago, presented a paper on "Sympathicoblastoma: A Report of Four Cases." Discussed by Drs. Frank R. Ober, Boston; G. K. Carpenter, Nashville, Tenn., and Fremont A. Chandler, Chicago.

Dr. Willis C. Campbell, Memphis, Tenn., delegate to the House, presented a report on an action of the House of Delegates and received a vote of support of his action from the section.

Dr. Joseph A. Freiberg, Cincinnati, read a paper on "Low Back Pain: Correlation of the Signs and Symptoms of the Various Noninfectious Lesions." Discussed by Drs. Philip Lewin, Chicago; G. C. Battalora, New Orleans; Earl D. McBride, Oklahoma City, and Joseph A. Freiberg, Cincinnati.

Drs. Carl E. Badgley and N. John Rowe Jr., Ann Arbor, Mich., presented a paper on "The Cook Fenestrated Jacket for Correction of Scoliosis." Discussed by Drs. C. H. Crego Jr., St. Louis; L. G. Howard, Boston; Earl D. McBride, Oklahoma City; Charles A. Stone, St. Louis; J. Albert Key, St. Louis, and Carl E. Badgley, Ann Arbor, Mich.

The following were appointed as a nominating committee; Dr. Robert D. Schrock, Omaha, chairman; Dr. L. G. Howard, Boston, and Dr. Francis M. McKeever, Los Angeles.

THURSDAY, MAY 18—MORNING

Dr. Halford Hallock, New York, read a paper on "Reconstructive and Stabilizing Surgery in the Treatment of Residual Suppurative Arthritis of the Hip Joint: A Study of Forty-Five Unselected Cases." Discussed by Drs. J. Albert Key, St. Louis; Frank D. Dickson, Kansas City, Mo.; Edwin W. Ryerson, Chicago, and Halford Hallock, New York.

Dr. Edwin W. Ryerson, Chicago, read a paper on "Excision of Scapula: Report of a Case Showing Excellent Functional Result." Discussed by Drs. W. B. Carrell, Dallas, Texas; J. Albert Key, St. Louis, and Edwin W. Ryerson, Chicago.

Drs. A. R. Shands Jr., Wilmington, Del., and Lenox D. Baker, Durham, N. C., presented a paper on "Acute Osteomyelitis with Staphylococcemia: A Clinical Report on the Use of Antitoxin in Its Treatment." Discussed by Drs. James B. Weaver, Kansas City, Mo.; Ben L. Schoolfield, Dallas, Texas, and Lenox D. Baker, Durham, N. C.

Dr. Oscar L. Miller, Charlotte, N. C., read the chairman's address, entitled "Simplified Internal Fixation of Inlay and Onlay Bone Grafts."

Drs. Ralph K. Ghormley and Robert D. Fairchild, Rochester, Minn., presented a paper on "Diagnosis and Treatment of Slipped Epiphyses." Discussed by Drs. Beckett Howorth, New York; Walter P. Blount, Milwaukee; W. B. Carrell, Dallas, Texas; Eugene M. Regen, Nashville, Tenn., and Ralph K. Ghormley, Rochester, Minn.

Dr. Rex L. Diveley, Kansas City, Mo. read a paper on "Imbalance of the Foot." Discussed by Drs. J. E. M. Thomson, Lincoln, Neb.; H. R. Bohlman, Baltimore; Willis C. Campbell, Memphis, Tenn.; Ben L. Schoolfield, Dallas, Texas; Oscar L. Miller, Charlotte, N. C., and Rex L. Diveley, Kansas City, Mo.

FRIDAY, MAY 19—MORNING

Drs. Vernon P. Thompson and John S. Stephens, Los Angeles, presented a paper on "Compression Reconstruction of Recent Intracapsular Femoral Neck Fractures: Internal Fixation by Universal Length Z Nail." Discussed by Drs. V. L. Hart, Minneapolis; F. W. Carruthers, Little Rock, Ark.; Joseph A. Freiberg, Cincinnati, and John S. Stephens, Los Angeles.

Dr. W. K. West, Oklahoma City, read a paper on "Severe Fractures of the Upper Ulna." Discussed by Drs. J. T. O'Ferrall, New Orleans; J. Albert Key, St. Louis; Walter Stuck, San Antonio, Texas; Charles A. Stone, St. Louis, and W. K. West, Oklahoma City.

Dr. Paul C. Colonna and Frederick H. vom Saal, Oklahoma City, presented a paper on "A Study of Amputations in the Lower Extremities." Discussed by Drs. R. G. Packard, Denver; James R. Elliott, Kansas City, Mo.; Ralph K. Ghormley, Rochester, Minn.; J. Albert Key, St. Louis; Lenox D. Baker, Durham, N. C.; Robert D. Schrock, Omaha; S. Perry Rogers, Chicago, and Frederick H. vom Saal, Oklahoma City.

The following officers were elected: chairman, R. V. Funsten, Charlottesville, Va.; vice chairman, J. Albert Key, St. Louis; secretary, Guy A. Caldwell, New Orleans; executive committee: John Dunlop, Pasadena, Calif., Oscar L. Miller, Charlotte, N. C., and Robert V. Funsten, Charlottesville, Va.; delegate, Willis C. Campbell, Memphis, Tenn.; alternate, James Archer O'Reilly, St. Louis; nominees to the American Board of Orthopedic Surgery, Fremont A. Chandler, Chicago, and Ralph K. Ghormley, Rochester, Minn.

Dr. Robert D. Schrock, Omaha, read a paper on "Sideswipe Fractures at the Elbow." Discussed by Drs. G. O. Eaton, Baltimore; R. C. Robertson, Chattanooga, Tenn.; Howard B. Shorbe, Oklahoma City, and Robert D. Schrock, Omaha.

Dr. Clay Ray Murray, New York, read a paper on "Primary Operative Reduction of Fractures of Long Bones as a Method of Choice: An Evaluation of Principles." Discussed by Drs. Paul B. Magnuson, Chicago; H. Earle Conwell, Birmingham, Ala.; M. L. Klinefelter, St. Louis; J. Albert Key, St. Louis; F. W. Carruthers, Little Rock, Ark., and Clay Ray Murray, New York.

Dr. L. D. Smith, Milwaukee, read a paper on "Treatment of Supracondylar Fractures of the Femur by Manipulation and Acute Flexion." Discussed by Drs. J. D. Wilson, Columbus, Ohio; Robert D. Schrock, Omaha, and L. D. Smith, Milwaukee.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

WEDNESDAY, MAY 17—AFTERNOON

The meeting was called to order at 2 o'clock by the chairman, Dr. Descum C. McKenney, Buffalo.

The following papers were read as a symposium on "Aids to the Management of Peptic Ulcer":

Drs. A. L. Levin and Morris Shushan, New Orleans: "A Comparative Study of Methods Utilized to Determine the Presence of Ulceration in the Gastrointestinal Tract."

Drs. M. Hill Metz, Robert W. Lackey, P. E. Wigby, A. B. Small and C. O. Patterson, Dallas, Texas: "Peptic Ulcer Treated by Posterior Pituitary Preparations: Clinical and Experimental Observations."

Dr. Manfred Kraemer, Newark, N. J.: "The Use of Hydrated Trisilicate of Magnesium for Peptic Ulcer."

These three papers were discussed by Drs. Walter L. Palmer, Chicago; Maurice Feldman, Baltimore; Sidney A. Portis, Chicago; Henry A. Rafsky, New York; George M. Underwood, Dallas, Texas; A. L. Levin, New Orleans; M. Hill Metz, Dallas, Texas, and Manfred Kraemer, Newark, N. J.

Dr. Porter P. Vinson, Richmond, Va., read a paper on "The Management of Benign Strictures of the Esophagus." Discussed by Dr. John H. Fitzgibbon, Portland, Ore.

Drs. Frank H. Connell and Harry T. French, Hanover, N. H., presented a paper on "The Incidence and Results of Treatment in Subclinical Amebiasis." Discussed by Drs. James L. Borland, Jacksonville, Fla.; George B. Lake, Waukegan, Ill.; A. L. Levin, New Orleans; Walter L. Palmer, Chicago, and Frank H. Connell, Hanover, N. H.

The following papers were read as a symposium on "Systemic Conditions with Gastrointestinal Symptoms":

Drs. Lester M. Morrison and William A. Swalm, Philadelphia: "The Role of the Gastrointestinal Tract in the Production of Cardiac Symptoms."

Drs. Sidney A. Portis and Jacob Kasanin, Chicago: "Psychosomatic Factors Concerned in Diarrhea."

Dr. E. L. Tuohy, Duluth, Minn.: "Geriatrics: Its Relation to an Adequate Energy Producing and Protective Diet."

These three papers were discussed by Dr. Seale Harris, Birmingham, Ala.

THURSDAY, MAY 18—AFTERNOON

The following officers were elected: chairman, Dr. A. H. Aaron, Buffalo; vice chairman, Dr. Frank C. Yeomans, New York; secretary, Dr. J. Arnold Bargen, Rochester, Minn.; executive committee: Dr. Henry L. Bockus, Philadelphia, Dr. Descum C. McKenney, Buffalo, and Dr. A. H. Aaron, Buffalo; delegate, Dr. Curtice Rosser, Dallas, Texas; alternate, Dr. L. A. Buie, Rochester, Minn.; chairman, Committee on Section Exhibit, Dr. Sara M. Jordan, Boston.

The following papers were read as a symposium on "Therapeutic Advances in Disease of the Ileocecal Region":

Drs. J. Shelton Horsley, John S. Horsley Jr. and Guy W. Horsley, Richmond, Va.: "Appendicitis: Newer Methods of Treatment."

Drs. Thew Wright, A. H. Aaron, J. Sutton Regan and Elmer Milch, Buffalo: "The Management of Patients with Diffuse Peritonitis Caused by Perforated Appendicitis."

Dr. Benjamin M. Bernstein, Brooklyn: "Ileocecal Spasm: The Cause for the Appendicular Syndrome."

These three papers were discussed by Drs. Frederick A. Coller, Ann Arbor, Mich.; Sidney A. Portis, Chicago; Niels C. Klendshoj, Buffalo; Henry A. Rafsky, New York; Sara M. Jordan, Boston; M. Pinson Neal, Columbia, Mo.; J. Shelton Horsley, Richmond, Va.; A. H. Aaron, Buffalo, and Benjamin M. Bernstein, Brooklyn.

The following papers were read as a symposium on "Studies on Cancer at Different Ages":

Dr. Andrew B. Rivers, Rochester, Minn.: "The Importance of Carcinoma as a Cause of Indigestion."

Drs. Curtice Rosser and J. G. Kerr, Dallas, Texas: "Cancer of the Rectum in Young Persons."

These two papers were discussed by Drs. Burrill B. Crohn, New York; Henry A. Rafsky, New York; John M. Blackford, Seattle; Louis J. Hirschman, Detroit; Andrew B. Rivers, Rochester, Minn., and Curtice Rosser, Dallas, Texas.

The following papers were read as a symposium on "Important Points in the Management of Neoplasms of the Large Intestine":

Drs. Neil W. Swinton and Shields Warren, Boston: "Polyps of the Colon and Rectum and Their Relation to Malignancy."

Drs. Jerome M. Lynch and G. Johnson Hamilton, New York: "The Lynch versus the Miles Operation."

Dr. W. Wayne Babcock, Philadelphia: "The Advantages of Perineal Over Abdominal Colostomy with Technic for Transferring the Abdominal Opening to the Perineum."

These three papers were discussed by Drs. Claude F. Dixon, Rochester, Minn.; William J. Martin Jr., Louisville, Ky.; Louis J. Hirschman, Detroit; Frank H. Lahey, Boston; Neil W. Swinton, Boston; Jerome M. Lynch, New York, and W. Wayne Babcock, Philadelphia.

FRIDAY, MAY 19—AFTERNOON

A joint meeting was held with the Section on Radiology. The proceedings are reported in the minutes of that section.

SECTION ON RADIOLOGY

WEDNESDAY, MAY 17—AFTERNOON

The meeting was called to order by the chairman, Dr. R. G. Taylor, Los Angeles.

The chairman appointed Dr. Edward L. Jenkinson, Chicago, to serve on the executive committee in the absence of Dr. B. R. Kirklin, Rochester, Minn.

Drs. W. A. Altemeier and H. C. Jones, Detroit, presented a paper on "Experimental Peritonitis: Its Prevention by Roentgen Therapy." Discussed by Dr. J. P. Pratt, Detroit.

Drs. George P. Robb and Israel Steinberg, New York, presented a paper on "Visualization of the Chambers of the Heart, the Pulmonary Circulation and the Great Blood Vessels in Man: Further Observations."

Dr. R. G. Taylor, Los Angeles, read the chairman's address, entitled "Anomalies of the Sacrolumbar Articulations."

Drs. Robert I. Walter, Arnold L. Bachman and William Harris, New York, presented a paper on "The Treatment of Carcinoma of the Ovary." Discussed by Dr. D. Y. Keith, Louisville, Ky.

Drs. Edward L. Jenkinson and Arthur F. Hunter, Chicago, presented a paper on "Bronchiogenic Carcinoma: A Diagnostic Enigma." Discussed by Drs. LeRoy Sante, St. Louis; Ross Golden, New York, and R. G. Taylor, Los Angeles.

Drs. J. Fletcher Lutz and Lewis C. Pusch, York, Pa., presented a paper on "Angio-Endothelioma of Bone." Discussed by Drs. Charles F. Geschickter, Baltimore, and John T. Murphy, Toledo, Ohio.

THURSDAY, MAY 17—AFTERNOON

The following officers were elected: chairman, Dr. Merrill C. Sosman, Boston; vice chairman, Dr. Raymond Behler, Indianapolis; secretary, Dr. John T. Murphy, Toledo, Ohio; delegate, Dr. Edward H. Skinner, Kansas City, Mo.; alternate, Dr. Eugene P. Pendergrass, Philadelphia; representative to the Board of Radiology, John W. Pierson, Baltimore.

Drs. R. Glen Spurling and F. Keith Bradford, Louisville, Ky., presented a paper on "Neurologic Aspects of Intervertebral Disk Protrusions."

Drs. W. Edward Chamberlain and Barton K. Young, Philadelphia, read a paper on "The Diagnosis of Intervertebral Disk Protrusions by Intraspinal Injection of Air."

Dr. John D. Camp, Rochester, Minn., read a paper on "The Roentgenologic Diagnosis of Intraspinal Protrusion of the Intervertebral Disks by Means of Radiopaque Oil."

Dr. J. Grafton Love, Rochester, Minn., read a paper on "Protruded Intervertebral Disks, with a Note Regarding Hypertrophy of Ligamenta Flava."

These four papers were discussed by Drs. William Jason Mixter, Boston; Claude Moore, Washington, D. C.; L. H. Garland, San Francisco, and J. Daniel Willems, Chicago.

Dr. William A. Nosik, Cleveland, co-author with Dr. B. H. Nichols, Cleveland, gave a brief outline of the paper on "Myelography with the Use of Thorium Dioxide Sol as a Contrast Medium." This paper was not read, owing to Dr. Nichols' absence.

FRIDAY, MAY 19—AFTERNOON

A joint meeting was held with the Section on Gastro-Enterology and Proctology.

The following papers were read as a symposium on "The Small Intestine: Anatomic, Roentgenologic, Pathologic and Clinical Considerations":

Dr. George W. Chamberlin, Philadelphia: "The Roentgen Anatomy of the Small Intestine."

Dr. Harry M. Weber, Rochester, Minn.: "The Roentgenologic Manifestations of the Non-Neoplastic Lesions of the Small Intestine."

Drs. David Adlersberg and Michael Weingarten, New York: "The Small Intestine in Nutritional Deficiency."

Dr. E. C. Rosenow, Rochester, Minn.: "Epidemic Enteritis: Etiology and Relation to Other Infections of the Small Intestine."

Dr. Everett D. Kiefer, Boston: "Clinical Aspects of Chronic Disorders of Small Intestine."

These five papers were discussed by Drs. Kendall A. Elsom, Philadelphia; Sara M. Jordan, Boston; Ross Golden, New York; W. Edward Chamberlain, Philadelphia; Theodore L. Althausen, San Francisco; John T. Murphy, Toledo, Ohio; George W. Chamberlin, Philadelphia; Harry M. Weber, Rochester, Minn.; David Adlersberg, New York, and Everett D. Kiefer, Boston.

SECTION ON MISCELLANEOUS TOPICS

Session on Anesthesia

WEDNESDAY, MAY 17—MORNING

The meeting was called to order by the chairman, Dr. Ralph M. Waters, Madison, Wis.

Dr. Paul W. Searles, Buffalo, read a paper on "The Effect of Certain Anesthetics on the Blood." Discussed by Dr. Charles J. Betlach, Chicago.

Dr. E. A. Rovenstine, New York, read a paper on "The Principles of Inhalation Anesthesia for Thoracic Surgery." Discussed by Drs. Joseph W. Gale, Madison, Wis., and Arno Benedict Luckhardt, Chicago.

Dr. Philip D. Woodbridge, Boston, read a paper on "Prevention of Ignition of Anesthetic Gases by Static Spark." Discussed by Drs. Everett A. Tyler, Philadelphia; Ralph M. Waters, Madison, Wis.; Arno Benedict Luckhardt, Chicago, and Prof. J. W. Horton, Boston.

Dr. Paul M. Wood, New York, read a paper on "Trichlorethanol: A Preliminary Clinical Report." Discussed by Dr. P. K. Knoefel, Louisville, Ky.

Drs. Henry S. Ruth, Merion Station, Pa., and Ralph M. Tovell, Hartford, Conn., presented a paper on "Intravenous Pentothal." Discussed by Drs. George J. Thomas, Pittsburgh, and Ralph Thomas Knight, Minneapolis.

Dr. M. H. Seevers, Madison, Wis., read a paper on "Respiratory Alkalosis During Anesthesia: An Experimental Study in Man." Discussed by Dr. Henry K. Beecher, Boston.

Dr. John H. Evans, Buffalo, read a paper on "Oxygen Tolerance versus Oxygen Dosage." Discussed by Dr. F. A. D. Alexander, Albany, N. Y.

Drs. P. P. Volpitto, R. A. Woodbury and W. F. Hamilton, Augusta, Ga., presented a paper on "Direct Arterial and Venous Pressure Measurements During Clinical Anesthesia." Discussed by Dr. John S. Lundy, Rochester, Minn.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the St. Louis session was characterized by the large amount of teaching material for the physician in general practice. There were 226 exhibits in all, 160 of which were presented under the auspices of the various sections, eighteen in the exhibit symposium on heart disease, and forty by state and national organizations. There were two special exhibits sponsored by the Board of Trustees, and six groups of motion pictures in connection with the various sections.

The special exhibit on anesthesia was presented for the third time under the auspices of a committee composed of Ralph M. Waters, chairman, Madison, Wis.; John S. Lundy, Rochester, Minn.; Henry S. Ruth, Philadelphia, and Philip D. Woodbridge, Boston. Demonstrations throughout the week were presented by a competent corps of anesthetists and were largely attended. A pamphlet describing the exhibit was distributed. There was a special motion picture program in an area adjoining the exhibits.

The special exhibit on fractures was presented under the auspices of a committee composed of Kellogg Speed, chairman, Chicago; Frank D. Dickson, Kansas City, Mo., and Walter Estell Lee, Philadelphia. A carefully selected group of surgeons from various parts of the country assisted with the demonstrations and a pamphlet describing the exhibit was distributed.

Other features of the St. Louis session included an exhibit symposium on heart disease in conjunction with the American Heart Association; an exhibit symposium on graduate medical education; groups of exhibits on cancer and pneumonia, and motion pictures shown under the auspices of the different sections in spaces adjoining their exhibits.

Thirty-one papers read before the various sections of the Scientific Assembly were correlated with the exhibits in the Scientific Exhibit.

The following physicians served as representatives to the Scientific Exhibit from the different sections of the Scientific Assembly:

Section on Practice of Medicine, Fred M. Smith, Iowa City.

Section on Surgery, General and Abdominal, Grover C. Penberthy, Detroit.

Section on Obstetrics and Gynecology, H. Close Hesseltine, Chicago.

Section on Ophthalmology, Georgiana Dvorak-Theobald, Oak Park, Ill.

Section on Laryngology, Otology and Rhinology, Lee Wallace Dean Jr., St. Louis.

Section on Pediatrics, Arthur F. Abt, Chicago.

Section on Pharmacology and Therapeutics, Wallace M. Yater, Washington, D. C.

Section on Pathology and Physiology, F. W. Konzelmann, Philadelphia.

Section on Nervous and Mental Diseases, Roland P. Mackay, Chicago.

Section on Dermatology and Syphilology, Hamilton Montgomery, Rochester, Minn.

Section on Preventive and Industrial Medicine and Public Health, Paul A. Davis, Akron, Ohio.

Section on Urology, R. S. Ferguson, New York.

Section on Orthopedic Surgery, F. A. Jostes, St. Louis.

Section on Gastro-Enterology and Proctology, Sara M. Jordan, Boston.

Section on Radiology, E. E. Downs (deceased), Woodbury, N. J.

REPORT OF THE COMMITTEE ON AWARDS

The Committee on Awards made the following report:

GROUP I

(Awards in Group I are made for exhibits of individual investigation, which are judged on the basis of originality and excellence of presentation.)

The GOLD MEDAL to George W. Thorn, R. Palmer Howard, Kendall Emerson Jr. and Warfield M. Firor, Johns Hopkins University and Hospital, Baltimore, for exhibit illustrating studies on desoxycorticosterone (a synthetic adrenal cortical substance).

The SILVER MEDAL to George P. Robb and Israel Steinberg, New York, for exhibit illustrating visualization of the chambers of the heart, the pulmonary circulation and the great blood vessels in man.

The BRONZE MEDAL to J. F. Fulton and Margaret A. Kennard, Yale University, New Haven, Conn., and Carlyle F. Jacobson, Washington University, St. Louis, for exhibit illustrating functions of the frontal lobe with particular reference to the motor and premotor areas (areas 4 and 6 of Brodmann).

CERTIFICATES OF MERIT, Group I, are awarded to the following (alphabetically arranged):

Graham Asher, George Walker and Frank Hoecker, University of Kansas, Kansas City, for exhibit illustrating the lag-screen electrocardiograph for the instant and continuous viewing of electrocardiograms.

Hugh R. Butt and Jesse L. Bollman, Mayo Clinic, Rochester, Minn., for exhibit illustrating vitamin K in the control of hemorrhage in jaundice.

A. Louis Dippel and Webster H. Brown, Johns Hopkins Hospital, Baltimore, for exhibit illustrating roentgen visualization of the placenta in placenta praevia and other conditions.

GROUP II

(Awards in Group II are made for exhibits which do not exemplify purely experimental studies and which are judged on the basis of excellence of presentation.)

The GOLD MEDAL to Elmer L. DeGowin, John E. Harris and E. D. Plass, State University of Iowa, University Hospitals, Iowa City, for exhibit illustrating the preservation of blood for transfusion.

The SILVER MEDAL to Philip Lewin, Chicago, for exhibit illustrating backache and sciatica.

The BRONZE MEDAL to Morris Moore, Barnard Free Skin and Cancer Hospital, St. Louis, for exhibit illustrating mycotic infections of man.

CERTIFICATES OF MERIT, Group II, are awarded to the following (alphabetically arranged):

Bert R. Boone, United States Public Health Service, Washington, D. C., for exhibit illustrating stethography in school children.

R. H. Jackson, J. W. Sisk and A. S. Jackson, Jackson Clinic, Madison, Wis., for exhibit illustrating diseases of the gallbladder ducts and liver.

Isaac Schour and H. G. Poncher, University of Illinois College of Dentistry and College of Medicine, Chicago, for exhibit illustrating calcium metabolism and teeth.

HONORABLE MENTION

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged):

Walter M. Boothby, C. W. Mayo, W. R. Lovelace II and A. H. Bulbulian, Rochester, Minn., for exhibit illustrating the use of oxygen in medicine, surgery and aviation; historical development; a new method of administration.

Robert Elman, Charles L. Hoagland, L. H. Hemplemann Jr. and Wilson G. Brown, Washington University School of Medicine, St. Louis, for exhibit illustrating acute pancreatic disease.

J. R. Lindsay, University of Chicago, Chicago, for exhibit illustrating suppuration in the petrous pyramid; pneumatization of the pyramid; histopathology of suppuration; x-ray demonstration.

Irwin Schulz, W. P. Blount, Charles Fidler, G. William Fox, Robert Montgomery, Arthur A. Schaefer, A. C. Schmidt, H. C. Schumm and Stanley J. Seeger, Milwaukee Children's Hospital, Milwaukee, for exhibit illustrating fractures in children; principles of treatment.

Bedford Shelmire and H. L. Graham, Dallas, Texas, for exhibit illustrating survey of common weeds causing contact eczema; patch testing with their oils.

SPECIAL MENTION

Special mention is made of the following exhibits (alphabetically arranged):

W. F. Braasch, J. L. Crenshaw and T. L. Pool, Mayo Foundation, Rochester, Minn., for exhibit illustrating recent advances in urologic diagnostic methods.

V. S. Counseller and J. T. Priestley, Mayo Foundation, Rochester, Minn., for exhibit illustrating surgery of the genito-urinary tract.

Elliott P. Joslin and Howard F. Root, Boston, with Louis I. Dublin and Herbert H. Marks, New York, for exhibit illustrating the current diabetes situation. (Dr. Joslin has previously received a medal in the Scientific Exhibit for his work on diabetes.)

Robert E. Schlueter and Ethel A. Washburn, St. Louis, for exhibit illustrating the medical history of St. Louis.

G. J. Thompson, E. N. Cook, J. L. Emmett, Mayo Foundation, Rochester, Minn., for exhibit illustrating transurethral surgery.

EDUCATIONAL CLASSIFICATION

A Special Certificate of Merit is awarded to the American College of Surgeons, Chicago, for its exhibit on cancer clinics.

Special Mention is made of the cooperative exhibit on pneumonia by the Northwestern University Medical School, University of Chicago Department of Medicine, and the Illinois State Department of Public Health.

SUBSIDIZED EXHIBITS

The Committee on Awards commends highly the special exhibits on anesthesia and fractures sponsored by the American Medical Association.

COMMENTS

The Committee believes that the appointment of carefully selected section exhibit representatives should be continued in order to secure proper correlation of the Scientific Exhibit with the Scientific Assembly.

It is the opinion of the Committee that the American Medical Association is greatly indebted to the Committee on Scientific Exhibit of the Board of Trustees, to the Advisory Committee, and to Dr. Thomas G. Hull, Director of the Scientific Exhibit. The Committee cannot commend too highly the arrangements, the efficient management, the stimulating instructiveness, practical as well as scientific, of the Exhibit.

LUDVIG HEKTOEN, Washington, D. C., Chairman.
VINCENT W. ARCHER, University, Va.
FRANCIS G. BLAKE, New Haven, Conn.
URBAN MAES, New Orleans.
FRED D. WEIDMAN, Philadelphia.

HOSPITALS AND MEDICAL CARE IN MISSISSIPPI

PREPARED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The state of Mississippi was selected by the Council on Medical Education and Hospitals for a complete study of hospitals and medical facilities. The procedure involved personal visits of inspection by members of the Council's staff to all the hospitals, registered and unregistered. The state health department and a number of county health departments lent their cooperation in supplying data for the survey. The number of hospitals, related institutions and unclassified facilities inspected for the survey totaled 117.

Without exception the superintendents and medical directors gave their wholehearted cooperation. The hospital inspections consisted of examination of the staff organization, plant, equipment and clinical records, and a review of the hospital administration and finances. Statistical data were requested concerning types of service, classification of admissions, surgery, laboratory work, personnel, areas served, and so on. Individual reports were prepared for each hospital by the inspectors. These data and other material already in the Council's files form the basis for this report.

The splendid cooperation of the hospital superintendents, the state and county health departments and the Mississippi State Hospital Association is gratefully acknowledged.

METHOD OF SURVEY

The number of registered hospitals in Mississippi according to Hospital Service in the United States for 1939 was seventy-five. This publication was based on material gathered by questionnaire for the year ended Sept. 30, 1938. At that time a number of Mississippi hospitals were under consideration for registration and others have applied since.

The Mississippi survey gave the Council an opportunity to investigate first hand the hospitals under consideration for registration. The figures presented throughout this report will represent for the most part the calendar year of 1938. As twenty-three hospitals were found to be eligible for registration following the survey, the data presented in the analysis will deal with a total[1] of 100 hospitals, including those already registered and those awaiting formal action by the Council. In addition there are twenty-two ethical unclassified facilities, having a total of approximately 225 beds, which do not conform to the requirements for registration and are not included in the statistics of this survey.

TABLE 1.—*All Mississippi Hospital Facilities, 1931-1938*

Year	Hospitals	Beds	Bassinets	Patients Admitted	Average Census
1931	77	8,007	325	54,031	5,997
1932	75	8,121	320	57,367	5,967
1933	75	8,119	315	50,243	5,637
1934	76	7,934	304	49,692	5,717
1935	77	8,040	306	55,530	5,789
1936	73	8,512	323	65,079	6,102
1937	74	8,870	339	74,823	6,573
1938	100	9,337	402	76,647	7,139

It should be understood that the increase of twenty-three[1] hospitals to the present registered group does not represent an abrupt rise in hospital facilities in Mississippi during the year 1938. Applications of several hospitals have been pending for more than a year and a number of hospitals for which information had not been received for a period of years were inspected and have now agreed to supply the Council with information annually. A few small hospitals were found concerning which the Council had no knowledge whatever. With this in mind the apparent sudden rise in the number of hospitals, the number of beds, patients admitted, average census, and the like, may be properly evaluated.

1: In addition to seventy-four *registered in 1937*, one was registered in 1938; two were registered and listed following close of compilations for Hospital Service in the United States March 11, 1939. Twenty-three are recommended for registration as a result of this survey.

TABLE 2.—*General Hospital Facilities in Mississippi, 1931-1938*

Year	Hospitals	Beds	Bassinets	Patients Admitted	Average Census
1931	65	2,076	309	49,749	1,253
1932	64	2,791	308	52,224	1,146
1933	65	2,823	309	47,166	1161
1934	66	2,910	298	46,645	1,071
1935	67	2,961	304	53,007	1,205
1936	64	2,848	323	61,258	1,312
1937	63	2,818	339	70,557	1,411
1938	88	3,112	402	72,412	1,655

GROWTH OF HOSPITAL FACILITIES

The number of beds increased from 8,870 in 1937 to 9,337 in 1939, an increase of 5.3 per cent.

The hospitals investigated which were not registered but were found to be eligible included twenty-one general hospitals and two small tuberculosis hospitals, thus adding to those previously registered 234 general beds for white patients and ninety-four general beds for Negroes, or a total of 328 general beds and forty-eight tuberculosis beds.

TABLE 3.—*Hospital Facilities by Control, 1934-1938*

	Hospitals		Beds		Bassinets		Patients Admitted		Average Census	
	1934	1938	1934	1938	1934	1938	1934	1938	1934	1938
Federal	3	3	833	1,020	..	7	2,019	3,061	708	984
State	12	11	4,804	5,619	34	33	11,573	13,077	4,235	4,897
County	2	5	60	122	6	9	704	1,632	18	63
City	1	2	22	40	3	5	201	599	3	14
City-county	1	2	35	75	6	10	396	1,476	10	43
Total governmental	19	23	5,744	6,886	49	64	14,893	19,845	4,994	6,001
Church	2	2	160	213	18	24	4,387	6,305	102	118
Fraternal	1	..	12	...	..	..	50	.....	5	...
Associations and restricted corporations	17	28	795	1,111	83	154	10,609	27,566	230	563
Total nonprofit	20	30	967	1,324	101	178	15,046	33,871	337	681
Individual and partnership	27	42	811	988	113	140	13,455	19,913	261	404
Corporations (unrestricted as to profit)	10	5	412	139	41	20	6,298	3,018	125	58
Total proprietary	37	47	1,223	1,127	154	160	19,753	22,931	386	457
Total nongovernmental	57	77	2,190	2,451	255	338	34,799	56,802	723	1,138
Grand Total	76	100	7,934	9,337	304	402	49,692	76,647	5,717	7,139

Interesting is the fact that in Mississippi during the last four years there has been an average increase in beds in all types of registered hospitals of 351 a year, but the three years previous showed practically no increase in beds. Registered general hospital beds increased from 2,818 in 1937 to 3,112 in 1939; this is a total of 294, or 10.4 per cent.

The Mississippi survey undertaken early in 1939 presenting figures for the calendar year of 1938 revealed 100 hospitals registered or eligible for registration having a total of 9,337 beds, 402 bassinets, 5,698 births, 7,139 average census and 76,647 admissions.

The total number of beds increased 467, while bassinets increased sixty-three since the 1937 report; 1,679 more births were reported for 1938 than for 1937.

The figures for patients admitted and daily average census throughout this article are exclusive of the newborn and do not include outpatients. Patient days in all hospitals aggregated 2,605,735, representing a gain of 206,590 over the preceding year. Patient days in general hospitals numbered 604,075, or 23.2 per cent of the total.

The eighty-eight general hospitals admitted 72,442 patients or 94.5 per cent of the total number of admissions to all hospitals registered and eligible for registration. Since the 1937 report the average daily census increased 566. The total number of empty beds was less by ninety-nine, while at the same time the number of empty beds in general hospitals advanced fifty. The rate of occupancy in general hospitals increased from 50.1 per cent to 53.2 per cent in capacity.

Governmental hospitals numbered twenty-three, an increase of five, or 27.8 per cent, over the previous year. There were 6,886 governmental beds representing an increase of 242, or 3.6 per cent, over those reported in 1937.

TABLE 4.—*Mississippi Hospital Facilities by Type of Service*

	Hospitals	Beds	Bassinets	Patients Admitted	Average Census
General	88	3,112	402	72,442	1,655
Nervous and mental	6	5,587	...	3,237	5,133
Tuberculosis	4	543	...	479	311
Hospital departments of institutions	2	95	...	489	40
Totals	100	9,337	402	76,647	7,139

Nongovernmental hospitals increased by twenty-one, from fifty-six to seventy-seven, representing 37.5 per cent; the number of beds rose 10.1 per cent. It is noteworthy that during this period governmental beds represented 51.8 per cent of the total increase.

HOSPITALS ACCORDING TO TYPE OF SERVICE

General Hospitals.—During the last nine years the number of general hospitals has remained practically the same, rising or falling a point or two, six at the maximum, from year to year. In the past year there have been definite signs of improved and increasing hospital facilities resulting in the recommendation for registration of twenty-one general hospitals. This number, in addition to the four recently registered, increases the total general hospitals registered and recommended for registration from sixty-three in 1937 to eighty-eight in 1938. The number of general beds has increased from 2,752 in 1929 to 3,112 in 1938; bassinets in the same period have increased from 259 to 402. The total number of patients admitted in 1931 was 49,749; in 1938 general hospitals admitted 72,442, an increase of 45.6 per cent in the last seven years. The average census has increased from 1,371 in 1929 to 1,655 in 1938.

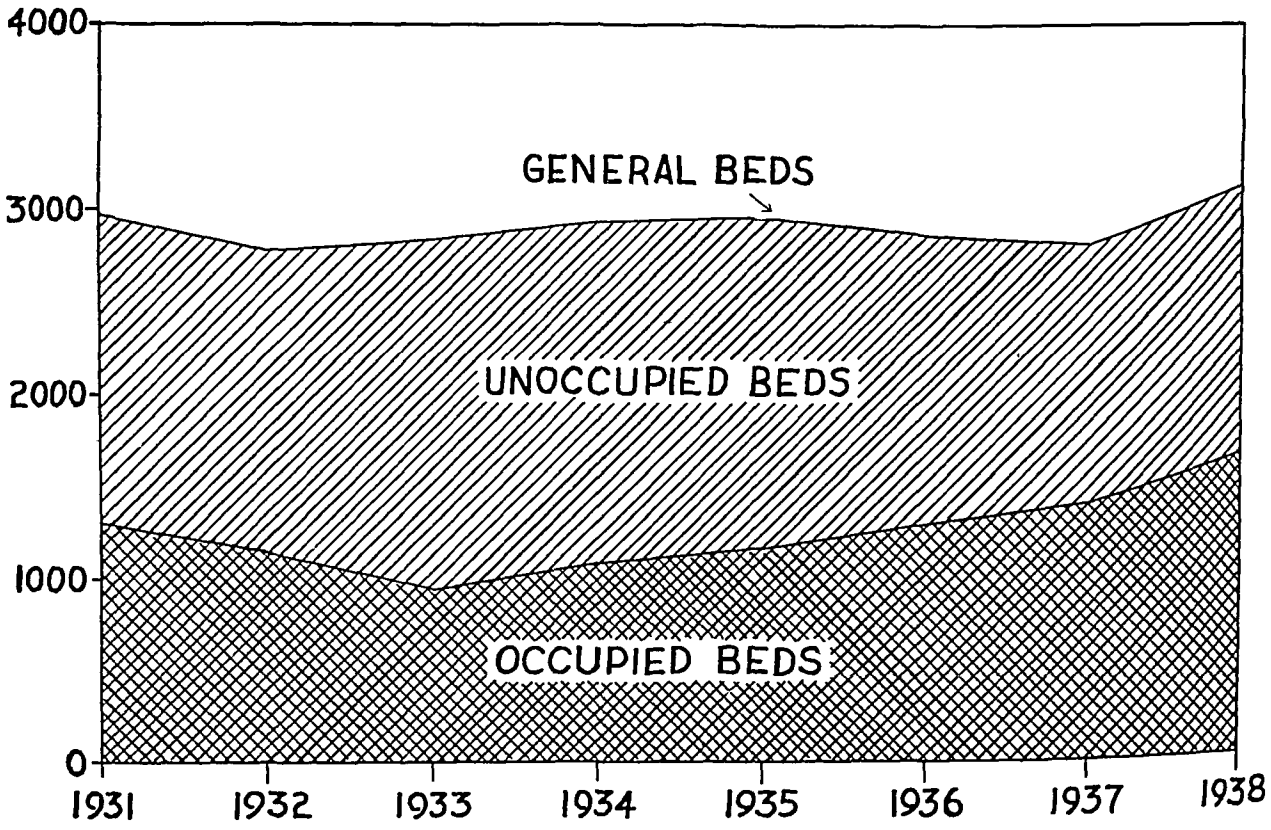


Chart 1.—General Hospital Beds in Mississippi Occupied and Unoccupied.

Hospitals were requested to break down their total admissions for the year into the number admitted to medicine, surgery, obstetrics and the various specialties, as well as designating the number of Negro patients. The response was sufficiently complete to give with the aid of the inspectors' reports the number of white and Negro patients admitted under medicine and medical specialties, surgery and surgical specialties, and obstetrics, but the number reporting on pediatrics (thirty), nervous and mental (twenty), tuberculosis (sixteen), contagion (twenty-three) and others (three) was not sufficiently complete to give an accurate picture of these services.

The specialties reported were broken down and added in their proper places under medicine and surgery. There were admitted to the medical services 19,372 white and 4,995 Negro patients, a total of 24,367. Surgical patients numbered 30,809 white and 11,230 Negro, or a total of 42,030 patients. The obstetric service admitted 5,498 white and approximately 547 Negro patients, or a total of 6,045. This gives a total of 55,670 white and 16,772 Negro or a grand total of 72,442 patients admitted to general hospitals in Mississippi in 1938.

There were reported in general hospitals 2,381 beds for white and 731 beds for Negro patients, or a total of 3,112 general beds. In 1931 there were forty-three general hospitals that accepted both white and Negro patients; today there are seventy. In 1934 there were only three registered hospitals devoted exclusively to Negro patients with a total of eighty-nine beds; today there are five registered or recommended for registration having a total of 112 beds. Thirteen hospitals are devoted exclusively to white patients. Births in general hospitals increased from 2,669 in 1934 to 5,698 in 1938, an increase of 113.5 per cent. Of the 5,698 hospital births 479 were reported as Negro births.

Two hospital departments of institutions are included on the registered list with a total of ninety-five beds, 489 patients admitted and an average daily census of forty, but are not included in the calculations for general hospitals.

TABLE 5.—*Analysis of Mississippi General Hospitals by Ownership and Control*

	Hospitals	Beds			Bassinets	Patients Admitted			Average Census
		White	Negro	Total		White	Negro	Total	
Federal	2	242	...	242	7	2,333	.....	2,333	205
State	5	175	149	324	33	4,771	5,232	10,003	260
County	3	56	18	74	9	1,215	375	1,590	33
City	2	40	...	40	5	590	.....	590	14
City-county	2	67	8	75	10	1,296	180	1,476	45
Total governmental—general	14	580	175	755	64	10,214	5,787	16,001	564
Church	2	189	24	213	24	5,265	1,040	6,305	118
Associations and restricted corporations	27	879	187	1,066	154	23,351	4,183	27,537	536
Total nonprofit—general	29	1,068	211	1,279	178	28,619	5,223	33,842	654
Individual and partnership	40	622	317	939	140	14,721	4,860	19,581	384
Corporations (unrestricted as to profit)	5	111	23	139	20	2,116	902	3,018	53
Total proprietary—general	45	733	345	1,078	160	16,837	5,762	22,599	437
Total nongovernmental—general	74	1,801	556	2,357	338	45,456	10,985	56,441	1,091
Grand Total—General	88	2,381	731	3,112	402	55,670	16,772	72,442	1,655

Nervous and Mental Hospitals.—Nervous and mental hospitals have increased from four in 1936 to six in 1938 with a total of 5,587 beds and an average census of 5,133. The six hospitals admitted 3,237 patients. The two state mental hospitals, excluding the school for mentally deficient, have a total of 4,350 beds and 2,155 admissions divided as follows: 1,888 first admissions, 255 readmissions and twelve transfers. There was a total of 1,216 discharges and 631 deaths. The average daily census of these two hospitals is 4,035. In addition to the three state owned nervous and mental hospitals there are two individually owned and one federal hospital.

Tuberculosis Facilities.—Reports from the Mississippi State Board of Health indicate that there were 1,258 deaths from tuberculosis in 1936. In 1917, when the State Sanatorium was established, the annual rate was 2,743 but thereafter the deaths decreased continuously until 1935, when 1,199 were reported in the state. It has been estimated that approximately three fourths of the tuberculosis deaths in Mississippi occur among Negroes. This is especially significant in view of the fact that only forty beds are available at the State Sanatorium for the hospitalization of tuberculous Negroes.

The Mississippi State Tuberculosis Sanatorium has an operating capacity of 450 beds, including a fifty bed unit for preventorium service. Less than 300 beds are actually in use, however, because of lack of funds. Supplementary facilities are provided in a private sanatorium of forty-five beds and two county sanatoriums with a combined capacity of forty-eight beds. In addition there were one federal, one county, four state, one city and twenty private hospitals that reported facilities for the treatment of tuberculous patients. The sanatoriums admitted a total of 479 patients last year. Pneumothorax facilities are available at the State Sanatorium, at three of the private hospitals reporting a tuberculosis service, and in the tuberculosis clinics sponsored by the state board of health. During the biennium 1935-1937 there were eighty-seven clinics conducted in thirty-nine counties throughout the state. A total of 4,289 patients were examined, 3,013 white and 1,276 Negro.

TABLE 6.—*Mississippi Hospital Facilities Limited to Negro Patients*

Year	Hospitals	Beds	Average Census
1931	3	65	23
1932	3	80	22
1933	3	95	11
1934	3	89	13
1935	3	40	16
1936	2	72	54
1937	2	75	35
1938	5	112	64

It is apparent that the state of Mississippi is in grave need of additional facilities for the segregation and care of both acute and chronic cases of pulmonary tuberculosis. At least twice the present number of beds are necessary to meet immediate demands. Nearly three times the present capacity would be required if a satisfactory ratio of beds to tuberculosis deaths were to be attained.

CHANGES IN HOSPITAL FACILITIES BY CONTROL

There are now twenty-three governmental hospitals registered and eligible for registration as compared with eighteen a year ago, an increase of five. The total capacity of all these governmental hospitals is 6,886.

County hospitals increased in number from two to five and beds from fifty to 122. Two city hospitals have been registered recently.

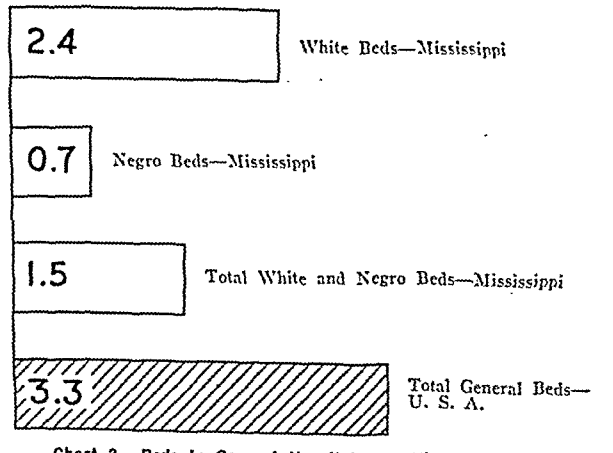


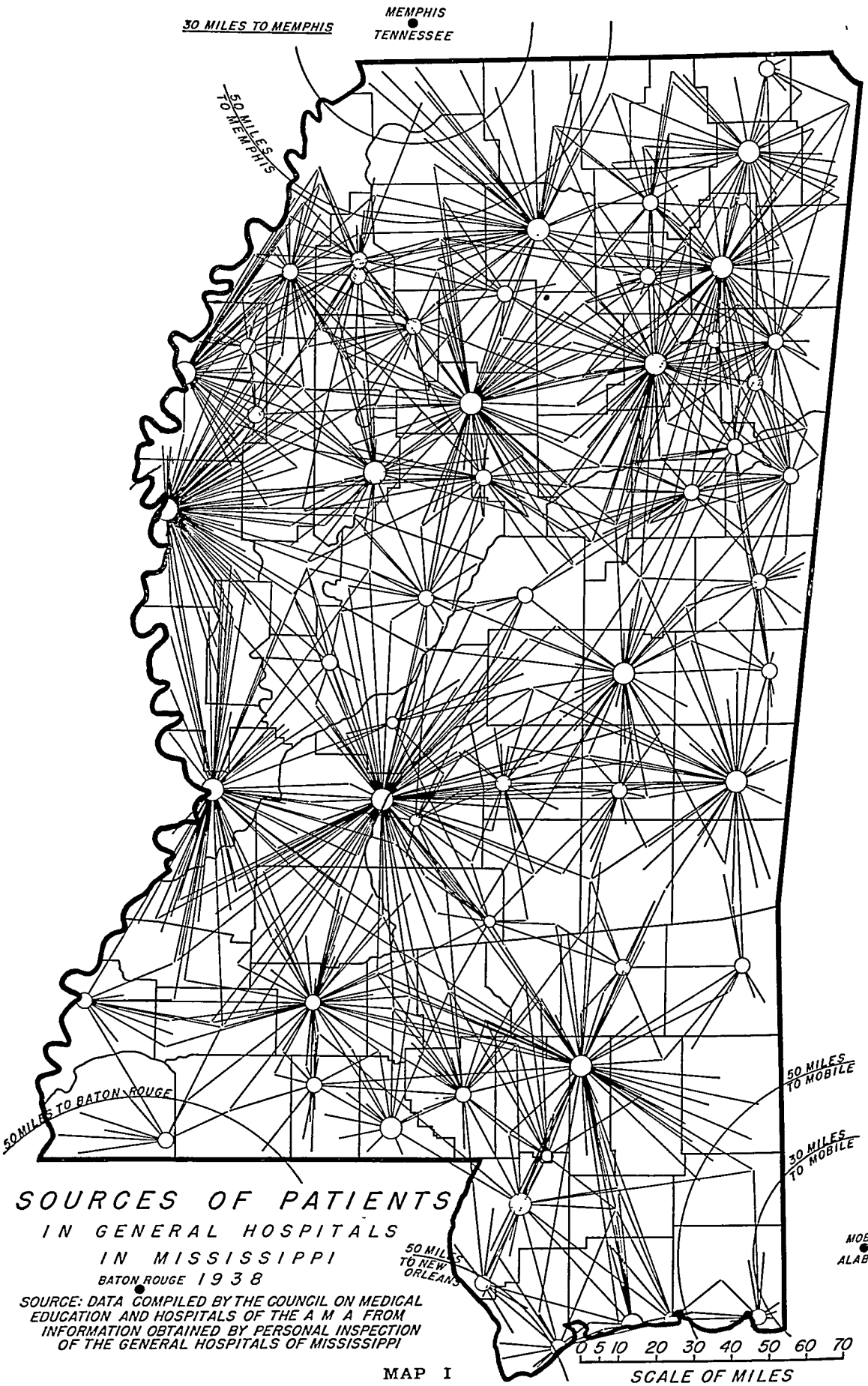
Chart 2.—Beds in General Hospitals per Thousand Population.

The returns from nongovernmental hospitals show an increase from fifty-six to seventy-seven, in beds from 2,226 to 2,451 and in bassinets from 280 to 338.

The proprietary group of hospitals number forty-seven, an increase of fourteen over the previous year. Although the proprietary hospitals are more numerous as a group, they control only 12.1 per cent of the total beds.

SOURCES OF PATIENTS

The accompanying map showing the origin of patients admitted to Mississippi hospitals in 1938 was prepared from lists furnished by each hospital. Patients whose homes were more than 70 miles from the hospital are not shown. The five state charity hospitals, the hospitals for nervous and mental



SOURCES OF PATIENTS IN GENERAL HOSPITALS IN MISSISSIPPI 1938

SOURCE: DATA COMPILED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE A M A FROM INFORMATION OBTAINED BY PERSONAL INSPECTION OF THE GENERAL HOSPITALS OF MISSISSIPPI

MAP I

patients and the tuberculosis sanatoriums are not included in this analysis. The map demonstrates clearly the hospital areas served regularly by each hospital center. Roads and transportation facilities throughout the state are good and apparently there is no area where the population does not have ready access to a hospital. The southeastern section reveals an area covering

TABLE 7.—*How General Hospitals Shared in Beds and Patients Admitted*

	Percentage of Beds	Percentage of Patients Admitted
Federal	7.8	8.2
State	10.4	13.6
County	2.4	2.2
City	1.3	0.8
City-county	2.4	2.0
Total governmental	24.3	22.1
Church	6.8	8.7
Associations and restricted corporations	34.3	38.0
Total nonprofit	41.1	46.7
Individual and partnership	30.2	27.0
Corporations (unrestricted as to profit)	4.5	4.2
Total proprietary	34.6	31.2
Total nongovernmental	75.7	77.9

several counties where it appears patients must travel a considerable distance to a hospital. However, this area is also served by the hospitals of Mobile, 20 miles east of the border. Likewise an area in the northwestern part of the state is served to a large extent by the hospitals in Memphis, which lies 10 miles north of the state line.

The five state charity hospitals (not shown) serve the counties in which they are located and may admit patients from any part of the state. The three state hospitals for nervous and mental diseases and the state tuberculosis sanatorium admit patients from the entire state.

Approximately 25 per cent of the patients admitted to Mississippi general hospitals during 1938 came from a distance of 30 miles or more.

TABLE 8.—*Percentage of Beds Occupied in Mississippi*

	1934	1936	1937	1938
According to Ownership or Control:				
Federal	85.0	90.5	81.6	95.5
State	88.6	82.5	85.8	87.2
County	36.0	32.0	48.0	51.6
City	13.6	13.6	....	35.0
City-county	28.6	20.0	51.1	57.3
Total governmental	86.9	82.4	84.6	87.1
Church	63.8	46.8	58.4	55.4
Fraternal	41.7	....	....	....
Associations and restricted corporations	28.9	41.4	45.2	50.7
Total nonprofit	34.9	42.6	47.4	51.4
Individual and partnership	32.2	36.2	37.1	40.9
Corporations (unrestricted as to profit)	30.3	43.8	40.6	38.1
Total proprietary	31.6	37.8	37.7	40.6
Total nongovernmental	33.0	40.2	42.7	46.4
According to Type of Service:				
General	36.4	45.4	50.1	53.2
Nervous and mental	99.0	88.5	88.7	91.9
Tuberculosis	64.5	62.9	60.6	57.3
Industrial	20.0	....	....	....
Hospital departments of institutions	36.4	44.6	36.4	42.1
Total for all hospitals	72.1	71.7	74.1	76.5

OCCUPATIONS IN HOSPITAL AREAS

Sixty-five general hospitals supplied information concerning occupations of the population served. Fifty-seven hospitals reported that the greater percentage of the population from which their patients were admitted were engaged in agricultural pursuits, four reported the greater percentage in industrial occupations and only one claimed the greater percentage in commercial lines. In three instances the population was equally divided between agriculture and commercial pursuits. These percentages were estimates, as hospital records were not all sufficiently detailed to give precise information.

BED OCCUPANCY IN HOSPITALS

The average census of 7,139 patients in all hospitals for 1938 left an average of 2,198 idle beds, or 23.5 per cent. In general hospitals there were 1,457 idle beds, as compared with 1,407 the preceding year. Occupied beds in general hospitals represented 53.2 per cent of their capacity.

Nervous and mental hospitals reported the average number of empty beds decreased from 613 in 1937 to 454 in 1938. There were 232 idle beds in tuberculosis hospitals which were

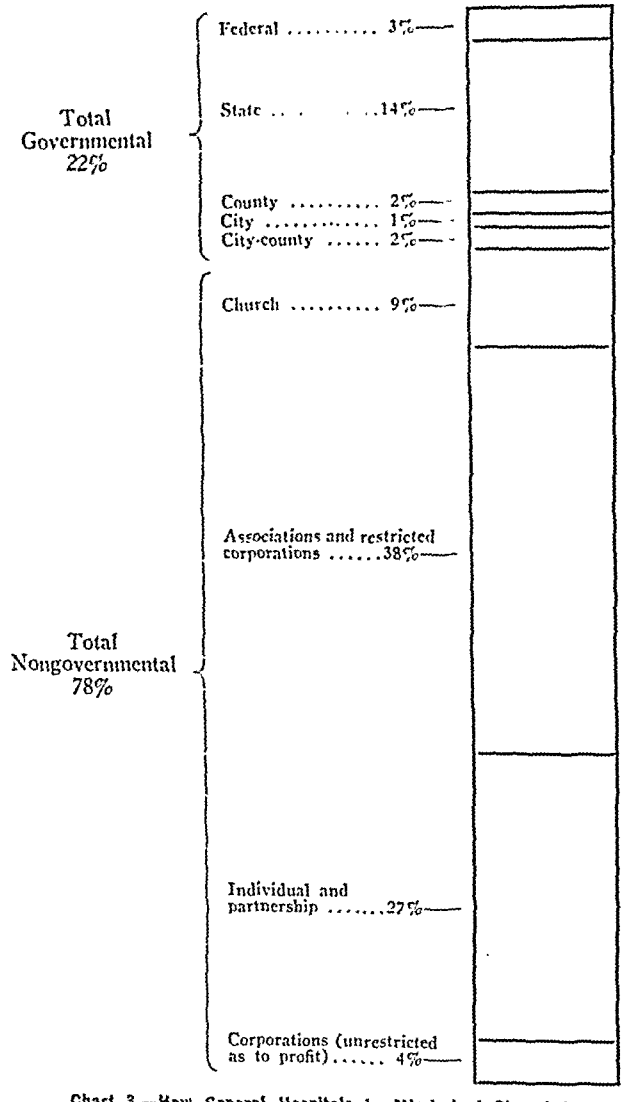


Chart 3.—How General Hospitals in Mississippi Shared in Patients Admitted.

in demand but owing to insufficient funds could not be utilized. The average number of unoccupied beds in governmental hospitals for the year was 885, a decrease of 136 over the preceding year. Occupancy of nonprofit hospitals (nongovernmental) increased from 47.4 per cent to 51.4 per cent, showing their average number of idle beds to be 643. The idle beds in all nongovernmental hospitals averaged 1,313 throughout the year.

STAFF ORGANIZATION

Relatively few of the general hospitals in Mississippi have well organized medical staffs. Forty-five have what might be considered organized staffs, as they elect officers and hold staff meetings regularly for a review of the hospital service. Since the number of general hospitals over 100 beds are few, com-

plete departmentalization is practically nonexistent. Apparently forty-three of the hospital staffs have no organization whatever. The regulation of the professional services is in the hands of the superintendent or physician owning the hospital as the case may be. Frequently the medical superintendent is the owner of the hospital and all physicians in good standing are permitted to utilize the facilities excepting the performance of major surgery.

The staff lists of 75 per cent of the hospitals of the state were examined with reference to the number of physicians on active and courtesy staffs. These hospitals claimed 699 active members and 502 courtesy staff members. Most hospitals also indicated that the facilities were open to physicians in good standing in the community.

At present there exist no approved educational programs for interns or residents in specialties in the Mississippi hospitals. Several hospitals have made application for such approval to the Council on Medical Education and Hospitals and are in the process of conforming to the requirements. Fourteen hospitals report having resident physicians. For the most part these men have had internships elsewhere and serve as general residents in order to secure additional hospital experience.

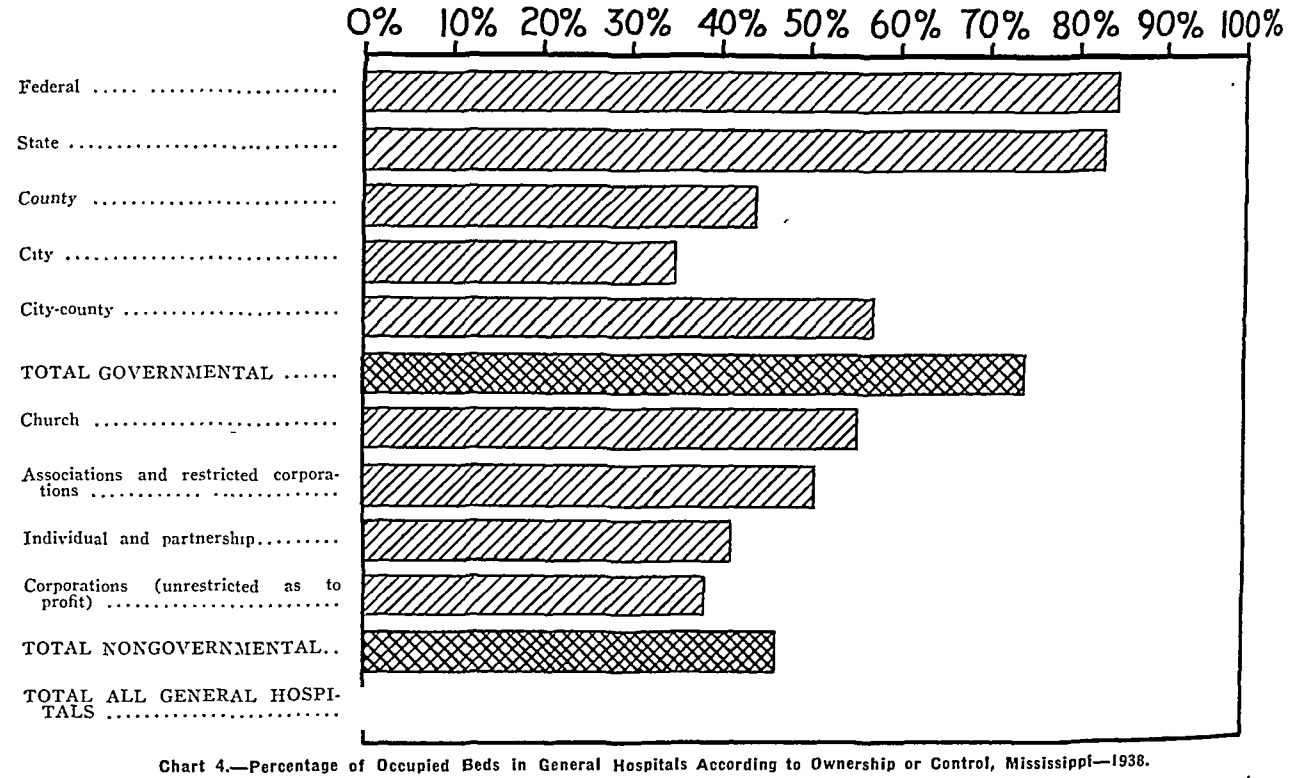


Chart 4.—Percentage of Occupied Beds in General Hospitals According to Ownership or Control, Mississippi—1938.

NURSING AND NURSING EDUCATION

Three hundred and twenty-one registered and graduate nurses were reported to be in the regular employ of eighty-eight general hospitals. These institutions also employed nineteen practical nurses. It was apparent in a number of the hospitals at the time of inspection that the lack of sufficient graduate nurses reflected in the quality of the hospital service rendered patients. For example, hospitals were examined where only one graduate nurse was employed to fulfil the duties of superintendent, supervisor of nursing and instructress to from ten to twenty student nurses.

The Mississippi State Board of Examiners of Nurses has approved thirty-six schools of nursing having a total of 710 students. Five unaccredited schools exist which reported twenty-one student nurses and ten staff registered nurses. The requirements of the nursing board state that in order to conduct a training school the hospital must have twenty-five beds and a daily average of twelve patients; high school education or its equivalent is a prerequisite for admission; the course shall be three years of continuous training; adequate equipment and facilities for classroom instruction shall be provided. The recommendations of the board concerning faculty and curriculum are in accordance with those adopted by the National League of Nursing Education.

Under the Mississippi law for the state regulation of nurses passed in 1932, certificates are issued on successful examination to nurses who are graduates of accredited schools. Nurses who are not graduates and who practiced nursing before the law took effect may be certificated as licensed attendants. Annual registration of nurses is required under the law.

The Mississippi State Board of Examiners of Nurses has not been entirely successful in the application of the standards it has adopted for schools. A number of accredited training schools are in operation which obviously fall short of the standards adopted by the board. These training schools, which are mainly in small hospitals, are being encouraged to meet the present standards, since there is need for graduates throughout the state.

The positions of hospital superintendents are held in fifty-six hospitals by physicians, in twenty-six by registered nurses and in five by lay persons. Anesthesia is administered in twenty-eight hospitals by registered nurses, in six hospitals by physicians and in five by lay anesthetists. Dietitians with some training in their field were reported on the staffs of sixteen hospitals.

CLINICAL RECORDS

Clinical records that were considered complete in all departments were found in thirty-four general hospitals. The remaining forty-seven could not be said to have satisfactory clinical records and filing indexes. It is common practice to limit the clinical chart to nurses' notes, graphic records and orders during the patient's stay in the hospital and to complete it after the patient is discharged from the hospital. A number of the hospitals allowed the charts to be placed in the permanent files without history, physical examination, progress notes, summary and final diagnosis. This condition is not peculiar to the hospitals in Mississippi and has been found in many of the smaller

hospitals throughout the country. Acceptable nomenclature of disease is used in fifteen hospitals and these institutions have full or part time record librarians, but in the majority of hospitals the superintendent or a business office employee is responsible for filing the clinical records.

DELIVERY ROOMS AND NURSERIES

Obstetric service is provided in eighty-seven of the general hospitals. Delivery rooms, separate and apart from the surgery, were found in fifty hospitals. The remaining thirty-seven utilize the surgery or deliver the patients on beds. Separate nurseries

TABLE 9.—*Births in Mississippi General Hospitals, 1934-1938*

	Bassinets		Births	
	1934	1938	1934	1938
Federal	..	7	41	45
State	34	33	510	788
County	6	9	37	175
City	3	5	14	43
City-county	6	10	42	153
Total governmental	49	64	653	1,204
Church	18	24	353	601
Associations and restricted corporations	83	151	659	2,099
Total nonprofit	101	178	1,012	2,691
Individual and partnership	113	140	734	1,558
Corporations (unrestricted as to profit)	35	20	270	245
Total proprietary	148	160	1,004	1,803
Total nongovernmental	249	338	2,016	4,494
Grand total	298	402	2,669	5,698

are provided in forty-four hospitals. Nurseries are not provided in forty-three hospitals rendering obstetric service. The custom of placing the newborn infant in the mother's room exists in many hospitals.

During 1938 there was a total of 6,045 obstetric cases, and 5,698 babies were delivered in these hospitals.

RADIOLOGY DEPARTMENTS

Radiology facilities or services were reported by eighty-six general hospitals and two said they had no equipment. The scope of the radiologic service varies widely from the small portable roentgenographic apparatus to complete facilities for roentgenology including therapy. Equipment in the majority of the smaller hospitals is limited to roentgenographic work. Ten hospitals reported that registered nurses were assigned to the technical duties in the x-ray department. Thirty-one hospitals reported having thirty-three lay technicians employed. In most instances these technicians also serve the clinical laboratory.

Roentgenologic interpretations are made by the staff physicians in an overwhelming majority of the hospitals. In Mississippi there are eight physicians reporting their specialties as radiology and two are certified by the American Board of Radiology. Two hospitals reported having the services of qualified radiologists.

CLINICAL LABORATORIES

Clinical laboratory service in hospitals varies from simple routine tests to complete equipment for all types of examinations required in the general hospital. Five hospitals make no claim to laboratory facilities. Fifty hospitals stated that only routine examinations are made, not including blood chemistry or bacteriologic, serologic and tissue examinations. Thirty-three departments give more complete laboratory services within the hospital.

While many of the smaller hospitals do not have a wide scope of service in the laboratory department, clinical records demonstrate that required examinations are made by outside laboratories. Serologic tests may be referred to the state hygienic laboratory.

Examinations are made on all tissues removed in twenty-one hospitals; fifty-eight report that only selected tissues are referred to a pathologist for examination.

Six physicians serve as pathologists to the hospitals in the state. A few surgeons refer their tissues to pathologists outside the state.

Four physicians in Mississippi report their specialty as pathology or clinical pathology, and two physicians are certified by the American Board of Pathology.

Forty-eight clinical laboratory technicians were reported serving forty-two hospitals. Registered nurses with other duties serve as technicians in twelve laboratory departments.

OUTPATIENT DEPARTMENTS

Sixty-five hospitals reported that they had no outpatient department excluding the emergency service. Eighteen maintain outpatient departments and seventy-two provide emergency service. It should be borne in mind that at least thirty-six of the sixty-five hospitals without outpatient departments have doctors' offices in connection. These constitute in a sense private outpatient departments.

FIREPROOF BUILDINGS

Nineteen of the eighty-eight general hospitals in Mississippi are of fireproof construction. Two hospital plants have some fireproof buildings and others nonfireproof. Fifty-nine were considered not fireproof, although eight of these were regarded as semifireproof. It should be remembered that a great many of the smaller hospitals are one story buildings. There is a wide variation in fire fighting equipment, ranging from none at all to maximum protection including outside fire escapes.

FINANCES IN GENERAL HOSPITALS

Valuation and Indebtedness. — Eighty general hospitals reported either the real or the estimated value of their plants and equipment. Twenty-two were valued at $25,000 or less, twenty-seven between $26,000 and $50,000, nine between $51,000 and $75,000, ten between $76,000 and $100,000 and twelve at $101,000 or more.

Thirty-five reported indebtedness, either bonds or mortgage, ranging from $100 to $180,000. Thirty-five reported that they had no indebtedness other than current operating expenses. Of the thirty-two reporting specific indebtedness, twenty-one fell in the class of $25,000 or less, five between $26,000 and $50,000, two between $51,000 and $75,000, one between $76,000 and $100,000 and three $101,000 or more.

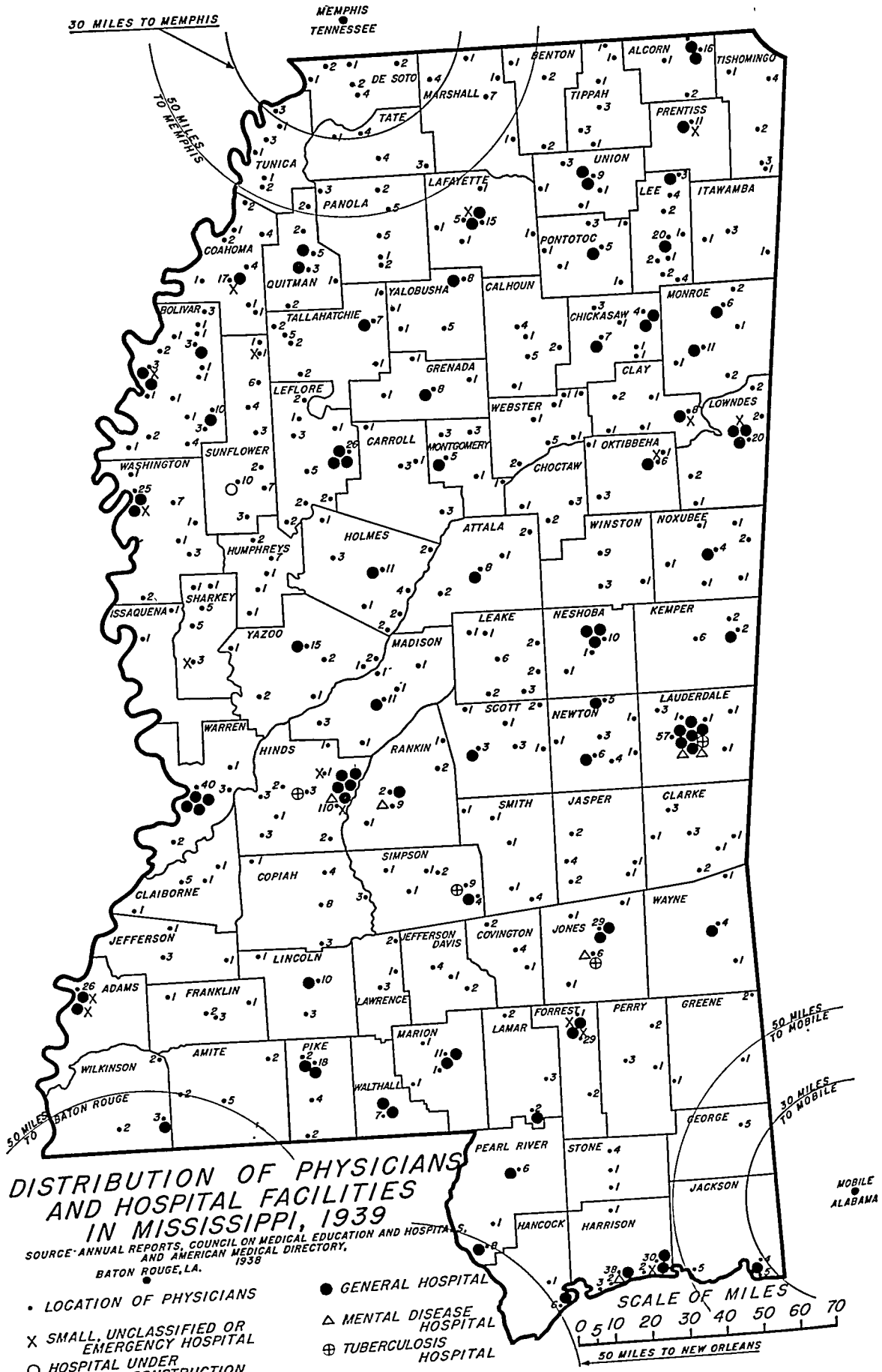
Cost per Diem

Number of Hospitals	
6	One to two dollars inclusive
20	From two to three dollars inclusive
19	From three to four dollars inclusive
20	From four to five dollars inclusive
7	From five to six dollars inclusive
4	Over six dollars
76	Number reporting
$3.83	Average cost per diem for 1938

Sources of Income.—Five state charity hospitals for general service are operated by the state. Fifty-four hospitals receive state aid in addition to their income from private patients. Sixteen of the fifty-four reported that they have additional aid from city or county or both. Two of the fifty-four have industrial contracts. Two hospitals without state aid reported city and county support and one reported contracts in addition to private patients. Twenty-four, with the exception of two that have endowments, derive their income solely from private patients; however, this figure may not be reliable, because of incomplete reporting. Three hospitals reported endowments. In addition to these the Veterans' hospital and the Indian hospital are supported by the federal government.

Physicians and Medical Service

A study of the distribution of medical personnel was made in connection with the survey of hospital facilities in Mississippi. In compiling statistical data, information was obtained



DISTRIBUTION OF PHYSICIANS AND HOSPITAL FACILITIES IN MISSISSIPPI, 1939

SOURCE: ANNUAL REPORTS, COUNCIL ON MEDICAL EDUCATION AND HOSPITALS, AND AMERICAN MEDICAL DIRECTORY, 1938

- LOCATION OF PHYSICIANS
- X SMALL, UNCLASSIFIED OR EMERGENCY HOSPITAL
- ○ HOSPITAL UNDER CONSTRUCTION
- ● GENERAL HOSPITAL
- △ MENTAL DISEASE HOSPITAL
- ⊕ TUBERCULOSIS HOSPITAL

MAP II

largely from the 1938 edition of the American Medical Directory, reports of the Bureau on Medical Economics of the American Medical Association, and population studies of the U. S. Census Bureau. The Mississippi State Board of Health acts as the licensing body.

Number of Physicians.—The number of physicians in Mississippi has shown an almost continuous decline since 1909, when the first edition of the American Medical Directory was published. Prior to that time there was a decrease from 1,682 physicians in 1886 to 1,367 in 1896, but thereafter a gradual increase took place until a total of 1,749 was reached in 1906.

By 1909 the list had expanded to 2,054, but, since this period represented a transition from the Polk to the American Medical Directory, part of the increase may have been due to the difference in methods of compiling biographic data.

Only a slight reduction occurred during the next seven years, but the period 1918-1921 showed a sharp decrease from 1,975 physicians to 1,761. This change was probably a war-time adjustment, although the general decrease from 1914 to 1925 can be attributed largely to the elimination of many low grade medical schools through the activities of the American Medical Association in establishing higher standards of medical education.

In the last fifteen years the number of physicians in Mississippi has been reduced from 1,792 to 1,495. Thus the list is now at the lowest level since 1896, when 1,367 doctors were reported.

TABLE 10.—*Number of Physicians in Mississippi (1886-1938)*

Year	Number of Physicians	Population per Physician (Miss.)	Population per Physician (U. S.)
1886 Polk	1,682	673	662
1890	1,606	803	629
1893	1,465	880	650
1896	1,367	943	678
1898	1,550	832	636
1900	1,510	1,027	636
1902	1,555	998	644
1904	1,696	915	641
1906	1,749	887	637
1909 American Medical Directory	2,054	755	679
1912	2,009	895	693
1914	2,047	878	688
1916	2,048	877	694
1918	1,975	910	709
1921	1,761	1,017	744
1923	1,792	999	764
1925	1,702	1,052	781
1927	1,680	1,066	791
1929	1,633	1,097	797
1931	1,567	1,283	794
1934	1,525	1,310	784
1936	1,515	1,326	778
1938	1,495	1,353	762

According to the 1938 directory there are 1,495 physicians in Mississippi, of whom 1,307 are in private practice. Eighty-three are retired, twenty-nine devote their time principally to hospital duties, thirty-four are in government service and forty-two are engaged in other lines of professional activities. Twenty-three women physicians are included; also fifty-two Negro doctors. Reference should be made to table 10 showing the number of physicians and population ratios from 1886 to 1938.

Physicians in Relation to Population.—Since 1886 the population in Mississippi has expanded approximately 79 per cent, while the number of physicians has decreased 11 per cent. This is in marked contrast to the general population increase in the United States of 118.2 per cent between 1886 and 1934 and the increase of physicians by 84.3 per cent.

The average population per physician in the United States has varied between 629 in 1890 and 797 in 1929. The ratio in 1938 was 762.1. In Mississippi the variation is from 673 in 1886 to 1,353 in 1938. Accordingly the proportion of physicians to population is considerably lower in Mississippi than the average for the country at large.

The reduction in medical personnel is not limited to Mississippi, however, for in the period 1916-1938 there were similar decreases in other Southern states, as shown in the following tabulation:

State	Number of Physicians (1916)	Number of Physicians (1938)
Alabama	2,569	2,072
Arkansas	2,637	1,850
Georgia	3,421	2,756
Kentucky	3,584	2,762
Mississippi	2,048	1,495
Tennessee	3,457	2,917

TABLE 11.—*Distribution of Physicians by Counties* *

County	Total Population	Negro Population	Total No. of Physicians	Negro Physicians	Population per Physician
Adams	21,764	17,424	20	3	1,088
Alcorn	23,653	4,130	19	..	1,245
Amite	19,712	10,417	9	..	2,190
Attala	26,035	10,573	13	..	2,003
Benton	9,813	4,669	5	..	1,963
Bolivar	71,051	52,791	29	2	1,822
Calhoun	18,080	3,577	13	..	1,391
Carroll	19,765	11,273	8	..	2,471
Chickasaw	20,835	10,461	17	1	1,226
Choctaw	12,339	3,473	6	..	2,057
Claiborne	12,152	9,036	8	1	1,519
Clarke	19,679	8,048	11	..	1,789
Clay	17,931	11,080	13	1	1,379
Coahoma	46,327	35,858	34	1	1,363
Copiah	31,614	15,612	19	..	1,664
Covington	15,025	4,364	7	..	2,147
De Soto	25,458	18,771	12	1	2,120
Forrest	30,115	9,646	32	2	941
Franklin	12,268	4,867	7	..	1,753
George	7,523	1,265	5	..	1,505
Greene	10,644	2,665	4	..	2,661
Grenada	16,802	9,087	11	1	1,527
Hancock	11,415	2,815	7	.	1,631
Harrison	44,143	10,016	75	3	589
Hinds	87,115	46,559	129	5	676
Holmes	38,734	29,399	26	1	1,482
Humphreys	21,729	17,042	12	..	2,061
Issaquena	5,734	4,668	2	..	2,867
Itawamba	18,225	1,047	5	..	3,645
Jackson	15,973	3,850	14	..	1,141
Jasper	18,634	8,990	10	..	1,863
Jefferson	14,291	10,848	5	..	2,858
Jefferson Davis	14,281	7,901	7	..	2,040
Jones	41,492	11,153	38	3	1,092
Kemper	21,881	12,655	10	..	2,188
Lafayette	19,978	8,246	23	1	869
Lamar	12,848	2,729	7	..	1,835
Lauderdale	53,748	21,232	64	6	824
Lawrence	12,471	4,696	6	..	2,079
Leake	21,803	7,736	17	..	1,283
Lee	35,313	11,225	39	1	905
Leflore	53,506	40,884	44	2	1,216
Lincoln	26,357	9,526	14	.	1,883
Lowndes	29,087	17,315	27	2	1,111
Madison	35,796	28,127	18	2	1,989
Marion	19,923	7,616	14	1	1,423
Marshall	24,869	17,770	14	1	1,776
Monroe	36,141	16,054	23	1	1,571
Montgomery	15,009	6,534	13	..	1,155
Neshoba	26,691	5,480	12	..	2,224
Newton	22,910	7,979	21	..	1,091
Noxubee	25,560	20,128	11	..	2,323
Oktibbeha	19,119	11,367	11	..	1,738
Panola	28,648	17,989	18	..	1,592
Pearl River	19,405	5,149	15	..	1,294
Perry	8,197	2,748	6	..	1,366
Pike	32,291	14,439	26	..	1,239
Pontotoc	22,034	4,193	12	..	1,836
Prentiss	19,265	2,473	11	..	1,751
Quitman	25,304	17,346	15	..	1,687
Rankin	20,353	11,092	15	..	1,357
Scott	20,914	8,661	11	..	1,901
Sharkey	13,877	10,235	15	..	925
Simpson	20,897	6,943	18	..	1,161
Smith	18,405	3,573	8	..	2,301
Stone	5,704	1,424	6	.	951
Sunflower	66,364	46,646	37	1	1,794
Tallahatchie	35,568	24,204	20	..	1,778
Tate	17,671	10,628	12	..	1,473
Tippah	18,658	3,151	10	..	1,866
Tishomingo	16,411	1,028	11	.	1,492
Tunica	21,233	18,224	11	..	1,930
Union	21,268	4,541	15	..	1,418
Walthall	13,871	6,047	7	..	1,982
Warren	35,785	20,900	46	3	778
Washington	54,310	39,125	40	4	1,358
Wayne	15,295	5,360	6	.	2,549
Webster	12,128	2,558	12	..	1,011
Wilkinson	13,957	9,787	7	..	1,994
Winston	21,239	8,131	13	..	1,634
Yalobusha	17,750	8,251	15	.	1,183
Yazoo	37,262	25,220	24	2	1,553
Total	2,009,821 (1930)	1,009,718 (1930)	1,495 (1938)	52 (1938)	1,344

* Population figures included in table 11 for comparative purposes are from the 1930 census, while the number of physicians is based on the 1938 American Medical Directory.

The same period showed increases, however, in North Carolina from 2,102 physicians to 2,663; Louisiana, 2,060 to 2,200; Florida, 1,321 to 2,072. Only a slight change occurred in South Carolina, 1,399 to 1,354.

In Alabama, North Dakota and South Carolina the ratio of population to physicians is considerably higher than in Mississippi, while in North Carolina it is somewhat lower.

State	Number of Physicians (1938)	Population* per Physician
Alabama	2,072	1,397
North Dakota	508	1,390
South Carolina	1,354	1,385
Mississippi	1,495	1,353
North Carolina	2,663	1,311
United States	169,628	762

* Population as estimated for 1937 by U. S. Bureau of Census.

Location of Physicians.—By reference to table 11 and map II one will note the distribution of physicians by counties and the location of medical personnel in relation to hospital facilities.

As might be expected, the heaviest concentration of medical personnel occurs in counties where the larger cities are located and where hospital facilities are readily available. Thus in 1938 we find that 325 physicians are located in towns of less than 500 population, 222 in units of 500-999, while 422 are in towns of 1,000-4,999, and 526 in cities over 5,000. The tendency of decreasing rural practice is readily apparent in the corresponding figures for 1923:

Number of Physicians	Population of Towns
667	Under 500
259	500-999
448	1,000-4,999
418	5,000-and over

There are no counties in Mississippi without medical personnel, but the number of physicians varies from two in Issaquena County to 126 in Hinds County, where the city of Jackson is located. Sixteen counties have more than 2,000 people per physician and in one the ratio exceeds 3,000:1. In considering these ratios one should take into account that medical service is not restricted by county lines and that marked improvements in roads and transportation have made medical and hospital care readily accessible. It was the general expression of doctors throughout the state that medical care is readily available to people who desire the services of a physician.

TABLE 12.—*Memberships in Special Societies*

	Special Societies	Members
A.	Southern Surgical Association	6
	Central Association of Obstetrics and Gynecology	1
	Southeastern Surgical Congress	36
	American College of Surgeons	48
	American Board of Orthopedic Surgery	1
	American Association for Thoracic Surgery	1
	American Board of Surgery	3
B.	American Academy of Ophthalmology and Otolaryngology	10
	American Laryngological, Rhinological and Otological Society	1
	American Board of Ophthalmology	2
	American Board of Otolaryngology	10
	American College of Surgeons	9
C.	American Urological Association	1
	American Board of Dermatology and Syphilology	1
	American College of Surgeons	2
D.	American Academy of Pediatrics	9
	American College of Physicians	12
	American Board of Pediatrics	7
	American Board of Internal Medicine	1
E.	American Psychiatric Association	9
	New England Society of Psychiatry	1
F.	American Society of Clinical Pathologists	3
	American Board of Pathology	2
G.	American Roentgen Ray Society	1
	Radiological Society of North America	6
	American College of Radiology	1
	American Board of Radiology	3
	American Radium Society	1
	Total	188

Special Practice.—According to the 1938 edition of the American Medical Directory there are 366 physicians in Mississippi engaged in special practice. Of these, 174 limit themselves to a particular specialty while 192 give special attention to a limited field. Twenty-nine are certified by the Specialty Boards as shown in table 12. Membership in special societies has now reached 188. Reference should be made to table 13.

County Medical Society Membership.—In Mississippi the memberships in the American Medical Association reached their highest level in 1934, when 1,218 physicians were affiliated with local county medical societies. In 1936 the membership was 1,200, but in the following two years a marked decrease occurred, since the 1938 directory lists only 945 members in Mississippi.

TABLE 13.—*Number of Physicians in Special Practice*

Specialty	Limited Specialty	Special Attention	Total Specialists	Certified by American Boards
Surgery	33	89	122	3
Ophthalmology-otolaryngology	42	4	46	11
Internal medicine	13	..	13	1
Pediatrics	13	17	30	7
Ophthalmology	2	1	3	..
Orthopedic surgery	1	2	3	1
Roentgenology and radiology	5	3	8	2
Anesthesia	..	4	4	..
Pathology	1	1	2	1
Psychiatry	4	2	6	..
Neurology and psychiatry	5	2	7	..
Neurology	..	..	..	..
Bacteriology	..	..	..	..
Dermatology	3	2	5	1
Obstetrics	1	26	27	..
Gynecology	1	5	6	..
Obstetrics and gynecology	4	9	13	..
Clinical pathology	2	..	2	1
Otology, laryngology and rhinology	1	2	3	1
Public health	32	..	32	..
Urology	5	14	19	..
Industrial surgery	..	3	3	..
Tuberculosis	6	5	11	..
Proctology	..	1	1	..
Totals	174	192	366	29

It is of interest to note that the membership was 992 in 1909. It was 1,033 in 1916, 1,082 in 1921, 936 in 1925, and 1,067 in 1931. Thus in spite of the continual decrease in number of physicians, the percentage of county medical society memberships increased from 48.3 per cent in 1909 to 79.3 per cent in 1936, after which it dropped to 63.2 per cent in 1938.

MEDICAL EXTENSION TRAINING IN MISSISSIPPI

During the past five years the Mississippi State Medical Association and the Mississippi State Board of Health, with the material assistance of the Commonwealth Fund of New York and with the Division of Medical Extension of Tulane University of Louisiana as the executive agency, have provided the practicing physicians of Mississippi with opportunity to continue their education after licensure. A postgraduate committee of seven members has represented contributing agencies, as well as the Mississippi State Hospital Association. Subjects requested by physicians have included obstetrics, pediatrics, surgical and gynecologic diagnosis, and syphilology. Physicians paid registration fees of $3 and $5 for one or two and one-half week courses which included lectures, clinics, round table discussions and consultation services. Every section of the state has been covered; 620 physicians registered in 1935-1936 and 330 in 1936-1937; 389 have registered since 1938. By establishing from forty to forty-five teaching centers throughout the state, physicians have been brought into close personal contact with prominent medical educators who have an appreciation of the practical problems of medical care.

NEGRO PHYSICIANS

In proportion to Negro population, Mississippi has the smallest number of Negro physicians of any state in the Union. On the basis of 1930 census reports and the number of physicians listed in 1932 by the National Medical Association, the average ratio of Negroes to Negro physicians was 2,984:1 (population 11,891,143, physicians 3,985). The Southern states with a Negro population of 9,361,577 showed a ratio of 4,079:1, while the Northern states reported 1,497:1.

Mississippi with a total of 1,009,718 (1930) Negroes and only seventy-one Negro physicians has a ratio far higher than any other state, 14,221:1. The next highest ratio occurred in South Carolina, 9,562:1.[2] Alabama had 8,145:1, North Carolina 7,852:1, Louisiana 6,692:1 and Georgia 5,493:1.

The 1938 directory lists fifty-two Negro physicians in Mississippi, as compared with fifty-eight in 1936, sixty in 1934, fifty-three in 1931, thirty-five in 1925, thirty-three in 1921, forty-three in 1916 and thirty-one in 1909. Their distribution by counties is shown in table 11.

AGE OF PHYSICIANS

The 1938 directory lists 253 or 16.9 per cent of the physicians in Mississippi as having reached the age of 65. This is in marked contrast to the 8.9 per cent in 1923 when only 159 doctors in the state were classified as 65 years or over. In this connection it is of interest to note that the Bureau of Medical Economics studied a group of 71,170 physicians (1931) and found that 9,447 or 13.3 per cent were 65 years of age or more.[2] From reports obtained during the survey it would appear that various communities in Mississippi are in need of young physicians to assume the active practice gradually being relinquished by those who are now approaching the retirement age.

State Hospital Commission

A forward step in the care of the indigent sick in Mississippi was made through the efforts of the committees of the Mississippi State Medical Society and the Mississippi State Hospital Association, when in 1936 Senate Bill 223, creating the State Hospital Commission, was enacted by the legislature. An outline of the law is hereby given.

A Hospital Commission is created, composed of five members, four appointed by the governor—one from each supreme court district, one from the state at large—and the governor is the fifth member. . . .

It is made the duty of this commission to establish uniform rates for treatment of the indigent sick, within the limit of $2.50 a day for hospitalization, $7.50 for operating room and supplies for major and $2.50 for minor operations; to make rules and regulations for carrying out this purpose; to make rules and regulations for obtaining any federal funds made available for this purpose; to lay down rules setting standards to be met by hospitals qualifying to do work in treating the indigent ill; to inspect hospitals and certify the qualifications of each hospital proposing to come under the act; to supervise work of state charity hospitals; to designate certain territory to be served by state charity hospitals, and to revoke permits issued to hospitals or for hospitals. The commission is prohibited from placing in the zone of a state charity hospital a county where a qualified hospital is or shall be located.

The governor is authorized to appoint members from the county or adjoining counties to the counties in which a qualified hospital is located to serve as a board of trustees. This board is composed of three members. The board of a county owned or a municipally owned hospital shall serve as the board for this purpose. The duty of this board is to see that the benefits of this act shall apply only to persons who have been bona fide residents of the state for six months and who are unable to provide for their own care; to make monthly reports to the State Hospital Commission of the number given hospital service in their county or counties during the preceding month, and for which compensation is sought, giving the names and addresses of such patients, date of admission and discharge of each such patient, and an itemized statement of each patient's account, and send an eligibility certificate with each patient's account; to visit and inspect all hospitals in their territory, once each month, to see whether the charity patients are properly cared for, and report complaints, if meritorious, to the State Commission; to lay down necessary rules and regulations necessary to protect the patients and charity fund, and to insure an equitable distribution of the charity funds in each county and district.

The act provides for a disbursement of all per capita charity appropriations to the counties and districts on the basis of population.

In order to qualify for assistance under this act, it is necessary that a person secure a certificate of a reputable physician and two residents of good character of the county in which the applicant resides that the applicant is eligible for assistance under the act. In cases of emergency in which it is not practicable to secure a certificate before admission, the hospital may receive and care for such person and secure a certificate later.

No compensation is provided for services of members of the State Commission, and none for members of county or district boards of trustees.

Compensation to qualifying hospitals is made from a charity hospitalization fund appropriated by the legislature.

Appropriations, Biennium Beginning July 1, 1938

By House Bill No. 526, Chapter 65, Laws of Regular Session of 1938 the Legislature appropriated to the per capital part of the fund the sum of	$500,000.00
To South Mississippi Charity Hospital	57,500.00
To Matty Hersee Hospital	57,500.00
To Jackson Charity Hospital	57,500.00
To Vicksburg Charity Hospital	52,500.00
To Natchez Charity Hospital	52,500.00
Total to Charity Hospitals	$277,500.00
Grand Total to Charity Fund	$777,500.00[3]

Fifty-four hospitals, in addition to the five charity hospitals, have been approved for state aid by the commission.

Counties designated to the state charity hospitals are as follows:

Adams County to Natchez Charity Hospital, Natchez.
Hinds County to Mississippi State Charity Hospital, Jackson.
Jones County to State Charity Hospital, Laurel.
Lauderdale County to Matty Hersee Hospital, Meridian.
Warren County to Mississippi State Charity Hospital, Vicksburg.

Patients from the counties designated are required to go to the hospitals designated, but all hospitals may receive charity patients from any county in the state. During 1938 approximately 10,000 patients were treated in state charity hospitals.

Number of Patients Treated Under the State Hospital Commission

(State Aid)	
Year of 1936-1937	5,505
Year of 1937-1938	6,566
July 1, 1938, to Feb. 28, 1939	6,406

The minimum standards of the Mississippi Hospital Association have been adopted by the State Hospital Commission and are as follows:

1. All hospitals shall have modern and efficient buildings which are separate and apart from any other building and operated solely for hospital purposes.

2. Physicians and surgeons privileged to practice in the hospital shall be organized as a definite group or staff; the word "staff" to include all doctors who practice in the hospital.

3. Membership on the staff shall be restricted to physicians and surgeons who are (*a*) full graduates of medicine residing in this state, and members of their respective county medical societies and of the Mississippi State Medical Association; (*b*) competent in their respective fields, and (*c*) worthy in character and in matters of professional ethics. In this latter connection the practice of the division of fees, under any guise whatever, is prohibited.

4. The staff shall initiate and, with the approval of the governing board of the hospital, adopt rules, regulations and policies governing the professional work of the hospital; all doctors shall read and sign the rules and regulations upon election to the staff. These rules and regulations and policies shall specifically provide:

(*a*) That staff meetings be held at least once each month.

(*b*) That the staff review and analyze at the monthly staff meeting their clinical experiences in the various departments of the hospital, such as medicine, surgery, obstetrics and the other specialties; the clinical records of patients, free and pay, to be the basis of such review and analysis.

5. Accurate and complete records shall be written for all patients and filed in an accessible manner in the hospital, a case record to include at least identification data; complaint; personal and family history; history of present illness; physical examination; special examinations, such as consultations, clinical laboratory, x-ray and other examinations; provisional or working diagnosis; medical and surgical treatment; gross pathological findings; microscopic pathological findings when indicated and possible; progress notes; final diagnosis; condition on discharge; and, in case of death, autopsy findings when possible to obtain.

2. Distribution of Physicians in the United States, published by Bureau of Medical Economics of American Medical Association, May 1936.

3. Outline of the Hospital Commission Law of the Regular Legislative Session of 1936, Senate Bill No. 223, Ch. 178: Mississippi Doctor **16**: 27 (Nov.) 1938.

6. Diagnostic and therapeutic facilities under competent supervision shall be available for the study, diagnosis and treatment of patients, these to include at least (*a*) clinical laboratory and (*b*) an x-ray department.
7. At least one doctor competent in the practice of surgery and one doctor competent in the practice of internal medicine, residing in the town or city in which the hospital is located, shall be available at all times.
8. Competent nursing service shall be available at all times and the superintendent of nurses shall be a graduate nurse registered in Mississippi.
9. A physician or registered nurse trained in anesthesia shall administer all anesthetics to patients.[4]

An inspection system of the hospitals approved for care of charity patients has been developed by the commission. The secretary reports that all the hospitals have been inspected twice since the enactment of the law. Inspections consist of personal visits by the secretary or one appointed by him to examine the facilities, records and general organization. In addition, annual questionnaires giving comprehensive data concerning each hospital are required by the commission.

The Committee on Hospital Legislation of the Mississippi State Hospital Association has more recently directed efforts toward the establishment of a central state hospital unit in Jackson to care for the indigent sick in highly specialized cases which might be too expensive and in some instances impracticable to treat in the small general hospitals in Mississippi.

Mississippi State Hospital Association

The Mississippi State Hospital Association, recently incorporated, now has seventy institutional members. According to the constitution and by-laws, the purposes of the association are:

> To promote the welfare of the people of Mississippi by the furthering of efficiency and economy in the institutional care and management of hospitals and dispensaries of the state; to improve the service rendered to patients by such institutions; to secure the cooperation of other organizations with similar objects with a view to coordination of effort, and in all ways to advance the interests of all medical service institutions.
>
> To these ends, this association shall maintain such affiliations with the American Hospital Association as shall, from time to time, be mutually desirable, and shall cooperate with it in promoting common aims and purposes within this state.

Standing committees of the organization are constitution and rules, legislation and membership. Special committees are appointed for charity hospitals, mental hospitals, public and community relations, minimum standards, nursing, publications, fixed periodic payments for hospital services, hospital records, hospital staff rules and regulations, approved merchandising and hospital taxation.

The association has adopted minimum standards for hospitals and these have been adopted by the state hospital commission in determining those eligible for state aid. These minimum requirements appear in the section dealing with the state hospital commission.

The secretary of the Mississippi State Hospital Association is also secretary for the hospital commission, thus providing a good working relationship between these two agencies for the improvement of hospital service. The hospital standards adopted by the association and commission have had a wholesome effect as a compelling stimulus to hospitals in order to become members of the association and to become eligible for state aid. At the time of the inspections, conditions were found existing in hospitals on the state aid list and in the membership of the association which did not fully conform to the minimum requirements adopted. However, a steady improvement in these deficiencies is taking place.

Mississippi State Board of Health

The state department of health was established in 1908 at the request of the state medical association. It has a voice in formulating policies of the department, as it nominates members for the state board of health. This relationship has resulted in a spirit of cooperation and good will between the general medical profession and the health department.

The state board of health consists of ten members—nine appointive members and one who is elected by the state board of health to serve as executive officer and secretary. Eight of the appointive members must be regularly qualified physicians of the state and members of the state medical association. The other appointive member must be a dentist. Three medical members from each congressional district (congressional districts as of 1932) are nominated to the governor by the state medical association and three dentists from the state at large by the state dental association, from which number the governor appoints one medical member to serve from each respective district, and one dentist to serve from the state at large. These appointments must be confirmed by the senate. The term of office of each appointive member is six years. The appointments are timed so that three members are appointed every two years.

The state board of health is responsible for the activities conducted in both full time and part time county health departments. Part time health services are administered by local physicians, who are appointed by the state board of health as county health officers to serve on a part time basis, whereas full time health services are administered by physicians and other personnel who have received public health training.

The supervision of the state board of health in local programs includes: (*a*) designation of qualifications for personnel; (*b*) approval of appointments, and in full time areas salaries also; (*c*) promulgation of rules and regulations for the protection of public health throughout the state; (*d*) promulgation of rules and regulations governing program and general conduct of work of county health departments.

State wide services include registration of births and deaths, marriages and divorces; supervision of water supplies and sewerage systems; supervision of midwives; industrial hygiene service; laboratory service; and furnishing special consultative services. In all instances, however, the local health department is expected to participate in these activities and to assist the state in the performance of its duties.

Mississippi now has thirty-nine full time county health officers and part time officers in the remaining forty-three counties.

DIVISIONS OF THE STATE HEALTH DEPARTMENT

1. Division of county health work and epidemiology:
   - (*a*) County health department administration.
   - (*b*) Malaria control.
   - (*c*) Communicable disease control.
2. Division of sanitary engineering.
3. Division of maternal and child health.
4. Division of vital statistics.
5. Division of tuberculosis control.
6. State hygienic laboratory.
7. Division of industrial hygiene and factory inspection.

FULL TIME COUNTY HEALTH DEPARTMENTS

All counties of the state are empowered and required to carry out state health laws and regulations of the state board of health and to institute measures for the protection of the public health. Any county in the state may organize a full time health department; that is, a health department where all members of the personnel devote their entire time to health duties. Certain contiguous counties may jointly contribute to the organization of a district health department.

A full time county health department usually consists of the following personnel: one full time director, a public health nurse, a sanitation supervisor and a secretary. Additional personnel may be added from time to time as funds are made available.

The county health officer must have not less than one year of clinical experience in practice or a rotating internship in which three or more months are spent in pediatrics and infectious diseases. He shall have had not less than three months of special training in public health.

Under the sanitation personnel there may be a public health engineer, veterinarian, sanitation supervisor, dental hygienist, laboratory technician and clerk.

4. Mississippi Legislature, Regular Session 1936, Senate Bill 223, Section 4.

Sources of Funds.—The state board of health gives financial aid to counties operating a full time health department according to the health needs of the area, the amount of local funds available for health work, the type of organization established, and the ability of the area to continue support of the organization. The major financial responsibility for maintenance of the health department rests with the local area.

The board of supervisors is authorized by law to appropriate funds from the general county fund or in certain counties by a special tax levy. Local sources, such as cities, towns and civic clubs, may also appropriate funds for the support of the health work.

Certain trust funds from the federal government and certain nonofficial health agencies are allotted to the counties by the state board of health with the approval of the contributing agency. Outside funds are paid into the state treasury and distributed together with the state funds. For the year ended June 30, 1937, trust funds far exceeded the state appropriations. The Commonwealth Fund is by far the largest nongovernmental organization supporting the public health program. Government agencies contributing include the United States Public Health Service under the Social Security Act and the United States Maternal and Child Health Department.

PART TIME COUNTY HEALTH DEPARTMENTS

A part time county health department may be defined as a statutory division of county government with a physician in charge who gives only a part of his time to his official duties. Additional personnel may be appointed on a full time basis.

The state board of health appoints the part time county health officer who is to serve in each county. He must be a competent physician and a member of the state medical association. The salary of the part time health officer is fixed by the board of supervisors and paid from the county treasury.

Minimal duties expected of a part time health officer are: (*a*) the collection and transmitting of morbidity reports from physicians of his county; (*b*) investigation of all cases of communicable disease reportable within twenty-four hours and establishing isolation, quarantine and other control measures for it, and (*c*) otherwise to enforce all rules and regulations of the state board of health as it may direct. The health officer is responsible to the executive officer of the state board of health for the conduction of his program.

It is the policy of the state board of health to perform certain technical services of a routine nature for all part time county health departments. Programs of a special nature such as dental hygiene, immunization and maternal and infant hygiene service shall be taken up with the health officer prior to their execution. If possible, the cooperation of the health officer should be obtained in order to insure a spirit of mutual responsibility in the execution of any special program.

ACTIVITIES OF COUNTY HEALTH DEPARTMENTS

1. Law enforcement.
2. Acute communicable disease control, including immunizations.
3. Environmental sanitation.
4. Maternal hygiene.
5. Infant and preschool service.
6. School hygiene.
7. Dental hygiene.
8. Venereal disease control, including clinics.
9. Tuberculosis control, including field clinics.
10. Laboratory. The purpose of this service is to supplement all measures used by physicians in the early diagnosis and control of communicable diseases as well as to determine the safety of food and drink supplies.

That excellent records have been made by certain county health organizations in Mississippi is attested by the places certain county health units have won in competition promulgated by the American Public Health Association in counties of nine southeastern states. In 1936 Pike County and Lauderdale County won first and second places respectively, and in 1937 Coahoma County won second place. The appraisal of the work of the county health department is based on a form prepared by the American Public Health Association.

The distribution of the full time county public health units, as well as the part time units, is shown on the accompanying map. When a full time health officer serves more than one county, district offices are established in each county.

The public health nursing service was organized in 1921. All personnel is cleared through the office of the director of public health. The duties of the public health nurses are essentially the same as those recommended by the National Organization of Public Health Nursing. Thirteen counties not having full time health officers are supplied with public health nursing service directly from the state office. Nurses are allotted to counties according to the assessed valuation for tax purposes and not according to the population.

Health education is stressed as one of the more important activities of all the full time county health departments. Newspaper publicity, radio talks, window displays and lectures to various organizations are utilized effectively. The subject matter may concern maternal health, venereal diseases, malaria, tuberculosis, communicable disease, and so on.

The service rendered by midwives throughout the state has undergone steady improvement. In 1921 there were 4,209 midwives. This number has decreased to approximately 3,000 in 1937, indicating a tendency to require the doctors' services. All but seventy-five of the midwives are Negresses. Midwives are organized into groups for the purpose of registration and instruction through the state health department. An important part of the work of the county health nurse is instruction to midwives and inspection of their equipment.

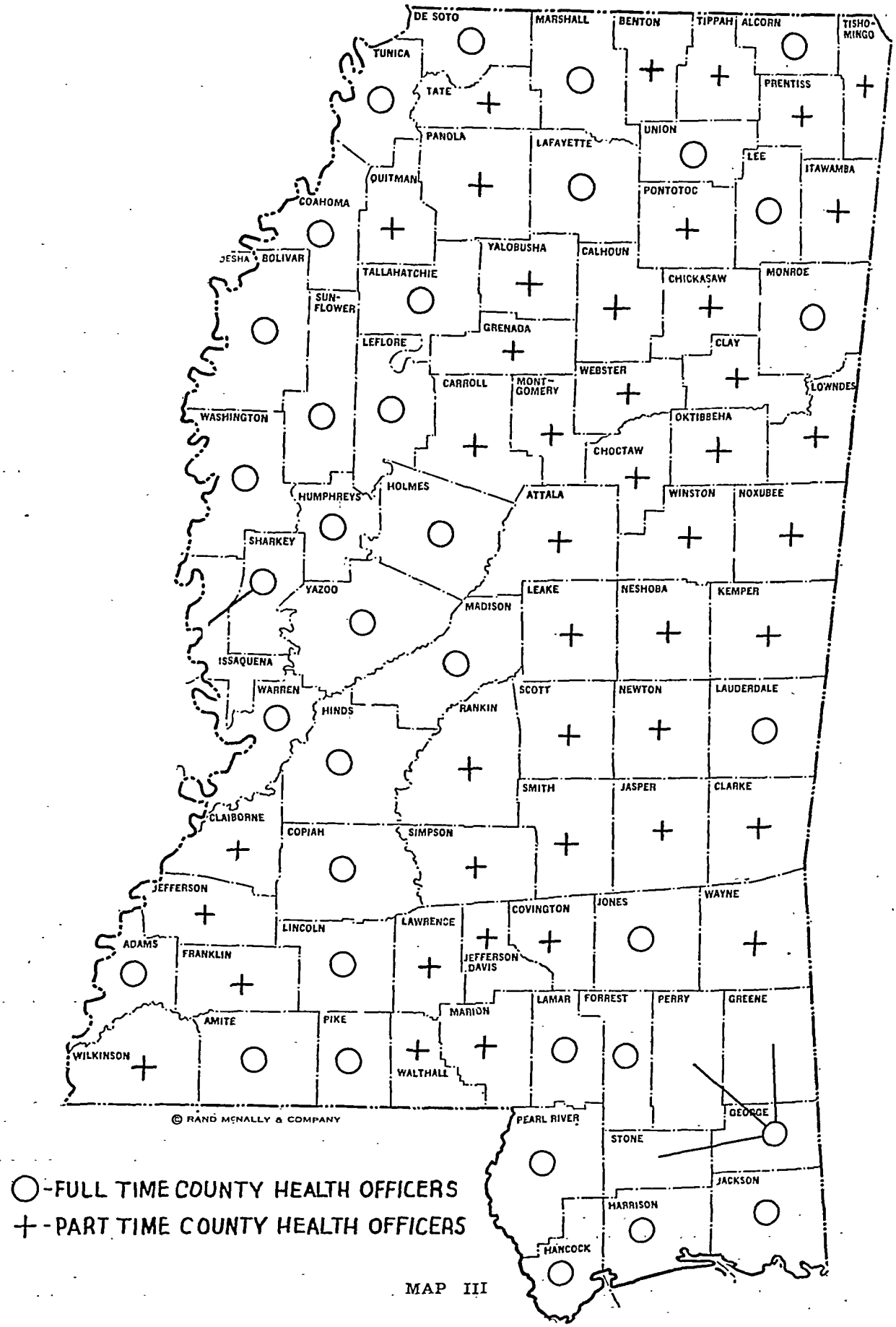
Infant and preschool clinics have been inaugurated in many counties. Defects when found are pointed out to parents, who are urged to take their children to local doctors for treatment. Public health nurses follow up each case in the homes in order to secure the best cooperation from the parents. Annual examinations of children in the first, third, fifth and seventh grades are carried on regularly in most counties.

Mississippi has established an excellent record in typhoid and malaria control. The other more common communicable diseases have been held in check by the immunization program carried out by the county health departments. The field tuberculosis service is under the supervision of the state sanatorium. Clinics are held in various sections of the state several times each year by the traveling staff of the state sanatorium. While the field work in tuberculosis is steadily improving, the facilities for hospitalization fall short of the needs. The work of the tuberculosis clinics is supplemented by home visits of the county health nurses, making possible the examination of contacts, instruction in the care of home cases, and so on.

The program for the control of syphilis is being developed; several years will be necessary to reach the maximum effectiveness. In most counties not only the patients in antepartum clinics but some groups of factory workers are examined for syphilis. Contacts of known positives are encouraged to have serologic tests.

The establishment of tuberculosis, syphilis and antepartum clinics in various counties and regions represents a definite forward step in the improvement of public health in the state.

Sanitary Engineering.—The sanitary engineer's activities concern inspection of milk and water supplies. He is in a large measure responsible for the success of the malaria control


DE SOTO
MARSHALL
BENTON
TIPPAH
ALCORN
TISHOMINGO
TUNICA
TATE
PRENTISS
PANOLA
LAFAYETTE
UNION
LEE
ITAWAMBA
QUITMAN
PONTOTOC
COAHOMA
YALOBUSHA
CALHOUN
DESHA
BOLIVAR
TALLAHATCHIE
CHICKASAW
MONROE
SUNFLOWER
GRENADA
LEFLORE
CLAY
WEBSTER
CARROLL
MONTGOMERY
LOWNDES
WASHINGTON
OKTIBBEHA
CHOCTAW
HUMPHREYS
HOLMES
ATTALA
WINSTON
NOXUBEE
SHARKEY
YAZOO
MADISON
LEAKE
NESHOBA
KEMPER
ISSAQUENA
WARREN
HINDS
RANKIN
SCOTT
NEWTON
LAUDERDALE
SMITH
JASPER
CLARKE
CLAIBORNE
COPIAH
SIMPSON
JEFFERSON
COVINGTON
JONES
WAYNE
LINCOLN
LAWRENCE
ADAMS
FRANKLIN
JEFFERSON DAVIS
LAMAR
FORREST
PERRY
GREENE
MARION
AMITE
PIKE
WILKINSON
WALTHALL
© RAND MCNALLY & COMPANY
PEARL RIVER
GEORGE
STONE
JACKSON
HARRISON
HANCOCK
○-FULL TIME COUNTY HEALTH OFFICERS
+-PART TIME COUNTY HEALTH OFFICERS

MAP III

campaign. Much has been accomplished in recent years through the construction and improvement of drainage ditches with WPA funds. It is reported that largely through this work the number of deaths due to malaria in Mississippi has now been reduced to less than 300 a year.

Definite progress in recent years has been made in the building of sanitary privies in the rural communities and in establishing adequate sewerage control for the towns and cities. Wide use of government specifications and WPA help has been made here.

Laboratories.—Considerable variation exists in the scope of the laboratory services. Many county health units depend almost entirely on the service provided by the state hygienic laboratory where serologic tests, agglutination tests, examination of blood smears for malaria, bacterial counts on milk and water are available. Where the laboratory facilities are limited, it may be possible in some instances to improve the service by the utilization of hospital laboratory departments in the community. The state hygienic laboratory provides serologic examinations for private practitioners and hospitals throughout the state. Certain biologic products and materials for clinical tests are supplied by the department.

Veterinarians.—A few departments include part time veterinarians for inspection of animals and meat.

Dental Hygienists.—A number of county health departments employ part time dental hygienists. The work is carried on in dentists' offices, where certain days are set aside for school children. Lectures in schools and clubs serve to educate adults as well as children in the better care of teeth.

Crippled Children.—The crippled children's service operates under the department of education along with vocational rehabilitation. Most of these children are hospitalized or brought to offices of the private doctors in Jackson, Memphis and Mobile. The public health department cooperates in locating and reporting children to this department.

Medical Licensure.—The granting of license to practice medicine in Mississippi is under the jurisdiction of the state board of health. An active campaign against illegal practitioners is carried out by the state department. Since it has been difficult to secure convictions of illegal practitioners, the department leans heavily on the health educational program to improve conditions. It is interesting to note that the number of chiropractors has been reduced during the past fifteen years from 178 to forty-seven.

Vital Statistics.—A clerk is appointed in each department who in addition to the usual office routine is responsible for reporting on births, deaths and communicable diseases.

One of the tables prepared by the Division of Vital Statistics which seemed to have a bearing on the extent to which the people in Mississippi are now receiving medical care is of particular interest.

Number and Percentage of Patients Dying Without Medical Care

	White	Colored	Total Number	Total per Cent
1933.....	461	3,543	4,004	18.5
1934.....	415	3,028	3,443	15.9
1935.....	400	2,793	3,193	15.0
1936.....	479	3,056	3,535	14.6
1937.....	531	3,191	3,722	15.5

Instructions to reporting clerks exclude sudden deaths caused by cerebral hemorrhage, thrombosis, trauma, and the like.

In order to properly evaluate these figures, additional information concerning deaths reported occurring without medical care was secured by further investigation of 138 recent cases. Health officers in Lee, Chickasaw, Calhoun, Harrison, Pike, Coahoma and Monroe counties lent their assistance. Direct contact was made with the families in which the deaths occurred. The first-hand investigation of these deaths brought forth illuminating facts concerning the reliability of the records. Seventy-four of these persons actually did receive medical care, twenty-three died suddenly without medical care, nine were under the care of midwives, three had been treated by quacks, and twenty-nine did not or would not have doctors.

The latter group contains a few on which complete information was not obtained. It was learned that of these, twenty-three could have had the services of a physician, but made no request. Not one instance was found among the 138 personally investigated cases where an unsuccessful attempt had been made to secure the services of a physician, nor was there a single instance in which the doctor had refused to respond to a call.

Health officers, physicians and laymen interviewed stated that they did not know of any person who had tried to get a doctor and failed. Individuals asked if they could secure the services of a physician even though they were unable to pay most frequently answered that they could. Some persons stated that they could get the services of a physician but made no attempt because of their inability to pay. These facts would seem to point toward economic circumstances and further educational needs rather than lack of available medical service.

Farm Security Administration

The Rural Resettlement Administration, now the Farm Security Administration, early in 1936 proposed plans to enable the farm clients of the administration to provide for themselves medical services on an annual prepayment basis. According to a statement from Dr. R. C. Williams, medical director of the Farm Security Administration (Jan. 19, 1939), states with which understandings have been worked out for medical care through the Farm Security Administration total thirty (January 1939), including Mississippi. The number of counties in Mississippi in which plans are in operation total fourteen as follows:

Adams	Leflore	Smith
Amite	Madison	Sunflower
Copiah	Pike	Walthall
Jefferson Davis	Scott	Wilkinson
Leake	Simpson	

Up to January 1939, approximately fifty counties had accepted the plan.

The Farm Security Administration agrees to lend its clients a stated amount, usually between $12 and $30 per family annually, to be used for medical care. This amount is based on the abilities of the families to pay as determined by the expected net income according to the farm and home plans. Each client has the privilege of choosing any physician or druggist entering into the agreement but must confine his choice as much as possible to physicians within a reasonable distance.

The funds are placed in the hands of trustees agreed on by the physicians concerned and the Farm Security Administration supervisor in the county. Physicians render such services as in their opinion are necessary. At the end of each month physicians furnish the trustee an itemized statement of the services rendered. The funds are divided into twelve equal monthly allotments and all bills are paid on a pro rata basis. The schedule of charges for services and drugs is based on the usual charge for services furnished people of moderate means in the community. A variety of plans has been proposed by the Farm Security Administration, and the experience with these plans has shown clearly that one uniform plan cannot be operated satisfactorily for all communities which differ so widely in local conditions.

It appears to be the policy of the Farm Security Administration to provide an opportunity for the medical society to examine the administration's proposals for medical services to its clients before placing the plan in actual operation. Medical societies are warranted in studying these plans with the same sympathetic attitude that they have toward any other persons who need medical care. The actual operation of any specific administration plans will, of course, depend on the acceptance by the practicing physicians in each community in which a program is proposed. These physicians may properly look to state and county societies for an expression of acceptance or rejection of the principles involved

In Pike County the funds so lent to clients are under the trusteeship of the county medical society. Funds are divided as follows:

Medical care, ordinary drugs and incidentals 70%
Hospital care, extraordinary drugs, serums and incidentals . . 30%

Since the plan has been in operation in Pike County, the percentages of accounts paid the doctors under the pro rata scheme is as follows:

	Percentage of Accounts Paid
July, 1938	46 5
August, 1938	47 0
September, 1938	92 0
October, 1938	76 0
November, 1938	100 0
December, 1938	80 0
January, 1939	62 0
Average for Seven Months	70 5

Early in 1939 there were some 200 families under medical care through the Farm Security Administration and, according to an estimate made by the secretary of the county society, this will be increased to about 500 during the year.

The council of the state medical society considered the subject and went on record that it was opposed to state medicine or any other kind of medicine that would break the relationship of the family doctor-patient, but it also stated "In event that conditions should arise in some county where the members of organized medicine felt that the group being helped by the Farm Security Program needed better medical care, then it would be left to the members of the organized medical society in that county to work out the program." [5]

SUMMARY

During the last four years there has been a steady increase in the number of hospital beds in Mississippi. Facilities for Negroes have increased less rapidly than those for the whites

Admissions to general hospitals increased 45 6 per cent in the last seven years, while the beds increased 4 6 per cent. The occupancy in general hospitals is increasing even more rapidly than the number of beds and yet only 53 2 per cent of the general hospital beds were occupied in 1938 General hospitals admitted 94.5 per cent of all admissions for 1938, but patient days in general hospitals represented only 23.2 per cent of the total.

In appraising medical service in this state one must take into account the fact that over 50 per cent of the population in Mississippi are Negroes and that the demand for medical service among this group may fall below the requirements of the white population.

While the population is about equally divided, the number of general hospital beds for Negroes is 0 7 per thousand as compared with 2.4 per thousand of the whites. In proportion to the Negro population, Mississippi has the smallest number of Negro physicians of any state in the Union.

The geographical distribution of general hospital facilities in Mississippi may be considered adequate excepting possibly in the extreme northwest and the extreme southeast, but these areas are partially served by extrastate hospitals. Distance and transportation offer no serious difficulties in hospitalization since approximately 25 per cent of the patients admitted to general hospitals in 1938 came from a distance of thirty miles or more.

More qualified radiologists and pathologists are needed in the state. Clinical laboratory facilities do not provide a sufficiently wide scope of service in most hospitals. Investigation indicated clinical laboratory examinations should be more complete.

Obstetrical delivery rooms and nurseries are needed in many general hospitals offering this service; thirty-seven have no delivery rooms and forty-three have no nurseries.

The tuberculosis program is in need of more adequate financial support in order to utilize the present facilities and to increase the number of beds about 100 per cent

The number of beds for nervous and mental patients is apparently adequate for the needs of the state. A field psychiatric clinic program, however, is needed.

The development of nursing education in Mississippi has not kept pace with the advances in other parts of the country and this may be partially ascribed to present economic conditions The number of graduate nurses employed in general hospitals does not compare favorably with accepted standards of hospital service.

Mississippi has no hospitals approved for intern or residency training. Several have made application and are now in the process of conforming to the requirements.

It appears that the distribution of physicians in Mississippi has followed the general trend away from rural areas, but this does not necessarily mean a lack of sufficient medical service. With increased hospital facilities and modern methods of transportation and communication it is possible for individual physicians to serve larger territories. The economic factor is no doubt of paramount importance in the distribution of physicians.

Since 1886 the population in Mississippi has expanded approximately 79 per cent while the number of physicians has decreased 11 per cent. Apparently the state is finding it difficult to attract young practitioners as evidenced by the high percentage of physicians in the state over 65 years of age.

In Mississippi, as in some other Southern states, the population has increased while the number of physicians has actually decreased. It does not, however, necessarily follow that medical service is inadequate or inferior.

A state wide cooperative medical extension program has been in successful operation for five years.

The Mississippi State Board of Health with the support of private and public funds has undergone a remarkable development in recent years. At present there are thirty-nine full time county health officers and part time officers in the remaining forty-three counties.

That there is an awakening of the public and the medical profession to the value of hospital service generally is apparent in the rapid increase in the number of beds in registered hospitals and the even greater rise in occupancy during the past four years as compared with the previous period. The education of the public is also reflected in the increase in the number of births in hospitals.

All available information clearly points to the fact that existing general hospital beds are sufficient for the white population of Mississippi. Additional beds for Negroes are needed.

Extensive inquiry among all classes of the population, including doctors, health officers, nurses and workers, elicited the almost uniform response that there is practically no one in Mississippi who cannot secure medical care regardless of his ability to pay.

5 Medical Care for Clients of Farm Security Administration in Mississippi, Mississippi Doctor 16: 59 (Feb.) 1939.

OFFICIAL NOTES

ADDRESSES BY OFFICIAL STAFF

DR. W. W. BAUER:

June 9—Marquette University Testimonial Banquet for Dr. Irvin Abell, Milwaukee.
June 16—Physical Education Conference, Iowa City.
June 28—Second Health Institute at Ohio State University, Columbus, Ohio.

DR. MORRIS FISHBEIN:

June 7—University of Chicago Alumni Day Banquet, Hutchins Commons, Chicago.
June 8—Commencement address, Rochester Public Schools, Rochester, Minn.
June 18—Mount Sinai Intern Alumni Association, Chicago.
June 25—Maine Medical Association, Poland Springs, Maine.
June 29—American Pharmaceutical Manufacturers Association, Skytop, Pa.

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 1 p. m. eastern standard time (12 noon central standard time, 11 o'clock mountain time, 10 a. m. Pacific time).

Starting April 30, daylight saving time took effect in Chicago. The program is therefore being broadcast at the same hour Chicago daylight saving time, which means one hour earlier central standard time, two hours earlier mountain time and three hours earlier Pacific time. In communities where daylight saving time is in effect there is no change in the hour of the broadcast.

Owing to network conflicts the Chicago broadcast does not occur at 1 o'clock Wednesday but there is a rebroadcast from a recording over station WENR at 8 o'clock each Monday evening (8 o'clock Chicago daylight saving time, 7 o'clock central standard time). The program broadcast each Monday is identical with the network program of the preceding Wednesday.

The next three programs to be broadcast, together with their dates and their topics, are as follows:

June 7. Vacations—Why and How.
June 14. Never Stop Learning.
June 21. Better Babies.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Statue of James Marion Sims Dedicated.—A life size bronze statue of Dr. James Marion Sims, New York (1813-1883), pioneer gynecologist who spent his early years of practice in Alabama, was dedicated April 19 during the annual session of the Medical Association of Alabama. The statue stands on the capitol grounds near the bronze likeness of Dr. John Allan Wyeth, confederate soldier, surgeon and author and founder of the New York Polyclinic Medical School and Hospital.

ARKANSAS

Society News.—The Hot Springs Academy of Medicine was addressed April 4 by Drs. Samuel A. Thompson and Rufus B. Robins, Camden, on heart problems and head injuries respectively.——At a meeting of the Benton County Medical Society, Gravette, April 13, Drs. James T. Powell, Gravette, discussed "Cranial Trephining and Results" and Clyde L. McNeil, Rogers, "Sulfanilamide."——Dr. Barnett P. Briggs, Little Rock, addressed the Pulaski County Medical Society April 17 on "Chronic Nontuberculous Lung Infections in Children."——The Sebastian County Medical Society was addressed April 11 by Dr. Charles T. Chamberlain, Fort Smith, on "Sulfapyridine."

County Society Sponsors Postgraduate Course.—The Mississippi County Medical Society is sponsoring a postgraduate course at Osceola. The program opened April 4 and will continue for ten weeks. The staff of the University of Tennessee School of Medicine, Memphis, is offering the instruction with the assistance of the county medical society.

DISTRICT OF COLUMBIA

New Officers of District Society.—Dr. Daniel L. Borden was chosen president-elect of the Medical Society of the District of Columbia at its annual scientific assembly in Washington April 25-27. He will take office July 1, 1940, succeeding Dr. John H. Lyons, who is president-elect, and who takes office July 1 this year, succeeding Dr. William J. Mallory. Other officers include Drs. John J. Shugrue and Coursen B. Conklin, who has been secretary for twelve years, vice presidents. At the meeting the society decided to launch a program to help reduce the number of traffic deaths in Washington, approving the appointment of a committee on automobile accidents. A postgraduate course in gastro-enterology comprised the society's scientific program, with many out of state and local physicians as instructors.

Annual Psychiatric Meeting.—The second annual meeting of the Medical Society of St. Elizabeths Hospital was held in Washington April 14. The speakers included:

Dr. James M. Cunningham, Hartford, Conn., The Significance of the Structure of Langu[illegible]
Dr. Bruce B. Robinso[illegible] of the Public School in the Causation, [illegible] of the Personality Problems of Children.
Wini[illegible]ington, The Story of Psychology at St. [illegible]
Dr. [illegible] Shock Treatment and Prefrontal Lobotomy—A Comparison.
Dr. Ernest E. Hadley, Washington, Psychoanalysis and Research.
Dr. Harry Stack Sullivan, Washington, Some Notes on the Therapeutic Interview.
Dr. Nolan D. C. Lewis, New York, The Pluralistic Approach in Psychiatric Research.

Guests at the dinner were Drs. Charles Macfie Campbell, Boston, and Riley H. Guthrie; Dr. Campbell gave the annual address.

FLORIDA

Changes in Health Officers.—Dr. Rayburn N. Joyner, Marianna, has resigned as director of the Jackson County health department to enter the private practice of medicine. Dr. Charles W. McDonald, Marianna, district health officer, has been named acting health officer.——Dr. Charles M. Pearce, formerly state health commissioner of Oklahoma, has been appointed health officer of Lake County, succeeding Dr. Terry Bird. His headquarters will be in Tavares.

GEORGIA

Personal.—A bust of Dr. Emmett D. Highsmith was presented to the Fulton County Medical Society, Atlanta, recently. The bust was originally presented to Dr. Highsmith by the Georgia Power Company, with which he has been associated for many years. Dr. Highsmith is retiring from active practice on account of ill health.

District Meeting.—The First District Medical Society was recently addressed in Statesboro, among others, by Drs. Shelton P. Sanford, Savannah, on coronary thrombosis; Antonio J. Waring, Savannah, "'Chronic Cold' in Childhood," and Alfonso John Mooney Jr., Statesboro, "Atypical Signs and Symptoms in Perforated Peptic Ulcer."

State Medical Election.—Dr. Job C. Patterson, Cuthbert, was chosen president-elect of the Medical Association of Georgia at its annual convention in Atlanta April 28. Dr. William H. Myers, Savannah, was inducted as president. Vice presidents are Drs. Mark S. Dougherty Jr., Atlanta, and Amory A. Rogers, Commerce. Dr. Edgar D. Shanks, Atlanta, was reelected secretary. Savannah was chosen as the place for the 1940 session, April 23-26.

ILLINOIS

Chicago

Society News.—Dr. James B. Murphy, member of the Rockefeller Foundation for Medical Research, New York, lectured at Billings Hospital under the auspices of the Educational Association on Cancer Lectureship May 10 on "The Development of Present Trends in Cancer Research."

INDIANA

Officers of Tri-State Society.—Dr. Donald R. Brasie, Flint, Mich., was elected president of the Northern Tri-State Medical Association at its sixty-sixth annual convention at South Bend April 11, succeeding Dr. Jon N. Kelly, LaPorte. Other officers are Drs. Burt Hibbard, Lima, Ohio, vice president; E. Benjamin Gillette, Toledo, secretary, and Lyman T. Rawles, Fort Wayne, treasurer.

Society News.—At a meeting of the Indianapolis Ophthalmological and Oto-Laryngological Society March 9 Dr. Arthur W. Proetz, St. Louis, discussed "Physiology of the Nose and Its Clinical Applications."——Dr. Franklin B. Peck, Indianapolis, discussed "History of Inoculation and Vaccination Against Smallpox in the United States" before the first regular meeting of the newly organized Indiana Association of the History of Medicine May 17.——Dr. Paul L. Stier discussed "Treatment of Pneumonia with Sulfapyridine" before the Fort Wayne Medical Society April 25.——Dr. Merlen H. Draper addressed the Academy of Medicine and Surgery, Fort Wayne, April 11 on "Problems in Tuberculosis."——Dr. Marlow W. Manion, Indianapolis, was elected president of the Indiana Academy of Ophthalmology and Otolaryngology at its twenty-third annual session in Indianapolis April 5, and Dr. Edwin W. Dyar Jr., Indianapolis, secretary-treasurer.——Dr. William J. Kerr, San Francisco, discussed "Early Diagnosis of Coronary Disease" before the Indianapolis Medical Society May 11.

IOWA

State Medical Election.—Dr. Frank P. McNamara, Dubuque, was chosen president-elect of the Iowa State Medical Society at its annual meeting in Des Moines April 27 and Dr. Felix A. Hennessy, Calmar, was installed as president. Other officers of the society include Drs. Edwin A. Moore, Harlan, and Fred M. Smith, Iowa City, vice presidents; Robert L. Parker, Des Moines, secretary, and Harold J. McCoy, Des Moines, treasurer. The 1940 session will be in Des Moines May 8-10.

KANSAS

Personal.—Dr. Darrel L. Evans, Manhattan, recently resigned as health officer of Riley County.——Dr. Percy A. Petitt, Paola, has been appointed health officer of Miami County.

The Porter Lectureship in Medicine.—Homer W. Smith, Sc.D., professor of physiology, New York University, New York, gave the ninth course of lectures under the Porter lectureship in medicine, April 18-19, in Kansas City and Lawrence. His subjects were "Newer Methods of Study of Renal Function in Man"; "Evolution of the Kidney," and "Physiological Control of Renal Blood Flow."

LOUISIANA

Personal.—The Order of the Crown of Yugoslavia was recently conferred on Dr. Daniel M. Kingsley, New Orleans, for assistance given the master and crew of the Yugoslavian Steamship *Prince Andrej* who suffered from influenza while at sea.

Special Society Elections.—Dr. Henry B. Alsobrook was chosen president of the Louisiana Obstetrical and Gynecological Society recently; Dr. Paul J. Carter, vice president, and Dr. Earl C. Smith, secretary-treasurer.——At the annual meeting of the Louisiana State Pediatric Society recently in Alexandria, Dr. Philip C. De Verges was elected president; Dr. Ralph Talbot, vice president, and Dr. William C. Rivenbark, secretary-treasurer.

MARYLAND

Society News.—A symposium on bronchiectasis was presented before the Maryland Thoracic Society April 19 with the following speakers: Drs. Carroll Gardner Warner, Baltimore, Hugh J. J. Welch, Mount Wilson, Howard E. Ashbury, Waitman F. Zinn and William F. Rienhoff Jr., Baltimore.

MASSACHUSETTS

Society News.—Dr. Richard Cannon Eley, Boston, was chosen president of the New England Pediatric Society at its meeting recently; Dr. Robert M. Lord, Providence, R. I., vice president, and Dr. James Marvin Baty, Boston, secretary-treasurer.——Frank G. Young, Ph.D., research associate, National Institute for Medical Research, London, lectured at Harvard Medical School April 20 on "The Anterior Pituitary Gland and Carbohydrate Metabolism."——Dr. Ira I. Kaplan, New York, discussed "The Relation of Irradiation to Medicine" before the Greater Boston Medical Society, April 12.

State Medical Meeting in Worcester.—The Massachusetts Medical Society will hold its one hundred and fifty-eighth annual session in the Municipal Memorial Auditorium and the Hotel Bancroft, Worcester, June 6-8, under the presidency of Dr. Channing Frothingham, Boston. Among others, the following will speak:

Dr. William P. Murphy, Boston, Importance of Hypochromic Anemia.
Dr. Alexander M. Burgess, Providence, R. I., Role of Oxygen in the Treatment of Pneumonia.
Dr. Michael E. Murray Jr., Boston, Atypical Pneumonia of Unknown or Possibly Virus Etiology.
Dr. Paul A. O'Leary, Rochester, Minn., Latency and Wassermann-Fastness.
Dr. Clarence Guy Lane, Boston, Indications and Contraindications of Roentgen Rays in Dermatology.
Dr. Francis C. McDonald, Stoneham and Boston, Nonspecific Therapy.
Drs. Edward C. Curnen Jr. and John A. V. Davis, both of Boston, Specific Therapy.
Dr. John S. Coulter, Chicago, Physical Therapy in the Treatment of Fractures.
Dr. Arthur U. Desjardins, Rochester, Minn., Value of X-Ray in the Treatment of Infections and Inflammatory Conditions.
Dr. Richard B. Cattell, Boston, Obstructing Lesions of the Large Bowel.
Dr. Arthur M. Fishberg, New York, Cardiac and Circulatory Failure.
Dr. Walter C. Alvarez, Rochester, Minn., Management of the Nervous Patient.
Dr. Emil Novak, Baltimore, Endocrines and Endocrine Therapy in Gynecology.
Dr. Raymond S. Titus, Boston, A Résumé of Maternal Mortality Study in the State of Massachusetts for the Year 1938.
Dr. Frederick J. Lynch, Boston, Rupture of the Uterus.
Dr. Benjamin F. Cornwall, Salem, Obstetrical Analgesia.

Dr. Wilder G. Penfield, Montreal, will deliver the Shattuck Lecture Tuesday evening on "Epilepsy and the Cerebral Lesions of Birth and Infancy" and Dr. Elliott P. Joslin, Boston, the Annual Discourse Thursday afternoon on "The Massachusetts Medical Society and Socialized Medicine." A symposium on surgery of the stomach and duodenum will be presented Thursday morning by Drs. Chester M. Jones, Edward B. Benedict, Arthur W. Allen and Frank H. Lahey, all of Boston, and William J. Elliott, Worcester.

MICHIGAN

Changes in Health Officers.—Dr. John K. Altland, Allegan, has been appointed director of the newly created health unit in Traverse County.——Dr. Philip E. M. Bourland, Iron Mountain, has resigned as director of the Dickinson County health unit.

Obstetric Society Alters Name.—At a meeting of the Detroit Obstetrical and Gynecological Society in Detroit May 3 the society's name was changed to the Michigan Society of Obstetricians and Gynecologists. Newly chosen officers are Drs. Harry M. Nelson, president; Russell W. Alles, vice president; Howard C. Walser, secretary, and Milton A. Darling, treasurer.

Society News.—At a joint session of the Detroit Bar Association and the Wayne County Medical Society April 17 the speakers were Judge Guy A. Miller, Wayne circuit court, on "Insanity as Ground for Divorce"; William Henry Gallagher, LL.B., "Mental Capacity Necessary to Execute Wills and Other Legal Documents," and Drs. Arthur W. Frisch, Detroit, and Martin H. Hoffmann, Eloise, on "Medical-Legal Aspects of Blood Grouping" and "Insanity as a Defense" respectively.——The Michigan Society for Mental Hygiene held its third annual spring conference in Grand Rapids April 20-22; general sessions were given over to discussions of "Mental Hygiene Values in Foster Home Placements and Adoptions"; "Reality of Education in Present Day Life"; "Parental Influence in the Prevention of Crime." Among the speakers was Dr. Gregory Zilboorg, New York, on "Influence of Present Day Life on Our Children."

MINNESOTA

Sentenced for Forging Medical Prescriptions.—Harry C. Nagler, former Minneapolis pharmacist, was sentenced April 27 in the district court of Hennepin County to a prison term not to exceed five years. Nagler pleaded guilty March 27 to an information charging him with the crime of forgery in the second degree. He had forged a medical prescription using the name of "J. A. Ready, M.D." He had also forged several thousand medical prescriptions calling for whisky, alcohol and other intoxicating liquor. Eleven of the druggists, the owners of the drugstores where Nagler sold the prescriptions for sums ranging from 5 to 15 cents per prescriptions, were fined $100 each or sentenced to serve sixty days in the Minneapolis workhouse; the fines were paid. The liquor permits of these eleven stores, all expiring April 30, were not to be renewed, it was stated.

MISSISSIPPI

Society News.—The Delta Medical Society devoted its meeting in Greenville April 12 to a discussion of "What the Present Trend Toward Socialized Medicine Is Going to Do to the General Practitioner." The speakers included Drs. Ira B. Bright, and George Y. Gillespie Jr., Greenwood; Joseph G. Peeler, Shaw; Oscar E. Ringold, Cleveland; Onnie P. Myers, Indianola; James R. Jackson, Belzoni; James W. Jackson, Belzoni, and Earl T. White and Hugh A. Gamble, Greenville.

Changes in Health Officers.—Dr. James A. Sproles Jr., formerly of Jackson, has been appointed health officer of Amite County. Dr. Charles E. Catchings, Woodville, was recently named health officer of Wilkinson County to fill the unexpired term of Dr. Edwin M. Butler, Centerville, who has been appointed health officer of Union County. Dr. John W. Dorman, Holly Springs, recently was placed in charge of the Marshall County health department, succeeding Dr. Guy R. Post, who went to Clarksdale.

MISSOURI

New Committee on Industrial Health.—At the annual session of the Missouri State Medical Association, April 10-12, the following physicians were appointed to the new committee on industrial health: Drs. Edwin C. Funsch, St. Louis, chairman; John E. Castles, Kansas City; William M. Kinney, Joplin; Hyman I. Spector, St. Louis, and Gaylord T. Bloomer, St. Joseph.

Pathological Society Organized.—The St. Louis Pathological Society was recently formed with Dr. Margaret G. Smith, president; Dr. Henry Pinkerton, vice president in charge of programs, and Dr. Hollis N. Allen, secretary-treasurer. The first scientific session was to be held April 28 with the following speakers, among others: Dr. Henry W. Edmonds, malformations of the heart, and Dr. Louis H. Hempelmann Jr., a technic for differentiating mucoid material of epithelial and connective tissue origin with special reference to mixed tumors of the salivary glands.

Society News.—Dr. John S. Coulter, Chicago, discussed "The Application of Heat and Cold in the General Practice of Medicine" before the St. Louis Medical Society May 2. Dr. Forest H. Staley was the leader in the round table discussion of the society June 2; the theme was "The Present Rationale in the Treatment of Poisonous Bites." Dr. Horton R. Casparis, Nashville, Tenn., discussed "The Physicians' Responsibility in the Tuberculosis Control Problem" before the society April 18.——Dr. Nelson W. Barker, Rochester, Minn., addressed the Kansas City Academy of Medicine April 14 on "Recent Advances in Our Knowledge of Vascular Diseases."

NEW HAMPSHIRE

State Medical Meeting.—The one hundred and forty-eighth annual meeting of the New Hampshire Medical Society will be held June 8-9 at the Hotel Carpenter, Manchester, under the presidency of Dr. Clarence O. Coburn, Manchester. There will be round table conferences on medicine, surgery, pediatrics, obstetrics, diseases of the eye, birth control, anesthesia and diseases of the nose and throat. The program announces the following papers:

Dr. William G. Lennox, Boston, Treatment of Epilepsy and Migraine.
Dr. Hiram H. Merritt, Boston, Neurosyphilis and Its Treatment.
Dr. Tracy J. Putnam, Boston, Treatment of Paralysis Agitans and Athetosis.
Dr. Louis A. Buie, Rochester, Minn., Proctologic Problems of the General Practitioner and the Surgeon.
George A. Moulton, Pharm.D., Peterborough, The Development of Socialized Pharmacy in the United States.
Dr. William Wayne Babcock, Philadelphia, Clinical Phases of General Surgery.
Dr. Raymond A. Vonderlehr, Washington, D. C., Control of Syphilis.

Dr. Rock Sleyster, Wauwatosa, Wis., President of the American Medical Association, will deliver an address Friday morning on "Medical Problems of the Day" and will also speak at the banquet Friday evening.

NEW JERSEY

Public Health Week.—The Bergen County Medical Society sponsored a public health week beginning May 14 in cooperation with public health groups. Exhibits were shown at various hospitals. A meeting was held under the auspices of the woman's auxiliary to the county society in Hackensack Friday May 19 with Dr. Haven Emerson, New York, as the speaker on "Organized Care of the Sick and Public Health in Relation to 'Socialized Medicine.'" Saturday May 20 the motion picture "The Birth of a Baby" was shown in Hackensack to invited groups. The week concluded with the dedication of an "orthopedic pool" at the Bergen County Hospital, presented by the American Legion Sunday May 21.

State Medical Meeting at Atlantic City.—The one hundred and seventy-third annual meeting of the Medical Society of New Jersey will be held at Haddon Hall, Atlantic City, June 5-8 under the presidency of Dr. William J. Carrington, Atlantic City. A general public session will be held Tuesday evening June 6 with the following speakers:

Dr. Rock Sleyster, Wauwatosa, Wis., President, American Medical Association, Medical Problems of the Day.
Dr. Nathan B. Van Etten, New York, President-Elect, American Medical Association, The Doctor at the Crossroads.
Dr. Haven Emerson, New York, Governmental Planning for Health.

Among guest speakers who will address the sections are the following:

Dr. Franklin F. Snyder, Chicago, Fetal Respiration and Its Relation to Asphyxia and Pneumonia of the Newborn.
Dr. Ralph M. Tyson, Philadelphia, Cyanosis of the Newborn.
Dr. Alfred A. Strauss, Chicago, Radical Versus Conservative Surgical Procedures for Peptic Ulcer.
Dr. Yale Kneeland Jr., New York, Common Colds.
Dr. Bayard T. Horton, Rochester, Minn., Vasomotor Regulation of the Temperature of the Extremities in Health and Disease.
Dr. George P. Muller, Philadelphia, The Acute Appendicitis Problem from the Surgical Standpoint.
Dr. Martin Cohen, New York, Differential Diagnosis of Fundus Lesions Associated with Hypertensive Vascular Disease.
Dr. William Osler Abbott, Philadelphia, Treatment of Intestinal Obstruction with the Double-Barreled Intestinal Tube.
Dr. Bronson Crothers, Boston, The Pediatrician's Responsibility for the Supervision of Behavior in Children.
Dr. George G. Ornstein, New York, Pathologic Physiology of Diseases of the Lung.

The annual dinner dance in honor of the president will be held Wednesday evening June 7. The Woman's Auxiliary will have its meeting June 6-8, offering as a special feature an art, hobby and medical history exhibit.

NEW MEXICO

Personal.—Dr. John W. Myers, Albuquerque, has been appointed superintendent of the New Mexico State Hospital at Las Vegas.

Society News.—Drs. John C. Mitchell and Randolph E. Watts, Silver City, addressed the Grant County Medical Society at a meeting at Fort Bayard, March 30, on streptococcic infection and pneumonia, respectively.

NEW YORK

Pharyngitis Traced to Raw Milk.—An outbreak of streptococcic pharyngitis in Saugerties and several adjoining villages was traced to raw milk produced by one cow. The outbreak was discovered May 5 among school children in Malden and reached 502 cases before the cow was found and killed May 16. Three persons of advanced years died of the infection. The peak of the epidemic was reached on the day that the milk supply was ordered pasteurized and declined rapidly after that.

New York City

New Laboratories for DeLamar Institute of Public Health.—The new laboratories and classrooms of the DeLamar Institute of Public Health of Columbia University will occupy the top three floors of the seven story city health and teaching center nearing completion at the Presbyterian-Columbia Medical Center, 168th Street and Broadway, according to *Science*. The building has been erected through an agreement by the Presbyterian Hospital, the trustees of the university and the department of health of the city of New York. Its facilities will enable medical students at Columbia to receive practical training in public health similar to that which they receive in medicine. The laboratories and courses will also be open to physicians, dentists, nurses and graduate students. The first four floors of the building will be used by the city as headquarters for maternal care, child welfare, nursing and other public health services. The laboratories and research rooms will be so equipped that they may be used for any field of research in public health. A model classroom is situated in the southeast corner of the seventh floor. Besides being used for lectures, the room will provide opportunity for research on procedures necessary to protect the health of school children. The fifth floor will contain a laboratory designed specifically for research into diseases caused by industrial occupations and a statistical office in which a complete record of the number, kinds and occurrences of various diseases may be kept. The general laboratory for the students and research workers will be kept on the sixth floor. The seventh floor will also house an air laboratory equipped for the study of the various sources of contamination of air in public places. A

bacteriologic laboratory on the same floor will contain all the modern equipment necessary for the study of bacteriology. The offices of Dr. Haven Emerson, executive officer of the institute, and his staff will be connected with individual laboratories completely equipped with chemical, physical and bacteriologic facilities for private research. There will also be a library, a student lounge and staff accommodations. The ground floor will contain an auditorium and exhibit hall where public health education will be carried on under the direction of the institute and of the department of health.

Dr. Stockard Dies.—Charles Rupert Stockard, Ph.D., since 1911 professor of anatomy, Cornell University Medical College, died April 7 in the Hospital of the Rockefeller Institute for Medical Research of heart disease, aged 60. A native of Mississippi, Dr. Stockard graduated from Mississippi Agricultural and Mechanical College in 1899 and took his master's degree there in 1901. In 1906 he received the degree of doctor of philosophy at Columbia University. He joined the faculty of Cornell in 1906 as assistant in embryology and histology, became instructor in comparative morphology in 1908, assistant professor of embryology and experimental morphology in 1909 and professor of anatomy in 1911. In 1922 he received a medical degree from the University of Wurzburg, Germany. In 1926 he was elected to the board of scientific directors of the Rockefeller Institute and was president of the board at the time of his death. He was a trustee of the Marine Biological Laboratory, Woods Hole, Mass., the Long Island Biological Association, Cold Spring Harbor, N. Y., and the Bermuda Station for Biological Research. Dr. Stockard was managing editor of the *American Journal of Anatomy*, editor of the *Journal of Experimental Zoology* and *American Anatomical Memoirs*. In addition, he was the author of "The Origin of Blood," "Hormones and Structural Development" and "The Physical Basis of Personality," as well as of numerous contributions to scientific journals. He had served as a vice president of the American Association for the Advancement of Science, president and secretary of the American Association of Anatomists and president of the American Society of Zoologists and was a member of the National Academy of Sciences, the American Philosophical Society and the Society for Experimental Medicine and Biology. He delivered a DeLamar lecture at Johns Hopkins University, Baltimore; the Harrington Lecture, University of Buffalo; the Beaumont Lectures, Detroit; the Lane Lectures at Stanford University, Calif., and the Potter Lecture at Jefferson Medical College, Philadelphia.

OREGON

Personal.—Dr. Archie K. Higgs, Portland, was chosen by the central democratic committee of Multnomah County to succeed the late state senator George T. Eayrs.——Dr. Edward J. Dehne, Kellogg, Idaho, has been appointed health officer of Clatsop County, succeeding Dr. Lenor S. Goerke, Astoria, who has been appointed health officer of Yamhill County.

Society News.—A symposium on abortion sponsored by the Portland Academy of Obstetrics and Gynecology was presented before the Multnomah County Medical Society, Portland, April 5 by Drs. Albert Mathieu, William M. Wilson, Virgil E. Dudman and Howard C. Stearns. The Portland Academy of Pediatrics presented the program March 1 on "Acute Rheumatic Fever and Allied Disorders in Childhood," with the following speakers: Drs. Carl G. Ashley, William F. Patrick, Morris L. Bridgeman and Scott H. Goodnight.

PENNSYLVANIA

Society News.—Dr. Emil Novak, Baltimore, was the guest speaker before the Dauphin County Medical Society, Harrisburg, May 2 on "Female Sex Hormones."——Dr. Edward L. Bortz, Philadelphia, addressed the Harrisburg Academy of Medicine May 16 on "Diabetes and Other Nutritional Diseases."——Dr. Robert L. Hickok, Scranton, was recently elected full time business manager of the bulletin of the Lackawanna County Medical Society.——Medical and surgical clinics were conducted by Drs. William J. Fetter, assistant professor of medicine, and John P. Griffith, professor and chairman of the department of surgery, University of Pittsburgh School of Medicine, at a meeting of the Cambria County Medical Society, Johnstown, May 11.——The annual clinic of the Westmoreland County Medical Society was held at Torrance State Hospital, Torrance, May 12, with Drs. Emil Novak, associate professor of obstetrics, and Maurice C. Pincoffs, professor of medicine, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, as guests.

Philadelphia

Personal.—Dr. Wilmer Krusen, formerly director of public health of Philadelphia, was recently reelected president of the Philadelphia College of Pharmacy and Science for the thirteenth time.——Dr. Richard Weissenberg, formerly professor extraordinarius of anatomy, University of Berlin, and during 1937 visiting professor of cytology, Washington University School of Medicine, St. Louis, has been appointed a member of the Wistar Institute of Anatomy and Biology.——Dr. Arthur C. Morgan was honored recently at a testimonial dinner by the executive committee of the Medical Alumni Association of the old Medico-Chirurgical College, the last class of which was graduated in 1916. Dr. Morgan received a book of resolutions containing 706 signatures of alumni of the college. Dr. Charles Howard Moore, president of the association, made the presentation.

Society News.—Drs. Max B. Lurie and John Paterson, among others, addressed the Laennec Society of Philadelphia, April 25, on "Inherited Resistance in Experimental Tuberculosis" and "Pulmonary Tuberculosis in Married Couples" respectively.——Drs. Paul Sloane and James S. Dean addressed the Philadelphia Neurological Society April 28 on "Radicular Syndrome Associated with Mediastinal Tumors" and "The Cerebrospinal Fluid Protein" respectively.——At a meeting of the Philadelphia Academy of Surgery May 1 the speakers were Drs. DeForest P. Willard and Jesse T. Nicholson, on "Fracture-Dislocations of the Odontoid and First Cervical Vertebra"; Drs. Joseph R. Elkinton and Monroe T. Gilmour and W. A. Wolff, Ph.D., on "Physiochemical Determinations in the Management of Surgical Patients."——Dr. Claude S. Beck, Cleveland, delivered a Mary Scott Newbold Lecture before the College of Physicians of Philadelphia April 5 on "The Surgical Approach to Diseases of the Heart."——Dr. Chevalier Jackson addressed the Philadelphia Pediatric Society April 11 on "Acute Tracheobronchitis."——Dr. Esmond R. Long addressed the Pathological Society of Philadelphia April 14 on "The Accepted and the Disputed in the Pathology of Pulmonary Tuberculosis."

RHODE ISLAND

State Medical Meeting in Providence.—The one hundred and twenty-eighth annual meeting of the Rhode Island Medical Society will be held in Providence June 7-8 under the presidency of Dr. Edward S. Brackett, Providence. Mornings will be devoted to clinics and demonstrations at the Charles V. Chapin, St. Joseph's, Rhode Island and Miriam hospitals and afternoons to programs at the Rhode Island Medical Library. Speakers will be:

Dr. Marshall N. Fulton, Boston, Aneurysm and Rupture of the Ventricle of the Heart.
Edgar Allen, Ph.D., New Haven, Conn., Evidence from Experiments with Ovarian Hormones in Monkeys and Applications to Conditions in Women.
William C. Young, Ph.D., Providence, Ovum and Spermatozoon Age at the Time of Fertilization and the Course of Gestation and Development in Lower Animals.
Dr. Arthur T. Hertig, Boston, Pathologic Aspects of Spontaneous Abortion.
Dr. Elliott C. Cutler, Boston, Selection of Patients for Surgery.
Dr. Soma Weiss, Boston, Circulatory Collapse and Shock.
Dr. Perrin H. Long, Baltimore, Use of Sulfapyridine in Treatment of Pneumococcal Infections.
Dr. Edward Delos Churchill, Boston, Primary Carcinoma of the Lung.
Drs. Herman C. Pitts and George W. Waterman, Providence, Treatment of Carcinoma of the Cervix: Report on 135 Additional Cases with Five Year Results.
Drs. Albert H. Miller, Meyer Saklad and John A. Hayward, Providence, Symposium on Anesthesia.

The annual dinner will be held at the Pomham Club Thursday evening with Dr. Reginald Fitz, Wade professor of medicine, Boston University School of Medicine, as the guest speaker.

VIRGINIA

Personal.—Dr. Thomas E. Painter, assistant physician at the Eastern State Hospital, Williamsburg, has been appointed clinical director of the hospital.——A soft ball diamond in the state fair grounds was recently named in honor of Dr. William H. Parker, Richmond. The field was officially dedicated at the opening league game in April at which time Dr. Parker was guest of honor.

New Committee on Industrial Health.—The Medical Society of Virginia has appointed a committee on industrial health with the following members: Drs. Fred J. Wampler, Richmond, chairman; William D. Tillson, Richmond, and Horace T. Hawkins, Waynesboro.

WEST VIRGINIA

New Marriage Law in Effect.—A law requiring a physical examination and a blood test for syphilis of all applicants for marriage licenses went into effect in West Virginia May 26. The serologic test and the laboratory in which it is performed must be approved by the state department of health and the test must be made within thirty days before the marriage. The laboratory is to make two reports to the physicians: one stating the exact result of the test, the other stating the name of the test, the date and the name and address of the persons tested but not the result. Plans are now being worked out whereby laboratories will be approved for this work.

WISCONSIN

Society News.—Dr. Forrester Raine, Milwaukee, addressed the La Crosse County Medical Society, La Crosse, May 9 on "Water Metabolism."——Dr. Mynie G. Peterman, Milwaukee, recently addressed the Fond du Lac County Medical Society on "Convulsions in Childhood."——Dr. Siegfried F. Strauss, Chicago, addressed the Rock County Medical Society, Beloit, April 25 on "Subtotal Gastrectomy for Gastric and Duodenal Ulcer and Surgery of the Colon."——At a meeting of the Racine County Medical Society, Racine, April 20 the speakers were Drs. Philip Thorek, Chicago, and Jerrold Peerman Nesselrod, Evanston, Ill., on "Intestinal Obstruction" and "Anorectal Conditions" respectively.——Drs. Leo A. Hilger and Alexander R. Colvin, St. Paul, addressed the Pierre-St. Croix Counties Medical Society, Baldwin, recently on fractures of the hip.——Drs. John E. Gonce Jr. and John W. Harris, Madison, addressed the Oneida-Vilas County Medical Society, Rhinelander, May 11 on "Diseases of Early Infancy" and "Occiput Posterior Arrests" respectively.——The Milwaukee Neuro-Psychiatric Society went to Madison for its meeting May 4. The speakers were Drs. William F. Lorenz, on "A Rapid Flocculation Test for Syphilis Adapted to Cerebrospinal Fluid"; Helen E. P. Davis, "Anorexia Nervosa," and Mabel G. Masten, "Neurologic Complications of Chickenpox." Dr. Joseph Pessin reported a case of catatonic-like behavior in a 4 year old girl, with moving pictures, and Dr. Frank O. Meister demonstrated neuropathologic slides in color.

GENERAL

American Orthopaedic Association.—The annual meeting of the American Orthopaedic Association will be held in Buffalo, N. Y., June 5-8 at the Hotel Statler. Two sessions will be devoted to symposiums on acute hematogenous osteomyelitis and on fractures of the shaft of the femur. In addition, the program will include addresses by the following:

Drs. John G. Kuhns and Louis Nathan, Boston, Epiphysitis of the Spine.
Dr. Harold H. Hitchcock, Oakland, Calif., Spondylolisthesis.
Dr. William E. Gallie, Toronto, Canada, Ununited Fracture of the Neck of the Femur Treated by Combining the Smith-Petersen Nail and Bone Graft Without Opening the Hip Joint.
Dr. Marius N. Smith-Petersen, Boston, A New Approach to the Wrist Joint.
Dr. Cly Howard Hatcher, Chicago, End-Results of Epiphysial Arrests Operations.
Drs. Kellogg Speed and Egbert H. Fell, Chicago, Temperature Controlled Healing of Experimental Fractures.
Dr. Louis C. Kress, Buffalo, Malignant Disease.

American Ophthalmological Society.—The seventy-fifth annual meeting of the American Ophthalmological Society will be held at The Homestead, Hot Springs, Va., June 5-7 under the presidency of Dr. Frederick T. Tooke, Montreal. The program will include the following addresses:

Dr. Arthur M. Yudkin and Harriet A. Geer, Ph.D., New Haven, Conn., An Investigation of Experimental Cataracts in the Albino Rat—Clinical Implications.
Dr. Mark J. Schoenberg, New York, Psychosomatic Relationships—Therapeutic Implications for Patients with Glaucoma.
Mr. H. M. Traquair, Edinburgh, Scotland, Some Problems in Perimetry.
Dr. Alexander E. MacDonald, Toronto, Can., Six Cases of Lindau's Disease—Four Verified and Living.
Dr. Frederick A. Davis, Madison, Wis., Plexiform Neurofibromatosis (von Recklinghausen's Disease) of the Orbit and Globe.
Dr. Edward Jackson, Denver, Medical Ophthalmology.
Dr. Arnold Knapp, New York, The Course of Certain Cases of Optic Atrophy with Cupping and Low Tension.
Drs. Jonas S. Friedenwald and Wilhelm Buschke, and Harry O. Michel, Ph.D., Baltimore, The Role of Ascorbic Acid in the Mechanism of Secretion of the Intraocular Fluid.
Dr. Frederick H. Verhoeff, Boston, Hyperphoria Tests Based on a New Principle.
Drs. Phillip Robb McDonald and Francis H. Adler, Philadelphia, The Effect of Anoxemia on Dark Adaptation in the Normal and Vitamin A Deficient Person.
Drs. Henry P. Wagener and Paul L. Cusick, Rochester, Minn., The Retina in Surgically Treated Cases of Primary Hypertension.
Dr. Phillips Thygeson, New York, Treatment of Trachoma with Sulfanilamide.

Tuesday evening June 6 a banquet celebrating the seventy-fifth anniversary will be held with Dr. Harry Friedenwald, Baltimore, Mr. Traquair and Dr. Bernard Samuels, New York, as speakers.

Industrial Physicians' and Surgeons' Meeting.—The American Association of Industrial Physicians and Surgeons and the American Conference on Occupational Diseases and Industrial Hygiene will hold their annual meeting in Cleveland June 5-8 at the Hotel Statler under the presidency of Dr. Clarence D. Selby, Detroit. Among addresses to be delivered are:

Dr. Royd R. Sayers, U. S. Public Health Service, Washington, D. C., Health of Workers.
David B. Dill, Ph.D., Arlington, Mass., Fatigue in Industry.
Dr. Sumner L. S. Koch, Chicago, Tendon and Nerve Suture.
Dr. Donald M. Glover, Cleveland, Plastic Surgery in Relation to Industrial Injuries.
Dr. Henry H. Kessler, Newark, N. J., Operative Problems in Rehabilitation of the Injured.
Dr. John S. Coulter, Chicago, Physiotherapy Problems in Rehabilitation of the Injured.

The Knudsen Award to the physician judged to have made the outstanding contribution to industrial medicine during the year will be presented by the donor, Mr. W. S. Knudsen, president of the General Motors Corporation, at the annual banquet Wednesday evening June 7.

American Neurologic Meeting.—The sixty-fifth annual meeting of the American Neurological Association will be held in Atlantic City June 5-7 under the presidency of Dr. Williams B. Cadwalader, Philadelphia. There will be a symposium on virus disease and the central nervous system presented by Drs. Albert B. Sabin, New York, who will discuss "The Mode of Entry and Spread of Viruses in the Central Nervous System"; Howard A. Howe, Baltimore, "The Problem of Virus Infection in Poliomyelitis"; Leroy D. Fothergill, Boston, "Equine Encephalomyelitis in Man"; Joseph E. Smadel, New York, "The Use of the Complement-Fixation Test in the Diagnosis of Lymphocytic Choriomeningitis." Other speakers include:

Drs. Ernest Sachs and Henry G. Schwartz and Alan S. Kerr, St. Louis, Electrical Activity of the Exposed Human Brain.
Drs. William G. Lennox, Frederick A. Gibbs and E. L. Gibbs, Boston, The Inheritance of Epilepsy as Revealed by the Electroencephalograph.
Drs. Loyal Davis and John Martin, Chicago, The Result of Experimental Removal of the Pineal Gland.
Curt P. Richter, Ph.D., Baltimore, Transmission of Taste Sensation in Animals.
Drs. Francis C. Grant, Lawrence M. Weinberger and John H. Gibbon, Philadelphia, Anoxemia of the Central Nervous System Produced by Temporary Complete Arrest of the Circulation.
Drs. Lewis D. Stevenson, Anna M. Allen and Lillian E. McGowan, New York, A Study of the Brain Changes in Alcoholism.
Drs. James S. Robertson, Glasgow, Scotland, and Arthur E. Childe, Montreal, Can., Ventricular Asymmetry in Relation to Contracting Intracranial Lesions.
Drs. Wilder G. Penfield and Storer P. Humphreys, Montreal, Epileptogenic Lesions of the Brain: A Histologic Study.
Dr. Samuel D. Ingham, Los Angeles, The Neural Basis of Knowledge and the Synthesis of Concepts.
Drs. John McDowell McKinney and Maurice Frocht, New York, Seven Cases of Adie's Syndrome with Moving Picture Demonstration.

National Tuberculosis Association.—The thirty-fifth annual meeting of the National Tuberculosis Association will be held in Boston June 26-29, with headquarters at the Hotel Statler. The opening general meeting will be held Monday evening June 26, when Dr. Henry Chesley Bush, Livermore, Calif., will deliver his presidential address and the Trudeau Medal will be awarded. At a joint session of the pathologic and clinical sections there will be symposiums on (1) genitourinary tuberculosis, presented by Drs. Oscar Auerbach, Staten Island, N. Y., and Gilbert J. Thomas, Minneapolis; (2) spinal tuberculosis, Drs. Theodore A. Willis, Cleveland, and Mather Cleveland, New York, and (3) atelectasis, Drs. Max Pinner, New York, and Edward N. Packard, Saranac Lake, N. Y. There will also be a joint symposium on "Mass Tuberculin Testing and X-Raying" before the pathologic, clinical, social work and administrative sections by Drs. Esmond R. Long, Philadelphia; Bruce H. Douglas, Detroit, and James A. Doull, Cleveland. Among other speakers will be:

Dr. Harry J. Corper and Maurice L. Cohn, Ph.D., Denver, Phases of Intoxication in Tuberculosis.
Drs. Andre Cournand and Dickinson W. Richards Jr., New York, Pulmonary Function in Pulmonary Tuberculosis Under Various Forms of Collapse Therapy.
Dr. Moses J. Stone, Boston, Clinical Studies of Asbestosis.
Clair E. Turner, Dr.P.H., Cambridge, Mass., Training of Health Educators.
Dr. Herman E. Hilleboe, St. Paul, How Many Tuberculosis Patients Survive?

Medical clinics have been arranged for Wednesday afternoon June 28 at Boston City Hospital, Massachusetts General Hospital, Middlesex County Sanatorium, New England Deaconess and Peter Bent Brigham hospitals. Clinics on topics for lay workers have also been arranged.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 6, 1939.

Gas Masks in the Operating Room

The menace of poison gas has led to extraordinary precautions, such as the providing of gas masks specially made for babies. The latest contingency to be considered is the presence of the surgeon in the operating room. In a communication to the *British Medical Journal* (April 29, page 897) the surgeon Mr. J. S. Rowlands asks "Have surgeons considered the possibility of wearing gas masks during operation?" He endeavored to do this and planned a rehearsal at his hospital with the entire operating room staff wearing gas masks but gave up the idea and wore the mask alone during an operation for disarticulation at the cubometatarsal joint. When he donned the mask he was confronted with a series of problems. The coarser part of the operation, the disarticulation, was accomplished, but when it came to the finer points he was compelled to discard the mask. He found the mask entirely unsuited for this work. He therefore suggests that the Royal College of Surgeons and the Association of Anaesthetists should appoint a committee to discuss the problem and give guidance for a highly probable contingency. Hospitals with operating rooms on the ground level will be particularly concerned. In an editorial note the *British Medical Journal* states that, if it were possible for the surgeon and his assistants to operate in gas masks on a patient wearing a gas mask, the choice of an anesthetic would be limited.

The subject has already been discussed on the European continent. Von Fehr (*Schweiz. med. Wchnschr.* **69**:347 [April 15] 1939) suggests that the surgeon should learn to work in a gas mask, just as the soldier has to do. The *Lancet* states that the army surgeon Colonel Cowell successfully completed an appendectomy wearing a gas mask. The haversack hung over his back instead of in front and the sterilized overall was tied loosely so as to allow the entry of air. There was no difficulty as to comfort, visibility or efficiency.

Scientists in Wartime

H. G. J. Moseley worked for four years with Rutherford and at the age of 26 completed a research which the American physicist R. A. Millikan described as "destined to rank as one of the most brilliant in the history of science. He threw open the windows through which we can glimpse the subatomic world with a definiteness and a certainty never dreamt of before." He was killed in the war at the Dardanelles at the age of 27. Physicists regard this as a disaster which deprived the world of the natural successor to Rutherford. The loss to his country far outweighed any services he could have performed in the war. It is felt that if another war occurs such loss of scientific ability should as far as possible be avoided. The Royal Society has therefore prepared for the government a register of scientists engaged in or qualified for research. The work has been done by a committee under the chairmanship of the physiologist A. V. Hill. There are ten subcommittees, of which some of the chairmen are Dr. C. G. Darwin (mathematics), Dr. E. V. Appleton (physics) and Prof. D. M. S. Watson (zoology). Scientists invited to join the register receive a classification table of seventy-seven sciences and two registration cards. The scientist gives the science in which he is best qualified first place on the card and then names the other subjects in the order of his competence. A curious fact is that young scientists put down a considerable range of subjects. One man aged 22 entered as many as eighteen. But older men give only a few. Registration carried the obligation of the scientist to place his services at the disposal of the government in the event of war. It is thus hoped that the scientific ability of the country will be better employed than in the earlier years of the late war.

The Evacuation of Cities in Case of War

The following are further particulars of the arrangements made by the government for the removal of the inhabitants of cities from the peril of air attack. A billeting survey has shown that accommodation can be found for 5,000,000 persons in the country. The government is arranging for the movement of 3,000,000 without interfering with another 1,000,000 who have reserved accommodations for themselves under private arrangements. The 3,000,000 include 2,500,000 children, who would be moved at the rate of 1,000,000 a day. When the official movement begins, absolute priority in all rail and road traffic will be given to the children and those in charge of them. Persons who propose to move privately are therefore advised to leave well in advance of an emergency, even at the risk of a wasted journey. The government will not be able to advise them. Precise timetables and destinations are now being worked out in detail. Special provision is to be made for expectant mothers. Any mother who already has one child under 5 years of age will automatically be moved with her children. A large number of nurses, now being recruited and registered by the Central Emergency Committee, will be available in the reception areas for welfare work and nursing the sick.

The Storage of Radium in Wartime

The secretary of the National Radium Commission points out in a letter to the press that if any quantity of radium was dispersed by violence during an air raid, the buildings in which it was dispersed, as well as the surrounding area, would for many years be a menace to the people who inhabited them. The inhalation of 0.01 mg. would probably be fatal. It is therefore necessary that steps be taken to provide for the safe custody of radium in wartime. For this purpose a conference has been held between representatives of the British X-Ray and Radium Protection Committee, King Edward's Hospital Fund for London, the Ministry of Health and the National Radium Commission. The last is compiling a list of owners and holders of radium with a view to satisfactory arrangements being made. All who have the custody of radium are requested to notify the commission and state the amount.

PARIS

(From Our Special Correspondent)

April 29, 1939.

Cardiosurgery

At a session of the Société de médecine of Paris devoted to omentopexy, Dr. O'Shaughnessy of London explained his grafting technic of revascularization of the heart; an interesting colored film accompanied his communication. One of the problems of omentopexy is the reality of the new anastomoses which are supposed to be established between the myocardium, ischemic as a result of coronary insufficiency, and the epiploic or muscular graft. Of the four solutions having as a basis the cardiac graft, i. e., graft of the pectoral muscle, graft of the lung, graft of the omentum and production of pericardiac adhesions vascularized by irritation of the pericardium, O'Shaughnessy has chosen omentopexy, or grafting of the omentum. He used this method, the technic of which is in reality rather simple though demanding great surgical dexterity, with twenty patients, whose condition was sufficiently grave to justify an operation so new and so audacious, and he gives as proof of his prudence in this respect the fact that several of his patients were in such a grave condition that they died before they could be operated on.

Fifteen of the twenty patients had angina pectoris and five had symptoms of cardiac ischemia. In the first group, five of those who were operated on died, one in the course of the operation, another of uremia three months later and three of heart failure two years later. All the survivors recovered completely. In the second group none died. The operative risks do not seem to be greater than the risks inherent in the future of seriously affected patients. O'Shaughnessy presented anatomic specimens and microscopic plates which demonstrated the reality of the formation of new vessels between the graft and the myocardium.

The indications for this operation are not yet fixed with precision. Cardiac failure due to hypertension and aneurysms of the heart are among the most clearcut.

According to Heim de Balsac, who succeeded the English surgeon on the rostrum, the indications for omentopexy are derived rather from the ischemia caused by coronaritis than from the anginal pain, which is not always of ischemic origin whereas the numerous types of coronaritis are not all painful.

It may be recalled that for two years O'Shaughnessy tried the same ideas in the surgical treatment of renal sclerosis, by fixing to the decapsulated kidney an epiploic graft. Abrami and Iselin have just reported in the *Presse médicale* two new attempts of this kind, which have given satisfactory results.

Anatoxin

Nélis, presenting before the Académie de médecine recent statistics on vaccination with anatoxin in Belgium, declared that vaccination with anatoxin was rather timidly attempted in 1924 and met with growing success. On the basis of the quantity of vaccine used in 1929, allowing 15 per cent for loss, it has been calculated that at least 330,000 children have been vaccinated with anatoxin. This means 33,000 children a year, or 14 per cent of Belgian children between the ages of 1 and 15 years. However, this seems to represent a small proportion.

The anatoxin used in Belgium is supplied for the most part by the Pasteur Institute of Brussels; the rest is supplied, with few exceptions, by the Pasteur Institute of Paris. The two products are identical in composition and value. The anatoxin is subjected to triple official control as to sterility, innocuousness and antigenic unit contents in every case. The conclusions of Nélis are explicit; among 330,000 vaccinated children not one serious complication was observed in spite of the different controls by the bureaus of hygiene.

Prophylaxis of Malaria

In the northern part of French Indo-China there are enormous plantations of hevea where malaria is endemic. The marshy character of the land favors the breeding of Anopheles, and the way of living of the coolies makes them particularly vulnerable.

The fight against malaria was first carried on with quinine, to which were added, on the instigation of the Pasteur Institute, synthetic medicines, such as atabrine and "praequine." In certain regions, prophylaxis was brought about with these drugs alone.

The semimilitary regimen to which workers on hevea plantations are subjected in these regions permitted accurate control of the treatment and of the malarial indexes, and these precise conditions for experiments prompted Canet to report before the Société de pathologie exotique his ideas for the complete and final eradication of malaria. He concluded that it was not possible to attain such eradication solely by medication, even with synthetic antimalaria medicines, on account of the frequency of reinfections, the persistence of the reservoirs of the virus and the quickly reached limit of the effect of the drug.

Synthetic medicines are excellent temporary remedies, especially in an epidemic; however, definite measures have to be added, like drainage of stagnant waters, amelioration of social conditions and strict control of the infected.

The atabrine of the Pasteur Institute, at the optimal dose of 0.3 Gm., is capable, nevertheless, of subduing rapidly the periodic or exceptional attack. Moreover, it is taken more readily by the natives than quinine. Its administration is subjected to epidemiologic and geographic considerations particular to each case.

Deaths

Prof. Prosper Merklen, a teacher of clinical medicine at the Faculty of Medicine of Strasbourg, is dead. He was a pupil of Widal, and he wrote important articles, especially on heart disease. His ancestors came from Alsace, and when Alsace was returned to France after the World War he finished his medical studies at the Faculty of Medicine of Strasbourg. He was a dean of the faculty until 1933, when he retired.

Victor Pachon died recently at the age of 70. With his youthful days ardently devoted to work, often under distressing material conditions, he merited the professorship of physiology at the Medical Faculty of the University of Bordeaux by his genius for experimentation. He laid down the notion of oscillometry, and the term a pachon is used in France to designate the oscillometer, which became indispensable in medical practice.

BERLIN

(From Our Regular Correspondent)

April 10, 1939.

Stimulants Endanger Public Health

At the beginning of March a governmental convention on public health and the use of stimulants was held in Frankfort on the Main, convoked by the central department on public health in conjunction with the bureau of the reich against the misuse of alcohol and tobacco. The purpose of the meeting, attended by about 15,000 persons, was to discuss the increasing consumption of alcohol and tobacco with the consequent increased outlay (more than 7 billion marks in 1938). It was stressed that to allow this situation to continue was to endanger public health. Neither abstinence nor prohibition was envisaged. According to the principles of the national socialist party the adult may choose between abstinence and temperance; youths, however, are expected to abstain. The aim must be to curtail the increase in the use of these stimulants within a reasonable time.

The Berlin surgeon Professor Sauerbruch, substitute speaker for the leader of physicians of the reich (reichsärzteführer), made no new contributions to the subject. He said that the speculative philosophy of idealism had for a long time led to an underestimation of all biologic processes and that the national socialist party must be credited with bringing about the conception of the organic relation between the physical and the mental. It was his concern, he said, as a university teacher and educator of future physicians, to develop a medical group that warm-heartedly and with open eyes would welcome the new order. Dr. Ley, director of organization for the reich, who had had full charge both of the planning and of the conduct of this meeting, expressed himself in favor of complete abstinence. He was convinced from personal experience that temperance in the long run would fail. Five years ago, he said, he had to face the choice of giving the best service or allowing stimulants gradually to impair his efficiency. He associated the potential efficiency of old age with the use of alcohol and tobacco, having in mind habitual small uses, not excessive indulgence. The objective must be not to retire on a pension after a certain age but to be able to work when 80 years old. He branded the assertion that the ancient Germans had been topers a fiction created by their archenemies the Romans. Moderns would call the mead they drank fruit juice.

The president of the governmental department of public health announced that all medical societies of the nation had been requested, in conjunction with the proper institutions, to determine scientifically whether and to what extent the use of tobacco stood in any causal relation to diseases. A representative from the governmental office of race and politics referred to well known drinking bouts (kommers) characteristic of German student clubs as "collective compulsion" of oriental origin. Simultaneously with this meeting a conference of educators was held in which emphasis was laid on the fact that abstention from stimulants was a matter not of prohibition but of education. The misuse of tobacco and alcohol was brought into close connection with the "liberalism" of the times preceding the Nazi régime.

In connection with this conference perhaps some data recently published by the governmental department of statistics may be of interest. The records indicating the use of numerous stimulants in Germany extend over a period of sixty years and show a surprising constancy. For example, the use of coffee since 1878, with some fluctuations, has remained nearly at the same level (1878, 2.25 Kg. annually per capita; 1936, 2.31 Kg.). The consumption of tea for the same period, with a slow upward trend, doubled (0.03 Kg. to 0.07 Kg.) but does not have an important role in Germany as compared with its fifty times greater consumption in England. The use of alcoholic beverages has fallen off considerably, although it has risen since 1933. The statistics are shown in table 1.

TABLE 1.—*Annual per Capita Consumption of Alcoholic Beverages and Tobacco*

Year	Beer, Liter	Alcohol, Liter	Tobacco, Kg.
1878.....	82.4	....	2.73
1900.....	117.9	5.33 (in 1907)	1.56
1913.....	102.1	2.56	1.56
1925.....	75.4	1.04	1.69
1929.....	90.0	0.75	1.98
1933.....	52.0	0.86	1.80
1936.....	58.8	1.00	1.78

This upward trend reflects partly the changes in the age level of the population, the number of adults having increased with increasing longevity. However, the highest postwar statistics in the case of coffee, wine and alcohol have been surpassed and in the case of tobacco almost reached. Likewise the increased consumption of beer is unmistakable. Full statistics are shown in table 2.

TABLE 2.—*Annual Consumption per Adult (Kg. or Liter)*

	1913	1929	1933	1936	1937
Tobacco	4.8	5.4	4.7	4.8	4.9
Beer	154.0	116.0	69.0	77.0	83.0
Alcohol	4.2	1.8	1.0	1.3	1.4
Wine	5.1	6.1	4.7	8.8	8.9
Coffee	2.4	2.2	1.8	2.1	2.4
Tea	0.1	0.1	0.1	0.1	0.1

Race and Heredity

Regarding race selection according to purpose, Dr. Gross, director of the department of race and politics, recently expressed himself in the *IVill of the People,* organ of the National Society of Large Families. The criteria of national race culture and selection differ according to the purpose for which selection in each case is made. As a criterion for proving one's worth in life one must require that the mental power of the men be sufficient for the discharge of military duty, especially for the severe demands of the highly developed modern military system, and that of the women for rearing useful children. For general purposes, the writer says, absence of serious defects is sufficient for most leading professions and positions. Greater racial and hereditary qualifications, however, will be demanded of military officers, party leaders and farmers. Racial selection consciously pursued rejects many persons, but all kinds of other possibilities are open to them in the life of the nation. In every case race and heredity must be considered from the point of view of the purpose for which the examination and selection are made.

According to a new law, persons who appear in court in disputes over family rights will be subjected to hereditary and racial investigations, so far as this is necessary to determine the descent of the child. These can be ordered also in other cases, for example in criminal actions for violation of the "law for the protection of German blood and honor" (that is, of social intercourse between Aryans and Jews). Such investigations, as the minister of justice pointed out, do not yield reliable results until the child is about 2 years old. In certain circumstances the governmental bureau of genealogy should be brought into the picture to make a thorough study, especially when descent from German blood is justifiably questioned.

On heredity and education an influential member of the bureau of race and politics who likewise represents the government department of education in matters of this kind expressed himself to the effect that one must not conclude, in view of our present knowledge on racial matters, that education is now replaced by hereditary destiny and no longer necessary. To be sure, he said, it is impossible to modify inherited traits by environment and to exercise an educational influence on race, yet the important thing is to develop the abilities latent in the individual and in the race. This can be done by environment. Environment can discover and promote or dwarf and stunt. The motto must therefore be "Heredity and environment."

AUSTRALIA

(From Our Regular Correspondent)

April 26, 1939.

National Health Insurance Fades Out

The political crisis occasioned by the sudden death of the prime minister, Mr. J. A. Lyons, has definitely sealed the doom of national health insurance in Australia. For some time it has been evident that the government wished to abandon the act placed on the statute book last year. But, national insurance being one of the main points of governmental policy on which the last election was won, such action would have required considerable courage, in spite of the almost national feeling against the act, which the government, in an already precarious position, has felt unprepared to meet. The issue was heatedly debated in the cabinet a few weeks ago. It was finally decided that, rather than abandon the whole of the National Health and Pensions Insurance Act, it should be replaced by a less comprehensive health scheme. This proposed scheme covers a smaller number of persons, they are asked to pay a smaller contribution, and the benefits to be gained are fewer. On the other hand, the scheme is to include dependents, so that, while the original 1,850,000 insured are reduced to 1,500,000, the addition of dependents raises the number eligible for medical attention to 3,000,000. Whether the lower revenue from insured contributors, the increase in the number of persons who are to receive treatment and the necessary increase in the payment of physicians to compensate for the almost total destruction of private practice are mutually compatible is apparently a moot point.

This alternate proposal was introduced only at the expense of the resignation of the attorney general, Mr. A. R. Menzies. Now Mr. Menzies has been recalled to assume prime ministership, and a new cabinet has been formed under his leadership. It is doubtful, however, whether this shift of power will be responsible for any significant change in the attitude toward

insurance. The rising noise of the drums of war becomes so insistent that national insurance will probably fade into oblivion behind the strident overtones of the question of defense. However, until parliament meets it is not possible to foretell what will be the fate of the present act. A mutilated section of the original may survive or it may be killed entirely, but even total repeal will not dispose of the matter finally. In effect it is only indefinite postponement. Sooner or later some form of national health insurance is inevitable.

Poliomyelitis

In 1937, during an epidemic of poliomyelitis in South Australia, it was observed that, of a number of children affected in a city where immunization against diphtheria had been carried out quite recently, the majority had not been immunized. Immunization had been carried out without previous Schick testing. Further investigation by W. G. Heaslip of Adelaide supported this observation. Patients with poliomyelitis and controls were subjected to the Schick test, and the 1917 finding of Zingher that a disproportionately large percentage of patients with poliomyelitis give a positive reaction to the Schick test was confirmed. From this and other observations it appears that a positive correlation exists between susceptibility to diphtheria and to poliomyelitis. Heaslip suggests that this relationship probably (*a*) is not confined to these two diseases and (*b*) has a constitutional defect underlying it.

VITAMIN C NUTRITION AND PROPHYLAXIS

Heaslip has also considered the relation of vitamin C nutrition to susceptibility to diphtheria and to poliomyelitis. The urinary excretion of vitamin C in various groups of infected and noninfected persons was estimated and a relation demonstrated between the infectious state and the value obtained. It has been shown that, while usually there is a decrease in the excretion of vitamin C following infection, it is probable that a low level of vitamin C and poor vitamin nutrition generally predispose to infection and severity of attack.

Kenny Treatment of Orthopedic Conditions

In a previous letter (THE JOURNAL, March 19, 1938, page 910), comment was made on a "new" system of treating long-standing infantile paralysis and other orthopedic conditions, devised by Sister Elizabeth Kenny and first practiced in Queensland. By her optimistic claims of cure, Miss Kenny soon roused public opinion and medical interest. At that time the report had just been issued of a royal commission appointed in Queensland to investigate her method as outlined in her textbook "Infantile Paralysis and Cerebral Diplegia." A terse medical criticism of her book was that "there was much in it both good and new. Unfortunately that which was good was not new, and that which was new was not good."

The report has now come to hand of a committee appointed by the London County Council to investigate her method of treatment as demonstrated at her clinic attached to Queen Mary's Hospital, Carshalton. The findings of this committee are similar to those of the Queensland commission, and the main conclusions are as follows:

1. There is no reason to admit that Miss Kenny's claim of complete cure can be promised in any group of cases of poliomyelitis.

2. The use of hydrotherapy in the form of hot and cold douches as practiced by Miss Kenny is of value.

3. Very early attempts to initiate voluntary movements and also early and frequent passive movements are harmless but of unproved value.

4. The committee agrees with Miss Kenny that under certain specified conditions splints can be dispensed with in the treatment of the disease in its early stages. It does not approve, however, of her entire abolition of splints and surgical appliances in treatment, as these are considered to be often valuable and sometimes essential parts of the treatment. On the other hand, the mechanical methods employed by Miss Kenny in substitution for splints are considered inadequate.

5. Miss Kenny has not really faced the issue of residual paralysis, for which surgical appliances or surgical methods, such as stabilizing operations, offer the only eventual hope of amelioration.

6. Some improvement appears to have been achieved in cases of cerebral spastic paralysis, but Miss Kenny's system in these cases demonstrated no original principles.

BUENOS AIRES

(From Our Regular Correspondent)

April 30, 1939.

Earthquake in Chile

In the violent earthquake which shook many Chilean areas into ruins, the most damaged towns were Chillán, Cauquenes and Concepción. Argentina sent immediately, by airplane, antitetanus and antigangrene serum. Material for installing an orthopedic hospital with 300 beds was sent by train. The hospital was installed in Santiago in charge of Drs. Denis, Ottolenghi, Allende and twelve assistant Argentine surgeons. During the first forty-eight hours more than 200 fractures, of which most were fractures of the spine and some were fractures of the cranium, were given attention in the hospital. Equipment for the disinfection of drinking water and for transfusion, as well as 50,000 liters of naphtha for aviation purposes, was also sent. The Chilean authorities worked constantly for good sanitary conditions in order to prevent epidemics. All donations made by Argentina were turned over to the Chilean medical body, which is large and very competent. Donations of economical resources, clothes and mattresses seemed to be more necessary for the time being than medical aid. Argentina sent donations of about 2,000,000 Argentine pesos ($500,000). Because of the five modern systems of transportation, much help from many lands was available and speedily given.

New Building of the Faculty of Medicine

The president of Argentina, in a decree of Nov. 16, 1938, allowed 16,847,680 Argentine pesos (about $5,000,000) for construction of the building of the Faculty of Medicine and its branches in Buenos Aires. This building will have an annex for the Faculties of Pharmacy and Odontology. The committee in charge of the work, presided over by Dr. José Arce, has been asked to prepare plans for the maternity building and the institute of pathologic anatomy and the polyclinics, the cost not to exceed 2,000,000 and 6,024,000 Argentine pesos ($500,000 and $1,500,000) respectively, equipment included. The construction of the building will begin immediately and is under contract with a German firm.

Marriages

WILLIAM DERREL HAZLEHURST, Charleston, S. C., to Miss Harriet Letcher McKay of Macon, Ga., in March.

WILLIAM BLAIR HARRISON, Athens, Tenn., to Miss Martha Nell Walton of Atlanta, Ga., March 6.

JAMES BOWRON MCLESTER, Birmingham, Ala., to Miss Meade Belden, New York, in March.

ROBERT ALEXANDER WHITE to Miss Mildred Baird, both of Asheville, N. C., March 16.

MAX EHRLICH to Miss Jeannette Gordon, both of Elizabeth, N. J., Dec. 26, 1938.

WALTER HENRY GERWIG JR. to Miss Olive Bowman, both of Baltimore, March 18.

Deaths

Charles Horace Mayo ⊕ noted as a surgical genius, a great medical administrator and a genial physician, died in Chicago of pneumonia, May 26. The younger of the two world-famed Mayo brothers was born in Rochester, Minn., July 19, 1865, the son of William Worrall Mayo and Louise Wright Mayo. After an education in the Rochester high school and at the Niles Academy he attended Chicago Medical College, later known as Northwestern University, and received his degree in medicine in 1888. As a young boy he began, almost from childhood, to live in a medical atmosphere and to become inspired toward medicine as a career. After his graduation in medicine he returned to Rochester, where his urge toward research and his surgical genius led to innumerable investigations in medicine and in surgery. His first published statement was a joint contribution with his brother, Dr. William J. Mayo, entitled "Report of Clinic in St. Mary's Hospital, Rochester, Minnesota, January 19, 1891," which was published in the *Northwest Lancet* in November of that year. From that time on hardly a year passed without a contribution by either Dr. Charles H. Mayo alone or with his brother, or with some of the younger men who soon became attracted to them. These contributions cover every phase of medicine and surgery and in later years embrace as well the fields of philosophy, economics and statesmanship.



CHARLES HORACE MAYO, M.D., 1865-1939

In the field of scientific medical organizations Dr. Charles H. Mayo was president of the Western Surgical Association in 1904, the Minnesota State Medical Association in 1905, the Society of Clinical Surgery in 1911, the Clinical Congress of Surgeons of North America in 1914, the American Medical Association in 1916, the American College of Surgeons in 1924, the American Surgical Association in 1931 and the Minnesota Public Health Association from 1932 to 1936.

Many of the greatest universities in the world conferred honorary degrees on him. Thus the master of arts degree was conferred by Northwestern University in 1904, fellowship in the Royal College of Surgeons in England in 1920 and in the Royal Society of Medicine in 1926, and master in chirurgery by Trinity College of Dublin in 1925. He was made doctor of public health by the Detroit College of Medicine and Surgery in 1927 and doctor of science by Princeton University in 1917, the University of Pennsylvania in 1925 and the University of Leeds in England in 1909. He also received the honorary degree of LL.D. from the University of Maryland in 1909, Kenyon College in 1916, Northwestern University in 1921, the University of Edinburg in Scotland in 1925, Queen's University in Belfast, Ireland, in 1925, University of Manchester in England in 1929, Hamline University in 1930, and Carleton College in 1932.

A number of great nations also honored him with citations for distinguished service, the record including officier de l'Ordre national de la legion d'honneur, France, 1925; officier de l'Instruction publique et des beaux-arts, France, 1925, and Cross of Knight Commander of the Royal Order of the Crown of Italy, 1932, as well as citations from many other countries.

During the World War he and his brother, Dr. William J. Mayo, alternated between Rochester, where they maintained graduate study for physicians entering the service, and the personnel department in Washington. They served also as consultants in surgery. Dr. Charles H. Mayo was commissioned Major on April 19, 1917, Colonel June 15, 1918, and Brigadier General Nov. 22, 1921. He received the distinguished service medal of the United States Army on June 7, 1920. With Dr. William J. Mayo he was cited for distinguished service by the National Organization of the American Legion and presented with a commemorative plaque, the special ceremony being conducted by President Franklin D. Roosevelt in person in 1934.

The list of his membership in distinguished civic and medical organizations, both American and foreign, is far too long to list. To many of these he gave personally of himself and of his advice, in others he held honorary membership only. He gave also freely of himself and of his work to many scientific and general publications. He served as health officer of the city of Rochester since May 1, 1912, and as a member of the school board of that city from 1915 to 1923.

In 1915 Drs. William J. and Charles H. Mayo established the Mayo Foundation for Medical Education and Research in Rochester, affiliating this organization with the University of Minnesota. Their first contribution was $1,500,000, which has now been increased to more than $2,650,000. In order to perpetuate this institution, the Mayo Properties Association was established in 1919 to hold all the property, endowments and funds of the Mayo Clinic and to insure the permanence of the institution for public service with the understanding that the moneys and property can never inure to the benefit of any individual.

Dr. William J. Mayo, Dr. Charles Horace Mayo and their distinguished father made a small village become one of the most notable medical centers of the world. Throughout their careers these distinguished leaders devoted themselves to the advancement of organized medicine. The medical society of the county in which they practiced was founded by Dr. William Worrall Mayo. Dr. Charles H. Mayo was widely known not only as a surgical genius, as a great surgical teacher, as an inspired organizer, as a leader in medical advancement and as a citizen of his city, county, state and of the nation, but also as a warm hearted, genial, faithful, true humanitarian, easily approachable, unostentatious, ready to trade wits and banter, always in the most kindly and sympathetic manner. Such men come but infrequently in any civilization and their places are not easily filled as the world moves on.

Henry Khunrath Pancoast ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1898; professor of radiology at his alma mater and the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; chairman of the Section on Radiology of the American Medical Association, 1931-1932; member, past president and secretary of the American Roentgen Ray Society and the American Radium Society; member and past president of the American College of Radiology and the Philadelphia Roentgen Ray Society; past president of the first American Congress of Radiology; member of the Radiological Society of North America; first president in 1934 of the examining board of the American Board of Radiology; member of the board of directors and from 1932 to 1935 member of the executive committee of the American Society for the Control of Cancer; served in the navy during the World War; consulting physiologist to the United States Bureau of Mines, 1923-1938; served at various times and in various capacities on the staffs of the University of Pennsylvania Hospital, Bryn Mawr (Pa.) Hospital, Chestnut Hill Hospital and the Philadelphia General Hospital; author, with E. P. Pendergrass, of "Pneumoconiosis (Silicosis): A Roentgenological Study with Notes on Pathology," published in 1926; aged 64; died, May 20, at his home in Merion Station.

Antonie Phineas Voislawsky ⊕ New York; Dartmouth Medical School, Hanover, N. H., 1897; member of the American Laryngological Association, American Laryngological, Rhinological and Otological Society and the American Otological Society; fellow of the American College of Surgeons; laryn-

gologist and chief of clinic, St. Luke's Hospital; attending otolaryngologist, Staten Island Hospital, Tompkinsville; laryngologist to the Fifth Avenue Hospital; consulting otologist to the Harlem Eye, Ear and Throat Infirmary, Manhattan Maternity and Dispensary, New York, Northern Westchester Hospital, Mount Kisco; consulting laryngologist to the New York Society for Relief of the Ruptured and Crippled; aged 66; died, February 22, in the Neurological Institute of brain tumor.

Maurice Brodie, Detroit; McGill University Faculty of Medicine, Montreal, Que., 1928; National Research Fellow in Medicine, 1933-1934; at one time assistant professor of bacteriology at the New York University, University and Bellevue Hospital Medical College; member of the American Association of Pathologists and Bacteriologists and the Society of American Bacteriologists; formerly in charge of infantile paralysis research at the Bureau of Laboratories, New York City Health Department; assistant director of laboratories, Providence Hospital; was widely known for his research on the treatment and causes of infantile paralysis; author of numerous articles on the subject; aged 35; died, May 9.

James Clifton Edgar ✠ Greenwich, Conn.; University of the City of New York Medical Department, 1885; professor emeritus of obstetrics, Cornell University Medical College; at various times instructor of pathology, lecturer in obstetrics and adjunct professor at the New York University; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; consulting obstetrician to the Bellevue, New York Maternity and Jewish Maternity hospitals, New York, and Greenwich (Conn.) General Hospital; author of "The Practice of Obstetrics," published in 1903; aged 79; died, April 7, of chronic myocarditis, arteriosclerosis and chronic prostatitis.

Gatewood ✠ Chicago; Rush Medical College, Chicago, 1911; clinical professor of surgery at his alma mater; member of the American Surgical Association and the Western Surgical Association; fellow of the American College of Surgeons; associate attending surgeon to the Presbyterian Hospital for many years; attending surgeon to the Cook County Hospital and the Highland Park (Ill.) Hospital; treasurer of the Chicago Surgical Society; author of numerous articles in various surgical journals; aged 51; died suddenly May 22, at his home in Highland Park, Ill., of heart disease.

William Crooks Thro, Long Island City, N. Y.; Cornell University Medical College, New York, 1907; member of the American Association of Anatomists, American Association of Pathologists and Bacteriologists, Society of American Bacteriologists and the American Society of Clinical Pathologists; at one time assistant professor of clinical pathology at his alma mater, and associate professor of medicine (clinical pathology); formerly pathologist to St. Mark's Hospital and visiting pathologist to the Reconstruction Hospital; aged 63; died, April 6.

James Henry Kenyon ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1898; at one time adjunct professor of surgery, Fordham University School of Medicine; member of the American Association for Thoracic Surgery; fellow of the American College of Surgeons; served during the World War; visiting surgeon to the Fordham Hospital; associate surgeon to the New York Neurological Institute; on the staff of the Booth Memorial Hospital; aged 66; died, April 10, of coronary thrombosis.

Robert Sattler ✠ Cincinnati; Miami Medical College, Cincinnati, 1875; professor emeritus of ophthalmology at the University of Cincinnati College of Medicine; member and past president of the American Ophthalmological Society; fellow of the American College of Surgeons; aged 83; ophthalmic surgeon to the Cincinnati General Hospital and medical director of the Ophthalmic Hospital, where died, February 20, of coronary thrombosis.

Harris Holmes Vail ✠ Cincinnati; Harvard University Medical School, Boston, 1917; member of the American Academy of Ophthalmology and Oto-Laryngology and the American Otological Society; instructor of otolaryngology, University of Cincinnati College of Medicine; served during the World War; on the staffs of the Cincinnati General Hospital, Christ Hospital and the Good Samaritan Hospital; aged 47; died, April 10, of angina pectoris.

Herbert Fleming Wilson, Covington, Ky.; Hospital College of Medicine, Louisville, 1901; member of the Kentucky State Medical Association; formerly city health officer and member of the board of health; at one time served in various capacities at the William Booth Memorial Hospital and St. Elizabeth Hospital; aged 63; died, February 1, of angina pectoris.

Andrew Phillips Albaugh, Tarpon Springs, Fla.; Miami Medical College, Cincinnati, 1887; member of the Florida Medical Association; past president of the Pinellas County Medical Society; for many years president of the city council and member of the local school board; city health officer; aged 76; died, March 16, of cerebral hemorrhage.

William Allen White, Boston; Tufts College Medical School, Boston, 1894; member of the Massachusetts Medical Society; assistant in theory and practice of medicine, 1893-1894, and lecturer, diseases of children, 1893-1897, at his alma mater; aged 74; on the staff of the Massachusetts Women's Hospital, where he died, February 6, of pneumonia.

Marshall Flowers Lummis ✠ Pitman, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; past president of the Gloucester County Medical Society; served during the World War; medical inspector in the schools; aged 59; died, February 25, in the Hahnemann Hospital, Philadelphia, of staphylococcic septicemia.

William Albert Jones, Homestead, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1897; member of the Medical Society of the State of Pennsylvania; physician for the department of child welfare and city board of education; aged 65; died, February 21, in the Homestead Hospital of angina pectoris.

Robert D. Voorhies ✠ Lafayette, La.; Hahnemann Medical College and Hospital, Chicago, 1895; served during the World War; on the staff of the Lafayette Charity Hospital; aged 66; died, February 9, in the Hotel Dieu, Sisters' Hospital, New Orleans, of coronary thrombosis and chronic myocarditis.

Allen Francis Gillihan, San Luis Obispo, Calif.; University of California Medical Department, San Francisco, 1899; served as health officer of Oakland, district health officer for the state board of health and health officer of San Luis Obispo County; aged 66; died, February 15.

Clarence Willard Winbigler, Harper, Kan.; Bellevue Hospital Medical College, New York, 1877; member of the Kansas Medical Society; aged 85; died, February 26, in the Hatcher Hospital, Wellington, of chronic infection of the urinary tract with kidney failure.

Henry Edwin Waterhouse ✠ Bridgeport, Conn.; Columbia University College of Physicians and Surgeons, New York, 1902; fellow of the American College of Surgeons; chief obstetrician to the Bridgeport Hospital; aged 61; died, February 4, of coronary occlusion.

Lonnie Doak Allen, Smithville, Tenn.; University of Nashville Medical Department, 1898; at one time secretary of the De Kalb County Medical Society; formerly bank president; for many years county physician; aged 67; died, March 5, of pneumonia.

Robert Norton Downs Jr., Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; on the staff of the Germantown Dispensary and Hospital; aged 65; died, February 9, of chronic myocarditis and coronary sclerosis.

Troy Curtis Sexton ✠ Las Cruces, N. M.; Medical Department of Tulane University of Louisiana, New Orleans, 1902; for many years secretary of the Dona Ana County Medical Society; formerly mayor; aged 61; died, February 23, of angina pectoris.

David Ward Magee, Caseyville, Miss.; University of Nashville (Tenn.) Medical Department, 1907; member of the Mississippi State Medical Association; served during the World War; aged 55; died, February 12, of carcinoma of the colon and rectum.

Frederick Marshall Parker, Halifax, N. C.; University College of Medicine, Richmond, Va., 1897; for many years physician to the Caledonia Prison Farm; aged 63; died, February 13, in the Park View Hospital, Rocky Mount, of pneumonia.

Edward Augustine Supple, Boston; Harvard University Medical School, Boston, 1907; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; aged 56; died, February 26, in the Audubon Hospital of pneumonia.

George Washington Newman, Montrose, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1903; member of the Medical Society of the State of Pennsylvania; county jail physician; aged 65; died, February 7, of coronary thrombosis.

John Henry Rapp, Wichita, Kan.; University of Colorado School of Medicine, Denver, 1913; member of the Kansas Medical Society; served during the World War; aged 49; died, February 18, in St. Francis Hospital of lobar pneumonia.

John Stimson Woolery ✠ Bedford, Ind.; Indiana University School of Medicine, Indianapolis, 1933; county health officer; aged 33; died, February 3, in the Methodist Hospital, Indianapolis, of injuries received in an automobile accident.

John Kirkland Ross, Charlotte, N. C.; Jefferson Medical College of Philadelphia, 1907; served during the World War; formerly connected with the U. S. Veterans Bureau; aged 61; died, February 19, of heart disease and diabetes mellitus.

Charles Mortimer Smith ⊕ Evansville, Wis.; Rush Medical College, Chicago, 1890; for many years city health officer and member and chairman of the county board of supervisors; aged 72; died, February 23, of cerebral hemorrhage.

Ira Miltimore ⊕ Gary, Ind.; Rush Medical College, Chicago, 1903; fellow of the American College of Surgeons; on the staffs of the Mercy and Methodist Episcopal hospitals; aged 58; died, February 14, of coronary occlusion.

Henry Clinton Bembry, Philadelphia; Howard University College of Medicine, Washington, D. C., 1910; aged 59; died, February 22, in the Philadelphia General Hospital of cerebral thrombosis and hypertensive cardiovascular disease.

Michael Henry Shea, Fall River, Mass.; College of Physicians and Surgeons, Baltimore, 1900; for many years medical inspector in the public schools; aged 77; died, February 4, of arteriosclerosis, myocarditis and bronchopneumonia.

Edwin Clarence Bliss, Grinnell, Iowa; Rush Medical College, Chicago, 1885; member of the Iowa State Medical Society; aged 79; died, February 26, in Oberlin, Ohio, of mitral stenosis, cardiac enlargement and arteriosclerosis.

George Knowlton Janes, Williamsburg, Kan.; Missouri Medical College, St. Louis, 1884; member of the Kansas Medical Society; formerly many years member of the school board; aged 78; died, February 17, of diabetes mellitus.

Waldo Fisher, Alton, Ill.; Rush Medical College, Chicago, 1882; formerly member of the city council and board of education; for many years on the staff of St. Joseph's Hospital; aged 81; died, February 8, of cerebral sclerosis.

John Percy Nelson ⊕ Beggs, Okla.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; aged 69; died in February in Okmulgee of streptococcic infection of the nose and throat.

William Henry Rennie, Portage la Prairie, Man., Canada; Trinity Medical College, Toronto, Ont., 1900; president, Council of the College of Physicians and Surgeons of Manitoba; aged 67; died, February 6, of myocarditis.

Hubert C. Hannah ⊕ Junction City, Kan.; Homeopathic Medical College of Missouri, St. Louis, 1897; on the staff of the Junction City Municipal Hospital; aged 64; died, February 14, of a self-inflicted bullet wound.

Edward Arthur Darby, St. Cloud, Minn.; University of Michigan Homeopathic Medical School, Ann Arbor, 1888; Cleveland Medical College, 1891; aged 83; died, February 11, of cerebral hemorrhage and hypertension.

Jesse Dalton Johnston, Emporium, Pa.; Medico-Chirurgical College of Philadelphia, 1910; for many years county coroner; aged 55; died, February 3, of acute cardiac dilatation, coronary thrombosis and myocarditis.

Garland Lightfoot Morriss, Blackstone, Va.; University College of Medicine, Richmond, 1902; member of the Medical Society of Virginia; aged 60; died, February 24, of adenocarcinoma of the stomach and duodenum.

John Morgan Golden, Walnut Grove, Miss.; Memphis (Tenn.) Hospital Medical College, 1891; member of the Mississippi State Medical Association; aged 72; died, February 25, of a self-inflicted bullet wound.

Henry W. Schulz, St. Louis; St. Louis Medical College, 1888; member of the Missouri State Medical Association; aged 70; on the staff of the Lutheran Hospital, where he died, February 10, of heart disease.

Frederick H. Metcalf ⊕ Franklin, Ill.; Chicago Medical College, 1886; aged 76; died, February 20, in Our Saviour's Hospital, Jacksonville, of uremia, following urinary retention due to hypertrophied prostate.

James Franklin Turner Jr., Detroit; University of Arkansas School of Medicine, Little Rock, 1937; aged 23; intern at the Henry Ford Hospital, where he died, February 3, of subacute bacterial endocarditis.

Rigdon H. Slocumb, Maywood, Calif.; University of Nebraska College of Medicine, Omaha, 1924; served during the World War; aged 42; died, February 12, in Huntington Park, Calif., of pneumonia.

Clinton Grant Lumley, Huntington Park, Calif.; Chicago Medical College, 1889; member of the California Medical Association; aged 76; died, February 16, of hypertensive heart disease and diabetes mellitus.

Edward Joseph Walsh, Davenport, Iowa; Bennett College of Eclectic Medicine and Surgery, Chicago, 1890; Rush Medical College, Chicago, 1891; aged 69; died, February 4, of carcinoma of the pancreas and liver.

Don L. Harden, Brownville Junction, Maine; Medical School of Maine, Portland, 1905; aged 59; died, February 4, in the New England Deaconess Hospital, Boston, of hemochromatosis and uremia.

Bird Hagans Miller ⊕ Blockton, Iowa; Marion-Sims College of Medicine, St. Louis, 1893; past president of the Taylor County Medical Society; aged 71; died, February 24, of bronchopneumonia.

Fred A. Seed, Atlanta, Ga.; Homeopathic Medical College of Missouri, St. Louis, 1897; veteran of the Spanish-American War; aged 62; died, February 7, of coronary occlusion and arterial hypertension.

Scott F. Verbeck, Mazomanie, Wis.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1883; formerly member of the state legislature; aged 78; died, February 13, of coronary thrombosis.

William James Sharpe, Toledo, Ohio; McGill University Faculty of Medicine, Montreal, Que., Canada, 1872; aged 87; died, February 4, at his winter home in Delray Beach, Fla., of chronic nephritis.

William H. Hickman, Philadelphia; Jefferson Medical College of Philadelphia, 1881; aged 78; died, February 11, of arteriosclerotic heart disease with auricular fibrillation and cerebral embolism.

Jacob Herman Christman, Los Angeles; Eclectic Medical Institute, Cincinnati, 1903; aged 65; died, February 8, in a local hospital of uremia due to carcinoma of the prostate with urinary retention.

Walter Vander Wilt, Rock Rapids, Iowa; State University of Iowa College of Medicine, Iowa City, 1925; member of the Iowa State Medical Society; aged 40; died, February 7, of lobar pneumonia.

Edward Winslow Taylor, Philadelphia; Jefferson Medical College of Philadelphia, 1881; aged 84; died, February 6, in the Germantown Hospital of prostatic hypertrophy and hypostatic pneumonia.

Martin R. Doyle, East St. Louis, Ill.; Kentucky School of Medicine, Louisville, 1885; aged 83; died, February 5, in St. Mary's Hospital of a large stone in the common bile duct and cholecystitis.

John Walters Cristler, Shippingport, Pa.; Medical College of Ohio, Cincinnati, 1886; member of the Medical Society of the State of Pennsylvania; aged 81; died, February 13, of arteriosclerosis.

William Wiley Stancell, Rockingham, N. C.; University College of Medicine, Richmond, 1906; aged 57; died, February 9, of burns received when his mattress caught fire, presumably from a cigaret.

Florence Quindaro McQuaide ⊕ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1889; aged 71; died, February 9, in Brigantine Beach, N. J., of arteriosclerotic heart disease.

Edmund William Bolio, Detroit; Detroit College of Medicine, 1893; served during the World War; aged 68; died, February 2, in the Providence Hospital of acute gangrenous appendicitis.

Ralph Emerson Jenkins Le Master, Marion, Ind.; Rush Medical College, Chicago, 1930; member of the Indiana State Medical Association; aged 36; died, February 5, of coronary thrombosis.

Howard Dewey Booth, Charleston, W. Va.; Medical College of Virginia, Richmond, 1938; aged 38; intern at the Charleston General Hospital, where he died, February 10, of peritonitis.

Arthur William Davies, College Springs, Iowa; Northwestern Medical College, St. Joseph, Mo., 1893; aged 77; died, February 4, in the Hand Hospital, Shenandoah, of bronchopneumonia.

John S. Hogshead, Covelo, Calif.; St. Louis College of Physicians and Surgeons, 1899; formerly connected with the Indian Service; aged 76; died, February 15, of coronary occlusion.

Thomas J. Miller, Norwich, Ohio; Columbus Medical College, 1878; Medical College of Ohio, Cincinnati, 1887; aged 89; died, February 5, in New Concord of arteriosclerotic heart disease.

Frank M. Ryan ⊕ Maryville, Mo.; Ensworth Medical College, St. Joseph, Mo., 1892; past president of the Nodaway County Medical Society; aged 69; died, February 19, of heart disease.

Ebberly J. Leigh ⊕ Hiawatha, Kan.; Rush Medical College, Chicago, 1884; past president of the Brown County Medical Society; aged 78; died, February 18, of prostatitis and uremia.

Oliver Archibald Taylor, Cleveland; Meharry Medical College, Nashville, Tenn., 1894; aged 66; died, February 25, in the Mount Sinai Hospital of meningitis and bronchopneumonia.

Joseph Potter Riggs, Milton, N. J.; University of Maryland School of Medicine, Baltimore, 1903; aged 59; died, February 24, in the Franklin (N. J.) Hospital of lobar pneumonia.

George Washington Potter ⊕ Redfield, S. D.; Rush Medical College, Chicago, 1901; on the staff of the Baldwin Community Hospital; aged 64; died, February 15, of bronchopneumonia.

Lee B. Van Camp, Omaha; University of Nebraska College of Medicine, Omaha, 1898; for many years county physician; aged 61; died, February 27, in the Clarkson Hospital of pneumonia.

John Peters Squire, Sherrill, Iowa; St. Louis College of Physicians and Surgeons, 1902; aged 57; died, February 10, in the Mercy Hospital, Dubuque, of carcinoma of the thyroid.

John Ernest Drury, Wenatchee, Wash.; Trinity Medical College, Toronto, Ont., Canada, 1901; aged 64; died, February 7, of hypertensive heart disease and cerebral hemorrhage.

Frederick Hall Corey ⊕ Rockland, Mass.; Tufts College Medical School, Boston, 1904; aged 60; died, February 18, in the Deaconess Hospital, Boston, of hypertensive heart disease.

William Henry Wiley, Clearmont, Mo.; Northwestern Medical College, St. Joseph, 1890; aged 76; died, February 2, of cerebral thrombosis, endocarditis and bronchopneumonia.

Thomas Duff, Wampum, Pa.; Baltimore Medical College, 1911; member of the Medical Society of the State of Pennsylvania; aged 56; died, February 16, of cerebral hemorrhage.

Charles Wittenmyer, Arcanum, Ohio; Detroit Medical College, 1885; aged 81; died, February 7, of influenza, bronchopneumonia and a fractured femur due to a fall on the ice.

Nelson B. Ross, Muncie, Ind.; Medical College of Indiana, Indianapolis, 1895; aged 66; died, February 8, in the Indiana State Prison Hospital, Michigan City, of heart disease.

Virgil Eubank Stiff, Harmony Village, Va.; Medical College of Virginia, Richmond, 1906; aged 62; died, February 11, at the Stuart Circle Hospital, Richmond, of mastoiditis.

Salvatore Schiro, San Francisco; Regia Università degli Studi di Palermo Facoltà di Medicina e Chirurgia, Italy, 1900; aged 62; died, February 1, of poison, self administered.

Kash Stanley Peters, Bethlehem, Pa.; Temple University School of Medicine, Philadelphia, 1935; aged 28; died, February 10, of burns received when his home caught fire.

James Thomas Glass, Clifton, Texas; University of Louisville (Ky.) Medical Department, 1889; aged 81; died, February 7, of chronic cholecystitis and gastro-enteritis.

Karl Waller Smith, Madison, Wis.; Jefferson Medical College of Philadelphia, 1911; served during the World War; aged 59; died, February 13, of cerebral hemorrhage.

Charles E. Bricker, Philadelphia; Jefferson Medical College of Philadelphia, 1880; for many years city police surgeon; aged 83; died, February 16, of bronchopneumonia.

Albert Sidney Beasley Jr., New York; Harvard University Medical School, Boston, 1919; aged 44; died, February 14, in the Mount Sinai Hospital of heart disease.

William A. Welch, Wooster, Ohio; Western Reserve University Medical Department, Cleveland, 1884; aged 77; died, February 2, of uremia and hypostatic pneumonia.

Frank Elmer McClane, St. Petersburg, Fla.; Barnes Medical College, St. Louis, 1895; served during the World War; aged 75; died, February 6, of myocarditis.

Royal Deforest Sykes, Cumberland, Md.; Western Reserve University Medical Department, Cleveland, 1887; aged 72; died, February 2, of chronic myocarditis and nephritis.

Thomas Martin, Washington, D. C.; Howard University College of Medicine, Washington, 1884; aged 83; died, February 15, of chronic nephritis and myocarditis.

James Aloysius Harten, Montowese, Conn.; Baltimore Medical College, 1910; aged 53; died, February 6, of cerebral hemorrhage and arteriosclerotic heart disease.

Harlie V. Lewis, Lawrenceville, Ill.; Physio-Medical College, Cincinnati, 1880; formerly county coroner; aged 80; died, February 11, of cerebral hemorrhage.

Julius Rugg Hamilton, Los Angeles; Medical College of Virginia, Richmond, 1914; served during the World War; aged 51; died, February 5, of coronary occlusion.

Joseph Thomas Gaines, Denver; Kentucky School of Medicine, Louisville, 1893; aged 68; died, February 2, in St. Joseph's Hospital of cerebral hemorrhage.

George McClain Harper, Springfield, Ill.; Medical College of Indiana, Indianapolis, 1897; aged 61; died, February 4, in St. John's Hospital of diabetes mellitus.

Francis Marion Replogle, Los Angeles; Miami Medical College, Cincinnati, 1895; aged 85; died, February 13, of coronary thrombosis and cardiac hypertrophy.

Albert Augustine Judge, Boston; Harvard University Medical School, Boston, 1897; aged 72; died, February 19, of arteriosclerosis and cerebral thrombosis.

John L. Carroll, Asheville, N. C.; Louisville (Ky.) Medical College, 1905; formerly county coroner; aged 69; died, February 7, of gangrenous appendicitis.

George F. Garmier, Hartville, Ohio; Western Reserve University Medical Department, Cleveland, 1896; aged 74; died, February 14, of arteriosclerosis.

Robert Watt Watterson, Darlington, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1889; aged 78; died, February 20, of chronic myocarditis.

Harvey Allen Harding, Amsterdam, Ohio; Starling Medical College, Columbus, 1898; aged 71; died, February 7, at Cadiz of carcinoma of the prostate.

Walter S. Mason, Cambridge, Ohio; Medical College of Ohio, Cincinnati, 1889; aged 74; died, February 14, of chronic myocarditis and paralysis agitans.

Charles Wesley Schaubel ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1904; aged 56; died, February 25, of chronic interstitial nephritis.

Arthur Alanson Griffis ⊕ Tipton, Iowa; Cleveland Homeopathic Medical College, 1898; aged 77; died, February 10, of carcinoma of the stomach.

James Robert Porter, Washington, D. C.; Howard University College of Medicine, Washington, 1929; aged 42; died, February 10, of pneumonia.

James Putney, Charleston, W. Va.; University of Maryland School of Medicine, Baltimore, 1889; aged 79; died, February 6, of heart disease.

George R. Peckinpaugh, Mount Vernon, Ind.; Medical College of Ohio, Cincinnati, 1882; aged 84; died, February 10, of hypostatic pneumonia.

Almon Dwight Birchard, Cincinnati; Miami Medical College, Cincinnati, 1884; aged 80; died, February 19, of cardiorenal vascular sclerosis.

David C. Shelton, Jasper, Tenn.; University of Nashville Medical Department, 1897; aged 70; died, February 4, of organic heart disease.

Robert Cooper Rasin, Philadelphia; Baltimore University School of Medicine, 1890; aged 76; died, February 5, of acute cardiac dilatation.

James H. Westcott, Utica, N. Y.; Philadelphia University of Medicine and Surgery, 1872; aged 88; died, February 6, of arteriosclerosis.

Frank Nichols Greene, New York; Jefferson Medical College of Philadelphia, 1890; aged 70; died, February 2, of heart disease.

Edward Lorne Jackson, Sierra Madre, Calif.; Manitoba Medical College, Winnipeg, 1896; aged 68; died, February 3, of peritonitis.

Lowndes Hendrick, Brundidge, Ala.; Medical College of Alabama, Mobile, 1890; aged 74; died, February 17, of cerebral hemorrhage.

John Brooks Wertz, Spencer, Iowa; State University of Iowa College of Medicine, Iowa City, 1892; aged 73; died, February 6.

Wilbur Lament Rickard, Brooklyn; Long Island College Hospital, Brooklyn, 1889; aged 71; died, February 15, of pneumonia.

Edward Danby Gibson, Buffalo; University of Buffalo School of Medicine, 1900; aged 61; died, February 10, of heart disease.

Thomas F. Ringle, Tippecanoe, Ind. (licensed in Indiana in 1897); aged 87; died, February 15, of heart disease.

Correspondence

"RELATION OF PHYSICAL EXERTION AND EMOTION TO PRECIPITATION OF CORONARY THROMBI"

To the Editor:—A communication by Drs. Masters, Dack and Jaffe in THE JOURNAL April 22 referring to my paper entitled "Relation of Physical Exertion and Emotion to Precipitation of Coronary Thrombi" in THE JOURNAL March 11 deserves some comment.

I am afraid that your correspondents have missed the main point in my paper. I have shown that the formation of coronary thrombi is gradual, sometimes occupying several days before occlusion with its resulting precordial pain is produced. The onset of precordial pain, then, merely marks the final phase of a process which was initiated (by capillary rupture) some time previously. Therefore the activities of a patient just before the onset of precordial pain, as tabulated in 1,400 cases by your correspondents, are purely coincidental and have no relation to the cause of thrombus precipitation. Their smaller series of 250 cases warrants more attention. I have the greatest respect for the careful study which Masters and his co-workers have given to the case histories in their various series but I submit that no history can adequately cover the numerous emotional shocks that occur to an individual in the course of four weeks. Their finding, therefore, that 250 cases of coronary thrombosis failed to give a history of undue exertion or emotion for a month prior to occlusion must be accepted with reserve. Likewise the statement that their group of forty patients who suffered from carcinoma, heart failure and the like and who were bedridden for weeks or months prior to coronary artery occlusion is open to objection. I should like to know how many of these forty patients suffered from persistent hypertension. Physical exertion in this small series is ruled out, but can the fear of death, the fear of operation, the presence of nightmares and the like, all of which may produce transient hypertension, be eliminated?

In my paper I did not "categorically state that coronary thrombi are precipitated by exertion and emotion." I suggested, rather, that "high coronary blood pressure, the result of strenuous exertion or emotion (or of persistent hypertension) is one of the underlying causes of capillary rupture and intimal hemorrhage in arteriosclerotic coronary arteries." Obviously there are other factors that may produce intimal hemorrhages, and these I have described in detail in previous papers. Included among these other factors are softening by atheroma of the stroma supporting the capillary, and also various conditions that may increase capillary fragility, such as old age and local inflammatory processes. Vitamin deficiency also may render intimal capillaries more fragile.

Your correspondents state that I have given purely theoretical arguments but neither pathologic nor clinical evidence to show that hypertension, persistent or transient, can produce subintimal hemorrhage and resulting coronary thrombosis. May I repeat the pathologic evidence, much of which has already been included in my previous papers? 1. Clark (*Ann. Int. Med.* **9**:1043 [Feb.] 1936) found that young capillaries in the rabbit's ear, as observed through a transparent chamber, were readily dilated and ruptured by slight external pressure or by increased blood pressure. 2. Cutter and Marquardt (*Proc. Soc. Exper. Biol. & Med.* **28**:113 [Nov.] 1930), on exerting negative external pressure on the capillaries of the skin, found that rupture occurred at lower negative pressures in persons with hypertension (200 mm. plus) than in those with normal pressures. 3. I have already remarked on the fact that intimal capillaries are usually of normal caliber when seen in the denser intimal layers, while they are frequently dilated in areas of atheroma and as they penetrate intimal hemorrhages. This dilatation must obviously be due in part to pressure within the capillaries. Wartman, a pathologist (*Am. Heart J.* **15**:459 [April] 1938), remarks: "It is easy to conceive that capillaries within an atheromatous plaque may rupture, for the soft, easily compressible material of the atheroma offers no support against the capillary blood pressure. Since patients with coronary arteriosclerosis frequently have hypertension, a small intramural capillary might readily be ruptured and form a hematoma." Pathologists do not often agree thus. If persistent hypertension can result in capillary dilatation and rupture, as the foregoing evidence suggests, will not transient hypertension due to excessive exercise or emotion produce the same effect?

I was interested to note that your correspondents agree that coronary thrombosis is usually associated with subintimal hemorrhage. May I state here that I did not "corroborate" any one's work in connection with these lesions. I discovered and described intimal hemorrhages due to capillary rupture and showed their relation to coronary thrombosis (*Arch. Path.* **22**:313 [Sept.] 1936).

J. C. PATERSON, M.D., Ottawa, Canada.

AMPHETAMINE IN CHRONIC ALCOHOLISM

To the Editor:—The reply which recently appeared in *Queries and Minor Notes* to a letter relative to the use of amphetamine (benzedrine) in the treatment of chronic alcoholism as recommended by Dr. Wilfred Bloomberg might easily give rise to a regrettable misunderstanding. Dr. Bloomberg made the suggestion only after long experience with the drug in other conditions, for he (with Prinzmetal) was the first to report its effectiveness in the treatment of narcolepsy. He has further, in preparation, a detailed study of the effects of large doses given over a period of three years to some of his early patients and a careful survey of all the cases in which ill effects are reported to have followed the use of the drug. This study has led him to the belief that its use under medical supervision is entirely justified when dealing with such serious diseases as narcolepsy and chronic alcoholism.

The merits of the treatment should certainly not be judged from the much garbled press report, for which Dr. Bloomberg was not responsible. Those who are interested in the subject should by all means read his conservative and well documented article in the *New England Journal of Medicine* (**220**:129 [Jan. 26] 1939).

As one who has watched the progress of the work and referred some of the patients to him, I can give testimony that he has understated rather than overstated his case.

TRACY J. PUTNAM, M.D.,
Harvard Medical School,
Boston.

TELEPHONE DIRECTORIES IN THE MOUNTAIN STATES

To the Editor:—In the March 25 issue of THE JOURNAL was an editorial comment regarding "Florida Telephone Directories" whereby the users of Florida telephone directories published by the Southern Bell Telegraph and Telephone Company may know whether a person listed therein as a doctor is a doctor of medicine, an osteopath, a chiropractor, a naturopath or a practitioner of some other method of healing.

I have made an investigation of the situation here in Arizona as relates to the foregoing and I find that the Mountain States Telephone and Telegraph Company has since November 1920 been adhering to this policy, and I think it only fair to this company that proper credit be given it for its cooperation.

CHARLES S. SMITH, M.D., Nogales, Ariz.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CENTRAL NERVOUS SYSTEM SYPHILIS

To the Editor:—Have you any information regarding the effect of mapharsen on syphilis of the central nervous system following spinal drainage that would fix it in the nerve centers and cause paralysis? A white man aged 38 came down two years ago with partial paralysis of the left arm and leg and responded to oral medication in the form of drops—probably potassium iodide. A routine examination required by his employers revealed strongly positive Wassermann and Kahn reactions. The treatment consisted of four injections of neoarsphenamine four days apart in ascending doses, 0.15, 0.2, 0.3 and 0.6 Gm., biweekly administration of bismuth preparations, six injections of 1.5 per cent and nine injections of 3 per cent, and eleven injections of mapharsen, 0.04 Gm. once a week with a total of four neoarsphenamine, eleven mapharsen and fifteen bismuth injections between Sept. 8 and Dec. 20, 1938. At this point malaria was urged as the next therapeutic step. The patient thought this a drastic measure and consulted me. He states that he never had venereal infection or any previous treatment except as outlined. He is married and has three apparently healthy children, 6, 4 and 2 years of age. His wife's blood has been negative on two occasions to Wassermann, Kahn and Kline tests. My examinations were negative except for weakness of the left arm and leg and loss of the reflexes. The blood and spinal fluid gave positive Kahn and Kline reactions. The spinal fluid cell count was 50, globulin a trace and colloidal gold curve 0002210000. I advised spinal drainage, oral potassium iodide and intravenous injections of neoarsphenamine. From my readings I learn that malaria should be tried after other therapy fails in syphilis of the central nervous system, that it works best in dementia paralytica and tabes, and that reversal of the spinal fluid reaction is only about 2 per cent after the first year and 4 per cent after the tenth year. This case was one of the meningovascular type. My first treatment was 0.6 Gm. of neoarsphenamine intravenously and under local anesthesia a complete spinal drainage. These treatments were given at weekly intervals, the patient remaining in bed a full day and returning to his regular occupation the following day. Eight of these were given. After the third treatment a decided improvement followed, the patient stating that his left arm and leg were as good as ever and that his entire outlook on life was brighter. His wife also noticed the change. On the ninth injection I decided to change to mapharsen because of the reversals in the reaction reported in the literature. Mapharsen had previously given him pain along the vein. I injected it rapidly as advised and still the pain developed. A spinal drainage was done under local anesthesia as on eight previous occasions. The following day he said his back was sore and three days after he had retention of urine. On examination there were no new developments except that the prostate was soft, soggy and tender. By massage I expressed a great deal of thick, yellow pus. Almost instantly after the massage he said that his back was much better and he walked about without pain. His retention followed a chill and a rise in temperature to 102 F. The retention persisted and had to be relieved by catheter. He looked as if he had typhoid and was hospitalized. Agglutination tests were negative for typhoid, paratyphoid A and B and undulant fever. Except for a white count of 32,000, other laboratory data were negative. His neck was stiff and advanced Kernig's sign was present on admission. Five days after treatment the spinal tap was dry even with a large caliber needle and suction with a syringe. His abdomen was distended and tympanitic and retention persisted. He died with the temperature going to the ceiling and without an autopsy. I believe that he died of toxemia resulting from intestinal paresis and I hasten to inquire whether the change to mapharsen had anything to do with it. Was I justified in advising against malaria and my recommendations? How do you account for the negative reaction of his wife? Should serologic study be done on children?

M.D., Ohio.

ANSWER.—Considering the information submitted, it would seem that from the theoretical standpoint at least this case of central nervous system syphilis was well and intelligently handled. Without a necropsy it is impossible to state what was the most likely cause of death. There is no reason to think that mapharsen as such was a direct contributory factor. Therapeutic shock (Herxheimer reaction) and therapeutic paradox likewise seem unlikely, considering the amount of antecedent therapy. Hemorrhagic encephalitis, sometimes a complication of arsenical therapy of syphilis, might give a clinical picture similar to the one described. It is unusual for such a reaction to occur so late in the arsenical course. It characteristically follows the first three or four weeks of treatment. Under any circumstance a critical review of the technic employed in the spinal puncture and drainage procedure would seem indicated, though, in the hands of an experienced operator, hardly necessary.

It is not uncommon to find a negative blood serologic test on the wife of a patient with late central nervous system syphilis. There are, of course, several possibilities under the circumstances: first, that the wife has not been infected because sexual union occurred after the husband had reached a late and relatively noninfectious stage of his disease; secondly, that the woman has had syphilis of long duration and has become seronegative either with or without treatment.

Since the children for all practical purposes are always infected by the mother, if it can be certain from the clinical standpoint that the mother is not syphilitic there is no indication to study the children for the disease. If, on the other hand, it is not possible to determine whether the woman is in actuality seronegatively syphilitic, it would be advisable to study the children in an effort to determine whether they are diseased.

POSSIBLE THROMBOSIS OF THE BRACHIAL ARTERY

To the Editor:—A man aged 72, with acknowledged arteriosclerosis, struggled quite violently to close a large double door. During the exertion he experienced a sharp pain in his hand and arm. The pain continued, gradually becoming worse. He stated that his hand and arm became cold and chalklike. When pain became so severe in from thirty-six to forty-eight hours a physician was consulted, and eventually amputation was done. A diagnosis of occlusion of the brachial artery was made but no effort was made to locate the presence of an embolus or thrombus. I should like to know whether severe exertion and local muscular activity could so injure the brachial artery already diseased that occlusion resulted.

JAMES J. HENNESSY, M.D., Hartford, Conn.

ANSWER.—It is possible that exertion may produce local injury to an artery so that it becomes thrombosed. Arterial thrombosis following exertion must occur relatively uncommonly, but in the past few years two patients have been examined whose histories are straightforward examples of sudden arterial occlusion of the arteries of the legs occurring during or following exertion. The exact mechanism is not known but probably an atherosclerotic plaque breaks loose from the intima, protrudes into the lumen of the artery and forms the basis for a thrombus. Insufficient evidence is given in the inquiry to determine whether the diagnosis of arterial thrombosis was correct. Was axillary thrombophlebitis caused by effort considered (Matas, Rudolph: *Am. J. Surg.* **24**:642-666 [June] 1934)? If there was arterial thrombosis, there should have been evidence of impaired circulation such as absence of pulsations in the brachial, radial and ulnar arteries or an abnormal pallor of the hand with elevation and abnormal rubor with dependency. The diagnosis could have been substantiated or disproved by examination of the amputated limb or by observation of the arteries by the surgeon at the time of amputation. Necessity for amputation of an arm because of arterial thrombosis occurs rarely. The upper extremity recovers from the consequences of arterial thrombosis much more commonly than does the lower extremity. A summary answer can be stated as follows: Arterial thrombosis could have resulted from effort in the instance described by the inquirer, but a diagnosis of arterial thrombosis cannot be made on the basis of the information given.

RECURRENT HERPES SIMPLEX

To the Editor:—A man has had recurrent impetigo on the lower part of the chin several times a year for the last three years. It begins in the same spot and subsides with treatment. Is this unusual and how would you prevent the recurrence of the condition?

M.D., Massachusetts.

ANSWER.—A vesicular eruption recurring in the same place several times a year is not impetigo but recurrent herpes simplex. There are several methods of treatment more or less successful in preventing recurrence of this disorder. The administration of calcium in large doses, autogenous injections of blood or serum and ultraviolet treatment have all been recommended.

Because of the fact that herpes is one of the diseases caused by a virus and the viruses seem to have some relation one to the other, cowpox vaccine has been used to treat herpes with some success in ameliorating and postponing the attacks. More effective is vaccination with the contents of the patient's own vesicles. Schmidt (Vaccination for Herpes, *Arch. Dermat. & Syph.* **32**:106 [July] 1935) used this method, originated by Plesch, on four patients, and all of them reacted with local redness and slight swelling. One had slight chilliness and nausea for a short time. Two of the four have had no recurrence of the herpes since the vaccination. The other two required a second vaccination and have remained well since.

In a recent article, Hall (Radiation Treatment of Herpes Simplex, *Am. J. Roentgenol.* **39**:393 [March] 1938) reports excellent results from 375 roentgens of unfiltered x-rays, which cause immediate relief of discomfort and rapid resolution of the inflammation. This is a full erythema dose. He also states that he treated four patients with only 120 to 137 roentgens

filtered through 1 mm. of aluminum with excellent results. Others have reported success with this method. Hall quotes Milian's statement that it may be necessary to repeat the treatment as many as four times at intervals of a month to prevent recurrence. If the smaller dose of filtered rays proves as effective as the larger one of unfiltered rays, it would seem preferable in view of the possible necessity of repeating the treatment several times.

DEPILATORIES

To the Editor:—May I have information concerning the relative effectiveness and local irritant action of barium, calcium, sodium and stannous sulfides as depilatories? Please furnish me with sources of information available in the English language. Are there other substances more desirable than the sulfides? I have already consulted the publication entitled "Cosmetics and Allied Preparations."

KARL E. MORRIS, M.D., Rahway, N. J.

ANSWER.—Sodium sulfide, the most soluble of these preparations, is likely to be the most irritating and can be considered only for the preparation of a liquid depilatory. Since the barium ions are toxic, their employment is actually prohibited in certain countries (Germany). Stannous sulfide has not come into general use. It requires a stabilizer. The following formula (from Volk, R., and Winter, F.: Lexikon der kosmetischen Praxis, Vienna, Julius Springer, 1936) is used by some dermatologists:

	Mild	Strong
Strontium sulfide, Gm.	80.0	80.0
Zinc oxide, Gm.	125.0	40.0
Starch, Gm.	150.0	40.0
Menthol, Gm.	1.0	0.6

Mix with water into a thick paste. Apply a moderately thick layer with a wooden spatula, scrape off after from five to seven minutes, rinse off with liberal use of water, apply 0.5 per cent citric acid solution to neutralize the alkali, dry and apply cold cream and finally talcum. Frequent and liberal use of solution of hydrogen peroxide not only bleaches hair but also makes it brittle and is thus in a sense epilating. Rubbing the part, liberally soaped, twice a day with pumice stone removes hair in the course of from one to six months.

METABOLISM OF XANTHINES

To the Editor:—A careful search through the literature has not revealed satisfactory answers for the following questions: Is there any information concerning the chemistry of aminophylline during its passage through the body? In what final form is aminophylline excreted in the urine and elsewhere? Might it have any influence on the production of uric acid stones? Might the dehydratoin with ammonium chloride, mercupurin or fluid restriction have any effect on the formation of uric acid stones in a case of myocardial insufficiency? I would greatly appreciate an answer to each of these questions unobtainable elsewhere. M.D., New York.

ANSWER.—The question of the influence of the ingestion of the methylated xanthines, 1,3,7-trimethyl xanthine (caffeine), 3,7-dimethyl xanthine (theobromine) and 1,3 dimethyl xanthine (theophylline) on the excretion of uric acid has been carefully studied in the human subject by Myers and Wardell (*J. Biol. Chem.* **77**:697 [May] 1928) and in the Dalmatian coach dog, which resembles man in its purine metabolism, by Hanzal (Dissertation, Western Reserve University, 1930). Aminophylline is a double salt or mixture of theophylline and ethylenediamine, containing not less than 70 per cent of theophylline, and is much more soluble than the free xanthine. Theophylline in this form was employed by Myers and Wardell in their experiments. These authors found about a 10 per cent increase in the excretion of uric acid after the ingestion of theophylline, although this represented somewhat less than 10 per cent of the theophylline ingested. In one of their series of experiments the uric acid was estimated by isolation and weighing, the figures checking closely the results obtained by two colorimetric methods. It seems fairly certain, therefore, that there is a small increase in the excretion of uric acid after the ingestion of aminophylline. It is difficult to say whether this increased excretion of uric acid is due to demethylation of this xanthine or is the result of a slight stimulation of metabolism. It is a well known fact that caffeine slightly increases the basal metabolism (about 5 per cent), and Myers and Wardell and others have found an increased excretion of uric acid after the ingestion of caffeine. There is one other complicating factor in the case of theophylline (1,3 dimethyl xanthine) that must be considered: 1,3 dimethyl uric acid gives the color reaction for uric acid and might be formed from theophylline by oxidation of the number 8 carbon. As Myers and Hanzal (*Am. J. Physiol.* **99**:458 [Oct.] 1929; *J. Biol. Chem.* **97**:lxix [July] 1932) have observed, this does appear to occur to a slight extent. In the case of caffeine and theobromine, Myers and Wardell determined the urinary excretion of purine base nitrogen after the ingestion of these two methylated xanthines and found that this was roughly equivalent to about 15 per cent of the amount ingested. The same would probably be true of theophylline.

If one considers the amount of extra uric acid excreted (about 10 per cent) as derived from theophylline by demethylation and oxidation, together with the increased excretion of purine base nitrogen, it is possible to account for only about 25 per cent of the theophylline ingested.

It seems doubtful, from the slight increase in uric acid excreted, that aminophylline could have any significant influence on the formation of uric acid calculi. It would probably have less influence than the liberal use of coffee (Mendel, L. B., and Wardell, Emma L.: Effect of Ingestion of Coffee, Tea and Caffeine on the Excretion of Uric Acid in Man, THE JOURNAL, June 16, 1937, p. 1805). From the information which is available in the literature it appears improbable that dehydration with ammonium chloride, mercupurin or fluid restrictions should lead to the formation of uric acid stones in myocardial insufficiency. Although the solubility of uric acid in the urine would be decreased by the increased urinary acidity resulting from the administration of ammonium chloride and there might be some increase in the formation of uric acid owing to the mercupurin therapy, this would probably be fully compensated for by the diuresis.

UNILATERAL VENOUS ENGORGEMENT IN TUBERCULOSIS

To the Editor:—A patient with long-standing skeletal tuberculosis has, since the appearance of amyloidosis (with markedly enlarged spleen and liver) a year ago, persistently shown dilated veins distinctly limited to the left half of the trunk. Can any anatomic explanation be offered for this distribution of distended veins? M.D., New York.

ANSWER.—The superficial veins of the thorax near the medial line drain into the internal mammary, the superior epigastric and the anterior intercostal vein. The latter two veins are tributaries to the internal mammary. From the side of the chest the lateral thoracic vein and the costo-axillary vein receive numerous tributaries before draining into the axillary vein. The azygos vein is a continuation upward of the ascending lumbar vein and lies on the right side of the front of the bodies of the thoracic vertebrae. At the level of the fourth thoracic vertebra it curves forward and enters the superior vena cava. It receives the intercostal veins of the right side with the exception of the first two or three, which join into a common trunk before entering the azygos vein. This vein has an anastomosis with the inferior vena cava and through the ascending lumbar vein connects with the iliac vein. This is an important communication in case of obstruction of the vena cava.

On the left, lying along the sides of the thoracic vertebrae, is the hemiazygos vein, which is a continuation upward of the ascending lumbar vein. At the level of the eighth or ninth thoracic vertebra it crosses to the right side and drains into the azygos vein. Four or five of the left lower intercostal veins are tributary to the hemiazygos vein. The left superior intercostal vein is formed by the joining of the second, third and fourth intercostals. This vein drains into the left innominate vein. However, at its lower end it frequently communicates with the accessory hemiazygos vein, which lies in the posterior mediastinum to the left of the fifth, sixth, seventh and eighth thoracic vertebrae. The accessory hemiazygos vein may either join the hemiazygos or pass across the seventh or eighth thoracic vertebrae to join the azygos vein. The fourth to the eighth intercostal veins on the left side are tributary to the accessory hemiazygos vein.

The superficial veins of the lumbar region communicate freely with the intercostal and lumbar veins through the dorsal and lateral perforating branches. Over the lower part of the anterior and lateral surfaces of the abdomen, the superficial epigastric and the superficial circumflex iliac veins drain blood into the great saphenous vein, which in turn is tributary to the femoral vein. The thoraco-epigastric vein joins with the superficial epigastric vein below and the superficial thoracic veins above. The valves of the thoraco-epigastric vein direct the blood downward below and upward above. However, the valves may be rendered incompetent when the vessel becomes enlarged. Thus there is free communication between the superficial veins of the thorax and those of the abdomen. The thoraco-epigastric vein communicates with the portal system in the region of the umbilicus through a vein in the round ligament. The parumbilical veins, which pass along the ligamentum teres to the abdominal wall, are spoken of as accessory portal veins, since they anastomose with superior and inferior superficial epigastric veins. Thus blood returning from the spleen and the abdominal part of the digestive tract ordinarily passes through the liver capillaries before reaching the heart. In certain diseases of the liver, however, which obliterate many capillaries so that the

blood flow is obstructed, it is only through the anastomoses between the portal system and the superficial veins of the abdomen in the region of the umbilicus that the return flow of blood is possible. In this event, because of the large volume of blood passing through the superficial veins of the abdomen, they become distended and the valves in the thoraco-epigastric become incompetent. Thus blood from the superficial epigastric veins flows freely into the superficial thoracic veins and back to the heart through the internal mammary, the axillary or even the axygos, hemiazygos and accessory hemiazygos veins. Again, obstruction of the inferior vena cava or its tributaries as low as the entrance of the saphenous into the femoral vein may result in marked enlargement of the superficial epigastric and superficial circumflex iliac veins, which in turn, through their free communication, results in enlargement of the superficial veins of the thorax. In this event, blood returns to the heart from the lower extremities through the superficial veins of the abdomen and the thorax.

In the case described in the question it is possible that the enlargement of the spleen is sufficient to cause enough pressure on the tributaries of the hemiazygos vein or this vein itself to obstruct the flow of blood toward the superior vena cava and thus dam back the blood in the tributaries which communicate freely with the superficial veins of the abdomen and thorax. It is also possible that pressure on the ascending lumbar vein or even on the iliac or femoral vein, even from a psoas abscess, would direct the flow of blood returning to the heart by way of the hemiazygos or the inferior vena cava to the superficial veins of the abdomen and thorax.

Although amyloidosis usually does not result in obstruction of the flow of portal blood through the liver, there may be enough associated cirrhosis to offer such obstruction. In this event the blood from the portal system would find its way through the parumbilical veins to the superficial veins of the abdomen and thorax. One would expect that there would be equal dilatation of the superficial veins on the two sides of the body. However, because of anatomic variations it is possible that the parumbilical veins anastomosing with the superficial veins on the left side are better developed than those on the right side. Again, the superficial veins of the abdomen and thorax may lie more deeply on the right side, so that they are not visible from the surface.

PREMATURE ORGASM AND TESTOSTERONE PROPIONATE

To the Editor:—A white man aged 26 complains chiefly of premature orgasm. He is in excellent health, is 5 feet 9 inches (175 cm.) tall and weighs 135 pounds (61 Kg.). He is of slight build, has a high pitched voice and has no hair on the chest. The genitalia are normal and the pubic hair is of normal distribution. Results of all laboratory work have been negative. Libido is normal or slightly above normal. Erection is normal and the only complaint is that already mentioned. Some authorities seem to consider this a form of impotence, and with the good results reported in the use of testosterone propionate in impotence I should like to know what you think of the use of this agent in such a case. Could any ill effects come from the use of this agent in a mature adult? If it is recommended, what dosage would you suggest? This patient has not responded to such treatment as prostatic massage, passage of sounds or instillation of mild silver nitrate.

M.D., Kentucky.

ANSWER.—In every case of premature orgasm, exact diagnosis must precede scientific treatment. One must know whether the condition is due to a congested prostate or prostatic urethra or to a weakness of the sexual muscles or to those surrounding the veins of the penis.

Although testosterone propionate would have no ill effect, it would in all probability have no beneficial effect either. Its use in establishing normal sexual activity is indicated only in those conditions which have definite testicular deficiency. It is of no value in psychic disturbances other than on a suggestive basis. A recent report on the status of testosterone propionate appeared in THE JOURNAL, May 13, 1939.

ANTICOAGULANTS DO NOT INTERFERE WITH BLOOD TYPING

To the Editor:—Can you tell me whether or not the citrating of blood would interfere with its use in typing and cross matching? This problem comes up for consideration in connection with blood banking. Does the presence of citrate in serum or saline suspension of cells interfere with cross matching?

ROBERT S. SMITH, M.D., Boise, Idaho.

ANSWER.—The addition of anticoagulants, such as sodium citrate and potassium oxalate, does not interfere with the use of blood for grouping and cross matching tests. This procedure is followed as a routine in many institutions when collecting samples of blood for grouping tests before a transfusion.

HIPPURIC ACID TEST OF LIVER FUNCTION

To the Editor:—A question has been raised as to the toxic effect on the liver cells of sodium benzoate, which is used (orally) in performing the so-called hippuric acid synthesis test for liver function, as worked out by Armand J. Quick. If this chemical is toxic to the liver cells in the doses recommended by this author, the test would logically be unsuitable in those cases of hepatic disease in which the test is particularly desired. What is the action of sodium benzoate (in doses used by Quick) on the liver cells?

KATSUJI KATO, M.D., Chicago.

ANSWER.—There is no direct or indirect evidence to indicate that sodium benzoate has any toxic effect on the liver.

The drug was formerly used in the treatment of rheumatic disease and has been given to human beings in doses as large as from 25 to 60 Gm. a day without producing any harmful effect. Quick's hippuric acid test has been performed on many patients with extreme degrees of injury to the liver without any appreciable toxic effects or without depressing other hepatic functions; slight gastric irritation has been noted in a few cases, but these symptoms are of a temporary nature. Because of the vulnerability of the diseased liver to hepatotoxic agents, it seems clear that if sodium benzoate had any untoward effect on the liver it could be easily demonstrated in such patients.

One may safely conclude that the administration of a single dose of sodium benzoate for testing hepatic function would have no effect on the liver cells which would interfere in any way with the validity of the hippuric acid test.

PROBABLE DERMATITIS FACTITIA

To the Editor:—A white woman aged 24, married, injured her knee nine years ago. The wound would not heal, although no infection was present. It finally healed after a skin flap operation was performed. Four years later she injured her back, and a section of the sacrum was removed. At this time it was noted that the skin would "crack," i. e. at first a fine red line would appear followed almost immediately by separation of the skin and subsequent bleeding, which was controlled by means of a skin clamp. The condition cleared and did not recur until the patient became pregnant one year later. A therapeutic abortion was performed at four months and the condition was again relieved. During the winter months of that year she had three such attacks, all of which seemed to be controlled by blood transfusions. Later a hysterectomy was performed and she had complete relief until nine months ago, at which time she fell downstairs and almost immediately the condition appeared again and has recurred every two months since this last accident. I have seen only the last three attacks, but they follow a definite course of events at each attack: there is a prodromal feeling of malaise and generalized pains, then nervousness followed by a feeling of extreme weakness. The skin is then affected with the initial lesion, beginning in an abdominal scar. At first it was believed that these lesions might be self inflicted, but on one occasion I noted that a thin red line appeared about 1 inch long and almost immediately began to separate and then began to bleed. At each attack anywhere from ten to thirty cracks may appear. After the attack the patient appears normal in every respect and the wounds heal by first intention. The patient has been given almost every known sedative; she has been given spleen extract, theelin and numerous other endocrine preparations. Blood transfusions at first ended the attacks but lately these have proved useless. The only effective treatment now seems to be complete surgical anesthesia, which has proved successful in the last three attacks. On numerous occasions the Wassermann reaction has been negative. Clotting and bleeding time are always within normal limits. The blood count has shown a gradual drop (the last count shows red cells 3,600,000, hemoglobin 70 per cent). The white count is consistently around 10,000. The differential count shows polymorphonuclear leukocytes 78 per cent, small lymphocytes 19 per cent, large lymphocytes 3 per cent. A sister died from sarcoma involving the colon. This patient has been admitted to many hospitals and has been seen by many specialists in the various branches of medicine. The literature has been searched but no similar case has been found. The diagnosis remains "skin cracking." I should like to know whether any other such case has been reported and if so what diagnosis was made and what treatment was suggested.

M.D., Pennsylvania.

ANSWER.—The occurrence of these attacks after injury and during pregnancy, the prodromes of malaise, pains, nervousness and weakness, temporary relief by surgical operation, therapeutic abortion under general anesthesia, the onset of lesions in a scar and their linear configuration are all typical of hysteria and the self-inflicted lesions often seen in victims of this disease. The suspicion that the lesions might be those of dermatitis factitia were well founded and should lead to a neurologic investigation. His statement that he watched a lesion as it developed is not wholly convincing to those who have studied such cases and know what remarkable cunning these patients possess. Is the physician sure that his attention was not diverted for a short time during the period of observation? It may be that hysteria is capable of causing spontaneous changes in the skin, for it is well known that anesthesia of the skin over large areas can be caused, and it is said that such areas do not bleed as readily as the normal skin. No convincing proof of such a possibility has been given, while the cases of self infliction by hysterical patients are common.

The linear shape of the lesions in this case suggest the dermatitis dysmenorrheica of Matzenauer and Polland, an eruption occurring at or near the menstrual period of women with dysmenorrhea. Many dermatologists, because of the resemblance of the lesions to those of dermatitis factitia, reject the theory of these writers, but Wise and Parkhurst, who studied a patient with such an eruption, believe that it is not self inflicted and think that hysteria was ruled out in their case. They also stress the careful and painstaking study of Matzenauer and Polland (Wise, Fred, and Parkhurst, H. J.: So-Called Dermatitis Dysmenorrheica, *Arch. Dermat. & Syph.* **2**:725 [Dec.] 1920).

If a careful study such as was made by the authors mentioned reveals no evidence that the eruption described in the query is self inflicted, the case should be reported in detail, for it is unique. At any rate the patient should be treated by a capable psychiatrist.

PAIN IN THE GLANS PENIS

To the Editor:—A well developed man aged 33 is normal in every respect except that on erection of the penis there is pain in the distal end of the glans penis which is so severe that the act of coitus cannot be completed. He explains the feeling as a "shortness of the muscles, as a stretching or pulling." He has been married for twelve years, is the father of two children, has enjoyed relations with his wife up to three and one half months ago, has had no illicit relations or intercourse and has never had gonorrhea. He has no discharge, swelling, sore or erythema now. The penis appears to be normal when flaccid and on erection. The prostate is normal in size and not tender. Physical examination is negative. He is mentally well and his wife is well. His business is good; he is not greatly worried except about this pain in the glans. Another way he explains this pain is "as after having coitus with a virgin, but the only difference is that there is no pain except on erection and is worse or aggravated by intercourse." He has had coitus with his wife two or three times a week regularly up to three and one half months ago. Furthermore, he still has the desire but as soon as erection occurs he has the pain and on entering pain is aggravated and coitus must cease and the act cannot be completed. His wife states that it is not in the least painful to her. I am at a complete loss as to the cause and as to treatment.

M.D., Texas.

ANSWER.—There are several possibilities to consider; first and foremost is the possibility that this man has a cavernitis; hence when the penis is engorged and erection takes place there is pulling and pain. One is justified in assuming such to be the case by the statement that the patient explained the feeling as a "shortness of the muscles." On the other hand, painful erections in an occasional case are due to other than inflammatory induration, such as induration due to leukemia. It will hence be necessary to look the patient over not only for local causes but for general causes. Some psychic problem or conflict must also be considered.

In summing up, the patient should have a complete physical examination, including complete studies of the blood as well as an attempt to determine the presence or absence of changes in the penis. If all of these examinations are negative he should have a neurologic examination. Of course if his trouble is due to an inflammatory condition such as a cavernitis the use of heat in the form of hot soaking and hot applications and the internal administration of potassium iodide are indicated. For the present he should refrain from sexual intercourse. On the other hand, if his difficulty is due to leukemia the treatment must be directed toward the leukemia and not toward the local condition. Finally, if this is on a neurologic or psychologic basis the treatment becomes self evident.

EFFECT ON DONOR OF BLOOD TRANSFUSIONS

To the Editor:—Could you give me any information you may have or any references in the literature touching on whether or not a donor giving his blood for transfusions is apt to suffer any acute or permanently bad results to his own health? I recall having read that such donors may complain of serious involvement of the liver or other organs. I do not believe that any person can give up a pint or more of his circulating blood without some latent consequence.

B. F. GALLANT, M.D., Long Island, N. Y.

ANSWER.—There has been no report in the literature concerning any permanently bad results to the health of persons giving blood for transfusions, provided this is not carried out to excess. Before there was better regulation of donors it was not uncommon to encounter donors with more severe anemias than the patient receiving the transfusion, and there can hardly be any doubt that this must have been detrimental to the general health of the donor. However, for most healthy adult male donors the withdrawal of from 400 to 500 cc. of blood every four to five weeks is apparently perfectly harmless. When large amounts (1,000 cc. or more) are rapidly drawn off at one time the donor may feel faint after the transfusion, but usually this sensation will pass off if he is kept lying down for from thirty to sixty minutes following phlebotomy. A rather common after-effect is one more of a psychic nature, and this occurs particularly with inexperienced donors and may follow an ordinary venipuncture or even a puncture of the finger as well as phlebotomy. Susceptible persons may suddenly go into partial or complete collapse, and at times it may be difficult to revive them. Donors experiencing such fainting spells may feel ill for several days after the venipuncture or phlebotomy, but there is apparently no permanent damage. One case has been reported of the death of a donor following a transfusion. It seems that after leaving the operating room the donor fainted and his head struck a concrete floor. The donor got up and went home, where he died of a fractured skull with intracranial hemorrhage.

BRONCHOGENIC CARCINOMAS

To the Editor:—What percentage of primary carcinoma of the lung has been recognized during the last five years? Has any etiology been definitely or even tentatively established, such as irritation from inhalation of dust emanating from tarvia highways? What are the usual clinical course, predominating symptoms, sites of metastasis and the like of that disease? Is hay fever (pollen sensitivity) a predisposing factor?

CLARENCE R. MORSS, M.D., Zumbrota, Minn.

ANSWER.—Somewhat more than 50 per cent of bronchogenic carcinomas have been recognized ante mortem in recent years. No definite cause is known, but as associated factors mechanical, infectious and chemical irritants seem to have a role. However, a definite relation to chemical irritation has not been established. Allergic disease is not known as a predisposing factor. The predominating symptoms are pain in the chest, dry cough, hemoptysis and loss of weight and vitality, but often the symptoms from metastases, depending on their location, overshadow those from the primary tumor. Metastases develop most frequently in the lymph nodes, liver, brain, adrenals and bones. Atelectasis of parts of the lung, caused by bronchial occlusion and frequently resulting in pulmonary abscess, changes the clinical course unfavorably. The duration of the disease from the time of diagnosis ranges from weeks to a few months and occasionally is several years. The only reliable cure has so far been found in surgical removal of the involved lung followed by high voltage roentgen therapy. Radiation therapy alone may have a palliative effect but is not curative.

CONTROL OF SMOKING HABIT

To the Editor:—Can you furnish me with a prescription for a pleasant, nonirritating, nonstaining mouth wash which may be used to remove the desire for tobacco when such a desire is present? Kindly omit name and address.

M.D., California.

ANSWER.—The "desire for tobacco" may be treated by the substitution of some other material which will produce actual unpleasant sensations whenever the tobacco is used, or by inhibition, persuading the subject of the reason for discontinuing the habit and hence developing opposing desires to counteract the one for tobacco. Substitutes such as chewing gum, gentian or chamomile roots, smoking nontobacco materials such as cubebs (no truly denicotinized tobacco product is yet available) and the like may replace the physical motor activity and even the immediate sensations of smoking but are generally ineffective for those desiring the effect of smoking. Lobelia, or lobeline sulfate, a common constituent of advertised "tobacco cures," produces pharmacologic effects similar to those of nicotine and has therefore been recommended as a substitute, but it often produces gastrointestinal symptoms and only temporary cessation of the desire by replacement, which is hardly advantageous.

The best known antagonist consists of the application of a 1 per cent solution of silver nitrate to the postpharynx or the use of a more dilute solution (a 0.5 per cent) as a mouth wash after meals. This results in a highly disagreeable taste whenever the subject attempts to smoke, which in that way tends to overcome the desire. The use of weaker silver solutions or a mild protein silver may be less unpleasant, less irritating and less staining at the time of application but it will be ineffective unless the attempt to smoke results in the unpleasant irritating sensation.

The production of anosmia by the application of zinc sulfate or similar agents to the olfactory mucous membrane and similar interferences with the sense of taste may diminish the enjoyment from smoking tobacco similar to the lessening of desire with any acute infection of the upper respiratory tract but will have no result on the desire for the pharmacologic effects of the nicotine.

"Moral suasion" or educating the subject regarding the reason for discontinuing the habit, especially with regard to the progress of already existing symptoms, such as extrasystoles

and amblyopia, is usually sufficient. The "withdrawal symptoms" from abstinence from tobacco are so mild when compared with the effects of opiate addiction that similar difficulty need not be anticipated. Many smokers cease to use tobacco for shorter or longer periods out of a whim, to test their self control or for economic, esthetic, hygienic or other reasons. A large proportion of them, however, resume the habit unless they are convinced of its ill effects on their own person.

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GYNECOMASTIA

To the Editor:—A man aged 47, 6 feet 1 inch (185 cm.) tall, weighing 173 pounds (78.5 Kg.), complains of a gradual enlargement of the breasts during the last two years. His general health has otherwise been good for many years and his weight has not varied during the last ten years. There is uniform symmetrical development of the two breasts. The nipples are fairly well developed and protrude. There is also a general uniform increase in the fatty tissue of the abdominal wall below the umbilicus and there are fatty cushions over the internal aspect of both knees. There is no urinary dysfunction and no difficulty in performing the sex act though there is a slight decrease in libido. The patient is annoyed only by the increase of the breasts and would like to have the condition corrected. Please suggest a line of investigation and specific treatment. If the latter is not available please suggest a plan of experimental treatment which could be tried. Please give a bibliography.

M.D., Pennsylvania.

ANSWER.—At birth the breasts of a child show hypertrophy as a result of hormone stimulation from the mother during the last three months of pregnancy. For from two to four months after birth, cystic dilatation takes place, after which time the breasts of both sexes are relatively quiescent until puberty.

Estrogenic substance is responsible for growth and branching of the mammary gland trees, possibly slight stimulation of the alveoli and development of the nipples in the female at puberty. In the male the breasts normally remain rudimentary, and within a few years their glandular elements atrophy to almost the degree of practical disappearance.

Geschickter, Lewis and Hartman (Tumors of the Breast Related to the Estrin Hormone, *Am. J. Cancer* **21**:828 [Aug.] *1934*), writing of a condition which they term gynecomastia and which occurs most frequently in white men between the ages of 30 and 40, state: "It may be concluded, therefore, from histological and endocrine studies on the normal male and female breast at birth and at puberty, that the developmental response in mammary tissue at these periods to the female sex hormone, estrin, is homologous to that of gynecomastia."

Some observers believe that mastodynia in women is due to an excess of estrogenic substance, while others think that the condition is due to an insufficient amount of this hormone.

It would seem, since estrone is the stimulator of mammary development in the female, that painful and congested breasts would be due to an excess of hormone rather than to an insufficient amount.

Normal males and females secrete both estrogens and androgens, but under normal conditions of function the excess of hormones are those peculiar to each sex. Gynecomastia has been observed in relation to atrophy and tumors of the testicles, and in some cases to adrenal and pituitary disturbances.

Edwards, Shimkin and Shaver (Hypertrophy of the Breasts Due to Injections of Adrenal Cortex Extract in a Man with Addison's Disease, THE JOURNAL, July 30, 1938, p. 412) reported a case of hypertrophy of the breasts in a man aged 37 with Addison's disease to whom adrenal cortex extract had been administered. The hypertrophy and tenderness of the breasts subsided with omission of the extract and recurred when it was resumed.

In the case mentioned in this query no mention is made of pain, and it will be taken for granted that there is none. In this answer one cannot be definite as to the etiology of the condition in this man. His age, slight description and history suggest a beginning decrease in sex function. It is possible that the enlargement of the breasts is due to an accumulation of adipose tissue. In hypogonad states in both male and female the typical adipose deposits are located in the breasts, the mons and over the trochanters. The fact that the breasts are not painful as a result of the decrease of androgens supports this idea. That an excess of estrogenic substance is present is possible, but hardly probable. Again, adrenal cortex disturbance must be kept in mind. Just how the anterior pituitary could be responsible for the condition would be conjectural.

It might be well to make a series of quantitative determinations for estrogens and androgens. The injection of 25 mg. of testosterone propionate three times a week for one month might be tried but would be in the nature of an experiment. If results were obtained, the injection intervals might be lengthened to once or twice a week.

TYPHUS FEVER

To the Editor:—I should like to make some inquiry as to the course to expect in a case of typhus fever which is under my care. I understand that there is no specific treatment for this disease but would like to know what the convalescence is like and if any after-effects result if recovery occurs. This patient was hospitalized for four weeks and returned home. Everything remained normal, except for extreme prostration, for three weeks and now the whole picture of high fever, severe headaches, delirium and the like is repeating itself. Is this what one can expect and how long may these remissions continue? Is it true that if the patient goes through the first period he usually survives these relapses?

M.D., Pennsylvania.

ANSWER.—It is assumed that typhus fever has not been confused with typhoid.

While there seems to be no reason why a relapse of typhus fever cannot occur, no mention of its occurrence has been found in the literature. Second attacks occurring in the same person after an interval of months or years after the first infection have been observed. Convalescence in uncomplicated typhus fever is usually uneventful, but occasionally patients do have mental or nervous disturbances of a mild degree. Most patients recover and after-effects are uncommon. True relapses in rickettsial diseases seem to be rare.

On reading the query and noting the absence of data, one is apt to wonder on what basis a diagnosis of typhus fever was made. Endemic or murine typhus is uncommon in the winter months, and epidemic or louse-borne typhus is rare in Pennsylvania. The unusual "relapse" mentioned suggests the occurrence of some other disease such as encephalitis.

CONTAMINATED WOUNDS

To the Editor:—What strength of solution of mercury bichloride is advisable to use in irrigating contaminated wounds before suturing? What strength should be used to irrigate the cavity left after the removal of a sebaceous cyst or lipoma in the office as a prophylactic against infection? Is there any danger of mercury poisoning?

M.D., Minnesota.

ANSWER.—The use of mercury bichloride to irrigate contaminated wounds before suturing is not advised in any strength. Fresh wounds should be meticulously cleansed with prolonged washing with soap and water and irrigated with sterile water. Following removal of foreign bodies and devitalized tissue, the wound should then be closed without the use of any antiseptic. There is some, but rather slight, danger of mercury poisoning, but the chief objection to the use of any chemical is that it injures the delicate processes of repair. The use of mercury bichloride to irrigate a cavity left after the removal of a sebaceous cyst or lipoma is not recommended.

VITREOUS OPACITIES FROM HEMORRHAGE

To the Editor:—Are there any means, either operative or medical, other than application of ethylmorphine hydrochloride to the conjunctival sac and internal administration of iodide, for the treatment of vitreous opacities resulting from massive intra-ocular hemorrhages?

H. J. MCGINNIS, M.D., Seymour, Wis.

ANSWER.—There are several measures which have been tried for vitreous opacities such as that described, but the evidence in their favor is not convincing. One is the use of small doses of unfiltered x-rays. A 30 per cent skin dose or 80 roentgens may be used three times at intervals of three weeks without danger to the eye. There is some evidence that the resulting hyperemia tends to hasten the absorption of the opacities. If hemorrhages continue to occur, the use of ascorbic acid (from 1 to 2 grains [0.06 to 0.13 Gm.] a day) is a wise precaution. Removal of part of the vitreous has been carried out and some authors have reported clearing of the vitreous. There is, however, some danger in the procedure, and it is not frequently employed. A recent suggestion is the use of snake venom in small doses, but the results are not established in this type of case.

TWIN PREGNANCY: PROBABLE INTERRUPTION

To the Editor:—A woman aged 42 had her last menstruation Oct. 15, 1938, and there was a scanty and painless flow for two hours on November 12. She has two children and was toxic during both pregnancies but they terminated uneventfully. She was first seen November 21 and a diagnosis of probable pregnancy was made. Pernicious vomiting at once developed which was treated at home but rapidly became worse. She entered the hospital December 16 and was given ordinary treatment (fluids, dextrose, sedatives, corpus luteum). She did not improve, and on December 19, after consultation, a therapeutic abortion was done. The cervix would not admit a finger, and numerous large and small fragments of placenta were removed with ovum forceps. Escape of liquor amnii was not observed. Firm uterine and vaginal packing was inserted and removed in twenty-four hours but no more tissue was passed. She made a quick recovery but persisted in having some morning nausea and vomiting such as would be called normal in pregnancy. Several examinations by myself and my consultant indicate today that there is a progressing pregnancy, normal in every way. Should this pregnancy be allowed to continue when the rather marked degree of placental destruction accomplished at the time of the attempted therapeutic abortion is considered? Since liquor amnii was not evident in the operating room, is it or is it not probable that the fetus is now normal? With the large psychic factor now removed, the patient thinks that she might be reconciled to what was fundamentally an unwanted pregnancy if she could be sure that the child would be normal.

M.D., South Dakota.

ANSWER.—The inquiry indicates that the patient is now between three and three and one-half months pregnant. The history and observations would seem to indicate that she probably had a twin pregnancy with an interruption of one at the time of the operation and a subsequent continuation of the other. This seems to be the most plausible explanation of the clinical course. It is obvious that the fetus and attachments could not have been sufficiently damaged to cause its death, otherwise the pregnancy would not continue and the uterus grow at a normal rate. While the possibility of a hydatidiform mole should be considered, this unusual complication is unlikely in the absence of abnormal symptoms and signs. It is of course impossible to give any woman a positive assurance that the fetus resulting from any pregnancy will be normal and there is no way of diagnosing fetal malformations except certain skeletal deformities. These may be frequently diagnosed late in pregnancy by means of roentgenograms. Even this method lacks positiveness in many instances. It is possible to give the patient every reasonable assurance that with an apparently normal continuation of the pregnancy she has every reason to expect the birth of a normal baby.

GEOGRAPHIC DISTRIBUTION OF PSORIASIS

To the Editor:—Since I am writing an article on psoriasis, I would greatly appreciate it if you would please inform me as to what section of the United States has the most sufferers and why. If you do not have this information, would you please suggest where I could possibly get it.

M.D., Nebraska.

ANSWER.—The section of the United States having the most sufferers from psoriasis is undoubtedly the northern half of the country. The textbooks on dermatology indicate that from 2 to 4 per cent of all cutaneous disorders is psoriasis, but no definite studies of the percentage in various localities has been made. The general impression among dermatologists, however, is that there is less psoriasis in the southern portion of the country. Reports agree that in the tropics there are comparatively few cases of psoriasis. In numerous cases the condition comes under control while the patient is in a warmer climate.

CRYSTALLINE PROTEINS

To the Editor:—Abnormal growths as large as a man's head and apparently due to infection are fairly frequent on semitropical plants. The editorial on the structure of proteins in THE JOURNAL, Dec. 3, 1938, page 2120, leads me to inquire whether the crystalline protein mentioned was derived from a protein of the plant itself or from the protein of the infecting organism; also whether the crystalline protein had the cyclic structure of the plant fossil benzene derivatives and if so whether it is carcinogenic.

G. W. TYRRELL, M.D., Perth Amboy, N. J.

ANSWER.—The experimental evidence available at the present time does not permit a definite answer to the questions put forth. The recent investigation of Martin, Balls and McKinney (*Science* **87**:329 [April 8] 1938) suggests that the virus protein is synthesized at the expense of the normal protein. The investigation referred to is a preliminary communication, and extension and confirmation of this report are certainly required.

No data are available regarding the exact differences in structure between the crystalline virus protein and the proteins of the plant. Bawden and Pirie (*Brit. J. Exper. Path.* **19**:264 [Aug.] 1938) have studied the physical, chemical and serologic characteristics of the protein constituents of normal tobacco and tomato leaves and compared these properties with those of the plant virus proteins. Other than their high molecular weights, the normal plant proteins have little in common with the plant viruses that have as yet been isolated.

Data regarding the possible carcinogenic activity of virus proteins are not available; the inquirer is confusing cyclic structure with benzene nucleus.

TREATMENT OF INFECTED WOUNDS

To the Editor:—I have a patient with an open wound which cultures out Bacillus proteus and Staphylococcus albus. I am using the staphlo jell and have used various mild antiseptics. Do you know of anything specific for Bacillus proteus?

M.D., Wis.

ANSWER.—Extensive experience based on the treatment of many infected wounds in the war and elsewhere has made impressive the value of washing of infected wounds of the soft parts with soap and water. In addition to shaving the surface of the skin for a distance of 4 inches from the edges of the wound and of washing the surrounding skin twice a day with soap and water and gently washing the granulation tissue with soap and water, no other antiseptics are necessary on such wounds, and rapid cleansing of the wound and the appearance of healthy granulation tissue occurs.

HYDROCHLORIC ACID VAPORS

To the Editor:—I am writing to secure information relative to an 18 per cent solution of hydrochloric acid which has been used in industrial work in cleaning lavatories. Other than a bronchitis and an irritation of the nasal passages, can the fumes of such a solution cause gastric and gastrointestinal disturbances?

HARRY LAPIROW, M.D., Cincinnati.

To the Editor:—I am writing you today asking for some information of the effect of muriatic acid on the human system. I have under my care at the present time two patients, both of whom work at the radiator repair industry and who are constantly inhaling the fumes of this muriatic acid that is used in the work. They have symptoms of violent gastrointestinal disturbance, headache and backache with tenderness over the entire abdomen. We are having a mild epidemic of typhoid in our city, but I am unable to get either a positive blood or a positive stool culture on these patients. I will appreciate it, therefore, if you will send me any information available on this matter.

C. H. STARK, M.D., Cedar Rapids, Iowa.

ANSWER.—The constant exposure to vapors of hydrochloric acid will cause irritation of exposed mucous membranes. Thus the vapors will produce conjunctivitis, rhinitis and bronchitis. Hydrochloric acid has also a definite effect on dentition, producing inflammation of the gums and a loosening of the teeth. It is said that definite gastrointestinal irritation also results from the inhalation of these vapors with the production of nausea, vomiting and epigastric distress. Statistics and data on this subject, however, are limited, although there is more information on the effects of chlorine gas.

References:

Hirt, cited in Occupation and Health, Geneva, Switzerland, International Labour Office, 1930.

Loeper and others: Gastritis from Asphyxiating Gases, Presse méd. **23**:240 (July 1) 1915; abstr. THE JOURNAL, Aug. 7, 1915, p. 562.

OPTOMETRISTS RECEIVE MISINFORMATION

To the Editor:—In the January 15 issue of the *Optical Journal and Review of Optometry*, page 20, I find the following statements on intraocular pressure. "The third nerve is a part of the somatic which innervates the muscles of more recent origin, and their function is all in a positive direction or to increase the hydro pressure. The sympathetic is the autonomous which innervates the muscles whose origin is in the very early stages of development, and their function is to keep the pressure down in coordination with the vegetative system." Can you elucidate these statements? They do not seem to agree with my conceptions of the physiology of the eye.

FREDERICK A. WIES, M.D., New Haven, Conn.

ANSWER.—Only too frequently appear questions that are inaugurated by hopelessly inaccurate statements appearing in journals that have no scientific supervision. Unfortunately the majority of the human race tends to believe what it sees in print as gospel truth without inquiring into the authenticity of the statements. Libel laws protect human beings but unfortunately medical topics have no such legal champions. Practically all of the fifty-seven varieties of the pseudomedical cults have publications of one sort or another. In these the various authors justify their extravagant claims by misquotations from authoritative sources or by statements snatched from the blue sky. To the uninitiated such articles are convincing, but no physician should allow himself to be taken in by these pseudoscientific libels.

DISLOCATION OF HEAD OF RADIUS

To the Editor:—Yesterday at a clinic I saw a patient with an anterior dislocation of the head of the radius of five years' duration. The patient complains of occasional attacks of pain accompanied by "purplish" discoloration in the region. Are there any operative procedures which might give a good result in a case such as this? Please quote references if possible. I haven't been able to find anything satisfactory in books to which I have access.

LUCIAN J. FRONDUTI, M.D., Jessup, Pa.

ANSWER.—The head of the radius is in close proximity to the posterior interosseous nerve. It is possible to resect the head of the radius not only without functional disability but in many cases with a considerable increase in function.

The purplish discoloration complained of may have nothing to do with the dislocation of the head of the radius but may be due to some local circulatory disturbance, possibly of venous or sympathetic nerve origin.

In considering a dislocation of the head of the radius, one must presuppose a rupture of its surrounding orbicular ligaments. There is a well known fracture-dislocation, known as a Monteggia dislocation, which is a fracture of the shaft of the ulna in connection with dislocation of the head of the radius.

References:

Speed, Kellogg: A Textbook of Fractures and Dislocations Covering Their Pathology, Diagnosis and Treatment, Philadelphia, Lea & Febiger, 1935.

Key, J. A., and Conwell, H. E.: Management of Fractures, Dislocations and Sprains, St. Louis, C. V. Mosby Company, 1937.

SUPERFECUNDATION, SUPERFETATION AND INTERVAL BETWEEN TWIN BIRTHS

To the Editor:—1. What is now considered to be the possibility of superfecundation and what is the latest time at which it can occur? 2. What is the supposed mechanism of the birth of twins days or weeks apart?

M.D., Illinois.

ANSWER.—1. Superfecundation is the impregnation of two different ova about the same time by sperms of different fathers. A white woman may bear twins, a black and a white child; a Negress may bear a black and a mulatto twin, but both combinations are possible with a single father. To prove superfecundation it is necessary that the twins be of a race different from the mother; e. g., a white woman delivers a Negro and a Mongolian.

The two impregnations must occur within a day or two to fertilize the two ova of one ovulation. Superfecundation occurs in multiparous animals.

Superfetation means the fertilizing of ova of two ovulations; i. e., a pregnancy supervening after one already occupies the uterus. This possibility has been strenuously denied by many authorities. The occasional great disparity in the size of the two children—reported as much as 1 to 7—has been ascribed to unequal development resulting from difference in nutrition. But superfetation does occur in human beings; e. g., a case of a healthy ovum of 4 weeks being found with a healthy aborted fetus of 10 weeks; also laboratory and clinical proof quoted by DeLee (ed. 7, p. 538). Superfetation occurs in multiparous animals not infrequently, and in the mare and cow on rare occasions. A mare served by a donkey and, a month later, by a stallion gave birth 9 months later to a mule and one month thereafter to a filly (Fleming: Veterinary Obstetrics, p. 127).

2. The mechanism of the causes of the delay in the delivery of the second twin days or weeks after the birth of the first is not understood, and a satisfactory explanation is not to be anticipated until what normally sets the process of labor in motion is known. Superfetation would be a dubious solution in the human race.

PERIODIC ALCOHOLIC EXCESSES

To the Editor:—I have been asked for advice in a case of dipsomania. A man aged 55, with a good physique, height about 70 inches (178 cm.) and weight 180 pounds (81.6 Kg.), is active and shows no signs of chronic alcoholism. His tongue is clean and there are no tremors or facial characteristics common to this condition. The family history is negative except that the father drank moderately. He has no brothers or sisters. He married a young woman in 1930 and has two normal, healthy boys aged 4 and 7. The wife does not drink or smoke, and since they seem to be happy in their married life there seems to be no exciting cause here. The patient had typhoid in 1911 and two or three attacks of influenza in 1915 and 1918. He has never been operated on. There is no history of delirium tremens or of institutional treatment. The heart is normal, the urine is normal and the blood pressure is 110 systolic, 60 diastolic; in fact all functions appear to be normal. He was with one employer for twenty years and is now retired on a moderate income. As near as I can find out, he leads a normal life and has traveled extensively. He says that he has used alcohol since his college days, but moderately. Usually he drinks beer and does not care for strong drink except when he is on a spree. He goes months—around 1933 he had no alcohol of any kind for eighteen months—at other times drinks two or three glasses of beer a day for months without going on a spree. He has attended social functions and taken two or three cocktails and thought nothing more of it. I cannot seem to find out how he happens to get started. After a few days of drinking, from four to seven, he suddenly stops of his own accord. He remains in bed two or three days and then gets back into good condition in a short time. The attacks have no regularity—may be two or three in as many months and then a year or more between attacks. I am in hopes that there may be some routine, with or without drugs, that he could follow to lessen if not entirely do away with this disease. Any information will be most acceptable.

W. G. STEADMAN, M.D., Miami, Fla.

ANSWER.—The periodic sprees are probably due to psychic causes in spite of the negative history. It is likely that a careful inquiry would elicit a history of troubles from which he is trying to escape. It is possible that the attacks could be prevented if the patient would consult his physician when he feels that a spree is imminent. Possibly at this time a little sympathetic psychotherapy with or without the use of sedatives such as bromides, phenobarbital or paraldehyde might be helpful.

TOXICITY OF OCTYL ALCOHOL

To the Editor:—Will you kindly inform me as to the toxicity of vapors from normal octyl alcohol (capryl alcohol). The vapors escape from a condenser during distillation.

R. J. FOSTER, M.D., New Philadelphia, Ohio.

ANSWER.—Octyl alcohol ($C_8H_{17}OH$) lately has come into extensive use as an antifoaming agent. It is used on such a large scale as to be marketed in carload lots. Among other processes, it is used in connection with dehydrating lubricating oil, the printing of textiles, water sprays used for air conditioning, the manufacture of paper, photographic work, insecticide sprays and the like. While little is known about its toxic properties, its extensive use with apparent impunity prompts the belief that its toxicity for exposed workmen is of low order. This substance possesses a fairly disagreeable odor, which in some instances may be a deterrent to its use.

A number of studies have been made on the action of octyl alcohol on experimental animals: Octyl alcohol dissolved in ethyl alcohol provokes a drop in arterial pressure, and after repeated injections death may occur. Intravenous injections of octyl alcohol promote diuresis. A mild local anesthetic property is possessed by this alcohol. Clotting time is increased as a result of the action of octyl alcohol when injected intravenously. Additional data related to pharmacologic action may be found in the following references:

1. Clerc, A.; Stern, J., and Paris, R.: Further Research on the Action of Octanol, *Compt. rend. Soc. de biol.* **116**: 600, 1934.
2. Macht, D. I., and Davis, Mary E.: Local Anesthetic Properties of Some Aliphatic Alcohol, *Proc. Soc. Exper. Biol. & Med.* **30**: 1294 (June) 1933.
3. Clerc, A.; Stern, J., and Paris, R.: The Action of Primary Octyl Alcohol (Octanol) and of Some Tensio-Negative Compounds on the Kidney, *Ann. de méd.* **38**: 32 (June) 1935.
4. Clerc, A.; Paris, R., and Stern, J.: Action of Octyl Alcohol on the Arterial Pressure and Surface Tension of the Blood of an Animal, *Compt. rend. Soc. de biol.* **111**: 774 (Dec. 9) 1932.

RECURRENCE OF LYMPHOID TISSUE AFTER TONSILLECTOMY

To the Editor:—What is the incidence of return of some varying amount of tonsil tissue after tonsillectomies done in children 3 years of age and how soon afterward may some such tissue appear?

M.D., New Jersey.

ANSWER.—There are no reliable statistics on the incidence of return of tonsil tissue in the pharynx of children tonsillectomized at the age of 3 years. Recurrence is dependent on a number of factors, not all well understood. Among these factors is age. There is a normal tendency toward hyperplasia of all the lymphatic structures in Waldeyer's ring in the first few years of life. Removing the tonsils at an early age leads often to compensatory hypertrophy of the surrounding lymphatic structures as well as to recurrence in the operative site. Hence, the younger the person at the time of operation the more apt is recurrence to take place. Furthermore, some persons show a special tendency toward hyperplasia. These will tend to suffer from recurrences.

Early reappearance of lymphoid tissue on the tonsillar fossa speaks for an incomplete operation. Late recurrence, sometimes several years after a technically well performed removal, is possibly due to the lymphatic structures present in the tunica propria of the mucosa, which grows in to heal the site of operation.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, May 27, page 2197.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Medical centers having five or more candidates desiring to take the examination, June 19-21 and Sept. 11-13. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. *Written.* Various places throughout the United States, Sept. 9. Applications must be filed by July 11. *Oral.* Part II. Philadelphia, Oct. 14-15. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Philadelphia, Oct. 30-Nov. 1. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various sections of the United States, Oct. 16 and Feb. 19. Formal application must be received before Aug. 20 for the Oct. examination and on or before Jan. 1 for the Feb. examination. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Various cities of the United States, Puerto Rico and Canada and in Honolulu, Aug. 5. *Application must be received before July 1. General Oral.* Chicago, Oct. 7. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis, Mo.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Boston, January.* Sec. Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 6-7. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Cincinnati, Nov. 15. Appointments must be made before July 15. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

California February Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held at Los Angeles, Feb. 7-9, 1939. The examination covered nine subjects and included ninety questions. An average of 75 per cent was required to pass. Fifty-seven candidates were examined, fifty-three of whom passed and four failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1937)	78.6, 79.4, (1938) 75.8, 78, 82.7
Stanford University School of Medicine		(1937)	90.1
Yale University School of Medicine		(1936)	81.1
George Washington University School of Medicine		(1938)	87.1
Emory University School of Medicine		(1938)	86.3
Northwestern University Medical School		(1938)	84.2,* 84.6*
Rush Medical College		(1937)	85.9, 87.6, 88.4, (1938) 76.8, 84.3, 86.1, 89.8
School of Medicine of the Division of Biological Sciences		(1938)	87
University of Illinois College of Medicine		(1938)	81.7,* 88.6
State University of Iowa College of Medicine		(1938)	84.1
Johns Hopkins University School of Medicine		(1936)	82.4
Harvard Medical School		(1937)	81.4, 84.7, (1938) 82.9, 85.7
University of Michigan Medical School		(1937)	81.2, 88
University of Minnesota Medical School		(1938)	86.1*
Washington University School of Medicine		(1938)	77.7, 80.9, 82.6, 83.1
Creighton University School of Medicine		(1938)	76.9, 82.3
University of Nebraska College of Medicine		(1937)	83.2, (1938) 79.1, 86.9
New York University College of Medicine		(1938)	92
University of Oklahoma School of Medicine		(1938)	82.4
University of Oregon Medical School		(1938)	86.9, 88.4
University of Pennsylvania		[illegible]	84.3
University of Tennessee C[illegible]	"		79.3, 82.1
University of Wisconsin M[illegible]	"		85.4, 86
McGill University Faculty	"		78.4
Medizinische Fakultät der [illegible]			75.8, (1936) 78.4
Ludwig-Maximilians-Universität Medizinische Fakultät, München		(1921)	84.6
Universität Rostock Medizinische Fakultät		(1923)	82.4

School	FAILED	Year Grad.	Per Cent
Stanford Universit[illegible]		(1936)	72.3
Marquette Univers[illegible]	"	(1938)	73.4
Johann Wolfgang [illegible]	" akul-		
tät, Frankfurt-am-Main		(1922)	62.1
Latvijas Universitäte Medicinas Fakultäte, Riga		(1928)	70.4

Forty-nine physicians were licensed by reciprocity and thirteen physicians were licensed by endorsement from January 3 through March 17. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1928)	Arkansas
University of Colorado School of Medicine		(1932)	Colorado
Howard University College of Medicine		(1925)	Penna.
Chicago College of Medicine and Surgery		(1913)	Illinois
Northwestern University Medical School		(1929)	N. Dakota, (1931) Michigan
Rush Medical College		(1900)	S. Dakota, (1921) Illinois
University of Illinois College of Medicine		(1927)	Illinois
State University of Iowa College of Medicine		(1928), (1935, 2)	Iowa
University of Kansas School of Medicine		(1931)	Kansas, (1933) Wisconsin
Baltimore Medical College		(1898)	Mass.
University of Maryland School of Medicine and College of Physicians and Surgeons		(1936), 1937)	Maryland
Harvard Medical School		(1900) Penna., (1935)	Mass.
Detroit College of Medicine		(1898)	Michigan
Detroit College of Medicine and Surgery		(1927)	Florida
University of Michigan Medical School		(1933), (1935)	Michigan
University of Minnesota Medical School		(1935)	Illinois, (1921), (1932, 2), (1934), (1936) Minnesota
Creighton University School of Medicine		(1931)	Nebraska, (1927), (1935) Ohio
University of Nebraska College of Medicine		(1924), (1928), (1935), (1936)	Nebraska
Columbia University College of Physicians and Surgeons		(1915) New York, (1927)	Connecticut
New York Homeopathic Medical College and Flower Hospital		(1926)	New York
University of Oklahoma Sch[illegible]		[illegible]	Oklahoma
University of Oregon Medic[illegible]			Oregon
Jefferson Medical College of [illegible]			Penna., (1934) Missouri
Temple University School of Medicine		(1932)	Michigan
University of Pennsylvania School of Medicine		(1930)	Kansas, (1931) Pennsylvania, (1932) Minnesota
University of Texas School of Medicine		*(1937)*	Texas
Marquette University School of Medicine		(1937)	Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical [illegible]		(1934)	N. B. M. Ex.
Stanford University	"		N. B. M. Ex.
Yale University Sch[illegible]	"		N. B. M. Ex.
Northwestern University Medical School		(1934)	N. B. M. Ex.
Rush Medical College		(1930)	N. B. M. Ex.
Johns Hopkins University School of Medicine		(1909)	U. S. Navy
Cornell University Medical College		(1935)	N. B. M. Ex.
University of Oregon Medical School		(1931)	U. S. Navy
Hahnemann Medical College and Hosp. of Philadelphia		(1933)	U. S. Navy
Jefferson Medical College of Philadelphia		(1938)	U. S. Navy
Medical College of the State of South Carolina		(1916)	U. S. Navy

* This applicant has completed the medical course and will receive the M.D. degree on completion of internship.

Book Notices

Clinical Electrosurgery. By Gustavus M. Blech, G.C.S., G.C.G., M.D., Consulting Surgeon Westlake Hospital, Chicago, Illinois. With chapters by Hector Alfred Colwell, M.B., Ph.D., D.P.H., Senior Assistant in Cancer Research Department Middlesex Hospital, London, and Brian Wellington Windeyer, F.R.C.S., D.M.R.E., Radium Officer Middlesex Hospital, London, England. Cloth. Price, $4. Pp. 389, with 34 illustrations. New York, Toronto & London: Oxford University Press, 1938.

Electrosurgical methods have come to fill a role in both major and minor operations. The ballyhoo of apparatus salesmen of a decade ago, promising every general practitioner that he could by the turn of a knob of a diathermy machine operate on tonsils and hemorrhoids, has been largely replaced by a realization that specially constructed electrosurgical apparatus must be painstakingly used by competent surgeons and other specialists. However, there has been a decided dearth of an authoritative textbook on the subject. The present volume fills this need. Part I is devoted to general considerations. The chapter on the historical development of electrosurgery is by H. A. Colwell. Other chapters deal with electrosurgical procedures, equipment, general technic, indications and limitations and nomenclature. A final chapter, on the radiotherapy of neoplasms, is by Windeyer and Colwell. In his own chapters the author has avoided going into complicated physics or a description of apparatus and presents the technical aspects of the general technic and the clinical applications lucidly and critically. The details on anesthesia and operative procedures and the advice for the gradual acquisition of a proper technic are comprehensive. The author puts strong emphasis on the use of electrosurgical measures in the treatment of malignant neoplasms and advocates biopsy by electrotomy as the only safe procedure. Part II comprises the major part of the volume and deals in successive chapters with operations on the skin, the head and spine, the face and neck, the thorax, the abdomen, the genitourinary apparatus, the female pelvis, the extremities, the nose, throat and larynx and the eye. The author limits his recommendations to methods and indications which he considers thoroughly tried.

Die fetale und postfetale Tuba Eustachii: Anatomisch-histologische Untersuchungen. Von Adolf Schwarzbart. Extrait des Mémoires de l'Académie polonaise des sciences et des lettres, Classe de médecine, 1938. Paper. Pp. 160, with 80 illustrations. Cracow: Imprimerie de l'Université, 1938.

Here is a richly illustrated work devoted chiefly to a study, anatomic and microscopic, of the eustachian tube. The author has covered his ground with a thoroughness reminiscent of the prewar Teutonic school. He gives the history of previous investigations and a summary of present knowledge of the eustachian tube. A discussion of points of embryologic interest, a survey of comparative anatomic details and a review of current notions relative to the physiology of the eustachian tube are presented. The author's material was human and animal, chiefly human and obtained from several dozen fetuses ranging in age from 5 to 10 months and from about sixty-five infants, children and adults. With great detail he discusses the anatomy and histology of the eustachian tube in the light of his observations, leaving, it would appear, little else to be done. For the anatomist and perhaps the otologist deeply interested in the subject, this work offers in one volume an immense amount of detail not to be had, as far as can be determined, anywhere else.

The Pituitary Gland: An Investigation of the Most Recent Advances. The Proceedings of the Association for Research in Nervous and Mental Disease, New York, December 28th and 29th, 1936. Editorial Board: Walter Timme, Angus M. Frantz and Clarence C. Hare. Association for Research in Nervous and Mental Disease, Vol. XVII of a Series of Research Publications. Cloth. Price, $10. Pp. 764, with 160 illustrations. Baltimore: Williams & Wilkins Company, 1938.

The Association for Research in Nervous and Mental Disease in previous years has had similar symposiums on various topics of interest in its field. This volume represents three symposiums concerning the anatomy and the physiology of the pituitary gland and a series of articles of interest largely from the clinical point of view. It is profusely illustrated, and the material is the most recently collected on this subject. Of particular interest was the suggestion by Dr. Timme that the regions with a preponderance of cases of the pituitary syndrome are almost identical with the areas commonly called the "goiter belt." Notwithstanding the vast amount of material here assembled, it becomes promptly apparent to the reader that exact knowledge concerning the gland and its functions is still in the early stages of development. The evidence is clear that the pituitary must be considered as part of the glandular chain and that much knowledge must await suitable integration of information concerning each of the portions of this interlocking directorate of the human body.

Handbuch der Inneren Medizin. Begründet von L. Mohr und R. Staehelin. Herausgegeben von G. v. Bergmann und R. Staehelin unter Mitwirkung von V. Salle. Band III: Krankheiten der Verdauungsorgane. Teil 1: Mundhöhle, Speiseröhre, Magen. Teil 2: Darm, Bauchfell, Bauchspeicheldrüse, Leber und Gallenwege. Bearbeitet von W. Baumann, et al. Third edition. Paper. Price, 108 marks. Pp. 789; 791-1514, with 504 illustrations. Berlin: Julius Springer, 1938.

This volume is devoted to a consideration of the disorders and diseases of the entire digestive tract, including the liver and biliary passages, pancreas and diaphragm. The extensive clinical and pathologic consideration is preceded by a brief but concise summary of the anatomic and physiologic aspects. As is characteristic of Teutonic writings, the references to the literature are almost exclusively German, but many of the most important contributions of English, American and French investigators are mentioned. Diseases of the mouth and esophagus are well portrayed by Gigon and Lüdin. The chapter on diseases of the stomach was written by Katsch and Kalk, two distinguished specialists in the field of gastro-enterology. Von Bergmann contributed an article on the pathogenesis of ulcer in which he ascribes much importance to the spasmogenic or neurogenic theory with which his name is closely identified.

Gastritis is exhaustively covered by Katsch, his description reflecting the importance with which this entity is regarded in central Europe. Until recently the subject has not been given deserved consideration in this country. The colored plates on pages 452 and 453, depicting the gastroscopic appearance of the acute and chronic forms of gastritis, are some of the finest extant. In fact, nearly all the illustrations, particularly the reproductions of roentgenograms, are excellent. Diagnostic laboratory procedure with reference to the various organs is discussed in considerable detail. In the treatment of ulcer Kalk looks with disfavor on antacids and advocates the use of bismuth compounds and atropine. In cases in which the ulcer is refractory he still makes use of nonspecific forms of protein therapy. He greatly favors gastric resection in the surgical treatment of all ulcers not responding favorably to medical management, and in his experience about half of the patients submitted to gastrojejunostomy had recurrences. In the treatment of gastric hemorrhage he takes a conservative point of view, especially when the patient is less than 50 years old.

The chapter on diseases of the liver and biliary passages was contributed by two authors less well known to the English speaking members of the profession, Dr. Stroebe and Dr. Schweigk, both of Berlin. It is, however, one of the most complete in the volume. The observations on the physiology and functional pathology of the organ by the junior author and the articles on special pathology by Stroebe are interesting and instructive. Naturally the theory of serous inflammation conceived by Roessle and Eppinger is given much consideration. Henning and Baumann contribute the chapters on diseases of the intestine and diaphragm. Entities such as regional ileitis, syphilis and ulcerative gastritis are treated rather briefly, considering their growing importance.

The new edition of the handbook easily measures up to the high standards set by preceding editions. The editorship in itself would be a guaranty of such excellence. To those familiar with the language and with special interest in this field of medicine it is heartily recommended.

The Medical Press and Circular 1839-1939: A Hundred Years in the Life of a Medical Journal. By Robert J. Rowlette, M.D., F.R.C.P.I. Cloth. Pp. 127, with 10 plates. London, 1939.

This book was published in celebration of the hundredth anniversary of the *Medical Press and Circular*, which was founded in Dublin in January 1839 under the title of the *Dublin Medical Press*. The author was for many years Irish editor. The *Medical Press* in 1866 absorbed the *Medical Circular*, a London periodical founded in 1852. During its Dublin days this journal took an active interest in bettering the position of the members of the medical profession in government employ and in the development of the organization of the profession. In both earlier and later years it maintained a constant warfare against quackery and unprofessional conduct, particularly of those in high places. Such warfare brought the journal into difficulty at times, but only once was it taken into the courts and on that occasion the costs were defrayed by public subscription. So-called medical politics played a part in the editorial policy, but that was far from being the major interest. In its early volumes, among other things were the proceedings of the Royal Society of London, of the Royal Irish Academy, of the Academy of Sciences of Berlin and of the Zoological Society of London. As time went on the scope of the journal was narrowed to medicine, and in recent years the *Medical Press and Circular* has pursued the policy of providing concise articles on the latest accepted methods of diagnosis and treatment. The details of the long life of this journal are interestingly related by the author. In appearance the book, printed on double edged cream antique laid paper, is artistic. There are ten plates, some of which are portraits of the earlier editors.

Social Work Year Book 1939: A Description of Organized Activities in Social Work and in Related Fields. Russell H. Kurtz, editor. Fifth issue. Cloth. Price, $3.50. Pp. 730. New York: Russell Sage Foundation, 1939.

This constitutes the fifth issue of a description of organized activities in social work and related fields. A considerable number of contributors are responsible for the material included. Unfortunately the work bears too largely the stamp of the field of social service and there is little to indicate any point of view except that point of view. For instance, medical care is covered by Michael M. Davis and health insurance by I. S. Falk. In reference to surveys of medical needs there is not the slightest mention of the American Medical Association except to point out that it opposed some of the conclusions of the Committee on the Costs of Medical Care. In the discussion of new plans for medical care the organized medical profession is put in the position of opposing everything; the reader is in fact given a

completely biased picture of the entire situation. If the publisher had been concerned with presenting to the readers an actual picture of the status of the various fields which are discussed, he might at least have indicated the existence of the diverse points of view. The book is, however, useful as a guide to the extent of activities in the field of social work.

Praktische Anatomie: Ein Lehr- und Hilfsbuch der anatomischen Grundlagen ärztlichen Handelns. Von T. von Lanz und W. Wachsmuth. Band I, Teil 4: Bein und Statik. Cloth. Price, 49 marks. Pp. 485, with 342 illustrations. Berlin: Julius Springer, 1938.

Von Lanz was a professor of anatomy at the University of Munich; Wachsmuth was dozent in surgery at the University of Bonn. This book deals with the lower extremity; one on the upper extremity was published three years ago; parts dealing with the rest of the body are in preparation. The authors and the publisher have produced an extraordinarily beautiful, scholarly and well illustrated work. The title "Praktische," or applied, anatomy suggests that surgical and clinical anatomy will be presented. That expectation is abundantly fulfilled both in the text and in the numerous and excellent illustrations. The results of injury, the relation of muscular action to fractures, the desirable sites of amputation and of ligation of vessels, the collateral circulation, the best surgical approaches, the results of disease of the peripheral nerves all are well treated. But the book presents much more than this. It is one of the most beautiful books in the literature on descriptive, topographic, functional and developmental anatomy. The physical anthropology of the lower extremity, the action of muscles, the mechanics of joints, the range of motion and normal variations in this range and the mechanics of the circulation of blood in arteries, veins and capillaries are presented in text and illustrations with thoroughness and clearness. The illustrations are new and of unusual beauty. The general nature of the book may be inferred from their character. Two thirds are devoted to normal anatomy, twenty-two to growth and development, six to physical anthropology, thirty to function and over forty to purely clinical subjects. Thirty-two pages is devoted to a thorough and well classified reference to the literature and forty to an excellent and serviceable index. The appearance of further parts will be eagerly awaited by anatomists, physicians, surgeons, physical anthropologists and students.

Gould's Pocket Pronouncing Medical Dictionary of the Principal Words Used in Medicine and the Collateral Sciences with an Appendix Containing Complete Tables of the Arteries, Bones, Chemical Elements, Hormones, Micro-Organisms, Muscles, Nerves, Prefixes and Suffixes, Phobia's Signs and Symbols, etc., Also a Physicians Dose-List of Drugs with Their Incompatibilities, and a Veterinary Dose Table Both in the English and Metric Measures, and Based Upon the Eleventh Revision U. S. Pharmacopœia. By the Late George M. Gould, A.M., M.D. Revised by C. V. Brownlow. Eleventh edition. Fabrikoid. Price, $2; Thumb Index $2.50. No pagination. Philadelphia: P. Blakiston's Son & Co., Inc., 1939.

The eleventh edition of this well known dictionary contains more than 40,000 words of medical import. It includes a number of tables on hormones, bacteria, signs, symbols and abbreviations, and doses. Many of these are placed in the back of the book as an appendix. This is a useful volume and can be carried in a large pocket or in a physician's bag.

Cancer: An Inquiry into the Extent to Which Patients Receive Treatment. By the Hon. Sholto Mackenzie, M.D., M.R.C.P. Ministry of Health, Reports on Public Health and Medical Subjects, No. 89. Paper. Price, 9d. Pp. 41. London: His Majesty's Stationery Office, 1939.

The objective of the inquiry was "to obtain information as to the number of persons with cancer who received treatment and the circumstances under which treatment was, or was not, received. For this purpose data derived from the histories of those who had died of cancer have been utilised." The histories of 3,303 patients, which it was felt could "fairly be considered as a reasonably representative sample," were thus studied. Of these 2,420, or 73 per cent, did not obtain treatment. There were 418, or 12 per cent, who first sought advice within four weeks of death; 237, or 7 per cent, refused treatment; 169, 5 per cent, suffered from concomitant disease which rendered treatment difficult or impossible; 426, or 13 per cent, were too old for treatment, and 657, or 20 per cent, were cases in which the condition was too advanced for treatment. The cases were then analyzed to determine whether the location of the cancer was such as to have given a reasonable probability that treatment might have been helpful. Forty-two per cent of 312 who refused treatment gave as their reasons dislike of the hospital, treatment considered useless or fear or they preferred to remain at home. A similar study (Lombard, H. L.: Education a Major Need in Adequate Medical Care, THE JOURNAL, Nov. 5, 1938, p. 1747) conducted by the Massachusetts Department of Public Health found that 37.4 per cent of the "persons dying of cancer without reporting for treatment" after cancer had been diagnosed gave similar reasons. There may be some significance in the fact that not once in the entire report is any reference made to health insurance as a means of detecting incipient cancer.

Consolidated Indices Embracing Transactions of the American Roentgen Ray Society (1903-1908), American Quarterly of Roentgenology, Volumes I-V (1906-1913), American Journal of Roentgenology, Volumes I-IX (1913-1922), American Journal of Roentgneology and Radium Therapy, Volumes X-XXXVIII (1923-1937). Author and Subject: 1903-1937. Compiled under the direction of the Publication Committee and the Editorial Office of the American Roentgen Ray Society. Cloth. Price, $12.50. Pp. 451. Springfield, Illinois: Charles C. Thomas, 1939.

The publisher has here made available a complete index in the field of roentgenology, embracing the transactions of the American Roentgen Ray Society from 1903 to 1908 and material from three of the leading journals in the field of roentgenology for long terms of years. The index covers not only the transactions of the society and the original articles, editorials and biographic and historical sketches that have been published but also the abstracts from both domestic and foreign journals. As this material concerns the beginnings of our knowledge of roentgenology, the index constitutes an invaluable guide to material of permanent historical importance.

Mundherde und Gelenkrheumatismus: Ein Beitrag zur Bakteriologie der oralen Herdinfektion. Von Hofrat Dr. Franz Schick. Paper. Price, 7.50 marks. Pp. 86, with 11 illustrations. Leipzig: Johann Ambrosius Barth, 1938.

The author believes that the teeth are the only controllable foci. Oral infection is only one of numerous foci, but it is important since the mouth is the great portal of entry to the gastrointestinal tract and is in intimate relationship to the upper respiratory tract, paranasal sinuses, mucosa, teeth, salivary ducts, tonsils and polypous growths. Schick thinks that the American allocation of the teeth as the focus in 10 per cent of cases is too conservative. The tonsils are second in importance. The author describes a gram-labile micrococcus which he and Fischer isolated. This organism was found in the blood stream of five of seven rheumatic patients; it was present in tonsils, granulomas and the pulp of dead teeth. Its pathogenicity is low. Other subjects considered are the blood picture, which is not characteristic, focal infections, polyarthritis rheumatica from the standpoint of pathologic anatomy and experimental work on Micrococcus Fischer-Schick. A large bibliography is appended

Traité de thérapeutique clinique. Par Paul Savy, professeur de clinique médicale à l'Université de Lyon. Tomes I, II, et III. Second edition. Cloth. Price, 450 francs per set. Pp. 958; 959-2075; 2077-2776. Paris: Masson & Cie, 1938.

The fact that a second edition appears within two years of the first edition is evidence of the popularity of this treatise. A department representing the dermatologic and urinary specialties has been added, and the book has been brought down to date; otherwise the arrangement of the work is the same as in the previous edition. The practicability of the work is evident throughout, as is shown among other things by the introduction of illustrative prescriptions useful in the treatment of various diseases. The first volume deals with the treatment of pain, syphilis, tuberculosis, cancer, gastrointestinal disturbances and diseases of the liver and pancreas and concludes with the diseases of blood and blood-making organs. The second volume includes diseases of the heart and blood vessels, kidneys, respiratory apparatus and nervous system. The third volume includes the treatment of disturbances of the endocrine glands, allergy, dyscrasias, infectious diseases and intoxications. The work can be recommended for its exposition of the generally accepted practice of medical treatment in France.

Whitla's Dictionary of Treatment Including Medical and Surgical Therapeutics. By R. S. Allison, M.D., M.R.C.P., Physician with Charge of Out-Patients, Royal Victoria Hospital, Belfast, and C. A. Calvert, M.B., B.Ch., F.R.C.S.I., Assistant Surgeon, Royal Victoria Hospital, Belfast. Eighth edition. Cloth. Price, $9. Pp. 1,285. Baltimore: William Wood & Company, 1939.

Sir William Whitla, a prominent physician of Belfast, Ireland, wrote this book and edited it through seven editions. He died in 1933 and so many advances have been made since that it was necessary for new editors to rewrite it. Sir William's original plan of dealing with each subject from the general practitioner's point of view has been followed. In addition to the editors there are ten special contributors, all members of the Belfast school. As the title indicates, they follow the dictionary plan, but there is an index in the back. The book is probably as nearly abreast of the times as a book of its scope could be. However, under pellagra there is no mention of the use of nicotinic acid, although there is brief mention of the treatment by means of yeast and vitamin B.

Organic Chemistry. By Paul Karrer, Professor in the University of Zürich. Translated from the latest German edition by A. J. Mee, M.A., B.Sc., Head of the Science Department, Glasgow Academy, Glasgow. Cloth. Price, $11. Pp. 902. New York: Nordemann Publishing Company, Inc.; Amsterdam: "Elsevier," 1938.

This volume presents the subject in a concise manner, covering practical information of a broad scope and making readily available a commanding and recent survey by a noted chemist. It is based on the fifth German edition; corrections and additions of the sixth edition have been included. The changes in the recent editions not being great, the new advances are allotted space. Discussions of vitamins B_1 and E, the cortical steroids and organic compounds containing heavy hydrogen are included. Advanced students will find the text a reliable source of information. It supplies a sound groundwork, along with enough background for the consideration of various theories and topics. The book can be heartily recommended for every chemist's library.

Doctors, Nurses and Dickens. By Robert D. Neely. Cloth. Price, $1.50. Pp. 153, with 3 illustrations. Boston: Christopher Publishing House, 1939.

Here a Dickens enthusiast has assembled everything that the great master wrote concerning doctors, nurses and the medical profession. The volume is of interest and contains a vast amount of most quotable material.

Landmarks in Medicine: Laity Lectures of the New York Academy of Medicine. Introduction by James Alexander Miller, M.D., President, New York Academy of Medicine. Cloth. Price, $2. Pp. 347, with 15 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1939.

The New York Academy of Medicine has been conducting for some years a series of lectures for the public in the field of medical science. The present volume includes some excellent essays, mostly historical. The following items are included, in addition to the introduction by Dr. James Alexander Miller:

From Barber-Surgeons to Surgeons, by Francis R. Packard, M.D.
The Meaning of Medical Research, by Alfred E. Cohn, M.D.
Dr. Watson and Mr. Sherlock Holmes, by James J. Walsh, M.D.
The Search for Longevity, by Raymond Pearl, Ph.D.
Medicine and the Progress of Civilization, by Reginald Burbank.
X-Ray Within the Memory of Man, by Lewis Gregory Cole, M.D.

From the point of view of scientific information, the one most useful is the essay of Dr. Raymond Pearl.

Pechenochno-pochechnyi sindrom v chirurgii (hepato-nephrity): Eksperimentalnoklinicheskoye issledovanie. [By] Prof. A. Ya. Pytel. [Hepatorenal Syndrome in Surgery (Hepato-Nephritides): Experimental-Clinical Investigation.] Cloth. Pp. 157, with 11 illustrations. Stalingrad: Oblastnoe Knigoizdatelstvo, 1938.

Professor Pytel reports his clinical and experimental investigations dealing with the failure of the hepatic and the renal function in surgical diseases and in particular after operations on the liver and the biliary tract. The author was able to reproduce experimentally intraperitoneal autolysis of the liver tissue in dogs. Morphologic alterations in the liver and in the kidney were found to be analogous to those present in persons dying from liver disorders. The author concludes that loss of renal function in the so-called renal syndrome is due to damage to the glomeruli and the urinary canaliculi by toxic substances originating in the damaged liver or brought from the intestine to the liver which had lost its detoxifying function. The monograph presents an exhaustive discussion of the causes, the clinical manifestations and the prophylactic and active treatment of the hepatorenal syndrome. The monograph is written in Russian with a brief summary in French.

Sbornik trudov posvyashchenny XL-letiyu nauchnoy i uchebnoy deyatelnosti zasluzhennogo deyatelya nauki professora V. N. Shevkunenko. [Collection of Works Celebrating 40 Years of Scientific and Pedagogic Activity of V. N. Shevkunenko.] Cloth. Price, 12 rubles, 50 kopecks. Pp 306, with illustrations. Leningrad: Izdanie Voenno-Meditsinskoy Akademii RKKA im S. M. Kirova, 1937.

These two volumes constitute a festschrift dedicated by the faculty of the Military Academy of Leningrad to one of its most gifted sons, V. N. Shevkunenko, professor of operative surgery and topographic anatomy, on the occasion of his completion of forty years of clinical, pedagogic and experimental activity within the walls of the academy. Volume 1 contains papers dealing with studies on constitutional types, a subject to which Shevkunenko devoted much of his attention. Volume 2 contains papers dealing with various subjects in the field of operative surgery. The text reflects the standard of Soviet surgery and suggests that the traditions of the academy which not long ago could boast of such names as Sechenov, Pavlov, Pirogov and Fedorov are being perpetuated.

The Proceedings of the Charaka Club, Volume IX. Post Multa Virtus Opere Laxare Solet. Published for the Charaka Club. Boards. Price, $5. Pp. 204, with illustrations. New York: Richard R. Smith, 1938.

The ninth volume of the Proceedings of the Charaka Club contains some exceedingly interesting essays, poems and experiments in literature by the members of this erudite organization. The book has interest not only for the medical historian but for all persons who are interested in the literary and artistic portrayal of the medical scene. Especially fascinating is the opening essay by Dr. Harvey Cushing, which deals with Ercole Lelli. The book is beautifully printed in the same style as the previous volumes. The complete collection of the Proceedings of the Charaka Club is now a most valuable contribution to medical history.

Seventeenth Hospital Yearbook. 1939 Hospital Purchasing File: Directory of Products, Manufacturers' Catalogs, Purchasing Standards and Other Reference Data. Boards. Price, $2.50. Pp. 801. Chicago, Illinois: Modern Hospital Publishing Company, Inc., 1939.

The seventeenth edition of this yearbook, like its predecessors, is a compendium of information for purchasers. Practically everything used in building and operating a hospital is included. The material is helpfully indexed and classified. The last fifty pages present special articles on various classes of hospital apparatus, from air humidifiers to devices for refrigeration and insulation. There is a comprehensive check list for the purchase of hospital equipment and a list of national, state and sectional hospital and allied agencies.

Shok (Pratsi konferenstii z problemi shoku) Kiïv, 25-27 grudnya 1937 roku. [Shock. Transactions of Conference on Problems of Shock. Kiev, Dec. 25-27, 1937.] Paper. Price, 15 krb. Pp. 354, with illustrations. Kiev: Vidavnitstvo Akademii Nauk URSR, 1938.

This volume contains a number of papers dealing with the various aspects of clinical and experimental shock. Each contribution is accompanied by a summary in English or in French. There is a bibliographic supplement embracing most of the important literature on the subject written between 1931 and 1937. The experimental work is frequently of a high standard and as such should prove of interest to physiologists and clinicians.

Sbornik trudov posvyashchenny XXXV-letnemu yubileyu vrachebnoy, nauchnopedagogicheskoy i obshchestvennoy deyatelnosti zasluzhennogo deyatelya nauki Professora I. I. Faynshmidta. Redaktsionnoe byuro: V. P. Vorobev i A. I. Levin (otvetstvennye redaktory). Recueil de travaux consacré au XXXV anniversaire de l'activité médicale, scientifique, pédagogique et sociale du travailleur émérite de la science professeur I. I. Fainschmidt. Paper. Price, 14 rubles. Pp. 466, with illustrations. Kiev: Gosmedizdat USSR, 1937.

This is a festschrift issued by the Ukrainian Institute of Experimental Medicine and dedicated to I. I. Fainshmidt on the occasion of his completion of thirty-five years of clinical, peda-

gogic and communal activities. The papers deal with various clinical aspects of pneumonia, tuberculosis, cardiovascular disease and diabetes. Professor Fainshmidt, one of the most prominent internists of the Ukraine, has contributed much to these subjects. Each paper is accompanied by a brief summary in French.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dead Bodies: Removal of Gold Crowns from Teeth as Mutilation of Body.—The defendant, an embalmer, was convicted of feloniously mutilating a dead body and appealed to the district court of appeal, second district, division 2, California.

Section 290 of the Penal Code of California provides that every person who "mutilates" a dead body of a human being without authority of law shall be guilty of a felony. It was for an alleged violation of this section that the defendant was arrested and subsequently convicted. The evidence was construed by the appellate court to show that the defendant removed two gold crowns from the teeth of a dead body. The trial court instructed the jury that the word "mutilate" as used in the Penal Code meant to destroy or remove a material part of so as to render imperfect. But, said the appellate court, in none of the dictionaries, either legal or general in scope, can there be found a definition of the word "mutilate" as applied to the human body which is couched in the language used by the trial court or in any similar language. Legal dictionaries, on the contrary, are in accord that the term "mutilate" means to cut off a limb or an essential part of the body or "to deprive a man of the use of those limbs which may be useful to him in fight." Without the use of dictionaries, the court pointed out, it would be difficult to conclude that one who removes gold crowns from the teeth of a dead body could be properly accused of mutilating the body. The evidence in the present case showed that the natural teeth of the dead body were not removed or impaired and that the only act committed was the removal of the crowns which had been cemented to the teeth. There was no maiming or disfigurement of the teeth or of any part of the body. It could not be successfully argued, the court continued, that a plate of false teeth, which is frequently removed for long periods of time, is in fact a part of the body. If two teeth should be removed from the jaw of a living person and two crowns should be fashioned by a dentist in such manner that they could be used and readily removed, it could not be seriously argued, the court thought, that the two false teeth would become a part of the body. The argument that the placing of cement in the false teeth to make them adhere to the natural teeth would result in the false teeth becoming a part of the human body seemed to the court equally unsound.

The appellate court, therefore, reversed the judgment of conviction.—*People v. Bullington (Calif.), 80 P. (2d) 1030.*

Hospitals: Liability for Injury to Pay Patient in County Hospital.—Twin Falls County, Idaho, erected and operated a county hospital in which pay patients were admitted. The plaintiff, a pay patient, was admitted to the hospital and an appendectomy was performed on her by her physician. After the operation, the physician prescribed an injection of physiologic solution of sodium chloride to be administered by a special nurse. A hospital employee gave the nurse a container containing a liquid similar in appearance to physiologic solution of sodium chloride but which actually contained boric acid. The special nurse injected the solution and injury to the plaintiff resulted. Thereafter the plaintiff sued the county to recover damages for her injuries. The trial court dismissed the suit and the plaintiff appealed to the Supreme Court of Idaho, which reversed the judgment of the trial court dismissing the plaintiff's suit. *Henderson v. Twin Falls County* (Idaho), 50 P. (2d) 597, 101 A. L. R. 1151; abstracted, J. A. M. A. **106**:1228 (April 4) 1936. The case was tried a second time and the trial court gave judgment for the plaintiff and the defendant county appealed to the Supreme Court of Idaho.

A physician who treated the plaintiff after her injury was called as a witness in her behalf and testified, on direct examination, as to the nature, character and probable lasting effect on her health of the injection of the solution of boric acid. He exhibited to the jury the scars on the plaintiff's leg caused by the injection of the solution. His direct examination was concluded late in the afternoon and the court was adjourned until the next morning. During the night the witness died. The following day, the defendant asked the court to declare a mistrial on the ground that it had, without fault on its part, been deprived of its right to cross-examine the witness. This motion was denied, whereupon the defendant moved that all the testimony of the witness be stricken from the record. The trial court granted this motion and very carefully instructed the jury not to consider any of the testimony. On appeal, the defendant insisted that the testimony of the physician was of such a nature that its rights could not be protected by striking the testimony and by instructing the jury that it be disregarded. It was the duty of the trial judge, said the Supreme Court, to listen carefully to the direct examination of the physician and to observe the attention given his testimony by the jurors and its apparent effect on their minds. After the physician died, and when the question was presented as to the effect of his direct examination on the jury, the trial judge knew, as well as any one could know, whether or not the defendant's rights would be protected by striking the testimony and by admonishing the jury to disregard it. The Supreme Court could see no reason to do otherwise than to place its stamp of approval on the action of the trial judge.

After reviewing all the assignments of error presented by the defendant, the Supreme Court was unable to discover anything that would warrant it in reversing the judgment for the plaintiff. The jury found, the court pointed out, from ample evidence that the plaintiff suffered grave injuries which were caused by the negligence of the defendant's agent while she was a pay patient in its hospital. The judgment of the trial court was therefore affirmed.—*Henderson v. Twin Falls County (Idaho), 80 P. (2d) 801.*

Society Proceedings

COMING MEETINGS

American Association for Thoracic Surgery, Los Angeles, July 5-7. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of Industrial Physicians and Surgeons, Cleveland, June 5-8. Dr. V. S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Neurological Association, Atlantic City, N. J., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Buffalo, N. Y., June 5-8. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Physiotherapy Association, Denver, June 25-30. Mrs. Eloise T. Landis, 2065 Adelbert Road, Cleveland, Secretary.

American Proctologic Society, Brooklyn, N. Y., June 25-27. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

Maine Medical Association, Poland Springs, June 25-27. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.

Massachusetts Medical Society, Worcester, June 6-8. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.

Medical Library Association, Newark, N. J., June 27-29. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Montana, Medical Association of, Butte, June 28-30. Dr. Thomas L. Hawkins, 50 North Main St., Helena, Secretary.

National Tuberculosis Association, Boston, June 26-29. Dr. Charles J. Hatfield, 50 West 50th Street, New York, Secretary.

New Hampshire Medical Society, Manchester, June 8-9. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 6-8. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

Pacific Coast [illegible] San Francisco, June 19-22. Dr. C. Allen [illegible] Francisco, Secretary.

Pacific Northw [illegible] ane, Wash., June 26-29. Dr. C. W. Count [illegible] , Spokane, Wash., Secretary.

Rhode Island M [illegible] une 7-8. Dr. Guy W. Wells, 124 Waterm [illegible]

Vancouver Me [illegible] iool, Vancouver, B. C., June 6-9. Dr. W. [illegible] ntal Bldg., Vancouver, B. C., Secretary.

West Virginia State Medical Association, White Sulphur Springs, July 10-12. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

17: 259-386 (March) 1939

Earliest Known Reference to the Heart and Circulation: The Edwin Smith Surgical Papyrus, Circa 3,000 B. C. W. W. Hamburger, Chicago.—p. 259.

Prognosis of Bundle Branch Block. L. F. Bishop Jr. and G. A. Carden Jr., New York.—p. 275.

*Role of Treatment of Syphilis in Prevention of Cardiovascular Involvement. W. P. Thompson, Los Angeles; W. J. Comeau and P. D. White, Boston.—p. 286.

Effect of Certain Pure Digitalis-like Glucosides on the Frog's Heart. A. G. Macleod, New York.—p. 294.

Effect of Acetyl-Beta-Methylcholine on the Frog's Heart. A. E. Cohn and A. G. Macleod, New York.—p. 305.

*Treatment of Deep Thrombophlebitis and Chronic Leg Ulcers with Acetyl-Beta-Methylcholine Chloride Iontophoresis. R. A. Sokolov and M. P. Meyers, Detroit.—p. 316.

Papaverine Hydrochloride: Its Questionable Value as Vasodilating Agent for Use in Treatment of Peripheral Vascular Diseases. D. Littauer and I. S. Wright, New York.—p. 325.

Observations on Genesis of Renal Hypertension. L. N. Katz, M. Friedman, S. Rodbard and W. Weinstein, Chicago.—p. 334.

Supernormal Phase of Recovery in Man. D. Scherf, New York, and A. Schott, London, England.—p. 357.

Prevention of Cardiovascular Syphilis.—A statistical evaluation of the antisyphilitic therapy of 260 persons in relation to the later (fifteen to twenty-five years) development of cardiovascular syphilis is presented by Thompson and his associates. They attempt to supply more concrete information on the relationship of the amount of early antisyphilitic therapy to the incidence of cardiovascular involvement. Nineteen persons had cardiac disease of other than syphilitic etiology. Of the remaining 241 patients, eighteen (7 per cent) had definite cardiovascular syphilis and eight (3 per cent) had probable aortitis. In 190 subjects (80 per cent) the heart and aorta were normal, while twenty-five (10 per cent) had questionable dilatation of the aorta. These data agree with those of certain other observers with regard to the incidence of cardiovascular syphilis, for an incidence of 10 per cent (3 per cent probable aortitis and 7 per cent definite cardiovascular syphilis) was found. The grade of treatment showed little difference in the clinical groups except for persons with definite cardiovascular syphilis. All of these patients had inadequate early treatment and in all but one instance the late treatment was no better. The data, the authors state, give some support to their clinical impression that adequate treatment of syphilis tends to prevent the later clinical manifestations of cardiovascular syphilis.

Thrombophlebitis and Iontophoresis.—Acetyl-beta-methylcholine chloride iontophoresis was employed by Sokolov and Meyers in the treatment of nineteen cases of thrombophlebitis of the deep veins and thirteen cases of chronic leg ulcers of various origin. Some of the patients were from the outpatient department while others were private patients referred to the peripheral vascular department of the hospital. The majority of the patients were ambulatory. The shortest duration of the thrombophlebitis among the patients treated was eight days, the longest thirty-two years. Improvement was observed in eighteen of the nineteen cases. The majority of the patients were able to return to full-time work, some at hard manual labor. Others were only partially rehabilitated. In one patient pain and disability, which had been present for thirty years, disappeared completely. Many of the patients had had various other forms of treatment over a period of years without relief. The most definite improvement took place in instances in which the disease was of short duration. When the disease had been present for a number of years, improvement was slow and less dramatic. Improvement may not manifest itself until several treatments have been given. It is not unusual, especially in the cases of old chronic phlebitis, to see no alteration in the disease process until a considerable period has elapsed and then suddenly to observe beneficial changes taking place. In fresh postoperative cases the results were at times quite dramatic. One precaution which was observed in treating open lesions of the skin by iontophoresis was that the ulcerated area itself was covered with a thin piece of rubber sheeting. If this is neglected the current is likely to concentrate at the point of ulceration, which may cause pain and further destruction of tissue. Of the thirteen cases of chronic leg ulcers, twelve lesions had healed completely and the thirteenth lesion was healing rapidly when last observed.

American Journal of Cancer, New York

35: 327-490 (March) 1939

Structure, Nature and Classification of the Cerebellar Astrocytomas. P. C. Bucy and W. A. Gustafson, Chicago.—p. 327.

Comparison of Effect of a Homologous Tumor Material and the Duran-Reynals Factor on Tumor Growth. A. E. Casey, St. Louis.—p. 354.

Production of Transplantable Carcinoma and Sarcoma in Guinea Pigs by Injections of Thorotrast. L. Foulds, London, England.—p. 363.

Sarcoma 37 and the Virus Problem. W. H. Woglom, New York.—p. 374.

Influence of Roentgen Radiation on Immunity to Shope Fibroma Virus. J. Clemmesen, Leeds, England.—p. 378.

Further Studies with Seedlings on the Question of Wavelength Dependence of Radiobiologic Reactions. P. S. Henshaw and D. S. Francis, New York.—p. 386.

Effect of Oil of Wintergreen on Spontaneous Tumors of the Mammary Gland in Mice: VII. Liquefaction of Spontaneous Tumors of Mammary Gland in Mice by Heptyl Aldehyde. L. C. Strong, New Haven, Conn.—p. 401.

Contorted Mitosis and Superficial Plasmagel Layer. W. H. Lewis, Baltimore.—p. 408.

*Rhabdomyosarcoma of Diaphragm: Case Report. T. M. Peery, Washington, D. C., and W. A. Smith, Charleston, S. C.—p. 416.

Experimental Production of Adenoma of the Pituitary. Isabella H. Perry and Margot Szabo Lockhead, San Francisco.—p. 422.

Carcinogens and Planarian Tissue Regeneration. S. E. Owen, H. A. Weiss and L. H. Prince, Hines, Ill.—p. 424.

Rhabdomyosarcoma of Diaphragm.—Peery and Smith report a case of malignant tumor of the diaphragm (rhabdomyosarcoma) in a Negro boy 14 years of age. The observations at necropsy are discussed. The tumor appeared to metastasize entirely by the lymphatic route. This is apparently the tenth case of primary tumor of the diaphragm on record, the sixth case of malignant tumor primary in the diaphragm, and the second case in which the parent tissue was voluntary muscle. Most of the previously reported cases occurred in women in the fourth decade of life. The present patient is apparently one of the youngest patients on record.

American Journal of Physiology, Baltimore

125: 415-624 (March) 1939. Partial Index

Nature of the Factor Which Is Concerned in Loss of Blood Coagulability of Bile Fistula and Jaundiced Rats. J. D. Greaves, St. Louis.—p. 423.

Studies on Vitamin K Requirements of the Rat. J. D. Greaves, St. Louis.—p. 429.

Influence of Posture on Skin and Subcutaneous Temperatures. H. S. Mayerson and L. A. Toth, New Orleans.—p. 474.

Influence of Posture on Circulation Time. H. S. Mayerson, H. M. Sweeney and L. A. Toth, New Orleans.—p. 481.

Gonadotropic Extracts from Green Leaves. M. H. Friedman and Gertrude S. Friedman, Philadelphia.—p. 486.

Examination of the Hypnotoxin Theory of Sleep. J. G. Schnedorf and A. C. Ivy, Chicago.—p. 491.

Homeostasis in the Sympathectomized Dog. Florence Knauf McDonough, Boston.—p. 530.

Uterine Motility Cycle in the Guinea Pig. K. A. Greig, Rochester, N. Y.—p. 547.

Inadequacy of Substances of the "Glucose Cycle" for Maintenance of Normal Cortical Potentials During Hypoglycemia Produced by Hepatectomy with Abdominal Evisceration. S. Maddock, J. E. Hawkins Jr. and E. Holmes, Boston.—p. 551.

Relationship of the Hyperglycemic Principle in Diabetic Urine to the Pancreas and the Hypophysis. H. L. Clay and H. Lawson, Louisville, Ky.—p. 566.

Cerebral Metabolism and Electrical Activity During Insulin Hypoglycemia in Man. H. E. Himwich, Z. Hadidian, J. F. Fazekas and H. Hoagland, Albany, N. Y.—p. 578.

Respiratory Metabolism of Infant Brain. H. E. Himwich, Zelma Baker and J. F. Fazekas, Albany, N. Y.—p. 601.

Splenic Volume and the Polycythemia of Artificial Fever in Intact, Unanesthetized Dogs. L. L. Palitz, Chicago.—p. 607.

American Journal of Public Health, New York

29: 197-304 (March) 1939

*Diphtheria Immunization with Fluid Toxoid and Alum Precipitated Toxoid: Preliminary Report. V. K. Volk and W. E. Bunney, Saginaw, Mich., with technical assistance of Anita Leavitt, Ann Sonderman and Louise Hagaman.—p. 197.
Asbestosis. R. R. Sayers and W. C. Dreessen, Washington, D. C.—p. 205.
Factors Influencing Nonspecific Resistance to Infection. C. F. Church, Philadelphia.—p. 215.
Production of Antipneumococcus Rabbit Serum. B. S. Fritz, Marietta, Pa.—p. 224.
Rural Field Experience for Public Health Nursing Students. Pearl McIver, Washington, D. C.—p. 231.
Place of Methylene Blue and Resazurin Reduction Tests in a Milk Control Program. C. K. Johns, Ottawa, Ont.—p. 239.
Experience of the Victorian Order of Nurses for Canada with Cases of Pregnancy as Reflected by Case Records. J. T. Phair, A. H. Sellers and Mary Ferguson, Toronto.—p. 248.
A Health Department Birth Control Program. R. Norton, Raleigh, N. C.—p. 253.
Late Lactose Fermenting Organisms of the Coli-Aerogenes Group. N. R. Ziegler, Columbia, Mo.—p. 257.
Slow Lactose Fermenters in Water Analysis. M. McCrady, Montreal.—p. 261.
Id. Anna Dean Dulaney and E. F. Smith, Memphis, Tenn.—p. 266.

Diphtheria Immunization.—Volk and Bunney compare the immunization value of one dose of alum precipitated toxoid and two doses of fluid toxoid at four months, one year and two years after injection; and a comparison of two doses of alum precipitated toxoid and three doses of fluid toxoid at four months after injection. Most of the children (7,347 from 119 schools) were from rural communities in Saginaw County, Mich. The immunity response was followed by blood titrations only. The authors concern themselves solely with the antitoxin response to different immunizing procedures. They do not attempt to prove that any one procedure is the procedure of choice for routine immunization against diphtheria. The fact that no abscesses or severe reactions have followed the two injections of alum precipitated toxoid augurs well for the future of this method of immunization. In the increasing order of the response that the several diphtheria immunization procedures induce, the authors state that they are, under the conditions of their study, one dose of fluid toxoid, two doses of fluid toxoid at intervals of three weeks, one dose of alum precipitated toxoid, three doses of fluid toxoid at intervals of three weeks and two doses of alum precipitated toxoid at intervals of three weeks.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

41: 305-492 (March) 1939. Partial Index

Use of Roentgen Rays in Obstetrics: Part I. Roentgen Pelvimetry and Cephalometry; Technic of Pelvioroentgenography. W. E. Caldwell, H. C. Moloy and P. C. Swenson, New York.—p. 305.
Petrositis: Roentgenologic and Pathologic Correlation. E. P. Fowler Jr. and P. C. Swenson, New York.—p. 317.
Observations on Process of Ossification in Formation of Persistent Enlarged Parietal Foramina. E. P. Pendergrass and O. H. P. Pepper, Philadelphia.—p. 343.
*Roentgenologic and Gastroscopic Studies in Chronic Gastritis and Peptic Ulcer. F. E. Templeton and R. Schindler, Chicago.—p. 354.
Complications Produced by Malignant Tumors of the Nasopharynx. C. L. Martin, Dallas, Texas.—p. 377.
Analysis of End Results Following Experimental Radiation Therapy of Gastric Cancer: Report of 268 Cases. G. T. Pack and G. McNeer, New York.—p. 391.
*Treatment of Acute Pneumonias with Roentgen Rays. E. V. Powell, Temple, Texas.—p. 404.
Striking Regression of Generalized Subcutaneous and Visceral Metastases of Malignant Melanoma (Melanoblastoma) Following Intensive High Voltage Roentgen Irradiation of the Pituitary Gland. P. E. Wigby and M. H. Metz, Dallas, Texas.—p. 415.
Cancer of Esophagus: Some Etiologic Considerations. W. L. Watson, New York.—p. 420.
Results of Roentgen Therapy in Fifty-One Cases of Primary Inoperable Cancer of Ovaries. E. A. May, East Orange, N. J.—p. 425.
Low Voltage Roentgen Therapy in Skin Cancer: Study on Relationship of Dosage to Size of Field. W. S. MacComb, New York.—p. 437.

Gastritis and Ulcer.—From their x-ray and gastroscopic study of peptic ulcer and chronic gastritis, Templeton and Schindler conclude that chronic gastritis, diagnosed easily through the gastroscope, can rarely be diagnosed with certainty by present x-ray methods. This is particularly true of the superficial and atrophic forms. Usually gastric ulcer can be diagnosed equally well by the two methods but occasionally an ulcer may be seen by one method and not by the other. It follows that the two methods should be used together when possible. When an ulcer is located so that the gastroscopist can see it, gastroscopy is the method of choice for following the course of healing under treatment. However, the course of healing can also be followed roentgenologically. Gastroscopic evidence of gastritis is not present in all cases of gastric or duodenal ulcer. The antral narrowing sometimes accompanying gastric ulcer presents gastroscopic evidence of gastritis. Inflammatory changes in the deeper layers of the wall of the stomach may give x-ray evidence of gastritis but no gastroscopic evidence.

Treatment of Acute Pneumonias with Roentgen Rays.—Powell has employed roentgen therapy in 105 cases of lobar pneumonia and in thirty cases of bronchopneumonia. Five of the patients with lobar pneumonia and four of those with bronchopneumonia died, giving a mortality of less than 5 per cent for the former and 13 per cent for the latter. Specific immune serum has been used on only three patients, two of whom died. The technic is to give from 250 to 350 roentgens, using 135 kilovolts, 3 mm. of aluminum filter and a skin target distance of 40 cm. As soon as the diagnosis is made, treatment is given anteriorly or posteriorly over an area a little larger than the involved portion of the lung. A definite leukopenia such as is found in some postinfluenzal pneumonias is the only contraindication to roentgen treatment. If the temperature has not returned to normal or below within thirty-six hours after the first roentgen treatment, a second treatment of 200 roentgens is given over the opposite cutaneous area. When roentgen treatment is given before consolidation is complete it may spread, but the patient shows the usual clinical improvement, and the temperature, pulse, respiration and leukocyte count return to normal. A few cases with mixed infection have required a third or fourth treatment, successively smaller doses of course being given. In mixed infections recovery by lysis is more apt to occur after an initial drop from the high temperature to a moderate elevation above the normal. Bronchopneumonia seems more variable in its response to radiation therapy. The author's patients have been treated in all stages of the disease, from the first to, in one case, the eleventh day. Most of the patients show relief of distress and general symptomatic improvement within a few hours and more than one third of them, he states, have shown a drop in temperature to normal or below within thirty-six hours after the treatment. The temperature of a number of patients has returned to normal in less than twelve hours after treatment. The author uses digitalis only when there is definite cardiac decompensation. He uses oxygen when there is cyanosis or when the respiratory rate is high enough to be exhausting to the patient. Metrazol is used as a respiratory and peripheral circulatory stimulant. Morphine or dilaudid as indicated is given for pain. High fever is usually controlled by ice caps and cold colon flushes. The author believes that, even if the mortality had not been reduced so much, the use of roentgen therapy in these cases would be justified by the relief of anxiety and discomfort experienced by the patients.

Annals of Internal Medicine, Lancaster, Pa.

12: 1403-1554 (March) 1939

Diabetic Coma (Investigation of Mortalities and Report of Severity Index for Comparative Studies). I. M. Rabinowitch, A. F. Fowler and E. H. Bensley, Montreal.—p. 1403.
Clinical Significance of Punctate Basophilia in Erythrocyte. E. H. Falconer, San Francisco.—p. 1429.
The Challenge of Appendicitis. R. Fitz, Boston.—p. 1442.
*Development and Importance of Hypertension in Chronic Bright's Disease. H. O. Mosenthal and H. H. Lander, New York.—p. 1449.
*Liver Function in Rheumatoid (Chronic Infectious) Arthritis. W. B. Rawls, S. Weiss and Vera L. Collins, New York.—p. 1455.
Serum Proteins in Rheumatoid Disease. C. W. Scull, T. F. Bach and R. Pemberton, Philadelphia.—p. 1463.
*Factors Influencing Incidence and Course of Otitis Media in Scarlet Fever. C. Wesselhoeft, Boston.—p. 1473.
Nongranulomatous Chronic Enteritis. D. Adlersberg and M. Weingarten, New York.—p. 1486.
Thrombo-Angiitis Obliterans Associated with Diabetes Mellitus. S. Helm and B. T. Horton, Rochester, Minn.—p. 1493.
Some Limitations in Preventive Medicine. H. A. Christian, Boston.—p. 1499.

Hypertension in Bright's Disease.—Mosenthal and Lander point out that the elevation of blood pressure characteristic of chronic Bright's disease is usually believed to occur in two ways: without any renal involvement (primary or essential hypertension) or as the result of renal insufficiency (secondary

hypertension). However, the development of increased arterial tension before impairment of renal function is present occurs commonly in cases of chronic diffuse glomerular nephritis, the initial, dominant, often sole sign of which is albuminuria. The study of 124 cases shows that 36 per cent of the patients had a normal blood pressure, 19 per cent had an elevation of blood pressure associated with marked renal insufficiency and 45 per cent had hypertension with little or no renal insufficiency. This shows chronic diffuse glomerular nephritis the initial symptom of which is albuminuria as being albuminuria first, hypertension next and, finally, renal insufficiency. Hypertension of marked degree may manifest itself in chronic Bright's disease characterized at the onset only by albuminuria, even in the absence of or coexistence of no more than a slight degree of impairment of renal function. The hypertension occurring in patients with albuminuria often is the cause of death. The most common sequence of events when albuminuria exists that the authors have observed was the evidence of hypertension followed by signs of renal insufficiency and, if the patient survived the effects of the increased arterial tension for a sufficient period, the impairment of renal function would become more marked and retention uremia then was the cause of death. There were some cases of albuminuria that over a period of years (36 per cent) did not give evidence of either hypertension or impairment of renal function. The authors do not believe that a high protein diet is a cause of hypertension. Hypertension may be brought about by a latent renal insufficiency which is not shown by the usual clinical tests, since the latter indicate a diminution of renal function only when 50 per cent or more of the renal tissue becomes inactive, or the progressive involvement of the kidneys incident to the nephritis may, through autolysis, produce a pressor substance akin to the "renin."

Hepatic Function in Arthritis.—In a previous study Rawls and his colleagues found that 73 per cent of 100 patients with rheumatoid arthritis gave evidence of hepatic dysfunction, as determined by the azorubin S hepatic function test. Being aware that no single test gives an indication of all the functions of the liver, these observations prompted them to continue this study, using other tests for comparison. The results obtained in fifty unselected cases showed that a high proportion of patients with rheumatoid arthritis had evidence of hepatic damage as determined by the azorubin S, hippuric acid and bilirubin excretion tests. The icterus index, galactose tolerance and albumin-globulin ratio were considered unsatisfactory. The hippuric acid test and the albumin-globulin ratio gave the highest proportion (62 per cent) of abnormalities. When the azorubin S test showed abnormalities, so did one or more of the other tests. Because of this agreement and because it agreed more closely with the clinical evidence, the azorubin S test was considered most suitable for detecting chronic hepatic damage. Technical errors and lack of specificity in the different tests make it desirable that more than one test be used.

Incidence of Otitis Media in Scarlet Fever.—In a review of reliable sources from the literature, Wesselhoeft accumulated 371,778 cases of scarlet fever in which the average incidence of suppurative otitis media is 12 per cent. In a study of 10,000 cases on his own service, the incidence was also 12 per cent. Within the last few years an incidence of about 12 per cent has been reported from Stockholm, Rome, Boston and Los Angeles. Thus climate, which plays an important part in the morbidity of scarlet fever, appears to exert no influence on the incidence of involvement of the middle ear. The age of the patient exerts a definite influence on the frequency of this complication, its incidence being about 40 per cent in the first years of life. Otitis media is more frequent in winter than in summer. Diphtheria and measles when associated with scarlet fever augment the frequency of otitis media. Isolation lowers the incidence. While a previous tonsillectomy reduces the likelihood of scarlet fever, the absence of tonsils cannot be shown to lower the incidence of otitis media. Paracentesis does not materially reduce the incidence of surgical mastoiditis. Early treatment with serum appears to have a favorable effect on the incidence of otitis media. The administration of concentrated cod liver oil to patients with scarlet fever does not appear to lower the incidence materially. While the administration of sulfanilamide appears to be of distinct value in the event of septicemia, further hospital investigations are necessary before this drug should be recommended as a routine prophylactic measure for the aural complications of scarlet fever.

Annals of Otol., Rhinol. and Laryngology, St. Louis

48: 1-288 (March) 1939. Partial Index

What Is Perception Deafness from a Physiologic and Histologic Basis? M. H. Lurie, Boston.—p. 3.
Sulfanilamide in Otolaryngology: Some Personal Experiences. R. A. Fenton, Portland, Ore.—p. 17.
*Nicotinic Acid and the Eighth Nerve: Preliminary Report. G. Selfridge, San Francisco.—p. 39.
Allergy in Otolaryngology and Its Relation to Other Manifestations: I. General Considerations. F. K. Hansel, St. Louis.—p. 54.
Nonsurgical Treatment of Diseases of Nose and Pharynx. G. D. Hoople, Syracuse, N. Y.—p. 73.
Dermatologic Conditions of Ear, Nose and Throat. F. A. Figi, Rochester, Minn.—p. 81.
Operation for Possible Alleviation of Certain Cases of Congenital Deafness and Certain Types of Acquired Chronic Deafness. E. C. Padgett, Kansas City, Mo.—p. 113.
Late Ear Hemorrhage Following Skull Fractures. W. E. Grove, Milwaukee—p. 120.
Periesophageal Abscesses: Importance of Early Surgical Interference. W. M. Hunt, New York.—p. 128.
Pertinent Facts Relating to Chronic Pansinusitis. W. Mithoefer, Cincinnati.—p. 158.
Some Preliminary Experiments in Study of Cigaret Smoke and Its Effects on Respiratory Tract. A. Proetz, St. Louis.—p. 176.
Malignant Tumors of Nasopharynx and Paranasal Sinuses. N. S. Weinberger, Sayre, Pa.—p. 203.

Nicotinic Acid and the Eighth Nerve.—Selfridge has used nicotinic acid, nicotinamide and quite recently sodium nicotinate in the treatment of some thirty cases of high tone deafness. The ages of the patients ranged from 21 to 77 years. In many the results are striking; in all cases in which the audiogram shows a gradual decline of the tone scale, use of these fractions is justified; for, while the improvement in the audiometric curve may not be great, the physical and mental improvement is sufficient justification. Indeed, any measures tending to ward off senescence are justifiable, and evidence is slowly accumulating that several components of the vitamin B complex play a definite part in the advancing of age.

Archives of Otolaryngology, Chicago

29: 403-604 (March) 1939

*Studies of Pupils of the Pennsylvania School for the Deaf: I. Auditory Acuity. W. Hughson, Abington, Pa.; A. Ciocco, Baltimore, and C. Palmer, Washington, D. C.—p. 403.
Acute Osteomyelitis of the Superior Maxilla in Children: Report of Case. N. E. Lacy and L. P. Engel, Kansas City, Mo.—p. 417.
Penetration of Inner Ear by Mercurochrome. E. L. Ross and J. W. Hamilton, Chicago.—p. 428.
Primary Melanoma of Nasal Cavity: Report of Two Cases. A. T. Smith, Philadelphia.—p. 437.
Pneumopericardium and Pneumomediastinum in Cases of Acute Obstructive Laryngitis. H. Graebner, New York.—p. 446.
Tumors of Nose and Throat. G. B. New, Rochester, Minn., and W. Kirch, Des Moines, Iowa.—p. 457.
Petrositis: Report of Case with Review of Some of the Literature. C. E. Towson, Philadelphia.—p. 468.
Role of Tonsils in Experimental Endocarditis. I. Frank and Margery Blahd, Chicago.—p. 480.
Petrous Apex of Temporal Bone and Its Relations. W. J. Mellinger, Santa Barbara, Calif.—p. 484.
Study in Presbycusis: Auditory Loss with Increasing Age and Its Effect on Perception of Music and Speech. N. H. Kelley, Louisville, Ky.—p. 506.
History of Audiometry. D. Macfarlan, Philadelphia.—p. 514.
Deviation of the Septum in Relation to the Twisted Nose. S. Salinger, Chicago.—p. 520.
Anatomy and Physiology of Ear. J. R. Richardson, E. M. Holmes and W. Mueller, Boston.—p. 560.

Auditory Acuity in a School for the Deaf.—According to Hughson and his associates, complete lack of response to auditory stimulation is a rare condition, as 95 per cent of the 460 children studied at the Pennsylvania School for the Deaf responded to at least one tonal frequency by air conduction in one ear and 85 per cent in both ears. In the majority of these children the loss of hearing is bilateral and approximately equal in the two ears. Sex is not a significant factor. Since age is not related to the degree of loss, the type of deafness dealt with does not seem to be progressive. Fifty-four per cent of the children were said to be born deaf. The percentage of children who presumably became deaf after birth is highest at 1 year of age and decreases rapidly at each consecutive year. No difference

in acuity of hearing could be found between the children who were born deaf and those with acquired deafness. The deafness developing after birth has been attributed to numerous pathologic conditions, among which meningitis is the most frequent. This disease was stated to be the cause for deafness in 17 per cent of the children. Meningitis together with trauma of the head, measles, otitis media or scarlet fever was given as the cause of deafness for almost one half of the children. A significant number of the children examined were found to have enough residual hearing either by air or by bone conduction to warrant some rational effort toward therapeutic relief.

Archives of Pathology, Chicago

27: 399-660 (March) 1939

Mechanism of Localization of Vegetations of Bacterial Endocarditis. A. C. Allen, New York.—p. 399.
Studies of Human Ova: I. Description of Artificially Induced Parthenogenetic Activities in One. S. P. Reimann and B. J. Miller, Philadelphia.—p. 412.
Rare Localizations of Hydatid Disease in Turkey: Report of Case of Plurivisceral Echinococcosis. P. Çambel, Istanbul, Turkey.—p. 419.
Experimental Endocarditis in Dogs. Margery Blahd, I. Frank and O. Saphir, Chicago.—p. 424.
Pathologic Changes in Rats and in Dogs Fed Diets Containing Lead and Arsenic Compounds: Compounds Used: Lead Arsenate, Arsenic Trioxide, Calcium Arsenate and Lead Acetate. Lucy L. Finner and H. O. Calvery, Washington, D. C.—p. 433.
*Pathologic Effects of Certain Glycols and Related Compounds. H. D. Kesten, M. G. Mulinos and L. Pomerantz, New York.—p. 447.
Cartilaginous Foci in Hearts of White Rats and of Mice. W. C. Hueper, New York.—p. 466.
Spirochetes in Gastric Glands of Macacus Rhesus and of Man Without Related Disease. J. L. Doenges, St. Louis.—p. 469.
Pulmonary Epithelium and Proliferative Reactions in Lungs: Study of Cellular Response in Lungs After Intratracheal Injection of Toxic and Nontoxic Foreign Substances. I. S. Ross, Durham, N. C.—p. 478.
Experimental Muscular Dystrophy in the Guinea Pig: Nutritional Myodegeneration. H. Chor and R. E. Dolkart, Chicago.—p. 497.
Effects of Organismal Differentials on Distribution of Leukocytes in Circulating Blood. H. T. Blumenthal, St. Louis.—p. 510.
*Appendicitis: I. Changes in Musculature of Appendix in Chronic Appendicitis. J. Goldner, New York.—p. 546.
Reticulo-Endotheliomatosis. D. Symmers and W. Hutcheson, New York.—p. 562.
Hemangio-Endothelial Sarcoma of Thyroid with Extension into Trachea and with Massive Hemoptysis. M. A. Simon, Montreal.—p. 571.
Elastic Tissue. G. M. Hass, Boston.—p. 583.

Pathologic Effects of Certain Glycols.—In studying the changes that occur in rats, rabbits and guinea pigs to which ethylene glycol (glycol), diethylene glycol (diglycol), propylene glycol and some of their derivatives had been administered Kesten and his associates found that (1) ethylene glycol and ethylene glycol diacetate may cause deposition of oxalates in the kidneys and mild renal insufficiency, (2) propylene glycol is relatively harmless, especially when given by mouth, large intravenous doses being necessary to cause hemoglobinuria and casts, and (3) diethylene glycol, the methyl, ethyl and butyl ethers of diethylene glycol, dioxane and dipropylene glycol are all capable of causing profound degeneration of renal epithelium leading to uremia. The molecules of diglycol and its ethers, of dipropylene glycol and of dioxane contain an ether linkage between two glycol molecules. Dioxane possesses two such linkages, which may in part account for its relatively high toxicity. The molecules of ethylene glycol, ethylene glycol diacetate and propylene glycol lack this particular type of ether linkage. The ether linkage between two glycol molecules may be responsible for the hydropic degeneration of the epithelium of the convoluted tubules and of the hepatic cords. The main feature of the compounds causing hydropic degeneration of the kidney is the extensive character of the damage wrought. In each experiment one or more of the animals was apparently unaffected by the drug, but in the injured animals the lesions were usually maximal. The animals that received diglycol and its ethers, dioxane and dipropylene glycol died usually as a result of the damage to the convoluted tubules, in uremia. Appreciable amounts of the several chemicals must be given to produce demonstrable changes in the animals. In no instance was less than 1 cc. per kilogram of body weight effective.

Changes in Musculature in Chronic Appendicitis.—Goldner states that in chronically inflamed appendixes there are morphologic deviations of the two muscular layers, with attenuation or thickening, disappearance and the production of supplementary fibers. Aberrant fibers appear ectopically, forming median coats, surrounding lymph follicles or lying in the fibrous capsule of the submucosa. These structural changes are frequently seen in chronic appendicitis, fairly often in the subacute inflammation that signalizes early chronic appendicitis and rarely in acute appendicitis and in normal appendixes. Their presence denotes past attacks that have stimulated the production of capillaries and histiocytes. They exist even when other cardinal signs have subsided. Functional changes in the form of abnormal contraction should correspond to these structural abnormalities of the musculature, which would in part explain the pathogenic mechanism of appendicitis. Abnormal contraction may be as important etiologically as changes in the rigid connective tissue framework, which also shows lesions of past attacks. Aberrant fibers have a special histogenesis. Preformed or newly formed capillaries disappear. Although the majority of aberrant muscular structures appear to be permanent, others may fall prey to sarcolysis or to rearrangement. The lytic forces involved are supplied by histiocytes.

Archives of Physical Therapy, Chicago

20: 129-192 (March) 1939

Relative Roles of Extremities in Body Heat Dissipation—Normal Circulation and Peripheral Vascular Disease. C. Sheard, Grace M. Roth and B. T. Horton, Rochester, Minn.—p. 133.
Ultraviolet Radiation in Gastrointestinal Tuberculosis. J. S. Coulter and L. L. Hardt, Chicago.—p. 143.
Wassermann-Fast Syphilis, with Special Reference to Pyretotherapy. J. K. Howles, New Orleans.—p. 149.
Reestablishment of Circulation in Extremities. W. B. Kountz, St. Louis.—p. 157.
Diagnostic Procedures for Peripheral Vascular Disturbances. P. Merrell, Indianapolis.—p. 162.
Paraffin Bath in Peripheral Vascular Disease. S. H. Sedwitz, Youngstown, Ohio.—p. 165.
Certain Biologic Effects During Artificial Fever. M. Pijoan, Boston.—p. 170.

Archives of Surgery, Chicago

38: 599-796 (April) 1939

Cause of Death Resulting from Massive Infusions of Isotonic Solutions: Experimental Study. R. A. Cutting, P. S. Larson and A. M. Lands, Washington, D. C.—p. 599.
*Operative Treatment for Benign Rectal Stricture (Lymphogranuloma Venereum): Preliminary Report. H. J. Warthen, Richmond, Va.—p. 617.
Occurrence, Distribution and Pathogenesis of So-Called Liver Death and/or the Hepatorenal Syndrome. A. O. Wilensky, New York.—p. 625.
Effects of Hemorrhage and of Transfusion on Blood Flow in an Extremity. N. W. Roome, London, Ont.—p. 692.
Total Pneumonectomy. M. Behrend and A. Behrend, Philadelphia.—p. 698.
Retroperitoneal Lymph Nodes: Their Importance in Cases of Malignant Tumors. A. U. Desjardins, Rochester, Minn.—p. 714.
*Acute Segmental Appendicitis: Experimental and Clinical Studies. J. Felsen and B. Lewis, New York.—p. 755.
Incarcerated Meckel's Diverticulum in Femoral Hernia. E. L. Strohl and S. W. McArthur, Chicago.—p. 783.
Role of the Respiratory Tract in Contamination of Air: Comparative Study. D. Hart and H. M. Schiebel, Durham, N. C.—p. 788.

Operation for Venereal Lymphogranuloma.—In order that local measures of treatment may be carried out without danger of peritonitis Warthen devised an operation, which he has performed successfully on ten patients with proved venereal lymphogranuloma. The procedure, in brief, is obliteration of the culdesac by chemical irritation and suturing, followed by a double-barreled colostomy. The patients have recovered and have been benefited by the procedure. In one of the early cases a small ventral hernia developed at the site of the colostomy. In the later cases greater care has been taken in suturing the aponeurosis of the external oblique muscle through the defect in the mesosigmoid and no hernia has occurred. The closure of the culdesac has permitted dilation of the stricture without danger of peritonitis, and the diversion of the fecal current has resulted in relaxation of the strictures. If necessary, further operative procedures on the stricture may be carried out through the rectum with relative safety. The author states that this is a preliminary report, for operation in the earliest case was done only eighteen months ago, and none of the colostomy openings have been closed.

Acute Segmental Appendicitis.—From experimental studies on rabbits and twenty cases of human segmental appendicitis (proximal, central and distal types) Felsen and Lewis find from an anatomicopathologic standpoint that there are two obvious

points of similarity between segmental appendicitis in the rabbit and in man. First, the vascular supply in both is of the terminal type. Second, the clearly defined segmental lesions produced by vascular ligation in the rabbit resemble both grossly and microscopically those observed in man. The possible point of divergence lies in the pathogenesis, in whether all segmental lesions in the human appendix are due to vascular occlusion. The authors attempt to reconcile the many divergent opinions on the subject of appendicitis with their hypothesis that acute segmental appendicitis in man is due to vascular occlusion. After discussing the many theories, they conclude by stating in defense of their hypothesis that, whether the blood vessels are affected by systemic toxins or by bacteria from a distant focus or whether they are obstructed secondarily by distention of the lumen, by angulation or by foreign bodies, the theory of vascular occlusion as the cause of segmental appendicitis seems plausible. They believe that the applicability of their theory to the pathogenesis of appendicitis in general is also suggested by the data that they cite.

California and Western Medicine, San Francisco

50: 169-248 (March) 1939

Tuberculous Appendicitis. T. A. Card, Riverside.—p. 176.
Traumatic Diaphragmatic Hernia: Transpleural Repair. H. E. Schiffbauer, Los Angeles.—p. 180.
Vitamin Deficiency States: Their Recognition and Treatment. D. L. Wilbur, San Francisco.—p. 184.
Roentgen Diagnosis of Diseases of Ileocecal Region of Gastrointestinal Tract. J. Jellen, Los Angeles.—p. 188.
Selective Anesthetic Program: Its Desirability. H. G. Holder, San Diego.—p. 190.
Nucleus Pulposus Rupture: Legal-Industrial Aspects. E. D. Leonard, San Francisco.—p. 194.
Active Interstitial Keratitis of Late Prenatal Syphilis: Its Treatment. C. R. Anderson and W. A. Wilson, Los Angeles.—p. 196.

Canadian Public Health Journal, Toronto

30: 119-170 (March) 1939. Partial Index

Tuberculosis in Industry. A. R. Riddell, Toronto.—p. 156.
*Detection of Two Typhoid Carriers. J. Wyllie, Kingston, Ont.—p. 161.

Detection of Two Typhoid Carriers.—The histories of two typhoid carriers are cited which Wyllie believes illustrate the missed type of carrier and the development of the carrier condition following a clinical attack of the disease. In the first case, the history suggests that the patient was the source of infection for her husband and two sons at different intervals. Conclusive evidence that she infected her youngest son is furnished by Craigie's bacteriophage tests, which show that the strains of Bacillus typhosus isolated from the mother and the son are identical and belong to the same group. The need for reexamination at intervals of three, six, nine and twelve months following the illness is shown by the second carrier. The patient, an institutional inmate, had typhoid in April 1936 and a month later another case developed. Both patients were investigated and suspicion fell on the first case as directly responsible for the second. The organisms isolated from both cases proved identical by bacteriophage tests, being type C strains. The serologic results of blood samples from the first of these two cases, which were examined frequently, suggested a possible carrier condition and this was confirmed by fecal isolation of the specific organism a year following the illness.

Florida Medical Association Journal, Jacksonville

25: 421-476 (March) 1939

Sterility. C. D. Hoffmann, Orlando.—p. 435.
Lupus Erythematosus. L. M. Sompayrac, Jacksonville.—p. 440.
Common Fractures About the Wrist. E. L. Jewett, Orlando.—p. 444.
Alum in Treatment of Acute Hemorrhage. J. A. Mease Jr., Dunedin.—p. 450.

Georgia Medical Association Journal, Atlanta

28: 77-144 (March) 1939. Partial Index

Sketch of Early Atlanta Medicine. F. K. Boland, Atlanta.—p. 81.
Notable Investments in Atlanta for Medical Education and Hospitals. J. L. Campbell, Atlanta.—p. 88.
Doctors of the Past Who Have Contributed to the Making of Atlanta Medicine of the Present. J. C. Weaver, Atlanta.—p. 94.
Transitory Bundle Branch Block and Nodal Rhythm: Report of Case. J. C. Massee, Atlanta.—p. 105.
Traumatic Hemothorax Treated by Artificial Pneumothorax and Autotransfusion: Report of Case. B. P. Wolff, Atlanta.—p. 108.

Illinois Medical Journal, Chicago

75: 189-284 (March) 1939

Application of New Knowledge of Nerve Physiology to Clinical Medicine. E. F. Pearson, Springfield.—p. 227.
*Progressive Myopia (New Treatment with Base-In Prisms). W. M. Thompson and O. B. Nugent, Chicago.—p. 231.
How the County Medical Society Can Aid the Legislative Committee. J. R. Neal, Springfield.—p. 234.
Diagnostic and Prognostic Value of the Erythrocyte Sedimentation Rate in General Practice. J. B. Stokes, Pontiac.—p. 236.
Rationalization of Preoperative and Postoperative Treatment of Abdominal Surgical Conditions. G. S. Van Alstyne, Chicago.—p. 243.
Undulant Fever: Major Public Health Problem. W. R. Roberts and E. L. Roberts, Cissna Park.—p. 247.
The Hypertensive Heart. O. P. J. Falk, St. Louis.—p. 252.
The Patient and the Weather. F. LeBlanc, Chicago.—p. 254.
Rocky Mountain Spotted Fever in Illinois: Report of Two Cases. B. Q. Dysart, Henry.—p. 258.
The Evanston Social Hygiene Clinic. W. H. Tucker, R. A. Allen, J. D. Croft and N. G. Shaw, Evanston.—p. 260.
*Benzedrine Sulfate in Severe Depressions. I. Finkelman, Chicago, and D. Haffron, Elgin.—p. 264.
Improvements in Surgical Treatment of Gallbladder Disease. R. B. Bettman and W. H. Tannenbaum, Chicago.—p. 266.
Standpoint of the Reserve. G. de Tarnowsky, Chicago.—p. 269.
If War Should Come, What Role Would the Medical Profession Play? N. L. Sheehe, Rockford.—p. 270.
The Medical Profession in War. L. Applequist, Aurora.—p. 272.
Mumps Complicated by Acute Meningo-Encephalitis. H. R. Fishback and G. B. Fauley, Chicago.—p. 273.
One Hundred Cases of Malaria. P. V. Dilts, Pittsfield.—p. 275.
Vomiting in Children. E. Prilla, Chicago.—p. 277.
Vitamin B_1 in Relation to Visual Reception. E. Poser, Chicago.—p. 280.

Progressive Myopia.—Thompson and Nugent believe that they have developed a treatment for progressive myopia which practically covers every phase of the etiology involved. They have found it extremely successful in all cases of axial progressive myopia; less so in the more complicated types, but worth trying in all. The first step in the treatment is the making of the prescription for glasses. The total error is ascertained. Then from 20 to 25 per cent of the sphere is removed, and the prism is found by adding prisms base in until diplopia is produced. Now the prism is neutralized until monocular vision is accomplished. The remaining prism is used base in, half over each eye. The next step is to place the lenses as near to the patient's eyes as is possible without their touching the cilia. This is for the scientific reason that, the longer the focal distance, the larger the object appears to a myopic eye, and therefore the less the strain on it. The third step consists of special exercises with the myoculator. The patient is seated 4 feet from the machine, wearing the proper prescription and three diopters of prism base in over each eye in addition. The eyes should be exercised for ten minutes, three times a week. The time may be increased, slowly, to twenty minutes. The fourth step is a request for special class work, special large type in the books read and the scientific use of good lighting, either natural or artificial. All use of the eyes for close work must be carefully supervised and a time limit used. The fifth step is the compilation of a diet list which will give the patient a properly balanced vitamin intake. The last step is called "medication" and consists of cod liver oil and iron, quinine and strychnine for rebuilding the muscle power involved. The authors conclude that, whatever else may be used in the treatment of myopia of any type, the eyes should be prevented from converging, and for this they advise base in prisms.

Amphetamine Sulfate in Severe Depressions.—Finkelman and Haffron used amphetamine (benzedrine) sulfate in the treatment of fifteen patients; five were classified as in the depressed phase of manic-depressive psychosis and seven as having involutional psychoses, one was a mixed type of manic-depressive psychosis and two were severely depressed but their behavior did not fit any of the nosologic entities. The duration of the treatment varied between three weeks and three months. The amphetamine sulfate was administered in the early part of the day, in divided doses, the dosage ranging from 20 to 60 mg., administered in the form of 10 mg. tablets. One patient (involutional psychosis) improved markedly after amphetamine was administered for three weeks. The other fourteen patients showed no favorable response. During the administration of the drug, however, two of the patients recovered two and three months, respectively, after treatment was discontinued. These were cases

of manic-depressive psychosis. Three patients were definitely affected adversely by the treatment. Another depressed patient became restless and irritable and acquired a suicidal tendency which ceased after the medication was discontinued. In a third patient the treatment was discontinued because the patient became combative. Amphetamine sulfate is a useful drug and is of value in postencephalitic parkinsonism, narcolepsy, mild depressed states and chronic exhaustion, but it is of no value and may be harmful in severe depressions.

Indiana State Medical Assn. Journal, Indianapolis

32: 101-164 (March) 1939

Hearing Defects. R. S. Chappell, Indianapolis.—p. 101.
Speech and Hearing Defects. C. H. McCaskey, Indianapolis.—p. 103.
Id. W. H. Gardner, Bloomington.—p. 105.
Deaf—But No Longer Dumb. Josephine B. Timberlake, Washington, D. C.—p. 108.
Maladjustments in School Children. Gladys D. Frith, South Bend.—p. 110.
Emotional Problems in Childhood. Sponsored by the Indiana Pediatric Society.—p. 112.
Ménière's Disease: Its Diagnosis and Treatment. W. E. Dandy, Baltimore.—p. 117.
Newer Concepts in the Interpretation of Anemias. L. L. Blum, Terre Haute.—p. 120.
Fever of Unknown Origin: Report of Case. M. B. Welborn, Evansville.—p. 122.
A Medical Plan for All the People. C. F. Vohs, St. Louis.—p. 125.
Diagnosis and Management of Cholecystitis. R. D. McClure, Detroit.—p. 129.

Iowa State Medical Society Journal, Des Moines

29: 143-184 (April) 1939

Fractures of the Hip. A. F. O'Donoghue, Sioux City.—p. 152.
Undulant Fever Treated with Sulfanilamide: Case. A. E. Livingston, H. D. Gray and H. G. Decker, Des Moines.—p. 156.
Ovarian Tumors in Childhood: Report of Thirty-Two Pound Cyst in Girl Twelve Years of Age. O. H. Miller, Estherville.—p. 157.

Johns Hopkins Hospital Bulletin, Baltimore

64: 155-212 (March) 1939

Treatment of Adrenal Insufficiency by Means of Subcutaneous Implants of Pellets of Desoxycorticosterone Acetate (Synthetic Adrenal Cortical Hormone). G. W. Thorn, L. L. Engel and H. Eisenberg, Baltimore.—p. 155.
Graded Pneumonectomy in Treatment of Tumors of the Lung. W. F. Rienhoff Jr., Baltimore.—p. 167.
*Studies on Hypersensitivity to Catgut as Factor in Wound Disruption. K. L. Pickrell, Baltimore.—p. 195.

Hypersensitivity to Catgut and Wound Disruption.—Pickrell states that only three cases of disruption of surgical incisions sutured with catgut have occurred at the Johns Hopkins Hospital during the last two years. Approximately 4,000 incisions have been closed with catgut during this time. Each of these patients was tested for local sensitivity immediately following disruption by intradermal injection on the volar surface of the forearm of 0.1 cc. of catgut extract, with a physiologic solution of sodium chloride control, and in addition with 0.1 cc. of Kraissl's plain and chromic extracts. Similar quantities of extract diluted 1 to 10 were injected intracutaneously in the opposite arm. The tests, performed immediately after disruption, were negative. Furthermore, negative results were obtained on 100 patients tested preoperatively and postoperatively in a similar manner at daily intervals for several days. The same patients were again tested from three to four weeks after operation, when the greater part of the catgut is probably absorbed, and the tests were negative. It has been stated (Kraissl) that "it is possible to sensitize guinea pigs to catgut and to produce disruptions of laparotomies with this material." It has been impossible for the author in his experiments to sensitize either guinea pigs or rabbits to commercial catgut or to an extract from catgut. Wounds did not disrupt in rabbits or guinea pigs which had been previously treated with catgut when proper aseptic precautions were observed. Although catgut implanted intradermally in rabbits and guinea pigs caused an inflammatory response, the leukocytic emigration was no greater than in those animals which had been previously treated with catgut or catgut extract. Therefore the author concludes that although catgut, like any other suture material, acts as a foreign body and causes a slight leukocytic response it does not act as an antigen inducing a hypersensitive state.

Journal of Bacteriology, Baltimore

37: 245-354 (March) 1939. Partial Index

Relation of Aerobiosis to Fermentation of Mannitol by Staphylococci. Eugenia Valentine Colwell, New York.—p. 245.
*Effects of Sulfanilamide on Brucella Melitensis, Variety Melitensis, Abortus and Suis. E. E. Menefee Jr. and Mary A. Poston, Durham, N. C.—p. 269.
Factors Limiting Bacterial Growth: IV. Age of Parent Culture and Rate of Growth of Transplants of Escherichia Coli. A. D. Hershey, St. Louis.—p. 285.
Study of Lipids of Certain Enteric Bacilli. Clara H. Williams, W. R. Bloor and L. A. Sandholzer, Rochester, N. Y.—p. 301.
Cultural and Antigenic Properties of Shigella Sonnei. J. H. Glynn and D. H. Starkey, Montreal.—p. 315.
Absorption of Bacteriophage by Sensitized Enterococci. E. J. Tiffany and M. L. Rakieten, Brooklyn.—p. 333.

Effects of Sulfanilamide on Brucellosis.—Menefee and Poston studied the in vitro action of sulfanilamide and related compounds on Brucella organisms, the in vitro action of sulfanilamide and antibrucella serum and the action of sulfanilamide on experimental brucellosis in the guinea pig. The results of the three varieties of Brucella (melitensis, abortus and suis) organisms show no essential differences after thirty-six hours of incubation between the cultures with sulfanilamide and the controls. After thirty-six hours, however, the bacteriostatic effect of the sulfanilamide was definitely apparent. The results are similar to those obtained by Long, who showed the in vitro bacteriostatic effects of sulfanilamide on streptococci and other organisms. The work of Francis, who was able to sterilize cultures of a strain of Brucella abortus by the addition of small amounts of sulfanilamide, was not confirmed by the authors. They state that the good results obtained by him may have been due to the small inoculum used in his experiments. Of the related compounds tested only one (p,p' diaminodiphenyl sulfoxide) had a greater in vitro bacteriostatic action than sulfanilamide on Brucella melitensis. The bacteriostatic effect of serum and sulfanilamide on Brucella melitensis was less efficient than sulfanilamide alone. For studying the effect of sulfanilamide on experimental brucellosis forty healthy guinea pigs were injected intraperitoneally with 1,000,000,000 organisms of a culture of Brucella melitensis recently isolated from the blood of an acutely ill patient. Five days after injection one half of the animals were given sulfanilamide for ten days, receiving daily 60 mg. per kilogram of weight. The dose was then halved and continued for ten more days. Thirty-five days after inoculation all the animals were killed and carefully examined, and cultures of their spleens were made on liver infusion agar. Agglutinins and opsonocytophagic powers were present in all the guinea pigs, but at the end of the experimental period the average agglutinin titer of the treated group had fallen and the opsonocytophagic reaction had increased. The agglutinin titer of the untreated group remained high till the end of the experiment, and the opsonocytophagic reactions were only moderately strong. Brucella was isolated from nineteen of the twenty untreated guinea pigs and from only one of the treated animals. No marked serologic reaction developed in this guinea pig. The authors believe that their experimental observations support the clinical ones in suggesting that the bacteriostatic action allows the normal defense mechanisms of the body to cope adequately with the invading bacteria.

Journal Industrial Hygiene & Toxicology, Baltimore

21: 109-154 (April) 1939

Shattering of Dust Particles by the Impinger. D. G. Beadle, Johannesburg, South Africa.—p. 109.
Note on Shattering of Dust Particles in the Impinger. H. H. Watson, Wiltshire, England.—p. 121.
Lobar Pneumonia in Anthracite Miners: Mortality and Complication Statistics. A. C. Cohen and R. Charr, Philadelphia.—p. 124.
*Acute Ethylene Dichloride Poisoning. Z. T. Wirtschafter and E. D. Schwartz, Cleveland.—p. 126.
Urinary Sulfate Test in Supervision of Workers Exposed to Benzene. C. M. Jephcott and F. M. R. Bulmer, Toronto.—p. 132.
Ten Years' Experience with Industrial Hygiene in Connection with Manufacture of Viscose Rayon. H. L. Barthelemy, Rome, Ga.—p. 141.

Acute Ethylene Dichloride Poisoning.—Wirtschafter and Schwartz report three cases of industrial poisoning resulting from exposure to ethylene chloride vapor. The men were employed in a knitting factory and they were poisoned while cleaning a shipment of yarn. They had not had any previous

exposure to ethylene dichloride. Four hours after the exposure began, the men became dizzy, were nauseated and vomited profusely. They complained of weakness and trembling. The men were removed from exposure immediately after the onset of nausea and were hospitalized one hour later, since their vomiting continued unabated. A severe dermatitis of the hands occurred as the result of direct contact with the liquid. Hepatic damage was evident by the presence of extremely low blood sugar levels. Leukocytosis occurred in each case. No evidence of renal damage was observed. Because of its relaxing effect on smooth muscle, 10 per cent calcium gluconate solution was administered intravenously to each patient on admission to the hospital. Prompt relief of the epigastric cramps occurred. Vomiting also subsided, so that the men were able to take fruit juices within a few hours. Fluid was therefore not administered parenterally. The tremors disappeared shortly after admission. The following day the administration of a high calcium, high carbohydrate diet was instituted. Occasional nausea persisted for several days. Bland ointments were applied to the hands and the severe dermatitis improved slowly over a period of weeks. The patients were discharged one week after admission, with the advice that the high carbohydrate diet be continued for some time. At the time of discharge the men felt entirely well except for the condition of their hands. The clinical symptoms in these cases were similar to those produced by the other chlorinated hydrocarbons when inhaled in fairly high concentration. The absence of unconsciousness was undoubtedly due to the fact that exposure was terminated before sufficient vapor had been inhaled.

Journal of Pediatrics, St. Louis

14: 277-416 (March) 1939

*Clinical Experience with Sulfapyridine: Report of Thirty-Three Cases. W. A. MacColl, Durham, N. C.—p. 277.

*Oils as Substitutes for Butter Fat in Infant Feeding. G. Frontali, Padua, Italy.—p. 290.

Midsummer Respiratory Infection in an Aseptically Conducted Adoption Nursery. L. W. Sauer and J. J. McDonald, Evanston, Ill.—p. 304.

Treatment of Infectional Asthma in Children with Filtrates of Cultures of Upper Respiratory Pathogenic Bacteria. F. A. Stevens, New York.—p. 307.

Differential Diagnosis of Nonrheumatic "Growing Pains" and Subacute Rheumatic Fever. M. J. Shapiro, Minneapolis.—p. 315.

Epidemic Encephalitis Type B in Children: Clinical Observations in the 1937 Outbreak. P. J. Zentay and J. Basman, St. Louis.—p. 323.

Hemorrhagic Disease of the Newborn: Critical Consideration. S. H. Clifford, Boston.—p. 333.

Bacterium Alkalescens in Stools of Normal Infants. M. L. Snyder, Ann Arbor, Mich.—p. 341.

Phenylketonuria and the Congenitally Deaf. J. W. Larcomb, Columbus, Ohio.—p. 348.

Cooley's Anemia (Mediterranean Anemia): Report of Case in an Adolescent. E. J. Thalheimer, A. Mezzetti and J. Gershon-Cohen, Vineland, N. J.—p. 349.

Tularemia in Siblings. W. W. Waddell Jr. and W. S. Wray, University, Va.—p. 358.

Acute Polyneuritis of Uncertain Origin (Guillain-Barré Syndrome). J. B. Gillespie and Elsie H. Field, Urbana, Ill.—p. 363.

Tuberculous Atelectatic Bronchiectasis. R. Wilson, Vancouver, B. C.—p. 368.

Tryptophan Bodies in Tuberculous Meningitis. J. A. Toomey, R. P. Fulton and F. W. Rea, Cleveland.—p. 372.

Renal Calcification in Infancy and Childhood. W. A. D. Anderson, Memphis, Tenn.—p. 375.

Sulfapyridine.—MacColl used sulfapyridine in the treatment of thirteen cases of various types of pneumonia, nine of bronchopneumonia, three of osteomyelitis, three of meningitis, two of ruptured appendix and one each of cellulitis of the hand and shoulder, impetigo neonatorum and epidermolysis bullosa. The most effective use of the drug appeared to be in pneumococcic infections. Improvement was observed within forty-eight hours. The total leukocyte count seemed to be the best indicator of progress, since a delay in resolution and spread of the process appeared to occur when the count remained high. This suggests that specific antiserum may be of value when the patient's antibody response is slow. In bronchopneumonia the drug was of benefit when other treatment failed. The infections treated were caused by beta hemolytic streptococci and hemolytic Stapylococcus aureus. The miscellaneous group of conditions treated suggests that the drug may have wider applications and deserves further study. Toxic effects such as vomiting, cyanosis, methemoglobin formation and a fall in hemoglobin during treatment indicate that the same caution must be employed as when sulfanilamide is used. Sulfapyridine is effective in smaller doses and in lower concentrations than sulfanilamide. In almost all cases the administration of the drug has been accompanied by a lowering of the temperature. This has been so constant that an antipyretic effect is suggested.

Oils as Substitutes for Butter Fat.—Frontali studied the absorption of various fats in pathologic conditions in infants in whom the utilization of butter fat is usually poor, as in celiac disease. From his studies and those of his collaborators, both clinical and experimental, in both normal infants and in those who have a diminished tolerance for fats, he is led to conclude that an oil-flour food or dry oil-milk in which olive oil is substituted for butter permits an efficient utilization of fats (96.26 per cent), which approaches that of pure triolein (97.77 per cent), is well tolerated and leads to a regular and continuous increase in weight, while a similar food in which butter is used instead of olive oil, other circumstances being equal, gives inferior results. In the preparation of the food, sufficient quantities of butter can remain after the centrifugation of the milk or the vitamins A and D can be added in measured quantities to the oil-flour food or to the dry oil-milk.

Journal of Pharmacology & Exper. Therap., Baltimore

65: 227-342 (March) 1939

Action of Pentamethylenetetrazol (Metrazol) on the Circulatory System. V. G. Haury and C. M. Gruber, Philadelphia.—p. 227.

Respiratory Inhibitory and Paralytic Effects of Some Barbital Hypnotics and Coal-Tar Analgesics. A. J. Lehman, Oklahoma City.—p. 235.

Comparison of Effect of Calcium and of Atropine and Scopolamine on Plasma Loss and on General Symptoms of Guanidine Intoxication. A. S. Minot, Nashville, Tenn.—p. 243.

Study of Mechanisms Involved in Loss of Plasma in Guanidine Intoxication and in Prevention of Such Loss by Atropine and by Calcium. A. S. Minot, Nashville, Tenn.—p. 253.

Influence of Digoxin on Potassium Content of Heart Muscle. A. M. Wedd, Rochester, N. Y.—p. 268.

Experimental Convulsions in the Rat. W. L. Sampson and L. Fernandez, Rahway, N. J.—p. 275.

Pharmacologic Action of Deuterium Oxide: VII. Its Effect on Hydrolysis of Acetylcholine. H. G. Barbour and Virginia C. Dickerson, New Haven, Conn.—p. 281.

Studies on Prevention of Liver Cirrhosis by Subcutaneous Injections of Xanthine Containing Preparations. J. C. Forbes, Richmond, Va.—p. 287.

Studies of Carbazole Derivatives: I. Aminocarbazoles. N. B. Eddy, Ann Arbor, Mich.—p. 294.

Id.: II. Amino Alcohols and Derivatives of Tetrahydrocarbazole. N. B. Eddy, Ann Arbor, Mich.—p. 308.

Action of Magnesium on Central Nervous System and Its Antagonism by Calcium. G. W. Bryant, G. Lehmann and P. K. Knoefel, Louisville.—p. 318.

Observations on Potassium Fibrillation. L. H. Nahum and H. E. Hoff, New Haven, Conn.—p. 322.

*Morphine as Metabolic Stimulant. H. G. Barbour, Janet A. Porter and Joyce M. Seelye, New Haven, Conn.—p. 332.

Morphine as Metabolic Stimulant.—Barbour and his colleagues confirm the calorigenic action of morphine, deduced by Barbour, Gregg and Hunter, from reduction in metabolic rate on withdrawal of dogs from the drug. The degree of stimulation appears unrelated to the presence or extent of chronic morphinism. During the first month of this condition the metabolic peaks averaged 16 per cent, and during the second to fifth months 19 per cent. The average resting metabolism for the entire twenty-four hours, by sampling at different times, can be estimated at 10 per cent above normal in the second to fifth months of morphinism. The peak of stimulation appears sooner after the daily injection as tolerance to the quieting effect of morphine develops. Morphine, independently of neuromuscular activity, exerts marked influence as a metabolic stimulant.

Kansas Medical Society Journal, Topeka

40: 89-132 (March) 1939

Some Surgical Principles in Treatment of Injuries and Infections of the Hand. S. L. Koch, Chicago.—p. 89.

Radiation Therapy in Treatment of Infections: Collective Study. L. G. Allen and P. E. Hiebert, Kansas City.—p. 95.

Acid Therapy for Juvenile Pyelitis. F. C. Neff, Kansas City.—p. 101.

Adult and Congenital Pyloric Stenosis. C. E. Partridge, Emporia.—p. 103.

Relation of Bacterial Allergy to Other Allergic Conditions. A. J. Brier, Topeka.—p. 106.

Medical Annals of District of Columbia, Washington

8: 65-96 (March) 1939

Shock Therapy (Insulin and Metrazol) in Neuroses. H. D. Shapiro and W. Freeman, Washington.—p. 65.
Congenital Cystic Disease of the Lung. G. Tolstoi and O. B. Hunter, Washington.—p. 73.
Automobile Accidents and Emergency Surgery. D. L. Borden and D. H. Stubbs, Washington.—p. 79.
Management of Third Stage of Labor. A. E. King, Washington.—p. 83.
Diphtheritic Infection Following Tonsillectomy: Report of Case. A. P. Tibbets, Washington.—p. 86.

Michigan State Medical Society Journal, Lansing

38: 185-272 (March) 1939

Solitary Cyst of Spleen: Report of Case. F. T. Andrews, Kalamazoo, and R. S. Harter, Schoolcraft.—p. 201.
Glomus Tumor: Report of Four Cases. M. P. Meyers, Detroit.—p. 204.
*Mare Serum Hormone in Treatment of Certain Endocrine Dysfunctions in Women: Clinical Study. R. B. Kennedy and C. F. Shelton, Detroit.—p. 209.
Gallstone Colic or Gastric Crisis: Case Report. B. H. Larsson, Detroit.—p. 212.
Adenoma of Stomach. L. M. Hilt, Grand Rapids.—p. 213.
Removal of BB Shot with Giant Magnet. C. C. McClelland, Detroit.—p. 216.
Cesarean Section, 338 Consecutive Cases. W. F. Seeley, Detroit.—p. 217.
Improved Needle for Intravenous Therapy. Constantine L. A. Odén, Muskegon.—p. 221.
One Year of Occupational Disease Reporting in Michigan. D. W. Gudakunst, K. E. Markuson and J. M. Hepler, Lansing.—p. 222.

Mare Serum in Endocrine Dysfunctions of Women.—Kennedy and Shelton treated ten cases of amenorrhea and three cases of menorrhagia with pregnant mare serum hormone intramuscularly. No gross pathologic changes in the pelvis were found in any of these women. The work of Davis and Koff, in which they produced ovulation in the human female, was accomplished with the intravenous use of the hormone. Before administration the patients were carefully tested for protein hypersensitivity. The results, particularly in some of the amenorrheas, were sufficiently hopeful to justify mention. Pregnant mare serum exhibits certain definite physiologic differences from preparations of urinary gonadotropic substance. The physiologic studies on animals and human beings indicate that this hormone possesses gonadotropic properties closely resembling those of the anterior pituitary gland. In proper dosage many workers have shown that it is capable of stimulating normal ovarian function. The action in general is similar to that of the various gonadotropic substances. Urinary gonadotropic substances act differently in the human being than they do in laboratory animals and therefore do not fulfil the original hopes entertained for them as a true pituitary type of gonadotropic hormone. The new mare serum hormone seems to fulfil the desired requirement of an anterior pituitary-like gonadotropic substance.

Military Surgeon, Washington, D. C.

84: 289-404 (April) 1939. Partial Index

The Life of William Beaumont. J. M. Phalen.—p. 289.
Is America Physically Fit to Go to War? G. W. Calver.—p. 299.
Specific Somatic Polysaccharide as the Essential Immunizing Antigen of *Typhoid Bacillus*. F. B. *Wakeman*.—p. 318.
Rehabilitation of the Chronically Disabled, with Special Reference to Use of Physical Measures. F. H. Krusen.—p. 339.
Modern Treatment and Management of Coronary Thrombosis. A. E. Parsonnet.—p. 346.
Cardiac Arrhythmias. B. A. Moxness.—p. 362.
Fistulas, Sinuses and Pseudosinuses in Anal Region. N. D. Smith.—p. 377.

New England Journal of Medicine, Boston

220: 407-458 (March 9) 1939

*Clinical Effect of Colloidal Aluminum Hydroxide on Patients with Peptic Ulcer. R. B. Rutherford and E. S. Emery Jr., Boston.—p. 407.
Painless Acute Infarction of the Heart. A. M. Babey, Brooklyn.—p. 410.
New Method of Strapping for Back Strain with Sciatica. F. W. Ilfeld, Boston.—p. 412.
Clinical Pathology (Laboratory Medicine). W. T. Salter, Boston.—p. 436.

Colloidal Aluminum Hydroxide for Peptic Ulcer.—Rutherford and Emery treated twenty-eight cases of severe peptic ulcer with colloidal aluminum hydroxide. This was given orally or by continuous drip and orally for from three to nine months. The gastric contents were completely neutralized. Relief of pain occurred within twenty-four hours. The drug and the method of treatment were agreeable to the majority of patients. The drug apparently did not alter the body chemistry. This type of treatment is advantageous in patients who do not respond to the usual medical treatment because of a hypersecretion or night secretion, in those in whom peptic ulcer is complicated by nephrolithiasis and in patients in whom alkalosis develops while they are receiving alkaline powders.

220: 459-494 (March 16) 1939

X-Ray Treatment of Cancer in Small Communities. F. W. O'Brien, Boston.—p. 459.
Physical Therapy in Arthritis. F. H. Krusen, Rochester, Minn.—p. 463.
Radiation Therapy in Treatment of Inflammatory Lesions. F. O. Coe, Washington, D. C.—p. 471.
Surgery of the Sympathetic Nervous System. R. H. Smithwick, Boston.—p. 475.

New York State Journal of Medicine, New York

39: 489-658 (March 15) 1939

Multiple Areas of Intracerebral Calcification. C. A. McKendree, S. B. Wortis and S. E. Soltz, New York.—p. 495.
Panhysterectomy: Study Based on 2,773 Consecutive Hysterectomies. E. P. McDonald, Albany.—p. 503.
Dosage Specifications in X-Ray Therapy. Edith H. Quimby, New York.—p. 509.
Gallbladder Disease: Optimal Time for Operation. H. L. Prince, Rochester.—p. 516.
Pigment Cirrhosis: Rate of Occurrence and Difficulties in Diagnosis. J. R. Lisa and J. F. Hart, New York.—p. 521.
Clinical Comparative Study of Anesthetics in 1,370 Cases of Thoracic Surgery: Cyclopropane, Evipal, Avertin, Gas-Oxygen, Regional and Local. P. N. Coryllos and Sara Bass, New York.—p. 525.
Prevention of Maternal Deaths. C. A. Gordon, Brooklyn.—p. 535.
Treatment of Lobar Pneumonia with Sulfapyridine. W. L. Whittemore, C. L. Royster and P. A. Riedel, New York.—p. 540.

Northwest Medicine, Seattle

38: 77-112 (March) 1939

*Picrotoxin: Its Pharmacology and Clinical Use in Barbiturate Poisoning. J. M. Dille, Seattle.—p. 80.
Prontylin and Prontosil: Their Use in Infectious Complications of Pregnancy. R. E. Watkins and R. C. Blatchford, Portland, Ore.—p. 83.
Common Injuries Involving the Knee Joint. L. H. Edmunds, Seattle.—p. 85.
Varicose Veins of the Lower Extremities. M. A. Howard, Portland, Ore.—p. 91.
Sacral Foramina Finder: Simplifying Sacral Block Anesthesia. G. R. Marshall, Seattle.—p. 94.
Bottle in Gut: Report of Case. J. O. Rude, Petersburg, Alaska.—p. 96.
Lenticular Metabolism in Relation to Cataract. C. A. Veasey Jr., Spokane, Wash.—p. 97.
Congenital Syphilis. M. L. Bridgeman, Portland, Ore.—p. 99.

Picrotoxin.—Dille summarizes the fifteen cases of barbiturate poisoning treated with picrotoxin that have appeared in the literature. A considerable number of barbiturates and a wide range of doses were involved. Thus far there have been no extensive clinical studies of the use of picrotoxin as an analeptic for depressants other than barbiturates. It may be of value in the treatment of poisoning from chloral hydrate and paraldehyde. There is definite evidence that picrotoxin is definitely dangerous in morphine poisoning. Therefore, before using picrotoxin it is important to know the depressant responsible for the coma. The most conclusive evidence of whether the barbiturates are responsible is their presence *in the blood*, urine or stomach washings of the patient. A simple test available for this purpose is one devised by Koppanyi and his associates. Picrotoxin is generally regarded as a dangerous drug. Its dose is from 0.5 to 2 mg. and it has a narrow margin of safety when used alone. However, pharmacologic experiments and clinical evidence indicate that in the case of barbiturate poisoning much higher doses may be used. It must, however, be administered by divided doses of from 3 to 10 mg. and the total amount administered should depend on the response of the patient. At all times an overdose of the picrotoxin should be avoided, for an attack of convulsions is followed by greater depression. Picrotoxin has been usually administered intravenously during the first part of the treatment at intervals of from twenty minutes to an hour until an increase in respiration and a rise in blood pressure occurs or until slight twitches appear in the facial muscles. Picrotoxin is detoxicated by the body quite rapidly and in order to be effective the amount in the body must be maintained. As the treatment progresses the drug may be administered intramuscularly. Other measures, such as gastric lavage, other *stimulants, oxygen and parenteral fluids*, should be carried out.

Ohio State Medical Journal, Columbus

35: 357-480 (April) 1939

Diabetes. H. J. John, Cleveland.—p. 373.
A Simpler Method of Internal Fixation of Fractures of the Hip. D. M. Stewart, Toledo.—p. 380.
Shock Therapy in the Neuroses. J. Sagebiel, Dayton.—p. 385.
Serum Disease, with Special Reference to Polyneuritis. J. J. Coons and G. D. Kirk, Columbus.—p. 390.
Isolation of Infectious Diseases and Aseptic Examination Procedures. M. M. Miller, Akron.—p. 393.
*Picrotoxin in Treatment of Barbiturate Intoxication: Report of Case. J. T. Stephens and J. P. Anderson, Cleveland.—p. 396.
Rheumatic Heart Disease. R. A. Lewis, Dayton.—p. 398.
Management of Case of Pollen Hay Fever With or Without Associated Asthma. J. Forman, Columbus.—p. 401.

Picrotoxin for Barbiturate Intoxication.—A case of barbiturate intoxication in a woman 20 years of age is reported by Stephens and Anderson. The patient took 72 grains (4.7 Gm.) of sodium amytal. This was evidently absorbed, since no emesis occurred. The patient was comatose and displayed signs of marked anoxemia, with cyanosis, reduced respirations and clonic convulsions. After the administration of 156 mg. of picrotoxin over a period of twenty-four hours, together with large quantities of fluid intravenously, the patient regained consciousness and recovered rapidly. Within a few days she was entirely well. This instance furnishes additional evidence of the clinical efficacy of picrotoxin in counteracting barbiturate intoxication. This drug is not employed as a substitute for symptomatic and supportive measures but is used as an active adjuvant to these procedures.

Oklahoma State Medical Assn. Journal, McAlester

32: 83-112 (March) 1939

Adrenal Cortex in Surgery. L. C. Northrup, Tulsa.—p. 83.
Complications of Gonorrhea. A. R. Russell, McAlester.—p. 84.
Diagnosis and Treatment of Gallbladder Disease. J. H. Veazey, Ardmore.—p. 88.
Think of It First: Some Comments on the Diagnosis of Tuberculosis. R. M. Burke, Sulphur.—p. 91.
Further Study of Lobar Pneumonia in the Tulsa Area. S. Goodman, Tulsa.—p. 93.
Functional Hearing Test. C. A. Pavy, Tulsa.—p. 97.

Pennsylvania Medical Journal, Harrisburg

42: 593-720 (March) 1939

Recent Advances in Surgical Treatment of Pulmonary Tuberculosis. R. H. Overholt, Boston.—p. 605.
Pathology, Symptoms and Diagnosis of Pulmonary Tuberculosis. J. L. Wilson, New Orleans.—p. 613.
Treatment of Pulmonary Tuberculosis (in Brief). F. W. Burge, Philadelphia.—p. 617.
Attitude of the States to the Pennsylvania Tuberculosis Plan. C. H. Holmes, Atlanta, Ga.—p. 621.
Modern Anesthesia. E. W. Beach, Philadelphia.—p. 623.
The Undescended Testicle: Modification of the Torek Technic. G. V. Foster, Pittsburgh.—p. 627.
The Dental Problem of the Child. E. R. Sausser, Philadelphia.—p. 632.
Endocrine Therapy: Available Preparations and Their Clinical Application. S. A. Savitz and A. Lichtin, Philadelphia.—p. 636.
Modification of the Lagrange Operation for Simple Glaucoma: Results of Operation in Fifty Unselected Cases. J. M. Griscom, Philadelphia. —p. 640.
Role of Physical Therapy in Treatment of Anterior Poliomyelitis. G. Wagoner, Haverford.—p. 643.

Philippine Islands Med. Association Journal, Manila

19: 1-66 (Jan.) 1939

*Studies on Vitamin C: III. Vitamin C Content of Milk and Vegetable Extracts Available for Young Infants. I. Concepcion, with technical assistance of Maria Luisa Gargaritano, Manila.—p. 1.
Normal Growth of Filipino School Children. M. C. Icasiano and F. Z. Cruz, Manila.—p. 7.
Acute Pneumoperitoneum Simulating Acute Intestinal Obstruction: Report of Case. J. Eduque, A. T. Zavalla and B. Pañgilinan, Manila. —p. 17.
Metabolism of Calcium and Related Factors. B. S. Galang, Manila.—p. 21.

Vitamin C Content of Milk and Vegetable Extracts.—Concepcion and Gargaritano analyzed samples of different kinds of milk, fruit juice and vegetable soup for their vitamin C content by the dye method outlined by Bessey and King. They found that human milk (Filipino) was four times richer in vitamin C than cow's milk and more than two times richer than carabao's milk. The vitamin C content of evaporated milk, when diluted to be equivalent to cow's milk in composition, did not compare favorably with fresh cow's milk. Calamansi (Citrus mitis) and dayap (Citrus aureus) are cheap sources of vitamin C and their use by poor people should be extended. Soup of malungay (Moringa oleifera), kale (Brassica oleracea L.) or petsay (Brassica chinensis L.), prepared by mixing the vegetable with two parts of water by weight, may be used as a milk diluent for infant feeding. They are excellent sources of vitamin C. It is strongly recommended that an additional supply of vitamin C, in the form of calamansi, orange or tomato juice or vegetable soup should be given to infants taking either breast milk or artificial feeding, as a prophylactic measure.

Public Health Reports, Washington, D. C.

54: 413-458 (March 17) 1939

*Mouth Lesions Associated with Dietary Deficiencies in Monkeys. N. H. Topping and H. F. Fraser.—p. 416.
Oral Pathology in Monkeys in Various Experimental Dietary Deficiencies. T. H. Tomlinson Jr.—p. 431.
Study of Experimental Pertussis in the Young Rat. J. W. Hornibrook and L. L. Ashburn.—p. 439.

Buccal Lesions Associated with Dietary Deficiencies.—Topping and Fraser studied the occurrence of pathologic changes in the oral cavity in monkeys on selected diets deficient in vitamin A, D, C or B_2. Certain of the dietary deficiencies tested were associated with the development of varying manifestations of gingivitis, stomatitis, periodontal disease and noma. Noma developed in the buccal mucosa only in monkeys receiving diets deficient in vitamin B_2. Comparable animals maintained on adequate diets showed little or no evidence of such oral conditions. In addition, monkeys maintained on a stock diet showed no evidence of gingivitis or stomatitis when material from affected monkeys was transferred directly to them. Diets supposedly deficient in vitamin A were about as efficient in preventing the development of oral lesions as the artificial control diet. In the remaining deficiency groups, however, there is a definite difference in the numbers developing lesions and the severity of these lesions.

Radiology, Syracuse, N. Y.

32: 261-390 (March) 1939

Roentgenographic Pelvimetry and Fetalometry: Elimination of Errors Due to Movements Between X-Ray Exposures. W. W. Fray and W. T. Pommerenke, Rochester, N. Y.—p. 261.
The Language of Engineers and Radiologists: New X-Ray Terms Proposed: Rhegma, Rhothion, Kludon, Plem, Aith. R. R. Newell, San Francisco.—p. 270.
X-Ray Inquiry into Genesis of Current of Venous Blood and Lymph. K. Mayer, Poznan, Poland.—p. 275.
Note on Use of Clinical Dosage Meters Using Thimble Ionization Chamber. M. C. Reinhard, Buffalo.—p. 282.
*Roentgen Treatment of Leukemia, with Report of Pregnancy in Case of Lymphatic Leukemia. E. K. Harrison and R. J. Reeves, Durham, N. C.—p. 284.
Influence of Low Temperature on Recovery from Roentgen Rays. Evelyn Vanderwilt Cook, Iowa City.—p. 289.
Technic of X-Ray Treatment of Operable Cancer of the Breast Based on Analysis of Keynes' Radium Technic. J. R. Andrews, Cleveland. —p. 294.
Value of Roentgen Examination of Paranasal Sinuses. V. C. Johnson, Ann Arbor, Mich.—p. 303.
Treatment of Acute and Chronic Inflammatory Conditions by Fractional Doses of X-Ray. H. A. Osgood, Boston.—p. 311.
Density of the Central Shadow in Diagnosis of Intrathoracic Lesions. L. G. Rigler, Minneapolis.—p. 316.
Some Experiences, Experimental and Clinical, with Direct Irradiation of Neurologic Tumors During Operation with Low Voltage Radiation. J. R. Carty and B. S. Ray, New York.—p. 325.
Further Consideration of Roentgen Ray Manifestations in Amebic Infections of Large Bowel. J. C. Bell, Louisville, Ky.—p. 332.
Treatment of Hyperthyroidism, with Consideration of Other of the Ductless Glands as a Trigger Mechanism: Based on Observation of 360 Cases. I. W. Jenkins, Waco, Texas.—p. 340.

Roentgen Treatment of Leukemia.—Harrison and Reeves used roentgen therapy in the treatment of forty-seven cases of leukemia of which three were of the aleukemic, twelve of the lymphatic and thirty-two of the myeloid leukemia type. Sixteen patients are still living. The patients were treated by the local application of the rays, general radiation, the so-called "spray method" and a combination of the two methods. The spray method seems superior in that there is no roentgen sickness and more of the bone marrow as well as the circulating blood is irradiated. Patients receiving spray treatments were symptom free for longer periods of time. In addition, in patients treated by the spray method a resistance to the rays develops slowly and hence can be carried over a longer period. The results

from the spray method (84 per cent living) are better than the results of local treatment (22 per cent) or local and spray combined (56 per cent). The authors do not believe that the spray method is likely to cause serious injury to the bone marrow, resulting in aplastic anemia, if the rays are properly administered by competent roentgenologists. If the dose is kept low and frequent blood studies are made, it is not difficult to get the blood to a normal level. The spray method is, of course, contraindicated in the aleukemic form of the disease. They do not feel that the actual life span of the patient is increased, but the useful period of life is distinctly prolonged. Of the forty-seven cases there was a history of previous severe infection in 47 per cent, lending weight to the infection theory.

South Carolina Medical Assn. Journal, Greenville

35: 83-112 (April) 1939

Eclampsia. L. A. Wilson and A. L. Rivers, Charleston.—p. 83.
Newer Physiology of Diabetes Mellitus. S. C. Werch, Charleston.—p. 87.
Removal of Sebaceous Cysts. A. E. Shaw, Columbia.—p. 90.
Some Observations on Blood Cell Sedimentation Rate in General Medical Diagnosis: Its Value as Aid in Differentiating Malignant from Benign Tumors: Analysis of Fifty Cases. J. M. Feder, Anderson.—p. 102.
Treatment of Pellagra. J. M. Ruffin, Durham, N. C.—p. 107.

Southern Surgeon, Atlanta, Ga.

8: 113-190 (April) 1939

Peritoneoscopy. J. C. Ruddock, Los Angeles.—p. 113.
Adjustable Liston Splint with Foot Piece Attached for Handling of Fractures. W. M. Hayes, Hamilton, Ohio.—p. 136.
Fractures of Neck of the Femur: Treatment by Internal Fixation with Adjustable Nails. A. T. Moore, Columbia, S. C.—p. 139.
Gunshot Wounds of Abdomen: I. Consideration of Their General Management. Based on Thirty-Five Personal Cases. A. H. Storck, New Orleans.—p. 148.
Subtrochanteric and High Shaft Fractures of the Femur: Closed Reduction Based on New Anatomic Approach to Treatment. R. Anderson, Seattle.—p. 159.
Treatment of Ingrowing Toenail. A. O. Linch, Atlanta, Ga.—p. 173.

Southwestern Medicine, El Paso, Texas

23: 67-106 (March) 1939

Cardiac Neurosis. R. H. Homan, El Paso, Texas.—p. 67.
Tumors of Oral Cavity. G. W. Jones, Baltimore.—p. 70.
Blind Nailing of Fractures of Neck of Femur. L. W. Breck, El Paso, Texas.—p. 72.
Diagnosis and Treatment of Pneumonia. R. E. Thomas, Los Angeles.—p 78.
Hormones in Pregnancy. A. J. De Pinto, Phoenix, Ariz.—p. 82.
Hypophysial Stalk Tumors: Case Report. J. G. Pasternack and W. M. Boles, New Orleans.—p. 85.

Surgery, St. Louis

5: 327-490 (March) 1939

Distention Factor in Simple Intestinal Obstruction: Experimental Study with Exclusion of Swallowed Air by Cervical Esophagostomy. O. H. Wangensteen and C. E. Rea, Minneapolis.—p. 327.
Carcinoma of the Right Colon. H. K. Ransom, Ann Arbor, Mich.—p. 340.
Acute Pancreatitis: Report of Twenty-Six Cases. L. S. Fallis and G. Plain, Detroit.—p. 358.
Acute Suppurative Appendicitis Complicating Severe Untreated Thyrotoxicosis. J. M. Mora and B. Pearlman, Chicago.—p. 374.
Left Retromesocolic Hernia. B. Halpert, New Orleans.—p. 379.
Hernia Through the Broad Ligament. H. E. Bowles, Honolulu, Hawaii.—p. 382.
Paraduodenal Hernia. J. W. Snyder, Miami, Fla.—p. 389.
Inguinal Hernioplasty: New Modification: Report of 107 Cases. H. E. Stein, New York.—p. 398.
Results of Treatment in Cancer of the Prostate: Review of 275 Cases. C. D. Creevy, Minneapolis.—p. 405.
*Treatment of Postoperative Pulmonary Atelectasis. A. E. Moore, Cincinnati.—p. 420.
Arterial Injections with Stasis in Therapy of Infections. R. dos Santos, Lisbon, Portugal.—p. 436.
Gravity Drainage of Inflammatory Edema: Method for Elevation of an Extremity. J. Knott, Christiansted, Virgin Islands.—p. 444.
Elastic Bandage Boot for Varicose Veins. J. Knott, Christiansted, Virgin Islands.—p. 446.

Postoperative Pulmonary Atelectasis.—Moore states that in the surgical service of the Cincinnati General Hospital any patient developing a sudden or unexpected elevation of temperature or respiratory rate during the first two postoperative days is suspected of having atelectasis until proved otherwise. If a diagnosis is established, the following procedure is carried out: If not already in use, a tight abdominal binder is applied. The patient is changed from Fowler's position to one in which the pillow is removed and the head is dropped flat, leaving the knees elevated. A chair is placed under the foot of the bed and the patient is turned so that his affected side will be up. The physician then stands behind the patient and places one hand on the uppermost shoulder, rolling the patient slightly forward on his abdomen. This puts the main bronchus in a true vertical position and secures the greatest gravitational effect on the bronchial secretions. The patient is instructed to place his uppermost hand on his abdomen, over his wound, and this is reinforced by the free hand of the physician. Occasionally, simply placing the patient in this position initiates violent coughing, but if coughing is not forthcoming the patient should be encouraged to cough. In the majority of cases the mucous plug will be loosened by the first guarded cough and an uncontrollable cough reflex set up with the production of a sizable quantity of mucus. Coughing is encouraged until rhonchi no longer can be felt by the palpating hand. It is not uncommon for such a patient to volunteer the information "that's all." If this fails or if the patient refuses to cough because of incisional pain, further efforts are aimed at loosening the plug. He is asked to take a few deep breaths. If this fails to produce the plug, a sharp blow on the back will often accomplish the desired result. If these maneuvers fail, inhalations of carbon dioxide are given to increase the depth of respirations and this will frequently loosen the plug. If rhonchi still persist and breath sounds are not coming through the involved lung, the patient is forced to remain in the described position for as long as half an hour at a time. During this period steam inhalation of tincture of benzoin is given. The steam thins out the mucus, and the gravitational effect is enhanced by being allowed to act over a period of time. This entire regimen is not used frequently, as the obstructing mucous plug ordinarily can be produced by simple forced coughing. The author has had a marked uniformity of success in relieving postoperative atelectasis by the foregoing type of postural drainage. The most striking relief has occurred in those cases in which the atelectasis is recognized within an hour or two after onset. The efficacy of postural drainage used at the author's clinic for relieving atelectasis is illustrated by the report of six cases.

Surgery, Gynecology and Obstetrics, Chicago

68: 723-850 (April) 1939

Excision of the Superior Hypogastric Plexus (Presacral Nerve) for Primary Dysmenorrhea. J. V. Meigs, Boston.—p. 723.
Consideration of Certain Types of Benign Tumors of the Placenta. A. A. Marchetti, New York.—p. 733.
Blood Iodine Levels Related to Recurrence of Hyperthyroidism. H. J. Perkin and R. B. Cattell, Boston.—p. 744.
*Influence of Papaverine on Muscular Tone of the Intestinal Tract. J. A. Bargen and R. J. Jackman, Rochester, Minn.—p. 749.
Study of Fluid and Sodium Chloride Balance in Patients Treated with Continuous Suction Applied to Indwelling Duodenal Tubes. J. R. Paine and W. D. Armstrong, Minneapolis.—p. 751.
Primary Streptococcic and Pneumococcic Peritonitis in Children: Study of Sixty-One Cases with Report of Two Interesting Recoveries. E. T. Newell Jr., Chattanooga, Tenn.—p. 760.
Arrhenoblastoma. M. B. Dockerty and W. C. MacCarty, Rochester, Minn.—p. 767.
Spondylolisthesis. E. M. George, New York.—p. 774.
Tracheotomy. T. Cawthorne, London, England.—p. 782.
New Aseptic Double-Valved Tubogastrostomy. J. A. Glassman, Chicago.—p. 789.
Surgical Treatment of Spastic Paralysis. C. H. Heyman, Cleveland.—p. 792.
Technic of Thyroidectomy Permitting Use of Silk. D. Guthrie, Sayre, Pa., and M. J. Brown, Davenport, Iowa.—p. 801.
*Tubal Resection as Treatment for Recurrent Gonorrheal Salpingitis. H. C. Falk and Geza Weitzner, New York.—p. 810.
Encapsulated Intramedullary Tumor Involving the Whole Spinal Cord from Medulla to Conus: Complete Enucleation with Recovery. G. Horrax and D. G. Henderson, Boston.—p. 814.
Acute Fractures of Carpal Scaphoid. R. F. Jaekle and A. G. Clark, San Francisco.—p. 820.
Intraperitoneal Hemorrhage from Ruptured Ovarian Retention Cysts: Corpus Luteum and Graafian Follicle Cysts. F. I. Harris and M. J. Groper, San Francisco.—p. 824.
Conservative Surgical Treatment of Noncalculous Hydronephrosis. J. T. Priestley, Rochester, Minn.—p. 832.

Influence of Papaverine on Intestinal Tone.—Bargen and Jackman state that morphine causes an increase in motility and tone of the large and small intestine of man. The constipating effect of morphine may be attributable to the regions of

spasm which it initiates. Papaverine hydrochloride alone or in combination with pantopon has been found of value in relieving the distressing abdominal cramps and frequent purulent, bloody discharges associated with the acute phase of chronic ulcerative colitis and other acute dysenteries. Experimental evidence has substantiated the antispasmodic effect of this papaverine compound. The papaverine compound has certain advantages over morphine sulfate in cases in which it is desired to immobilize or put the intestine at rest.

Tubal Resection for Recurrent Gonorrheal Salpingitis.—Falk and Weitzner offer cornual resection of the tubes as a surgical procedure for the cure of recurrent gonorrheal salpingitis. It involves a minimum of surgical trauma and in 112 of their cases they state that there was no primary mortality or primary pelvic morbidity, the anatomic results were perfect in 70 per cent, good in 14 per cent and fair in 7 per cent, 79 per cent of the patients were symptom free and 21 per cent had slight symptoms, 87 per cent were fit for manual labor and 13 per cent were partially incapacitated, and there were no reoperations for pelvic disease and no readmissions for recurrent salpingitis.

Texas State Journal of Medicine, Fort Worth

34: 727-808 (March) 1939

Diagnosis of Lesions of Right Upper Abdominal Quadrant. W. Walters, Rochester, Minn.—p. 732.
Limitations of Transurethral Prostatectomy. R. M. Nesbit, Ann Arbor, Mich.—p. 736.
The Roentgenogram in Intestinal Obstruction: Its Value and Its Limitations. P. E. Wigby and W. H. Cochran, Dallas.—p. 740.
Clinical Use of the Flexible Gastroscope. C. O. Patterson and M. O. Rouse, Dallas.—p. 746.
Internal Hodgkin's Disease. E. Randall Jr., Galveston.—p. 751.
Artificial Fever Therapy in a Private Hospital. A. A. Ledbetter, Houston.—p. 753.
Thoracoplasty in Treatment of Pulmonary Tuberculosis. E. H. Caldwell, Tyler.—p. 757.
Relation of Surgical Collapse of Tuberculous Cavities to Public Health. J. W. Nixon, San Antonio.—p. 760.
Primary Complex of Childhood Tuberculosis: Analysis of X-Ray Examinations of 857 Cases with Positive Mantoux Reactions. F. H. Tyner, Port Arthur.—p. 763.
Progressive Deafness: Its Diagnosis and Treatment. R. Z. Howard, Fort Worth.—p. 767.
Management of Juvenile Cataract: Analysis of Fifty Cases. H. L. Hilgartner Jr., Austin.—p. 770.
Maxillary Sinusitis of Oral Origin. P. W. Malone, Big Spring.—p. 774.
*Vincent's Infection and Its Relation to Subclinical Scurvy. H. M. Williams, Fort Worth.—p. 779.

Relation of Vincent's Infection to Scurvy.—Williams has seen a large number of indigent patients at the Preventive Medicine Clinic and Immunization Station who showed marked signs of gingivitis. Smears taken disclosed Vincent's organisms in abundance. He states that all the patients admitted to this clinic are from families in which the wage earners are unemployed, are employed by WPA or have other low salaried employment. The majority of these are unable to provide sufficient fresh fruits and vegetables or other antiscorbutic foods, and of those who might be able to provide these in sufficient quantities many are unaware of the necessity for these dietary elements or do not place enough importance on the necessity for them. Realizing that there was probably a considerable amount of subclinical scurvy among these people, the author carried out an experiment to determine, if possible, what effect the addition to their diet of a sufficient amount of a pure crystalline vitamin C acid in tablet form would have on the treatment of Vincent's infection in this group. In this way an accurate check on the minimal amount of vitamin C taken by each patient could be made. Only those patients (twenty-two) who were considered to be getting a definite subminimal amount of antiscorbutic foods in their diet were studied. As controls for the experiment, patients with the same requirements as the test group received the same treatment except for the ascorbic acid. The treatment given consisted in the topical application once daily of 7 per cent chromic acid followed by full strength hydrogen peroxide. Saturated solution of sodium perborate was used as a mouth wash and gargle four or more times a day, and one or two, according to age, 25 mg. tablets of ascorbic acid. The patients were visited once or twice each week by a member of the public health nursing staff, who supplied the patients with the necessary supplies and instructed them as to the proper means of treatment. Smears from the gums and throats were made at frequent intervals. The results obtained, although not conclusive, do indicate marked improvement following the use of ascorbic acid in most cases in which a definite vitamin C deficiency was found to exist. Of the twenty-two patients treated all showed either clinical improvement or marked decrease in the relative number of spirillae on smears or both.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

47: 107-168 (March) 1939

Significance of Estrogenic Hormones in Carcinogenesis. L. A. Emge, San Francisco.—p. 107.
Granulosa Cell Tumor of the Ovary. Margaret Schulze, San Francisco.—p. 114.
Disgerminoma and Arrhenoblastoma. V. E. Dudman, Portland, Ore.—p. 128.
*Use of Sulfanilamide in Postabortal and Puerperal Infections. B. J. Hanley and D. Golenternek, Los Angeles.—p. 137.
Antagonism Between Thyroxine and Vitamin A. C. Wegelin, Berne, Switzerland.—p. 147.
Adenomatous Goiter with Hyperthyroidism. S. F. Haines, Rochester, Minn.—p. 155.

Sulfanilamide in Obstetrics.—Hanley and Golenternek tried to determine the value of sulfanilamide in postabortal and puerperal infections. They review 150 cases from the infected obstetrics wards in the Los Angeles General Hospital. In seventy-five of these cases sulfanilamide was used along with any measures in their routine treatment which seemed indicated. The other seventy-five patients were given the same type of treatment except that they did not receive sulfanilamide. Of the seventy-five cases of sepsis treated with sulfanilamide thirty-two showed apparent improvement, such that the period of hospitalization was shortened an average of 2.8 days when compared with the similar group not receiving this drug. In twenty cases the results were called doubtful as there were minor complications and the temperature did not subside at the given time. In the remaining twenty-three cases the results were of no comparative value. However, this group contained all the cases in which the infection had extended beyond the walls of the uterus, with resultant peritonitis, septicemia, pelvic abscess or other complications not directly related to the original infection; thus quick recovery could hardly be expected. No improvement was observed in any case of thrombophlebitis in which the drug was used.

Wisconsin Medical Journal, Madison

38: 169-252 (March) 1939

Office Treatment of Eye Injuries. W. L. Benedict, Rochester, Minn.—p. 187.
Type Determination of Pneumococci. C. Lenore Robinson, Madison.—p. 190.
Comments on 1,010 Obstetric Cases in Hospital and Home. W. Smith, Ladysmith.—p. 196.
Uterus Didelphys: Report of Case. J. J. Gramling Jr., Milwaukee.—p. 200.
Secondary Anemias of Infancy. R. L. Cowles, Green Bay.—p. 202.
Review of 1,012 Cases of Induction of Labor. G. J. Schwartz, Kenosha.—p. 205.
Warts and Moles. M. J. Reuter, Milwaukee.—p. 207.

Yale Journal of Biology and Medicine, New Haven

11: 277-408 (March) 1939

The "Throat Distemper" of 1735-1740: Part II. E. Caulfield, New Haven, Conn.—p. 277.
*Erysipelas in Infants. T. Willis, New Haven, Conn.—p. 337.
Skin Reactions to an Extract Prepared from a Gonococcus Bouillon Filtrate. N. E. Rossett, New Haven, Conn.—p. 345.
Interrelationships Between Fetal Weight, Size of Pelvic Inlet and Maternal Height. H. Thoms and M. S. Godfried, New Haven, Conn.—p. 355.
Familial Occurrence of Icterus Gravis, Congenital Anemia of the Newborn and Erythroblastosis Fetalis: Case Study. H. C. Miller, New Haven, Conn.—p. 363.
Prophylaxis of Experimental Anthrax Infection with Various Hormone Preparations. L. Weinstein, New Haven, Conn.—p. 369.
Studies on Phagedenic Ulcers. Agnes V. Bartlett, Boston.—p. 393.

Erysipelas in Infants.—Six cases of erysipelas in infants less than 2 months of age that were cured through the use of transfusions and sulfanilamide in large doses are reported by Willis. Complications, local recurrences of a streptococcic lesion, occurred in two patients. They slowly responded at different rates to continued use of the drug.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

20: 1-108 (Feb.) 1939

Protective Value of Vi and O Antibody in Relation to Virulence of Strains of Bacterium Typhosum. D. W. Henderson.—p. 1.

Experiments with Vi Antigen of Bacterium Typhosum and with Two New Antigenic Substances Extracted from Strains of This Organism. D. W. Henderson.—p. 11.

Effect of Gastric Mucin on the Pathogenicity of the Meningococcus and Other Organisms, with Particular Reference to Its Fractionation. C. G. Anderson and R. K. Oag.—p. 25.

Spectrographic Observations on Urinary Porphyrins: Nature of Combined Form of Coproporphyrin Found in Urine. Eleanor M. Kapp.—p. 33.

Nutrition of Corynebacterium Diphtheriae (Types Mitis, Gravis and Intermediate). W. C. Evans, F. C. Happold and W. R. C. Handley.—p. 41.

Further Observations on Filtrable Tumors Induced in Fowls by Injection of Tar. J. McIntosh and F. R. Selbie.—p. 49.

Antigenic Surface of Smooth Brucella Abortus and Melitensis. A. A. Miles.—p. 63.

Properties of Antigenic Preparations from Brucella Melitensis: I. Chemical and Physical Properties of Bacterial Fractions. A. A. Miles and N. W. Pirie.—p. 83.

Chemical Change Occurring During the Lysis of Bacterium Coli by Bacteriophage. Antoinette Pirie.—p. 99.

British Medical Journal, London

1: 371-430 (Feb. 25) 1939

Health and the State. W. Elliot.—p. 371.

Treatment of Trichinosis: Review of Methods. V. D. van Someren.—p. 376.

Bronchoscopy in Pulmonary Tuberculosis. H. V. Morlock and E. H. Hudson.—p. 381.

*Treatment of Diphtheria with Refined Antitoxin. A. Hutchison.—p. 384.

Use of Gas-Protective Clothing in Singapore. E. R. Sorley.—p. 385.

Treatment of Diphtheria with Refined Antitoxin.—Hutchison states that, from January to August 1938, 200 diphtheria patients were treated in Belvidere Hospital with a refined antitoxin prepared by Pope's (1938) process. This antitoxin is prepared by a process of enzyme disaggregation followed by differential heating. The antitoxin was administered without desensitization of the patient, even though fifty of the 200 patients gave a history of previous injection of serum. Patients with cervical adenitis were given chewing gum. There were no reactions when the serum was given by the intramuscular route and only slight reactions when it was given intravenously. There were five deaths, two of which occurred in patients who were moribund on admission and who died within a few hours; the other three were due to cardiac paralysis. The percentage of gravis bacilli in the present series (thirty-one) is high compared with that of Carter in the same area (3.1 and 10.5 in different series) and this makes the 2.5 per cent death rate a strikingly low figure. Chewing gum appears to be useful in adenitis, apparently causing massage of the cervical glands by the action of the jaw in chewing.

Glasgow Medical Journal

13: 57-104 (Feb.) 1939

Pulmonary Carcinoma: Pathologic Study of Series of Cases, with Special Reference to Route of Spread and to Factors That Determine Mode of Spread. C. E. Lumsden.—p. 57.

Indian Medical Gazette, Calcutta

74: 65-128 (Feb.) 1939

Chronic Ulcerative Colitis. R. N. Chopra and P. N. Ray.—p. 65.

Aberrant Pancreatic Tissue in the Alimentary Tract. M. M. Cruickshank.—p. 74.

The Heart in Anemia. G. R. McRobert and D. Govinda Reddy.—p. 75.

Local Provision of Splints and Tackle for Fractures and Joint Infections in India. F. H. Whyte.—p. 77.

Treatment of Otitis Media. B. N. C. Roy.—p. 80.

Primary and Secondary Tuberculosis. P. G. Gollerkeri.—p. 82.

Atypical Amyloid Disease of the Liver. M. D. Ananthachari.—p. 84.

Investigation of Calcutta Milk Supply for Presence of Tubercle Bacilli. R. K. Goyal and S. Lal.—p. 86.

Protection of Antiplague Workers. R. C. Bhargava.—p. 87.

Note on Interesting Serologic Type of Leptospira in the Andamans. B. M. Das Gupta.—p. 88.

Disposal and Utilization of Horse Dung and Stable Litter by Composting. K. A. Patwardhan.—p. 88.

Journal of Laryngology and Otology, London

54: 121-172 (March) 1939

Osseous Affections of the Maxillary Sinus. E. G. Collins.—p. 121.

Lympho-Epithelioma in the Nasopharynx. F. C. W. Capps.—p. 133.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

46: 1-200 (Feb.) 1939

*Clinical Experiences with a New Synthetic Estrogen Stilbestrol (Diethyl-Stilbestrol): Report to the Therapeutic Trials Committee of the Medical Research Council. R. J. Kellar and J. K. Sutherland.—p. 1.

Metastasis of Maternal Tumor to Products of Gestation. J. Gray, M. Kenny and E. P. Sharpey-Schafer.—p. 8.

Hormone Therapy in Gynecologic Conditions. D. MacLeod.—p. 15.

Iniencephalus. J. Howkins and R. S. Lawrie.—p. 25.

Carcinoma of the Body of the Uterus. W. G. Cosbie and D. N. Henderson.—p. 32.

Teratoma of Neck of Fetus with Acute Hydramnios: Case. J. St. George Wilson.—p. 44.

Effect of Vitamin E Deficiency on the Rat. M. M. O. Barrie.—p. 49.

Analgesia in Domiciliary Midwifery. J. Elam.—p. 61.

Case of Double Vulva with Hematometra on One Side. N. G. Patterson and J. P. Maxwell.—p. 71.

Spontaneous Rupture of Three Months Pregnant Uterus Following a Classic Caesarean Section and an Abdominal Pregnancy. B. H. Swift.—p. 74.

Delivery of Live Infant After Radiologic Diagnosis of Intra-Uterine Death. G. P. Milne.—p. 77.

Hemorrhagic Retinitis in Vomiting of Pregnancy. J. A. Waterman.—p. 79.

Protection of the Unborn Child in Germany. H. Stadler.—p. 82.

Technic of Local Anesthesia and Experiences in Gynecologic Abdominal Operations. J. Frigyesi.—p. 91.

Stilbestrol in Menopause Symptoms.—Kellar and Sutherland used stilbestrol, a synthetic estrogenic drug, in the treatment of the menopausal syndrome, senile vaginitis, vulval leukoplakia, secondary amenorrhea and for inhibiting lactation. The results were more or less comparable to those obtained with natural estrogen. Therefore it appears that stilbestrol can replace the natural estrogens in all their therapeutic applications, and also it is a drug that is effective by mouth. It apparently has a true localized effect on the genitalia and has presumably the power to depress certain anterior pituitary functions, for example to suppress lactation. In three patients in whom uterine bleeding followed a course of stilbestrol, only scanty endometrium was obtained at biopsy. More and more evidence is being produced to show that uterine bleeding is primarily a local vascular phenomenon and is not necessarily directly related to the state of the endometrium. Thus, bleeding can occur from a preovulation or premenstrual or atrophic endometrium. When stilbestrol was given intramuscularly there were no toxic effects. When it was given orally nausea without vomiting was produced in three patients but in all these symptoms disappeared even when the use of the drug was continued.

Lancet, London

1: 431-490 (Feb. 25) 1939

*Mode of Action of Drugs of Sulfonamide Group. J. McIntosh and L. E. H. Whitby.—p. 431.

Triazol 156 in Chronic Schizophrenia. I. Atkin.—p. 435.

*Remissions in Schizophrenia: Insulin and Convulsion Therapies Compared with Ordinary Treatment. H. Stalker, W. M. Millar and J. M. Jacobs.—p. 437.

Cardiazol Therapy of Schizophrenia: Some Statistical Data. F. Reitmann.—p. 439.

Boeck's Sarcoidosis: Case Record. H. B. Stallard and C. B. V. Tait.—p. 440.

Atmospheric and Surface Sterilization by Aerosols. R. J. V. Pulvertaft, G. C. Lemon and J. W. Walker.—p. 443.

Hematoma of Flexor Tendon Sheaths of Hand Following Penetrating Wounds. E. A. Devenish.—p. 447.

Introduction of Iodized Oil into Tracheobronchial Tree. P. Ellman.—p. 448.

Action of Drugs of Sulfanilamide Group.—McIntosh and Whitby studied the bodily defense mechanism and the action of sulfanilamide and its derivatives on bacteria. Their experiments support the view that sulfanilamide drugs have no stimulating action on leukocytes, phagocytes or the specific immune defenses of the body. Furthermore, since an in vitro effect can be demonstrated in serum or broth as well as in whole blood, it would not seem that leukocytes are a primary requirement. Concerning the action of the drugs on the micro-organisms, the authors explain (1) the capsular degeneration, (2) the failure of the drugs to check local multiplication and to prevent invasion of the body, (3) the time lag before the drugs become effective in vivo or in vitro and the tendency even to primary stimulation

of growth, (4) the quantitative relationship between the effective dose of the drug and the number of bacteria, (5) the fact that the drugs act best on young actively multiplying virulent organisms and (6) the variations in in vitro activity according to the medium in which the test is made. One explanation of the six points would be that in the sulfanilamide drugs substances have at last been found which exert a simple germicidal action in vivo as well as in vitro. Such an explanation would mean that the action is in striking contrast with that of the germicides phenol, acriflavine and brilliant green, which the authors have tested and found to show no evidence of a "lag" in action and certainly no tendency to exert an initial stimulation on the organism. The action appears to be much more subtle than that of a simple germicide. The failure of the drugs to check the initial local multiplication and invasion is obviously due to the "lag" in action, and the lag suggests a slow combination or neutralization by the drug operating on some essential food substance or enzyme. That combination or neutralization occurs is suggested by the quantitative relationship between drug and bacterium. A reasonable interpretation is that, in the case of streptococci, when either sulfanilamide or sulfapyridine is present, peptone broth supplies something to the organism which blood lacks, whereas in the case of pneumococci both blood and broth lack something essential to the organism. It is clear that, since peptone inhibits the action of both sulfanilamide and sulfapyridine on streptococci but not on pneumococci, the two organisms differ in the way in which the drug acts on them, and, although the modes of action may be the same in principle, there must be differences in detail. The most rational explanation of these experimental facts is that the sulfanilamide drugs in some way block the vital food supply of bacteria, the two drugs being equally effective in blocking the vital food for streptococci but sulfapyridine being decidedly more effective than sulfanilamide in blocking that for pneumococci. It is conceivable that the bacterial enzyme of which this food factor is the substrate should be inactivated. Rough and avirulent organisms, insusceptible to these drugs, do not have the exacting food requirements of virulent bacteria, and the failure of the sulfanilamide drugs to affect virus infections could be explained by the feeble enzymatic action which viruses are known to have. Therefore the mode of action of sulfanilamide and its derivatives is most probably bound up with the inactivation of bacterial enzymes, but the complete solution of the problem must depend on activities of the bacterial chemist.

Remissions in Schizophrenia.—Stalker and his colleagues compare the results obtained in the treatment of 218 cases of schizophrenia divided into three series according to whether treatment was by ordinary hospital methods, by hypoglycemia or with convulsant drugs. There was no significant difference in the numerical results obtained in schizophrenia by the three methods. Spontaneous remissions occurred most often in acute schizophrenic illnesses which could not be fitted into the standard subgroups, and in cases in which the affect is well preserved and there is little or no disharmony between mood and thought. Hypoglycemia gave the best results in the paranoid subgroup and in cases in which the affect is well preserved. There were no important complications. Convulsion therapy appeared to be best suited for stupor reactions. It was also useful in cases of psychoneurosis resistant to psychotherapy. The disadvantages of the treatment are that about half the patients object to it and that injuries can occur. Occasionally patients were made worse mentally. The field of special treatments is limited, but each should be used in the special type of case. They afford the best chance of recovery to a potentially recoverable patient whose illness is dragging on. They reduce the average duration of hospital treatment.

Medical Journal of Australia, Sydney

1: 209-248 (Feb. 11) 1939

Evolution of Anesthesia. G. Brown.—p. 209.
Role of Iodine (Potassium Iodide) in Experimental Hyperthyroidism. V. M. Trikojus.—p. 220.
Position of Orthoptics in Headache from Eye Strain. J. D. Maude.—p. 224.
Operation for Recovery of Paralysed Muscles in Otherwise Normal Groups. N. D. Royle.—p. 227.
Serologic Test for Cancer: Part III. W. Moppett.—p. 227.

Practitioner, London

142: 241-360 (March) 1939

Common Vascular Disorders of Extremities. J. R. Learmonth.—p. 241.
Skin Diseases of Hands and Feet. H. MacCormac.—p. 249.
Some Minor Surgical Conditions of Hands and Feet. R. J. M. Love.—p. 261.
Congenital Abnormalities of Extremities. D. Browne.—p. 270.
Fractures, Dislocations and Sprains at Wrist and Ankle. R. S. Woods.—p. 278.
Management of Flatfoot. J. Bruce.—p. 299.
Stilbestrol. E. C. Dodds.—p. 309.
Therapeutics and Toxicology of Acetylsalicylic Acid. P. Hamill—p. 314.
Actinomycosis. Z. Cope.—p. 319.
Instructions for Patients Suffering from Angina Pectoris. J. W. Linnell and W. A. R. Thomson.—p. 327.
Treatment of War Injuries in Base Hospitals. E. W. H. Groves.—p. 330.
Diet in Health and Disease: XXI. Artificial Feeding of Infants. A. G. Maitland-Jones.—p. 341.

Tubercle, London

20: 205-252 (Feb.) 1939

*Epituberculosis. W. B. Wood.—p. 205.
Effect of Tuberculous Infection on Carbonic Anhydrase of Rabbit's Blood. Cecilia Shiskin.—p. 227.

Epituberculosis.—Wood believes that epituberculosis is a manifestation of postprimary tuberculosis in childhood and occurs in a period characterized by enlargement of the bronchial glands and a tendency to exudation. The chief factor in its production is atelectasis due to bronchial blockage by tuberculous glands. A secondary factor is probably exudation into the alveoli and engorgement, the result of lymph stasis and vascular congestion. Tuberculous allergy possibly also plays a part for allergic reactions are common in the second stage. If gland caseation leads to rupture of the wall of a bronchus, a caseous bronchitis or bronchopneumonia may entirely alter the clinical picture and cause permanent damage to the lung. If the bronchial wall escapes such ulceration, restitution can occur and the collapsed lobe may return to its original condition. A failure to reexpand must in either event give rise to bronchiectasis, which is a common result of tuberculous adenitis. One cause of the hilus flare phenomenon is atelectasis of the right middle lobe due to bronchial compression. Collapse of the apical division of the lower lobe may cause a similar shadow and have a comparable origin. Many of the triangular shadows on the hilus are evidently due to a local atelectasis. Care is needed in their interpretation because other lesions of a tuberculous and nontuberculous nature may cause similar opacities. The term "epituberculosis," which has served its purpose and drawn attention to the condition, might now be abandoned.

Tohoku Journal of Experimental Medicine, Sendai

35: 123-322 (Feb.) 1939. Partial Index

Operation for and Importance of Permanent Closable Pancreatic Fistula. W. N. Boldyreff and W. F. Martin.—p. 144.
Leech Method of Blood Analysis—New Micromethod: VII. Determination of Blood Sugar. H. Ohsako.—p. 155.
Further Report on Blood Picture of Lactating Women. Y. Kokubo.—p. 157.
*How Will Sexual Cycles of Healthy Women Influence Blood Picture? Y. Kokubo.—p. 243.
Increase in Sugar Content of Skin and Reduction in Glycogen Content of Liver After Fat Tolerance Test. Y. Sikinami and H. Hosokawa.—p. 257.
Studies on Modification of Serum Protein and Its Colloid-Osmotic Pressure by Oral Administration of Large Quantities of Water in Healthy Persons and in Patients with Hypertension and Renal Diseases. K. Shida.—p. 271.

Sexual Cycle and Blood Picture.—The studies reported in this paper by Kokubo were made on three healthy unmarried women. In one of them the cycles were of normal length (from twenty-eight to twenty-nine days), whereas in the other two they were quite irregular. The blood specimens were withdrawn from the ear lobe. The tests were repeated at weekly intervals for a period of three months. The results of the tests are listed in tables. The author differentiates four different periods in the cycle: the premenstrual, the menstrual, the postmenstrual and the interval period. Pointing out the common features of the blood pictures of the three healthy women, he says that the erythrocyte count decreased and fell to the minimum in the menstrual period. Hemoglobin decreased in the same period. The platelet count fluctuated regularly in a way characteristic of each person through one whole sexual cycle. Arneth's

nuclear shift of neutrophils was almost unaffected by the sexual cycles. Pathologic granules showed an inclination to decrease in the menstrual period and were within normal limits. Though hemosedimentation showed generally a normal value through the sexual cycles, there was an inclination for it to decrease one or two weeks after menstruation. Thus sexual cycles of women seem to cause a regular fluctuation of the blood picture, though subject to individual fluctuation, through the whole cycle.

Bruxelles-Médical, Brussels

19: 619-647 (March 19) 1939

Clinical Instruction in Social Medicine. R. Sand.—p. 619.
Accessory Cutaneous Reactions of the Clinical Syndrome of Hyperfolliculinism. A. Desaux.—p. 622.
*Early Regional Edema as Symptom of Lymphogranuloma Venereum. J. May.—p. 628.

Edema in Venereal Lymphogranuloma.—The regional edema of the abdominal wall, thigh and inguinal region, to which May gives his attention in this report, can be detected readily by palpation (preferably without rubber gloves). It is not accompanied by coloration of the skin, and it is soft, that is, it does not pit on pressure with the finger. Its extension varies greatly; often it is limited to the abdominal wall. If this is the case, detection may be difficult. The author recommends pinching of the skin or making small pleats at the level of the umbilicus along a line which corresponds to the entrance of the umbilical canal. Along this line the edema is most readily detected. When the edema invades the thigh, it is localized along the femoral line. In case of localization in the surroundings of the penoscroto-inguinal angle, the regional edema is always perceptible with the eye as well as by touch. The appearance of this early edema has no connection with the edema which may develop following incorrect interventions on the lymphatic mass. It originates in changes of the lymphatic vessels, which in turn are caused by the virus of venereal lymphogranuloma. The duration and evolution of the regional edema vary. At the author's clinic this symptom is searched for because it confirms the existence of the venereal lymphogranuloma which has been demonstrated by the reaction of Frei. However, the regional edema is of especial value in cases in which the venereal lymphogranuloma is associated with other venereal disorders such as gonorrhea, chancroid, fusospirillosis, ulcerating granuloma of the pudenda and syphilis. The infection with venereal lymphogranuloma and gonorrhea may be simultaneous or the gonorrhea may appear first. In the latter cases the venereal lymphogranuloma may develop at the end of the third or fourth week, when the gonorrheal urethritis has already been ameliorated by antigonococcic treatment. At this time the author observed the development of the regional edema. In cases in which the infection with venereal lymphogranuloma and gonorrhea is simultaneous the patient may present the symptoms of both disorders, but in some instances of simultaneous infection the venereal lymphogranuloma is detected only by the Frei reaction. The author further cites a case of chancroid in which the regional edema made him think of association with venereal lymphogranuloma, and the Frei reaction corroborated this suspicion. In a previously reported case of regional edema the Frei reaction proved positive and fusospirillosis was detected. Regarding the possible concurrence of venereal lymphogranuloma with ulcerating granuloma of the pudenda, the author says that as yet he is unable to decide this because the latter disorder is rare in Uruguay; nevertheless cases have been observed which suggest such a concurrence. Taking up the association of syphilis and venereal lymphogranuloma, he points out that Chevalier and Bernard have reported such observations and he shows that in the concurrence of these two venereal disorders the regional edema is an especially valuable symptom.

Lyon Chirurgical, Paris

36: 1-128 (Jan.-Feb.) 1939

*External Pancreatic Secretion of Persons Having Undergone Gastrectomy. P. Santy, P. Mallet-Guy, M. Chambon and P. Folliet.—p. 9.
Spinofacial Anastomosis for Bilateral Traumatic Facial Paralysis: Late Results. H. Costantini and E. Curtillet.—p. 50.

External Pancreatic Secretion After Gastrectomy.—Santy and his associates point out that, in the course of regular control examinations of patients who had undergone gastrectomy for ulcer, they were surprised at the slowness and often the incompleteness with which the patients regained their weight. Diverse factors may be cited as possible explanations for this inadequate increase in weight. As regards the surgical technic, it is said that the majority of the patients had undergone an extensive gastrectomy. In some of the patients a faulty regimen can be held responsible for the fact that they failed to regain their normal weight, because for professional reasons many were unable to fractionate or multiply their meals, which is advisable for at least a certain number of months after the operation. However, there is a large number of cases in which neither of these factors can be held responsible for the persistent disturbance in assimilation. To throw more light on this problem the authors made studies on 128 patients in whom a gastrectomy had been performed more than six months and up to ten years previously. In a large number of these patients they verified roentgenologically the function of the gastric stump and of the gastrojejunal anastomosis, they determined the gastric acidity and finally, whenever it was possible, they studied the external pancreatic secretion. The latter factor is the one to which the authors give especial attention in this report. The methods employed in the study of the external pancreatic secretion were (1) gastrojejunal tubage, which permits the collection of the secretions of the duodenal papilla, (2) the stimulation of the pancreatic secretion by intrajejunal instillation of solutions of hydrochloric acid and (3) the measurement of the lipase activity of the pancreatic juice. The authors describe the results obtained with these tests in thirty-nine patients. Summarizing the results of the studies on the lipasic activity, they state that in fourteen of the patients the lipasic activity was within normal limits (35 to 55), eighteen had a weak lipasic activity (15 to 35), four had values between 10 and 15 and in the other three the results were practically nill. It was found that these values had no relation to the time that had elapsed since the operation, to the functional activity, to the gastric acidity or to the weight of the patient before and after the intervention. Thus the variations in the lipasic activity of the pancreatic juice do not seem to intervene directly and exclusively in the persistent emaciation of the patients having undergone gastrectomy. The authors think that factors like the rapidity of the gastric passage, the degree of anachlorhydria and the difficulties encountered by the patients in adhering to special modes of alimentation probably play a part in the emaciation that follows gastrectomy. But the disturbances in the humoral process regulating the pancreatic secretion plays doubtlessly a significant part. Attempting to explain the instability of the mechanism of eliciting the pancreatic secretion in gastrectomy patients, the authors say that it appears that an unknown factor disturbs the hormonal process which releases the secretion. The gastrectomy may introduce some perturbation in the conditions that are indispensable in the function of the pancreas. It is suggested that circulatory factors, particularly vasomotor mechanisms, which play a part in the pancreatic secretion, are damaged by gastrectomy.

Presse Médicale, Paris

47: 377-392 (March 11) 1939

*Indications for Adrenalectomy in Thrombo-Angiitis: Late Results in Three Cases. R. Leriche.—p. 377.
Conjoined Twins. P. Anokhine.—p. 379.

Adrenalectomy in Thrombo-Angiitis.—Leriche says that, instead of carefully studying the treatment of thrombo-angiitis in the different stages of its evolution, all sorts of theoretical arguments have been advanced to exclude adrenalectomy from the legitimate therapeutic attempts. He believes that this has been a mistake, for in his opinion adrenalectomy is the most efficacious of operations directed against arteritis in the cases in which it is indicated. In this paper he relates his experiences with adrenalectomy in carefully selected cases. One of his patients, a dentist, was adrenalectomized in March 1927 and was examined again more than eleven years after the operation. The detailed clinical history of this case indicates that adrenalectomy on the left side was done only after other therapeutic measures had failed. On the day after the operation the patient called attention to disappearance of the pains. The recovery from the operation was uneventful. About a year after the operation the patient stated that he was not troubled by claudication, that walking caused no pain and that he was able to work

eight hours a day. The patient was examined several times after this, the last time in May 1938, more than a year after the adrenalectomy. At that time the arterial status was still excellent. Another patient, for whom the author performed adrenalectomy in 1926, was examined again twelve years later and, as regards the arterial status, was completely cured. Information received from a third patient, who was subjected to adrenalectomy almost fourteen years before, revealed that he likewise had been free from complaints. In the last part of this report the author points out that in the course of twenty years he and his collaborators performed approximately 1,000 operations for various forms of arteritis. On the basis of the experiences he gained in the course of these years he discusses the indications for adrenalectomy, sympathectomy and arterioectomy.

Helvetica Medica Acta, Basel

6: 1-144 (Feb.) 1939. Partial Index.

Medicine and Problems of Demography. A. Labhardt.—p. 3.
Technic and Clinical Application of Planigraphy. W. Bronkhorst.—p. 64.
*Cardiac Disturbances in Diabetes Mellitus. R. Hegglin.—p. 89.
Respiratory Function of Blood in Erythremia (Vaquez-Osler's Disease). F. Munzer and P. Hersch.—p. 102.
Tumors Deriving from Craniopharyngeal Canal (Erdheim). R. Fritzsche.—p. 114.
Enterocystomas with Own Nervous Apparatus. C. M. Du Pan and G. Will.—p. 128.

Cardiac Disturbances in Diabetes Mellitus.—Hegglin investigated whether there are connections between diabetes mellitus and cardiac disturbances and what effects insulin exerts on the heart. His studies were made at the medical clinic of the University of Zurich. He found that the combination of diabetes mellitus and heart disease is comparatively frequent. The heart does not escape the general damage that is produced in the organism by the severe metabolic disturbance. To be sure, this applies chiefly to aged persons with diabetes. Whether heart disease and particularly coronary sclerosis develops also on the basis of juvenile diabetes, the author is unable to state. The administration of large doses of insulin to aged persons with diabetes results in impairment of the cardiac function. This does not imply that insulin is harmful also when given in small doses. Although in a few cases electrocardiographic changes were observed even after small doses, there never was a severe cardiac impairment, especially a cardiac infarct. In the cases in which cardiac infarct and diabetes concurred, no insulin treatment had preceded the development of the infarct. On the other hand, the large doses of insulin which are required for the treatment of diabetic coma may produce severe myocardial damage. For this reason aged persons with diabetes must be kept under close observation in order to avoid coma and its circulatory complications. By means of electrocardiographic studies it was possible to determine that a circulatory weakness during diabetic coma is chiefly due to a myocardial weakness, that is, it is not only of peripheral but also of cardiac origin. Consequently the therapy of the circulatory weakness must attempt to strengthen the heart by strophanthin and to counteract the peripheral insufficiency with the usual remedies. Moreover, it is important to avoid an additional myocardial impairment by insulin, the quantity of insulin should be just enough to counteract the acidotic disorder of the metabolism, but a hypoglycemia should be avoided.

Archivio Italiano di Anatomia, Bologna

9: 377-508 (Feb.) 1939. Partial Index.

Significance of Modifications of Thyroids in Presence of Tumors, Especially Cancer. G. Lelli.—p. 377.
*Atherosclerosis in Celiac Artery and Its Branches. E. Ferrari.—p. 424.

Atherosclerosis in Celiac Artery.—Ferrari discusses the pathogenic relations between vascular lesions of atherosclerosis and the local mechanical conditions of circulation. He made anatomic studies on the celiac artery and its branches (left gastric, hepatic and splenic) in fifty cases of atherosclerosis. He found that (1) the gastric artery is not involved by the disease and (2) the splenic artery is involved earlier and more acutely than the celiac and hepatic arteries. The main lesions are fibrosis of the media and degeneration up to atheroma of the intima. Intimal degeneration seems to be secondary to the medial lesions. Calcification of the media and tortuosity of the arteriosclerotic artery take place only in the splenic artery. Early in the development of the disease atherosclerosis involves only the peripheral segments of the splenic artery. Later on the condition progresses to the central segments of the splenic artery and to the celiac and hepatic arteries. In order of frequency the acuteness of the condition is first for the splenic then for the celiac and lastly for the hepatic artery. According to the author, the different behavior of the arteries for the development of the disease depends on anatomic and functional relations of the arteries with the given supplied territories. In pathologic conditions the increased resistance to circulation may result in the development of atherosclerosis if secondary factors, such as toxic, infectious, endocrine or constitutional, exist.

Brasil-Medico, Rio de Janeiro

53: 305-324 (Feb. 25) 1939. Partial Index.

*Sulfanilamide in Venereal Lymphogranuloma. D. Peryassu.—p. 309.

Sulfanilamide in Venereal Lymphogranuloma.—Peryassu states that the classic treatments (physical, chemical or surgical) of venereal lymphogranuloma sometimes control the disease but not always. The author resorted to the administration of sulfanilamide in a group of patients, the number not being specified by the author. All had a positive Frei test and the disease was in an advanced stage. Four cases are reported in detail. He found that a complete sulfanilamide treatment induces recovery. Incomplete treatments are followed by recurrences. The author established the following types of treatment: (1) treatment by sulfanilamide alone, (2) sulfanilamide and roentgen treatments and (3) sulfanilamide and iodine or antimony treatments. In all three types the sulfanilamide treatment consists in administration of six daily tablets of the drug (rubiazol) up to a total of 180 tablets for each series. The entire treatment consists of two or three series with intervals of fifteen days of rest between the series, when no drugs of any kind were given. Treatment with sulfanilamide alone is indicated early in the development of venereal lymphogranuloma and before the appearance of fistula. The roentgen treatment consists in local roentgen irradiations, with the technic commonly used for ganglion roentgen therapy, in the course of the sulfanilamide treatment, the number of irradiations being decided by the evolution of the disease. It is indicated in advanced forms of venereal lymphogranuloma with the presence of many large fluctuating or nonfluctuating ganglions but no fistula. If fistulas exist the treatment consists in the administration of iodine or antimony preparations at regular intervals with the sulfanilamide treatment, namely during the fifteen days of rest between the sulfanilamide treatments. Sulfanilamide is well tolerated by the patients. In all cases the symptoms are relieved early in the course of the treatment. Reduction of the size of the ganglions up to complete disappearance and healing of the fistula take place as the treatment advances.

Archiv für Gynakologie, Berlin

168: 351-544 (Feb. 24) 1939. Partial Index.

Elimination of Porphyrin in Urine During Hyperemesis Gravidarum, Eclampsia and Their Preliminary Stages. H. Mittelstrass.—p. 351.
Histologic Examination of Douglas's Punctates and Their Significance for Tumor Diagnosis. K. Schmidt.—p. 359.
Apparent Pregnancy. Evaluation of Positive Aschheim-Zondek Reactions Without Demonstrable Pregnancy. H. Limburg.—p. 368.
Occurrence of Fat Tissues in Uterine Tumors. H. Greve.—p. 380.
Results of Clinical Management of Delivery in Cases of Pelvic Presentation. J. Erbsloh.—p. 392.
Aspects of Vernix Caseosa. R. Schmid.—p. 445.
*Metastases of Carcinoma in Ovary with Especial Consideration of So-Called Krukenberg Tumors. W. Uhlmann.—p. 468.

Carcinoma Metastases in Ovary: Krukenberg Tumor.—Uhlmann says that opinions are still divided regarding the nature and pathogenesis of Krukenberg tumors of the ovaries. Krukenberg considered them as primary ovarian tumors which differed from other neoplasms of the ovary by their peculiar histologic structure. The most characteristic feature of the microscopic picture of these tumors is the "signet-ring" cells, in which the nucleus is placed far to the side, as a result of the mucous transformation of the protoplasm of the epithelial cells. These cells give a positive mucicarmine reaction. Moreover, there is a considerable proliferation of the ovarian connective tissue which simulates the aspects of a fibrosarcoma.

and, within this tissue, the signet-ring cells appear either isolated or in groups. Krukenberg's opinion that these tumors were of a primary nature was accepted by a number of investigators, but today many observers believe that Krukenberg's tumors represent metastases of primary tumors of the intestinal tract. In this paper Uhlmann presents a statistical review of fifty-two cases of ovarian carcinoma, which were examined at the pathologic institute of the University of Erlangen. In twenty-two of the cases the ovarian tumors were definitely of the Krukenberg type. In eleven other cases the tumors were probably also of this type, although the characteristic formation of mucus was absent. Among the twenty-two cases in which the ovarian tumors were definitely of the Krukenberg type there were fifteen in which the Krukenberg tumors represented metastases of a primary tumor in the gastrointestinal tract. However, a primary carcinoma of the gallbladder was detected in none of these cases. Of the remaining seven cases, only one can be designated as a primary tumor on the basis of postmortem studies. In the other six cases clarification was impossible, because no postmortem examination was made. In six cases the appearance of the Krukenberg tumors was preceded by gastric resection on account of carcinoma of the stomach. In five instances the primary tumor was detected at the time of operation. The average age of all women with ovarian carcinoma was 46.7 years, that of those with Krukenberg tumors 45.2 years. Most of the women were of the age group between 41 and 50, but there were also some between the ages of 21 and 30. Signs of masculation were observed in only one of the women with Krukenberg tumors. In the last part of his report the author relates a case that he observed recently. This case is noteworthy because the tumor seems to be of a primary nature. Thus, of a total number of twenty-three cases of Krukenberg tumor, two may be regarded as having developed in the ovary as primary tumors, a possibility that is doubted by some investigators.

Deutsche medizinische Wochenschrift, Leipzig

65: 281-320 (Feb. 24) 1939. Partial Index

*Medical Problems in Substratosphere. H. Strughold.—p. 281.
Change in Diet as Therapeutic Factor. W. von Drigalski.—p. 285.
Symptomatic Sprue in Gastrocolic Fistula. W. Mohr.—p. 287.
Hypophysis and Carcinoma. Wilhelmine Rodewald.—p. 290.

Medical Problems in Substratosphere. — Strughold describes the effect of altitude during an ascent to 8,000 or 9,000 meters. He bases his report on the observations he made on his collaborators, with the aid of reflex physiology, pointing out that the tendon reflexes, for instance the patellar reflex, are an excellent indicator of the physiologic changes in the organism which take place under the influence of the high altitude. By constantly recording the reflexes during an ascent, it is found that up to an altitude of 2,500 meters the reflexes remain unchanged. After that they become weakened, but at an altitude of 5,000 meters their reduction changes into an intensification. This hyperreflexia increases wavelike with higher altitudes and finally leads to the so-called altitude convulsions. The hyporeflexia is a compensatory reaction to the beginning oxygen deficiency, for it sets in simultaneously with the compensatory mechanisms of the circulation and of the respiration. Its onset signifies the "reaction threshold." The intensification of the reflexes indicates that the compensatory measures become insufficient and that now a real oxygen hunger exists. Thus the onset of the intensification of the reflexes may be designated as the "disturbance threshold." When the convulsions begin, even the central regulation of the reflexes is impaired and this stage of the high altitude action is designated as the "critical threshold," because at this point life is threatened and oxygen must be given at once. By the administration of oxygen the convulsions can be overcome. In experiments on animals it has been demonstrated that there is a further stage in high altitude action, the so-called lethal threshold, where the convulsions change into paralysis. The author admits that in practice the problem of high altitude flying seems to have been solved by supplying oxygen when certain altitudes have been reached. However, under certain conditions it may become necessary for the pilot to separate himself from the oxygen apparatus and in this connection the question of the "time reserve" arises, that is, the length of time that elapses between the cessation of oxygen respiration and the "disturbance threshold." Studies on this "time reserve" revealed to the author that at altitudes of 8,000 or 9,000 meters this reserve of time extends over only a few minutes if the person is at rest; it is reduced to one half if the person is exerting energy in work. In many instances, however, the time reserve must be estimated in seconds rather than in minutes and the author thinks that in such emergencies the pilot should at once descend from the substratospheric altitudes toward the physiologic atmosphere, that is to 3,000 or 4,000 meters.

Medizinische Klinik, Berlin

35: 301-336 (March 10) 1939. Partial Index

Urgent Tracheotomy. M. Ernst.—p. 301.
Treatment of Open Injuries of Knee Joint. Uebermuth.—p. 307.
*Congenital Clubfoot. K. Gaugele.—p. 310.
Treatment of Varicose Syndrome. J. Wirth.—p. 312.
Gonorrhea in Man in Light of New Chemotherapy. A. Glingar.—p. 315.

Congenital Clubfoot.—Following brief remarks about the etiology and the various forms of congenital clubfoot, Gaugele gives his attention to the therapy. He first outlines the treatment that was in use from about the beginning of the century to the middle twenties. It generally consisted in exercise and massage during the first six months and after that in redressement often with plaster of paris casts; later orthopedic appliances and orthopedic shoes were employed. This treatment often extended over many years and the results were not always satisfactory. More recently, demands were heard for an early treatment. The method of early treatment with which the author obtained favorable results for the last ten years was first employed by Spitzy. The author begins the treatment on the seventh or eighth day, at the latest on the fourteenth day after birth. It consists in applying strips of adhesive tape that are from 6 to 8 cm. wide. In case of the right foot, the bandage is begun on the external edge of the dorsum of the foot, goes toward the internal edge, over the sole toward the outer edge, then upward toward the thigh (the leg being bent in the knee), around the thigh and ends at the internal side of the leg. An illustration clarifies the application of the bandage. The correct adjustment of this bandage requires a certain amount of practice. During the first eight days the foot must be inspected frequently by a nurse and at least twice a day by the physician. At least during the first three weeks of treatment the infant must remain in the hospital; after that the treatment may be ambulatory. The results are excellent. After from six to eight weeks of treatment the foot is usually normal. After that the child wears braces during the greatest part of the day and night, but during the day they are occasionally removed and exercises are made by the mother. In difficult cases the wearing of braces may have to be alternated with the application of adhesive bandages. The author deplores that not all cases of congenital clubfoot are subjected to this early treatment and that consequently interventions may be necessary on older children and even on adults. He recommends an operation which combines tendon transplantation with wedge osteotomy from the lateral part of the foot.

Münchener medizinische Wochenschrift, Munich

86: 241-280 (Feb. 17) 1939. Partial Index

Acute Yellow Atrophy of Liver and Hepatic Cirrhosis. P. Huebschmann.—p. 241.
Total Thyroidectomy in Patients with Cardiac and Circulatory Disease. N. von Jagić and O. von Zimmermann.—p. 245.
*Hematologic Diagnosis of Hodgkin's Disease. F. Velasco Montes.—p. 255.
Secondary Necrosis of Head of Femur Following Traumatic Dislocation of Hip Joint in Boy Aged 14. H.-H. Mutschler.—p. 258.

Hematologic Diagnosis of Hodgkin's Disease.—Velasco Montes points out that, in view of the clinical polymorphism of Hodgkin's disease, its diagnosis often requires special examinations. The blood picture is extremely multiform not only as regards the different cases but also in the same patient. Numerous investigators attempt to diagnose Hodgkin's disease by means of sternal puncture, but this involves considerable difficulties. Moreover, it has been found that the bone marrow is involved in only about half of the cases of Hodgkin's disease.

At any rate the author thinks that sternal puncture will never assume the significance of the adenopuncture in the diagnosis of Hodgkin's disease. He regards the glandular puncture as the method of choice and he employs it regularly in doubtful cases. The diseased glands are usually characterized by cellular polymorphism or by the presence of a large number of cells of an endothelioid nature, which seem to be related to, or perhaps are preliminary stages of, Sternberg's cells. On the basis of the predominance of certain types of cells in the adenograms, for instance, of neutrophils, eosinophils or reticular cells, classifications have been attempted. However, the author thinks that such classifications are arbitrary and that the various types are merely variants of the fundamental polymorphism. To be sure, a certain amount of experience is necessary to recognize among the large number of cells those which are decisive for the diagnosis, and the author suggests that this is probably the reason why this valuable method of examination is used so little by others than experienced hematologists. An additional advantage of adenopuncture is that patients never object to it as they do to exploratory excision. Moreover, the glandular puncture can be repeated whenever it seems necessary, for instance, to evaluate the efficacy of a treatment; it does not involve the danger of a flare-up or of reactivation of the disease, as is sometimes the case in exploratory excision. After the glands have been treated with roentgen rays, the interpretation of their cellular aspects is extremely difficult. This applies to the adenogram as well as to the exploratory excision. To be sure, there are also cases in which even in the absence of roentgen irradiation the diagnosis cannot be made on the basis of glandular examination. Cases have been described in which only splenic puncture made the diagnosis possible. Occasionally, access to the diseased glands is difficult or their severe sclerosis makes an adenopuncture impossible. Moreover, purely splenic forms of Hodgkin's disease have been observed. The splenogram of Hodgkin's disease discloses Sternberg's cells.

Wiener klinische Wochenschrift, Vienna

52: 129-152 (Feb. 10) *1939*. Partial Index

Connective Tissue Structure and Elasticity. H. Homma.—p. 139.
*Differential Diagnostic Difficulties in Pulmonary Actinomycosis. W. Breu and H. Seyfried.—p. 142.

Differential Diagnostic Difficulties in Actinomycosis.—According to Breu and Seyfried the diagnosis of pulmonary actinomycosis is usually made late. Whereas other pulmonary disorders are characterized by signs that can be detected by percussion, auscultation and roentgenography, these methods of examination fail in cases of actinomycosis. The aspects of actinomycosis of the lung differ greatly. Moreover, the histologic and bacteriologic examinations and the animal experiments fail occasionally so that their negative outcome does not definitely exclude actinomycosis. Even if Actinomyces is detected at the site of the disease process, this is not necessarily a proof of an actinomycosis; this was emphasized by Wassmund in actinomycosis of the jaw. The authors describe a case in which the diagnosis proved extremely difficult and was finally decided in the course of the necropsy. The patient presented some aspects of diabetic coma; cerebral symptoms suggested a brain tumor, and these cerebral symptoms together with a shrinking process in the right lung finally led to the diagnosis of bronchiectasis with metastatic cerebral abscesses. This diagnosis was at first corroborated by the necropsy, but several days later the microscopic examination disclosed Actinomyces in the walls of the bronchiectasis and in the pus of the cerebral pus. When this was discovered, some characteristics of pulmonary actinomycosis became evident in the clinical aspects. The described case as well as other reports exhibit severe shrinkage of the thorax and the pleura, distortion of the heart and discrepancies between the severe changes and the apparently benign character of the process. The localization of the process in the right upper lobe also could have been utilized in the differential diagnosis. Metastases in the brain likewise are no exception in actinomycosis, for twenty-one such cases have been collected from the literature. The coarse rales over the lungs seem significant, because the authors observed this symptom in all of their cases of pulmonary actinomycosis. Following the review of three other cases, the authors discuss the treatment. They think that besides the various forms of serotherapy (convalescent serum, vaccines and so on) the combination of iodine and roentgen therapy is most common and most effective.

Zeitschrift für urologische Chirurgie, Berlin

44: 401-499 (Feb. 15) *1939*

Progress in Recognition of Renal Disorders Curable by Surgery and Differentiation from Functionally Conditioned Urologic Disorders. K. Werwath.—p. 401.
Nontuberculous Strictures of Ureter. E. Dózsa.—p. 432.
Congenital Stenoses of Urethra. K. R. Busch.—p. 460.
*Treatment of Uremia Developing After Surgical Disease of Kidney with Especial Consideration of Hepatic Function. A. Babics.—p. 465.
Elimination Urography in Light of Gynecology. G. Kulitzy and J. Molnár.—p. 476.
New Surgical Method for Cure of Phimosis. K. Haszler.—p. 490.

Hepatic Function in Uremia.—Babics shows that true uremia is not a primary disorder but a syndrome resulting from intoxication of the organism and that consequently its treatment is similar to that of intoxications. Three types of treatment are possible: one restricts the foods, the final products of which exert toxic action; a second method aims at the prompt removal of the toxic substances from the organism, and the third method aims at the detoxication of the poisonous substances by chemical decomposition or neutralization. The condition of the kidney plays an important part in the prognosis of uremia. Moreover, the prognosis must take into consideration that a surgical intervention, even one outside the renal apparatus, taxes the whole organism and especially the liver. It was determined at the author's clinic that during the severe stages of uremia not only the kidney is impaired but also the hepatic function. This was demonstrated by means of the bengal rose test of Fiessinger and Walter. This test of the hepatic function has the advantage that it is entirely independent of renal activity. Since it had been observed on patients with hepatic disorders that the subcutaneous or intramuscular injection of a lipase preparation produced great improvement, it was decided to administer the lipase preparation also in patients with uremia. The author reports the clinical histories of several patients in whom these injections exerted a beneficial effect. Summarizing his observations he says that the liver plays an important part in the pathogenesis of uremia. Some cases of uremia can be successfully counteracted by improving the hepatic function; this is especially possible in those cases in which the xanthoprotein reaction indicates that the products of decomposition that are toxic for the liver have not yet reached extremely high values. If it is considered that a large group of urologic disorders, hypertrophy of the prostate, for instance, concerns aged persons, in whom defective hepatic function is as such quite frequent, it seems advisable to stimulate the hepatic function even in the absence of signs of uremia, whenever it is likely that an instrumental or surgical intervention will place an added burden on the organism and especially the renal activity. The author stresses that the lipase preparation which he used for the stimulation of the hepatic activity produced no undesirable effects.

Sovetskiy Vrachebnyy Zhurnal, Leningrad

961-1200 (Supplement) 1939. Partial Index

*Intestinal Tuberculosis. A. Ya. Tsigelnik.—p. 977.
Electrosurgery in Oncology. S. A. Kholdin.—p. 999.
Indications for Surgical Therapy in Cancer of Neck of Uterus. A. T. Serebrov.—p. 1009.
Early Diagnosis and Prophylaxis of Pigmented Neoplasms of Skin. A. Shanin.—p. 1013.
Cardiac Asthma. B. A. Zhitnikov.—p. 1026.
*Comparative Value of Demyanovich's Therapy of Scabies and Its Modification. V. N. Levitan.—p. 1055.

Intestinal Tuberculosis.—Systematic x-ray examination together with consideration of the complaints of the patients and the blood picture make possible, according to Tsigelnik, early diagnosis of intestinal tuberculosis. This complication may develop as early as one year after the onset of symptoms of pulmonary tuberculosis. While the usual mode of infection is the swallowing of the tubercle bacilli, the hematogenous mode of infection may occur. In the author's material it

amounted to 9.3 per cent. Symptoms may be entirely absent, as was the case in six of fifty cases later examined post mortem by the author. The incidence of intestinal tuberculosis is more to be expected in cases of a disseminated process in the lungs with cavitation and bacilli in the sputum. Suggestive symptoms are pain and tenderness, particularly when in the ileocecal region, nausea, loss of appetite, vomiting and constipation alternating with diarrhea. Occult blood in the feces was found in 18 per cent of the cases. The author stresses the importance of roentgenologic study with the aid of a contrast meal administered by mouth and by rectum. In his material of 150 cases it was positive in 80 per cent. Characteristic observations are the presence of horizontal levels in the small intestine, due to the loss of tone of the large intestine which results from the action of tuberculous toxins on the neuromuscular elements of the latter, and spastic states of the cecum and the ascending colon. Next to roentgenologic observations, the author stresses the development of hypochromic anemia. The hypochromia is the result of toxemia rather than of occult bleeding. Of 150 patients 120 had a hemoglobin below 60 per cent, while only twenty-seven had blood in the feces. The author feels that intestinal tuberculosis is not necessarily a hopeless condition. He sees in vitamin C an important addition to the dietetic treatment and is enthusiastic about the pneumoperitoneum therapy. Of fifty patients subjected to this treatment thirty-two obtained a remission which lasted twelve months. The results, he believes, are due to the antispastic effect of gas on the neuromuscular elements of the diseased intestine. The prophylaxis of intestinal tuberculosis consists in the correction of habitual constipation in cases of pulmonary tuberculosis, of instructing patients not to swallow their sputum, of collapse therapy in order to render their sputum bacillus free, and the roentgenologic study of the intestinal tract in cases of pulmonary tuberculosis.

Demyanovich's Therapy of Scabies.—According to Levitan, Demyanovich in 1933 proposed the following rapid method of treating scabies: The patient rubs a 40 per cent solution of thiosulfate into his skin for fifteen minutes. Ten minutes later the skin is covered with salt crystals in order to dry it. This is followed by another period of a fifteen minute rub with a 5 per cent solution of hydrochloric acid. The chemical reaction resulting between the hydrochloric acid and the thiosulfate releases a number of acaricidic substances such as sulfurous acid, sulfur dioxide and sulfur, which in their nascent state are fatal to the itch mite. This reaction is accompanied by the freeing of sulfurous gas characterized by an unpleasant odor and irritating effect on the upper respiratory passages of the patients and the attending personnel. The procedure is repeated fifteen minutes later, the complete treatment occupying about one hour and forty-five minutes. On the basis of 10,017 cases of scabies in which this method of treatment was used at the dermatologic clinic of the Leningrad Pediatric Institute, the author concludes that, while the treatment is simple, clean and economical, it does not cure all of the patients in one treatment. In his material this was accomplished in 4,189 cases (41.2 per cent). Longstanding cases and those complicated with various dermatoses required from two to five treatments at intervals of from six to seven days. The modification of the method consisted of a preliminary shower bath with green soap and brush, and disinfection of the patients' clothes. The modification resulted in doubling the number of cures after one treatment in the next 4,000 patients.

Maandschrift voor Kindergeneeskunde, Leyden

8: 173-210 (Feb.) 1939

"Sclerodermia en Bandes" and Parathyroidectomy. W. Naessens.—p. 173.
Infectious Icterus Followed by Hepatic Cirrhosis. S. C. Meyer.—p. 179.
Dermatorrhexis with Dermatochalasis and Arthrochalasis (Danlos-Ehlers Syndrome). J. van Aardenne.—p. 187.
*Acute Anterior Poliomyelitis: Survey Over Cases Treated in Leyden in 1938. H. Broekema.—p. 193.
Symptoms of Conversion After Psychic Trauma: Case with Rapid Recovery. A. Thierry.—p. 207.

Acute Anterior Poliomyelitis.—Broekema surveys more than seventy cases of poliomyelitis which were treated at the children's clinic of the university of Leyden in the course of the epidemic of 1938. Convulsions developed in only two of the seventy cases. The dromedary type of fever curve was observed in 10 per cent of the cases. Four of the patients had had certain contact with other patients who had poliomyelitis. Two children were admitted on the basis of a family history of poliomyelitis, that is, a brother or sister had poliomyelitis; both of these patients had a nonparalytic form of poliomyelitis. The fact that a large number of patients had family members at home ill with disorders resembling poliomyelitis suggests a large number of abortive cases. Of the seventy hospitalized patients, thirteen remained free from paralytic symptoms. Of the fifty-seven with paralysis, nine succumbed several hours or days after hospitalization. All except one of the children, who died, were 3 years or less of age and in all of them the respiratory apparatus was involved. The therapeutic methods employed were convalescent serum, the antipoliomyelitis serum of Pettit, blood transfusion, methenamine and intralumbar injection of vitamin B_1. A table, which lists eighteen cases that were treated with vitamin B_1 and fourteen that were treated without this vitamin, indicates that in the first group the therapeutic results were better than in the second group.

Acta Tuberculosea Scandinavica, Copenhagen

13: 1-192 (Nos. 1-2) 1939

Mortality Observed Among Cases of Pulmonary Tuberculosis. Julie E. Backer.—p. 1.
*Role of Vitamin C in Pathogenesis of Tuberculosis in Guinea Pigs: IV. Effect of l-Ascorbic Acid on Tuberculin Reaction in Tuberculous Animals. K. E. Birkhaug.—p. 45.
*Id.: V. Degree of Tuberculosis in Tuberculous Animals Treated with l-Ascorbic Acid and in Controls. K. E. Birkhaug.—p. 52.
Recent Studies Bearing on Tuberculous Infection and Reinfection. H. C. Sweany.—p. 67.
Dogs and Cats as Source of Tuberculous Infection in Human Subjects. A. Hjärre.—p. 103.
Transmission of Tuberculosis Between Man and Certain Domestic Animals, Especially Dogs and Cats. C. W. Herlitz.—p. 125.
Allergy and Immunity (Iathergy) in Experimental Tuberculosis: III. Degree of Tuberculosis in BCG-Immunized Guinea Pigs Reinfected in the Allergic and Desensitized (Iathergic) State. K. Birkhaug.—p. 163.

Vitamin C and Tuberculin Reaction.—Birkhaug reports the effect of ascorbic acid on the intracutaneous tuberculin reaction in tuberculous guinea pigs. Following the subcutaneous inoculation with approximately 538 viable bovine tubercle bacilli, twenty-four guinea pigs were maintained on a normal diet, while half of the group received in addition 10 mg. of ascorbic acid by mouth daily until all the animals were killed sixty-four days after inoculation. The daily titration of the vitamin C excreted in the urine informed the author that the animals treated with ascorbic acid were continuously kept in a state of hypervitaminosis C and that the controls developed a progressive hypovitaminosis C. Subsequent postmortem titration of the vitamin C content of the adrenals confirmed the direct correlation with the urinary content. The author describes the outcome of the tuberculin reactions on the twenty-fourth, fifty-first and sixty-second day after inoculation. He reaches the conclusion that the daily oral administration of crystalline vitamin C significantly inhibits the tuberculin reaction in tuberculous guinea pigs. The degree of inhibition of the tuberculin reaction is definitely correlated with the urinary excretion and adrenal content of vitamin C in the tuberculous animal.

Tuberculosis in Animals Treated with Ascorbic Acid.—Birkhaug discusses the tuberculous lesions that were observed in tuberculous animals that were treated with ascorbic acid and in the controls that did not receive ascorbic acid. He found that C hypervitaminosis, induced by the daily oral administration of 10 mg. of l-ascorbic acid, caused a significant increase in body weight and reduction in the tuberculous lesions of guinea pigs injected subcutaneously with approximately 500 viable bovine tubercle bacilli and killed sixty-four days after inoculation. Microscopic examination revealed less caseonecrotic lesions, more collagenous tissue within and around the tuberculous centers and less dispersion of tubercle bacilli in animals with C hypervitaminosis than was observed in the controls.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, No. 23 — COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS — JUNE 10, 1939

THE SURGICAL RISK IN PATIENTS WITH CORONARY DISEASE

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The association of coronary disease and surgical conditions presents a problem of great magnitude to both the clinician and the surgeon. It is generally conceded that the patient with coronary disease faces operative procedures with hazards considerably greater than the comparable patient with a normal heart. In fact, the premise may be stated that even the individual with coronary disease who is not confronted with the necessity of surgical intervention constantly lives under the hazards of his disease, and the reality of these hazards becomes evident when one recalls to mind the frequent occurrence of sudden death of such patients.

There are, however, numerous instances when patients with coronary disease harbor coexisting diseases which demand surgical procedures and in which life cannot be extended without operation. Notable examples are malignant diseases in which clinical evidence supports the fact that there is a reasonable chance of cure by operation and certain acute inflammatory diseases, such as appendicitis, suppurative or gangrenous cholecystitis, perforating lesions of the viscera, and strangulated hernia. Likewise in certain cases of cholelithiasis, especially those in which severe attacks of colic occur or in which chronic dyspepsia interferes with proper nutrition, obstruction of the common bile duct, obstructing renal calculi, obstructing enlargement of the prostate gland, ovarian cyst with torsion of the pedicle, intestinal obstruction and hyperthyroidism, operative procedures are undertaken with complete justification. Other conditions than those mentioned may at times indicate surgical intervention.

To a considerable degree, the results of surgical intervention under these unfavorable conditions are dependent on the expertness and finesse exercised in the management of the patient by all concerned. This includes not only the surgeon but likewise the anesthetist and the clinician. The time element is of extreme importance, for the shorter the time of operation and anesthesia, the less marked is the added load imposed on the cardiovascular system. Likewise, gentleness in the manipulation of organs and tissues lessens the dangers of surgical shock, which in itself may tilt the balance away from recovery in these patients. Of paramount importance is the surgeon's determination to limit the operation to the procedure planned in advance and to avoid undertaking additional operative steps that might be indicated in the patient without heart disease. Needless to say, surgical procedures not of urgent importance have no place in this discussion and are to be condemned as unwise and extremely hazardous.

In the appraisal of the case of coronary disease in which surgical intervention is contemplated, the physician must not be unaware of the role that postoperative complications may play in the final outcome. Such complications as pneumonia, peritonitis and parotitis, which in themselves may not necessarily prove fatal, may occur with sufficient severity to be responsible for failure of the heart.

This study was undertaken to derive definite quantitative values regarding the cardiac mortality under the circumstances mentioned. Our material comprises 257 cases of severe coronary disease, representing coronary atherosclerosis with the anginal syndrome and cases presenting healed cardiac infarcts with or without recurrent angina. Minor operative procedures are not included.

As one would anticipate, the majority of the patients were found to be grouped in the later years of life. One hundred and forty-eight patients (57.6 per cent) were 60 years of age or older. The youngest patient was 35, the oldest 83 and the average age of the entire group was 60.3 years. There were 186 men and seventy-one women, a ratio of 2.6:1. The predominance of men corresponds to the increased prevalence of coronary disease in that sex.

Approximately half (50.4 per cent) of the cases exhibited electrocardiograms revealing important abnormalities, which included significant T wave negativity, incomplete and complete bundle branch block, complete heart block and auricular fibrillation. Previous coronary thrombosis with healed cardiac infarction had occurred in thirty-two cases (12.4 per cent). Well marked hypertension was noted in 100 cases (38.9 per cent).

On the premise already established that the cases under discussion were examples of perfectly justified surgical intervention, a presentation of the operative procedures included in this study is of importance.

OPERATIONS

Operations on the Gallbladder and Biliary Passages.—There were forty-seven patients in this group, and in each instance a surgical procedure was deemed absolutely necessary in order to prolong the patient's life.

From the Section on Cardiology, the Mayo Clinic.

There were twenty-seven men and twenty women. The youngest patient was 40 and the oldest 75, while the average age of the group was 53.6 years.

In the appraisal of these patients as well as those in the subsequent groups it is important to bear in mind the fact that they are largely in the later periods of life. It is well recognized that even though no associated serious disease exists they comprise a group wherein the risk of surgical operation tends to be greater than for identical procedures in younger patients.

Cholecystectomy was performed in forty-three cases, eight of them requiring additional procedures. In three cases choledocholithotomy was necessary and in four appendectomy was performed. Two cardiac deaths occurred while the patients were still in the hospital, both resulting from congestive heart failure. They represented marked examples of obliterative coronary atherosclerosis with the anginal syndrome in cases in which severe recurrent biliary colics associated with cholelithiasis made surgical intervention imperative. The myocardium of both patients showed marked myofibrosis.

Among the remaining patients were two on whom cholecystostomy was performed, one on whom choledocholithotomy was carried out for obstructive jaundice and whose gallbladder had been removed previously elsewhere and one on whom a palliative cholecystogastrostomy was made because of carcinoma of the head of the pancreas. There were no cardiac deaths among these patients.

TABLE 1.—*The Cardiac Mortality in 257 Cases of Surgical Operation on Patients with Severe Coronary Disease* *

No. of Patients	Average Age, Years	Sex		Average Duration of Anginal Syndrome, Years	Healed Cardiac Infarcts	Hypertension	Cardiac Deaths	
		Males	Females				Number	Per Cent
257	60.3	186	71	3.1	32	100	11	4.3

* The surgical procedures are detailed in the text.

Operations on the Stomach and Duodenum.—This group comprised eighteen patients on whom operation was performed because of the presence of gastric and duodenal lesions. There were fifteen men and three women. The youngest patient was 44, the oldest was 73 and the average age for the group was 61.

Partial gastrectomy was performed in eleven cases, and one cardiac death occurred, of a man aged 60 with a chronic perforating ulcer of the duodenum with partial obstruction, in whom coronary thrombosis developed with acute cardiac infarction three days after operation. He had suffered from the anginal syndrome for ten years and the risk of operation was well appreciated by the patient and all concerned in his management. The coronary arteries were markedly atherosclerotic with partial obliteration of their lumens.

In five cases posterior gastro-enterostomy was done, in one case an anterior gastro-enterostomy and enteroanastomosis, and in one case a gastroduodenostomy. No cardiac deaths occurred among these patients.

Operations on the Intestine and Rectum.—There were only thirteen patients in this group. Nine were men and four were women. The youngest patient was 50, the oldest was 73, and the average age for the group was 62. In six cases resection of portions of the colon or rectum was carried out for carcinoma. Colostomy was performed in two cases, ileocolostomy in three, fistulectomy in one and fulguration of a carcinoma of the rectum in one.

One cardiac death occurred, of a man aged 62 who underwent a posterior resection of the rectum for carcinoma. He died suddenly three days after operation, but no thrombosis of the coronary arteries was demonstrated at postmortem examination and no other cause for sudden death was demonstrated. The anginal syndrome had been present for four years.

Urologic Operations Excluding Transurethral Prostatic Resection.—This group comprised a miscellaneous assortment of surgical operations. There were twenty-six patients, of whom twenty-three were men and three were women. The youngest patient was 40, the oldest was 78 and the average age was 61.8 years.

The operations performed included nephrectomy in two cases, nephrostomy in one, suprapubic cystostomy in six, pelviolithotomy in four, resection of the urinary bladder in two, suprapubic prostatectomy in six, transurethral removal of bladder tumor in four and orchidectomy in one.

One death resulted from cardiac causes, which occurred in a man aged 70 on whom suprapubic cystostomy was performed. He died three days after operation from coronary thrombosis, and postmortem examination verified the clinical diagnosis of an acute infarct of the left ventricle. The anginal syndrome had occurred over a period of two years.

Transurethral Prostatic Resection.—There were sixty-three patients recorded in this group. The youngest patient was 55, the oldest was 83 and the average age of the group was 67.8 years. No cardiac deaths occurred among these patients.

Operations on the Breast.—Ten patients comprised this group. The sex incidence was equal. This unusual approximation of sex incidence was occasioned by the fact that five elderly men presented tumors of the breast which clinically suggested the possibility of carcinoma. Again, the predominance of coronary disease among men tends to upset the normal sex incidence of tumors of the breast. The youngest patient was 50, the oldest was 73 and the average age 65 years. In four cases radical amputation of a breast was performed, while in six cases simple amputation of a breast was carried out. No cardiac deaths occurred.

Gynecologic Operations.—There were twelve patients recorded in this group. The youngest patient was 35, the oldest was 66 and the average age of the patients 52.7 years. The 35 year old patient had marked hypertension and the anginal syndrome had been present for ten months.

The operations performed were total abdominal hysterectomy in six cases, subtotal abdominal hysterectomy in one, vaginectomy in one, vulvectomy in two and an interposition operation and perineorrhaphy for marked uterine prolapse in two. There were no cardiac deaths.

Thyroidectomy.—Thyroidectomy was performed in forty-two cases for either exophthalmic goiter, hyperfunctioning adenomatous goiter or substernal adenomatous goiter without hyperthyroidism. There were twenty-three men and nineteen women. The youngest patient was 46, the oldest was 76 and the average age

for the group was 58.7 years. Three patients died from cardiac causes and in all three death resulted from coronary thrombosis.

It has long been a recognized fact that patients with coronary atherosclerosis, especially those with the anginal syndrome, respond badly to the presence of hyperthyroidism. The expectation of life in cases not coming to operation is extremely short.

Miscellaneous Abdominal Operations.—There was a small group of eight patients on whom various abdominal operations were performed which could not be recorded in the previous classification. There were seven men and one woman. The range of age varied from 49 to 74, the average being 59.

The operations included appendectomy in four cases, repair of diaphragmatic hernia in one, exploration of abdominal carcinomatosis in two and exploration for abdominal sinus in one. One cardiac death occurred, of a man aged 52 in whom repair of a diaphragmatic hernia was performed. He had suffered from the anginal syndrome for five years and died two days after operation from coronary thrombosis.

Miscellaneous Operations.—This group of eighteen cases represented a miscellaneous assortment of surgical procedures. There were fourteen men and four women. The youngest patient was 37, the oldest 72 and the average age for the group was 54.5 years.

The operations were amputation of a leg in two cases, sympathetic nerve resections in five, tracheotomy and diathermy of the vocal cord for epithelioma in two, laryngectomy in one, diathermy and removal of a carcinoma of the tongue in one, removal of a pituitary tumor in one, radical mastoidectomy in one, excision of a parotid tumor in two, herniorrhaphy in two and a two stage excision of a pharyngo-esophageal diverticulum in one.

Two cardiac deaths occurred, both in patients with severe recurrent angina pectoris in whom relief was sought through the interruption of nerve paths. In the one case posterior nerve resection was carried out and in the other bilateral cervicothoracic nerve section. The first patient died the day of operation from coronary thrombosis and the other died suddenly the same day without thrombotic occlusion.

COMMENT

In order to avoid misunderstanding regarding the type of case chosen for this study we wish to state clearly that the only basis for inclusion was the severity of the coronary disease as determined by its clinical expression. Many instances of less severe coronary atherosclerosis were excluded as not representing surgical hazards of significance and therefore would only be misleading in the final analysis. It must, however, be remembered that not all patients with severe coronary disease associated with surgical conditions observed at the Mayo Clinic were subjected to operation, although in extreme emergencies some were accepted. Such cases comprise recent coronary thrombosis, status anginosus, congestive heart failure, Stokes-Adams seizures and episodes of nocturnal dyspnea or "cardiac asthma."

In this investigation only eleven (4.3 per cent) cardiac deaths occurred (table 1). A careful review of these cases is important, and the facts derived from this analysis are recorded in table 2.

It is desirable at this point to amplify the discussion regarding the surgical indications in these fatal cases. In case 1 the symptoms resulting from a diaphragmatic hernia fully justified the anticipated risk of repair. In case 2, in which partial gastrectomy and duodenostomy were performed for multiple hemorrhagic duodenal ulcers with obstruction, the patient had such a marked degree of incapacity and discomfort that he insisted on accepting the hazards of surgical intervention. In case 3, in which carcinoma of the urinary bladder existed, the only reasonable chance for cure was in operation. In cases 4, 5 and 6 thyroidectomy seemed clearly indicated, owing to either hyperthyroidism or

TABLE 2.—*Clinical Data on the Eleven Patients Dying from Cardiac Causes*

Case	Age	Sex	Operation	Anesthesia	Duration of Anginal Syndrome, Years	Electrocardiogram	Mode of Cardiac Death	Day of Death (Postoperative)	Condition Found at Postmortem Examination
1	52	♂	Repair of diaphragmatic hernia	Nitrous oxide, ether	5	Incomplete bundle branch block, T wave negativity in lead 1	Coronary thrombosis	2	Acute infarct of the left ventricle, anterior; coronary sclerosis (3)
2	60	♂	Partial gastrectomy and duodenostomy	Regional and nitrous oxide	10	Diphasic T waves in lead 1	Coronary thrombosis	3	Acute infarct of the left ventricle, anterior; coronary sclerosis (3)
3	70	♂	Cystostomy and exploration for carcinoma of urinary bladder	Spinal	2	Normal	Coronary thrombosis	3	Acute infarct of the left ventricle, anterior; coronary sclerosis (3)
4	65	♀	Thyroidectomy	Infiltration and nitrous oxide	1.5	T wave negativity in lead 1	Coronary thrombosis	35	None
5	65	♂	Thyroidectomy	Infiltration and nitrous oxide	2	T wave negativity lead 1; ventricular escape	Coronary thrombosis	35	None
6	52	♂	Thyroidectomy	Infiltration and nitrous oxide	4	Normal	Coronary thrombosis	1	Acute infarct of the left ventricle, anterior; coronary sclerosis (3)
7	66	♂	Cholecystectomy	Spinal	1	Normal	Congestive heart failure	14	Coronary sclerosis (3) with extensive myofibrosis of the left ventricle
8	58	♀	Cholecystectomy	Ether	2	Normal	Congestive heart failure	25	Coronary sclerosis (4) with dilatation of the left ventricle and mural thrombosis
9	62	♂	Resection of sigmoid for carcinoma	Ether	4	Normal	Sudden death	3	Acute infarct of the left ventricle, anterior; coronary sclerosis (3+)
10	57	♂	Posterior nerve root resection	Nitrous oxide	1.5	Diphasic T waves all leads	Coronary thrombosis	1	Acute infarct of the left ventricle; coronary sclerosis (4)
11	37	♂	Bilateral cervicothoracic ganglionectomy with resection of their trunks	Regional and nitrous oxide	3.5	T wave negativity lead 1	Sudden death	0	Coronary sclerosis (3) with extensive healed infarct of the left ventricle

substernal adenomatous goiter with obstruction. In cases 7 and 8 severe recurrent biliary colics resulting from cholelithiasis and chronic cholecystitis clearly justified operation. In case 9 the presence of carcinoma of the sigmoid predicted either death from carcinoma or possible cure from resection. Cases 10 and 11 represented intractable cases of the anginal syndrome, coming under observation during those years when resection of nerve structure seemed to be a justifiable procedure for that disease.

Seven deaths were attributable to coronary thrombosis with acute cardiac infarction, two were attributable to congestive heart failure and two occurred abruptly and apparently without thrombotic occlusion. It is interesting and important to note that the average age of the patients dying from cardiac causes was 60.7 years (excluding the patient aged 37, this relatively young man being an exception).

In a recent study, Master, Dack and Jaffe[1] approached the problem from a somewhat different angle, determining only the incidence of postoperative coronary occlusion. Among 625 seizures of occlusion of the coronary artery, thirty-five (5.6 per cent) occurred following operation in the hospital. In analyzing the operative procedures in their cases one finds nine which in magnitude are not comparable to those in this study. They likewise emphasize the observation that the majority of the patients were in the later years of life.

We believe that the cardiac mortality in the group of cases presented in this study is remarkably low and should encourage the sufferers from coronary disease when surgical intervention is necessary. However, it must not instil false optimism into the clinician or the surgeon, for they must realize that this accomplishment is not of casual origin but one resulting from the coordination of careful preoperative study and judicious selection, expert administration of anesthetic agents and skilful surgical technic and judgment. Operation must be confined to those cases presenting unmistakable indications and the procedure limited to the primary condition. Surgical procedures that are not urgent have no place in the cases under discussion.

SUMMARY

Two hundred and fifty-seven patients with severe coronary disease undergoing necessary surgical operation form the basis for this study. The average age of the patients was 60.3 years. The anginal syndrome had existed for an average of 3.1 years. Thirty-two patients had healed cardiac infarcts at the time of operation. Well marked hypertension occurred in 100 cases. Eleven patients (4.3 per cent) died from cardiac causes. Death resulted from coronary thrombosis in seven, from congestive heart failure in two and abruptly without apparent thrombotic occlusion in two.

1. Master, A. M.; Dack, Simon, and Jaffe, H. L.: Postoperative Coronary Artery Occlusoin, J. A. M. A. **110**: 1415-1418 (April 30) 1938.

A Great Revival.—The future of medicine lies with the younger and recently qualified generation and with their successors. *It is within their power to bring Clinical Science in* this country to a great revival.—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

THE IMMEDIATE AND ULTIMATE PROGNOSIS IN HEART DISEASE

WITH ESPECIAL REFERENCE TO "PERMANENT TOTAL DISABILITY"

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The growth of fundamental concepts in the medical world is very slow despite the many advances constantly made into unexplored regions. Often a generation or more of time elapses after a discovery before there dawns its full significance. The adequate correlation of certain discoveries, old or new, is often the most fundamental of all. It is of such a basic concept in its infancy that I would treat herewith.

Before 1500 A. D. heart disease as such was actually unknown. Rare individual cases may have been suspected or even recognized but they were not written down. The general point of view was that if the heart should be injured in any important way death would come at once. Heart cases were being called something else—lung disease, dropsy, abnormalities of the humors, and so on. Then came the autopsy experience of the sixteenth, seventeenth and eighteenth centuries which revealed the common occurrence of heart diseases of all kinds, the etiology of which has been more and more the focus of attention during the last hundred years.

The damaged heart, quite fully recognized nowadays both at autopsy and during life, has been looming up as the great ogre in public and in private health. It is heralded far and wide as the greatest cause of death, outstripping all its competitors, such as tuberculosis, pneumonia and cancer. An uncritical, one-sided publicity has sprouted tens of thousands of cardiac neuroses in otherwise healthy persons and ruined the morale and crippled the lives of thousands of persons with heart trouble but with no reason to be "cardiac cripples." It is to help to establish a campaign against certain misconceptions that I welcome this opportunity.

Slowly in the last generation or two appreciation has come to the minds of certain discerning physicians like Rosenbach in 1878 and Mackenzie at the turn of the century that the functional state of the circulation and the cardiac reserve are at least as important as the structural changes or lesions in the appraisal of the prognosis and in the management of persons with heart symptoms and signs. That many persons with heart disease may live long and active lives has gradually become well recognized. In fact, the need of recruiting the British army in the World War forced the wise disregard of relatively unimportant heart murmurs and swung the pendulum too far for a while from the one time oversolicitude concerning cardiac signs to the neglect of such signs in ultimate prognosis.

The conception that despite heart disease life may last long and activity be but little hampered has been well established in the clinical medicine of today when we have to deal with chronic valvular disease and with moderate cardiac enlargement, but there has not yet been adequate recognition of the distinction between

Read before the International Medical Assembly of the Interstate Postgraduate Medical Association of North America, Philadelphia, Nov. 1, 1938.

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immediate and ultimate prognosis in heart disease, between the dangers of acute processes which may seriously jeopardize life or activity and the common possibility of their complete or almost complete subsidence or retrogression.

The heart has been too much set on a pedestal as the essential organ in the body when actually it is only one of many and at that one of the toughest, most resistant and most capable of recovery after serious disease. We recognize good recovery now in many cases of pulmonary tuberculosis, of acute renal involvement and of central nervous system disease with a return to full life activity; why should we not have the same point of view about recovery from heart disease in many cases?

THE ACUTE PROCESSES

What are the acute processes that may attack the heart to endanger life which are susceptible to quite adequate functional recovery? They include most commonly the acute rheumatic infection, the acute coronary episodes, especially frank coronary thrombosis and severe angina pectoris (often decubitus), and extreme tachycardia complicating heart disease. Less common events are Morgagni-Adams-Stokes attacks, actually dependent on coronary disease too, and rare instances of extreme tachycardia in persons with normal hearts in the form of auricular or ventricular paroxysmal tachycardia or of auricular fibrillation or flutter so severe that the heart may temporarily dilate and fail. In some of the cases of disturbing tachycardia thyrotoxicosis is the cause; the diseased thyrotoxic heart is one that is enlarged, progressing even to failure because of the severe recurrent strain of such tachycardia, not apparently from intrinsic heart disease. And there should finally be mentioned in this category severe pulmonary embolism and infarction, which is a serious threat to life not only in itself by the production of shock and through massive pulmonary involvement but also through severe strain on the right side of the heart, which may temporarily dilate and fail (the acute cor pulmonale).

I will discuss now in more detail the three commonest of the acute cardiac burdens, namely the acute rheumatic infection, coronary occlusion and extreme tachycardia in the presence of heart disease. Congestive failure that comes on insidiously or as the result of minor factors of strain in persons with heart disease does not of course belong here.

Many times I have seen children seriously or even desperately ill with acute rheumatic pancarditis who have recovered from their acute illnesses often to the surprise of family and doctor to return to a normal life and to survive for many years. One must therefore remember in treating and prognosing such cases that the majority do recover and that many will do well for years to come under good sensible care. Even heart murmurs, both systolic and diastolic, and heart enlargement (as determined by x-ray examination) may disappear with the subsidence of the cardiac dilatation due to the rheumatic myocarditis. The pericardial and endocardial involvements are often relatively unimportant parts of the clinical picture in acute cases. Of course, we must recognize that the ultimate prognosis in many of these cases is not good—only time will tell when another acute rheumatic infection may add its toll of strain to the heart already damaged. The heart may remain considerably enlarged or severe chronic valvular disease may develop to make the patient a partial or complete cripple. But I wish to emphasize that during the acute rheumatic illness one should keep an open mind about both the immediate and the ultimate prognosis no matter how sick the patient may seem to be at the moment.

The problem of cardiac prognosis becomes more important and more in need of revision when we arrive at the consideration of coronary disease. There is still widely held in medical circles as well as among the laity the idea that once coronary disease becomes manifest clinically the jig is up and that the victim must decide for himself whether he prefers to die "with his boots on" in a short while or as an invalid after a somewhat greater interval of time. This conception I meet among patients with appalling frequency. The great harm that has resulted from it is twofold. A good many of the more casual, rebellious or "hard boiled" patients take it on themselves to die "with their boots on," selfishly overlooking their obligations to their families, communities and themselves, and filling newspaper headlines with alarming accounts of their demise on some too strenuous pursuit in work or in play. Of course there are many exceptions, but I feel quite sure that the majority of the sudden deaths in coronary disease among active patients is still due to disregard of medical advice. That is, death from coronary disease is often preventable and a good many persons would survive many years longer than they do and still lead happy lives if they would only use common sense.

ATTITUDE OF THE PATIENT

The other side of the twofold picture of the harm done by the current attitude that coronary disease means either an early death in harness or complete invalidism is to me darker than what I have just presented. Thousands of patients have succumbed in spirit to the fear of death stalking them—they dare not raise a finger in work or active play again but sit at home or in their cars or at the movies or on the sands in southern Florida watching the hours and the days and the weeks and the months and the years go by, perhaps even free of all symptoms the vast bulk of the time, interesting themselves in fleeting pleasures and occupying themselves in filling out disability insurance blanks and watching the ticker tape of the stock markets. I do not mean thus to indict all or even the majority of persons who have become invalids after the appearance of coronary disease, but my remarks certainly apply to a very large number. There are persons who must live crippled lives but others who need not and should not. Surely there is a happy mean, and a wide one too, between the two extremes represented by these erroneous concepts of recent days.

Time and again a man or a woman is laid low by coronary thrombosis acutely and unexpectedly, or after previous related trouble. The immediate prognosis must remain guarded in even the mildest case during the first two or three weeks until the scar of the myocardial infarct is beginning to set and of course longer if the damage is great or serious complications supervene, but there are certain things that have recently been learned. If the patient survives the first month, the chances for recovery are fairly good and he will

probably live more than a year at least; if he survives the first year and is in fairly good health at the end of that time he should have a good many years ahead of him. Although he is not so good a risk as the man who has never shown coronary disease and although another attack, more severe and perhaps fatal, may strike him at any time, yet there is a good chance that he may go on for a long time and even succumb to some other ailment than heart disease. The prognosis in coronary thrombosis has steadily improved in the last decade, along with our knowledge. This is partly due to the fact that the sickest patients died off early when we first began to recognize the condition clinically, that the less severely ill have continued to live on longer than we at first thought they would, and that many very mild cases that we now recognize were not even being diagnosed ten or fifteen years ago.

Exactly the same thing is true of angina pectoris, mild or severe, with or without clinical evidence of actual occlusion with infarction. This symptom of coronary insufficiency may come and go, much to the surprise of many doctors as well as laymen. There may be a period of a few weeks of angina pectoris, simply on effort or rising to a crescendo of angina decubitus for a few days without prolonged pain, and subsiding suddenly or gradually melting away, doubtless representing some more or less slowly progressing occlusion without a definite myocardial infarct or with a very small one. Sometimes in such cases the diagnosis is doubted not alone by the layman but even by the doctor too, for there persists the old tradition that, once heart disease, especially involving the coronary arteries, always heart disease.

Nature is doing her utmost and very often successfully to reestablish by collaterals or by recanalization, or by both, an adequate coronary circulation. This spontaneous recovery, which tends to occur no matter what the treatment and which naturally makes one a bit skeptical of any newly heralded cure, can take place at any age. I saw it occur last year in an 84 year old man who came to us from Maine badly crippled by severe and increasing angina pectoris and expected by his friends and himself to end his days in the hospital; it happened that during the first few days with us, before we had a chance to try any particular therapy but rest, he began to improve. Within a few weeks he was well enough to return home and he has been well and active during the year that has passed, even without the very popular use of aminophyllin.

Every month now I see patients who come in for check-up examination after ten years or more, entirely free from heart symptoms and finding it hard to believe that they could ever have had what was so perfectly clear a decade or more ago, namely coronary thrombosis with myocardial infarction or angina pectoris of a lesser or greater degree. I have already reported survivals of from eighteen to twenty-five years after coronary thrombosis and such cases are now being more widely recognized. Of course the long survivors are still in the minority but if a man with angina pectoris at 55 can live to be 70 with ordinary care and good luck, as so often happens, why should he think at the onset of his trouble that he must die soon with his boots on or fold his hands sadly in his lap for fifteen miserable years of waiting for the end?

The moral of this tale, then, is obvious so far as the serious problem of prognosis and management of coronary disease is concerned. In the first place in nearly every case our cards should be on the table; a frank discussion should be held with the patient, generally an intelligent man, as to the whole matter, not leaving him in ignorance and awful suspense about the diagnosis or the sword of Damocles. Of course he may die the next day but so may we all in one way or another, by motor car if not otherwise. He should be advised of the use of rest and later of guarded exercise and work as circumstances require. He may have to stay in bed for a few weeks now and again later, he may have to quit work for a few months or a year, but that does not mean, in most cases certainly, that he must spend the rest of his days either in bed or as an invalid, with or without a nurse. His regular work may be too hard for him to resume or to continue, but often it isn't. Fortunately in these rather soft modern days there are still patients who refuse to quit work even though they know they may receive disability insurance when they do quit. Most such persons in my experience have modified their way of life and their work in such a way that they do avoid the heaviest part of their formerly too strenuous existence. They may find that they can keep at work if they but omit their rich food, tobacco and late hours. They serve as excellent controls for the large number who lay down their tools for good at the onset of trouble. An adequate study of the comparative durations of life in the two groups, that is among those still at work and among those at rest on the beaches, has not yet been made. It may well be that the invalids will outlive the others by a slight margin, other things being equal; but is the margin, even if considerable, worth the resignation of spirit and body, the loss of morale in the patient and in his family, and the loss of a trained mind to the community that so often follow the irrevocable decision to retire?

TEMPORARY VERSUS PERMANENT DISABILITY

The victim of coronary disease feeling very miserable at the time may be of course totally disabled; but should he consider himself or should he be considered permanently disabled as well? There lies the vital point at issue, the difference between the immediate and the ultimate prognosis in heart disease. A man who makes too early a decision to retire permanently may be at his wits' end a few years later when he has completely or largely recovered from his coronary symptoms: he must either try with some difficulty to regain his position or job or an interest in active living or he must resign himself to a dull life, now and then with a helpful avocation, or he must consciously or unconsciously simulate disease. Too often the last alternative is the result. The patient is fearful that if he should do anything in any way active mentally or physically he may drop dead, even though he has no symptoms at all from early morning to late at night, or he interprets every little ache or pain as the result of serious heart trouble when perhaps he has only a bit of gas in his stomach or bowel, a muscle twitch or a bursitis.

The reasons for the permanent surrender of patients who have had symptoms or signs of coronary disease are not far to seek. One of the most important and one that should be most amenable to correction is the attitude of the physician himself. This attitude is quite an innocent one on the part of the doctor and is held so widely that it has become a kind of habit or custom. He warns and advises his patient so seriously that he

rather prepares the victim for a pessimistic future, not realizing himself that recovery, more or less complete, is a very distinct possibility. It has been only in the last decade that the truth has been dawning on the minds even of the pioneer or advanced clinical workers in the field. In its follow-up the concept entertained by a few individuals some years ago is only now being confirmed by more ample experience. Even today recovery from the symptoms or signs of coronary disease is usually interpreted as meaning that the original diagnosis was wrong or that angina pectoris should be called false, pseudo, secondary or innocens if recovery follows —an unwise nomenclature.

The second important reason for the patient's surrender to permanent invalidism is a matter of personality. In this age of false values, rule by might, and loss of moral and spiritual stamina there is too easily a yielding to circumstance, a fatalistic point of view, a loss of courage. Persecution by disease, like persecution otherwise, is too often accepted as incontrovertible and irreparable. The spirit of our ancestors, the old New England tradition of a sane endurance of hardships, is tending to yield to a rather supine acceptance of oppression and invalidism. There is a spirit of moral cowardice in the air. It is about time that we recognize and combat it. Foolhardy neglect and bravado are not necessary to swing back to a more normal state. Some persons should still pass every winter in southern Florida to preserve their health and to prolong their life, but a good many go thither now simply because it is a habit, though no longer a good one.

At this point a strong word should be said against the common verdict, in law court and out, of permanent total disability of persons having coronary disease with angina pectoris or coronary thrombosis who happen to be disabled for a few weeks or months or even for a year or two. The word permanent is too permanent, often working havoc with the morale of the patient, the future of his work, the attitude of the physician and the management of disability insurance. Even the word total is often wrong. I have many patients who have kept at work for many years despite angina pectoris over all that period of time, useful citizens, continuing to earn more money than they spend, and living happier lives than other patients who have completely surrendered to their diagnosis and who live on the insurance companies, though they need not, and in constant dread lest doctors and insurance officials should one day decide that perhaps they are not very sick after all. Of course it is impossible for some patients to carry on their own work or to find any other that is easier, but there are many exceptions and it is of these exceptions that I speak. Disability insurance should most certainly be so adjusted that it can be assigned in part as well as in whole and temporarily as well as permanently. The faulty working of the assignment of disability insurance in cases of heart disease was in part the reason for the fraudulent cardiac racket that was recently exposed and punished in New York.

CORRECT DIAGNOSIS OF CORONARY DISEASE

Just a final word under the heading of the prognosis of coronary thrombosis and that is this: Coronary thrombosis used often to be called acute indigestion. Now, as Dr. Herrick has so ably pointed out, acute indigestion or some other noncardiac condition is too often called coronary thrombosis with the resulting uncertainty about the future both in prognosis and in management. Correct diagnosis is thus the first essential in prognosis.

HEART BLOCK

I have discussed the importance of distinguishing between the immediate and ultimate prognosis in the more common manifestations of coronary disease. The same principles should be applied in that rare but even more hazardous manifestation, namely the Morgagni-Adams-Stokes syndrome. In a number of cases I have watched the evolution, rapid or sometimes tediously slow, from the dangerous periods of frequent syncopal attacks to the stable fixation of complete heart block with normal health lasting for years.

PAROXYSMAL TACHYCARDIA

Paroxysmal tachycardia of various types or the onset of permanent auricular fibrillation may be fraught with great danger for the time being, especially if there is heart disease already present. Actual heart failure may supervene or simply distressing and sometimes very serious obstructive pulmonary congestion, as in mitral stenosis; but, with the subsidence of the paroxysm or the control of the ventricular rate in permanent auricular fibrillation by adequate digitalization, good health and reasonably normal activity are frequently restored for years to come. Here too, therefore, one must apply the principle of distinguishing between the immediate and the ultimate prognoses.

CONCLUSION

In closing I would speak briefly of certain factors that apply equally well to the immediate prognosis of heart disease and to the ultimate prognosis. They may be expressed, as in a paper I gave in Chicago last spring,[1] as follows: "The bigger the heart the more negligent the patient, and the more short lived the family the worse the prognosis." With respect to congestive failure, "The more obvious, serious and preventable the exciting factor, the better the ultimate prognosis," and congestion due to obstruction (mitral stenosis, tricuspid stenosis and constrictive pericarditis), either in the pulmonary or the systemic circulation, is less serious than congestion due to myocardial failure whether the underlying strain is acute (rheumatic infection, coronary thrombosis, excessive tachycardia) or chronic (valvular disease, systemic hypertension). Finally, the common and often unrecognized complication of pulmonary infarction in patients with heart disease, especially with heart failure, is very grave, threatening life even more than does the heart disease itself.

May I leave the concept that, although there are general rules which are helpful in the prognosis of heart disease in toto and that although nothing perhaps is even now more difficult in the practice of medicine than the prognosis of heart disease, a distinct advance can be effected by recognizing the fact that immediately serious and grave cardiac states may be followed by functional recovery so complete that the ultimate prognosis is good for many years after.

ADDENDUM.—Lest a wrong interpretation be put on my reference to sickness disability insurance I would add the present note. Certainly when angina pectoris is produced by the habitual occupation and life of a given individual, that individual is fully entitled to complete disability insurance payments so long as

1. White, P. D.: Aesculopian Bulletin of the North Side Branch of the Chicago Medical Society 28, April 1938.

he suffers such disability; the same is, of course, true for myocardial insufficiency. The important points that I have emphasized are, first, that coronary or other heart disease is often present without any disability; second, that disability from coronary disease (angina pectoris or even coronary thrombosis itself) is often but temporary, and third, that angina pectoris, though persistently recurrent, may be but slight in degree and, under reasonable precautions, compatible with a long life.

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MENTAL ADJUSTMENTS TO HEART DISEASE

THE FACTORS INVOLVED IN DISABILITY

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In heart disease, and peculiarly in coronary thrombosis, the comfort and contentment of the patient are largely conditioned by his adjustment to the problems of his livelihood. The factors which determine his disability, partial or complete, temporary or permanent, may be chiefly considered the following:

1. Physical incapacity as evidenced by congestive or anginal failure, or circulatory disturbances due to abnormal heart rhythms.

2. The character of the patient's work, which by necessity may keep the manual laborer from being able to carry on his trade.

3. Fear of heart disease as an incapacitating or fatal ailment. In such fear there is the normal human reaction to an unpredictable menace, but there is often the terror fostered by the gloomy predictions of the patient's medical advisers. In these predictions we recognize too commonly an attempt on the part of the doctor to protect himself if the patient suddenly dies, or to attribute to himself some virtue in his therapy if the patient does well while suffering from such a serious disease.

4. The influence of disability insurance in making it unnecessary to work in order to live, even though the income from this source may be too meager for the patient to maintain his standard of living.

5. The attitude of industry, largely mediated by the industrial compensation laws, which tend to be interpreted as holding employment responsible for any cardiovascular failure while a man is at work, thus making the cardiac patient unemployable.

There is, perhaps, no great credit due to the cardiac patient with minor lesions who is symptom free on effort, if he continues at his work, but my purpose in this paper is to give illustrative cases showing two sides of the disability problem. One group consists of patients who have carried on their labors for years with grave heart disease, and often with symptoms, and have refused to give up to wait in terror for death on some indefinite future day. The other group, with similar disease, often of less marked degree, have confessed defeat and devoted their lives to fear and worry over their eventual demise.

REPORT OF CASES

CASE 1.—In November 1921 a physician, then 59 years old, suffered a coronary thrombosis. He stayed in bed a month and rested for the winter. His recovery was complete and when he was seen in 1927 his only cardiac abnormalities were a moderate enlargement of the heart and a short systolic murmur at the apex. By moderating his activity somewhat and recognizing that mild dyspnea was a warning of fatigue, he has remained in active practice ever since. In 1935 he survived the perils of prostatectomy and in 1938 he recovered from a concussion of the brain and several fractured ribs received in an automobile accident. He has remained for seventeen years since his coronary occlusion the leading medical adviser and trusted friend of his community and at 75 years of age by no means considers himself as having finished his job.

CASE 2.—At the age of 17 a surgeon, now 58 years old, had rheumatic fever and developed aortic regurgitation. In spite of this he has led an extremely active life. In 1927 he had severe attacks of paroxysmal tachycardia which often incapacitated him from their frequency, severity and duration, which was at times as long as seventy-two hours. Even with this, he forced himself on occasions to operate and to see patients in his office during an attack. Their onset has been associated at times with collapse, substernal pain and dyspnea. The gradual dilatation of his aorta to a very large size has led to uncomfortable pressure between attacks and anginal pain on exertion. Fortunately, in the past three and one-half years it has been possible to shorten attacks by inducing vomiting with ipecac and more recently to prevent attacks by combined digitalis and quinidine. In the face of this degree of cardiovascular disease and recurrent temporary distress and incapacity this man has achieved the leadership of his specialty in his city and has headed his national society. Within recent years he has engaged in difficult big game fishing and to the present time remains an expert golfer.

CASE 3.—In 1931 a lawyer of 56 was examined because of hypertension. The previous year, evidence of left ventricular strain had been shown by an electrocardiogram, which revealed marked left axis deviation with an inversion of the T wave in lead 1. He was a very active and dynamic man who realized that his cardiovascular condition was not good but recognized the importance of work in maintaining his peace of mind. He has accepted restrictions but tends to overdo at times. In 1933 he developed early congestive failure with dyspnea and wheezing respiration on lying down, shortness of breath on exertion, and epigastric distress after eating. Digitalization relieved this but he has continued to work on the margin of his cardiac reserve. At times symptoms have forced him to bed for a few days; once with a gastric hemorrhage, but he repeatedly returns to his labors in the courts and travels constantly to various parts of the country on business. He does cooperate by taking regular vacations. His blood pressure remains high with slight alternation, his heart sounds are fair, an electrocardiogram shows progression of his myocardial disease and his maintenance dose of digitalis has had to be increased to 0.9 Gm. a week.

Would this man live longer if he quit completely? He might, but his happiness lies in being in the thick of the battle. He commanded a division as a general in the army in 1917 and he remains a fighter.

These men have faced their problems with the philosophy which is essential to success, namely the belief that the future is too indefinite to give up living in order to be prepared for death. The other group is that of the men who, in popular language, "can't take it."

CASE 4.—A man aged 43 in 1931 had a moderately severe coronary occlusion for which he was kept in bed for three months. His heart was a little enlarged but the sounds were of good quality when he was seen four and one-half months after his attack. Examination seven years later shows little, if any, enlargement of the heart. His blood pressure is 145 mm. systolic and 95 mm. diastolic and there is no evidence of heart failure. An electrocardiogram shows the remaining evidence of a posterior infarct. He has done no work. Because of vague symptoms of fatigue and a heavy feeling in his head he has been very inactive, has gained weight and smokes excessively. His sole support has been from disability insurance, the continuance of which has been his major source of worry. Fearful lest any attempt to return to his business as a security salesman might jeopardize his insurance payments, he spends his time with lawyers attempting to magnify his disability. Contentment

and morale have been lost, when a more compliant fatalism and a different insurance arrangement might have restored him to usefulness.

CASE 5.—A man aged 45 in 1920 developed precordial pain, which was diagnosed angina pectoris. The persistence of the pain eventually discouraged him and radiation to the arms increased his apprehension. The examination in 1923 was entirely negative but a rest of a year was advised. This retirement from active work became, unfortunately, permanent. Various pains occurred, including some in the abdomen for which an appendectomy was done and a normal appendix found. Fatigue, lack of ambition, dizziness and nervousness were prominent and health was continuously sought by annual trips to Florida, where he was able to walk and hunt. Repeated examinations have been negative but because of the original diagnosis of angina pectoris he has received disability insurance for fifteen years. As in the former instance, legal battles with their emphasis on disability have disturbed his life, and his existence has been an uncomfortable balance between compensable incapacity and sedentary survival.

CASE 6.—A man aged 34 in 1930, while working as a painter, made a sudden effort to support a falling ladder. He felt a snap in the region of the precordium with pain. His physician diagnosed heart disease with mitral insufficiency and an insurance company started payment of $100 a month after a legal action had determined that the patient was eligible, in spite of the competent medical testimony to the contrary. His father dropped dead at the age of 50. He did not work after the accident. When examined in 1938 his complaints were a burning feeling over the heart, worse on lying or sitting, leaning toward the left side. Effort caused exhaustion, faintness or sweating. His local physician was treating him constantly for heart disease. He was a healthy appearing muscular man weighing 190 pounds (86 Kg.). His heart was not enlarged and showed only a moderately loud cardiorespiratory systolic murmur. Marked sinus arrhythmia and tachycardia were present with a rate of from 100 to 150. Fluoroscopic and electrocardiographic examinations were negative. No heart disease could be found.

This case is an extreme example of the factors often involved in disability—an incident occurring at work, a diagnosis of heart disease, disability insurance which, while so inadequate that the patient's wife has to work, has been very helpful during the depression to both the patient and his doctor, the winning of a court judgment by the patient, fear and effort syndrome, and a very attenuated will to work.

CONCLUSIONS

Disability in heart disease depends on two things: the attitude of the patient in relation to his work and activity, and the type and severity of his symptoms as related to necessary effort. The rehabilitation of the cardiac patient, especially after coronary thrombosis, requires an intelligent appraisal of the signs and symptoms as they exist some months or a year after the acute breakdown, a will to work on the part of the patient, and a cooperative plan of a period of partial disability on the part of insurance companies and employees. Success depends on a restoration of confidence and, where disability insurance exists, on a proof to the patient that it is more desirable to work than not to.

It is a grave mistake for a physician to assume that coronary thrombosis necessarily implies complete and permanent disability. In all walks of life, but particularly in the executive departments of business and in the professions, many examples can be seen of the ability of people with heart disease to lead useful and comfortable lives. The obvious disablement of the majority of cardiac patients should not be added to by the fear implanted by medical advisers in the minds of a sizable minority who suffer from slight limitations.

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LAWS REQUIRING PREMARITAL AND PREGNANCY TESTS FOR SYPHILIS

REASONS FOR AND AGAINST

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Offhand it would appear that the laws enacted by nine states [1] and pending in several more which require blood tests for syphilis before the issuance of a marriage license are highly desirable as part of the present program for the control and eradication of the disease. The same is undoubtedly true in relation to pregnancy, three states [2] requiring blood tests of pregnant women, with similar bills now under consideration by several additional states. But a number of important questions both pro and con are involved in such legislation, which it is my purpose to discuss briefly, since physicians are frequently and properly consulted by legislators and other interested lay persons seeking information on the issues involved.

REASONS FOR THE LEGAL REQUIREMENT OF PREMARITAL BLOOD TESTS FOR SYPHILIS

1. *Because marriage inevitably involves syphilitic men and women in view of the high incidence of the disease.*

No one knows the true incidence of syphilis in the United States. Estimates have been based on the number of cases reported to health authorities and on serologic surveys conducted here and there on large numbers of persons. Unquestionably the number of cases reported to local and state health departments is far below the actual incidence because (1) many syphilitic persons are unaware of their infection and do not seek medical assistance or, knowing, neglect treatment; (2) large numbers escape diagnosis by both clinical and serologic examination, especially in the latent and chronic stages, and (3) many physicians refuse or neglect to report the disease.

On the basis of the results of blood tests it would appear that the incidence may vary from as low as 0.2 to 0.5 per cent among college students and the general population in this social class to as high as 20 to 30 per cent among other groups, especially southern Negroes. An incidence of 13.9 per cent of positive reactions has been reported in the U. S. Navy and Marine Corps, from 16 to 17 per cent among prisoners and about 19 per cent in the population of a large city such as New York as a whole with about 2 per cent for the responsible white portion.[3] But the various blood tests, even when conducted by experienced serologists, fail to detect from 10 to 40 per cent of syphilis in the later stages, including some which has had various amounts of treatment, so that Vonderlehr and his associates have estimated that about 10 per cent of the whole population of the United States have or have had syphilis.[3] Since about 91 per cent of those infected are believed to contract the disease between the ages of 16 and 40 years, it is readily understood that marriage involves a large number of syphilitic persons, particularly since at least 500,000 or 600,000 new cases are

1. Connecticut, Illinois, Kentucky, Michigan, New Hampshire, New Jersey, New York, Rhode Island and Wisconsin.
2. New Jersey, New York and Rhode Island.
3. Proceedings of Conference on Venereal Disease Control Work, Ven. Dis. Inform., 1936, supplement no. 3, pp. 125-133.

reported annually and a large number of additional ones are not detected or reported at all.

Very little information, however, has accumulated so far on the incidence of positive blood reactions among candidates for marriage. Dr. O. C. Wenger [4] of the U. S. Public Health Service reported 3.4 per cent among 2,578 antenuptial examinations made in Chicago during the latter half of 1937, and 3.9 per cent of all applicants examined in Illinois since the law went into effect were refused licenses because of two successive positive blood reactions.[5] These figures, however, do not indicate the frequency of syphilis among applicants for marriage licenses, because it is almost certain that men and women who know that they have syphilis with a positive blood reaction will not apply for marriage licenses in Illinois.

2. *Because legally required premarital blood tests will tend to lower the incidence of syphilis.*

I think it is a reasonable assumption that when men and women know that they must present to the state reports of negative blood reactions for syphilis before securing the legal right to marry, many will be deterred from risking infection by sexual exposure. In all truth I have not been greatly impressed by the factor of fear of infection alone as a deterrent to promiscuous sexual exposure and, as Father Schwitalla has recently stated, "knowledge alone does not make the saint and ignorance alone cannot make a sinner," but I believe that, when men and women realize that their infection may become known to the state, legally required prenuptial blood tests will be a factor in reducing the incidence of the disease. Furthermore, as will be discussed later, such tests will greatly aid the education of the public on the mechanism of genital and extragenital infection and, in my opinion, gradually reduce the incidence of the latter from kissing. In this connection it is well to remember that every person with syphilis has been calculated, in average terms, as being responsible for the infection of from one to three other persons. Premarital blood tests will inevitably contribute to the detection of much syphilis that would otherwise escape detection and most likely result in sufficient treatment at least to reduce the danger of transmission.

3. *Because blood tests are the most valuable single means for the detection of the disease, especially after the primary, or chancre, stage.*

Blood tests are the most valuable means of detection, particularly in the later stages, when the man or woman denies all knowledge of syphilitic infection, is free from clinical manifestations detectable by the average physician, without special skill in the disease, and is in apparent good health; in the acute early stages (first six months) when sufficient treatment has been taken to dissipate the external manifestations but the disease is still communicable to spouse and children, and in relapses, during which the danger of transmission is great.

Indeed, the detection of syphilis in relation to marriage and pregnancy is not infrequently entirely a matter of laboratory diagnosis but, even under the best of conditions, when the various blood tests are conducted by the authors of the respective methods themselves, the incidence of positive reactions for patients in all stages of the disease, including those who have received various amounts of treatment, may vary from 59 to 92.9 per cent. For example, in the first serologic survey conducted under the auspices of the U. S. Public Health Service in cooperation with the American Society of Clinical Pathologists,[6] the percentage varied from 65.8 to 88.2 in the laboratories of the authors of the various methods. In the second survey [7] it varied from 59 to 88.8 in the laboratories of the authors and from 35.3 to 93.2 in various state and local laboratories. In the third survey [8] it varied from 83.9 to 92.9 in the laboratories of the authors and from 38.7 to 90.7 in state laboratories. In the fourth survey [9] it varied from 70.5 to 83.9 in the laboratories of the authors and from 31.3 to 87.3 in state laboratories.

I mention these facts to show how blood tests themselves vary in their capacity to detect syphilis, to show the marked variations in relation to the methods employed and the skill and experience of the serologists conducting them and, finally, to emphasize the fact that states requiring blood tests before the issuance of a marriage license must assume the responsibility of seeing to it that the tests are conducted with one or, preferably, two of the best methods by serologists possessing a high degree of skill and experience.

4. *Because of the inadequacy or absence of a history of infection.*

That many syphilitic persons give no history of infection is so well known as scarcely to require comment. Many purposely deny all knowledge of infection or believe themselves to have fully recovered, but about 30 per cent of men and 60 per cent of women with chronic syphilis are honest in their denials and present no physical evidence of infection in the latent stage. Symptomless syphilis is relatively frequent, and about one man in every five and one woman in every three with syphilis fail to recognize the early symptoms and lesions. Certainly merely to ask applicants for marriage licenses whether or not they have a communicable disease is practically worthless so far as syphilis is concerned, and I surmise that this is true of gonorrhea as well.

5. *Because of the inadequacy of clinical detection of the disease.*

Of course the ability to detect syphilis clinically varies according to the special skill and experience of the physician. Even experts fail to detect atypical chancres when depending alone on clinical judgment, without the aid of dark field examinations for Spirochaeta pallida, and general practitioners have a still higher incidence of missed diagnoses, especially in the case of extragenital infections. Even with secondary syphilis, for which blood tests give almost 100 per cent of positive reactions, clinical diagnosis is not as easy as general impressions indicate, while with chronic latent syphilis diagnosis is frequently impossible because of the absence of detectable clinical manifestations. Furthermore, the incidence of missed clinical diagnoses in the chronic stages with signs and symptoms of disease is very high because the manifestations of chronic syphilis are so numerous and so varied. Under such circumstances properly conducted blood tests are invaluable aids to diagnosis in spite of their shortcomings and must play a part of great value in reducing the incidence of syphilitic marriages.

4. Vonderlehr, R. A.: Personal communication to the author.
5. Chicago Venereal Disease Bulletin, July 1938.

6. Cumming, H. S., and others: The Evaluation of Serodiagnostic Tests for Syphilis in the United States: Report of Results, Ven. Dis. Inform. **16**: 189 (June) 1935; J. A. M. A. **104**: 2083 (June 8) 1935.
7. Parran, Thomas, and others: The Efficiency of State and Local Laboratories in the Performance of Serodiagnostic Tests for Syphilis, Ven. Dis. Inform. **18**: 4 (Jan.) 1937 Am. J. Pub. Health **27**: 15 (Jan.) 1937.
8. Parran, Thomas, and others: Serodiagnostic Tests for Syphilis in Thirty-Nine State Laboratories, Ven. Dis. Inform. **18**: 273 (Aug.) 1937.
9. Evaluation of Serodiagnostic Tests for Syphilis, Ven. Dis. Inform., to be published.

I have previously shown from the results of serologic surveys how the blood tests vary in their detection of syphilis according to the methods employed and especially in relation to the skill and experience of the serologists conducting them, but I surmise that, if a commission of general practitioners as well as one of expert syphilologists were to undertake the diagnosis of the disease for a large group of persons including nonsyphilitic controls on the basis of histories and clinical examinations alone, there would be a goodly percentage of missed diagnoses. Such an experiment has never been conducted but would be well worth while in emphasizing the limited value of clinical diagnosis alone in the detection of syphilis, especially in the chronic stages of the disease. Serologists should take care against falling into an attitude of infallibility in the diagnosis of syphilis, and overconfidence on the part of clinicians is just as objectionable, as I well know from personal experience as a clinical syphilologist and serologist.

6. *Because premarital blood tests will reduce the incidence of transmission of syphilis to spouse and children.*

The danger of transmission of syphilis to spouse and children is greatest during the first five years after infection, especially if no treatment or inadequate treatment has been given. As shown by the Cooperative Clinical Group, about 61 per cent of a group of 368 spouses were found to have syphilis. It is impossible to state whether infection was transmitted during the early or late stages of the syphilis in the partner, but, as stated by Moore,[10] the danger of transmission to a marital partner from symptomless and latent syphilis is considerable.

In this connection, the marriage of syphilitic women is especially likely to result in transmission of the disease to children. It is almost certain that a man transmits the disease to the offspring by first infecting the mother; at least the instances of direct paternal transmission without maternal infection are extraordinarily infrequent. Indeed there is never absolute safety for the children if the mother is known to have the disease, and the value of premarital blood tests in the prevention of disasters to spouse and children cannot be minimized or denied.

7. *Because premarital blood tests reduce the incidence of the economic hazards of marriage from incapacity or early death of the spouse.*

In view of the fact that untreated or insufficiently treated syphilis carries the risk of ill health, incapacity for earning a livelihood and premature death, it is unfair for a woman unknowingly to marry a syphilitic man, because of the economic risks involved. The fiancée of a syphilitic man has at least the right to know the conditions and risks and make her decision when the circumstances have been explained to her. Furthermore, she has the right to know her chances of contracting the disease from her husband. Also the husband has a right to know his chances of contracting the disease by marriage with a syphilitic woman. In either event both have a right to know the chances of transmission of the disease to any children born of the marriage. When society is faced with the possibility of supporting the indigent syphilitic person incapacitated by the disease, or the spouse or the children, it has the right and the duty in my opinion of reducing as far as possible the risks involved, not only from the standpoint of the state but likewise from that of the welfare of the individual. Here is certainly one instance in which we are our "brother's keeper."

8. *Because premarital blood tests will reduce the incidence of divorce.*

I have no reliable statistics on syphilis as a cause of divorce, because so many persons are divorced on the grounds of incompatibility and the like as a mask for this cause, but undoubtedly the discovery that a spouse had syphilis before marriage and concealed the fact or was unaware of its existence is a frequent cause of divorce, to say nothing of the incidence of divorce due to syphilis contracted after marriage. Therefore I think that the prevention or delay of marriage involving syphilis by premarital blood tests is calculated to lower the incidence of divorce and all the evils it entails when due to this cause. Furthermore, such tests will inevitably reduce the disasters attending the remarriage of a man or woman following the death of or divorce of the spouse when infection occurred in the first marriage.

9. *Because premarital blood tests will greatly encourage the thorough treatment of syphilis.*

When syphilitic men and women realize that their chances of cure are about 90 per cent with thorough modern treatment in the early stages and that thorough treatment without biologic cure in both the early and the late stages renders marriage and procreation possible, especially if five or more years elapsed since infection, I think it is reasonable to expect that the legal requirement of premarital blood tests will encourage materially the thorough treatment of the disease, since the great majority of men and women look forward to the marriage state. I have enough confidence in human nature to believe that very few men and women wish knowingly and deliberately to endanger the health and lives of their spouses by syphilis.

10. *Because premarital blood tests are an excellent phase of the educational program against syphilis.*

Finally, I believe that premarital blood tests bring the subject of syphilis so prominently and intimately before both sexes that they cannot fail to stimulate a healthy interest in the disease and all it entails in relation to the individual and the public. Nothing is quite as good as a deep personal interest in acquiring a knowledge of any subject. Therefore I believe that these tests and all the publicity they entail will contribute materially to the education of the public on the subject of syphilis, to say nothing of inducing physicians to "brush up" on the subject of modern diagnosis and treatment, since the intelligent members of the public are never far behind the profession in keeping abreast of things of medical interest, especially those that may involve themselves in a very personal manner.

REASONS AGAINST THE LEGAL REQUIREMENT OF PREMARITAL BLOOD TESTS FOR SYPHILIS

Offhand it would appear that the reasons stated, possibly with additional considerations, constitute ample justification for the legal requirement of premarital blood tests for syphilis, but legislators are confronted with the necessity for carefully considering certain reasons against such legislation, some of which may be briefly summarized as follows:

1. *Because premarital blood tests may give nonspecific or falsely positive reactions.*

As shown in the first serologic survey,[6] complement fixation tests gave 53 per cent and flocculation tests 62.4 per cent of positive reactions with serums of fifty per-

10. Moore, J. E.: *The Modern Treatment of Syphilis*, Springfield, Ill., Charles C. Thomas, Publisher, 1933, p. 236.

sons with leprosy. With the serums of thirty-six persons with malaria, from 8.6 to 20.6 percent gave positive reactions. There are two diseases therefore occurring in the United States, and especially in the Southern states, which may cause positive reactions in the absence of syphilis.

Except for these two diseases and possibly acute infectious mononucleosis, no other diseases occur in the United States which are likely to cause positive reactions in the absence of syphilis when the tests are properly conducted. In a recent study of the serums of 441 tuberculous persons a complement fixation test gave no doubtful or falsely positive reactions, while six of seven flocculation tests gave a few atypical false doubtful and false positive reactions. It is evident therefore that tuberculous toxemia may contribute a confusing factor in the serologic diagnosis of syphilis, but this does not present a major problem in the clinical interpretation of results obtained with carefully conducted methods.[11]

In the first serologic survey six of thirteen methods gave no falsely positive reactions with the serums of sixty-two patients with malignant neoplastic diseases, while the remaining seven showed from 1.6 to 9.7 per cent of positive reactions. In fifty-one cases of jaundice, eight of the thirteen methods employed gave no falsely positive reactions, while such reactions occurred with from 2 to 3.9 per cent of the serums with the remaining five methods. In forty-six cases of natural or induced fever, six of the thirteen methods gave no falsely positive reactions, while in the remaining seven these occurred in from 2.2 to 8.9 per cent. In pregnancy and menstruation falsely positive reactions were of exceptional occurrence when the tests were properly conducted, as will be discussed shortly in more detail.

In other words, the serologic tests commonly employed at present are remarkably specific for syphilis when properly conducted, since the incidence of falsely positive reactions in tuberculosis, jaundice, malignant disease, fever and other diseases except leprosy and malaria is no higher than that for healthy persons, varying according to the method employed and, especially, the skill and experience of the serologists. In all four of the serologic surveys the incidence of falsely positive reactions observed in the laboratories of the authors of complement fixation and flocculation procedures varied from 0 to about 4 per cent, with the majority of the procedures showing no falsely positive reactions at all. In state and local laboratories the incidence varied from 0 to about 10 per cent, so that it cannot be denied that the various blood tests employed at present are capable of giving falsely positive reactions, especially the supersensitive flocculation procedures. As shown in the last, or fourth, survey (1938), however, a complement fixation and five flocculation procedures gave no falsely positive reactions at all in the laboratories of their authors, while one complement fixation and one flocculation test gave from 1 to 2 per cent of falsely positive reactions, indicating the high specificity of the tests when conducted under the best of conditions.

The fact remains that under routine conditions the blood tests for syphilis are capable of giving a small percentage of doubtful or falsely positive reactions; their incidence of course is in relation to the skill and experience of the serologists conducting them. To deny a man or woman the license to marry on the evidence of a positive blood reaction alone is risky and seriously open to criticism and objection. In the absence of clinical manifestations and a history at least suggestive of syphilis, it seems to me that the serologic evidence should be indisputable and based not on a single but on at least two positive reactions by two or more methods. As previously stated, those states legally requiring or contemplating premarital blood tests are obligated to see that the laboratories conducting them are approved as to the method or methods employed as well as the skill and experience of the personnel. Sooner or later serious legal complications are bound to arise from falsely positive reactions in applicants for marriage licenses.

I have observed during serologic surveys in the past two years several instances of falsely positive reactions in which a good deal of work was required to convince the subjects that they were not syphilitic. I know of several instances in which physicians instituted treatment on the basis of falsely positive blood reactions reported in such surveys. I am strongly in favor of serologic surveys for the detection of unsuspected syphilis, but I predict a small incidence of unnecessary treatment of nonsyphilitic persons as well as treatment accidents and injudicious therapy of syphilitic persons whose only indication for treatment has been a positive serologic reaction. These are by no means new or exceptional, since unnecessary or injudicious treatment on the basis of positive serologic tests is an old story in medicine, but I fear that one result of widespread serologic surveys will be to increase their incidence, especially in the case of physicians without special skill or experience with syphilis.

2. *Because positive blood reactions as the only evidence of syphilis may not always indicate a danger to marriage, especially in the case of thoroughly treated chronic syphilis.*

As previously stated, no physician can absolutely guarantee to a patient with syphilis that infection will not be transmitted by the marital relationship, but if the disease is of five or more years' duration, with thorough modern treatment for at least two years, the risks are almost infinitesimal even though the serologic reactions are positive. Whether or not the state can take a chance in its efforts to protect the spouse and children under such conditions is open to argument. Some excellent syphilologists are of the opinion that treatment may be terminated and marriage sanctioned. I am among those who believe that persistently positive serologic reactions are indicative of persistent infection requiring periodic courses of treatment for several additional years and in some instances for the rest of life to keep the infection latent [12] and that with such a program of treatment it is safe to sanction marriage and parenthood. Certainly no man or woman under such conditions must be permitted to regard his or her life as permanently blighted so far as the possibility of marriage is concerned, as in most instances he or she may marry with reasonable assurance of safety for spouse and children.

In other words, it seems to me that the state should exercise acceptable precautions in refusing a license when the applicant gives a positive serologic reaction on the basis that the presence of this reaction alone may not endanger the spouse, children or public. Just how such precaution should be exercised is not clear, but certain states require a physical examination along with an opinion from a licensed physician. Here, however, is a matter frequently requiring a more expert opinion

11. Parran, Thomas, and Emerson, Kendall: The Effect of Tuberculosis on the Serologic Reactions for Syphilis, Ven. Dis. Inform. **20**: 1-5 (Jan.) 1939.

12. Kolmer, J. A.: Serologic Reactions and Immunity in Relation to Infection and Treatment of Syphilis, Am. Jour. Syph., Gonor. & Ven. Dis. **22**: 426-452 (July) 1938.

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than many physicians without special experience with syphilis are capable of giving, and, since the incidence of positive premarital reactions is comparatively low, it may be possible for each state adopting premarital tests to require in writing the sanction of a qualified expert of integrity before issuing a license for marriage under such conditions. On the other hand, since an arrangement of this kind may not be workable, the state may assume that its laws are for the benefit of the majority even though working a hardship on the individual and, with this as a recognized legal principle, simply refuse a license to all persons with positive serologic reactions when every reasonable precaution has been taken against false positive reactions.

3. *Because the legal requirement of premarital blood tests may discourage marriage and promote sexual promiscuity.*

A possible tendency to discourage marriage is a reason against legally required premarital blood tests worthy of serious consideration. Without doubt the tests are repugnant to a large number of men and women, who assume that they question their chastity. In time, however, the present educational program will reduce the widespread impression that syphilis always implies a lapse in sexual morality by showing that in eight or ten of every 100 cases of acquired syphilis the infection is extragenital (especially of the lips) and that every one is exposed in some degree to the dangers of infection in spite of respectability and morality.

The fact remains that many persons, including some who suspect or know that they are or have been syphilitic, will go for marriage [13] to states which do not require premarital examinations. Even worse is the strong probability that many of the latter will forego application for a marriage license and adopt common law marriage or a life of sexual promiscuity. Unfortunately this is particularly true of the social classes carrying the highest incidence of the disease.

4. *Because premarital blood tests alone may not detect syphilis, especially in its incubationary and primary stages.*

While blood tests alone may not detect syphilis, this does not necessarily constitute a valid reason against the legal adoption of premarital blood tests.

That a man or woman may marry during the incubation period of syphilis (ordinarily from three to four weeks after exposure and infection) with negative reactions is self evident, because enough time has not elapsed for the production of sufficient antibody or reagin in the blood for its detection. Under these conditions the applicant will slip through in spite of both physical examination and blood tests. Furthermore, the same thing is likely to occur unless the primary sore or chancre has been present for at least ten days and, even then, about 50 per cent of persons will give negative serologic reactions. A physical examination may reveal the sore, especially in men, but the sore readily and frequently escapes detection in women. Furthermore, many physicians still rely too much on their clinical judgment in differentiating syphilitic from nonsyphilitic sores on the genitilia and lips. In this connection I wish it were legally possible to require one or more dark field microscopic examinations for Spirochaeta pallida in all cases in which the true nature of the lesion is in doubt.

13. If residents of Rhode Island are married outside the state and within six months again take up residence in Rhode Island, they are required to conform to the provisions of the law requiring blood tests.

At least the premarital blood examinations should be made as near the date of issuance of the license as possible in order to reduce to a minimum the chance that candidates will slip through during the incubation and primary stages. Of the nine states now requiring premarital examinations, four (Illinois, Kentucky, Michigan and Wisconsin) specify that they must be made within fifteen days prior to issuance of the license; one (New York) specifies twenty days, two (New Hampshire and New Jersey) thirty days and two (Connecticut and Rhode Island) forty days. It seems to me that this period should not be longer than ten days, which ought to be sufficient for both physical examination and blood tests even when the latter require repetition. It would be still better to require the examinations within ten or fifteen days of marriage instead of within this period prior to the issuance of a license, because infection may and sometimes does occur in the time elapsing between the securing of a license and actual marriage.

Certainly every state adopting such legislation should require a medical examination by a licensed physician in addition to a blood test by the state or other approved laboratory, as it is self evident that the latter alone is insufficient. This is certainly true in the primary stage as well as in the latent and tertiary stages, when, it is remembered, serologic tests alone may fail to detect the disease. Apparently eight (Connecticut, Illinois, Kentucky, Michigan, New York, New Hampshire, New Jersey and Rhode Island) of the nine states with laws requiring serologic tests for syphilis before the issuance of a license to marry require a physical examination or at least a statement from a licensed physician that the patient is free from communicable syphilis, while apparently Wisconsin accepts a negative blood test alone as satisfactory evidence.

REASONS FOR THE LEGAL REQUIREMENT OF BLOOD TESTS FOR SYPHILIS DURING PREGNANCY OR AT DELIVERY

As previously stated, laws requiring blood tests of pregnant women have been passed by New Jersey, New York and Rhode Island, and it is to be hoped that similar ones will be adopted by every state, including provision for tests at the time of delivery in those frequent instances in which the woman has delayed obstetric care until labor has begun. Of course one of the main purposes of such laws is to detect syphilis and institute treatment as early as possible for the welfare of the child. When the blood test is made at delivery this opportunity is lost, but syphilis of the mother may be detected and subsequently treated.

1. *Because blood tests during pregnancy afford an excellent opportunity for detecting syphilis in both married and unmarried women.*

Tests possessing the maximum of sensitivity consistent with specificity must be employed, because syphilis in pregnant women is not as readily detected either clinically or serologically as in nonpregnant women and in men. Furthermore, although the question of pregnancy's causing falsely positive reactions is important, I can do no better than quote Moore: [14]

> There still persists a superstition, wholly unwarranted, that pregnancy is a frequent cause of false positive Wassermann reactions. This has been repeatedly demonstrated to be untrue, but the fallacy will not down. Pregnancy does not cause false positive Wassermanns; on the contrary, its effect is sometimes

14. Moore: The Modern Treatment of Syphilis, p. 250.

the reverse, and it may cause false negative tests in patients who have definite clinical evidences of syphilis. A strongly positive blood Wassermann in the pregnant woman, verified on repetition to avoid error in labelling or technique, is diagnostic of syphilis regardless of the presence or absence of a history or physical evidences of infection. The physician who disregards such a test and withholds antisyphilitic treatment from the mother accepts a grave responsibility for which he may be held accountable.

In the first serologic survey, covering blood tests in fifty-four cases of pregnancy, nine serologists reported no falsely positive reactions at all, while four reported an incidence of from 1.9 to 3.8 per cent.

2. *Because the detection and treatment of syphilis in pregnancy increases the chance of the birth of a nonsyphilitic child, with a reduction in the number of miscarriages and in infant mortality.*

As shown by Jeans,[15] 76 per cent of 1,712 normal women gave birth to healthy children, with only 9.7 per cent of miscarriages and 15 per cent of deaths during infancy. Among from 2,000 to 4,000 syphilitic women only 16.6 per cent gave birth to healthy children, with 30.3 per cent of miscarriages and an infant mortality of 30.2 per cent. Substantially similar results have been reported by the Cooperative Clinical Group. Usilton and her colleagues [16] have reported 2 per cent of stillbirths among nonsyphilitic mothers in Chicago, with 10 per cent among syphilitic women.

Since, in the average pregnant woman, the most searching physical examination fails to reveal any evidence of the existence of syphilitic infection, the best and usually the only way to recognize its presence is by means of the routine use of the blood Wassermann. This is now current practice in almost all large obstetrical clinics, the observed incidence of syphilis ranging, depending on the race and general type of clientele, from 3-23 percent. It should be current practice not only in clinic patients, but in patients of the private class as well; and no considerations of social level, expense, or confusion of morals with medical issues should be allowed to stand in the way of its performance in every pregnant woman. Only if syphilis is recognized in the pregnant woman can it be treated; only if it is treated, can congenital syphilis be prevented; and in the vast majority of instances, recognition of infection in the mother depends on the blood Wassermann, and on nothing else (Moore).

Available evidence indicates that proper treatment begun early, before the fifth month, bids fair to prevent infection of the fetus; if started after the fifth month it amounts to early treatment of an already existing infection, so that the high probability of the birth of a syphilitic infant or of a miscarriage is transformed into the practical certainty of the birth of a normal living child.

3. *Because the detection of syphilis in pregnancy results in the treatment of the mother, especially during subsequent pregnancies.*

The detection of syphilis in pregnancy enables the mother to benefit from treatment, with "cure" or "arrest" of her infection, as well as providing the indication for treatment during subsequent pregnancies for the protection of the fetus, especially if the reaction of the blood remains positive or if there is clinical evidence of persistent infection, regardless of the amount of previous treatment. Not infrequently it is difficult to persuade the mother, usually symptomless and in good health, to continue treatment after delivery, but this should be done whenever possible and particularly if her infection has occurred within two years. Furthermore, since the blood tests of some pregnant syphilitic women give falsely negative reactions, treatment "on suspicion" during pregnancy is frequently justified.

4. *Because the detection of syphilis in pregnancy may result in its detection and treatment in the child after birth.*

Positive serologic reactions during pregnancy naturally make the physician suspicious that the child will be syphilitic, especially if no treatment or insufficient treatment has been given. If there has been no opportunity for conducting the tests during pregnancy, the blood of both mother and child should be tested at delivery. In the case of the latter, cord blood may be employed although the test is not absolutely reliable, since a child with a negative reaction may subsequently show evidence of congenital syphilis, while one with a positive reaction may remain completely free from clinical or x-ray evidence of infection and subsequently give negative reactions.

5. *Because the detection of syphilis during pregnancy may lead to its detection and treatment in the father and other children.*

The detection of syphilis during pregnancy naturally leads to the examination of the father and any other children of the marriage, with the institution of treatment if infection is found.

Not every child of a syphilitic mother is born with syphilis. Some authorities believe, however, that in view of the difficulties in diagnosis during infancy and childhood all children born of syphilitic mothers should be treated, even if clinically and serologically free from infection; others believe that treatment should be given only when some positive or suggestive evidence of infection is present. The great difficulty is in proving that infection is absent in the children of syphilitic mothers, especially since the incidence of falsely negative blood reactions in symptomless congenital syphilis is particularly high; in case of doubt I administer treatment.

REASONS AGAINST THE LEGAL REQUIREMENT OF BLOOD TESTS FOR SYPHILIS DURING PREGNANCY OR AT DELIVERY

I know of no valid or important reasons against the legal requirement of blood tests during pregnancy or at delivery. As previously stated, falsely positive serologic reactions are no more likely to occur during pregnancy than in the case of men and nonpregnant women with acceptable methods skilfully carried out. It is true that many women, as well as their husbands, may object on the assumption that the test questions their morality, but, as previously stated, this is hardly a valid reason. Furthermore, when the blood of a woman has been tested and found to have a negative reaction in one pregnancy she may object to tests in later pregnancies, but this is no guaranty that she has escaped infection in the interim, especially if the husband is known or suspected to have acquired syphilis.

It may be that some women objecting to the legal requirement of blood tests during pregnancy will neglect to place themselves in the care of physicians and even elect to be delivered by a midwife. This is one of the reasons why I believe that it is advisable to require that the results of a blood test during pregnancy or at delivery shall be reported on all certificates of birth.

15. Jeans, P. C.: Syphilis and Its Relation to Infant Mortality, Am. J. Syph. **3**: 114 (Jan.) 1919.
16. Usilton, Lida J.; Hunter, Howard, and Vonderlehr, R. A.: Prevalence, Incidence and Trend of Syphilis in Chicago, J. A. M. A. **110**: 864-878 (March 19) 1938.

COMMENT

It is hoped that the discussions given both pro and con of the issues involved in relation to legally required blood tests before marriage and in pregnancy will prove of aid in the crystallization of opinion. It is not my purpose to discuss my personal views, but after due consideration of the issues involved, I find myself in favor of premarital examinations, including blood tests, and certainly in favor of blood tests during pregnancy or at delivery when conducted by methods possessing the maximum of sensitivity consistent with specificity and by serologists of skill and experience.

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MATERNAL MORTALITY

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Recent mortality reports seem to indicate that the intensive efforts by practicing physicians, local, state and federal health agencies and a great many lay groups to reduce the number of unnecessary maternal deaths in the United States are beginning to show their effects. Official statistics of the Bureau of the Census for the year 1937 give a maternal mortality rate of 49 per 10,000 live births. This rate is 14 per cent lower than the rate for 1936 (57), which was the previous low rate for the United States. If the maternal mortality rate for 1937 had remained the same as in 1936 there would have been 1,746 more maternal deaths in 1937 than actually occurred. This decrease in maternal mortality in 1937 is especially significant, since the death rate among women of child-bearing ages (from 15 to 49 years of age) from all other causes decreased by only 4 per cent. The birth rate in 1937 (17.0) was higher than the birth rate for 1936 (16.7).

Provisional statistics compiled by the United States Public Health Service indicate that the maternal mortality rate for 1938 will probably be more than 10 per cent lower than the relatively low rate for 1937.

Chart 1 shows the maternal mortality rates for the birth registration area of the United States for the period 1930 to 1938. The striking reduction in the rate for 1937 requires careful study, especially in view of the fact that the maternal mortality rate, although declining, was reduced on the average only about 3 per cent a year during the period 1930 to 1936. Chart 2 shows the states in which the maternal mortality rates for 1937 were significantly lower than for 1936 as shown by tests of statistical significance. The map shows seventeen states in which the decreases were sufficient to be statistically significant. The maternal mortality rates also decreased in twenty-six other states (including the District of Columbia) and increased in six states, but these changes were not sufficient to be of statistical significance.

The maternal mortality rate decreased fairly generally throughout the country, so that factors applicable to one area only cannot be considered of great importance.

Table 1 gives the maternal mortality rate by causes from 1930 to 1937.

The marked decrease in 1937 in the maternal death rate from infection should be noted, for, although theoretically a larger proportion of these deaths than of deaths from any other cause are preventable, the maternal mortality rate from sepsis in the past decade has decreased relatively little. The rates for hemorrhage, toxemias and all other causes were also significantly lower in 1937. The percentage of decrease of rates for infection, hemorrhage and other causes except toxemia was much greater in 1937 than their average decrease from 1930 to 1936.

The rate for toxemia, which had been dropping more rapidly than the rate for any other cause between 1930 and 1936, showed the smallest percentage of decrease in 1937.

Table 2 gives the average annual percentage of change in maternal mortality rates by cause from 1930 to 1936 and the percentage of change from 1936 to 1937.

The factors which may have been involved in bringing about the changes in rates which have been discussed will now be considered.

The general economic level of families in the United States may have been better in 1937 than in the five preceding years, but the prosperous years of the late 1920's brought about no such reduction in the maternal mortality rate. The importance of teaching women the value of proper diet during pregnancy and of assisting them to obtain certain protective foods is recognized by most public health agencies. The distribution of surplus commodities by the government and increasing efforts of local relief authorities to provide proper food for families in need of public assistance may well be a factor in improving the health of these families.

TABLE 1.—*Causes of Maternal Mortality; United States, 1930 to 1937*

Cause of Death	Maternal Deaths per 10,000 Live Births							
	1930	1931	1932	1933	1934	1935	1936	1937
All puerperal causes	67.3	66.1	63.3	61.9	59.3	58.2	56.8	48.9
Infection	24.4	25.1	23.4	23.5	23.6	24.0	21.5	16.9
Toxemias of pregnancy	18.5	16.8	15.2	14.7	13.8	12.6	13.0	12.3
Hemorrhage	6.9	6.8	6.6	6.4	6.5	6.4	6.5	6.0
All other causes	17.5	17.4	18.1	17.3	15.4	15.2	15.8	13.7

TABLE 2.—*Average Annual Percentage of Decrease in the Maternal Mortality Rate, United States, from 1930 to 1936; and Percentage of Decrease from 1936 to 1937*

Cause of Death	1930 to 1936*	1936 to 1937†
All puerperal causes	2.9	13.9
Infection	1.6	21.4
Toxemias of pregnancy	6.0	5.4
Hemorrhage	1.2	7.7
All other causes	2.5	13.3

* Calculated by the ordinary equation for geometric progression: $\log. y = 100 (a + b x)$.

† Calculated: $\frac{100 \text{ (1936 rate} - \text{1937 rate)}}{\text{1936 rate}}$

The only recent scientific discovery or addition to the therapeutic armamentarium of the obstetrician is sulfanilamide. This drug in the future will be likely to save many lives from certain types of puerperal infection, but its use in 1937 for the treatment of puerperal infection was not widespread in the United States.

The avoidance of pregnancy among women suffering with heart disease, tuberculosis, chronic nephritis or other chronic organic disease will reduce the number of maternal deaths in this group of women and the number of therapeutic abortions. Many persons believe that the wide distribution of birth control information will result in a decrease in the incidence of abortions induced for other than therapeutic purposes. Accurate statistics on illegally induced abortions are not available in the United States to support or disprove these con-

From the Children's Bureau, United States Department of Labor.

tentions. That the unsuccessful practice of birth control may result in an increased number of induced abortions was shown in a recent study by the Milbank Memorial Fund of 6,554 pregnancies occurring in more than 1,500 women in a Midwestern city.[1] In this group illegal abortion was ten times as frequent in the termination of accidental pregnancies as in the termination of pregnancies which occurred when no contraception was used.

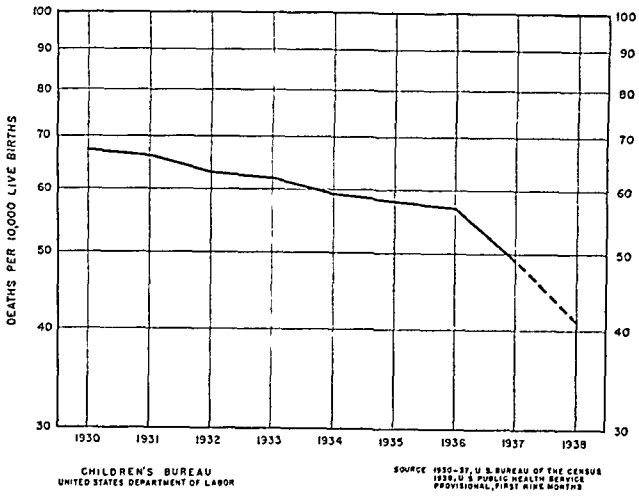


Fig. 1.—Trend of maternal mortality in the United States; 1930 to 1938.

The percentage of births in hospitals in the United States increased from 41 per cent in 1936 to 45 per cent in 1937. Better facilities for transportation and the rapid spread of group hospital insurance and lay education may have had something to do with this. If all women were delivered in properly equipped and administered maternity hospitals it would be ideal for both patient and physician, but unfortunately there are too few hospitals in the United States today that can be considered entirely satisfactory for the care of maternity patients.

Educators in the field of obstetrics have anticipated for many years that when a sufficient number of physicians trained in the past ten or fifteen years were in practice their appreciation of the value of prenatal care and the dangers of certain complications of pregnancy would result in better obstetric care. The constant efforts of the American Medical Association to raise the level of education in the medical schools and to improve and extend intern and resident services in hospitals have of course had far reaching effect in improving all phases of medical activities. Undoubtedly the improved education of medical graduates in recent years has been a definitely favorable factor. Postgraduate education in obstetrics provided in recent years for local medical groups in almost every state has resulted in a great increase in the professional interest in problems of maternal care. The demands by these practicing physicians for additional clinical postgraduate obstetric training and experience have been steadily increasing. The application of adequate, intelligent maternal care is spreading, and there is an increasing appreciation by general practitioners of the need for consultation with obstetric specialists for certain of the more serious complications of pregnancy and childbirth.

One of the most important factors in the recent reduction of the maternal death rate has been the nation-wide educational campaign, directed to present and future mothers. Newspapers, radio, magazines and even movies have bombarded the public with the benefits of proper medical and hospital care for the maternity patient. Some 20,000 public health nurses have relentlessly preached the gospel "See your doctor early in this pregnancy," have assisted the families they serve in carrying out the instructions of their physicians, have taught hygiene in the home, have helped prepare for the delivery and often have assisted the physician during labor. Dr. J. Whitridge Williams often used to say that when the women of America realize the value and need for adequate maternity care they will demand it, and only then will they get it. The women of America are demanding better care and more and more of them are receiving it each year.

The extension and improvement of state and local public services for maternal and child health made possible under the provisions of the Social Security Act, beginning early in 1936 and increasing in effect in subsequent years, have made possible additional postgraduate medical education and have stimulated a nationwide campaign of lay education. From these funds the states have provided medical, nursing and dental care to ever increasing numbers of maternity patients and have raised the standards of maternal care in all parts of the country. The states recently reported that 69 per cent of the 1,207 permanent antepartum clinical centers administered by state health agencies or by local health agencies under supervision of state health agencies have been established since social security appropriations for maternal and child health services became available. Thirty-eight per cent of the 1,984 counties with public health nursing services for mothers and children under the supervision of the state health agencies have established this service since the social security funds were made available.

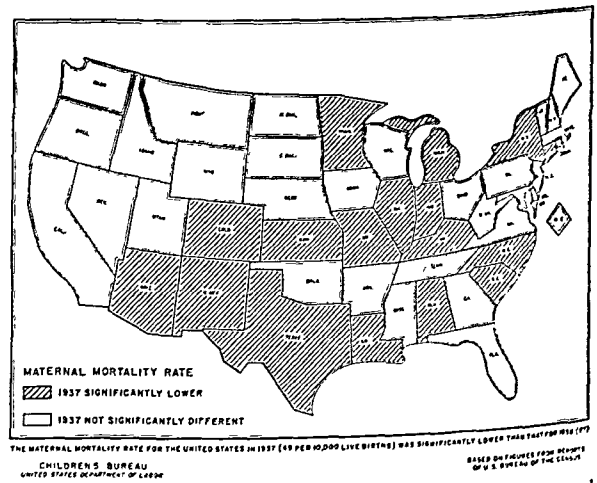


Fig. 2.—Significant changes in maternal mortality rates; 1937 compared with 1936.

The carefully conducted studies and surveys of maternal mortality which have been made in recent years have had a profound effect in every community undertaking them. Only the physicians who have given hours and days of their time each month to studying all the factors concerned with the maternal deaths in their communities and who have sought the best methods for preventing these deaths in the future can fully appreciate what their efforts have accomplished during

1. Milbank Memorial Fund Quarterly, January 1939, p. 69.

the past few years. The American Committee on Maternal Welfare, Inc., with its component organizations, and the state maternal welfare committees have been leaders in assisting the public health agencies and the medical profession in coordinating their efforts. The Children's Bureau has recently prepared a new simplified record form for community studies of maternal mortality.[2]

Though it is expected that the number of maternal deaths will continue to decrease in 1938 and 1939, the downward trend in maternal mortality as shown on statistical charts issued by the Bureau of the Census may not continue in the United States after 1939 for two reasons, which relate to the reporting and classification of causes of deaths and not to the results of maternal care.

The standard death certificate as revised for use in 1940 requires the physician to record on the death certificate all instances of pregnancy within three months prior to death. As a result, pregnancy will be mentioned in connection with a larger number of deaths than at the present time. There are at present about 14,000 deaths annually in the United States concerning which pregnancy is mentioned on the death certificate as a cause of death. These deaths are usually termed "deaths associated with pregnancy and childbirth."

Of the 14,296 deaths so certified in 1935, 87.7 per cent were assigned to puerperal causes, that is were classified as directly due to pregnancy and childbirth, and 12.3 per cent were assigned to nonpuerperal causes. The latter group included deaths due to criminal abortion and deaths due to some disease such as tuberculosis, diabetes, chronic nephritis or syphilis, which might or might not have proved fatal if the women had not become pregnant. The occurrence of pregnancy in a woman with active or recently arrested tuberculosis, chronic nephritis, heart disease and so forth is likely to exacerbate the underlying disease and so be responsible for a number of deaths among this group of women. The more complete information to be obtained in 1940 may result in the assignment of a larger number of deaths to the puerperal conditions.

The International List of Causes of Death as revised for use in 1940 will result in the assignment to puerperal causes of a larger proportion of the deaths associated with pregnancy and childbirth. At the meeting of the International Commission for the Decennial Revision of the International Nomenclature of Diseases held in Paris in October 1938, it was agreed by all countries represented that after 1940 criminal abortions would be classified as due to puerperal causes. Under the revision of the list now in use (the 1929 revision) criminal abortions are classified under homicide. There are only about 250 deaths annually in the United States which are stated to be due to criminal abortions. Several changes were made in the list and several definitions were adopted which will result in more satisfactory information on causes of maternal mortality. An abortion was defined as the termination of a uterine pregnancy at less than seven months (twenty-eight weeks) of gestation. Under the procedure of the 1929 revision of the list many deaths occurring at less than thirty-eight weeks of gestation have been classified as abortions.

It is expected for the following reasons that after 1940 far more information will be available to serve as a basis for understanding the causes of maternal mortality and for planning work directed toward the reduction of maternal deaths:

1. The requirement that physicians mention pregnancy on the death certificate of all women who were pregnant within three months prior to death will give a new view of the real importance of pregnancy as a factor in relation to death.

2. The 1940 revision of the International List of Causes of Death will afford more satisfactory information on the causes of death directly due to pregnancy and childbirth.

3. Another great forward step is the addition of a medical section to the standard stillbirth certificate and of the medical section to the live-birth certificate recommended by the American Committee on Maternal Welfare and the Children's Bureau.

The significant changes that have occurred in the maternal mortality rate in 1937 offer real encouragement for the future. The adequate body of statistical fact that will be afforded for the years after 1940 gives every hope that far greater forward steps may be taken than in the past.

[2] These record forms, with instructions for making such studies, may be obtained from the Children's Bureau.

SPONTANEOUS REMISSIONS IN SCHIZOPHRENIA

(CINCINNATI GENERAL HOSPITAL, 1933-1937)

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Spontaneous remissions occur with a certain frequency in cases diagnosed as schizophrenia. This is an important factor in evaluating results obtained from insulin and metrazol treatment. The present study was made in order to determine the incidence of this phenomenon at the Cincinnati General Hospital. Those patients who had been diagnosed as having schizophrenia in the Cincinnati General Hospital for a five year period (1933-1937) were investigated to obtain information regarding the duration of the hospital stay, the outcome of the episode and the duration of the remission in the improved patient.

The patients were first admitted to the Psychiatric Pavilion of the Cincinnati General Hospital and subsequently were either discharged from the Cincinnati General Hospital or transferred to the nearby State Psychiatric Hospital. This study was continued on the patients transferred to the state hospital. Patients who had been given metrazol or insulin therapy were not included in this study. The patients were divided into four groups according to the duration of their symptoms prior to admission to the hospital:

1. Symptoms of less than six months' duration.
2. Symptoms of from six to twenty-four months' duration.
3. Symptoms of more than twenty-four months' duration.
4. Symptoms for an indeterminate period.

Of 103 patients whose symptoms were of less than six months' duration prior to hospital admission, fifty-three were discharged from the hospital improved. Twenty-one were admitted for a period, then transferred to the State Hospital and subsequently discharged as improved. Three were admitted twice each; their first stay ranged from three to seven weeks and their second

From the Department of Psychiatry, University of Cincinnati College of Medicine.

admission resulted in transfer to the State Hospital, from which they were discharged as improved. The duration of hospital residence of these twenty-four patients was as follows: for periods ranging up to six months there were thirteen patients, from six to twelve months six patients and from twelve to twenty-four months five patients. In summary there were twenty-seven admissions for these twenty-four patients with a range of hospital stay, comprising that in the Cincinnati General Hospital and State Hospital, of from three and one-half months to four and one-half years, with an average hospital stay of 9.9 months per admission. Twenty-nine patients were discharged from the Cincinnati General Hospital improved after a hospital stay which ranged from one to twelve weeks and averaged 4.1 weeks. These twenty-nine patients are classed according to the duration of their hospital stay as follows: for periods ranging up to four weeks, twenty patients; from five to eight weeks, eight patients; one patient remained in the hospital for eleven weeks. The fifty-three patients who were finally discharged as improved had an average hospital stay of 5.4 months per admission.

There were fifty patients of this group who were unimproved. Two died in the Cincinnati General Hospital after an average hospital stay of less than four

The Outcome in 235 Cases of Schizophrenia Without Drastic Treatment

Duration of Symptoms Prior to Admission	Number of Cases	Number of Unimproved Patients	Number of Deaths	Number Improved	Per Cent Improved	Average Hospital Stay in Improved Cases
0 to 6 mo.....	103	43	7	53	51.4	5.4 mo.
8 to 24 mo.....	30	18	3	9	30.0	8.0 mo.
24 mo.+.....	90	59	4	27	30.0	12.9 mo.
Undetermined	12	7	0	5	41.6	4.6 mo.
Total.....	235	127	14	94	40.0	7.7 mo.

weeks and five died in the State Hospital subsequent to transfer after an average hospital stay of twenty-five months. Forty-three patients were transferred to the State Hospital and the length of their residence there to date (July 1, 1938) is as follows: from six to twelve months, four patients; from twelve to twenty-four months, nine patients; from twenty-four to thirty-six months, thirteen patients; from thirty-six to forty-eight months, five patients; and from forty-eight to sixty months, twelve patients. Seventeen patients were discharged from the Cincinnati General Hospital unimproved after an average hospital stay of less than four weeks. These could not be followed and the clinical outcome was therefore not determined.

Of thirty patients whose symptoms were present for from six to twenty-four months prior to hospital admission there were nine discharged as improved. One was discharged from the Cincinnati General Hospital after being there for five weeks. Eight were transferred to the State Hospital after hospital stays which ranged from five to sixty-four weeks, the average stay in the two hospitals being 8.9 months. Four of this group remained in hospitals less than six months and four for between six and twelve months.

There were twenty-one patients who did not improve. Eighteen were transferred to the State Hospital and are still there. Two of these patients have been confined to hospitals for less than six months, six from twelve to twenty-four months, one for twenty-eight months and nine from thirty-six to sixty months. Three others who did not improve were transferred to the State Hospital and died after an average stay of 11.3 months. Three patients were discharged from the Cincinnati General Hospital unimproved after an average stay of less than two weeks. Their subsequent clinical course could not be determined.

Of ninety patients whose symptoms were present for more than twenty-four months prior to hospital admission, twenty-seven were discharged improved. Twenty-four were transferred to the State Hospital and thence discharged improved. These twenty-four patients required hospital residence as follows: thirteen for less than six months, three for from six to twelve months, six for from twelve to thirty-six months, and the remaining two for thirty-nine and fifty-six months respectively. The combined hospital stays ranged from three to fifty-one months and averaged 14.1 months. Three patients were discharged from the Cincinnati General Hospital improved after from two to three weeks. The average hospital stay was 12.9 months for the twenty-seven patients.

There were sixty-three patients who were unimproved. Four were transferred to the State Hospital and died there after an average stay of thirty-one months. Fifty-nine patients were transferred to the State Hospital and are still there. These patients have been in the hospital for the following periods: nine for less than twelve months, twenty for from twelve to thirty-six months and thirty for from thirty-six to sixty months. Twenty-six patients were unimproved and were discharged from the Cincinnati General Hospital after an average stay of less than three weeks. Their subsequent clinical course could not be determined.

Of twelve patients whose symptoms were of undetermined duration, five were improved at the time of discharge from the hospital. Three were transferred to the State Hospital and later discharged improved after hospital stays ranging from two to eight months and averaging 5.3 months. Two patients were discharged from the Cincinnati General Hospital improved after hospital stays of one week and fifteen weeks.

Seven patients were unimproved. Seven were transferred to the State Hospital and are still there after periods ranging from four months to five years. Five patients were discharged from the Cincinnati General Hospital unimproved after an average stay of less than three weeks. Their subsequent course could not be determined.

SUBSEQUENT COURSE OF THE IMPROVED PATIENTS

Attempts were made to interview all of the ninety-four improved patients. They were traced by means of addresses given on admission to the Cincinnati General Hospital, and only twenty-one could be located in the community. Three had reentered the hospital because of recurrence of the psychosis, twelve months, twenty-two months and four years after the first discharge.

The eighteen patients (fourteen males and four females) who remained in the community with no return of the psychosis were interviewed. Eleven of the men were working full time and three part time. One female was working full time outside her home and three were carrying on their household duties. These improved patients had remained out of the hospital from one to fifty-five months. The average length

of remission for the eighteen patients was 25.9 months. No one of these eighteen had residuals of their psychotic episode and all could be classed as recoveries.

COMMENT

The validity of a survey of this type depends on several factors including the sampling of patients, the diagnostic criteria, the criteria of a remission and a follow-up study.

The Psychiatric Pavilion at the Cincinnati General Hospital is the only psychiatric hospital in Cincinnati to which the individuals from the lower income group may be directly admitted. Patients for commitment to the State Hospital from Cincinnati are first studied at the Cincinnati General Hospital and later transferred. Because of these facts many patients were observed suffering both acutely and chronically from schizophrenia.

During the five year period (1933-1937) the diagnostic standards were rather constant. The diagnosis of schizophrenia was made because of certain signs and symptoms and at no time during this period did the diagnosis depend on the ultimate result, for in the great majority of patients the outcome was not known to the physician who made the original diagnosis.

The ability to make a good adjustment outside an institution was the main factor in determining whether or not a patient had had a remission. The return of the patient to the level of adjustment which he enjoyed prior to the onset of his obvious difficulties, as far as this could be determined, was considered to be a reasonable and fair basis for judging remission. It is well known that the great majority of these individuals have certain personality difficulties, which might be said to be present prior to what appears to be the obvious onset of the schizophrenic episode. It is hardly to be expected that a complete cure will result in such a case by the waxing and waning of the psychosis.

SUMMARY

The results of this survey are summarized in the accompanying table.

1. The cases of schizophrenia admitted to the psychiatric service of the Cincinnati General Hospital over a five year period were analyzed to determine the percentage of spontaneous remissions.

2. Ninety-four patients of a total of 235 were discharged as improved, after no other treatment than superficial psychotherapy.

3. Of the ninety-four patients who improved, twenty-one could be found in the vicinity. They were interviewed at varying periods after their remission and eighteen were then classed as recoveries. The average period that this recovery was maintained was greater than two years.

4. Thirty-five of the ninety-four patients who had improved obtained the remission during their stay at the Cincinnati General Hospital and therefore did not require State Hospital care.

CONCLUSIONS

1. Spontaneous remission occurs with enough frequency in schizophrenia that its incidence may be favorably compared with the remissions obtained from the shock therapy (insulin, metrazol) of schizophrenia.

2. Those patients who enter the hospital soon after the onset of symptoms have an apparently better prognosis than those who enter late. This factor is not necessarily related to the treatment.

CHANGES IN SERUM POTASSIUM IN CERTAIN ALLERGIC STATES

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About a year ago one of us [1] reported six cases of chronic urticaria in which definite improvement was attained by the administration of a low sodium, high potassium, acid ash diet with the addition of from 4 to 6 Gm. of potassium chloride daily. Recently Bloom [2] has reported similar results in a variant group of allergic persons.

This clinical success in a small series of cases prompted a study of possible chemical changes involved. The first requisite in our work was information as to the normal potassium content of blood serum. The values reported in the literature, however, show too wide discrepancies and variations to be uncritically accepted, especially in view of the fact that most of them were obtained by the method of Kramer and Tisdall,[3] the unreliability of which (and of its modifications) has been clearly pointed out by Van Slyke and Peters.[4] By means of an improved micro method (which is based on the gasometric determinations of a well defined mixture of potassium-silver-cobaltinitrite compounds), we were able to obtain results that agreed ±1 per cent with control determinations done by the macro platinic chloride method. The details of the method are to be reported shortly.

TABLE 1.—*The Potassium Content of Blood Serum in Healthy Persons and in Some Allergic Patients*

No. of Patients	Condition of Subject	Mg. of Potassium per 100 Cc. of Serum		
		Lowest	Highest	Average
35	Healthy	17.9	20.6	19.5
20	Urticaria, acute and chronic	22.0	25.3	23.4
10	Bronchial asthma, asymptomatic period	21.3	25.1	23.6
7	Bronchial asthma, acute attack	24.0	25.5	24.4

The serum potassium values of thirty-five normal persons, determined by this procedure, are well in line with the normal values obtained by MacCallum,[5] who employed a classic platinic chloride method, and incidentally agree with the results of a few more recent investigators.[6] The maximum difference in the serum potassium of healthy persons, as shown in table 1, is less than 3 mg. per hundred cubic centimeters, in contrast to the wide range of variations reported by several other authors.[7]

With this orientation on hand we proceeded to study the serum potassium in allergic conditions. The first group comprised twenty patients with acute and chronic

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This research was aided by the Edward B. Pryor Memorial Fund.

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urticaria, for whom repeated analyses were performed. As may be seen in table 1, every person in this group showed a definite elevation of the potassium content of the serum above the normal. It is noteworthy that with subsidence of the urticarial lesions the serum potassium recedes to appreciably lower levels and stays there until a subsequent attack.

The following three cases are illustrative of the phenomenon involved:

CASE 1.—A man aged 25 who had severe dermographism and urticaria had a fasting serum potassium content on three consecutive days of 22.2, 22.1 and 22.2 mg. per hundred cubic centimeters. On the morning of the third day he was rubbed down with a rough towel, with the production of urticarial wheals over the entire body. One hour after this procedure a rise in the serum potassium to 24 mg. was found.

CASE 2.—A man aged 50 had chronic urticaria of fifteen years' duration, with a serum potassium content of 23.8 mg. per hundred cubic centimeters. After two weeks of a diet low in sodium and high in potassium, with 4 Gm. of potassium chloride daily, he became symptom free and the serum potassium content dropped to 20.6 mg. He has remained symptom free since on a low sodium, high potassium regimen.

CASE 3.—A man aged 28 with severe urticaria of nine months' duration could be kept symptom free with large doses of potassium chloride, but the administration of potassium chloride had to be discontinued because of gastric distress. The urticaria was found to be the result of a sensitivity to acrylic aldehyde originating from the combustion of a glycerin-treated cigaret. When examined the patient showed mild urticaria, and a sample of blood obtained at this time had a serum potassium content of 21.8 mg. per hundred cubic centimeters. He then smoked six glycerin-treated cigarets; marked urticarial wheals developed on the face and hands, and one hour later the serum potassium content had risen to 25.3 mg.

The other patients in our series with urticaria have shown similar values.

As a second allergic condition we studied bronchial asthma. Hoffman and Jacobs [6] found in seven cases of this disease elevated serum potassium levels. Our studies made in ten cases during asymptomatic periods showed a definite increase in serum potassium. In seven cases observations were made in acute attacks.

TABLE 2.—*Summary of Experiment 1 (Case 4)*

Time	Blood Sugar (Whole Blood) (True Sugar) Mg. per 100 Cc.	Lactic Acid (Whole Blood) Mg. per 100 Cc.	Potassium (Serum) Mg. per 100 Cc.
Fasting	69	11.6	23.4
6 min. after exercise	72	59.1	23.7
30 min. after exercise	87	18.2	22.3
Immediately after exercise after 50 Gm. of dextrose.	69	55.3	22.5
30 min. after exercise	81		
25 min. after insulin	63	15.0	21.7
Immediately after exercise.	79	60.0	20.8

It may be noted in table 1 that, whereas the peak value in an acute attack was not appreciably higher than the maximum during remission, in an acute attack even the lowest value found was very high. It is not apparent from table 1 that four of the seven patients in an acute attack are also represented in the group of ten studied during asymptomatic periods. It may be stated that every one of these four, while showing increased potassium levels during remission, showed a further elevation in the acute attack.

Harrop and Benedict [8] and Briggs and his associates [9] reported in 1924 that insulin causes a drop in the serum potassium level of men, dogs and rabbits. A number of other workers have confirmed this finding. We were interested in the therapeutic significance of this phenomenon in certain allergic disorders in which elevated serum potassium levels are characteristic. The premise of our studies was the assumption that the increased potassium content of the serum indicated a depletion of tissue cells of their normal potassium content and, furthermore, that such factors as depress the level of the serum potassium accomplish this effect by driving potassium back into the cells, thereby helping to reestablish the electrolyte equilibrium. Among the agents we employed were insulin and dextrose, administered in conjunction with potassium salts. We have had patients with urticaria and a few with asthma who responded very favorably to this treatment.

TABLE 3.—*Summary of Experiment 2 (Case 4)*

Time	Blood Sugar (Whole Blood) (True Sugar) Mg. per 100 Cc.	Lactic Acid (Whole Blood) Mg. per 100 Cc.	Potassium (Serum) Mg. per 100 Cc.
Fasting	78	9.3	23.6
"	77	45.0	24.9
"	62	11.3	24.8
"	29	7.8	23.7
Immediately after exercise	60	45.6	23.9
35 min. after exercise	72	14.3	20.9

The following case is illustrative:

CASE 4.—A youth aged 16, who weighed 150 pounds (68 Kg.) and was 5 feet 11 inches (180 cm.) tall, had had severe asthma for fourteen years, requiring frequent injections of epinephrine for relief. For a few months he had needed four doses of epinephrine and morphine daily to gain any degree of comfort. At various times he had been tested cutaneously with innumerable pollens and other substances and showed sensitivity to a large group. He had a markedly dermagraphic skin. He had been subjected to various allergic regimens without any success. It was found from the history and experiments that he could bring on an attack of asthma by a short period of violent exercise.

EXPERIMENT 1.—October 15, with a resting potassium content of 23.4 mg. per hundred cubic centimeters, the patient ran up and down a steep flight of fourteen stairs for eight minutes. A rather severe attack of wheezing was brought on. Six minutes after exercise a blood sample was taken (table 2). In thirty minutes the wheezing was over. Fifty Gm. of dextrose was given by mouth, and fifteen minutes later the exercise was repeated. Very mild wheezing ensued, which was over in ten minutes. A blood sample was taken immediately after the exercise. Thirty minutes after the mild wheezing had stopped, 8 units of insulin was given intravenously and 50 Gm. of dextrose was given by mouth. Twenty-five minutes later the exercise was repeated; no wheezing resulted, and the patient volunteered the information that he did not suffer nearly the amount of muscular exhaustion and dyspnea as he had previously.

For some time it has been known that ammonium chloride increases the urinary excretion of potassium. We attempted to determine how this drug would affect this patient:

EXPERIMENT 2.—October 16 the patient was given 9.5 Gm. of ammonium chloride, and October 17 the dose was repeated. October 18 at 10 a. m. the patient was free from symptoms and was subjected to the same exercise as in experiment 1. He completed his period of exercise with great difficulty and at the end of this time was wheezing violently; he continued to wheeze for about one hour. At the end of this time he was given 8 units of insulin intravenously and 25 Gm. of dextrose; thirty minutes later he was given another 25 Gm. of dextrose, and the same period of exercise was repeated. There was little or no wheezing, and normal breathing was established fifteen minutes after exercise.

8. Harrop, G. A., Jr., and Benedict, E. M.: J. Biol. Chem. 59: 683 (April) 1924.
9. Briggs, A. P.; Kocchig, I.; Doisy, E. A., and Weber, C. J.: J. Biol. Chem. 58: 721 (Jan.) 1924.

In summarizing the experiments on this patient it is clearly demonstrated that the tolerance to exercise was markedly increased by the administration of dextrose and, to an even greater degree, by dextrose and insulin. The lowering effect on the serum potassium may be noted in the figures of both experiments. The serum potassium response of the patient to insulin, dextrose and epinephrine was determined, but detailed reports will not be given here, as there are insufficient data at present for a quantitative comparison with a normal subject. However, it might be stated that all these substances caused a marked fall in the serum potassium level.

November 30 the patient suffered a severe attack. When he entered the hospital at 6 p. m. he had a serum potassium content of 25.5 mg. per hundred cubic centimeters. He was given 25 units of insulin intravenously and 50 Gm. of dextrose by mouth. Fifty minutes later the symptoms were very much relieved, so much in fact that there was no need for epinephrine. He remained symptom free all night. The serum potassium content in the morning was 25.6 mg. On this date we decided to start giving him potassium and insulin daily. He was given 6 units of insulin subcutaneously thirty minutes before breakfast, with 20 grains (1.3 Gm.) of enteric-coated potassium chloride. He received during the day 50 grains (3.2 Gm.) more of potassium chloride, and thirty minutes before supper he received 6 units more of insulin. Before he retired another 20 grains of potassium chloride was administered. There was no restriction of diet except that he was advised to avoid fried foods and other high fat foods, which seemed to upset his digestion. This regimen was continued for ten weeks, and during this time the patient did not have an asthmatic attack. The longest previous period that he had been free from asthma in fourteen years, according to his history, was two weeks. Potassium balance studies are being carried out.

Keys[10] has recently reported the potassium-lowering effect of large doses of insulin. He ascribes the phenomenon not to insulin but to epinephrine, which is excreted in response to the hypoglycemia that follows the injection of insulin. To probe this concept we gave a patient 8 units of insulin intravenously but preceded it by the oral administration of 50 Gm. of dextrose in order to forestall the development of hypoglycemia. The results are shown in table 4.

The trivial drop in the blood sugar content can scarcely be regarded as hypoglycemia, yet the serum potassium showed a distinct decrease.

TABLE 4.—*Potassium-Lowering Effect of Insulin*

Time	Blood Sugar (Whole Blood) (True Sugar) Mg. per 100 Cc.	Potassium (Serum) Mg. per 100 Cc.
Before insulin	70	24.5
30 minutes after insulin	65	22.8

Since dextrose alone causes a drop in the serum potassium content of dogs,[11] we tried the effect of 100 Gm. of dextrose given orally on a human subject. The results are recorded in table 5.

It may be noted that the serum potassium content decreased from the initial 20.5 mg. per hundred cubic centimeters to 16.7 mg. in two hours after the ingestion of 100 Gm. of dextrose, a drop of 19 per cent. In the same interval the blood sugar content rose from 79 to 126 mg. per hundred cubic centimeters. There had been no hypoglycemia to cause an increased secretion of epinephrine. When, however, compensatory hypoglycemia did occur, four hours after the ingestion of dextrose, the serum potassium had risen by 17 per cent above the lowest level.

The studies have been extended to the quantitative relationship be[illegible] the dose of insulin and its [illegible]. In this place we wish only to mention the noteworthy phenomenon that this relationship is entirely different during acute attacks and in symptom-free periods in allergic persons. The following examples are illustrative of this fact:

TABLE 5.—*Potassium-Lowering Effect of Dextrose*

Time After Ingestion of Dextrose, Minutes	Blood Sugar (Whole Blood) (True Sugar) Mg. per 100 Cc.	Potassium (Serum) Mg. per 100 Cc.
0	79	20.5
30	120	20.9
60	118	19.0
90	127	18.0
120	126	16.7
180	107	19.0
240	53	19.6

A patient with severe asthma showed in an asymptomatic period a serum potassium content of 22 mg. per hundred cubic centimeters; forty minutes after the intravenous administration of 10 units of insulin the potassium content decreased to 16.6 mg., a drop of 25 per cent. In an asthmatic attack, on the other hand, when the serum potassium content was 24.5 mg. per hundred cubic centimeters, an identical dose of insulin effected only a drop to 23.7 mg., corresponding to a little over 3 per cent.

In a case of marked chronic urticaria of six months' duration, during an attack in which almost the entire body was covered with wheals, there was an initial serum potassium content of 23.7 mg. per hundred cubic centimeters, and fifty minutes after 20 units of insulin had been given intravenously the value was 21.7 mg., a drop of 9 per cent. During a relatively symptom free period, with a resting potassium content of 22.6 mg. per hundred cubic centimeters, forty minutes after 10 units of insulin had been given intravenously the value was 19.5 mg., a drop of 14 per cent.

We have studied the effect of dextrose, insulin and epinephrine on the blood potassium in several of our cases of urticaria and asthma during symptom-free periods and have found that all three substances cause substantial lowering of the serum potassium content. A discussion of the quantitative differences from the normal subject must await further work. When the patient is in an urticarial or asthmatic attack the potassium-lowering effect of insulin and epinephrine is markedly decreased.

The mechanisms involved in potassium metabolism are at present little understood, but it is an established fact that the bulk of body potassium is stored inside the cells, and the blood serum is primarily a medium of potassium transport. By providing an excess of potassium in the diet and by giving potassium chloride by mouth, one is making available a source of potassium replacement for the body cells, which we have postulated as being depleted of their potassium content. Experiments are now in progress to test the validity of this postulation.

SUMMARY

The results of our studies, to the present time, may be summarized as follows:

1. In patients with acute and chronic urticaria there is an increase in the serum potassium, and with the subsidence of clinical symptoms the blood potassium content falls.

10. Keys, Ancel: Am. J. Physiol. **123**: 608 (Sept.) 1938.
11. Flock, Eunice; Bollmann, J. L.; Mann, F. C., and Kendall, E. C.: J. Biol. Chem. **125**: 57 (Sept.) 1938.

2. The same phenomenon has been observed in patients with bronchial asthma.

3. In an urticarial or asthmatic attack the serum potassium-lowering effect of insulin and epinephrine is markedly decreased.

Certain allergic patients with urticarial and asthmatic manifestations show definite relief of symptoms with potassium chloride alone or potassium chloride and insulin, while other patients do not seem to be benefited by this regimen. At the present status of our investigation we have not been able to determine which allergic patients will show a therapeutic response; with further studies, now under way, we hope to determine criteria for selection.

HISTAMINASE IN THE TREATMENT OF SERUM SICKNESS

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The recent studies of Roth and Horton [1] demonstrated that the oral administration of the enzyme histaminase would prevent the occurrence of local inflammation and edema in patients susceptible to cold allergy after their hands and forearms were plunged into cold water. After discussing their cases with Dr. Roth we decided to test the effect of the enzyme in controlling or preventing the local and general symptoms of serum sickness. For several years one of us (L. F.) has entertained the hypothesis that the major phenomena of serum sickness are due to a release of histamine, or a histamine-like substance, in the tissues and into the circulation consequent on the union of serum protein antigens and antibodies. The irregularity of appearance of the disturbance and the great variability of its clinical aspects in different persons might depend on different rates of production of antibodies to the separate fractional antigenic components and on the differential solubilities and adsorption capacities of the various tissues of the recipients for these different antigenic components of the serums. This in brief is the hypothesis that we thought might be tested for validity by giving histaminase to patients with serum sickness.

Best [2] first observed the presence of a histamine inactivating substance in tissues. With McHenry [3] he prepared a stable powder which contained the active substance in high concentration, and because of its enzyme-like action these workers proposed the name histaminase.

The producers of the compound state that it consists of ferments derived from the intestinal mucosa which are destructive to histamine and histamine-like substances.[4] It was furnished in enteric coated tablets, each containing 5 histamine detoxicating units, and in ampules for intramuscular injection, each dose representing 1 histamine detoxicating unit. One unit represents that quantity of the material which is capable of detoxicating 1 mg. of histamine hydrochloride during twenty-four hours at 37 C.

The tables show the essential data in condensed form. The first eight patients received only the enteric coated tablets by mouth before meals. The first patient had had serum sickness due to horse serum a few years previously. On the present occasion the eyes were closed, the lips were enormously edematous and the itching from universal urticaria was intense. All symptoms were relieved in about twenty-two hours. Patchy areas of erythema that did not itch continued for three days. Although this attack began as unusually severe serum sickness, the patient volunteered the statement that it was nothing compared with his previous attack. The second patient was not relieved. The third patient obtained complete relief from itching, fever, arthralgias and myalgias thirty-six hours after beginning to take the tablets. At this time the initial treatment of 30 cc. of horse serum was followed by the administration of 60 cc. of goat serum. No further serum sickness occurred.

The fourth patient was utterly wretched, with fever and universal urticaria with violent itching. Unlike the other patients she had had epinephrine, but it never gave complete relief. After starting to take the tablets, two immediately followed by one thrice daily, she slept all night but had a few scattered residual wheals the next morning. Two tablets thrice daily were then given, and the last trace of erythema disappeared in about six hours. This relief lasted for two days. To see whether this was a spontaneous recovery, administration of the tablets was stopped. Urticaria recurred in about twenty hours. This patient weighed well over 200 pounds (91 Kg.). The preliminary dose was obviously too small. The fifth patient obtained no relief whatever despite the relatively large dose. The amount of serum given and the apparent severity of the disturbance were the same as they were for the sixth patient, who obtained complete relief in thirty-six hours after taking three tablets at the first dose, and then one thrice daily, before meals, for the next two days. Again, in order to see whether this might be a spontaneous early cessation, the administration was stopped. Urticaria reappeared in fourteen hours, but arthralgias did not recur. At this time three tablets were given at once, followed in four hours by two more. The urticaria had disappeared again when the last dose was taken. It never recurred.

The seventh patient had had seven injections of a commercially prepared refined horse serum in eight days. On the eighth day bacteremia persisted, and both ophthalmic and intradermal tests with normal horse serum gave slight positive responses. Because of the gravity of the situation it was decided to risk giving 60 cc. of unrefined serum by vein. This was followed in half an hour by an anaphylactic reaction of moderate severity, consisting of universal erythema, dyspnea, hyperpnea, tachycardia, severe headache and chills. Relief was obtained with one subcutaneous injection of 0.5 cc. of epinephrine. Histaminase tablets were then given at the rate of one thrice daily. For the next nine consecutive days additional unrefined horse serum was given intramuscularly in daily or twice daily doses of

From the Department of Bacteriology, University of Cincinnati College of Medicine, and the Cincinnati General Hospital.

1. Roth, G. M., and Horton, B. T.: Hypersensitiveness to Cold: Treatment with Histamine and Histaminase; Report of Case, Proc. Staff Meet., Mayo Clin. **12**: 129 (March 3) 1937; Histaminase in Hypersensitiveness to Cold, J. A. M. A. **110**: 686 (Feb. 26) 1938.

2. Best, C. H.: The Disappearance of Histamine from Autolyzing Lung Tissue, J. Physiol. **67**: 256 (June 1) 1929.

3. Best, C. H., and McHenry, E. W.: The Inactivation of Histamine, J. Physiol. **70**: 349 (Dec. 4) 1930.

4. The supply of histaminase, called T: 360, was furnished by the Winthrop Chemical Company, Inc.

from 30 to 60 cc. The last tablet each day was given at about 5:15 p. m. Each morning at 7 a. m. there were moderate sized Arthus reactions at the sites of the intramuscular injections. The skin was red, indurated and thickened to approximately one half inch, with a central pale area about 1½ inches in diameter. The areas of induration were about 4 by 5 inches in diameter. The first daily tablet was given at 7 a. m. By 9 a. m. each day the skin at these sites was normal in color and in thickness, and no trace of the reactions remained save a brilliant red line about 1 mm. thick, which marked the peripheral boundary between the former areas and the uninvolved normal adjacent skin. It was thought by all who saw the patient that without the histaminase it would have been impossible to continue the daily injections of serum.

In the eighth patient severe serum sickness developed on the seventh day after injection of 60 cc. of serum. Treatment with histaminase was begun on the second day of symptoms. She received a total of twenty tablets at the rate of one three times a day. There was marked relief from the itching and malaise in twenty-four hours. Mild symptoms and signs persisted for another day, to the fourth day of the disorder.

recession of signs and symptoms, which finally disappeared completely and permanently at the seventy-second hour.

The fourth patient had unusually severe serum sickness, with universal giant urticaria, intolerable itching, fever and edema of the face, hands and feet. Hourly injections of epinephrine brought slight transient relief. The administration of histaminase was begun on the second day, the contents of two ampules being given in one injection. A similar dose was given twelve hours later. Marked relief was noted twelve hours after the first injection. At twenty-four hours after the first injection there were no symptoms or signs of serum sickness and there was no return of either. The disturbance was mild in the fifth patient, consisting of scattered urticaria and large diffuse patches of intense erythema. The first injection of histaminase was given eight hours after the onset. Marked relief and permanent, complete disappearance of the urticaria occurred within forty-eight hours. The last signs and symptoms had disappeared before the seventy-second hour.

The sixth patient had accelerated serum sickness of great severity, with the onset eight and one half hours after the administration of serum. There were gen-

TABLE 1.—*The Effect of Histaminase Administered Orally to Seven Patients with Severe Serum Sickness*

Case No.	Patient	Age	Sex	Dose of Serum, Cc.	Day After Injection of Serum the Serum Sickness Appeared	Severity	Day of Serum Sickness Use of Histaminase Was Begun	Administration of Tablets	Total Number of Tablets	Comment
1	W. M.	50	♂	30	5th	Very severe	2d	1 t.i.d.	12	Relief in less than 24 hr.; patchy erythema dispelled in 3 days
2	K. C.	25	♂	60	5th	Severe	1st	1 t.i.d.	10	No change; lasted from 5 to 6 days
3	D. O.	21	♀	90	3d	Severe	1st	1 t.i.d.	21	All signs and symptoms dispelled in 36 hr.
4	F. K.	48	♀	180	6th	Severe	5th	1 t.i.d. (see text)	12	Complete relief in 7 hr.; patchy erythema disappeared in 30 hr.
5	D. D.	16	♀	180	6th	Severe	2d	2 q.i.d.	30	No change; symptoms lasted from 4 to 5 days; hives from 8 to 9 days
6	C. C.	43	♂	180	8th	Severe	2d	See text	17	Complete relief in 36 hr.
7	S. S.	42	♀	440	9th	Very severe	1st	1 t.i.d.	40	Complete relief in 10 hr.; maintained despite 9 additional days of continued intramuscular injections of serum
8	C. M.	62	♀	60	7th	Severe	2d	1 t.i.d.	20	Marked relief in 24 hr.; mild symptoms persisted to the fourth day

The next group, of thirteen patients, received the injectable form of histaminase intramuscularly. Four also received the tablets orally. The first patient had universal erythema and urticaria, intolerable itching, edema of the glottis and marked difficulty in expiration. Epinephrine was given in doses of 1 cc. every fifteen to twenty minutes for more than ten hours, with only partial relief. The administration of histaminase was begun on the third day, with noticeable relief in twelve hours, complete relief in eighteen hours and permanent disappearance of all symptoms in forty-eight hours. The second patient had scattered urticaria, moderately intense itching, erythema about the mouth and swelling around the eyes and lids. Histaminase was injected soon after the onset. No other medication was given. There was no progression of the disturbance after the first ampule was injected, and complete and permanent relief, with disappearance of all visible signs, was obtained within forty-eight hours. The third patient had very severe serum sickness, with generalized urticaria, intense itching, severe arthralgias, vomiting, pain in the chest and edema of the glottis. Histaminase was given eight hours after the onset. There was marked relief in thirty-six hours, followed by a gradual, steady

eralized urticaria and erythema, intolerable itching, severe arthralgias, swelling of the face and so much edema of the glottis that it was feared a tracheotomy might become necessary. Large injections of epinephrine brought moderate relief from the dyspnea, but the drug caused severe nausea and persistent vomiting and seemed to add to the existing wretchedness. One hour after the onset the histaminase from two ampules was given intramuscularly in one injection, and the dose was repeated in four hours. The contents of additional single ampules were injected six, twelve and twenty hours after the first dose. Practically all symptoms and signs had disappeared by the twentieth hour and there was complete disappearance by the twenty-fourth hour. The contents of one ampule were given on each of the two following days. There was no recurrence. The seventh patient was only moderately ill, with urticaria, moderate arthralgias and edema of the face, hands and feet. The administration of histaminase was begun twelve hours after the onset. Both forms were employed. Three tablets three times a day were given until twenty had been taken. The contents of two ampules were given at the first injection, followed by those of one ampule night and morning until the con-

tents of five had been injected. Recession of symptoms and signs was noted at the eighteenth hour, and the patient was normal again by the thirty-sixth hour.

The eighth patient had only moderately severe serum sickness, chiefly urticaria. Histaminase was given on the first day. The dose was the contents of one ampule daily for five days. Moderate relief was obtained at the forty-eighth hour, and there was only an occasional hive after the ninety-sixth hour. The ninth patient had only moderate erythema and urticaria but unusually severe arthralgias involving all joints, including the mandibular. She was given the contents of two ampules of histaminase in a single injection night and morning for four doses and the contents of a single ampule the following day. She was also given three tablets three times a day for the first two days and two additional tablets on the third day. The response was prompt. Relief was almost complete by the thirty-sixth hour, and no signs or symptoms persisted beyond the forty-eighth hour. The tenth patient had severe generalized urticaria, arthralgias of the knees, ankles and wrists and edema of the eyelids. Histaminase was given almost twelve hours after the onset. The contents of four ampules were given the first day, of three the second day and of one the third day. He also received two tablets a day for three days. Relief was noted twenty minutes after the first injection. Serum sickness was entirely dispelled before the end of the third day.

The eleventh patient had the usual symptoms of severe serum sickness, with onset five days after the administration of 180 cc. of horse serum. Administration of tablets was begun on the second day of symptoms and continued for three days, the patient taking four, five and four tablets daily, a total of thirteen. During these three days the severity of the symptoms progressed steadily. On the night of the fourth day of serum sickness the contents of one ampule were given. This dose was continued morning and night for three additional injections. There was marked relief from itching by the morning of the fifth day, and urticaria disappeared permanently that evening. Arthralgias persisted for another twenty-four hours. The patient looked and felt normal forty-eight hours after the first injection. There was no recurrence of symptoms or signs.

The twelfth patient had serum sickness of mild to moderate severity on the tenth day after injection of 1,500 units of tetanus antitoxin. He was without fever but had universal erythema, diffusely scattered small urticarial wheals, with intense itching, and nausea. Treatment was begun on the first day of serum sickness and consisted of the injection of the contents of one ampule morning and night for five doses and the administration of one tablet three times a day until a total of seventeen had been taken. The itching was markedly relieved nine hours after the first injection but continued to a mild degree for two days, associated with persisting mild erythema without urticarial wheals. All symptoms had disappeared by the third day. This patient attributed some of his nausea and vomiting to the ingested tablets, but since nausea had been severe before histaminase was first given a causal relation could not be established.

A thirteenth patient, a girl aged 6 years, had severe serum sickness following serum treatment for scarlatina. She lived in a small outlying town. Histaminase was sent to her physician, who reported verbally that a very good result was obtained, but we do not have the detailed data on this case.

Except as noted, all patients received unconcentrated, unrefined horse serum.

TABLE 2.—*The Effect of Intramuscular Injections of Histaminase on Serum Sickness*

Case No.	Patient	Age	Sex	Dose of Serum, Cc.	Day After Injection of Serum the Serum Sickness Appeared	Severity	Day of Serum Sickness Use of Histaminase Was Begun	Administration of Ampules and Tablets	Total Dose	Comment
1	H. B.	25	♂	30	10th	Very severe	3d	1 b.i.d	6	Relief in 18 hrs.; began at 12th hr.; urticaria gone at 48th hr.
2	C. M.	15	♂	60	7th	Moderately severe	1st	1 b.i.d.	5	Relief in 18 hr.; no signs after 48 hr.
3	E. A.	28	♂	60	4th	Very severe	1st	1 b.i.d.	5	Relief in 36 hr.; no signs after 72 hr.
4	M. H.	58	♂	1,500 units of antitetanus serum	3d	Very severe	2d	2 b.i.d. × 2	4	Marked relief in 12 hr.; no signs after 24 hr.
5	L. S.	28	♂	30	10th	Mild	1st	1 b.i.d.	5	Relief within 48 hr.; no signs after 72 hr.
6	T. C.	42	♂	1,500 units of antitetanus serum	1st	Very severe	1st	4 in 1st 24 hr. 1 q.d. × 2	6	Marked relief in 20 hr.; no signs after 24 hr.
7	R. A.	56	♀	1,500 units of antitetanus serum	6th	Moderately severe	1st	2 immediately, 1 b.i.d. Tablets 3 t.i.d.	5 20	Relief in 18 hr.; no signs after 36 hr.
8	M. A.	63	♀	28	5th	Moderately severe	1st	1 q.d.	5	Moderate relief in 48 hr.; only an occasional hive after 96 hr.
9	M. F.	24	♀	60	10th	Severe	1st	2 b.i.d. Tablets 3 t.i.d. × 2, 1 b.i.d. × 1	9 20	Marked relief in 36 hr.; no signs after 48 hr.
10	J. B.	35	♂	60	10th	Severe	1st	4 in 1st 24 hr., 1 t.i.d. × 3, 1 on 3d day Tablets 1 b.i.d. × 3	8 6	Marked relief in ½ hr.; no signs after 72 hr.
11	M. W.	25	♀	180	5th	Severe	2d	1 b.i.d. × 4 Tablets 1 q.d. × 3	7 13	No relief for 3 days on tablets; marked relief in 12 hr. after first injection and complete disappearance of all signs and symptoms 48 hr. after first injection
12	J. Bo.	19	♂	1,500 units of antitetanus serum	10th	Moderate	1st	1 b.i.d. × 5 Tablets 1 t.i.d.	5 17	Marked relief in 9 hr.; no symptoms or signs after 72 hr.

USE IN PROPHYLAXIS OF SERUM SICKNESS

We also tried to see whether histaminase could be used in prophylaxis. Not enough patients have been treated prophylactically to permit any feeling other than optimism concerning the results of further trials. We can report at present the results with only eight patients. Four received 60 cc. of an unrefined antibrucella horse serum, one received 90 cc. of the same serum, two others received 30 cc. of unrefined antitularense horse serum and the eighth received a total of 453,000 units of gas gangrene antitoxin. The dosage of histaminase was as follows: on the day preceding the administration of serum each patient received the contents of one ampule morning and night by intramuscular injection and three tablets, one before each meal. Each patient received the contents of one ampule on the day of serum administration and one each day for the two following days, a total of five ampules a patient. The oral administration of tablets was continued at the rate of one three times a day until a total of twenty tablets had been taken.

None of the first five patients showed any evidence whatever of serum sickness at any time after the administration of serum. The sixth patient, who had received 90 cc. of serum, showed very mild serum sickness on the eleventh day after the first injection of serum. The manifestations consisted only of urticaria limited to the arms and trunk. Since she was in an extremely critical situation because of her infection, irrational and then comatose, with a temperature of 107 F., it was not considered advisable to let the serum sickness run its course to observe how mild it might be as a result of the prophylactic measures. She was given the contents of one ampule at once. The urticaria disappeared in eight hours. The contents of another ampule was given on the following day to insure against the return of symptoms. No manifestations of serum sickness occurred.

The seventh patient, a bacteriologist, had had horse serum on two previous occasions, with very severe, almost fatal anaphylaxis at the time of the second administration. Horse serum was abandoned, and treatment was completed with goat serum. Seven months later he contracted moderately severe brucellosis. The administration of goat serum was selected as the treatment of choice. He received three histaminase tablets three times a day for one day prior to the administration of serum and continued with the same dose for the first day of the administration of serum. He took two more tablets the next morning, so that he had a total of twenty. Trial intradermal and subcutaneous injections of goat serum were made, with positive responses. He received 60 cc. of goat serum, by vein, in two equal doses on consecutive days. No immediate reactions occurred. On the seventh day urticarial wheals appeared at the sites of the previous test injections, but nowhere else. These wheals waxed and waned daily for seven days before they disappeared. There were no general signs or symptoms of serum sickness and, although additional histaminase tablets were in his possession, none were taken.

The eighth patient suffered four compound fractures from a fall down an elevator shaft. A prophylactic injection of combined tetanus and gas gangrene antitoxin was given on the day of the fall and repeated on the following day. On the fifth day after injury cultures of Welch's bacilli were obtained from a wound in the thigh. Administration of antitoxin was begun at once. On the next day these bacilli were isolated from a wound of the wrist. Antitoxin was administered for five days, from the fifth to the ninth after the injury and the initial prophylactic injection of serum. A total of 453,000 units of antitoxin was given. Administration of histaminase was begun on the seventh day after the injury, the second day of therapeutic administration, of antitoxin, and was continued for seven days. Ampules were used at the rate of one twice a day for five days and one once a day for two days, a total of twelve. Tablets were given at the rate of three twice a day for five days and three once a day for two days, a total of thirty-six. At no time was any difficulty encountered in administering serum, nor were there ever any signs or symptoms of serum sickness. An accurately recorded experience with 450 patients treated with antitularense serum shows that serum sickness occurred in 54 per cent. A similar experience with 200 patients treated for brucellosis shows that antibrucella horse serum caused an incidence of serum sickness of 73 per cent. Although the series must be extended considerably before any conclusion can be drawn, the probability is very small that any five consecutive patients can receive these serums in the quantities given and all escape serum sickness.

TABLE 3.—*Prophylactic Use of Histaminase*

Case No.	Amount of Serum, Cc.	Day Before Serum		Day of Serum and Thereafter		Totals		Comment
		Ampules	Tablets	Ampules	Tablets	Ampules	Tablets	
1	60	1 b.i.d.	1 t.i.d.	1 q.d. × 3	1 t.i.d.	5	20	No serum sickness occurred
2	30	1 b.i.d.	1 t.i.d.	1 q.d. × 3	1 t.i.d.	5	20	No serum sickness occurred
3	60	1 b.i.d.	1 t.i.d.	1 q.d. × 3	1 t.i.d.	5	20	No serum sickness occurred
4	30	1 b.i.d.	1 t.i.d.	1 q.d. × 3	1 t.i.d.	5	20	No serum sickness occurred
5	60	1 b.i.d.	1 t.i.d.	1 q.d. × 3	1 t.i.d.	5	20	No serum sickness occurred
6	90	1 b.i.d.	1 t.i.d.	1 q.d. × 3	1 t.i.d.	5	20	Wheals on trunk and arms on 11th day; disappeared in 8 hr. after injection of contents of 1 ampule
7	60	0	3 t.i.d.	0	3 t.i.d.	0	20	Wheals at each of two sites of trial serum injections on 7th day
8	453,000 units of gas gangrene antitoxin	0	3 b.i.d.	1 b.i.d. × 4 1 q.d. × 3	3 b.i.d. × 4 3 q.d. × 2	12	36	No difficulty in continued administration of serum; no symptoms or signs whatever of serum sickness

COMMENT

There was no failure to obtain a striking therapeutic response in any of thirteen patients with serum sickness, selected at random, when the injectable form of the material was administered. There were two complete failures to obtain the anticipated effect when the

mode of administration was limited to the use of enteric coated tablets. Except as noted, no patient received any other form of treatment. We realize that when an active substance is administered only in the form of enteric coated tablets the expected response may not occur because of failures of digestion and absorption. Although other possible causes for failure of response have been considered, we believe that our two failures were most probably due to impermeability of the enteric coating.

Although every patient was examined carefully and questioned in great detail, no evidence of unpleasant or untoward effects could be elicited except in the few cases in which the contents of two ampules were administered in a single injection in the amount of saline diluent recommended for one ampule. In these cases there were smarting and transient pain at the sites of injection.

We cannot say that our hypothesis concerning the cause and nature of serum sickness has been verified by the present small experience, although certainly it has not been weakened.

We recommend that further trials be made of this substance in the treatment of serum sickness, so that additional knowledge can be had concerning its value in the hands of others. Our initial experience with it indicates to us that it is the only rational, genuinely effective and safe remedy known for this distressing condition.

With regard to dosage for future patients, we think that our most frequently used schedule for the injectable material is probably just about right in the usual cases of moderate to severe forms of the disorder. One ampule morning and night for five injections has seemed adequate. For unusually severe forms the dose should be increased, certainly for the first day and possibly for the second day. Since as many as five tablets three times a day has been used for patients with other conditions without provoking any recognizable untoward effects, it would seem sensible to increase the dose beyond the amounts we have recorded for patients who are to receive only tablets. Four or five tablets thrice daily, before meals, for the first day, followed by three or four tablets thrice daily for the next day or two, and if necessary one or two before meals for another day or two, ought to be a more satisfactory schedule for patients with severe serum sickness. Milder serum sickness should respond well to smaller doses, but in all cases it seems best to administer the majority of the tablets during the first twenty-four to forty-eight hours, continuing with diminished doses as the symptoms lessen.

SUMMARY

The administration of *histaminase*, either orally or intramuscularly, brought marked relief to twenty of twenty-two unselected patients with serum sickness, most of them with the severer forms of the disorder. Eighteen patients were treated on either the first or the second day of illness, and sixteen obtained marked relief in from eighteen to thirty-six hours. It is possible that the prophylactic use of the substance will prevent the occurrence of serum sickness in some instances and ameliorate the severity in others. The treatment appears to be rational, highly effective, safe and devoid of untoward by-effects or after-effects.

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INTERMITTENT HYDRARTHROSIS WITH AN ALLERGIC BASIS

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The total number of reported instances of intermittent hydrarthrosis, including the first case described by Perrin [1] in 1845, seventy-seven collected or reported by Bierring [2] and the case presented at this time, is 106.[3]

The disease has occurred exclusively in the white race, with equal frequency in the male and the female and at an average age between 20 and 45. In some cases the condition has been familial, notably in Blanc's [4] case of a mother and daughter and the case of three sisters, a brother and a cousin reported by Schlesinger.[5] In the latter case there was also hemophilia and Quincke's edema in the family, and one person with hemophilia whom I have seen had irregularly recurrent serous effusions in the left wrist and right knee.

A complexity of apparently unrelated factors enters into the cause of intermittent hydrarthrosis, the most important being infection, endocrine disease and allergy. Trauma is considered by some authors, notably Krida,[6] to be an inciting agent in certain cases, but, in view of the numerous injuries that the knee joint sustains and the relative rarity of this condition, trauma is probably not a major cause.

The appearance of recurrent effusion following an infectious disease has been frequently reported, the infections including malaria,[1] rheumatic fever,[7] undulant fever [8] and lymphogranuloma.[9] Bierring [2] expressed the opinion that hydrarthrosis is an infectious disease and explained the large number of sterile cultures of synovial fluid on Poynton's statement that the microorganisms concerned in infections of the joints are commonly found in the subendothelial layer and are rarely seen in the fluid itself. Porter and Lonergan [10] reported a case in which marked amelioration of symp-

From the Medical Service of the Richmond Memorial Hospital.

1. Perrin, E. R.: J. de méd. **3**: 82, 1845; Union méd. **25**: 821, 1878.
2. Bierring, W. L.: Intermittent Hydrarthrosis, J. A. M. A. **77**: 785-789 (Sept. 3) 1921.
3. The cases include those reported by:
Nielson, A. L.: Intermittent Hydrarthrosis, J. A. M. A. **78**: 507 (Feb. 18) 1922.
Miller, J. L., and Lewin, Philip: Evidence of the Anaphylactic Character of Intermittent Hydrarthrosis, ibid. **82**: 1177 (April 12) 1924.
Mouzon, J.: Some New Facts Concerning the History of Intermittent Hydrathrosis and Its Pathogenesis, Presse méd. **34**: 1142 (Sept. 8) 1926.
Kausch, W.: Intermittent Dropsy of the Knee, Deutsche med. Wchnschr. **53**: 1328 (July 29) 1927.
Mouchet, Albert: Recurring Hydrarthrosis of the Left Knee: Old Laceration of the Tibial Spine, Presse méd. **38**: 243-244 (Feb. 15) 1930.
de Rougemont, J.: Periodic Hydrathrosis, Lyon chir. **25**: 778-781, 1928.
Weismann-Netter, R. J.: Periodic Hydrathrosis of the Knee and Its Treatment, Bull. et mém. Soc. méd. d. hôp. de Paris **53**: 185-187 (Feb. 15) 1937.
Laewen, A.: Treatment of Chronic and Recurrent Hydroarthrosis of the Knee Joint, Verhandl. d. Deutsch. Gesellsch. f. Chir., Berlin, March 30-April 2, 1932.
Carter, Gray: Intermittent Hydrarthrosis, Yale J. Biol. & Med. **2**: 431 (July) 1930.
Krida,[6] Sharpe,[8] Baker,[8] Sézary and Salembiez,[9] Porter and Lonergan,[10] Rheindorf,[11] Schlesinger,[14] Beveridge and Howe,[15] Alzona,[17] Vogl,[18] Paus,[20] Loven,[24] Krummel,[29] Cook,[32] Mar, Huet and Barbaud,[33] Mandl.[36]
4. Blanc: Lyon méd., 1897; cited in Semana méd., 1899.
5. Schlesinger, Hermann: Intermittent Hydrarthrosis and Its Familial Form, Wien. klin. Wchnschr. **39**: 68 (Jan. 14) 1926.
6. Krida, Arthur: Intermittent Hydrarthrosis of the Knee Joint: A Report of Two Cases Apparently Cured by Synovectomy Together with Pathological Findings, J. Bone & Joint Surg. **15**: 449 (April) 1933.
7. Pulawski, A.: Wien. klin. Wchnschr. **27**: 421, 1914. Bierring,[2] Shands, A. R.: Personal communication to Porter and Lonergan.[10]
8. Baker, B. M., Jr.: Intermittent Hydrarthrosis, Internat. S. Digest **5**: 3-7 (Jan.) 1928. Sharpe, John C.: Intermittent Hydrarthrosis Associated with Undulant Fever, Ann. Int. Med. **9**: 1431 (April) 1936.
9. Sézary, A., and Salembiez, Madeleine: Recurrent Hydrarthrosis and Nicolas-Favre Disease, Bull. Soc. franç. de dermat. et syph. **43**: 1573-1575 (Nov.) 1936.
10. Porter, John Lincoln, and Lonergan, Robert: J. Bone & Joint Surg. **14**: 631-639 (July) 1932.

toms followed the use of autogenous vaccine prepared from the roots of several extracted infected teeth.

Among the cases in which an endocrine cause has been presented are several reported by Senator,[11] Krida,[6] Panas[12] and Rheindorf,[13] in which effusion and menstruation appeared simultaneously. The most interesting case is that reported by Rheindorf; hydrarthrosis occurred with the first menstruation. When the patient was 14½ years old the effusion and menstruation both disappeared, but they recurred several months later. Another patient treated by Rheindorf started to have effusions with each menstrual period at the age of 30. The cycle was interrupted during five pregnancies, after which the menstruation and hydrarthrosis recurred every twelve or fourteen days. The patient was eventually cured by a course of injections of estrogen. In eighteen cases reported by Schlesinger[14] there was a definite relationship between the effusions and ovarian dysfunction, evidenced by the fact that they either disappeared with the onset of the menopause or were successfully treated with ovarian extract, roentgen sterilization or placental extract. Not always, however, does the effusion disappear with the menopause, as Beveridge and Howe[15] encountered it in a 78 year old woman. Schmitza[16] cured one patient with lipoluteal substance (corpus luteum factor) to inhibit ovarian function, and Alzona[17] successfully treated a frigid man with intermittent hydrarthrosis with testicular extract. Vogl,[18] however, failed to relieve five patients with various types of endocrine therapy.

Many interruptions during pregnancy have been reported. Moore[19] described a woman who in three pregnancies was free from the condition from the third month to the termination of pregnancy. Pulawski[7] saw a pregnant woman who was free from effusions from the second month to the first postpartum period. In the seventh month of a subsequent pregnancy, during which the hydrarthrosis again temporarily disappeared, the patient miscarried and periodic hydrarthrosis was immediately reestablished. Paus[20] noted cessation of symptoms during a patient's first pregnancy and until the appearance of lactation and, six years later, during a second pregnancy and throughout lactation.

In a few cases the hydrarthrosis has seemed to be related to a disturbance in thyroid function. Ribierre[21] empirically treated two patients with thyroid extract and noted improvement. Lecene[22] too has achieved "brilliant and rapid results" with thyroid treatment.

That neuropathy is a factor in some cases has been demonstrated by improvement or complete disappearance of the cycle following hydrotherapy or psychotherapy.[23]

Finally, considerable literature has accumulated to show that intermittent hydrarthrosis is an intra-articular variation of angioneurotic edema and therefore allergic in origin.[24]

In support of this theory is offered the fact that the manifestations of allergic processes are frequently cyclic. The knee is the site of predilection because it has an especially large arteriolar circulation extraordinarily well supplied with medullated nerve fibers.[25]

In 1899 Schlesinger[26] compared the periodicity of intermittent hydrarthrosis and migraine. This is particularly interesting today in view of the fact that a form of therapy almost specific for the relief of migraine (ergotamine tartrate [gynergen] injected parenterally) has been used successfully in the treatment of intermittent hydrarthrosis.[27] In a case reported by Burchard,[28] migraine, urticaria and intermittent hydrarthrosis occurred together or separately at various times.

In the case herein reported, allergy to certain foods was apparently the cause of the hydrarthrosis, as shown by the fact that the symptoms completely cleared up after the elimination from the diet of offending allergens. Only one previous case has been reported[6] in which an allergic study was performed, and in that instance no specific allergens could be discovered.

DIAGNOSIS

Regularly recurring synovial effusion apparently without cause makes the diagnosis of intermittent hydrarthrosis obvious. In general the onset is abrupt and the cyclic recurrences appear at once. The cycle, although the interval may vary with different persons, is always the same for each individual, symptoms usually appearing every eight to thirteen days. In my case the interval was ten days and the appearance of the fluid was always preceded by stiffness of the affected joint (the left knee). In some cases anorexia and malaise accompany the effusion, but in the present instance headache and fatigue were the only concomitant complaints.

PATHOLOGY

Krummel[29] found that the aspirated fluid is an exudate containing 4 per cent of albumin and 400 cells per cubic millimeter and having a high specific gravity. As the fluid accumulates, a tap shows 27 per cent lymphocytes, 53 per cent large mononuclear cells and 27 per cent polymorphonuclear lymphocytes, with no evidence of phagocytosis. As the effusion subsides, the average count is 78 per cent lymphocytes, 2 per cent polymorphonuclear leukocytes and 15 per cent large mononuclear cells. Because these values coincide with the results of Risak's[30] studies of the cytology of effusions in traumatic arthritis, Krummel decided that the condition was due to "periodically recurring trauma of unknown type."

11. Senator: Arch. f. Nervenh., 1896.
12. Panas: Bull. et mém. Soc. de chir. **4**: 240, 1878; cf. *Union méd.*, 1878.
13. [illegible] Report on Two Cases of Schlesinger's Inter- [illegible]chen. med. Wchnschr. **79**: 749 (May 6) 1932. 5, 23 and 32.
[illegible]d Howe, L. C.: Intermittent Hydrarthrosis, [illegible] (June) 1925.
16. *Schmitza:* Personal communication to Vogl.[18]
17. Alzona, L.: On a case of Intermittent Hydrarthrosis, Minerva med. **2**: 260-261 (Aug. 25) 1935.
18. Vogl, A.: Relations Between Intermittent Articular Hydrarthrosis and Ovarian Function, Wien. klin. Wchnschr. **45**: 1344-1346 (Oct. 28) 1932.
19. Moore, H.: Lancet, April 30, 1864.
20. Paus, N.: Intermittent Hydrops of the Knee, Norsk mag. f. lægevidensk. **85**: 760-762 (Sept.) 1924.
21. Ribierre, P.: Periodic Hydrarthrosis and Thyroid Therapy, Bull. et mém. Soc. *méd. d. hôp.* de Paris **36**: 476-477, 1913; ibid., 1910.
22. Lecene: Personal communication to Ribierre.[21]
23. Springthorpe, J. W.: Case of Hydrops Articulorum Intermittens, Australian M. J. **1**: 725 (Oct. 12) 1912. Féré, C.: Rev. neurol. **1**: 465, 1893. Bum A.: München. med. Wchnschr. **46**: 237, 1899. Kausch, W.: Intermittent Dropsy of the Knee, Deutsche med. Wchnschr. **53**: 1328 (*July 29*) *1927.* Schlesinger, Hermann: New Hydrotherapeutic Experiments with Intermittent Hydrarthrosis, Wien. klin. Wchnschr. **42**: 832 (June 20) 1929.
24. Loven, K. A.: Two Cases of Intermittent Hydrarthrosis of the Knee, Acta chir. Scandinav. **73**: 181-202, 1933. Garrod, A. E.: Quart. J. Med. **3**: 207, 1910. Goix: J. de sc. méd de Lille, 1886. Senator.[11] Féré.[23] Schlesinger.[26] Weismann-Netter.[27] Dalcase.[27] Burchard.[28]
25. Hildebrand: Arch. f. klin. Chir. **81**: 412, 1906; cited by Bierring.[2]
26. Schlesinger, Hermann: [illegible]unchen. med. Wchnschr., 1899; Mitt. a. d. [illegible], p. 441.
[illegible] Periodic Hydrarthrosis: Cure by Use of [illegible]ém. Soc. méd. d. hôp. de Paris **53**: 909.
[illegible] Personal communication to Weismann-Netter.
28. Burchard, O.: Deutsche med. Wchnschr. **28**: 380, 1902; cited by Krida.[6]
29. Krummel, Eberhard: Cytology of the Effusions in Intermittent Hydrarthrosis, Wien. klin. Wchnschr. **44**: 1464 (Nov. 20) 1931.
30. Risak, cited by Krummel.[29]

When Krida[6] performed a synovectomy at the height of effusion Dr. John E. MacWhorter reported on the removed specimen as follows:

The sections show that the synovial surface is arranged in the form of somewhat flattened villi. The villi are made up largely of rather recently formed granulation tissue which is characterized by many endothelial line blood spaces and young connective tissue cells of the fibroblastic type. The tissue as a whole is rather strikingly edematous. There is a diffuse and profuse infiltration with lymphocytes in the villi and in the tissue immediately below the synovial surface.

PROGNOSIS

The prognosis as regards general health is good but as regards the interruption of the effusion is poor. The condition in most of the reported cases continued indefinitely despite a wide variety of treatment. Occasionally it terminates spontaneously. Eradication of the cause, when it can be discovered, may break the cycle. The effusions disappear late in the course of arthritis because of the destruction of the synovial membrane.

TREATMENT

With so wide a divergence in theories as to cause, it might be expected that the therapeutic suggestions would be numerous. Physical therapy has proved useless. Psychotherapy[23] is occasionally valuable. Salicylates, cinchophen, quinine and related drugs have failed to break the cycle. Those forms of treatment which have been attended by some measure of success, in properly selected cases, include the use of endocrine products,[31] roentgen sterilization,[32] the injection of autogenious vaccines,[8] the use of ergotamine tartrate,[33] and the destruction of the synovial membrane by means of injected sclerosing solutions,[34] irradiation[35] or surgical measures.[36] The following case is the first instance of cure by allergic treatment:

REPORT OF A CASE

History.—A white woman aged 26, first examined Feb. 22, 1937, complained of a recurring swelling of the left knee. Her weight was 120 pounds (54 Kg.), her height 64 inches (162 cm.) and her blood pressure 120 systolic, 80 diastolic.

The patient had had numerous "colds in the nose," which appeared suddenly and disappeared with equal rapidity. They were not related to any season of the year. Her head would be "stopped up" when she swept floors or was in a smoke filled room. She had had rhus dermatitis almost every summer but no other serious or significant illness.

The mother was receiving treatment for diabetes, pernicious anemia and essential hypertension and had had sporadic attacks of bronchial asthma. The father had had one attack of precordial pain diagnosed as angina pectoris. The maternal grandmother had asthma. Two siblings were living and well.

Present Illness.—The patient first became aware of a disturbance in her left knee about one month prior to her first examination. At this time, with no apparent cause, she noted pain and stiffness. The discomfort was particularly marked over the calf. She continued her work, that of a stenographer, for the rest of the day and retired early that evening feeling that her leg would be better by morning. The next day her knee was very much swollen but somewhat less painful. She continued working, with the resolve that she would consult a physician the next day if the condition was no better. However, by the next morning the swelling began to disappear. By the evening of the third day it was no longer present. Ten days later the same series of symptoms appeared, and it continued to appear regularly at ten day intervals. The patient planned her engagements so that they would not fall on the date of the expected swelling. The only joint involved was the left knee. General symptoms such as malaise, headache and fatigue were present but not of sufficient intensity to occasion much discomfort.

The patient experienced periodic gastrointestinal upsets, with epigastric pain, nausea, flatulence, gaseous eructations and occasional colicky cramps. Certain foods did not seem to agree with her. Many fruits caused small wheals on the skin. This condition had been present for many years. There was no anorexia or melena. The history of other tracts was inconsequential.

Examination.—This gave essentially negative results aside from the examination of the left knee. The left patella was pushed forward and was easily ballotable. The fluid wave was definitely transmissible. This knee was 9 cm. greater in circumference than the right.

The synovial fluid was cloudy, with a specific gravity of 1.036 and 160 cells per cubic millimeter; a differential count done just prior to the apex of the cycle disclosed 34 per cent lymphocytes, 54 per cent large mononuclears and 12 per cent polymorphonuclears. The urine and blood were normal. X-ray examination of the knee gave normal results and of the teeth revealed one apical abscess. A series of gastrointestinal roentgenograms demonstrated marked visceroptosis. The Wassermann reaction of the blood was normal.

The diagnosis was (1) vasomotor rhinitis, (2) apical dental abscess, (3) visceroptosis and possible gastrointestinal allergy and (4) intermittent hydrarthrosis involving the left knee.

Course.—On completion of the diagnostic study it was assumed that there were present two separate conditions: (1) an allergic state, which caused the nasal and gastrointestinal symptoms, and (2) an infective process probably originating in the teeth, which was responsible for the joint manifestations. Accordingly the dead tooth was extracted, the apical abscess was drained and salicylates were administered orally. These measures, however, did not interrupt the course of the synovial effusions and did tend to aggravate considerably the gastrointestinal symptoms. Then an attempt was made to study the patient from the allergic point of view. Perhaps the intermittent hydrarthrosis, as well as the nose and stomach complaints, was a manifestation of an allergic state. A study was conducted by means of cutaneous testing, elimination diets (Rowe) and a dietary diary. Sensitivity was discovered to lamb, apples, pineapples, grapefruit, peaches (raw), tomatoes, string beans, corn, olives and grape jelly. A special diet was instituted May 15. The effusions, which had been appearing regularly, promptly disappeared. However, when the hydrarthrosis might have been expected, large wheals (Quincke's edema) appeared over the left knee, the left side of the chest and the left side of the neck. These persisted for three days. Ten days later they again erupted but were less severe and lasted only one day. After the diet was restricted the gastrointestinal symptoms diminished. For several months wheals appeared irregularly in various positions on the body, but by December 1937 even these had disappeared. There was no recurrence of the effusion. The gastrointestinal discomfort was alleviated but not entirely cured. A corrective support was ordered, the foot of the patient's bed was elevated and abdominal exercises were prescribed. The patient has been asymptomatic for the past five months. The nasal symptoms, which she felt were due to sinusitis, have disappeared.

SUMMARY AND CONCLUSIONS

A review of the incidence and etiology of intermittent hydrarthrosis gives rise to the conclusion that this symptom complex is not a disease but an articular manifestation of a variety of general and local conditions.

31. Schlesinger,[5] Schmitza,[16] Ribierre,[21] Lecene.[22]
32. Schlesinger, Hermann: Further Therapeutic Trials in Intermittent Hydrops Articulorum, Therap. d Gegenw. **73**: 151-153 (April) 1932.
33. Cook, C. Kenneth: Intermittent Hydrarthrosis of the Knee Joint, M. Rec. **145**: 300 (April 7) 1937. Weismann-Netter.[25] Dalcase.[21]
34. Weismann-Netter, R. J.: Quinine-Urea as Therapeutic Agent in Nonsuppurative Liquid Collections, Bull. et mém. Soc. méd. d. hôp. de Paris **52**: 58 (Jan. 27) 1936.
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The case reported is the first in the literature in which the symptom complex was proved to be of allergic origin. The elimination of offending allergens from the diet not only brought about the definite improvement or cure of concomitant allergic manifestations, namely gastrointestinal disturbances and vasomotor rhinitis, but halted the intermittent hydrarthrosis and caused subsequent Quincke's edema entirely to disappear.

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TUMORS OF THE SPERMATIC CORD

REPORT OF A CASE OF NEUROFIBROMA

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Lésauvage [1] was the first to report and describe tumors of the spermatic cord. He contributed the first three authentic cases in 1845. Brossard [2] was the first to publish a comprehensive work on the subject. Patel and Chalier [3] collected and abstracted all the previous reports in a comprehensive study, which appeared as a series of publications. In their first article a list of tumors was given which did not correspond exactly with the tumors mentioned in the abstracts which appeared in their last four articles. Nevertheless their contribution is one of the most nearly complete, and their articles included three photographs which gave an excellent idea of the huge size that these tumors can attain. One of the photographs is of the largest tumor recorded, which was a fibroma weighing 15 Kg., reported by Rhenter and Villard.[4]

Hinman and Gibson [5] were the first to classify tumors of the spermatic cord. Their review of the literature was exceedingly thorough and they added a report of another fibroma. Rubaschow [6] compiled a list from previous reports and presented another classification, which varied slightly from that of Hinman and Gibson. MacKenzie [7] listed the cases previously reported and added a case of fibromyxosarcoma. Burr [8] again listed the cases and added reports of one fibroma and one sarcoma. Thompson [9] summarized previous reports and added the greatest number of new cases. He reported twenty-one lipomas and one each of fibroma, hemangioma, cystadenoma, fibrosarcoma and myosarcoma.

Since Thompson's report, the following tumors have been recorded: lipoma by Isnardi,[10] leiomyoma (benign) by Lapeyre and O'Daly,[11] dermoid by Delannoy and Demarez,[12] fibroma and lipoma by Podetti,[13] lipofibromyxoma and fibrosarcoma by Quinby [14] and myxofibroma by Wolbarst.[15] There was some divergence of opinion among several pathologists in Wolbarst's case concerning the possible neurogenic origin of the tumor.

Tumors of the spermatic cord are rare. To the present, including our case, 247 cases have been reported, as listed in the accompanying table. The following is presented as the only case of neurofibroma of the spermatic cord as yet recorded.

REPORT OF CASE

A man aged 49 had been injured thirty-five years previously, when a steel spike had lacerated and penetrated the right side of his scrotum. The laceration had been closed with clips and recovery had been uneventful. Six years before his admission to the clinic he had noticed a painless firm mass attached to the right testis. Three years later the mass had begun to increase in size and had caused discomfort, manifested by a heavy, dragging sensation in the right inguinal region, but still there had been no pain.

In the right side of the scrotum was found a mass larger than the fist of an adult, extending superiorly to just past

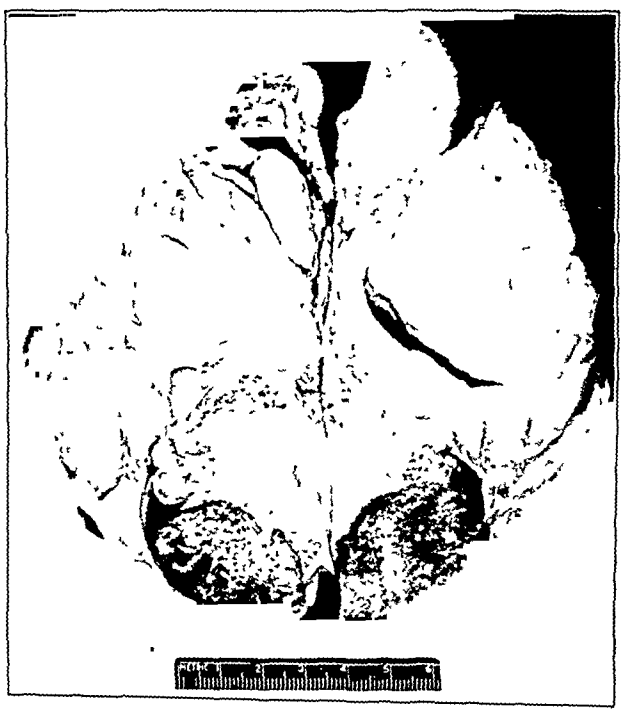


Fig. 1.—Neurofibroma of the epididymis and spermatic cord. The multilobular nature of the tumor is evident. The testis is not involved.

the external inguinal ring, in the inguinal canal. It was hard, irregular and slightly tender but a normal, soft right testis was easily palpable below it. The mass was not translucent. On the left side of the scrotum was a spermatocele about a third the size of the original mass.

From the Section on Surgical Pathology (Dr. McDonald) and the Division of Surgery (Dr. Priestley), the Mayo Clinic.

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2. Brossard: Des tumeurs solides du cordon spermatique, Arch. gen. de med. **154**: 267-308 (Sept.) 1884.
3. Patel, M., and Chalier, A.: Les tumeurs du cordon spermatique, Rev. de chir. **39**: 119-137, 354-372, 603-619, 792-811, 942-962, 1909.
4. Rhenter, M. J.: Volumineuse tumeur du cordon, Lyon med. **110**: 1386-1388 (June 21) 1908, discussion by Villard.
5. Hinman, Frank, and Gibson, T. E.: Tumors of the Epididymis, Spermatic Cord and Testicular Tunics. A Review of the Literature and Report of Three New Cases, Arch. Surg. **8**: 100-137 (Jan.) 1924.
6. Rubaschow, S.: Die soliden Geschwulste des Nebenhodens, Ztschr. f. Urol. **20**: 290-297, 1926; Beitrage zur Lehre uber die Geschwulste der mannlichen Geschlechtsorgane. Die Geschwulste [illegible]. Ztschr. f. urol. Chir. **21**: 42-90, 1926; Die Geschwulste des Hodens (Beitrage zur Lehre uber die Geschlechtsorgan), Arch. f. klin. Chir. **141**: 14-26, 1926.
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9. Thompson, G. J.: Tumors of the Spermatic Cord, Epididymis and Testicular Tunics. Review of Literature and Report of Forty-One Additional Cases, Surg., Gynec. & Obst. **62**: 712-728 (April) 1936.
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11. Lapeyre, J. L., and O'Daly, J. A.: Un cas de tumeur benigne du cordon spermatique, Ann. d'anat. path. **14**: 70-74 (Jan.) 1937.
12. Delannoy, Emile, and Demarez: Kyste dermoide du cordon spermatique, Ann. d'anat. path. **14**: 453-455 (May) 1937.
13. Podetti, Vittorio: Contributo allo studio dei tumori del funicolo spermatico, Riv. di chir. **3**: 492-500 (Oct.) 1937.
14. Quinby, W. C.: Tumors of the Spermatic Cord and Testicular Tunics, Tr. Am. A. Genito Urin. Surgeons **30**: 385-391, 1937.
15. Wolbarst, A. L.: Myxofibroma of the Spermatic Cord, Possibly Neurogenic. Report of a Case, J. A. M. A. **109**: 1623-1625 (Nov. 13) 1937.

An orchidectomy on the right was performed, and at the same time the large irregular mass in the right side of the scrotum was completely excised. After the scrotum was opened it appeared as though the lesion arose from the spermatic cord, because the testis itself was not grossly involved. It was impossible to preserve the testis, however, as excision of the mass necessitated ligation of the vessels of the spermatic cord. This was done just below the level of the external inguinal ring. The tumor did not appear to be malignant.

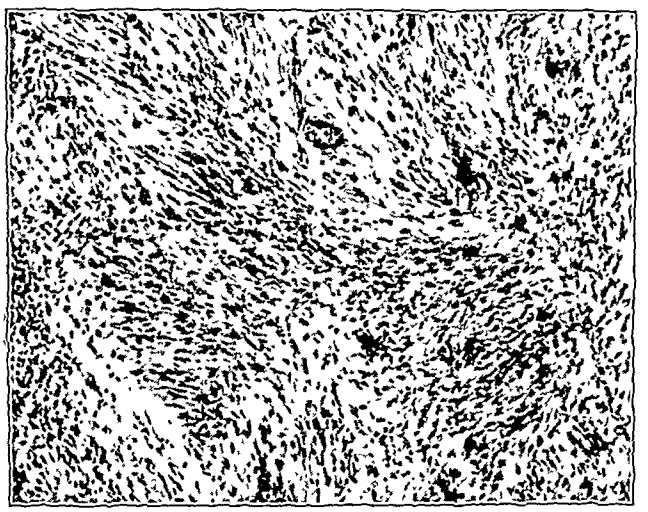


Fig. 2.—Neurofibroma of the epididymis and spermatic cord. There is a suggestion of palisading. (Hematoxylin and eosin stain; reduced from a photomicrograph with a magnification of 95 diameters.)

The specimen weighed 370 Gm. On cut section (fig. 1) a white tumor measuring 13 by 10 by 8 cm. was found attached to the epididymis, the mediastinum, testis and 11.5 cm. of the spermatic cord. It consisted of connected lobules of varying size. A small portion of the spermatic cord proximal to the tumor was attached to the mass but was not otherwise involved in the process. The testis appeared to be normal.

Microscopically (fig. 2) the tumor was seen to be composed of spindle cells and a loose meshwork of intercellular fibrils. These fibrils were stained a faint pink by van Gieson's method, showing the presence of young collagen fibrils. Some portions of the tumor were more cellular than others. An occasional mitotic figure could be demonstrated. In places there was a suggestion of palisading. In some portions the intercellular substance was basophilic, resembling in this respect the neuroglial tissue of the brain. Neurofibrils were not present, since there was no precipitation of silver by either Bielschowsky's or Orlandi's method. The absence of neurofibrils does not eliminate the possibility of neurogenic tumor, because neurofibromas arise from the sheath of Schwann; consequently they usually do not contain neurofibrils. Furthermore, it is not infrequent for neurofibromas to contain collagen fibrils. The histologic diagnosis of neurofibroma was confirmed by Dr. A. C. Broders.

Tumors of the Spermatic Cord Reported in the Literature, Including the Present Case of Neurofibroma

Benign		Malignant	
Lipoma	90	Fibrosarcoma	15
Fibroma	34	Leiomyosarcoma	2
Leiomyoma	3	Rhabdomyosarcoma	2
Myoma	4	Sarcoma	39
Dermoid	14	Reticulosarcoma	1
Teratoma	1	Lymphosarcoma	1
Lymphangioma	5	Myxochondrosarcoma	2
Hemangioma	4	Carcinoma	3
Myxoma	1		65
Myxofibroma (possibly neurogenic)	1		
Neurofibroma	1		
Cystadenoma	1	Unclassified	6
	159	Other mesodermal tumors	17
		Total tumors	247

Benign tumors, approximately ..... 71 per cent
Malignant tumors, approximately ..... 29 per cent

SUMMARY

Two hundred and forty-seven tumors of the spermatic cord have been reported; of these approximately 70 per cent were benign and 30 per cent malignant. The tumors found most frequently were lipomas, and then, in decreasing frequency, were sarcomas including fibrosarcomas, fibromas, mesodermal tumors, dermoids, angiomas and myomas. In our case a neurofibroma of the spermatic cord and testis was removed thirty-five years after a lacerating and penetrating injury of the scrotum. This is the first case of neurofibroma of the spermatic cord to be reported so far as we know.

LIPOID PNEUMONIA

REPORT OF A CASE

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Lipoid pneumonia (referred to by various authors as oil pneumonia, oil aspiration pneumonia, oil inspiration pneumonia, paraffinoma, paraffin oil tumor and pneumonolipoidosis) occurs most commonly in infants and in the debilitated old, resulting most frequently from the administration of laxative oils or the therapeutic instillation of oils into the nasopharynx with subsequent aspiration of the oily or fatty substance into the lung. Less frequently this lesion has been reported in adults not necessarily debilitated. The lesion was first described by Laughlen[1] in 1925 in one infant, two children and one adult. Pinkerton[2] in 1927 reported six cases in infants and children and the following year[3] reported the results of intratracheal injection of vegetable, animal and mineral oil in rabbits and dogs. The human cases, 106 in number, reported up to April 1936, are reviewed by Ikeda.[4] He adds five cases of his own. More recently[5] there have been four additional reports referring to cases of lipoid pneumonia. The aspiration of animal fats (milk, cod liver oil) is the most frequent cause in infants and children, while the adult type of lipoid pneumonia is practically limited to mineral oil and its medicated forms. According to Ikeda the infantile type is characterized by interstitial proliferative inflammation not infrequently combined with exudative pneumonia which may be due to chemical irritation alone, and the adult type by organized and granulomatous lesions. A better classification based on the nature of the irritant would be (1) animal oil or animal fat type, (2) mineral oil type and (3) mixed type.

The case reported here is one of the adult type of lipoid pneumonia following repeated aspirations of

From the Laboratory and Medical departments, Mount Sinai Hospital.

1. Laughlen, G. F.: Studies on Pneumonia Following Nasopharyngeal Injections of Oil, Am. J. Path. **1**: 407 (July) 1925.

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3. Pinkerton, Henry: The Reaction to Oils and Fats in the Lung, Arch. Path. **5**: 380 (March) 1928.

4. Ikeda, Kano: Lipoid Pneumonia of the Adult Type: Paraffinoma of Lung, Arch. Path. **23**: 470 (April) 1937.

5. Comby, J.: Revue générale: Stéatose du poumon et pneumonie lipoïde, Arch. de méd. d. enf. **39**: 537 (Aug.) 1936. Baumgartner, Leona, and Angevine, D. M.: Lipoid Pneumonia and Conditions That May Favor Its Occurrence, Am. J. M. Sc. **192**: 252 (Aug.) 1936. Reimeke, H. G., and Whitelather, J. E.: Pneumonia Following Aspiration of Oil, J. Med. **17**: 344 (Sept.) 1936.

animal oil, probably cod liver oil taken by mouth. In addition to the conditions found in the lungs by others, metastatic deposits of lipoid material were observed, principally in the kidneys and spleen, together with an associated necrotizing arteritis and periarteritis. In the kidneys the lesion was most striking and was associated with a diffuse glomerular nephritis, apparently a contributory cause of death of the patient. As in



Fig. 1.—Right lung, showing a large area of lipoid pneumonia (red and gray hepatization).

some of the cases reported by others, both clinically and on gross inspection at autopsy, certain of the pulmonary lesions suggested metastatic carcinoma.

REPORT OF CASE

History.—A white woman aged 42 suffered from an infection of the upper respiratory tract in May 1933. X-ray examination at that time showed no pathologic changes in the lungs. The patient was first admitted to Mount Sinai Hospital in July 1934 with a complaint of a painless mass in the left breast which she had noticed three months prior to admission. A radical mastectomy was performed at this time. The surgical pathologic diagnosis was comedo duct carcinoma of the breast, 2.5 cm. in diameter without metastases to the axillary lymph nodes. She had an uneventful postoperative recovery.

About the first of September 1937 pain developed in the left side of the chest and the patient consulted her surgeon for fear of a possible recurrence of the malignant condition. She was admitted again to Mount Sinai Hospital October 10, with the complaint of cough and fever of two weeks' duration.

September 26 acute pain developed in the left side of the chest with cough and expectoration of a small amount of rusty sputum. Since that time she had had fever, weakness, anorexia, malaise and a mild cough productive of about 1 ounce (30 cc.) of mucoid sputum daily. Subsequent to the patient's death it was learned from her husband that for the preceding few months she had tired more easily than formerly, had a mild cough and was short of breath and that she had taken liquid petrolatum as a laxative for three or four years and two pint bottles of cod liver oil the year previous to her death.

Examination.—October 10 the left lung field was dull to percussion below the scapular angle posteriorly. Coarse breath sounds, bronchovesicular in character with soft crepitant rales, were heard. The right lung field was clear. Except for the scar of the previous mastectomy, and conditions in the lung, physical examination was essentially negative. The patient had a moderate elevation of temperature and cough with very little expectoration. The signs of pneumonia slowly and steadily progressed. The right lung soon became involved. Chills and sweats were frequent. There was increasing dyspnea and cyanosis, and the patient became progressively more lethargic. The sputum became blood stained and two days before her death was of the nature of frank hemoptysis. The temperature continually fluctuated between 100 and 103 F., the pulse between 100 and 110. The course was progressively downhill and the patient died November 3 with signs of pulmonary edema.

The sputum on repeated examination showed no acid-fast organisms, spirochetes or pneumococci. Examination of the urine and blood chemistry determinations performed on admission to the hospital showed nothing abnormal. The white blood cell count on admission was 10,200; one week later it was 15,300 and four days later 17,400 per cubic millimeter. The blood cultures were negative. X-ray examination October 10 revealed a large area of dense infiltration extending from the fourth to the seventh rib posteriorly, with no definite cavitation. The lung fields otherwise were clear. It was the impression that there was pneumonia of the superior division of the left lower lobe. The second x-ray examination, October 22, showed that infiltration in the base of the left upper lobe had increased somewhat in amount and extent, although the apex was still clear. There was moderate infiltration of the base of the right upper lobe. The lateral view showed that the infiltration was anterior. No definite cavity could be made out.

The clinical impression at the time of death was bronchopneumonia with possible metastases to the lung from the primary comedo duct carcinoma of the breast removed three years previously.

The pertinent observations made at autopsy were as follows: The patient was well developed and fairly well nourished. The left breast was absent. There were no nodules in the old surgical scar or in the axilla. The lungs presented a striking picture. All lobes were more voluminous than the average. The right lung (fig. 1) was in great part consolidated; in places it was dark red suggesting hemorrhage, recent infarction or red hepatization; in other areas there was consolidation suggesting gray hepatization. The lesions in the left lung were of a very different character. In the lower lobe there was a roughly circumscribed firm area about 10 cm. in diameter (fig. 2). Here the tissue was gray with areas of yellow flecking suggesting areas of necrosis. The normal markings of the lung were still recognizable. In the same lobe there was a small hard circumscribed nodule about 2 cm. in diameter which was elevated above the general surface level. The normal lung markings were not recognizable here. The lesion grossly suggested metastatic carcinoma. The hilar lymph nodes were slightly enlarged, were fleshy in consistency and showed no evidence of tumor metastases.

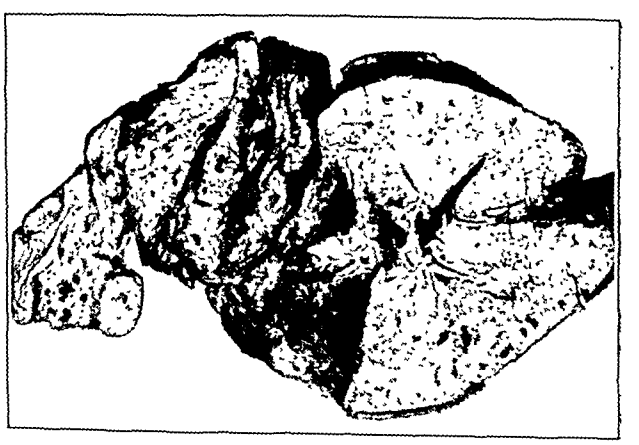


Fig. 2.—Left lung, showing areas of lipoid pneumonia, the smaller suggesting a metastatic carcinomatous nodule.

The lungs on microscopic examination showed a variety of changes of early to late lesions. In the recently involved areas there was extensive parenchymatous hemorrhage. In places there was some fibrin deposit. In quite a number of alveoli also there were a few macrophages containing small globules of oil. Elsewhere there were a few extracellular oil droplets. In the areas which grossly suggested gray hepatization the

alveoli contained many pus cells and occasional macrophages and a moderate amount of fibrin deposit. The changes microscopically were indistinguishable from those of bacterial pneumonia (fig. 3). Careful examination of Gram-stained sections of these areas showed no observable bacteria. Frozen sections stained with scarlet red showed abundant finely emulsified orange stained lipoid material especially within the alveolar walls and at the regional alveolar border. Other sections showed an intervening stage with many macrophages and a considerable infiltration by fibroblasts. These areas stained with scarlet red showed many lipoid granules within macrophages and regional to fibroblasts. The portions which in the gross specimen were firm and gray with flecking and those which grossly suggested metastatic tumor tissue histologically appeared to be fully developed granulomatous lesions with central necrosis, macrophages and fibroblasts and at the periphery scattered multinucleated giant cells of foreign body type (fig. 4). Sections of these areas stained with scarlet red showed abundant lipoid material within giant cells and macrophages and also in extracellular locations. Preparations stained with osmic acid also showed the stained lipoid material. Scrapings from these areas of the lungs treated with a saponification reagent (equal parts of concentrated ammonium hydroxide and 50 per cent sodium hydroxide) showed saponification of the lipoid material. Sections stained by the Ziehl-Neelsen method showed no observable bacilli.

The kidneys together weighed 410 Gm. The capsules stripped with some difficulty, exposing a stippled red surface with a "flea bitten" appearance. On section the cortex was swollen; the striations appeared blurred. There were numerous red flecks in the cortex. Grossly the lesion in the kidney suggested a subacute glomerular nephritis.

Microscopically the most striking changes in the kidney were in the small arteries (fig. 5). There were marked degenerative and necrotic changes of the vessel walls with a considerable infiltration of polymorphonuclear neutrophils and of lymphocytes in the vessel walls and in perivascular location resembling the picture in periarteritis nodosa. The finely granular orange

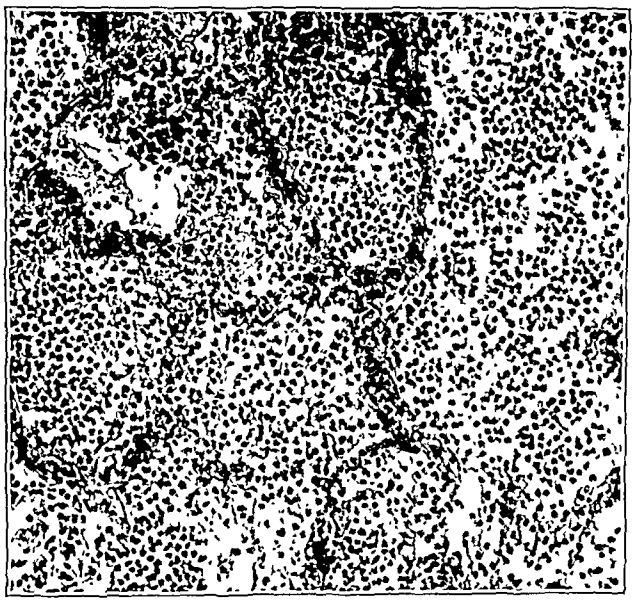


Fig. 3.—Section of right lung under low magnification showing exudative reaction of relatively recent lipoid pneumonia (hematoxylin and eosin stain). Adjacent sections stained by Gram method show no organisms; frozen sections from regional tissue stained with scarlet red show numerous small globules of oil.

stained lipoid material was especially abundant in the vessels of the glomerular tufts in the frozen section (fig. 6). This lipoid material also stained with osmotic acid. In the hematoxylin-eosin stained sections the majority of the glomeruli showed degenerative changes of varying degree, including complete necrosis and considerable round cell infiltration. There were adhesions between the glomerular tufts and between the tufts and capsule. The renal tubules were dilated; some were filled with red blood cells. There was also orange stained lipoid material within the lumens of some of the tubules. In addition, the tubular epithelium in many places showed orange stained lipoid material in the cytoplasm toward the basement membrane of the cells characteristic of fatty degeneration.

The spleen weighed 210 Gm. On section the tissue was coherent, with an increase in the red and gray elements. Microscopically, sections of the spleen also showed necrotizing



Fig. 4.—Section of left lung (hematoxylin and eosin stained under low magnification) showing granulomatous inflammation in old lipoid pneumonia (necrosis, fibrosis and marked giant cell reaction). (Intracellular and extracellular oil droplets are abundant in frozen sections of tissue from this area stained with scarlet red.)

lesions in the walls of small arteries with a considerable infiltration of polymorphonuclear leukocytes, many of which were fragmented. Sections stained with scarlet red and with osmic acid showed scattered fine lipoid droplets in the wall and in the lumen of the affected vessels.

Microscopically similar vascular lesions were present in the capsule of the adrenal and in the ovaries. In the hilar lymph nodes of the lungs intracellular lipoid droplets were present. The only other interesting microscopic observation was the presence of numerous mitotic figures in the parenchymatous cells of the liver.

The anatomic diagnosis was lipoid pneumonia involving all lobes of the lungs; metastatic lipoid deposits in the blood vessels and perivascular areas with regional acute and organizing inflammation of the lungs, kidneys, spleen, adrenals and ovaries, and hilar lymph nodes of the lungs; cloudy swelling and fatty change of the parenchymatous organs most marked in the liver; chronic cholecystitis (slight); cholelithiasis; hemangiomas of the liver, the largest 5 cm. in diameter; healed surgical incision for radical mastectomy for comedo duct carcinoma of the breast 2.5 cm. in diameter, and terminal cardiac dilatation.

COMMENT

The fact that the lipoid material present in the tissues in this case, in part at least, stained with osmic acid and was saponifiable showed that it was animal fat rather than liquid petrolatum because the latter is non-saponifiable and stains with scarlet red but not with osmic acid. This agrees with the finding of Pinkerton [3] and others that animal oil and animal fat (milk, cream, cod liver oil, rabbit fat and lard oil) produce more severe lesions than do mineral oils. The case differs from the cases previously reported in that metastatic lipoid deposits were found in and about blood vessels in the kidneys, adrenals and ovaries in addition to those in the usual location in the lungs, in the hilar

lymph nodes and less frequently in the spleen. Microscopic examination of the lungs shows the aspirated lipoid material lining the alveoli and within the lumens of the capillaries in the alveolar septums. From this primary source the lipoid material apparently gained access to the circulation and produced severe vascular and perivascular lesions in the locations mentioned.

The kidneys showed the most striking involvement, and the lesions here apparently contributed to the patient's death. In the kidneys and spleen the lesions involving the medium sized arteries resembled the picture in periarteritis nodosa. The apparent cause of the change was the presence of finely emulsified lipoid material in the vasa vasorum. The similarity of this picture with that of periarteritis nodosa suggests the possibility that the latter lesion itself may be the end result of the lodgment of a variety of granular materials in the vasa vasorum of arteries.

Clinically, lipoid pneumonia represents a chronic recurrent inflammation of the upper respiratory tract with unproductive cough and pain in the chest. The periodic recurrence and exacerbation depend on repeated inhalations of the irritating oil or oils. The oil in the lung gets there by involuntary aspiration without exciting reflex inhibition when oil is taken nasally or orally for many years. Part of this oil may be expectorated and part removed by phagocytosis, but the residual portion sets up a chronic proliferative inflammation of the lung. The x-ray examination in the case reported did not show evidence of increased linear markings (fibrosis) or a perihilar shadow, which is the characteristic picture of lipoid pneumonia, but it did show a dense shadow which was interpreted as



Fig. 5.—Section of kidney under low magnification showing a small arterial lesion strongly suggestive of periarteritis nodosa. There are marked degenerattive change and necrosis of the walls, infiltration of polymorphonuclear neutrophils and lymphocytes in the wall and in perivascular locations.

ordinary pneumonia. Had the history of the ingestion of oil been obtained earlier and been associated with the history of pain in the chest, the occasional cough and the asthenia, the diagnosis might have been suspected ante mortem. This case as well as the others reported show that even a supposedly bland agent such as animal oil may be harmful if accidentally aspirated into the lungs and that the treatment of disorders of the upper respiratory tract with various medicated oils is not free from danger. An x-ray check-up in such cases over a long period of time may furnish valuable information.

SUMMARY

A case of lipoid pneumonia occurred in an otherwise healthy woman aged 46 following repeated aspiration of animal oil (probably cod liver oil) taken by mouth. In addition to the changes in the lung similar to those reported by others, metastatic deposits of lipoid material were observed in the kidney, adrenals and ovaries, together with an associated arteritis and periarteritis. The lesions in the kidneys were most striking (a diffuse glomerular nephritis) and apparently contributed to the death of the patient.



Fig. 6.—Frozen section of kidney under low magnification showing abundant metastatic lipoid material in glomeruli and tubules (scarlet red stained).

1800 East One Hundred Fifth Street.

The Discovery of Paragonimus.—About this time a lucky chance presented him with the discovery of an entirely new human parasite, and, as had happened before, it came to him in a peculiarly unrehearsed manner. One day a very self-possessed and important Chinese Mandarin entered his consulting room, and very insultingly spat on the floor at Manson's feet, ignoring completely the numerous sawdust-filled cuspidors which were arranged around the walls. Although blushing with indignation, Manson's scientific enthusiasm was satisfied by seeing that the sputum was tinged and streaked with blood, so seizing some with the forceps which he held in his hand, and placing it under the microscope, he discovered the eggs of a hitherto unknown worm, which turned out to be those of the lung fluke Paragonimus. . . . Then collecting some more of this sputum, he placed it in a glass bottle upon his desk, and added tap water. In the rush of other work, he forgot about making further observations on the eggs, until some six weeks afterward, he noticed an offensive smell that emanated from this particular bottle; he bethought himself of examining the sediment still further under the microscope before throwing it away. Once again by the most fortunate chance, he observed the small ciliated embryo, or miracidium, trying to force its way out of the egg, and manifestly also on its way to a new host. Thus was initiated the first steps of the wonderful life history of this fluke.—Power, Sir D'Arcy: British Masters of Medicine, Baltimore, William Wood & Co., 1936.

Clinical Notes, Suggestions and New Instruments

NEW SUTURE SCISSORS

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There are two essential differences in the technical use of silk and of catgut suture material. With the former it is important to employ interrupted sutures throughout and desirable to sever the suture close to the knot. The significance of employing interrupted sutures is twofold: 1. Silk sutures in the presence of secondary infection may act as an irritant or foreign body, and if continuous sutures have been used the

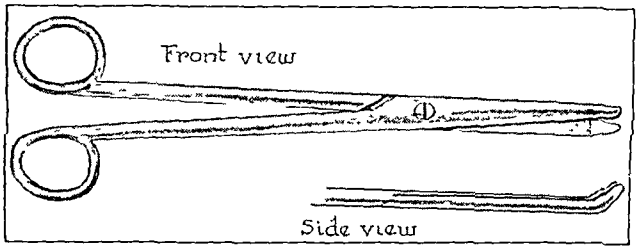


Fig. 1.—Front and side views of suture scissors; the distal ends of the blades form an angle of approximately 135 degrees.

suture produces a pathway for the further extension of this infection. The infection (particularly the chronic, relatively avirulent type) and irritant factors may produce insidiously a granulomatous type of lesion. Silk and, more recently, cotton are employed as a routine in the Tulane Surgical Service. Although at present interrupted sutures are used entirely, with no complications, continuous sutures were used very early in the adoption of the all silk technic. During this period several cases were observed in which granulomatous lesions, as described, developed. These were completely excised and the wounds closed with interrupted silk sutures without drainage and with primary healing. 2. A very fine silk can be used with relatively greater and more secure tensile strength. Because silk does not become edematous, as does catgut, the

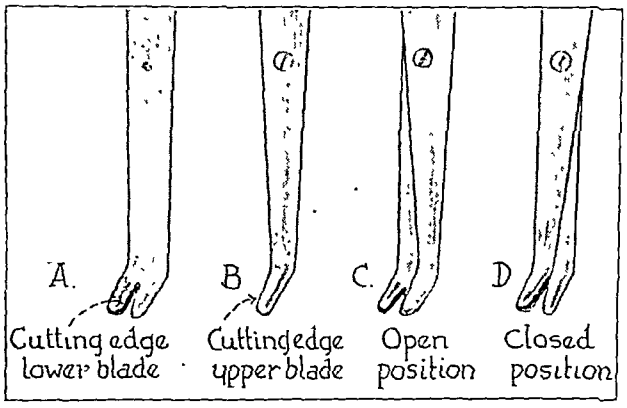


Fig. 2.—Construction of the blades: *A*, lower blade; the angled part is provided with a V-shaped opening, one side of which has a cutting edge. *B*, upper blade; the angled part of the blade has a cutting edge which opposes that of the lower blade. *C*, upper and lower blades assembled in a completely open position. *D*, upper and lower blades assembled in a completely closed position.

knot is less likely to slip. For this reason it is not only unnecessary but undesirable to cut silk sutures as long as catgut sutures. Actually the suture should be severed as close to the knot as possible. Any part of the suture distal to the knot is simply excess foreign body. Thus it becomes obvious in using an all silk technic that the cutting of sutures is an important factor. In an attempt to simplify and facilitate the performance of this technical procedure, new suture scissors have been devised.

The scissors are similar to the conventional type, differing only in construction of the blades, which form an angle of approximately 135 degrees near the distal end (fig. 1). Only the angled part of the blades has a cutting edge. The lower blade is provided with a V-shaped opening at its end, one side of which has a cutting edge (fig. 2 *A*). The upper blade has a narrowed tapering end and is provided with a cutting edge which opposes that of the lower blade (fig. 2 *B*). Thus when the two blades are assembled and in the open position the angled part of the upper blade is above the noncutting side of the lower blade (fig. 2 *C*). In this position the cutting edges of the respective blades oppose each other. A lock arrangement prevents wider opening of the blades. As the scissors are closed the upper blade moves across the V-shaped opening, the cutting edges passing each other until the completely closed position is assumed (fig. 2 *D*).

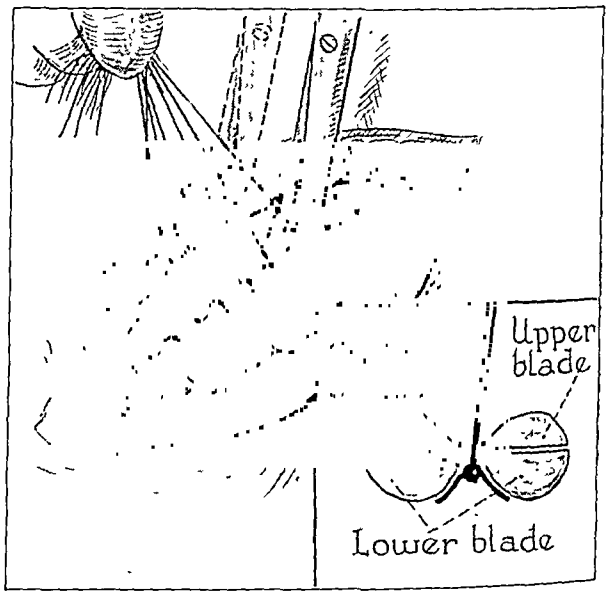


Fig. 3.—Method of operating the scissors: As the ends of the tied suture are held taut, the V-shaped end of the open scissors is brought against them so that the suture lies in the apex of the wedge, and then the scissors are slid down the suture until stopped by the knot. The inset represents diagrammatically the cross section of the upper and lower blades and the position of the suture, to show how the desired site of cutting the suture is automatically found.

The operation of the scissors is extremely simple. The ends of the tied sutures are held taut as the V-shaped end of the open scissors is brought against them so that the suture lies in the apex of the wedge (fig. 3). The scissors are then slid down the suture until they are stopped as the knot impinges against the wedge (fig. 3, inset). Thus the desired site of cutting the suture is automatically found. In this position the blades are closed and the suture is severed.

Whereas with the conventional type of suture scissors considerable practice is necessary in cutting silk sutures at the desired site, with the scissors herein described this site is quickly and automatically found even by the tyro and the time required for the proper performance of this technical procedure is diminished considerably. The angled character of the scissors permits convenience and facility in severing sutures in relatively inaccessible or deeper areas of the wound. For this purpose also the scissors are made in several lengths. Because the cutting edges are relatively small (about 0.5 cm. in length) and because of the protection afforded by the construction of the blades, the danger of inadvertently cutting tissue is minimized.

From the Department of Surgery, Tulane University of Louisiana School of Medicine.

CORPUS LUTEUM CYSTOMA

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Cystic tumors of the ovary arising from the graafian follicle are common. Small cystic degenerations of the corpus luteum are not uncommon, but a single cyst of any appreciable size is very unusual, although cysts "the size of a child's head" have been described.[1] Hertzler[2] states that these cysts develop because of the failure of the luteal cells to form fibrous tissue and the resultant corpus albicans—"at any rate the luteal cysts must be due to some disturbance in the physiology of ovulation. The result is a cyst seldom larger than a walnut, usually not larger than a hazelnut. Having attained this size, they may remain unchanged and symptomless, or hemorrhages may take place in them."

REPORT OF CASE

History.—Miss R. G., a white American office worker aged 34, was perfectly healthy until February 1938, when bilateral tubal abscesses developed and drained through the vagina. There was an uneventful recovery from the pelvic infection, and in September 1938 the patient returned, complaining of insomnia, "hardiness of the abdominal muscles" and enlargement of the lower part of the abdomen. Pelvic examination at this time revealed a mass the size of a grapefruit in the left broad ligament, with the uterus small and pushed to the right. The patient stated that she first noticed the mass about a month previous to entry and that for the past several years her periods had been irregular, usually with a six to eight week interval and a three day flow, and that since February 1938 they had occurred more regularly, at a monthly interval, but with a very scanty flow.

Operation.—An operation performed by Dr. H. J. Davidson at the Columbus Hospital September 21 disclosed a large tense mass adherent to the left broad ligament, bilateral hydrosalpingitis and two small fibroids in the anterior surface of the uterus. The right ovary appeared normal. The mass, the tubes and the two small fibroids were removed. The abdomen



Fig. 1.—External surface of cyst, showing pedicle.

was closed without drainage. The wound healed by primary union and convalescence was uneventful. Menstruation began the day following operation.

Pathologic Examination.—The specimen consisted of a smooth tense grayish mass, 11 cm. in diameter, to which was attached a uterine tube measuring 9 by 3 cm. On section the dilated tubal lumen was filled with a thick viscid mixture of what appeared to be blood and pus. On section of the tumor mass, thick, bloody and purulent appearing material under marked pressure was seen to fill a cyst cavity, the walls of which were tough and fibrous, gray and about 1 cm. in average thickness. The inner lining of the cyst was bosselated and yellowish, and it stripped fairly readily from the underlying tissue. Microscopic study of the wall of the cyst revealed no true ovarian structure. The wall was thick and fibrous, with small areas of round cell infiltration. The lining showed small round cells



Fig. 2.—Cyst opened and evacuated, showing thick, bosselated, yellowish wall.

arranged more or less in strands, with a matrix of vascular fibrous tissue. There were indefinite columns of cells, not unlike normal lutein cells but interspersed with frequent signet ring shapes and many mitotic figures. There was no definite epithelial edge and no indication of invasion of the capsule.

COMMENT

The case is presented because of the rarity of a large unilocular corpus luteum cyst. The growth of this cyst was rapid; the wall was thick, and in spite of the mitotic figures and the origin from ovarian tissue the growth was benign as long as encapsulated. The hormonal effect has heretofore apparently not been recognized, but an excess of lutein hormone will cause amenorrhea (relative or complete) and the condition is readily remediable by surgical removal of the cyst.

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PHOTOSENSITIZING AGENTS

A BRIEF REVIEW OF THE LITERATURE

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My purpose in this paper is to report two cases of pigmentation—one resulting from a photosensitizing dye and the other from a toilet water—and to discuss briefly the parenteral and ingested photosensitizing substances as well as the topical photosensitizers.

Pigmentation of the skin may follow the topical application of a number of photosensitizers, e. g. eosin and eosin compounds, oil of bergamot, oil of lavender, oil of cedar, vanillin oil, perfume, eau de cologne, mercury bichloride, dyes and Dictamnus albus (gas plant).

Substances such as sulfanilamide, gold, silver, hematoporphyrin, acriflavine, eosin, rose bengal, erythrosin (fluorescein) and chlorophyll, when injected into the body, possess the property of sensitizing the skin to light.

Photosensitization in animals has been associated with the eating of buckwheat, clover and sudan grass.

REPORT OF CASES

CASE 1.—Miss A. P., aged 30, a brunette, consulted me March 18, 1938, for three dark gray, flat, superficial, pigmented areas on her lower lip. Each area was not more than 0.5 cm. in circumference and irregular in outline and had been present since the past summer. The patient had been using one brand

of lipstick for a number of years until the past summer, at which time she changed to a different brand (Louis Philippe). I considered this pigmentation as resulting from photosensitization to one of the ingredients of this lipstick.

July 22 the patient consulted me for an irregular grayish pigmentation of the webs of the fingers of her right hand. She had recently been applying an eau de cologne (Arly) to these areas. I considered this pigmentation as resulting from one of the ingredients of this particular eau de cologne.

Perfumes are complex products; the better ones may contain as many as twenty-five ingredients and consist of (*a*) a coloring, (*b*) a fixative, (*c*) a solvent, (*d*) essential oils and (*e*) an odor —animal, vegetable or synthetic.

August 17 the patient consulted me for a linear grayish pigmentation extending from the outer surface of the left thigh to the ankle (figs. 1 and 2). The pigmentation was approximately 3 cm. at the upper part of the thigh and gradually narrowed toward the ankle. The patient noticed this pigmentation in the evening after swimming. She had worn the same bathing suit four times previously while swimming in an indoor pool but on this particular afternoon in August she decided to sun herself. After swimming in the pool she squeezed the water from the left side of the pants of the bathing suit and sat in the sun an hour, developing a mild generalized erythema. The same evening the pigmentation was noted. It had occurred where the expressed water "ran down" her thigh. When examined three months later the pigmentation was still present but fading.

The pants of the rayon bathing suit were red, while the outer part (skirt) was red with a white polka dot. Most of the red dyes used in bathing suit manufacture fall within the eosin group. In reviewing the literature I have been unable to find a case of pigmentation from a photosensitizing dye as described in this case.

I performed patch tests with various portions of the bathing suit; I wet the pants and skirt, squeezed the water out, applied the water to the skin and then exposed the area to an erythema dose of ultraviolet rays; I used chlorinated water (for chlorine was used in the pool) and repeated the tests, but with negative results. Unfortunately I could not persuade the patient to go swimming and repeat the same procedure that precipitated the pigmentation.

Since the experiment could not be reproduced by ultraviolet rays I am of the opinion that summer sunshine is necessary for this type of reaction. Goodman [1] considered three factors essential: (1) sensitivity of the person, (2) some ingredient of the perfume or substance and (3) natural summer sunlight. It should be remembered that no source of artificial light closely resembles noonday summer sunshine and that experiments performed with the artificial sunlight cannot be completely accepted as equivalent to natural noonday summer sun.

It appears that certain wavelengths of light are concerned in precipitating these photosensitizing reactions, and it is believed that the violet and ultraviolet rays of the spectrum are most important.

The patient stated that she was not unduly susceptible to the sun, and although on several occasions she had exposed herself for an hour or more, only a mild erythema had developed followed by a slight tanning.

CASE 2.—Mrs. A. S., aged 25, a brunette, was seen in consultation at Emergency Hospital in July 1935 for a slate-colored pigmentation of the face, anterior portion of the neck, the chest, the flexor surfaces of the forearms and the left leg and thigh. The patient had fractured her right leg, which had been placed in a plaster cast. The first of July the patient was permitted sunbaths on the roof of the hospital and the first few days after exposure to the sun a generalized erythema developed; several days later a discoloration of the skin appeared which became progressively more marked. The history revealed that each day before exposure to the sun the patient had applied an eau de cologne (No. 4711, manufactured by Ferd. Mulhens, Inc.) to the areas that became discolored. This discoloration disappeared in four months.

Many toilet waters, perfumes and cosmetics contain oil of bergamot, which is a definite photosensitizing agent. The application of oil of bergamot in alcohol plus ultraviolet rays will in many persons produce a dermatitis followed by pigmentation. Some authors report the production of pigment in depigmented (vitiliginous) areas following its use. In one experiment I applied (1) an eau de cologne (4711), (2) 10 per cent oil of bergamot in 70 per cent alcohol, (3) eau de cologne

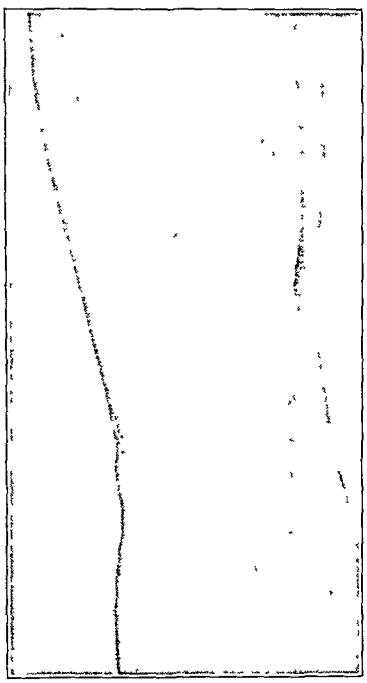


Fig 1 (case 1).—Linear pigmentation of the thigh and leg.



Fig. 2 (case 1).—Linear pigmentation of the thigh and leg.

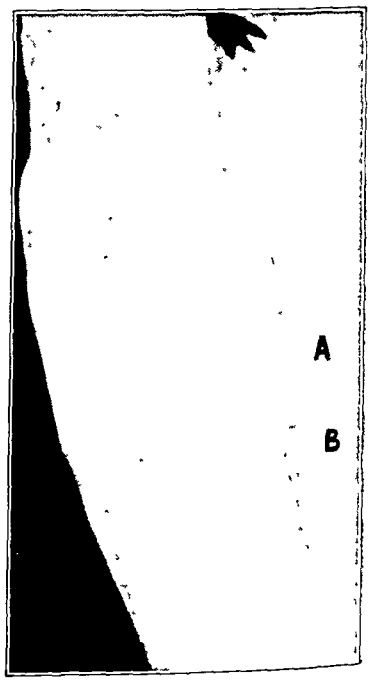


Fig 3 (case 1).—Linear (*A*) which followed application of 10 per cent oil of bergamot in 70 per cent alcohol plus ultraviolet rays and (*B*) which followed application of eau de cologne (Arly) plus ultraviolet rays

1. Goodman, Herman: Perfume Dermatitis: Case Report with a Review of the Literature and Bibliography, Brit. J. Dermat. & Syph. 43: 177 (April) 1931.

(Arly) daily to the forearm and followed by alpine ultraviolet erythema doses and on the sixth day definite pigmentation was noted at the sites of the application of oil of bergamot and eau de cologne (Arly) (fig 3).

COMMENT

Gross and Robinson[2] reported the first cases in the United States of dermatitis and pigmentation following the use of perfume. Their five patients used imported perfumes. The authors produced pigmentation, preceded by erythema, by the application of a drop of perfume followed by a suberythema dose of ultraviolet rays. "This dermatitis has definite characteristics. It is usually found in the neck and chest. . . . The shape of such an area is usually similar to that of an area covered by a small drop of flowing fluid."

Freund[3] in 1916 originally described this curious pigmentation and was successful in reproducing the pigmentation by exposure to the sun after applying eau de cologne and oil of bergamot.

Goodman[1] in 1931 reported a case of perfume dermatitis and described the pigmentation as giving the appearance of being caused by a dark colored fluid running down. The patient stroked the moist glass stopper of the perfume bottle behind her ear and down her neck. This site of pigmentation is not uncommon.

Hellier[4] reported a case of lipstick dermatitis resulting from the eosin and stated that the majority of lipsticks contain eosin.

Silver, when applied locally or ingested, may produce the characteristic slate color of argyria in the skin and adjacent mucous membrane of the exposed portions of the body.

Discoloration of the nails due to mercuric sulfide activated by rays of light has been reported by Callaway.[5]

Conspicuous pigmentation preceded by bullae and erythema has followed contact with Dictamnus albus[6] (gas plant) when exposed to the sun's rays. The toxic substance is a photosensitizer for dermatitis, and pigmentation was produced only after exposure to the sun.

Cutaneous pigmentation has followed injections of gold salts. Cardis and Conte[7] have reported chrysocyanosis in thirty-four tuberculous patients following treatment with gold salts. The pigmentation, which is persistent and occurs only on portions of the skin exposed to light, such as around the eyes, forehead, back of the hands and forearms, may not appear for two or three years.

Persistent hypersensitivity to light after intravenous injections of acriflavine hydrochloride has been reported by Haxthausen.[8] After injections of acriflavine hydrochloride, edema and erythema of her face and hands would develop when exposed to diffuse daylight and sunshine. Bright sunlight did not have any effect on the patient when the windows were shut.

Hematoporphyrin hydrochloride[9] has produced intense pigmentation at the point of injection. This pigmentation appeared on exposure to sunlight two months after the use of the drug.

Quin[10] produced sensitization to light in sheep and goats by injecting 0.5 Gm. of hematoporphyrin intravenously and exposing them to direct sunlight. Ten minutes after exposure to sunlight there was pruritus followed by edematous swelling of the ears and face, dry gangrene and finally opacity of the cornea with blindness.

Jodlbauer and Busck[11] produced the same reactions by injecting eosin, fluorescein, erythrosin and rose bengal into rabbits, rats, mice and guinea pigs and exposing the animals to direct sunlight.

Meyer-Betz[12] received an intravenous injection of hematoporphyrin and when he was exposed to direct sunlight of short duration there resulted pronounced edema of the hands and face followed by superficial necrosis in a few areas.

Photosensitization in animals has followed the ingestion of certain substances. Hertwig[13] in 1833 observed fagopyrism (buckwheat poisoning) in a herd of swine, associated with the eating of buckwheat and exposure to direct sunlight.

Trifolosis, or clover disease, and similarly photosensitization from Sudan grass have been reported.[14]

Sulfanilamide is also a photosensitizing agent. Brusting[15] and Neuman and Sharlit[16] have discussed this peculiar property. The outstanding characteristic was its limitation to the regions of the skin which had been exposed to direct sunlight. The skin became erythematous, edematous and urticarial. The presence of certain concentrations of sulfanilamide in the skin of susceptible persons may produce a state of photosensitivity, and therefore patients receiving this drug should be shielded from direct exposure to the sun or to ultraviolet rays.

Abnormal hypersensitivity to light is a determining factor of several cutaneous diseases, particularly hydroa aestivale, eczema solare, xeroderma pigmentosum, lupus erythematosus and pellagra. Hydroa aestivale[17] has been accepted as a photodynamic phenomenon in which hematoporphyrin acts as a sensitizer.

Recently avitaminosis in relationship to pigmentation has received serious consideration. Smith and Ruffin,[18] by keeping pellagrins on a deficient diet, has succeeded in causing the dermatitis to reappear in thirteen of thirty-five patients by exposing them to the sun. Hoff[19] has found that many pathologic pigmentations of the skin are due to a deficiency of vitamin C. Cornbleet[20] states that the clinical condition of increased pigmentation occurring in scurvy is quickly eradicated by administration of vitamin C, while hyperpigmentation in Addison's disease is reduced to normal by the administration of vitamin C.

In the light of these facts it is possible that patients in whom pigmentation develops after exposure to sunlight may have an absence or diminution of certain vitamins, particularly vitamin A or C or both.

Very little is known of the mechanism of sensitiveness to light. Ellinger[21] worked out a method for studying the problem of the relationship between light sensitivity and cutaneous capillarization by determining the number of visible capillaries per unit of surface and concluded that in many cases of high degree of sensitivity to light he found an increase in the number of capillaries of the skin.

1835 Eye Street N.W.

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A TUBE FOR USE IN THE POSTOPERATIVE CARE OF GASTRO-ENTEROSTOMY PATIENTS—A CORRECTION

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AND
ARTHUR J. RAWSON, M.E.
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In the May 29, 1937, issue of THE JOURNAL a tube was described for use in the postoperative care of patients undergoing gastric operations. It had the twofold function of keeping the stomach constantly empty and yet of allowing jejunal feeding at regular intervals. This was accomplished by the insertion into a duodenal tube of a silver outlet valve at the tip for jejunal feeding and of a silver inlet valve 30 cm. proximal to the tip for the aspiration of the contents of the stomach. Although a large double lumen tube had once been used for the same purpose it was felt that the use of a single tube with valves was preferable because of the larger lumen that would be obtained for a given outside diameter.

In the light of subsequent experience this proves to have been an error. Though the standard 16 F. duodenal tube has a lumen which is 7 sq. mm. in cross section as compared with 4 sq. mm. for the larger lumen of our 16 F. double lumen tube, it is the latter which is less easily occluded by mucus and blood clots. This is because the lumen of the two lumen tube has a flat side (fig. 2) which sags when suction is applied and bulges in response to pressure. The wide changes in the

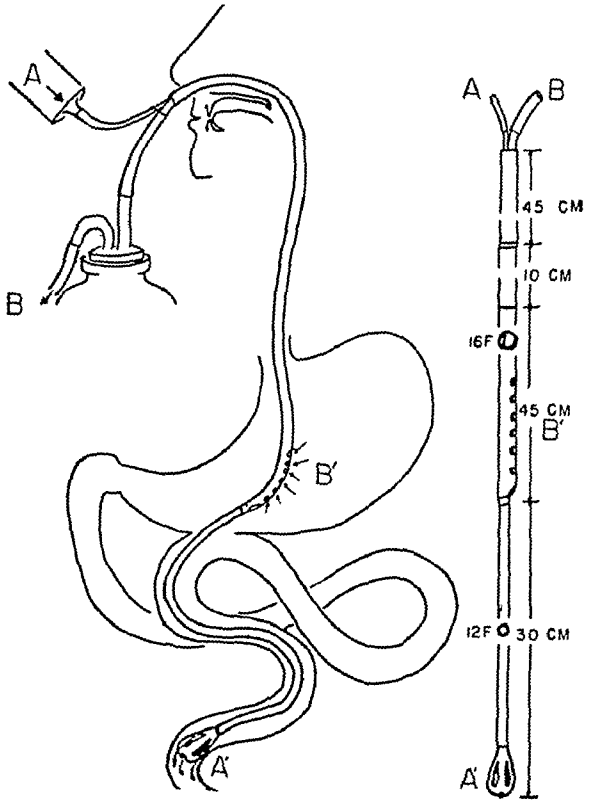


Fig. 1.—The gastro-enterostomy tube in place: *A*, route of injection of nutrient solutions; *A'*, point of emergence of the solution; *B*, attachment for the application of suction; *B'*, points from which contents are aspirated.

cross sectional area thus produced allow one to dislodge a mucous plug very readily by injecting water with a syringe, while the practically fixed cross sectional area of the round lumen tube, though actually larger, greatly reduces the chance of clearing the passage once it has become occluded. In addition, the valves proved too difficult to keep in order for practical purposes.

From the Gastro-Intestinal Section (Kinsey-Thomas Foundation) of the Medical Clinic and the Johnson Foundation of Medical Physics, Hospital of the University of Pennsylvania.

For these reasons we have abandoned the use of the valved single lumen tubes and now rely entirely on a double lumen tube to accomplish the purpose originally described. The tube (fig. 1) is introduced through the nose, the end drawn out at the mouth and a Lyon duodenal bucket attached. The patient then swallows the tube to the first mark, which is placed 75 cm. above the tip. This permits the portion of the tube in the stomach to be slack and the aspirating holes to lie within the cardia. When a gastro-enterostomy is then performed the surgeon on completion of the anastomosis slips the tip of the tube through the stoma and for 30 cm. down into the distal portion of the jejunal loop with his thumb and fingers. The tube meanwhile is advanced through the nose until the second mark (85 cm.) reaches the external nares, and it is retained in that position. Not less than six hours after operation, nutrient solutions may be injected through the smaller lumen into the jejunum, while to the larger lumen of the tube constant suction may be applied to draw off the gastric contents.

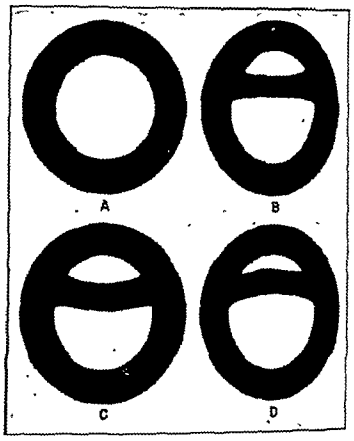


Fig. 2.—Cross sections of single and double lumen tubes: *A*, the proportion of inside to outside diameter of a 16 F. tube; *B*, the position of the septum in a 16 F. double lumen tube; *C*, the degree to which the septum sags when a negative pressure of 150 cm. of water is applied to the larger lumen; *D*, the degree of bulge occurring when water is injected with a syringe.

Either type of tube gives one the ability to feed a partially starved patient, even on the day of operation, by a means that is more physiologic than is intravenous infusion, but the flat sided lumen and the lack of moving parts makes the double lumen tube unquestionably the better one for the purpose.

A NOTE ON THE USE OF VITAMIN B_6 IN HUMAN NUTRITION

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AND
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Since vitamin B_6 (2-methyl, 3-hydroxy, 4,5-di-[hydroxymethyl] pyridine), one of the water-soluble compounds of the vitamin B complex, is a component of yeast and of liver extract, both of which are effective antipellagric substances, it was thought that perhaps this vitamin also might be important in human nutrition. Clinical studies of the effect of vitamin B_6 on nutritional deficiency diseases were made possible by the recent synthesis [1] of this substance.

We [2] described recently the study of a large series of undernourished persons who had clinical evidence of pellagra and beriberi and certain symptoms which are corrected by the administration of riboflavin. Such persons are greatly benefited by the addition of nicotinic acid, thiamin chloride and riboflavin as supplements to their usual inadequate diets. Some of them regain sufficient strength to return to work, thus enabling them to afford a better diet and thereby be restored to good health. Those whose diets remain unchanged develop symptoms which are not corrected by the addition of these synthetic chemical

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1. Harris, S. A., and Folkers, K.: Synthesis of Vitamin B_6, J. Am. Chem. Soc. 61:1245 (May) 1939.
2. Spies, T. D.; Bean, W. B., and Ashe, W. F.: Recent Advances in the Treatment of Pellagra and Associated Deficiencies, Ann. Int. Med., May 1939.

substances. Such symptoms include extreme nervousness, insomnia, irritability, abdominal pain, weakness and difficulty in walking.

Four persons who had been treated successfully for pellagra and beriberi, but who remained on their deficient diets and were now complaining of these symptoms, were selected for study. Within four hours after the administration of 50 mg. of pure synthetic vitamin B_6[3] in sterile physiologic solution of sodium chloride, all patients experienced dramatic relief of these symptoms and increased strength. Within twenty-four hours these symptoms had disappeared. One of these persons who had been unable to walk more than a few steps walked 2 miles within twenty-four hours after the injection of 50 mg. of vitamin B_6.

These observations indicate that vitamin B_6 is important in human nutrition and support the hypothesis that the deficiency diseases are often multiple in nature.

Special Article

CONFERENCES ON THERAPY

EVALUATION OF DRUGS USED IN THE TREATMENT OF SYPHILIS

NOTE.—These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors.

DR. JANET TRAVELL: The drugs with specific curative effects in syphilis are the compounds of arsenic, bismuth and mercury. Some of the questions relating to their use, on which syphilologists do not all agree at present, are: Which metal to use at any given stage of the disease? What preparation of the metal to select? How much of it to give? By what route? What plan of treatment to follow, whether continuous or interrupted or combined, and so on? And if toxic reactions or resistance to therapy develops, what other course to follow? If no reactions develop, when to stop treatment?

What are the objectives of antisyphilitic therapy? This is one instance in which therapy is aimed directly at the cause of the disease. So the goal is the complete cure of the disease. Treatment should accomplish a rapid disappearance of the spirochete from the mucocutaneous lesions in order to prevent contagion and to prevent the spread of the infection to organs commonly involved in late syphilis. Second, in chronic or late syphilis treatment should effect an arrest of the various pathologic changes which have already taken place. Third, whatever the stage of the disease, a permanent cure should be effected with complete sterilization of the patient with respect to the spirochete. Finally, treatment should not cause injury to the tissues of the host. Elimination of reactions is an important phase of the problem of therapy.

What methods are used for comparing the relative therapeutic potency or efficiency of specific antisyphilitic drugs and of their numerous preparations and of the various plans of administration?

First, there are in vitro experiments measuring directly the effect of the drugs on spirochetes and trypanosomes which are susceptible to the action of these metals. The in vitro experiments do not yield any decisive information regarding effectiveness in man because the arsenobenzenes (except mapharsen) and the complex organic derivatives of bismuth and mercury do not exert a prompt spirocheticidal action in vitro in the low concentrations which are comparable to those obtaining in the body after their administration. Some spirocheticidal action may be noted in low concentrations, but only after considerable periods of time have elapsed during which it may be shown that decomposition products of the compound may have been formed, as for instance arsenoxide from the arsphenamines. The mode of action on the spirochetes is not known but it is likely that it is not due to a direct spirocheticidal action of the complex molecule itself. It is rather due to some decomposition product found in the body and circulating in the blood stream in low concentration exerting its effect over a prolonged period of time. The in vitro experiments do not take into account the role played by the tissues of the host, and for this reason they are not a satisfactory means of comparing efficiency in the treatment of syphilis.

As for the animal experiments used for measuring the curative action of drugs in experimental syphilis: Syphilis has been transferred to the mouse, the rabbit, the monkey and the chimpanzee. The trouble is that in none of these species does the spirochete produce the pathologic lesions which are characteristic of late syphilis in man. In mice this organism produces an innocuous symptomless infection without pathologic lesions of any sort. The mouse, however, harbors the organisms, which may be recovered from the brain as long as about a year and a half after infection, a long time in the life of a mouse, without their having produced any symptoms or any apparent pathologic changes in the brain. In experimental syphilis in the rabbit, inoculation with the spirochete produces a primary lesion followed by secondary generalized involvement of the testis, lymph nodes, skin, eye and bone. But again no pathologic lesions are noted in the liver or other viscera or in the central nervous system, nor does the pregnant rabbit transmit syphilis to the fetus in utero. In view of the fact that preparations are frequently judged by their effects in rabbit syphilis, the extreme variability of its course under very slightly different experimental conditions is important. In some rabbits a symptomless infection similar to that seen in mice may even be produced, and these variations may be responsible for some of the conflicting reports in the literature. In monkeys and apes the disease is similar to that in rabbits. In all these species, infection, even when symptomless, usually persists for the life of the animal unless treatment is given.

All of this means that animals may be used to evaluate drugs with respect to a limited number of our objectives. They may be used to study the rapidity of disappearance of the spirochete and the rate of regression of lesions in early syphilis and also to some extent to study toxicity. On the other hand, the permanent curative action or effectiveness in preventing the vascular and hepatic and nervous system lesions of late syphilis and the healing action on these already developed lesions cannot now be studied in animals but only in man, in carefully mapped out long range studies extending over a period of several years in order to be 100 per cent sure that a permanent cure has actually been obtained.

Regarding the experiments in man, several criteria are used in judging the therapeutic efficiency of a compound: First the symptomatology, or the clinical course

[3] Furnished through the courtesy of Merck and Company, Rahway, N. J.

of the disease. Second the serologic reaction, especially of the blood and spinal fluid. Third the daily urinary excretion of the metal in the case of bismuth and mercury. The basis for this last is that the amount of metal appearing in the urine is believed proportional to the amount of metal circulating in the blood stream. Since the circulating metal rather than that stored in the tissues is responsible for its therapeutic effects, urinary excretion serves indirectly as an index of therapeutic efficiency. That is the theory. Urinary excretion has been widely studied with this in view. Sollmann and his co-workers found that, when the amount of mercury in the urine after four weeks of treatment approached 1 mg. a day, minor toxic symptoms appeared, salivation, stomatitis and albuminuria. When the amount of mercury approached 2 mg. a day signs of more severe poisoning resulted, and all forms of treatment which yielded less than 0.5 mg. a day of mercury in the urine after four weeks of administration were found to be clinically ineffective in early syphilis. Bismuth is less toxic than mercury and Sollmann found that the amount of bismuth in the urine must be maintained at a minimum of about 3 mg. a day to obtain satisfactory effects in early syphilis.

At present it is generally believed that better results are obtained when there is a continuous low level of excretion of the metal in the urine, as produced by the injection of insoluble or slowly absorbed salts, than when high peaks of concentration for a short period of time are produced, as after injection of the more soluble and rapidly absorbed compounds. Sollmann has recently recommended the simultaneous use of a soluble and an insoluble salt of bismuth at the beginning of treatment with the idea of producing promptly an initial high peak while at the same time building up more slowly the lower concentration. Such high peaks of concentration in the urine can be maintained for only short periods of course without producing toxic symptoms. The significance of figures on urinary excretion has rather limited practical application, however. Urinary excretion does not directly measure any single factor but rather it represents a composite of several factors, such as the rate of absorption of the metal, the rate of release from the depots in the body, the rate of elimination by the kidneys, and I wonder whether it is in all instances a faithful measure of clinical efficiency.

Is arsphenamine really more effective than neoarsphenamine, as is commonly stated in the textbooks? There is no way to obtain an answer to this question except by testing their relative efficiency in man, and the conclusions as to the superiority of arsphenamine over neoarsphenamine are based largely on the results of the American Cooperative Clinical Group. They studied a series of about 2,500 patients treated with arsphenamine in five clinics and a series of 355 cases of neoarsphenamine treated by private practitioners before the patients were admitted to the clinics. Various plans of treatment were used in conjunction with both the heavy metals. When the results were broken down according to the plan of treatment, it was found that with the so-called continuous method ultimately satisfactory results were obtained after arsphenamine in about 36 per cent of the cases and after neoarsphenamine in about 20 per cent, and that relapses occurred in about 12 per cent after arsphenamine and in 16 per cent after neoarsphenamine. These are the figures that are commonly quoted in favor of the superiority of arsphenamine, and I might say that in splitting up the whole series the total number of cases treated by the continuous method was 550 for arsphenamine and only 79 for neoarsphenamine. When all schemes of treatment were grouped together it was found that ultimately satisfactory results were obtained in 21 per cent of the cases after arsphenamine and 18 per cent after neoarsphenamine, that relapses occurred in 27 per cent after arsphenamine and 27 per cent after neoarsphenamine and that a reversal of the Wassermann reaction was secured in 76 per cent after arsphenamine as compared with 71 per cent after neoarsphenamine. When the two drugs were examined for serious reactions it was found that 22 per cent of the cases showed serious reactions after arsphenamine and only 13 per cent after neoarsphenamine. It should be noted, however, that ultimately there were one and one half times as many Wassermann fast cases in the neoarsphenamine treated as in the arsphenamine treated group. These statistics do not seem to show any tremendous superiority of arsphenamine over neoarsphenamine. The Cooperative Clinical Group also adds that, since the neoarsphenamine was given under the care of the private physician, treatment was presumably more irregular than in the clinic, and "the less favorable conditions under which neoarsphenamine has been administered should be taken into account in comparing the results."

I want to call attention to the relative dosage of these two compounds. The usual doses of arsphenamine are about two thirds those of neoarsphenamine. Doses of 0.6 Gm. of arsphenamine and 0.9 Gm. of neoarsphenamine are said to be equivalent because the arsenic content is approximately the same in the two instances. On the other hand, the arsenic content is only one factor which determines therapeutic efficiency and there are many other factors, such as the solubility of the compound, the rate of penetration into the tissues, the rate of decomposition in the body and the rate of elimination from the body. The arsenic content may actually be one of the less important factors. For instance, the dose of mapharsen is 0.06 Gm., which contains 0.017 Gm. of arsenic; the customary dose of arsphenamine, 0.6 Gm., contains 0.19 Gm. of arsenic, or approximately ten times as much, and yet these doses have been found in experimental syphilis to be equivalent in therapeutic potency; in the case of tryparsamide, I might add, the usual dose, 3 Gm., contains 0.75 Gm. of arsenic in pentavalent form and in spite of the much larger arsenic content this compound is relatively ineffective in the treatment of early syphilis. The latest bulletin of the U. S. Public Health Service on syphilis (No. 6) recommends that 0.1 Gm. of arsphenamine be given for each 0.2 Gm. of neoarsphenamine, a ratio of 1:2 instead of 2:3. If these relative amounts are used it may very well be that neoarsphenamine will prove to be at least as effective as arsphenamine.

In the Oslo clinic from the years 1891 to 1910 prior to the introduction of arsphenamine it was not believed worth while to treat patients with syphilis. The clinic had a fairly large control series of 309 untreated patients, who were alive and reexamined from ten to twenty years after the primary infection, and these may be compared with the similar group of treated patients of the Cooperative Clinical Group observed for a corresponding period. It is interesting that from ten to twenty years after infection in the untreated group 50 per cent were symptom free, 36 per cent with a negative Wassermann reaction and 14 per cent with a positive Wassermann reaction, and of the treated

patients of the Cooperative Clinical Group 79 per cent were symptom free, 63 per cent with a negative Wassermann reaction as compared with 36 per cent in the control series, and 16 per cent with a positive Wassermann reaction. Now these figures do not tell the whole story because many of the lesions of late syphilis do not give any signs and cannot be detected on careful examination, and yet the untreated patient is nevertheless probably a poorer risk and may have on the average a shorter span of life than the adequately treated patient. Specific therapy in syphilis is definitely effective, it is a valuable procedure, and the difficulty with it is that so many patients discontinue or interrupt treatment. I have read that as high as from 70 to 80 per cent of all patients with syphilis discontinue treatment.

THE CLINICAL STANDPOINT

DR. BRUCE WEBSTER: Syphilis, unlike many other conditions, has to be treated for a long time and any scheme of treatment falls down unless the patient is kept under observation. One fundamental in planning this therapy is to have as good a contact with the patient as you can possibly have at the outset of treatment. We follow the plan of telling the patients during the first or second visit what the plan of treatment is so that they will not expect to stop each week. We tell them just a little about the reactions of treatment so that they can recognize them if they occur and we tell them the prognosis very early in the disease and try to point out the relationship between regular attendance and their prognosis.

Dr. Stokes has said, as Dr. Travell has just mentioned, that something like only 30 per cent of the patients starting antisyphilitic treatment go on to completion. We have a rather better record than that so far. Actually we are losing at the present time only about 3 per cent of the patients who come in. Some of them lapse, but 80 per cent of them have a regular attendance. The other 17 per cent are brought in with the follow-up system.

Any plan of treatment has to take into account the patient's age, his reaction to other infections and his sensitivity to other drugs, because we know that certain individuals, for instance, people with exophthalmic goiter, are notoriously sensitive to a variety of chemicals.

Lastly we must consider the condition of the patient's general health. It is important that a very careful physical examination be made and that we evaluate renal function, the condition of the teeth and a great many other things before treatment is started.

We have in the Formulary of the New York Hospital a relatively simple list of antisyphilitic drugs, namely arsphenamine, potassium iodide, neoarsphenamine, bismuth and tryparsamide. The Department of Pediatrics uses sulfarsphenamine in addition. Before discussing these drugs, I think it might be wise to say a word about the various categories in which the types of cases fall. We divide them into early syphilis, that is primary and secondary syphilis; latent syphilis, in which the condition is recognized on the basis of a blood Wassermann reaction alone; cardiovascular syphilis; central nervous system syphilis with its various subdivisions, and lastly the smaller group of visceral syphilis and syphilis of the bone, the liver and so on. Now each type of necessity has a different plan of treatment and these drugs are varied accordingly.

In early syphilis we believe, contrary to Dr. Travell, that arsphenamine is the drug of choice. I think Dr. Moore has a good discussion of that in his textbook. We were surprised yesterday when Dr. Travell and I were going over these figures, in looking at the breakdown of them, to see what a relatively small number of cases the neoarsphenamine data are based on. However, if one discusses this problem with the majority of the authorities on the treatment of syphilis, men who have had tremendous clinical experience, I think they all feel very strongly that in their experience arsphenamine has been much more effective. Perhaps they are wrong. One of the objections to arsphenamine has, of course, always been the technical difficulties involved in its administration. As you know, it has to be neutralized at the time of injection. This has been met, I think, fairly successfully.

Whatever the plan of treatment of syphilis, I think it is now generally agreed that treatment has to be continuous. The older method of intermittent treatment has, I think, been shown by the Cooperative Clinical Group to be not as effective. So, once treatment is started, it must be carried on continuously without rest periods until the end.

The question which I am sorry Dr. Travell did not have time to discuss, that of drug fastness, comes in here. It has long been known that, if therapy is carried on with arsphenamine or with the heavy metals over long periods, it loses its effectiveness and occasionally, after prolonged arsphenamine treatment, cutaneous lesions will actually recur. This phenomenon is not entirely understood but we have to take it into practical account and therefore these drugs are given in alternate courses, a certain number of injections of the arsenical followed by a certain number of injections of heavy metal. We make one exception to that, and that is in early syphilis. As Dr. Travell has said, the arsenic is excreted fairly rapidly. If a patient with primary or secondary syphilis is started on arsphenamine, the maximum amount is excreted at the end of the second or third day and the patient is left relatively without protection against the spirochete. So for the first four injections we combine arsphenamine and the heavy metal, the idea being that the heavy metal is absorbed more slowly and is in the patient's body as the chemotherapeutic agent when the blood level of arsenic is at its lowest. For that small period it does not produce drug fastness. Thus in early syphilis our plan is alternating courses of arsphenamine and bismuth, the courses of arsphenamine being longer at the beginning, with the courses of bismuth relatively short, and as the treatment progresses the arsphenamine courses are shortened and the bismuth courses are lengthened.

Bismuth, introduced in 1922 by Levaditi, is used in preference to mercury for a number of reasons. First of all, the local reactions from injections are very much less. Given intramuscularly, there is no great trouble from the point of view of pain at the site of injection. A certain amount of stomatitis occurs. It is a very mild form and there again, with proper dental cooperation by having scaling of the teeth at the beginning of every course of bismuth, very little trouble is obtained from that source. The other danger is, of course, renal damage and the urine must be followed at regular intervals of at least every two weeks during the period of bismuth injections. Fortunately, there is a tendency to recover from the renal damage caused by the bismuth.

In latent syphilis, the next type, we use arsphenamine and bismuth in this clinic. The patient is started on a course of heavy metal rather than on a course of arsenicals, so as to prevent the so-called Herxheimer reaction. In other places neoarsphenamine is often

used in latent syphilis. I think it probably makes very little difference. The courses of treatment are much the same as in early syphilis.

In cardiovascular syphilis the problem is a little different. Until a few years ago I think it was the custom to make the diagnosis of an aortitis or aneurysm and watch the patient. Active treatment with arsenicals or with bismuth was generally frowned on. As the result of the efforts of Drs. Moore, Morgan and others I think there is an increasing tendency to use the arsenicals and bismuth for the active treatment of cardiovascular syphilis. They have been able to show that first of all relief of symptoms occurs. And secondly, they believe that a good deal of healing occurs in aortitis. In cardiovascular syphilis the type of treatment depends largely on the stage of the disease. The patient with asymptomatic aortitis is handled very much as one with latent syphilis with the exception that we believe that arsphenamine should never be given in cardiovascular syphilis, although there may be a certain amount of mythology in this because we have coming to us constantly patients from other clinics who have been treated with arsphenamine and who have never had roentgenograms of the heart and the aorta. They have been taking arsphenamine for months, and when they come here we find that they have an aortitis. We stop this drug, but as I said before its dangers may be overrated. In any event it is the approved practice to restrict these patients to heavy metals and neoarsphenamine. If aortic insufficiency is present, the arsenical is started only after prolonged treatment with bismuth, and it is started in very small doses and gradually increased. If decompensation is present, arsenicals are never given until compensation is restored. Our plan is usually to treat these cases of cardiovascular syphilis for at least two years.

In central nervous system syphilis the problem is again different. There the mainstay of the treatment is arsphenamine and a heavy metal. All patients with early syphilis of the central nervous system, the asymptomatic group, we put on what we call an intensified arsphenamine regimen. That is, they are given injections every five days rather than at weekly intervals. They are given larger doses of arsphenamine than the other patients and are given shorter courses of heavy metal in between. If the disease is progressing or if there are physical signs of central nervous system syphilis, the question of tryparsamide therapy is taken into consideration. Tryparsamide was developed at the Rockefeller Institute in 1919 and has been shown to have a selective value in central nervous system syphilis. It is a dangerous drug because of its tendency to produce optic atrophy, and the visual fields have to be observed with great regularity during the administration of this drug. We begin with small doses and gradually increase the dose of tryparsamide. There seems to be less danger of visual field damage if it is done in that way. Fortunately, after the patient has received four or five injections of this drug he usually is out of danger so far as reaction is concerned. It should be remembered that tryparsamide is a very poor drug from the point of view of destroying spirochetes in the blood stream or in cutaneous lesions and so it has to be supplemented very often with arsphenamine or with heavy metals.

In visceral syphilis, again slight modifications are made. Since time immemorial potassium iodide has been given in visceral syphilis. I think it is generally agreed at the present time that its spirocheticidal activity is not very great and that its action depends primarily on preparing the tissues for absorption and producing healing in that way. It is given in large doses as an adjunct to arsphenamine and heavy metal therapy in visceral syphilis, but we give it only as an adjunct. We give iodides also in acute syphilitic meningitis with increased cell count in the spinal fluid on the basis of tradition only, because I happened to read this morning that practically none of the potassium iodide reaches the spinal fluid.

Of the other drugs mercury, of course, is a time honored agent in the treatment of syphilis. It has been used for something like 450 years. Probably you all are aware of how it first came into use. It was used in the treatment of scabies. The resemblance of secondary syphilis to scabies suggested its use and it has proved to be a valuable therapeutic agent. At the present time, as I said previously, bismuth has less tendency to cause pain at the site of injection and from the point of view of intramuscular therapy seems to be superior. At a recent conference on antisyphilitic therapy it was agreed that mercury inunction or mercury rubs still had a place in the treatment of syphilis but that place was only when no physician was available to give intramuscular injections. I think it is now generally felt that the so-called mixed treatment by mouth, which formerly had a standing, has no place in the modern treatment of syphilis.

Just a word about reactions. There is danger in antisyphilitic treatment. Actually approximately one in 12,000 injections of arsphenamine is fatal. That is based on a relatively large series. However, the risk of the disease is very much greater, as demonstrated in the Oslo series. Using the greatest amount of care both in the technic of administration and in watching for reactions, this danger of treatment can be reduced. It is very important that before every injection is given the patient be very carefully questioned for signs of reaction from the previous treatment. Fortunately, most of the complications of treatment come on gradually rather than suddenly, so that by careful questioning one can avoid them.

One of the accidents of treatment, of course, is the so-called Herxheimer effect, that is, the killing of the spirochetes in the tissues produces a local reaction which may be characterized by fever and other severe symptoms. Another one, the so-called ninth day erythema effect, occurs relatively commonly with the administration of arsenicals. The mechanism of this is not known. There are accidents of healing, as for instance scarring in the region of the coronary orifices and the consequent production of severe symptoms in cardiovascular syphilis. The dermatitis of arsenic is another serious treatment reaction. I should like to say only this about the treatment of this condition. Since time immemorial has been administered, I think on very scanty pharmacologic evidence. Now the tendency is not to administer that drug in the treatment of arsenical reactions. Apparently the recovery rate is just as good as when it is given. Jaundice, due to the liver attempting to put into play its detoxifying function and becoming damaged by the arsenicals, is another reaction which, fortunately, if the drug is stopped, usually does not cause too much damage. The important thing is to remember that if these reactions do occur the whole plan of treatment has to be altered and the patient shifted to another one of the antisyphilitic drugs.

Another important thing in this whole question of the treatment of syphilis is to know when to stop treatment. I recently saw a man who had been treated for congenital syphilis for eleven years at weekly intervals, having reactions almost every week. Based on the statistical studies of the Cooperative Clinical Group, it is now customary to terminate treatment more or less in an empirical way. We know that, if a patient has had a certain number of injections, the mathematical chances of his having any of the late manifestations are very slight. So, even if the Wassermann reaction should remain fast, as it unfortunately does in a few cases, we know now that we are justified in terminating treatment after a certain minimal number of injections.

DR. EUGENE F. DU BOIS: Those of you who spend most of your time in the wards may get an exaggerated idea of the dangers of antisyphilitic treatment. In the wards we see the bad results and not the good ones.

DISCUSSION

DR. MCKEEN CATTELL: I should like to ask Dr. Webster whether he ever employs the heavy metals by the mouth? I am thinking of the bismuth preparations.

DR. WEBSTER: No, we do not. I know but little about that.

DR. TRAVELL: I wish Dr. Webster would tell us to what extent mapharsen is used in the clinic here and whether reactions to it are seen and, if so, what type of reactions. I have read that there have been no deaths from mapharsen in several million injections up to the present time. This compares very favorable with the figures for arsphenamine which he has given us.

DR. WEBSTER: I think the important thing about mapharsen is the fact that, whereas it is apparently a very good drug from the point of view of killing spirochetes in superficial lesions, no one knows its biologic curative value. We shall not know that until groups of patients started on that form of therapy are followed for a number of years. It is important, I think, when any new drug of that sort is introduced, to know its value in preventing cardiovascular and central nervous system syphilis. We therefore are limiting its use in this clinic to patients with early syphilis who acquire the disease in the older age periods, that is, above 55, so that we are not worried about the biologic curative value in those older people. We are also giving it to patients who show reactions to the other drugs. It would appear that there is very much less tendency to produce reactions, with one exception: it does produce pain at the site of injection. It has to be given very quickly and in spite of that patients very often complain of a stinging pain along the course of the vein. It does not seem to produce thrombosis of that vein, but the pain is very often marked for some time.

STUDENT: In treating cardiovascular syphilis, what schedule do you use?

DR. WEBSTER: I had two slides that I omitted for lack of time, that bear on the question. They are compilations of the various tables in Dr. Moore's "Modern Treatment of Syphilis" and give the outline of treatment for the various types of cardiovascular syphilis according to the categories which I have already outlined: (*a*) uncomplicated aortitis, (*b*) aortitis with aneurysm or aortic regurgitation, without congestive failure, and (*c*) either of these conditions in the presence of congestive failure. The details of treatment are rather elaborate, and for them I refer you to Dr. Moore's book.

DR. WALTER MODELL: Silver arsphenamine has not been mentioned and I wondered what special value it might have.

DR. WEBSTER: I think it is generally in disrepute owing to its high reaction qualities.

DR. TRAVELL: I recall a report in which it is said that it has produced argyria in 4 per cent of the cases. There have not been any deaths from arsphenamine in the clinic here, have there?

DR. WEBSTER: No.

DR. TRAVELL: How about severe arsenical reactions?

DR. WEBSTER: We have had in all five cases of arsenical dermatitis during our clinic's existence, and we have had, I think, three cases of jaundice or hepatitis during the same period.

STUDENT: What is the argument for sulfarsphenamine?

DR. WEBSTER: The Department of Pediatrics uses it because it can be given intramuscularly in small children when they cannot get into the veins. I think that is the only argument for its use. The incidence of reactions is moderately high from it and in adult syphilis it is generally not considered a favorable drug.

DR. HARRY GOLD: Do you pursue the plan of treating known cases of cardiovascular syphilis with arsenicals?

DR. WEBSTER: Not arsphenamine.

DR. GOLD: But you do treat them with neoarsphenamine?

DR. WEBSTER: Yes.

DR. GOLD: How large a dose?

DR. WEBSTER: It depends on the category again. The decompensated group is given arsenicals only after compensation is restored. The aortic insufficiency group is given a long course of heavy metals, followed by increasing doses of neoarsphenamine. The asymptomatic group is treated very much as are the patients with latent syphilis, beginning on bismuth and giving full doses of neoarsphenamine. It is all summarized in the tables in Dr. Moore's book, referred to a minute ago.

STUDENT: Do you use arsphenamine or neoarsphenamine for visceral syphilis?

DR. WEBSTER: We use arsphenamine if there is no contraindication in the way of cardiovascular syphilis. We use arsphenamine in the clinic entirely with the exception of cardiovascular syphilis, patients who show reactions to it and, of course, the other cases in which tryparsamide is used. We also employ it as the drug of choice in syphilis in pregnancy.

DR. DU BOIS: In conclusion I should like to remind you that about thirty years ago word was spread around that a new drug, 606, would cure syphilis with one dose.

DR. WEBSTER: You might be interested to know that we have at the moment three men in the clinic who were "cured" in that way. One of them was treated just at the time that Ehrlich produced the drug, either by Ehrlich or by one of his associates.

DR. TRAVELL: For how long were they "cured"?

DR. WEBSTER: They are all being treated for neurosyphilis now.

DR. DU BOIS: The point is that even after thirty years of study of this drug we are still learning a great deal about it, and that is chiefly due to the chronic nature of syphilis.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

THE NONPROPRIETARY NAME "CEVITAMIC ACID" ABANDONED FOR "ASCORBIC ACID"

It is one of the cardinal principles of the Council on Pharmacy and Chemistry not to accept products having therapeutically suggestive names. The Official Rules of the Council provide that "names which carry the suggestion of a therapeutic indication, pathologic condition, disease, or organism causing a disease shall be considered therapeutically suggestive. Articles bearing such names will not be accepted for New and Nonofficial Remedies, because they are likely to lead physicians into prescribing names instead of remedies, and because they tend to encourage unwarranted self medication by the laity. Even if the name is at first apparently meaningless to the public, its meaning will soon be understood because patients soon learn the technical names applied to their diseases and symptoms."

The Council's function in reference to nomenclature is simply an outgrowth of its purpose: to pass on drugs. In doing so it must have a set of rules, one of which is that cited above. The Council would prefer that the discoverer of a substance coined its name; but when men who are working with products in which their interest is largely therapeutic forget or ignore the rule against therapeutically suggestive names, the Council finds itself in a position of being forced to coin a suitable nonproprietary name. Such an instance is that of crystalline vitamin C isolated by Szent-Györgyi and introduced as "ascorbic acid." Because the substance was not subject to product patent it was necessary to have a nonproprietary designation which would not conflict with the rules of the Council against therapeutically suggestive names. Although the term "ascorbic acid" had been used in the literature, the Council felt that it could not recognize this term because it conflicted with its rules. It is not as objectionable in degree as some other therapeutically suggestive terms; however, the acceptance of such a term presented the problem that it would serve as a precedent which would be embarrassing to the Council in future decisions on such names. The Council, therefore, coined the name "cevitamic acid" at the time when Merck & Company submitted the product. Announcement of this appeared in THE JOURNAL, Jan. 12, 1935, page 121.

After the publication of this announcement, objections to the term "cevitamic acid" were received from several biochemists, the two chief criticisms being the perpetuation of the term vitamin and the fact that the word "cevitamic acid" may connote nitrogen when, in reality, no nitrogen is present. In accordance with its usual procedure, the Council considered these protests and as a result it voted to reconsider the name "cevitamic acid" and directed the Secretary to consult a number of the outstanding biochemists whose opinion would be considered valuable for suggestions as to a suitable name for this preparation. From the replies that were received, it appeared that the correspondents prefer the name "ascorbic acid" and that the sentiment of a number of them is strongly against "cevitamic acid." As to the suggestion of adopting another name acceptable to all the interested parties, many of the biochemists believed that the term "ascorbic acid" has attained so much of a start that it would not be practicable to abolish it.

Consequently, at the 1938 annual meeting of the Council on Pharmacy and Chemistry the status of the nomenclature was reviewed. As a result of the discussion that ensued the Council voted that communications be addressed to the American Society of Biological Chemists and the American Chemical Society asking these organizations whether they would be willing to adopt the suggestion of the Council to recognize the term "ascorbic acid" with the distinct understanding that this is not to be considered a precedent so far as therapeutically suggestive names are concerned and that this is to be considered a concession on the part of the Council, made because it is apparent that the members of the societies did not understand at that time the fundamental reason of the Council's rule against therapeutically suggestive names. The nomenclature groups of both the American Society of Biological Chemists and the American Chemical Society have indicated their approval of the conditions under which the Council consents to revert to the term "ascorbic acid." The Council, therefore, voted to abandon the use of the term "cevitamic acid" as the official N. N. R. term in favor of "ascorbic acid," with the understanding that the term cevitamic acid is to be included as a synonym to follow ascorbic acid, and with the distinct understanding that this action is not to be a precedent so far as therapeutically suggestive names are concerned.

Council on Foods

IN AUTHORIZING PUBLICATION OF THE FOLLOWING REPORT, THE COUNCIL WISHES TO EXPRESS ITS APPRECIATION TO DR. H. J. FISHER OF THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION, NEW HAVEN, WHO PERFORMED THE ANALYSES.

FRANKLIN C. BING, Secretary.

THE LOSS OF VITAMIN C IN ORANGE JUICE ON STANDING

In connection with the consideration of the product known as V-C-B (THE JOURNAL, this issue, page 2421) the Council found it necessary to evaluate evidence in support of the common assumption that orange juice may lose considerable vitamin C on standing in the refrigerator. The claim has been made that orange juice diluted with V-C-B solution retains its vitamin C concentration much better than orange juice diluted with water. In support of this contention the firm provided results of tests of the vitamin C content as determined by chemical titration of a number of solutions at different intervals of time. These experiments purported to show that fresh orange juice lost 23 per cent of its vitamin C potency on standing in the refrigerator for twenty-four hours and 34 per cent on standing at room temperature for the same length of time. A mixture of fresh orange juice with an equal volume of tap water lost more than 50 per cent of its vitamin C potency on standing in a refrigerator for twenty-four hours, whereas a mixture of equal parts of fresh orange juice and vitamin C Beverage retained more than 90 per cent of its potency when kept in the refrigerator. These results are interpreted as evidence in favor of the claim that V-C-B is an aid in preventing the oxidation of the vitamin C of natural fruit juices.

Experiments performed at the Connecticut Agricultural Experiment Station at the request of the Council do not support this claim. To test the effect of time on the vitamin C content of orange juice and other beverages in question, several solutions were prepared. Fresh orange juice was prepared from Florida oranges by reaming and straining through cheese cloth. Titration of the fresh juice showed 0.37 mg. of ascorbic acid per cubic centimeter. A V-C-B solution was prepared with a concentration of 10.49 Gm. of the dry base per hundred cubic centimeters of solution, which is equivalent to 3½ ounces of the powder per quart, the concentration suggested by the firm. Dilutions of equal parts of orange juice and the V-C-B solution, orange juice and water, and V-C-B solution and water were titrated immediately with 2-6 dichlorophenolindophenol, according to the method of Bessey and King,[1] and then divided into two parts, one of which was placed in the refrigerator and the other allowed to stand at room temperature, in stoppered flasks. At hourly intervals each solution was titrated. All titrations were made in duplicate. The average values are recorded in the table. From the values recorded in the table it may be seen that there was a slight increase in the apparent vitamin C activity as determined by titration of fresh orange juice on standing for a short time. This phenomenon has been observed

1. Bessey, O. A., and King, C. G.: The Distribution of Vitamin C in Plant and Animal Tissues and Its Determination, J. Biol. Chem. 103: 687 (Dec.) 1933.

by others and has been explained by the hypothesis that there is an initial liberation of vitamin C from some inactive precursor when foods are allowed to stand.

These experiments show that fresh orange juice, under the conditions of the experiment, retained 97.6 per cent of its vitamin C activity after twenty-four hours in the refrigerator. It is possible, of course, that if the juice should be permitted to have greater access to the air, as would be done by leaving it in an unstoppered container, a greater loss of vitamin C activity would occur. Daniel, Kennedy and Munsell [2] found that orange juice which had stood about six hours lost approximately 10 per cent of its ascorbic acid. They also found a diminution in the ascorbic acid concentration of tomato juice on standing, amounting to a loss of about 40 per cent on standing from three to four days. Mack, Fellers, Maclinn and Bean [3] found that reconstituted orange beverages rapidly lost vitamin C on standing at room temperature and lost from 15 to 30 per cent of their vitamin C on standing in the refrigerator for about one day. In the present experiments it was found that V-C-B solution diluted with an equal volume of water lost nearly all of its activity when standing at room temperature and lost considerable vitamin C potency on standing in the refrigerator. When mixed with an equal volume of orange juice, the mixture retained its activity fairly well. The results show conclusively that the only mutual effect of fresh orange juice and V-C-B solution on each other is that the orange juice retards the loss of vitamin C in V-C-B.

Destruction of Vitamin C in Different Solutions on Standing

Time, Hours	Fresh Orange Juice Ascorbic Acid, Mg. per Cc.	Orange Juice Diluted with Equal Volume of Distilled Water Ascorbic Acid, Mg. per Cc.	V-C-B Solution Diluted with Equal Volume of Water Ascorbic Acid, Mg. per Cc.	Orange Juice plus V-C-B Solution, 1:1 Ascorbic Acid, Mg. per Cc.
		Room Temperature		
0	0.374	0.191	0.239	0.436
1	0.382	0.196	0.224	0.430
2	0.383	0.195	0.212	0.428
3	0.380	0.191	0.195	0.431
4	0.388	0.196	0.184	0.427
5	0.377	0.191	0.178	0.424
6	0.374	0.186	0.166	0.414
7	0.365	0.189	0.156	0.415
24	0.353	0.165	0.060	0.388
		Refrigerator		
0	0.374	0.191	0.239	0.436
1	0.376	0.196	0.224	0.434
2	0.376	0.196	0.226	0.435
3	0.376	0.197	0.217	0.435
4	0.381	0.195	0.215	0.432
5	0.382	0.196	0.219	0.423
6	0.364	0.194	0.207	0.421
7	0.366	0.193	0.208	0.421
24	0.365	0.194	0.176	0.424

The chemists of Hilker and Bletsch found that only 76.5 per cent of the original vitamin C activity was left after the orange juice had stood for twenty-four hours in a refrigerator. The greater rate of decomposition of orange juice-water mixtures as obtained by the Hilker and Bletsch chemists may be explained by the fact that they used Cincinnati tap water for purposes of dilution. The well known catalytic effect of copper on the destruction of vitamin C might account for the difference, on the assumption that the tap water contained traces of the metal and that distilled water did not. The evidence, however, does not support the firm's original contention that V-C-B solution "stabilizes" the vitamin C of fruit juices but, on the contrary, indicates that the reverse is true.

It may be concluded from available evidence that fresh orange juice loses very little vitamin C potency on standing in the refrigerator, especially if protected from the air. It is also clear that solutions prepared from crystalline ascorbic acid may lose considerable vitamin C potency under the same conditions.

2. Daniel, Esther P.; Kennedy, Mary H., and Munsell, Hazel E.: Relative Vitamin C Content of Orange and Tomato Juices Determined Chemically and Biologically, J. Home Econ. **28**: 470 (Sept.) 1936.
3. Mack, M. J.; Fellers, C. R.; Maclinn, W. A., and Bean, D. A.: Vitamin C Content of Dairy Orange Beverages, Food Research **1**: 223 (May-June) 1936.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

V-C-B (VITAMIN C BEVERAGE BASE)

Manufacturer.—Hilker & Bletsch Company, Cincinnati and Chicago.

Description.—Powdered mixture of sucrose, dextrose, concentrated orange juice, citric acid, ascorbic acid, oil of orange and certified color.

Manufacture.—Dextrose is dehydrated; concentrated orange juice, oil of orange and citric acid are added. This material in the form of a dry powder is then mixed with the bulk of the sucrose. To the remainder of the sucrose are added ascorbic acid and certified color. The two mixtures are combined, tested for equal distribution of ascorbic acid and color, packed in airtight cans and labeled.

Analysis (submitted by manufacturer).—Moisture 2.0%, total solids 98.0%, ash 0.1%, protein (N × 6.25) 0.1%, crude fiber 0.03%, carbohydrates (by difference) 97.8%, acidity 2.04%, ascorbic acid 0.36%.

Calories.—3.9 per gram; 111 per ounce.

Vitamins.—3,000 mg. of ascorbic acid (63,000 international units of vitamin C) added for every 28 ounces of powdered mixture.

CRADLE BABY BRAND STRAINED AND SEEDLESS PRUNE JAM

Manufacturer.—Glaser, Crandell Company, Chicago.

Description.—Canned strained prune jam sweetened with sucrose. The jam may contain small amounts of added acid or pectin or both.

Manufacture.—The same as that described for Cradle Baby Brand Strained and Seedless Fig Jam (THE JOURNAL, March 18, 1939, p. 1071).

Analysis (submitted by manufacturer).—Moisture 30.0%, total solids 70.0%, water insoluble solids 1.7%, water soluble solids 68.3%, ash 0.7%, protein (N × 6.25) 0.7%, crude fiber 0.5%, carbohydrates other than crude fiber (by difference) 67.5%, acidity 0.6%.

Calories.—2.73 per gram; 78 per ounce.

CELLU BRAND APPLE JUICE

Distributor.—Chicago Dietetic Supply House, Inc., Chicago.

Description.—Canned apple juice packed without added sugar.

Manufacture.—The juice is expressed from that portion of the apple which is not used for the preparation of Cellu Brand canned Apple Rings (THE JOURNAL, Sept. 17, 1938, p. 1101). The juice is strained and filled into cans; the cans are vacuum sealed and heat processed. The spray residue on the apples used is kept within the federal tolerance.

Analysis (submitted by manufacturer).—Moisture 88.5%, total solids 11.5%, ash 0.1%, fat (ether extract) 0.2%, protein (N × 6.25) 0.04%, reducing sugar as invert 6.2%, sucrose (by copper reduction) 3.6%, crude fiber 0.0%, carbohydrates (by difference) 11.2%.

Calories.—0.47 per gram; 13 per ounce.

MILLER'S BRAND EGG NOODLES

Manufacturer.—Miller's Food Products, Inc., Los Angeles.

Description.—Egg noodles prepared from hard wheat flour, water, egg yolks and salt.

Manufacture.—The ingredients in formula proportions are mixed, mechanically kneaded, rolled and cut. The cut noodles are dried and packed.

Analysis (submitted by manufacturer).—Moisture 11.8%, total solids 88.2%, ash 1.6%, fat (ether extract) 4.3%, protein (N × 6.25) 13.5%, crude fiber 0.4%, carbohydrates other than crude fiber (by difference) 68.4%, lipoid phosphoric acid anhydrous (P_2O_5) (dry basis) 0.153%, total phosphoric acid anhydrous (P_2O_5) (dry basis) 0.443%, estimated egg solids (dry basis) 8.3%.

Calories.—3.66 per gram; 104 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Eight dollars per annum in advance

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SATURDAY, JUNE 10, 1939

SUBDURAL HEMATOMA

In 1925 Putnam and Cushing [1] called attention to the striking differences between the mechanism of production and process of organization of the posttraumatic extradural hemorrhage and subsequent clot and the same factors in the subdural hematoma. The rare occurrence of subdural hematoma after skull fractures or after intracranial osteoplastic explorations, as well as its delayed reaction to trauma, suggests to them some individual predisposition of the meninges favorable to the subdural seepage of the blood. Kunkel and Dandy [2] have recently stressed certain peculiarities in the pathology of subdural hematoma. The clot does not organize evenly throughout. There may be a large collection of dark fluid blood with a few soft brownish yellow clots. The fluid blood when left standing in a test tube will not clot. The outer membrane is always thick and is attached to the dura. New vascular channels from the dura connect with newly formed blood spaces in the membrane. The inner membrane is thin, transparent and avascular and lies loosely on the pia-arachnoid. The clot has frequently a laminated appearance. Putnam believes that neither the laminated appearance nor the presence of well preserved red blood cells in the clot constitutes an argument for successive hemorrhages. The more or less uniform localization of the hematoma and the absence of any signs of injury to the underlying brain are among other characteristic features. The source of hemorrhage is probably a torn pial vein or a torn sinus. Kunkel and Dandy were not able to ascertain the source of hemorrhage in any of their cases.

While the microscopic appearance of the membrane in pachymeningitis haemorrhagica interna of Virchow and in traumatic subdural hematoma is similar, Kunkel and Dandy point out that both the etiology and the gross appearance are at variance. Virchow's pachymeningitis haemorrhagica is a condition seen at necropsies on elderly decrepit persons with histories of insanity, chronic alcoholism or syphilis. Virchow put forth the theory that in these cases the dura becomes chronically inflamed, as a result of which there is a pouring out of fibrin and blood-tinged fluid. The lesion itself is a solid thick membrane with little or no blood, whereas a subdural hematoma possesses thin membranes and a large volume of blood.

Subdural hematoma is important because it is not nearly as infrequent as was formerly held. It can be diagnosed early, and timely surgical intervention almost invariably results in a cure. The traumatic origin of the lesion is now generally accepted. In cases without such a history it is felt that trauma may be trivial and therefore forgotten by the patient. The clinical and operative observations in such cases are identical with those in which there is a definite history of trauma. Spontaneous disappearance of a subdural hematoma is highly improbable. Unless relieved by operative intervention the patient would succumb to the effects of increased intracranial pressure long before there could be much absorption of the blood.

In Kunkel and Dandy's series of surgical cases at the Johns Hopkins Hospital between 1914 and 1935 there were forty adults, six minors and two infants. The symptoms are essentially those of increased intracranial pressure. On the basis of an analysis of forty-four cases Jelsma [3] lists, as most important and constant, latent period, lucid interval, headaches, mental changes, drowsiness, motor disturbances, change in reflexes, disturbances of the cranial nerves, remission of symptoms and coma. Among less important symptoms are vomiting, nystagmus, sensory disturbances, variation in temperature, pulse and respiration, abnormal fundi, xanthochromic spinal fluid and leukocytosis. The latent period may last from a few days to several years. The average duration is about twenty-five days, while the average for the lucid interval is probably ten days longer. Kunkel and Dandy state that in 53.2 per cent of their cases there were no positive localizing neurologic signs, that 40.3 per cent possessed them in part, and that 6.7 per cent had neurologic signs referable to the uninvolved hemisphere. A presumptve diagnosis of subdural hematoma was made in their series in only twelve cases (23.3 per cent). The diagnosis is difficult because symptoms in no way differ from those produced by any intracranial space occupying lesion. In the presence of history of trauma to the head followed by symptoms suggestive of hematoma, trephining or making burr holes, preferably on both sides, are indicated for diagnostic purposes. Kunkel and Dandy would add ventriculographic study in cases yielding negative results. The choice of operation seems to be the reflection of a small osteoplastic flap with the removal of the hematoma. Of the forty-eight patients operated on, forty-six cures are reported. Here clinical research again demonstrates its value for medical progress.

1. Putnam, Tracy J., and Cushing, Harvey: Chronic Subdural Hematoma: Its Pathology, Its Relation to Pachymeningitis Haemorrhagica and Its Surgical Treatment, Arch. Surg. **11**: *329 (Sept.) 1925.*

2. Kunkel, Paul A., and Dandy, Walter E.: Subdural Hematoma: Diagnosis and Treatment, Arch. Surg. **38**: 24 (Jan.) 1939.

3. Jelsma, Franklin: Traumatic Subdural Hematoma: Summary and Analysis of Forty-Two Cases Collected from the Literature, with Report of Two Additional Cases, Arch. Surg. **21**: 128 (July) 1930.

WHAT'S IN A NAME?

Ask the advertiser—he knows! The scientific discoverer who is not primarily interested in advertising sometimes finds a name for his discovery that packs an unintended punch. Indeed, the genius who invents a substance sometimes is more baffled by the problem of inventing a name than by the intricacies of discovery. For substances with therapeutic actions, a name that designates this action or use seems to be a convenient short cut out of the difficulty. Unfortunately this path has been taken by nostrum makers and quacks so long and so often that it has become a highway of quackery. The inventor who takes this path may come to be classed with the company that he keeps. The intention may be different, but the effects do not depend on the intentions. "Pink Pills for Pale People" is more obvious to people than "Hematogen," but only for a while. Certainly doctors soon realize the significance of such names as "ascorbic acid," "calciferol," "aneurin," "vasopressin," "klotogen" or even "ergometrine." Not all of these preparations are likely to be used for indiscriminate self medication, but physicians may easily be misled by the overemphasis on the one action and use which the name suggests, to the neglect of the limitations of that action.

Another "easy way" of misusing names is the use of numbers or the letters of the alphabet. This method was popular for "Thompsonian number —" and "Humphrey's Homeopathic Specific, numbers — and —" and also in many catalogues of drug houses and in old hospital dispensaries. Most physicians now realize that such designations are dangerous, first because they are easily confused and second because they tend to schematization and thus to obstruct scientifically critical thinking.

There are a few exceptions to these objections, conspicuously in the case of specific serums and vaccines, just because they are truly specific. In the case of an endocrine organ which includes several principles with different actions it may be advisable to differentiate by designating the actions until other properties may be utilized. In the case of vitamins the alphabetical designations were introduced and tolerated as a temporary expedient. Now they have become so entrenched that it will take years to displace them, though a determined effort is being made to substitute the chemical names as the pure substances become available. These seemingly justified exceptions illustrate the difficulty of temporary compromises. It is difficult to kill a name once it has struck root. If it is displaced, confusion follows and the scientific literature is encumbered for many years. Much better and much easier is avoidance of a false start. The Council on Pharmacy and Chemistry has no wish to invent names, although it must sometimes do so. It is glad to be of help, to give an opinion about contemplated names in their relation to its rules. It has established contact with the nomenclature committees of the American Society of Biological Chemists and the American Chemical Society. The Council may be addressed in care of Secretary, Council on Pharmacy and Chemistry, American Medical Association, 535 North Dearborn Street, Chicago. It is suggested that the best time to initiate consultation is before the name is finally adopted.

THE CASE OF BRUNSON V. FISHBEIN

On Friday June 2 in the Federal Court at El Paso, Texas, Judge Boynton instructed a jury which was hearing the case of *Brunson* v. *Fishbein* to bring in a verdict in behalf of the defendant. In this case the plaintiff, Dr. Asa Brunson, who was treating tuberculosis with inhalations of a secret preparation, felt that he had been damaged because of a telegram sent by Dr. Fishbein to DeWitt Wallace, editor of the *Reader's Digest*. In January 1938 Mary Rose Bradford, wife of Roark Bradford, well known author, sent DeWitt Wallace a telegram asking whether or not he would be interested in an article dealing with the work of Asa Brunson, claiming that Brunson had cured more than 3,000 cases of tuberculosis and that he may be a second Pasteur. Mr. Wallace forwarded the inquiry to Dr. Fishbein, who telegraphed in reply that Dr. Hruby of the Chicago Municipal Tuberculosis Sanitarium had investigated the Holderness-Brunson treatment in 1921 and quoted from an article bearing Dr. Hruby's name which appeared in the Chicago *Herald and Examiner* stating that the method was a dangerous fake. To this quotation Dr. Fishbein added the statement that similar treatments tried elsewhere have also failed.

In defense of the case the American Medical Association produced testimony by three chemists, Schoeffel of the American Medical Association's Chemical Laboratory, Harris of the University of Oklahoma at Norman, Okla., and Muehlberger, chemist and toxicologist for the coroner's office and the Cook County Hospital, all of whom stated that an analysis of the product used by Brunson revealed that it contained approximately 95 per cent liquid petrolatum, 3 per cent oil of eucalyptus, 1.5 per cent mint camphor or menthol, and traces of pine oil and thymol. The American Medical Association also produced in evidence death certificates of a considerable number of persons whose testimonials were being circulated by Brunson as being cured of the disease by his treatment, the death certificates indicating in each instance that the patients had died of tuberculosis. Moreover, testimony relative to the nature of the disease and methods of treatment was supplied by Drs. Allan J. Hruby, Chicago; L. J. Moorman, Oklahoma City; Samuel H. Watson, Tucson, Ariz.; H. J. Corper, Denver, and O. E. Egbert, El Paso, Texas. In addition the Association was prepared to offer Dr. H. S. Randolph of Phoenix, Ariz., and Dr. R. B. Homan of El Paso and a vast number of depositions. There appeared also on

the stand on behalf of the American Medical Association Drs. Felix P. Miller of El Paso and Dr. Morris Fishbein. In behalf of the plaintiff, Asa Brunson, there appeared only himself.

Because of the great educational value of the testimony in this case and particularly because of the tremendous interest aroused by the publication of the testimony in the case of *Brinkley* v. *Fishbein*, it is proposed within the next few weeks to publish also an abstract of the testimony in the Brunson case. The decision was not only a victory for the American Medical Association in its campaign to protect the public against nostrums and unestablished remedies for serious diseases but also a notable victory for scientific medicine in relationship to the diagnosis and treatment of tuberculosis. The educational value of the trial was incalculably great. Many persons attended the various sessions; the testimony itself will be widely quoted because of its concise presentation of the present status of our knowledge of tuberculosis.

Current Comment

LOCAL INTESTINAL IMMUNITY

In order to test the possibility of an acquired local intestinal immunity, Torikata and Imaizumi [1] administered daily doses of heat-killed colon bacilli to guinea pigs, with control immunizations of other groups by routine subcutaneous methods. Ten days after the final administration of this vaccine, serums were withdrawn from each group of animals and expressed tissue juices (presssäfte) prepared from the intestinal walls. Control serums and tissue juices were prepared from nonvaccinated guinea pigs. Titrations of the serums and tissue juices thus obtained showed an 80 to 100 per cent increase in the opsonic titer of the intestinal tissues as a result of the oral vaccine but only a 10 to 20 per cent increase in the opsonic titer of the blood serum. Animals immunized by the routine subcutaneous method showed in contrast a 76 to 100 per cent increase in the opsonic index of the blood stream, with less than half of that percentage increase in the intestinal tissues. The Japanese immunologists conclude from these data that oral immunization with heat-killed B. coli is effective in rendering the intestinal tract refractory to homologous infections long before an effective humoral or somatic immunity is produced. Previous investigators have concluded from clinical evidence that, even though nonviable oral vaccines may not be demonstrably effective in producing specific agglutinins in the blood serum, they do produce a "tissue preparedness" for subsequent immunization. While most professional immunologists are skeptical of conclusions drawn from opsonic titrations owing to the numerous sources of error in such tests, the data reported by Torikata and Imaizumi encourage the continued examination of evidence relative to the route of administration of vaccines.

1. Torikata, R., and Imaizumi, M.: Ztschr. f. Immunitätsforsch. 94: 342 (Nov.) 1938.

STUDIES ON RHEUMATIC FEVER

Recent studies on rheumatic fever by Schultz and Rose [1] have yielded facts with suggestive diagnostic implications. Determination of the glutathione content of erythrocytes and of the catalytic potency of the blood in rheumatic fever as well as an investigation of the dextrose tolerance curves of persons with this disease did not yield particularly striking results. An investigation of the novel formol-gel reaction of Gaté and Papacostas [2] in a number of febrile diseases with particular reference to rheumatic fever, however, led to interesting observations. In patients with various febrile diseases it was found that, in general, a parallel was demonstrable between the erythrocyte sedimentation rate and the results of the formol-gel reaction, the incidence of positive gel reactions varying directly with acceleration of the sedimentation rate. In patients with rheumatic carditis, however, negative formol-gel reactions were often observed early in the disease, although at the same time the sedimentation rate was rapid. Later, on development of active carditis, a positive gel reaction was frequently observed even in cases in which the initially high erythrocyte sedimentation rate had declined. The experimental observations on a number of patients with rheumatic fever indicate that a strongly positive gelation reaction in children, or in adults in the absence of arthritis, is suggestive of active carditis. Persistently negative reactions, however, although associated with an accelerated erythrocyte sedimentation rate, indicate that severe carditis probably is not present. From these observations it would appear that the formol-gel reaction may be a valuable additional aid in the diagnosis of active rheumatic carditis in patients suffering from rheumatic fever.

HEARINGS ON THE WAGNER HEALTH BILL

In this issue of THE JOURNAL appear abstracts and condensations of hearings on the Wagner Health Bill held before the subcommittee of the Committee on Education and Labor of the United States Senate on Thursday, May 25. In THE JOURNAL for next week and subsequently thereto will be published further abstracts and condensations of such hearings. The facts brought out appear to be of the utmost importance to the medical profession and indeed to all the people of this country. About June 1, Senator Murray of Montana, who is chairman of the subcommittee, is reported to have said officially that the hearings on this bill will continue throughout the present session of Congress and that it was not likely that either the Wagner bill or any modification of the Wagner bill would be reported out of the committee during the present session. The subcommittee of the United States Senate appeared greatly impressed with the data presented by the American Medical Association and requested much additional material, which should certainly have considerable effect in determining the attitude of the Senate toward this legislation.

1. Schultz, M. P., and Rose, E. J.: Pub. Health Rep. 54: 248 (Feb. 17), 343 (March 3) 1939. Schultz, M. P., ibid. 54: 264 (Feb. 17), 305 (Feb. 24) 1939.
2. Gaté and Papacostas: Compt. rend. Soc. de biol. 83: 1432, 1920.

ORGANIZATION SECTION

ABSTRACT OF HEARINGS ON THE WAGNER HEALTH BILL

The subcommittee of the Committee on Education and Labor of the United States Senate met, pursuant to adjournment, in room 357 of the Senate Office Building, Washington, D. C., at 10 a. m., May 25, Senator James E. Murray presiding. Present were Senators Murray (chairman), Ellender, Taft and Holt. Also present were Senators Wagner and Holman.

STATEMENT BY DR. ROCK SLEYSTER

Dr. Rock Sleyster:—Mr. Chairman, and members of the committee:

I am speaking as the President of the American Medical Association. This organization now includes in its membership 113,113 practicing physicians out of a possible 145,000 practicing physicians in the United States.

We come to you with a statement relative to legislation that you have under consideration. This statement was adopted at St. Louis last week at our annual session of our House of Delegates, a session which was attended by 7,500 members of our organization. The House of Delegates of the American Medical Association is the policy-forming body of our Association. It is democratically elected by the Houses of Delegates of the various state medical associations, and they in turn are elected by the delegates of some 2,000 county medical societies.

The American Medical Association has a headquarters building in Chicago with some 600 employees.

Among the various activities, there is a Bureau of Medical Economics that has been busy for some years assembling factual data on everything that pertains to the care of the sick. We have there the largest amount of information on physicians, hospitals, medical schools, laboratories, in fact, any institution which pertains to sickness, that is available anywhere; in fact, at the time of the World War the Medical Department of the United States Army came to us for assistance, which we very gladly and willingly gave, and it resulted in 45,000 medical physicians entering the service in the army, the navy, the United States Public Health Service, the selective draft boards, and so on.

The Association has constantly offered to governmental agencies our full cooperation in everything that we might do in meeting these problems and has offered freely of its facilities at all times. I do not think that anybody would be more interested at this time in helping with preventive medicine where need can be shown and where need is available.

We come to you today offering our cooperation and all of our facilities and our advice.

At this point, Mr. Chairman, I would like to introduce to you Dr. Edward Cary, Past President of our organization and chairman of our legislative committee.

STATEMENT BY DR. WALTER DONALDSON

Dr. Edward Cary, Chairman of the Legislative Committee of the American Medical Association:—Following the National Health Conference in July 1938 the House of Delegates of the American Medical Association met in special session in Chicago Dec. 15, 1938. At that time the Interdepartmental Committee Report was taken up and was referred to various committees. The chairman of the committee which had this report in hand is here. At the last meeting of our Association at St. Louis, the Wagner bill was taken up and referred also to the committee of which he was chairman. I take great pleasure, Mr. Chairman, in presenting Dr. Walter Donaldson.

Dr. Walter Donaldson, Secretary, Pennsylvania State Medical Society, Pittsburgh:—This report was adopted by our House of Delegates after hearings for the consideration of the Wagner bill conducted just about as you are conducting hearings here on this subject, for the purpose of obtaining opinions, information and advice from our members and the House of Delegates. Throughout the two days and nights that we were in session, our committee was constantly receiving the advice and help of scores of these delegates.

Senator Ellender:—Doctor, was any opposition expressed by members of your Association?

Dr. Donaldson:—Do you mean—

Senator Ellender (interposing):—I mean was anybody favorable to it?

Dr. Donaldson:—To the Wagner bill?

Senator Ellender:—Yes.

Dr. Donaldson:—There were people that were favorable to certain features of it, yes, sir; and they appeared as witnesses before the committee.

Dr. Donaldson presented the report adopted by the House of Delegates May 17, 1939, without dissenting vote (See THE JOURNAL, June 3, p. 2295).

Senator Ellender:—Dr. Donaldson, you said that before the House of Delegates in St. Louis you heard witnesses just the same as we are now hearing before this committee. I would like to know who were those witnesses. Were they all members of the American Medical Association?

Dr. Donaldson:—There were three witnesses who appeared representing hospital associations.

Senator Ellender:—Was any opposition expressed before the House of Delegates? I mean was anybody in favor of the bill that appeared before the House of Delegates?

Dr. Donaldson:—There were, yes.

Senator Ellender:—As I understand, the resolutions adopted were unanimous?

Dr. Donaldson:—Yes, there was no objection against it.

Senator Ellender:—I would be interested, Doctor, if you could tell the committee how it would be possible for the states to receive aid under the proposition which you advanced on page 8 of your statement, which says "Any state in actual need of financial aid from the federal government for the prevention of disease, for the promotion of health, and the care of the sick, should be able to obtain aid in a medical emergency without stipulating every other state to seek and to accept similar aid and thus to have imposed on it the burden of federal control." *How would you do that?*

Dr. Donaldson:—Well, I would say that those who advised and discussed that feature at our hearing had in mind some such agency as now exists in the federal system here for obtaining loans or grants for approved activities. Perhaps they had in mind the Reconstruction Finance Corporation, the RFC.

Senator Wagner:—You mentioned the restriction of financial grants. Just how did you consider that a state which needed aid would proceed or what legislation would be necessary to provide it?

Dr. Donaldson:—I should think that the state represented by its health officer would come here accompanied by others who were interested in the health problems of the state and make their proposal to an agency already set up, and having administration—

Senator Wagner (interposing):—What agency, for instance?

Dr. Donaldson:—A new agency which I would describe as being similar to this Reconstruction Finance Corporation.

Senator Wagner:—You mean to borrow money from the federal government?

Dr. Donaldson:—Borrow money or receive a grant. As I understand it, federal money has been given in instances where there have been great disasters, without any expectation of its being returned or getting it back.

Senator Wagner:—Then you are not opposed to federal aid, are you, to the states, to help preserve the life of the people within the state?

Dr. Donaldson:—If it has been properly presented by the local representatives.

Senator Ellender:—Well, from the testimony so far adduced before this committee, it was the idea of all, as I understood it, to have the bill apply only to the poor and the indigent, those who really could not provide adequate medical aid. That, as I understand it, is the purpose of this bill. If the language is not clear on that, I want to have it clarified, and if you or anybody else of the witnesses who will testify will point out that the well off as well as the poor are to be treated alike, I would like to have that pointed out.

Dr. Donaldson:—I can assure you that it will be pointed out, and I think that you will find it in the text of some of the manuscripts that have been laid on your desk.

Senator Wagner:—I do not see anything in the report which suggests any amendment to the act. I understood you to say,

and the reports say that you are in sympathy with the general objectives of the bill, although you disapprove of the methods. Do you know whether you or some other witness will present proposed amendments to the act?

Dr. Donaldson:—I believe no amendments will be proposed.

STATEMENT BY DR. R. G. LELAND

Dr. Cary:—Mr. Chairman, since the organization of the American Medical Association in 1847, the underlying motive has been the education of its membership and of doctors generally throughout this country, and of the public health, and it was only in 1931 that the American Medical Association felt the need of the bureau which we call the Bureau of Medical Economics. I have here present a gentleman who is the head of the Bureau of Medical Economics, which was established in 1931. I present Dr. R. G. Leland.

Dr. R. G. Leland, Director of the Bureau of Medical Economics of the American Medical Association:—In order that there may be greater facility in understanding some of my statement, unless you already have copies of this booklet entitled "Factual Data on Medical Economics, 1939, Bureau of Medical Economics, American Medical Association of Chicago," I should like to present them to you.

Senator Murray:—We will be glad to have the copies.

Dr. Leland:—The bill now pending before your committee is obviously based on the report of the Interdepartmental Committee, and that report in turn is based on the report of its Technical Committee. The report of the Technical Committee seems to be based on figures assembled by that committee that the committee itself seems to regard as supporting the thesis that death and sickness rates in the United States are excessive; that this excess depends not on economic conditions but on inadequate medical service, and that by expending a vast sum of money under federal supervision the sickness and the mortality rates can be substantially reduced. The figures relied on by the Technical Committee to support its thesis are believed to be incomplete and the deductions drawn from them are believed to be unwarranted by any available evidence. The conclusion that the reduction of sickness and mortality rates awaits only large federal and state appropriations, expended under federal supervision and control, is believed to be without foundation.

The constant improvement in the health of the people of the United States that has been in progress many years, as shown by official vital statistics, has been made under the prevailing system of medical and hospital care. No evidence has been advanced to show that the rate of improvement would be accelerated by the revolutionary changes proposed in the pending bill.

The death rates from some causes are approaching the vanishing point; the death rates from other causes are far more favorable than has been represented by the advocates of this legislation. More knowledge is needed before a reduction in the number of deaths from still other causes can be expected or predicted.

Statistics of the nature and amount of prevailing illnesses at any given time are not sufficiently complete or accurate to justify positive conclusions based on them, but so far as they are available in the United States they show a trend toward a general improvement except with respect to cancer, diabetes and diseases of the heart and blood vessels. These diseases are the accompaniments of advancing years and their increasing prevalence is associated with a greater concentration of the population in the ages above 45 years. This greater concentration above 45 years of age has occurred under the present system of medical care.

The Technical Committee of the Interdepartmental Committee seems to have drawn its conclusions largely from data assembled in connection with the activities of the Committee on the Costs of Medical Care and the National Health Survey conducted by the United States Public Health Service. Data assembled by the Committee on the Costs of Medical Care, however, were not assembled in such a manner and form as to permit the conclusions of that committee in respect to the costs of medical care to be weighed in relation to the costs of the other necessities of life, nor did the conclusions of that committee point out with any degree of exactness the elements that have entered into the increase in the costs of medical care in such a way as to suggest a method of reducing those costs. The basic data assembled by the National Health Survey, distinguished chiefly by its massiveness rather than by the validity of its conclusion, was necessarily collected by persons not adequately trained for the purpose, and the conclusions drawn from the data so assembled were based on more or less arbitrarily established standards. Unless your committee bears these facts in mind, it may be misled by the recommendations of the Interdepartmental Committee based on the work of its Technical Committee.

Time will not permit a detailed explanation of all the charts that have already been placed in your hands. However, I should like to point out the general features of a few of them. [Dr. Leland then emphasized many of the points brought out in the publication "Factual Data on Medical Economics."] The distribution of physicians is governed largely by general economic conditions over which the medical profession has no control. The average annual change in the number of physicians has varied from an increase of 5,485 in 1898 to a decrease of 385 in 1920-1921. The present average annual net increase in the number of licensed physicians in the United States is about 1,500.

In 1938 there was an average daily census of 132,454 empty beds in general hospitals. During the period 1928-1938 there was a net increase of 61,987 beds in general hospitals. During the same period the unoccupied beds increased by 8,919.

In 1929 the number of beds in general hospitals registered by the American Medical Association was 293,301, or 2.35 beds per thousand of estimated population. In 1937 there were 412,091 beds in the registered general hospitals, or 3.19 beds per thousand of estimated population. During the period 1925-1937 the expansion of general hospitals amounted to 118,790 beds, a net gain of 40.5 per cent. In the same period the population increased (according to population estimates) by 12.5 per cent.

The maximum occupancy of general hospital beds during 1938 was at some point between four and five beds per thousand of population, with of course marked differences at each end where the beds per thousand of population were one or two, or at the other end where they were between five and six or more. It is impossible to predict what the occupancy would be if the beds per thousand of population were increased to seven or more. There are areas where as yet hospital facilities have not been provided largely because of sparsity of population, the lack of competent personnel to staff the hospitals and the inability of these communities to support such hospitals. There was in 1938 a low bed occupancy in most states which had a low number of beds per thousand of population. The general death rate for the United States when compared with the standardized annual death rate for the industrial policy holders of the Metropolitan Life Insurance Company, meaning the persons who pay their premiums on a weekly or monthly basis (some 17,700,000 people), show that the trend of the decline of death rates among the low income wage earners employed in a variety of occupations compares favorably with the trend for the general population. The death rate from cancer is often mentioned with great alarm. The mortality from cancer does show an increase, but it must be understood that a greater portion of the population than in previous years is now living beyond the age of 45 years where cancer is more prevalent as a cause of death. The percentage of change in maternal mortality varies from an increase of 1.5 per cent in one state to a decline of 38 per cent. The problems pertaining to maternal mortality are to be found more largely in urban areas and among other races than in rural areas and the white race. The decline in infant mortality has varied from 38 per cent for Maine to 62.2 per cent for Connecticut. The recorded infant mortality rates for the original registration states declined 53.1 per cent from 1915 to 1937. For the expanding birth registration area the decline has been 45.6 per cent.

The present lowering of the death rates from many causes is a primary result of the present system of medical practice. If any group of countries having comparable racial stock has at any time been able to produce better results than those in the United States, we shall be glad to receive such a list of countries in order that we may examine the evidence.

Senator Murray:—Doctor, notwithstanding the record that you described, it is true, nevertheless, that in some sections of the country there is a possibility of making great improvements in the care of the sick and those who are unable to pay for medical attention?

Dr. Leland:—Granted.

Senator Murray:—Have you gathered any statistics on the extent of that condition in this country? Have you made any exploration of that?

Dr. Leland:—We have, sir.

Senator Murray:—You know that in many sections of the agricultural states there is a serious deficiency of medical care and attention for the people who need medical care, do you not?

Dr. Leland:—I am not prepared to say exactly the extent to which the need exists.

Senator Ellender:—Doctor, I notice on page 2 of your testimony the statement "In 1938 there was an average daily census of 132,454 empty beds in general hospitals."

Dr. Leland:—Yes, sir.

Senator Ellender:—Those, of course, refer to all hospitals?

Dr. Leland:—No; general hospitals.

Senator Ellender:—What do you mean by a general hospital?

Dr. Leland:—A hospital to which the general population goes for its ordinary illnesses, not special hospitals such as nervous and mental diseases or tuberculosis.

Senator Ellender:—Those are pay hospitals, are they not?

Dr. Leland:—Most of them. There are a number of general hospitals that are now being maintained by some governmental units.

Senator Ellender:—By that statement you would not indicate that those beds could have been filled if there was a need for them? That there could have been sick people who could have occupied them but because of their lack of money they were not able to be taken in?

Dr. Leland:—We have called attention in the past to the fact that there may be in the United States in various sections people who, because of economic barriers, are unable to obtain necessary treatment, but the extent to which that exists is still somewhat questionable in exact terms.

Senator Ellender:—Has the Association made any effort to determine to what extent it is necessary?

Dr. Leland:—The Association has made a study.

Senator Ellender:—Is that available to the committee?

Dr. Leland:—That statement is now under process of being put together.

Senator Ellender:—Would you be able to make it available for the committee?

Dr. Leland:—I should be glad to, yes, sir.

Senator Wagner:—Doctor, I want you to believe me when I say that any questions that I ask you are for the purpose of being enlightened if I can by the medical profession.

Dr. Leland:—Certainly.

Senator Wagner:—And also, I am hopeful of their cooperation rather than their resistance.

Dr. Leland:—That is right.

Senator Wagner:—On the question of the need for medical care, I read in the papers that there was a report submitted to your convention which stated that there were only 44,000 people in the United States, the survey showed, that were really in need of medical care who did not receive such care. Do you remember that report?

Dr. Leland:—I was not in the House of Delegates when that report was given. My attention has been called to the fact that that report was made, and I should say that I have read the transcript of the report that is to appear in THE JOURNAL. However, that report was not based on a complete study. We have only issued a preliminary statement of certain outstanding facts, and this report of the 40,000 stands much in contrast to the 40,000,000 and is not intended at this time to be interpreted as an exact figure.

Senator Wagner:—I notice here in this book that you have submitted, which is very interesting and has some very interesting charts, that on the last page you have a chart of medical service and economic status.

Dr. Leland:—Yes, sir.

Senator Wagner:—I will ask you if I can get a little more light as to the meaning of this chart. You have there "above $3,000—self sustaining, no special arrangements needed." Then "$3,000 to $1,500—for the most part self sustaining, largely self sustaining but sometimes needing help." When you say "for the most part self sustaining" I suppose that means for medical care?

Dr. Leland:—It means as to the necessities of life and everything.

Senator Wagner:—Including medical care?

Dr. Leland:—Yes.

Senator Wagner:—Then you have "below $1,500—variable needs for economic and medical assistance."

Dr. Leland:—Yes, sir.

Senator Wagner:—Then there is a need that at this time you mean is not supplied?

Dr. Leland:—I think you will find sir, in the explanation on the opposite page, that those amounts that are stated on the chart are not intended to be rigid and fixed amounts, because we realize, as I believe you do, that in various sections of the country $1,500 would mean that the man or the family would be living on the fat of the land, and therefore those parts of the country cannot be compared with other parts in which $1,500 is inadequate.

Senator Wagner:—I understand; I do not mean to hold you down to anything but an approximation. I believe it has been shown that about one third of our people, which would be about 40,000,000, have an income of $750 a year or less. If there is a lack of medical care in that very small group comprising about 40,000,000 people, would you think that your survey was reasonable when you say that only 44,000 out of that 40,000,000 have sufficient medical care?

Dr. Leland:—I will be glad to give you the answer to that, Senator, when I get the complete returns.

Senator Wagner:—Are you in sympathy with the general objectives of the legislation?

Dr. Leland:—I see no objections to the general objectives. I think every one of us wants to help people who are in need of medical care.

Senator Wagner:—I have always said that about the medical profession, that they render a great and an unselfish service, but we are all going to try with you and with your guidance and your cooperation, I hope, to bring about even a better and more helpful life. Is your Association ready to propose any amendments to this legislation that will bring it more in harmony with your views?

Dr. Leland:—Of course it would not be proper for me to speak for the rest of those who are to make statements before you, but from my observation of the consideration that has been given this bill, I believe it is the consensus of opinion that in order to do that would require so many changes that the House of Delegates took the action that Dr. Donaldson presented to you. I believe that they have not offered or are not bringing to your committee any suggestions for amendments. We did however suggest a little different approach, as was contained in the report of the House of Delegates. That is the offer that we have instead of amendments.

Senator Wagner:—You are generally acquainted with the workmen's compensation laws of the different states?

Dr. Leland:—Yes, sir.

Senator Wagner:—Do you know that those laws provide for cash benefit payments for injuries and also for payments for medical care?

Dr. Leland:—Yes, sir.

Senator Wagner:—The doctors are great advocates of the workmen's compensation law, first because it is a humane law, and secondly because I believe 9 per cent of it is for medical care, and the doctors receive compensation in that way, and I wonder how you could reconcile that advocacy with your statement here that you are mixing medical payments with loss of wage payments; I just wondered why you oppose it in one instance and favor it in another?

Dr. Leland:—There is a statement that will be presented if the committee likes, but, if the committee desired, there is an opportunity there to enter into a very interesting discussion of the initial theory on which the workmen's compensation law was based. I might say that it began with paying very little and in some cases almost no attention to medical care, which was brought in later on because it was found necessary in order to conserve the funds.

Senator Wagner:—I do not think that you are speaking of the law in New York, because it so happens that I introduced the law in New York in 1913, and we coupled them right together.

Dr. Leland:—It is my understanding of the workmen's compensation laws that the laws were intended to place the responsibility for injuries due to employment on the employer, to spread it perhaps over the general population by including the cost of the insurance in the cost of the product. It has been found necessary to add more and more medical services, but in many instances it has been done very badly and the medical profession has objected to the kind of medical care and, even under workmen's compensation, has been doing as much as it could to improve those conditions.

Senator Wagner:—You try to repeal the New York workmen's compensation, and the doctors would be one of the groups that would oppose it, and rightly so.

Dr. Leland:—I am not suggesting that.

Senator Taft:—In this question of the fundamental difference between what these figures meant of the 40,000,000 and the 40,000 which should be at least contrasted before the comparison as to what they mean is resolved, the 40,000 would mean, I assume, only the people who are not within reach of doctors and hospitals and has no relation to their economic status? Is that correct or not?

Dr. Leland:—That is partly correct. On the other hand, the information that has been given out has left the impression, or the implication, that these 40,000,000 people that are so frequently referred to are sick all the time, 40,000,000 of them every day. Obviously I hope no one believes that, because there is only 2 per cent of the population as found by the Committee

on the Costs of Medical Care that can be considered as ill on any given day, although the National Health Survey did find 4.5 per cent ill on any one day or, rather, on the day of the survey. Of course, one needs to correct many of the characteristics that enter into figures. Figures are means of expressing facts, and sometimes they give impressions that are not exactly facts. The National Health Survey was made during the time of the year when the sick rate was the heaviest, between November and March, and of course the 4.5 per cent would be more than twice as much as reported by the Committee on the Costs of Medical Care or that has been generally accepted as the ratio of the amount of sickness. But, now, as you have intimated, one needs to understand what these figures mean. I would prefer that the committee do not consider the 40,000 to which reference has been made as an exact figure.

Senator Taft:—I understand that, but what I want to get is, when you get the exact figure, what does it mean? What is it supposed to mean?

Dr. Leland:—Supposedly the 40,000,000 people are people in the very low income classes. The 40,000 to which reference was made are also in the low income classes.

Senator Taft:—That means 40,000 people what; what category do they come into, people that cannot get medical service?

Dr. Leland:—As reported to the House of Delegates, it was 40,000 who were denied medical care. Now, there is quite a difference between the word "denied" and the inability to get medical care. Some people do not want medical care, they do not desire it.

Senator Taft:—They would rather go to chiropractors?

Dr. Leland:—Exactly. They would rather go to the drug store and treat themselves. The statement that was made was to the effect that the figure would be more likely to be 40,000 than 40,000,000 who would be denied medical care, meaning the people who sought medical care and who had been turned away—refused it.

Senator Taft:—It is different from the number who might have lack of means and not be in touch with a hospital.

Dr. Leland:—Very different.

Senator Taft:—So really there is no comparison whatsoever between the 40,000,000 and the 40,000

Dr. Leland:—No comparison at all.

Senator Murray:—And there are a great many people, of course, who are unable to pay for medical care themselves, and the only way they are able to secure it is through some charitable organization or through the representatives of such agencies or the help of friends or neighbors?

Dr. Leland:—That is right.

Senator Murray:—And that amounts to a considerable number, does it not?

Dr. Leland:—I think that when our study has been finally put together we can show you a very large volume of illness that is cared for through those voluntary services of physicians, hospitals, nurses, health departments, official and voluntary health agencies and many other organizations that are now carrying a tremendous load without complaint.

Senator Ellender:—Doctor, with further regard to this report that we asked you to submit and which you said you would, I notice on page 2 of your statment you have criticized the methods applied by the National Health Survey. How did you proceed to obtain the data on which you expect to make this report?

Dr. Leland:—You are referring to our report?

Senator Ellender:—Yes.

Dr. Leland:—The American Medical Association study of medical care was a study quite different from any other that has ever been made to my knowledge. I have investigated and collected information pertaining to some 4.000 surveys of various kinds. The Committee on the Costs of Medical Care brought in very properly the cost of medical care, the duration of illness and many other factors on which to base different information. The National Health Survey had a little different approach to find out how much chronic illness was prevalent in the country. They developed, however, something more than just a chronic disease. It was our desire to know to what exent the people of the country were actually utilizing the services and facilities that are now available. That is quite a different matter, from telling us how many days a person is sick and how many people are sick on a given day. That study was made by dealing not only with physicians but with nurses, dentists, hospitals, health departments, pharmacists, with the voluntary and official welfare agencies, with various mutual associations and organizations in the community such as trade unions, who have mutual benefit plans.

Senator Wagner:—One other question I would like to ask you: Your association, I take it from the report, did recognize that there was need for federal aid or that there may be need for it, for federal aid based on needs, I think was the language used.

Dr. Leland:—We recognize that there is need for assistance to a great many people in time of illness. Now, whether that is federal aid or local aid or state aid is a matter we believe largely for local determination. Where the local people do not have the money with which to help these people they have to get help, perhaps from the state. If the state is unable, we conceive it to be desirable that the federal government listen to their needs and allow them to show, to prove their financial ability as a state as a need which actually exists, to consider it and to give them either a grant or a loan.

Senator Taft:—Let me see, Doctor—do I understand that the American Medical Association would submit an alternative plan if requested to do so?

Dr. Leland:—I think this also is something that will be discussed by some other speakers, but in answer to that question I believe it is the disposition of the American Medical Association if such legislation were to be drafted along lines suggested in the report which Dr. Donaldson read that the American Medical Association would, as it always has, offer its facilities to the government in order to be of some service in its conception of that kind of legislation, but we are not in the business of drafting laws ourselves.

Senator Taft:—I do not quite understand the distinction. Of course, we could not pass a law permitting federal assistance to one state unless the law also permitted federal assistance to every state. That is all that this law does. It is in the alternative, and no state has to take it unless it wishes to do so. I think it is important that the American Medical Association make clear a distinction which I do not understand. If the distinction is that this plan gives too much power to the federal government, that is a conceivable distinction, but I do not quite understand this idea of preferring the RFC to the Social Security Board or purely on a needed basis. That could be taken care of by the distribution of funds provided in the bill, and while I do not ask you to do so I think the decision ought to try to make it clear so that I can get it in my mind what the distinction between the program is of the Association and that proposed in the Wagner Health Bill.

Dr. Leland:—I may say that the other speakers will elaborate on that more fully.

Senator Murray:—Doctor, do I understand that you devote your time exclusively to medical economics?

Dr. Leland:—That is right.

Senator Murray:—You are not a practicing physician or surgeon?

Dr. Leland:—I have not practiced since the war.

STATEMENT BY DR. HAVEN EMERSON

Dr. Cary:—Mr. Chairman, the next speaker that I would like to introduce we think has had the very greatest experience and in all probability will be able to elucidate the subject as well as or better than any other witness we know. I have great pleasure in presenting to you Dr. Haven Emerson, professor of public health practice, College of Physicians and Surgeons of Columbia University, New York City, and former Health Commissioner of New York City, and a present member of the Board of Health of New York City.

Dr. Haven Emerson, professor of public health practice, College of Physicians and Surgeons of Columbia University, New York City:—The record of progressively improving health in the United States of America for the past fifty years and particularly for the past eleven years impresses me with the trustworthiness of the official and voluntary agencies and institutions and methods of local, county and city and state government developed by long experience and appropriate adjustment for prevention of disease and care of the sick.

No emergency of sickness or neglect faces us. No spectacular or immediate improvement in general health can be expected through extensive changes in procedures, in responsibility, or in sources of funds as proposed in the Wagner bill.

Better national health can be assured by development along well established lines in the orderly evolution of social and professional resources made available by new medical knowledge.

Better care of the sick, and more nearly universal availability of the increasingly costly facilities for diagnosis and treatment, can be assured by extension of the various promising experiments such as voluntary prepayment and cash indemnity plans than can be expected from attempts to have the cost of sickness transferred to the federal government or by relying on state and local health officers to administer treatment facilities at public expense.

We, as physicians, whether engaged in individual practice of curative medicine or as officers of health concerned with the

administrative application of preventive medicine for local and state governments, advise against disturbing a series of services which have a long history of success, by creation of another policy where local responsibility will be largely at the mercy of federal dominance and allocation of funds.

Estimates of neglected sickness have been much exaggerated. Theoretically possible benefits from large additional expenditures are too optimistic and problematic to be convincing.

As the major cause of insufficient care for the sick and for health, where these exist, is lack of earning power and the dislocation of commerce, industry, production and demand for goods, characteristic of the past eleven years, so it will be the reestablishment of sound economic and employment conditions which will correct the error, rather than large spending programs by government which do not lead to any basic improvement in the incomes of wage earners. Neglected sickness is less often the cause of economic misfortunes than vice versa.

The best contribution that could be made by the federal government to general health would be by reestablishment of confidence in self support, and encouragement of private industry, earning capacity and productive employment.

Federal spending for the sick and for health cannot be relied on as a panacea for such inadequacies as can be shown to exist.

There are measures which only the federal government can take to advance national health:

First, the putting of its own administrative machinery in good order, by which I mean the development of a single federal agency, whether bureau, board or department, under which all federal health and medical functions (except those of the army and navy) should be served.

The chief executive office of such a federal health service should of course be professionally trained and experienced, as have been a long line of Surgeon Generals of the Public Health Service.

Only through such a single federal agency should state health officers have relation to the federal government for consultative advice, common policies or financial aid when emergency or persistent economic difficulties prevent a particular state, region or population unit from receiving protective and other medical care necessary for the people's safety and security of life.

Among the many administrative disadvantages of the Wagner bill provisions is the triple headed character of federal direction through which grants in aid of states for six separate and distinct functions would be administered.

If grants in aid are needed in the future, as they have often been needed and made in the past, for health and medical care, the allotting of funds should be in response to specific and proved evidence of need and request for aid by a particular state or group of states presented by the state health officer to the federal agency authorized to extend financial aid, and preferably with confirmation of the need and the extent of it by officers of the Public Health Service.

Grants should not be offered or urged on the states to promote some federal theory of social improvement, nor should grants be made to any state which is able to finance its own appropriate program of health services and care of the medically needy. It seems to us unreasonable to suppose that every state in the Union needs federal aid to carry out the functions of government long recognized as duties of the state or its political subdivisions.

It is obvious to those of us who have observed even the relatively modest extension of federal subsidy for prevention and treatment of syphilis that often the funds were out of proportion to the supply of trained persons capable of technical competence in epidemiology, medical treatment and administrative direction of services.

Such a program as is proposed for hospital and health center construction and extension of health agencies into the fields of obstetrics, diseases of childhood and care of the crippled (orthopedics) would quite inevitably face at least a temporary frustration on account of unpreparedness of professional experts to make the services effective.

It is obvious that those who have shared in drafting the Wagner bill have confused in their minds the duties or functions and capacities of the health officer with those of physicians and surgeons concerned with care of the sick.

Health officers, except where appointed on a purely political basis, are selected because they are professionally trained and experienced in sanitation and preventive medicine, a specialty as distinct from internal medicine or surgery as plumbing is from carpentry.

In states where health officers follow one another in rapid succession with the alternation of party control of state governments, it would be a calamity if the development of the elaborate series of services for personal care of the sick, of the expectant mother, of the infant and child were left to the direction of the state health officer.

It is wholly undesirable to have any state or federal plan for care of the sick depend on the leadership, professional direction or financial control of the state or local health officers. Those that are competent are more than fully occupied preventing and controlling disease and directing sanitary measures for health. Those that are not specialists in health are even less qualified as experts in the intricacies of services for the sick.

If, as is threatened, the invaluable functions of the United States Public Health Service for industrial hygiene, which have brought such benefits to labor and industry, and such credit to the commissioned officers of the service, are to be transferred to the Department of Labor there will be another confusion and duplication of interest and expense similar to that so long exhibited by the medical and health functions of the Children's Bureau, which should of course be a division of the United States Public Health Service.

Briefly, we advise that before attempting any such costly and considerable revolution in the source of funds, in regulation and supervision of health and medical services in the states by the scheme of federal subsidies, in the complicated manner proposed in the Wagner bill, the intent of the President's Executive Order 7481 should be carried out, and "better coordination in federal health work" to be the first concern of the Congress.

We offer our professional support for any well considered plan to aid backward, economically unfavored states to have health and medical care equal to that of the rest of the country, and we suggest certain principles on which a sound federal program of needed grants might be based.

We oppose the Wagner bill as it is at present offered for consideration because it appears to us to be unnecessary, costly and subversive of sound relationships between federal and state financial resources and governments, and we very much doubt whether the results hoped for by its proponents would be achieved if the present bill were to be enacted into law.

Senator Wagner:—Dr. Emerson, do you favor the provisions of the present Social Security Act which give grants based on needs to states for the care of children and for medical care?

Dr. Emerson:—I am familiar with the original setup under the Sheppard-Towner grants and the extension of them under the Social Security Act. I do not know of any evidence which would indicate that the progressive improvement in infant health and maternal health is in any way related to the federal assistance that has been given to the states in that regard.

Senator Wagner:—Then you oppose it?

Dr. Emerson:—No, I think if the federal government has spare money and it wants to encourage the states to do what the states have not been ready to do, then I see no impropriety in proposing such an offer, but I doubt myself whether that is an important factor in the astonishing improvement which has occurred in infant mortality where those services have not been at the federal expense.

Senator Wagner:—Of course, there are those who disagree with you on that. Do you think it is a coincidence that with this aid there has been an improvement?

Dr. Emerson:—Senator, at the time that I was born the infant mortality was 250, and there has been a steady and progressive improvement until last year when it was 38, continuous and uninterrupted improvement regardless of any federal intervention in the local health services.

Senator Wagner:—Are there occasions where the federal government ought to aid in health services at all of the states?

Dr. Emerson:—Yes, I should say that the policies which have been adopted in the past of so-called grants in aid made available through the Public Health Service at the request and with the cooperation of the states has been a useful contribution to the extension of full-time county health services, and certain sanitary improvement in certain of the states of the country where they were unfortunate because of climatic or geologic or economic conditions. That, to my mind, if I may refer to some of the other questions that have been asked before, is an essentially different situation from the present proposal to have a large federal fund which they are pushing—which the federal government is pushing on all of the states to take advantage of for the sake of encouraging them to spend more than they otherwise would be willing to spend. The fact that Alabama or Georgia or Texas because of the economic difficulty of their people are unable to finance what we would call a minimum well rounded public service quite justifies those states asking for an equalization of wealth, if you choose to call it that, but having an amount from the federal government by application of the state to the Public Health Service—well, I

think that those have been an admirable effect and have been helpful and I think that that principle is a sound one, but it seems to me totally different from the principle presented in your bill which proposes that every state, our own very wealthy state producing 65 per cent of the income of the United States taxes, should have to come to the federal government to run its public health service. I do not know of any women and children in New York State or City who ought to look outside of the city and state for humane and competent medical care. We have the resources, we have the persons, we have the wealth, we have the interest in taking care of our own people.

Senator Wagner:—Of course, the United States has a concern in the health of the citizens, just as the individual states have, and New York State has asked for aid and has accepted aid, but you think that that was entirely unnecessary?

Dr. Emerson:—Well, Senator Wagner, we are all of us human. If you have forty-eight health officers who are told that they can get some more personnel and more salaries by going to Washington and asking for it, they are all going to come.

Senator Wagner:—You do not think it has contributed anything to improving the health of the people at all?

Dr. Emerson:—I think that the money given for the hastening of adequate programs for the control of syphilis has probably abbreviated some of the sicknesses and the communicability of that disease. I do not know of any reason why New York City or New York State should have excused themselves out of meeting those expenses out of their own money. They have plenty of money in the state of New York to do that, but if anybody offered them $75,000 for a lot of field services or a lot of treatment clinics, they are not going to be bashful about asking for it.

Senator Wagner:—A number of surveys have been made indicating the great need for additional medical care in New York as well as other places.

Dr. Emerson:—Well now—

Senator Wagner (interposing):—I know your records, Commissioner. Perhaps you are a little more conservative than I am, but you are not only a very eminent doctor in our state but have been a great public official. I am prepared to say that, but I differ with you on this. And there is another thing: You have been interested and have written a great deal on the subject of health, and you did urge some years ago—and I am wondering whether or not your views have changed—a study at least of health insurance, compulsory health insurance.

Dr. Emerson:—That was twenty or twenty-five years ago.

Senator Wagner:—It was 1932, was it not?

Dr. Emerson:—That I recommended state compulsory health insurance?

Senator Wagner:—I will read what it says:

> The committee urges the broadest sympathy toward experimentation in promising fields, together with the most searching analysis of results. We believe that experimentation along the lines of both voluntary and required health insurance, along with the other experiments in the group purchase of medicine, should be promoted and carried on. In all likelihood, in certain areas of the country, and from certain population and economic groups, required health insurance would be found to be more feasible and practicable than voluntary health insurance or vice versa.

By "required health insurance," by that you mean compulsory?

Dr. Emerson:—Yes.

Senator Wagner:—That is quoted from your report.

Dr. Emerson:—I suppose that is still true. We were thinking of the rather unusual success of the Saskatchewan experiment, where the people by the authority of Parliament at Ottawa were to bind themselves to hire a doctor to provide for the care of their municipality or, roughly, a county as we should say it, and it is conceivable that there should be conditions in one or more rural areas of the United States where the only way that the people can tempt doctors into their community is to hire doctors by the municipality. It is conceivable. Up to the present time I have known of no such instances being developed. I think that is a report which conceivably can apply to a very few scattered areas in the United States as it is in Canada.

Senator Wagner:—In those cases you see no objection to the intervention of the government to aid, do you?

Dr. Emerson:—If the people of a community cannot tempt doctors on their own free initiative to come to their community because they cannot pay enough to draw them from elsewhere, they will want to take such resources of pooling their income that will underwrite or guarantee to the doctor a reasonable living wage. Of course, one of the ways that is being done, and the American way of settling that, has been to provide so far as possible local hospitals; in other words, a doctor nowadays needs a shop, and a group of doctors in a community needs a shop, and they have avoided hiring doctors in groups rather by the method of trying to provide a competent hospital wherever it can be afforded, and where there is professional personnel competent to operate it.

Senator Wagner:—Doctor, you remember that we had a constitutional convention last year?

Dr. Emerson:—Yes, sir, a great one.

Senator Wagner:—And which I happen to remember.

Dr. Emerson:—Yes, sir, a great one.

Senator Wagner:—I am glad to hear you say that. Among other things, we did provide for a constitutional amendment which would permit the enactment of a state insurance law.

Dr. Emerson:—Yes, sir.

Senator Wagner:—In which the state itself would be permitted to lend its credit or make contributions toward those efforts, and that was submitted to the people as a separate proposition.

Dr. Emerson:—Yes, sir.

Senator Wagner:—And there were a great many of the medical profession opposed, sincerely of course, to it, and on this same theory that it is no part of the governments' business, and yet that was submitted to a vote, and as you know it received the highest vote affirmatively of any of the nine amendments proposed.

Dr. Emerson:—I remember.

Senator Wagner:—So that that expresses the views in New York. I hope that you are not going to give the answer which Dr. Booth gave me, who said "Well, the people don't know what they need and we do."

Dr. Emerson:—Now, Senator Wagner, I gather that you have omitted from your bill all reference to compulsory health insurance?

Senator Wagner:—Yes, I have. Would you favor it if I included it?

Dr. Emerson:—It would add one more nail to its coffin, to my mind.

Senator Wagner:—Then you do not agree with the vote by the people of New York?

Dr. Emerson:—I voted against it when it came up for the referendum, because I believe the people do not understand what it would mean. I think there is a rational difference of opinion between physicians who have studied the effects of such policies elsewhere and what they believe would occur under our own conditions of government. I am afraid that I am not confident that we have yet achieved such independence and competence of our elective and appointive officers that we could turn over the practice of medicine to them.

Senator Wagner:—I do not know whether you appeared or not, Doctor, but we had quite a discussion at a number of hearings before the committee that had it under consideration.

Dr. Emerson:—I read those; I was not present.

Senator Wagner:—And a long discussion on the floor and a long discussion before the people; and I take it that you agree with Dr. Booth that they just don't know what is good for them, and they did not know what they were doing?

Dr. Emerson:—No, I would not say that. But I think there are honest people, that many people have been led in the thought to believe, largely by the tremendous prestige of influences from Washington, that the solution—

Senator Wagner (interposing):—That was a state convention.

Dr. Emerson:—The people of New York have been largely influenced, I am sure certainly in the cities, by the belief that developed out of Washington to some extent that a compulsory system will relieve them of the financial difficulties in the care of the sick, and I believe that they are uninformed as to the truth of that, but that is their belief and that is on our statute books. We believe that there is a proper way of doing it. I have no criticism whatsoever of the proceedings of the convention. I think it was admirable to put that before the people, and they certainly voted for it unequivocally, but the legislature, you will notice, has not taken advantage of the permission.

Senator Wagner:—There is a commission still studying it.

Dr. Emerson:—Yes, it is a fine thing to study it. I believe there are two states that recently have rejected it on practically the same basis. There are evidently in the country differences of the citizens' attitude with regard to the involvement of their state government in the provision of medical care of the sick.

Senator Wagner:—Although I say that you are very eminent, I wanted to bring out that there are some in New York that differ with your point of view.

Dr. Emerson:—Yes, I know.

Senator Wagner:—I have agreed with you a lot, as you know.

Dr. Emerson:—I remember, we have collaborated in the same city government at times, and I think the Board of Health of New York City is not always entirely satisfactory to all of the citizens, as we may guess from present conditions.

Senator Ellender:—Dr. Emerson, I notice on the last page of your statement that you think according to this, that all citizens, no matter where located, should receive the same health and medical care as that of any other citizen of any other state.

Dr. Emerson:—I don't think I say that.

Senator Ellender:—That is just what I wanted to ask you. You say "We offer our professional support for any well considered plan to aid backward, economically unfavored states to have health and medical care equal to that of the rest of the country, and we suggest certain principles on which a sound federal program of needed grants might be based." What do you mean by that?

Dr. Emerson:—I mean this, that if there can be shown that the reason they are not getting it is because of economically unfavorable conditions, the government must come in and help those people in those states, but there aren't a great many states where the failure is a failure of the state government, a failure of professional organization perhaps, a failure of adequate institutions which the states can properly correct. It does not seem to me, in other words, that just because there are some people in some places that cannot get medical care that it is the function of the federal government to come in automatically and right that, but there are conditions, with spendable income as we were told not long ago, of about $120 per capita in one of the states, and on that basis those people are not able to contribute the sum necessary to give them well developed health protection, and to assist that, I should say it was distinctly a function of the federal government to respond to an appeal for aid by those states.

Senator Taft:—Do you think that the right of self government includes the right to govern yourself badly if you want to?

Dr. Emerson:—Yes, as long as your bad government does not hazard the health of your neighbors. If you run an incompetent health department on the border and start an epidemic of smallpox, we thank the Lord that we have a public health service that will come in and intervene on the basis of interstate commerce and help us avoid spreading it.

Senator Ellender:—With further reference to this paragraph that I just called your attention to, would you be surprised that I told you that in some states—let us take the great state of Texas that is rich in natural resources—there was evidence produced before this committee not pertaining to this bill but on another bill whereby it was testified that fifteen corporations control the oil, gas, sulfur and salt of that state, and they pay taxes to that state aggregating $100 to a revenue of $8,000,000 that was distributed among New Yorkers, Pittsburghers and Philadelphians. I say that because of that situation where these natural resources are being taken from certain sections of the country and are being as it were taken away and profits brought to other states and that is causing a lack of proper financial aid for such needs and medical care in many, many states of the Union.

Dr. Emerson:—Is it true that in the state of Texas the state and the communities pleaded poverty as the reason for their inability to get medical care?

Senator Ellender:—Why, my Dear Doctor, if you were to go before the state legislature of Texas, and I know this for a fact and it is not hearsay—they have tried time and again to get the Legislature to put a proper tax on these natural resources and they have never been able to do it, because somehow, through the control of the big interests, they do not seem to be able to do it. They tried that in Louisiana for many years up to 1928 when Huey Long came on the scene, and the picture was changed, so that today the state of Louisiana offers to its people wonderful medical care compared to what it was prior to that time. If all of the states were able to take the money in the form of natural resources within their borders and where just a few are able to snatch it out and carry it to New York or Maryland or Ohio or Indiana, the probabilities are that we would not be confronted with such legislation as is incorporated in this bill.

Dr. Emerson:—Well, after all, one state after another does correct the abuses which have been developed by monopoly, and if Louisiana did it with Huey Long, perhaps there will be somebody in Texas—

Senator Ellender (interposing):—That is only one out of forty-eight that has succeeded, and I doubt if any others will try.

Dr. Emerson:—Yes, but many others were already taxing.

Senator Ellender:—Very few.

Senator Wagner:—Doctor, you were the head of the committee that conducted the survey the results of which were afterward published. I saw the publication several weeks ago, which you tried to point out and did point out a lack of medical care in New York, a lack of beds in hospitals. Do you remember that?

Dr. Emerson:—The hospital survey of New York I was responsible for directing, and that was like any other local community undertaking, and an attempt to discover to what extent there was a lack of proportion between facilities and needs. We found that there were some facilities in excess of the needs, chiefly in the matter of beds for maternity patients. Apparently we have enough beds until 1960 at the present rate of the birth rate. There were other kinds of beds which were insufficiently provided, and the object of that was not to show that New York could not afford to take care of its sick but that it must include in its city plan for the next twenty years a methodical replacement of old beds and buildings and new beds, and I think that you will recall from that report that we showed that, while we had been spending about $20,000,000 a year for new hospital construction and replacement, there was needed possibly $28,000,000 in the immediate future to make sure that a balanced program of hospital facilities would be achieved.

It is quite true probably that in New York you will find some people that either do not ask or do not know that they want medical care. Recently we had some 11,000 calls made on the Henry Street nurses for care, calls by the poorest people, and they analyzed each case to find out whether they had medical care and found out why not, and they found approximately 1.4 per cent of that 11,000 poor people with no obvious availability of medical care which had yet been obtained. That is the kind of thing that we must expect. We were dealing with 11½ millions in the metropolitan area population, and we found deficits here and failures of distribution there, and our report was a plan for building up to 1960 for an assumed growth of population which we can reasonably predict. It was not a disclosure that I think would be interpreted by anybody as indicating that there was a gross inadequacy in the care of the sick in New York.

Senator Murray:—Doctor, in corroboration of the statement made by my colleague Senator Ellender, I want to suggest that we have a situation in my state of Montana where we have a large mining camp that has produced over 2 billion in wealth in this country. It is a hazardous occupation—mining—and there are diseases that develop from mining known as silicosis and yet, notwithstanding all of that tremendous production of wealth, these men were unable to secure proper care and attention. They did not have any hospitalization facilities, and it required a desperate struggle here in Washington to get a small allocation to enable them to extend those facilities here during the last year. For a great many years they went without compensation for accidents, and of course there are a great many accidents occurring in mines there daily. The result is, as Senator Ellender has so well stated, they are not getting a fair deal, and we hope that something is going to be done about that situation to see that there is better distribution.

Dr. Emerson:—I understand that you are asking us to approve of this as a method of adjusting social errors?

Senator Murray:—Oh no, I was just merely stating that fact incidental to the discussion.

Dr. Emerson:—You are referring to the copper and not to the Homestake Gold Mines, where apparently very admirable services are provided. You are referring to the Butte situation?

Senator Murray:—Yes.

Senator Ellender:—Doctor, I desire to ask you one more question. How would you carry on this equalization of health service to the rest of the country? As I interpret this paper, in order to be equal?

Dr. Emerson:—I do not think there is any possible way of making all states equal, because some will go far ahead of others.

Senator Ellender:—Yes, some will go further than others. You are the third or the fourth witness who testified this morning that you are in accord with doing that, and the statements so far have been general. What we would like to have is something specific as to how that can be carried out, because, as I understand this bill, that is its purpose.

Dr. Emerson:—I believe that the mechanism that has been used in the past would be adequate if applied consistently now, the mechanism by which sums of money have been appropriated and made available for the use by the public of public health services or the grants in aid to the states for specific improve-

ments in the public health. Now, the sums were relatively small but they were extremely economically applied. They were applied in a way to encourage the maximum state of collaboration, the maximum of elucidation of state initiative and support, and they were used only in those states where there was a perfectly obvious deficit which the state from within its own resources could not make up. I do not admit that there is any condition in New York and many other states of our part of the country which cannot be better corrected within the state and within the state government and the resources than by running to Washington and asking to correct it, and I am familiar with the serious conditions of lack of sanitation, lack of health services and some instances where lack of medical care prevails where an appeal to the federal government ought to be responded to.

I believe the Public Health Service and the Public Health Service alone through a sufficient central body to operate any federal grants in aids rather than creating three different groups with 240-odd advisory councils to deal with those complicated services offered in the bill—I believe the Public Health Service would be sufficient.

Senator Ellender:—To what extent would you be willing or how far would you go toward giving aid? What specific purposes? Would you go as far as this bill in granting aid in the methods that you have just suggested?

Dr. Emerson:—I should be inclined to begin by applying aid for the fundamental protective and preventive services that the people cannot do alone, in other words, what I would call the establishment of full-time county health services for the prevention of disease. That seems to me the first object of the federal expenditure for the assistance of states that can show that they cannot afford it themselves.

Senator Ellender:—Only preventive medicine then?

Dr. Emerson:—I believe that to be the first object. I do not believe it is the function of the state or national government to take care of women in confinement or to take care of babies or to take care of other things which are the functions of the practice of medicine and which can be better handled by local communities than it can by aid from Washington. I believe that the most intelligent expenditure of what you might call stimulating money for the health of the nation would be in the field of prevention rather than in the field of the care of the sick. I think the ordinary instincts of the United States are sufficiently developed so that whenever it is called to our attention that there are neglected sick people nearby in the counties and states, that you will find provision made to take care of them. But it takes a great deal of imagination and a great deal of statesmanship to spend for the preventive mechanism. The people do not see that close enough. I believe that it is the proper functioning of the federal government to assist the states that cannot do it themselves to have a really well developed, a well rounded full-time public health service based on a county and state organization. That would seem to me to be the first object and the only really immediate object for which this expenditure might be asked.

Senator Ellender:—If that is true then, as I understand it, you are really against what this bill provides for no matter if it were carried out the way you suggest, that is, through a central office in Washington, that the government should not spend money for that purpose?

Dr. Emerson:—Perhaps we are differing merely in a point of degree. I believe that so elaborate a plan involving so many different things is premature and that, until we have tried it on those bases which we know are necessary, it will be inadvisable to commit ourselves to these others in which I believe there is no good evidence that our federal aid is indispensable.

Senator Ellender:—I was just wondering, Doctor, in connection with the other hearings we had here some time ago as I recall it, the southeastern part of the United States, I think, we account for—that is most of the Southern states—14 per cent as I recall it of the babies of the nation, and that community has 2 per cent of the wealth of the nation. Now, I am just wondering how that locality can cut down that death rate that is so prevalent among the babies there so as to keep our population up?

Dr. Emerson:—I believe that you will find that the infant mortality rate in those states has been declining at very much the same rate as it has been elsewhere, and for similar reasons, the reason being better food and milk and water and care, and that they have benefited by the improvement of the protective services just as the state of New York and Massachusetts have.

Senator Ellender:—We had a witness that testified two weeks ago, as I recall, who said that the death rate had declined it is true, but that in contrast to that the birth rate, that is, the number of women who have children, had declined to such an extent that it has now reached the point of 2.7, and 2.6 would be on a decline, and he further stated that if we could provide for adequate measures whereby we could further cut that death rate among children that even with the decline in the birth rate we will be able to have a bigger crop of children. What have you got to say to that?

Dr. Emerson:—I am afraid that is a little confused. Since 1931 the married women of child-bearing age in the United States have not borne enough girl babies to reproduce themselves, so that we are now potentially facing a falling population. You will see this most beautifully illustrated physically at the World's Fair in the Hall of Man, and you will notice that there is no conceivable way in which by improvement of the death rate we can catch up with the birth rate when the number of babies born is not sufficient to reproduce their mothers.

Senator Ellender:—I do not expect you to catch up with it—

Senator Ellender (continuing):—I mean us instead of you—but the point made there was that, even with the declining death rate, if we could better provide for those born alive we could raise more of them and keep the population up.

Dr. Emerson:—Well—

Senator Ellender (continuing):—In other words, I do not remember the exact date which he set, but in the next twenty years I think he said—I may be wrong as to that—that instead of being 2.7, which is on the borderline, it might soon be 2.5 and we will simply be decreasing.

Dr. Emerson:—There is no doubt about it decreasing. There is no doubt about it, and there is no statistical probability that we can by further reduction of the death rate alter that. The only way—

Senator Ellender (interposing):—You may prolong the time in which it is to come.

Dr. Emerson:—Since 1931 we have been in a deficit position, and that is likely to increase. No country has found any way of bribing women to have more babies than they choose.

Senator Wagner:—You did state that you are in favor of some legislation, but the distribution of the funds should be based on need?

Dr. Emerson:—I believe so.

Senator Wagner:—And that it should be limited to preventive medicine rather than to these other fields in which this bill attempts to give state aid?

Dr. Emerson:—Yes, sir.

Senator Wagner:—Would you favor it if this bill were amended—I do not agree with you—but would you favor it if that was the provisions of the bill?

Dr. Emerson:—If new legislation is necessary in order to make it possible to make federal grants to aid of states in the public health, I should believe it ought to be drafted and I assume that it is necessary to have new legislation.

Senator Wagner:—Would you say that it ought to be on a matching basis or simply an outright grant to a state?

Dr. Emerson:—Well, I believe that a state ought to show its good will always in asking for aid that it is willing to go a little further itself. That is the way these grants in aid have been made in the past, and I understand the principle that, if the federal government allows something to assist them, the state should stretch itself a little more to go part of the way. I recognize that as a sound principle.

Afternoon Session

After Congressman Albert E. Austin, Fourth District of Connecticut, appeared in opposition to the bill, the hearing proceeded with representatives of the American Medical Association:

STATEMENT OF DR. MILTON ROBB

Dr. Cary: We think there is another angle to this question of public health, particularly public education. I present Dr. Milton Robb, Detroit, who will speak on the program of health education.

Dr. Milton Robb:—A program of health education has been in progress in this country for many years, initiated chiefly by the various state medical societies of this country, and must be continued in increasing amount for undoubtedly the lack of health education is responsible for a larger proportion of insufficient medical care than the absence of availability of medical services.

What I have to say will specifically relate to the state of Michigan and her efforts in health education. However, I know that a duplication of these efforts can be found in forty-five other states, depending on their needs.

The American Medical Association, through its Bureau of Health Education, has aided in every way possible the development of these programs in the many states, as well as the development of an unusually extensive one of its own.

[Dr. Robb then described public health education in Michigan.]

The problem is not to bring to the door of every one something they as yet do not feel they need, but the problem is to

educate every one to the need for a periodic health examination for the prevention of disease, and early medical attention when signs of disease appear.

The child with middle ear disease which is having smoke blown in its ears by its father or hot oil put in by its grandmother for the earache, the man with an acute appendicitis who takes castor oil for his bellyache, the young woman with tuberculosis of the lungs who continues self medication with a cough mixture, be she rich or poor, are not having adequate medical care. It is obvious that the fault lies with the individual. If there were a doctor on every street corner and a government hospital on the next square, and service could be had for the asking, there would still be many people who would not stop to get it. In other words, it is a problem for the educator.

The Michigan State Medical Society eighteen years ago through its council asked the University of Michigan to cooperate with them in the formation of what is called the Joint Committee on Health Education. The objective, as set down at that time, was as follows: "The function of the Joint Committee is to present to the public the fundamental facts of modern scientific medicine for the purpose of building up sound public opinion relative to the questions of public and private health. It is concerned in bringing truth to the people, not in supporting or attacking any school, sect or theory of practice. It will send out teachers, not advocates."

The record of these activities shows that audiences increased from a few hundred in 1922 to 240,000 in 1930; and those who served voluntarily as lecturers increased from twenty in 1922 to 576 in 1930.

In 1930, in the high schools of the state, assembly hours were granted for this purpose, and in 100 high schools five assembly hours a year were devoted to this program, under the direction of the Joint Committee on Health Education. The audiences were composed of approximately 140,000 high school students.

In addition to this, a health column was offered to the newspapers of the state which by 1930, through the medium of some sixty daily and weekly newspapers, reached an estimated number of 2,000,000 readers.

In 1931 the depression caused the withdrawal of most of the supporting contributions, and therefore the program was greatly curtailed.

In 1935 the committee decided on a renewal of these activities and increasing the scope of the program. At this time it became evident that other professional and lay organizations would add to its effectiveness. Previously there had been thirteen health agencies of the state interested in supporting this health education plan.

At the present time practically every organization connected with education and more particularly health education is included in its membership.

For the past two years the activities of the committee have centered on two programs, one on school health and the other on adult health. The subcommittee on health education in schools is composed of leading educators in the health sciences and in the school system of the state.

In Michigan the expense of the entire public health education program was borne by contributions from the various organizations comprising the committee and other Michigan philanthropies and not from the taxes of the state.

The American Medical Association has been extremely active, as I stated before, in health education, and the following summary is based on information in the files of the Bureau of Health Education for 1938. [Here Dr. Robb summarized the work of the Bureau of Health Education for 1938 as shown by the Board of Trustees report.]

This review of the health education activities of the American Medical Association is offered as evidence of its established policy to disseminate scientific information pertaining to health and medical services.

Thus praying for the continued extension of health education in the interest of still better national health, allow me to repeat in conclusion that the lack of health education is responsible for a larger proportion of insufficient medical care, regardless of station in life, than the absence of availability of medical service.

Senator Wagner:—That is interesting and I agree with everything that is said, but don't you think that there are many people in the low income group that you do not reach with this worthy type of educational service?

Dr. Robb:—I presume there are some that are not interested in reading. We do try to cover the entire population in every way, and in our efforts we have what we thought made a rather successful attack. It is rather peculiar—I have always felt that they may know about where to get the grocer and the butcher, but sometimes they do not seem to find out where they can get the best type of medical service that can be given.

Senator Wagner:—Are there not many that have not the means to pay for that service?

Dr. Robb:—Yes, but in Detroit I know and in the state of Michigan we have a number of organizations that take care of them entirely free and have always done so, so I do not believe that that is much of a factor if at least they will only know where to go.

Senator Thomas:—Doctor, I am assuming that you believe so much in health education programs that your association is supporting fully the general education bill now pending?

Dr. Robb:—I cannot tell you that.

Senator Wagner:—You would not oppose it just because it was a federal activity instead of a state activity?

Dr. Robb:—Not unless the people at home who I feel know all of the needs vote for it.

Senator Wagner:—Are you opposed to this bill?

Dr. Robb:—I do not know the bill, Senator.

Senator Murray:—Your theory is that the health education program would contribute largely to overcoming the conditions that are sought to be remedied by this bill?

Dr. Robb:—I believe it will overcome a great deal of it if we can advise the people where to go for that service.

Senator Taft:—Your experience shows that a state can do it without federal aid if they go out and do it.

Dr. Robb:—It has been done pretty generally in the state of Michigan and we have quite a big state.

Senator Wagner:—Haven't you any aid from the federal health service at all?

Dr. Robb:—I believe that we have gotten some; I cannot state how much.

Senator Wagner:—How about maternity and child care?

Dr. Robb:—I am not able to answer that phase of it.

Senator Murray:—Your knowledge of the conditions pertains particularly to the big industrial centers?

Dr. Robb:—Yes, sir.

Senator Murray:—Not so much to the rural sections?

Dr. Robb:—I have been president of the state society and president of the local society. I covered the state of Michigan pretty thoroughly for a period of two years when I was president, and I am in contact with that, so that at least at that time I was and have been to some extent and since, and I believe that Michigan has made a good stand in the handling of its problems and they have been difficult ones.

Senator Thomas:—Your program has been in existence since 1921?

Dr. Robb:—Yes, sir, eighteen years.

Senator Thomas:—What states preceded you in such a program?

Dr. Robb:—I don't know of any one.

Senator Thomas:—You do not?

Dr. Robb:—There are twenty-five other states at present doing some type of health education and postgraduate health education.

Senator Thomas:—You are familiar with the interdepartmental social hygiene work right after the war, are you not, Doctor?

Dr. Robb:—I know the name; I do not know its activities.

Senator Thomas:—That was a federal aid project. Would you favor it?

Dr. Robb:—Do you mean in Detroit?

Senator Thomas:—No, in the country.

Dr. Robb:—So far as education is concerned?

Senator Thomas:—So far as health education of a certain type is concerned.

Dr. Robb:—I cannot answer that.

Senator Thomas:—Did it ever force any of its money on a state against its will, do you know?

Dr. Robb:—Not that I know of.

Senator Wagner:—Are you familiar with the experiments going on in Detroit that I have been informed about of treating tuberculous cases?

Dr. Robb:—I know something of their program.

Senator Wagner:—It has been successful up there, hasn't it?

Dr. Robb:—Yes, it has, and it has been a cooperation on the part of the physicians of the local community.

Senator Wagner:—Yes; we want that cooperation, too.

STATEMENT OF DR. WINGATE M. JOHNSON

Dr. Cary:—Mr. Chairman, the next subject which we wish to bring before you we have divided into two parts, thinking that we could cover it better that way. I present Dr. Wingate M. Johnson of Winston-Salem, N. C., a general practitioner from North Carolina.

Dr. Wingate M. Johnson, Winston-Salem, N. C., former president, North Carolina State Medical Society:—Mr. Chair-

man and Members of the Committee: The Wagner bill provides for the appropriation by the federal government, within the next three years, of $158,000,000 "to construct and improve needed" general hospitals in the United States, besides an unlimited amount for hospitals for tuberculosis and mental disease. The bill also requires the states involved to spend approximately an equal amount. Before authorizing such a huge appropriation, the custodians of the people's tax money will, of course, want to be sure that it is needed.

According to the latest statistics available—for 1938—there were 6,166 registered hospitals in the United States, with approximately 1,200,000 beds. Of these beds a daily average of 195,674 were empty. The number of hospital beds occupied for the United States as a whole was 68.9 per cent, varying from 53.6 per cent in Mississippi to 73.3 per cent in Michigan. Furthermore, the proportion of empty beds for 1938 showed a definite increase over 1937.

From 1927 to 1938, while the population of the country was increasing only 8.9 per cent, the number of registered hospital beds increased by 36.1 per cent. The ratio of beds to population increased from 2.9 per cent to 3.3 per cent. During 1938 the growth in registered hospitals added 101 beds for every day in the year, including Sundays and holidays. Before spending the taxpayers' hard-earned money for the wholesale building of new hospitals, would it not be well to wait until we are utilizing those we have? In deciding the question we should remember that the population of our country is rapidly coming to a stationary figure. From early colonial times to 1860, every decade showed an increase in population of more than 30 per cent. In 1860, however, the curve of growth began steadily to flatten. For the decade ending in 1940 we may expect only 7 per cent increase.

Another fact to consider, before we launch on a program for erecting additional tuberculosis hospitals, is that the number of tuberculous patients in the United States is rapidly decreasing. In 1904 there were 280 deaths from the Great White Plague per hundred thousand; in 1937 there were fifty-six—exactly one fifth as many.

It is true that the amount of mental illness in the United States is increasing; but even so hospitals for nervous and mental diseases had 29,485 empty beds in 1938, as compared with 23,710 in 1937. This increase could be explained by two principal reasons: First, these hospitals have grown in number and in capacity far more rapidly than have the general hospitals; second, the dramatic results of insulin and metrazol therapy in dementia praecox and of fever therapy for paresis have shortened the hospital stay of numerous patients.

Likewise in our general hospitals the stay of the average patient is steadily being shortened. Many prolonged diseases such as typhoid fever and dysentery have been virtually exterminated. The acute respiratory diseases which have largely replaced them are of shorter duration. Furthermore, modern medical science has found ways to shorten the duration of many diseases other than mental; for example, serum, x-rays or sulfapyridine for pneumonia. Recent surgical advances have shortened the postoperative periods of many conditions.

The argument oftenest heard is that, while the thickly settled states have ample hospital facilities, those with a high ratio of rural or small town population are really suffering. Last July, during the National Health Conference, a radio program entitled "The Fight Against Death" was broadcast over the NBC network. According to the station announcer it was presented by the United States Public Health Service and the Department of Interior Office of Education. In melodramatic form it told the story of a man slowly dying of cancer. He had "had every doctor in the country," but not one had diagnosed his ailment. Just before the end he was carried in a hearse to a hospital 300 miles away, where the great diagnostician who saw him there had to tell his wife that the poor fellow must die in a few hours of cancer. The play ended with a Voice—presumably from the clouds—saying "Jim need not have died had there been in his state a cancer center where he might have gone for good care."

This cruelly unjust broadcast left the impression on the public that the average doctor is not competent to recognize cancer, that there must be a specially equipped diagnostic center for this purpose, and that hospitals are widely scattered. On the contrary, a recent survey of the American Medical Association showed that less than 2 per cent of the population are more than 30 miles from a registered hospital; and 30 miles on modern hard surface roads now means less than did a mile of dirt road in horse and buggy days.

The consummation so devoutly to be wished, of bringing hospital facilities within the reach of the low income groups, will not be reached by building more hospitals than we need. Rather, to do so would make for greater hospitalization cost. To withdraw some of the patronage from hospitals now in operation would necessarily add to the administrative cost per patient. Again, the expense of building, equipping and maintaining new hospitals would have to be borne by somebody. Instead of using tax money to build superfluous new hospitals, why not use it to pay for the necessary hospitalization of the medically indigent?

Within the past several years, millions of American people have enrolled in voluntary hospital insurance plans to assure themselves of hospital care in time of need. Have those who drafted this proposed legislation considered the effect on their voluntary hospitalization plans that would inevitably follow this proposed bill to become a law? The Wagner health bill makes no promises for safeguarding or encouraging voluntary associations that have long been operating to the benefit of millions of workers in the United States. These voluntary organizations and mutual associations represent a commendable effort on the part of their members to make provisions for assistance to their own members for the use of funds and in many instances maintenance of their own hospitals without the use of governmental funds.

Senator Wagner:—You feel then that there is no need for the development of any new hospitals, that if money is to be expended it should be expended in the way of making it possible for indigent people suffering from disease to be able to avail themselves of the opportunities that are now existing?

Dr. Johnson:—Yes.

Senator Taft:—What is the situation in North Carolina? Is there an ample supply of hospitals?

Dr. Johnson:—Yes, we are adequately supplied with hospitals for the most part.

Senator Murray:—Of course you recognize that in some sections of the country that is not always true?

Dr. Johnson:—It is true that in some of our counties there are no hospitals, but they are within reach of hard surface roads.

Senator Murray:—For instance, in my city of Butte we have hundreds of tuberculous or silicotic patients that were unable to have access to the only institution in the state that undertook to care for that. They were dying on the street as the result of not having adequate hospitalization. That probably is true in a great many sections of the country.

Senator Ellender:—Dr. Johnson, how many hospitals have you in the state of North Carolina that are entirely dependent on or entirely maintained by the state?

Dr. Johnson:—That are entirely maintained by the state?

Senator Ellender:—Yes.

Dr. Johnson:—Two for tuberculosis, two for mental diseases—

Senator Ellender (interposing):—I meant general hospitals.

Dr. Johnson:—We have no general hospitals maintained by the state. We have a number maintained by the towns.

Senator Ellender:—How many have you by counties that are maintained out of public funds?

Dr. Johnson:—We have few if any general hospitals maintained by public funds.

Senator Ellender:—You stated on page 3 of your statement that, instead of using money to build hospitals, the money ought to be used to care of indigents. Just how would you do that, Doctor?

Dr. Johnson:—Certainly, I think that so far as it can be done it should be done by each community as the need arises.

Senator Ellender:—Out of funds raised how?

Dr. Johnson:—Out of funds raised in the local communities.

Senator Ellender:—You would not want the government in any wise to help?

Dr. Johnson:—I think in exceptional instances it might be that way.

Senator Taft:—Would it be part of the general relief program?

Dr. Johnson:—Yes, sir, it would be part of the general relief program.

Senator Taft:—And in which the states of the nation might participate according to the size of the state?

Dr. Johnson:—Yes.

Senator Ellender:—Would you want the presently existing hospitals, that is the private hospitals, paid by some governmental agency whether it be local, state or national, paid the expenses of the inmates who come there for attention?

Dr. Johnson:—Yes, I think that would be far preferable to building federal hospitals and in competition with these private institutions.

Senator Ellender:—Would you know what the cost per person would be, about, in North Carolina?

Dr. Johnson:—Approximately $4 a day; $3.50 to $4 a day.

Senator Ellender:—What service does that include other than the hospital room?

Dr. Johnson:—It includes the hospital room, the general nursing care, the board and the simple medicines.

Senator Ellender:—It would not include medical care?

Dr. Johnson:—It would not include medical care, no, sir.

Senator Wagner:—Doctor, I was interested in your answer that the medical cases in the state ought to be treated just as relief was treated. Is that your idea?

Dr. Johnson:—The indigent medical cases?

Senator Wagner:—Yes.

Dr. Johnson:—Yes.

Senator Wagner:—Just as you provide relief?

Dr. Johnson:—Yes.

Senator Wagner:—Do you mean by the state or the federal government or how?

Dr. Johnson:—By the state if possible. In our state I think we are capable of taking care of our own.

Senator Wagner:—Not by the federal government?

Dr. Johnson:—No.

Senator Thomas:—Do you think your state is able to take care of all the relief in North Carolina?

Dr. Johnson:—Our state pays about five times in federal taxes what it gets back in relief funds.

Senator Murray:—It pays it indirectly though, doesn't it? It is collected from the people out in Montana where I live and people all over the country—

Dr. Johnson (interposing):—Yes, that smoke cigarets.

Senator Ellender:—Out of my state, too. And also in New York, isn't that so, Senator Wagner?

Senator Wagner:—Yes. Then you do need some federal funds for relief, don't you?

Dr. Johnson:—In some sections of the state.

Senator Thomas:—How else would you equalize your returns from federal taxation if you did not get something from the federal government?

Dr. Johnson:—Our people are human enough to take federal money if they can get it, of course.

Senator Thomas:—Are you in favor of cutting out all federal relief from the people of North Carolina, who, you say, pay more taxes than they get from those benefits?

Dr. Johnson:—Not so long as we have to pay those taxes.

Senator Thomas:—Then why do you say that you are in favor of everything coming right from the local community?

Dr. Johnson:—Because the local communities feel the need most and know best how to cope with it.

Senator Taft:—You mean that the primary responsibility is that of the local community, and if they have not got enough resources they can get the money from the state or the federal government if necessary?

Dr. Johnson:—That is the idea.

Senator Murray:—What happens in your state when you have a surgical case where an injured person needs an operation and there is no state or local provision for taking care of those cases?

Dr. Johnson:—In most parts of the state there is.

Senator Murray:—In most parts of the state?

Dr. Johnson:—Yes. I don't know any parts of the state where a patient could not have a necessary operation whether he is able to pay for it or not.

Senator Murray:—Is it not true that frequently people are taken to a hospital and won't be given admission unless the costs are guaranteed in advance, friends have to hustle around the city to secure promises or pledges to take care of the case before it will be accepted?

Dr. Johnson:—That may be true in a few strictly private hospitals.

Senator Murray:—You know of a great many instances of that kind, do you not? You have heard of a great many instances of that kind where an operation was going to cost $250 and the people are absolutely poverty stricken and have no means, and they have to get somebody to come in and agree to pay that money if they are going to be taken care of?

Dr. Johnson:—In thirty years of practice I have not known of one single instance like that to happen in my observation.

Senator Ellender:—What part of North Carolina do you live in?

Dr. Johnson:—Winston-Salem.

Senator Ellender:—That is the tobacco center. You have no poverty there?

Dr. Johnson:—While it is the wealthiest town of the state, the wealth is in the hands of a comparatively few. We have more poor people and more rich people than any other town in the state, but we take care of our poor people.

Senator Ellender:—Do you have a municipally owned hospital there?

Dr. Johnson:—Yes.

Senator Ellender:—Oh, that is the reason. How much does the municipality spend per year to take care of that community?

Dr. Johnson:—I think it will average between $15,000 and $20,000.

Senator Ellender:—How many other cities or counties in your state are there that do have publicly owned hospitals of that kind where they can give service to these indigent people?

Dr. Johnson:—There are quite a number; I could not answer offhand.

Senator Taft:—Is it not true that, as in most states, where there is no publicly owned hospitals there is an appropriation to take care of indigent patients in privately owned hospitals?

Dr. Johnson:—Yes. For instance, in our hospital we take care of a great many patients from adjoining counties which have no hospitals.

Senator Ellender:—Do you know about how much money the state of North Carolina appropriates for that purpose?

Dr. Johnson:—No, I do not.

STATEMENT OF DR. R. LLOYD SENSENICH

Dr. Cary:—Mr. Chairman, I present Dr. Sensenich of South Bend, Ind.

Dr. R. L. Sensenich, South Bend, Ind., member of the Board of Trustees of the American Medical Association:—Mr. Chairman and Gentlemen of the Committee: I should like if I may to submit the material for the record which I have prepared. To save your time, may I briefly touch the high spots?

Senator Murray:—Your statement as prepared will be copied in the record.

Dr. Sensenich:—The American Medical Association in its House of Delegates in session in Chicago in September 1938 took action indicating its approval of the expansion of general hospital facilities where need exists. In fact, the American Medical Association has never opposed and has always encouraged the establishment of hospital facilities of acceptable standards wherever such facilities were needed.

Approval could likewise be given to the purpose of the Wagner Health Bill to the degree that its purpose would be directed to the provision of "needed hospital facilities," as the term hospital is defined in common usage, in areas suffering from severe economic distress, and in rural areas needing hospitals which cannot otherwise be provided. However, examination reveals that, in its provisions, old terms are to be defined with newly designed meanings. The indications of "need" are to be loosely interpreted, tried practices are to be infiltrated with new agencies and undefined working agreements, and federal control is to be obtained through gifts of money derived from taxes. Such methods and the suggestion of undisclosed objectives make approval impossible.

It must be pointed out that "hospital facilities," as used in the action of the House of Delegates, applies to hospital buildings, equipment, nursing staff and necessary personnel, to be available for the treatment of the sick of a given community by qualified physicians who reside and practice in that community. The action of the Delegates did not endorse federal governmental domination of local communities through subsidies obtained from taxes, as to the establishment, policy or management of hospitals for local patients in their respective communities. It should also be clear that the action of the Delegates did not approve of burdensome taxing programs for support of new undefined types of institutions and it did not approve of centralized, bureaucratic control of the medical care of the people by governmental agencies.

The House of Delegates of the American Medical Association on May 17, 1939, took action opposing the Wagner Health Bill (S. 1620) and pointed out certain principles on which it based its opposition. The report of that action is already in your hands.

No formula is proposed in this bill by which needs for increase in hospital facilities shall be determined. "Where need exists" must be recognized as a proper restriction, requiring consideration of scientific and practical factors as well as theoretical and economic indications. It is self evident that the population of a community and average occurrence of types of illness requiring hospital care determine the need for beds. However, hospitals and special equipment for diagnosis and treatment are useless tools without trained physicians. On the other hand, a physician trained in a specialty in medicine would not long retain his skill or usefulness as a specialist in major surgery, diagnostic procedures or other special treatment if diseases requiring such care occur only infrequently in that community. Special hospital equipment does not alter that situation.

The permanence of the hospital project from the standpoint of probable future "needs" and sources of income of the population in relation to existing or proposed facilities is of the great-

est importance. It is self evident that the local community for which the hospital facility is planned and which must later support it should have a major voice in determining its own need and the manner in which it shall be met. The opinions of well informed local citizens concerning needs and maintenance should be given consideration, and general hearings should be held in which citizens may be heard before hospital construction is determined on. This bill makes no provision for such safeguards.

Turning to the report of the Technical Committee on Medical Care to the Interdepartmental Committee to Coordinate Health and Welfare Activities as a probable source of material from which the estimates of needs for hospital facilities used in the preparation of this bill may have been obtained, we find the statement that 1,338 counties of the United States do not contain a registered general hospital. These counties are said to contain about seventeen million people. Although the report admits that many of these counties are not populous, the implication carried is that this number of people are without needed hospital facilities. Without questioning the need of hospitals in some of these 1,338 counties a closer study of the distribution of hospitals reveals that the use of the boundaries of counties as a basis of determining availability of needed hospital facilities is misleading. For example, in the state of Illinois there are twenty-six counties without hospitals, but there is no part of any one of these counties which is not within easy reach of hospitals in neighboring counties. Other studies indicate that there are relatively few population groups of sufficient numbers to justify the provision of hospital facilities who do not have such facilities of acceptable standards reasonable accessible. With good roads and modern transportation the very small hospital is subject to the same influences as have largely eliminated the little red schoolhouse and the small county tuberculosis camp. With the consolidation of these facilities into larger units has come greater elasticity in meeting varying demands, better equipped institutions, better trained personnel and better standards of medical care. Transportation distances are frequently little greater than those necessary in the larger cities, and the patient can be conveyed with less disturbance than in city traffic.

For the foregoing reasons it must be recognized that boundaries of governmental units cannot be used as a measure of hospital needs. Local conditions and distances must be studied in each instance. Likewise the population of a community alone is not a dependable guide to needed general hospital beds, and consideration must be given to varying conditions of housing and group social tendencies which are local in character.

The use of the 5.2 beds per thousand of population in the large city counties or 4.7 per thousand of population estimated in the metropolitan and adjacent areas in 25 per cent of the states as a formula for hospital needs to be applied to the rural areas is not warranted. Not every minor illness can be hospitalized, and the average rural resident, well housed, still prefers to be treated for his less serious illness in his home; whereas, in large cities people who live in small apartments, with other members of the family employed away from home, more frequently go to the hospital for even the slightest disability. Studies by the Council on Medical Education and Hospitals of the American Medical Association show incontrovertibly that many of those areas now having the smallest number of beds in proportion to the population have the largest percentage of empty beds.

The average duration of stay in hospital per patient has declined steadily for some time. As a result, existing hospitals may now care for a greater number of patients per year without increase in the number of beds. Since 1931 the average duration of a patient's stay in a general hospital has been reduced from 14.3 to 12.5 days. This represents a reduction of 12.5 per cent, or one eighth, in the time spent in the hospital. Such a decrease in the average stay obviously permits a larger number of patients to be cared for with the same physical facilities. If there had been no reduction in the length of stay of the average patient in general hospitals in 1938, 60,000 empty beds would have been filled. One cannot predict what further reductions may be made in the average duration of the patient's stay in the hospital, but progress in medical science continuously tends to shorten periods of hospitalization. Recent advances in the treatment of pneumonia and other infectious diseases should be reflected in a further reduction in the average hospital stay.

The bill authorized the appropriation in three successive years of 8, 50 and 100 million dollars respectively for the purpose of constructing and improving general hospitals. Under sections 1202, 1203 and 1204, financial participation by the states is required. The extent of this participation will probably vary from state to state, but assuming that on the whole the contributions of the federal government will be on a fifty-fifty basis [1] there will be available for the construction and improvement of government-owned general hospitals, in the fiscal year ending June 30, 1940, $16,000,000, in 1941, $100,000,000, and in 1942, $200,000,000. Taking $4,000 [2] as the average cost per bed of general hospitals, it would seem that this bill makes provision for the addition of 4,000 general hospital beds in 1940, 25,000 general hospital beds in 1941 and 50,000 general hospital beds in 1942. The 79,000 beds which may be added under the provisions of this bill relate only to government-owned hospitals and do not include such enterprises, public or private, as may be undertaken without the stimulus of a federal subsidy. A recent study indicates that there are now 349 hospitals under construction or projected, without federal subsidy.

From the chart it will be seen that over the eleven year period 1928-1938 inclusive the average rate of increase in the number of beds in general hospitals was 1.9 per cent. The increases proposed in the Wagner bill amount to a total of 79,000 beds, 16.2 per cent in three years, or an average rate of increase of 5.4 per cent.

In 1938 the general hospitals of the country were filled to 68.9 per cent of their capacity; 31.1 per cent of the beds were unused.

If the addition of hospital beds alone is proposed, the wisdom of a threefold multiplication of the normal rate of hospital facilities should be seriously questioned.

Tuberculosis hospitals differ from general hospitals in that, as tuberculosis is a transmissible disease, isolation and training of the patient for the safety of others is of importance. The course of the disease is chronic and periods of hospitalization are longer. However, progress in surgical treatment of tuberculosis has very greatly reduced the average period of needed hospital care. Institutions receiving only early cases have been able to reduce their average stay per patient from a year or more to a few months. Institutions for the treatment of tuberculosis are, as a consequence, able to care for more patients per year in proportion to the total number of beds than ever before. The shorter periods of hospitalization depend to a great extent on early recognition of the existence of tuberculosis and therefore early treatment. This is accomplished by education of the public and not primarily by the existence of hospitals. Tuberculosis hospitals are needed in some areas but hospitals without coordinated educational efforts are ineffective.

Small county institutions cannot readily provide facilities or medical men skilled in modern surgical treatment of tuberculosis. Later tendencies have been to the erection of larger institutions functioning as district hospitals although owned by large populous counties or by the states. Modern roads and transportation have removed all justification for the small local boarding-house type of tuberculosis hospital. The ratio of beds needed depends on local conditions and the educational possibilities of the community. The rapid reduction in the number of cases of tuberculosis has made any need of great hospital expansion in the major number of the states improbable. The per diem cost of maintenance is influenced by local conditions.

Hospitalization of mental patients presents requirements differing from those of the general hospital because of the factor of necessary custodial care of patients, the predominance of cases running a chronic course, and the high percentage of incurables. Admissions have increased but progress has been made in reducing the average period of hospitalization. Recent advances in treatment of some types of mental diseases may be reflected in still shorter periods of confinement to institutions.

Experimental studies are being made in caring for certain early cases of selected types of mental disorder, presumably curable, in general hospitals to avoid confinement to hospitals designated for the insane. Nothing should be done by governmental agencies to discourage these efforts.

A special survey by the American Medical Association reported in 1936 the overcrowded condition of existing institutions and stressed the need for expansion of facilities. However, there has been much building since then, and reports indicate nearly 6,000 more empty beds in mental hospitals in 1938 than in 1937. The per diem cost depends on local conditions and kind of cases treated.

Section 1202 of title XII of the bill provides that the allotment of funds shall be determined in accordance with rules and regulations prescribed by the Surgeon General of the Public Health Service with the approval of the Secretary of the Treasury. Consideration of (1) the needed additional hospitals, and (2) the financial resources is required. Time will be required for investigation after such regulations have been prescribed, in the event this bill should pass.

Studies made by the American Medical Association indicate that the need for additional hospital facilities has been greatly

1. National Health Conference, July 18, 19, 20, 1938, p. 39, line 21.
2. National Health Conference, p. 39, line 6. The Interdepartmental Committee uses $3,500 as the average cost per general hospital bed.

overestimated, the lack of medical care overcolored and the proposed expenditures extravagant. There is also much reason to doubt that reasonably proved needs could be found and any substantial portion of the proposed appropriations be wisely expended in the time proposed in this bill. A rapid widespread construction program without sufficient study would be inexcusable. Too great dislocation of normal production of special and technical hospital equipment should be avoided. A shortage of trained hospital personnel must be considered. The effect of introduction of central federal control of policies of purely local hospital facilities through control of subsidies might readily outweigh any benefits to be derived from contributions of federal funds.

It is not clear whether the government under this bill proposes to assume responsibility for an indefinite period for aid in the care of all tuberculous patients and those suffering from mental disease. However, if need for federal assistance in certain communities should be established, the per diem payments should be made on certification by properly constituted authority as to the number of patients treated who were eligible for treatment. Such reports would then be subject to examination and audit by the federal government. Major governmental machinery or federal domination of local administration is not justified.

Hospitals for treatment of the tuberculous have a record of outstanding achievement in assisting in the reduction of sickness and death from tuberculosis. They have associations which provide opportunity for interchange of information developed in scientific research and experience in management and operation of these special hospitals. It is improbable that they would feel the need of federal governmental interference in already well functioning institutions. This interference would be especially objectionable in that the federal agency would secure domination by acquiring control of funds now available to the institution from taxes. States financially sound and with adequate facilities would be forced to accept subsidies and federal domination in order to secure return of any part of the pooled federal funds to which they would be forced to contribute heavily in taxes.

Senator Ellender:—You do not find any language in this bill that would give the federal government that right that you have just mentioned, do you, Doctor?

Dr. Sensenich:—It is not a right, sir; I did not say it was a right. It is what the state would have to do to get any return on its taxes. There would be stimulation to the state from the standpoint of saying that you may have a subsidy if you match it with taxes.

Will you pardon me until I finish, and then ask me that? I do not mean to be discourteous, but I am sure that you understand and I think that what follows will answer that.

Senator Ellender:—That is all right; I understand perfectly.

Dr. Sensenich:—Control of management and personnel and domination of policies of existing institutions in this manner would be secured by capitalizing on the need of the few.

The required submission of plans by each local community which might seek to avail itself of the vague provisions of this bill leave much to the executive action of those who administer it. Therefore, the best interests of the public require proper qualifications by training and experience of those who would administer or advise in the provisions of this bill, having to do with the facilities for medical care.

It is not required in the bill that any executive concerned in the administration of the proposed act shall have had experience in these matters involved in the actual delivery of medical service. The Surgeon General of the Public Health Service, who is named as administrator, is primarily concerned along lines of general health service not directed to treatment of the individual. Although that official might be specially trained and an outstanding administrator of the Public Health Service, he may have had little contact with hospitals and no experience in the practice of curative medicine. Interest and experience along the lines contemplated in this bill might vary greatly between different incumbents of that office.

The Surgeon General of the Public Health Service is authorized in the bill to establish an advisory council or councils. No statement is made as to the manner of selection of the members of this group. The bill likewise fails to invest this body with any authority or indicate that its recommendations need be considered by the Surgeon General in the administration of the act. Depending on the qualifications of its members, such a group might be helpful to the Surgeon General by the contribution of information based on experience or it might be organized and used for the purpose of overcoming resistance to plans believed by the medical profession to be detrimental to standards of work and the best interests of the public.

State plans on which allotments are to be made by the Surgeon General of the Public Health Service are required to provide for "state agencies" of vague description but with authority to make and publish rules and regulations, which have the effect of law. They are to be advised by advisory councils of uncertain qualifications and influence. Through working agreements with agencies concerned with welfare, assistance, social insurance, workmen's compensation, labor, industrial hygiene, education or medical care, governmental control may extend into the most intimate personal matters of labor, welfare and medical care of each individual.

It would seem unlikely that a surgeon general of the Public Health Service would wish to have the responsibility for the administration of such an indefinite and all inclusive act; at any rate, the enactment of such a law would be contrary to public policy.

The federal government should have no part in the program of any needed expansion of hospital facilities other than that any allotment of funds should be honestly expended in the erection of the hospital facilities according to local and state plans previously agreed on. Federal payments in maintenance where needed should be made on certification by a legally constituted authority that service has been provided for certain individuals eligible for such treatment. The government should have the right to make necessary examinations and audits to determine the correctness of those accounts. However, the federal government should have no authority to dominate the policies or personnel of the hospitals or to make working agreements binding the community directly or indirectly in the operation of its hospitals. No extensive plan is needed.

From the definition of the term hospital as used in the title, "includes health, diagnostic and treatment centers, institutions and related facilities," it is evident that more is contemplated under the proposed legislation than is ordinarily included under the term of hospitals. Otherwise there would be no reason for introducing this vague and all inclusive definition. It is noted that the Technical Committee in its report proposed the construction of 500 health and diagnostic clinics in areas in which the individual does not have convenient access to hospitals.

A plan for the establishment of clinics for the diagnosis and treatment of ambulant patients in areas already supplied with physicians should be weighed carefully from the standpoint of the ultimate best medical service to the community as a whole. If the clinic contemplated would encourage the patient to present himself directly to the clinic for examination and treatment, it would not offer anything superior to dispensary service. The latter type of service lacks needed medical history of other illnesses and treatment, and opportunity for observation. This tends to detachment of interest, and the responsibility of the medical staff member to the patient is soon replaced by responsibility only to the system which employs him. There is reason to believe that the service would not be superior to that offered by physicians in the community.

Such a clinic is an outgrowth of the view entertained by some that Medicine can be "depersonalized"—that the physical man can be treated without intimate knowledge as to his emotional stresses and the effects of his contact with his environment.

The establishment of clinics for treatment of ambulant patients only assumes further that the individual may have one physician for illnesses in which he is ambulant and another when he is confined, without loss of values which are of importance in the best medical service. Obviously these are faulty assumptions.

It must be recognized that the private physician will still be necessary to attend patients who are not able to go to the clinic. The well trained private physician, with a closer and more personalized service to the individual and his family in their home, will give good medical service to more people. He should be given every opportunity and assistance to increase his usefulness, and governmental machinery should not be permitted to impair it. The operation of large diagnostic and treatment clinics recently established in very populous centers of impoverished people cannot be fully evaluated on so brief experience. Obviously, it cannot be translated into terms of small rural areas.

If the establishment of new types of institutions is contemplated, this should be omitted from the proposed effort to improve hospitalization facilities. Such plans should be left for consideration after time for a longer observation of existing units and of study of needs, if any remain, after needed expansion of hospital facilities has been accomplished.

The government may enter directly into the medical care of the individual under the provision for "working agreements"

between the state health agency and "any public agency" administering related services "including welfare, assistance, social insurance, workmen's compensation, labor, industrial hygiene, education or medical care," as provided in paragraph 9 of section 1203. Studies and demonstrations of undefined character are provided for under section 1208 of this title. It is clear that this bill, which permits control of the medical care of the individual by undefined governmental agencies given authority to impose regulations and enforce compliance by control of tax funds, is not in the best interests of the public and should not be enacted.

The bill specifies that funds will be allotted only to provide hospital facilities to be owned by the state or its political subdivisions. This provision might destroy many existing church hospitals, community general hospitals and other hospitals which have given us the best hospital service in the world.

Emphasis was placed by the House of Delegates in the meeting of September 1938 on the following: "The hospital situation would indicate that there is at present greater need for the use of existing hospital facilities than for additional hospitals." It was further suggested that "the stability and efficiency of many existing church and voluntary hospitals could be assured by the payment to them of the costs of the necessary hospitalization of the medically indigent."

Existing hospitals, in some instances as old as the nation, have not only provided facilities of the highest standard but in many instances have carried an excessive load of indigent patients, this because governmental agencies have not accepted proper responsibility and have not assumed the financial support of those individuals for whom there was no other provision.

Many of these hospitals, if paid adequately for indigent care by relief authorities, could have given greater service to the community with possible increased occupancy of now vacant beds.

No provision is made in the bill under consideration whereby any nongovernmental charitable hospital could be given aid in making improvements or extensions of present hospital facilities.

It must be recognized that hospitals, like other institutions, can operate at a maximum effectiveness and minimum per diem costs at a certain optimal bed capacity. Many smaller hospitals could be stabilized and improved in point of service if they were assisted financially in caring for indigents. They might then apply their resources to enlargement to an optimal size, provided prospective occupancy warrants.

Duplication of existing institutions by new government hospitals, each with its investment for heating plants and other utilities when one installation would suffice, duplication of buildings for housing personnel, administrative offices and public space, duplication of costs throughout, when only a limited expansion of bed capacity may be required to meet community needs, is not sound economic practice. Yet that is the situation that this bill may create.

It has not been proved that government owned hospitals have had better management or provided better service than other hospitals. In fact, there is much reason to believe that, in the main, church owned hospitals and community hospitals have provided better management, higher standards and more satisfactory service than government owned hospitals.

Community hospitals belong to the public in point of service and in actual ownership, as do government owned hospitals, but have the advantage of altruistic interest and direction by the best citizenship, continuity of policy, and freedom from political interference. Church owned hospitals belong to the people in point of service if not in actual ownership. They are created and maintained on the basis of gifts from public spirited citizens and thousands of small contributors and are the expression of the interest and support of the public. Community hospitals and church hospitals constitute the major portion of the total number of hospitals of the United States and represent an investment of billions of dollars made before the government became interested to any great extent in the hospital care of the sick. They should not be sacrificed to permit the disservice to the public proposed in this bill.

However, church owned or community hospitals with long histories of medical work of high standard and recognized public service would not accept the federal domination evidence in the provisions of the Wagner Health Bill. Present high standards of hospital administration and scientific care have been attained by mutual cooperation with the organized medical profession and acceptance of high ideals and not by government assistance, regulation or example. Acceptance of the provisions of this bill would make present high standards and grading subservient to government regulation. A record of high grade performance in the past is more dependable assurance of high grade service in the future under the continued mutual efforts of religious organizations and interested unselfish local residents and the medical profession than any pattern which the government will provide. The lively, unselfish interest of local citizens is assurance of a better merit system than policies and management imposed by a distant federal administration or by partisan politics.

Despite the history of outstanding public service of community and church owned hospitals, it is indisputable that the administration of this proposed act might make it impossible for these hospitals to finance improvements or expansion because an allotment from public funds may be offered to the local community only on condition that a new government institution be built. Government contribution toward maintenance would make such new institutions destructive competitors against older hospitals of high standards, such as have helped to make the hospital pattern of the United States the envy of the rest of the world.

It would seem to be a strange concept of the function of government to stimulate states to submit plans detrimental to community institutions of the highest standards and of the most unselfish service in order that the state might receive a partial return of heavy and burdensome federal taxes which had been accumulated in a federal pool. Under this bill each state would be encouraged to prepare plans and levy additional local taxes in order that it might participate in the pool and prevent distribution to other states of funds which it is annually forced to contribute in federal taxes. Acceptance of federal domination accompanies acceptance of federal subsidies. For this reason as well as others previously stated the Wagner Health Bill S. 1620 is not in the best interests of the public and is opposed.

Senator Ellender:—Doctor, with reference to the question that I propounded to you a while ago, you fear that, because the federal government will let certain communities have money under this bill, eventually the government might dominate them. That is the language used?

Dr. Sensenich:—Senator, may I read to you from the bill?

Senator Ellender:—That is what I wanted you to point out to the committee. I would like you to point out any language in this bill to show that the federal government would be in charge of the health service, let us say, the hospital services in the states.

Dr. Sensenich:—May I refer to section 1203-A on page 27, beginning with:

A state plan to effectuate the purposes of this title, submitted in respect to either clause (1) or clause (2) of section 1201, both shall (1) provide for financial participation by the state; (2) provide for the administration of the plan by the state health agency or for the supervision by the state agency of any part of the plan administered by another state agency or by a political subdivision of the state.

And then, without taking the time to read it out loud, on the opposite page provides such methods of administration as are

found by the Surgeon General of the Public Health Service to be necessary for the efficient operation of the plan, including: Methods relating to the establishment and maintenance of personnel standards on a merit basis; and methods of establishing and maintaining standards for institutional management and remuneration for such management, such methods to be prescribed by the state agency after consultation with such professional advisory committees as the state agency may establish.

Now, this is outside of hospitals. This is the state agency. No one locally there is consulted.

Then further on the same page it is provided:

(6) Provide a system of financial support which will give reasonable assurance of continuing maintenance of added hospitals and of their potential availability to all groups of the population in the designated area subject only to the suitability of the hospitals for particular diseases and conditions and to the financial arrangements for payment for service.

Senator Ellender:—All of that refers to what a state must do in order to obtain the funds?

Dr. Sensenich:—That is right.

Senator Ellender:—But what I had in mind was, after the funds were given, and after the hospitals are built, shall be some language there that would lead you to believe that these hospitals will be managed by the federal government and the states shall lose control?

Dr. Sensenich:—The federal government then maintains the facilities on a partial basis for three years; all of it the first year, two thirds the second year and one third the third year. Each time these budgets have to be approved—if you will turn to the latter part of the bill you will find under section 1205 on page 32:

Whenever the Surgeon General of the Public Health Service finds, after reasonable notice and opportunity for hearing to the state agency administrating or supervising the administration of any state plan approved under this title, that in the effectuation or administration of such plan their failure to comply substantially with any requirement of subsection 1203, he shall notify such state agency that further payments will not be made to the state until he is satisfied that there is no longer any such failure to comply. Until he is so satisfied he shall make no further certification to the Secretary of the Treasury with respect to such state.

Senator Ellender:—That is correct. In other words, the bill lays down what ought to be done.

Dr. Sensenich:—What must be done.

Senator Ellender:—What must be done if you want to put it that way. The same principle applies to our road building; the government furnishes a couple of hundred million dollars to the states each year; all they do is to give plans and specifications.

Dr. Sensenich:—That is right.

Senator Ellender:—as to how the roads shall be built.

Dr. Sensenich:—That is right.

Senator Ellender:—And that is all. And what the government is interested in is that the money is spent according to the aspects laid down by the plans and specifications.

Dr. Sensenich:—Why don't you do the same thing to the hospitals then, if they are built according to the plans and specifications, then you discontinue?

Senator Ellender:—That is what this bill intends to do.

Dr. Sensenich:—I don't think it does.

Senator Ellender:—I refer you to page 7 of your statement in which you criticize the bill in this wise. You say:

> The Surgeon General of the Public Health Service is authorized in the bill to establish an advisory council or councils.

No mention is made as to the manner of selection of the members of this group. The bill likewise says to "invest this body with any authority or indicate that its recommendations need be considered by the Surgeon General in the administration of the act." Now, if we were to adopt your method, we might have government control and that is why the authors of this bill have refrained from giving such authority as you propose to give.

Dr. Sensenich:—I am sorry that I did not make it clear, because I am opposed to this for the simple reason that I do not think that setup is responsible as it is. I do not think that the government should take part in it except to see that its money is well expended. It should not be interested in the operation.

Senator Ellender:—That is exactly what I am sure most of the members of this committee are interested in. Under no conditions would I vote if I thought the federal government could go down into Louisiana, Mississippi or New York and take charge of the hospitals of that state because forsooth they gave a few dollars toward their upkeep—

Dr. Sensenich (interposing):—But that is in the bill, Senator.

Senator Ellender:—If it is I want to strike it out. I would like to have the American Medical Association take this bill and point out every part of it that will lead to that conclusion. If it is in, we want to strike it out and amend it so as to make it doubly sure that under no conditions will the federal government take possession or even have anything to do with the hospital except to see that certain plans and specifications that are made are carried out in order to get the money.

Dr. Sensenich:—Senator, two of the hospital associations, and I am saying this as it was given me not in confidence but in discussion, have already reviewed the bill independently, and they finally abandoned amending it, as I understand for the reason that they each compiled a list of about fifty amendments.

Senator Wagner:—I understood the hospital associations were going to appear here and favor this legislation. I do not think you should say that to the committee unless you are ready to give the names.

Senator Taft:—I understand they have various amendments; that is all the doctor says.

Dr. Sensenich:—That is all they say. That was in answer to your question in an effort to know whether the bill could be amended.

Senator Ellender:—Certainly it is open to amendment, and that is what I suggested as a member of this committee to Dr. Booth when he appeared here several weeks ago to work out a plan. We want to make it simple so that the federal government will not be able to dip down into our state and because they are giving this little ante, as it were, take charge. Now, let me ask you this: The federal government has been spending quite a lot of money through the Public Health Service?

Dr. Sensenich:—Yes.

Senator Ellender:—Have they taken charge in the states?

Dr. Sensenich:—That has to do with education. The Public Health Service has not done any treatment.

Senator Ellender:—But still they spend a lot of money in cooperation with all public servants in the states. For instance, they furnish some to Louisiana, to your state and to other states in order to carry on this education work which you say is being carried on.

Dr. Sensenich:—I know in many instances work is composed largely of work which does not strictly involve the individual. You may take educational work or leave it but, when you take control of the treatment, that is quite a serious matter.

Senator Ellender:—Do you know of any instances where the state health officer is under federal control?

Dr. Sensenich: I would not say that that was a fair designation. I am not familiar with that because it comes down through the state health officer. Whether he is controlled or not, I do not know.

Senator Taft:—What occurs to me is that the Surgeon General has to approve the methods relating to the establishment and maintenance of personnel standards; he has to approve methods of establishing and maintaining standards for institutional management. It seems to me that those powers are so broad that they would have to be set out in rather general language, and then when he came to see whether the hospital was actually complying he would almost have power to tell the hospital what to do in every feature of management.

Dr. Sensenich:—That is true.

Senator Taft:—It seems to me that your criticism of the language on page 28 as being too broad certainly is justified. It could be made very much more definite and less broad, I should think, without changing the fundamentals of the bill.

Senator Ellender:—Those were the suggestions, Senator Taft, that I was asking for, and if there is any doubt about that, if any language can be placed into this bill to make it certain that the federal government—it was not intended that the federal government should do that. I for one would not vote for a bill that did not have it specifically placed in there that they should not have any such control.

Senator Wagner:—Doctor, I agree with what has been said here that nothing ought to be in this bill and I am sure that nothing is in this bill that in any way controls the administration of these hospitals. But the provision that is referred to here—let me ask you in the first place if the federal government grants money for a specific purpose don't you think it ought to have some sort of standards to make sure that the money is not diverted for some other purpose but that it is to be used for the purposes for which it was granted?

Dr. Sensenich:—That was the point that I made, Senator Wagner, that, after all, the government should be interested in knowing that the money that it gave was expended in the manner agreed on and for which it was received.

Senator Wagner:—Yes.

Dr. Sensenich:—But the maintenance and the installation are two quite different things.

Senator Wagner:—Let us develop that for a moment. You do agree that there ought to be some sort of standards set by the federal government to see that the money is expended for the purposes for which it is given?

Dr. Sensenich:—In construction, Senator Wagner, but I would stop at that. I would trust the maintenance of the hospital to the Sisters of the Holy Cross or any one of a thousand local citizens as well as to some distant governmental director.

Senator Wagner:—Are you a believer in the civil service system?

Dr. Sensenich:—Again I will have to decline that.

Senator Wagner:—I am not talking about the appointment of a doctor, but generally speaking.

Dr. Sensenich:—You mean examination for fitness for a place?

Senator Wagner:—Yes.

Senator Ellender:—The merit system.

Senator Wagner: Don't you believe that the federal government believes that there ought to be a merit system that they should at least say that if you are going to administer our money, that those in the state should at least be appointed according to merit and not politics?

Dr. Sensenich:—Certainly according to merit, but may I finish my answer?

Senator Wagner:—Yes.

Dr. Sensenich:—But after all, I should rather depend on the local community in establishing and in effecting a better merit system than a federal administrator.

Senator Murray:—Should not the local community be bound by some standards? Could we not set up standards that apply to the whole country which might be followed throughout the country?

Dr. Sensenich:—I do not believe that that would be possible, for any human agency in one central portion of the United States to lay down a pattern that would be applicable to all of the districts in the United States.

Senator Murray:—Is that not what the hospital associations do, seek to improve the service of the hospitals and to aid them in establishing high standards of operation?

Dr. Sensenich:—Mutually, yes, but that does not mean that they say that this is a fixed pattern for every part of the country.

One community has vastly different social ideas, has vastly different things that do enter into it.

Senator Wagner:—This is not socializing; it is a question of having fit persons to administer the funds. This is not new at all. And may I say to you, Doctor, that I certainly would never vote for a bill which did not provide some sort of standard that the money was not going to be squandered and that a lot of political appointees were going to administer these funds. So we have provided in every case where we have given grants to states some standards of this kind. I recall that, early in my days here in the Senate, we passed an act which was known as the Employment Exchange Bill. Every state now takes advantage of that. It is a coordinated system between the state and the federal government in which the state operates exclusively its employment exchanges and the federal government matches up to a certain sum, depending on the generosity of Congress the funds of the state for the administration of that state, and in return for that certain services are rendered to the federal government. In that law is a provision that the appointments are to be made according to the civil service standards, because what we wanted to be sure of was that in these localities some political fellows who had no test of competence are not placed in charge and the money wasted. It is perfectly proper, and Congress would not have passed that bill without those standards. They were developed in the committee hearings. You take the United States Housing Administration that only provides for loans. That was originated in this committee itself. We wanted to be sure that there would be no labor exploitation, and in that bill there were standards set up—and that was only a loan—and it says "You cannot get this loan if you do not pay the prevailing rate of wage." Under your theory you would say that is an interference with local administration, but we are simply setting standards that the federal money is not to be used for exploitation of people, and so we have set those standards, and you will find in every statute where there is this grant in aid, there are certain standards. Beyond that I challenge you to find a single case where the federal government interferes with the administration by the state. That is all that we want to do here, and beyond that there certainly is no intent here to give any control in the administration of the hospitals to the federal government, and if it is, I agree with the members of the committee who have expressed themselves on that subject.

Senator Ellender:—Senator Wagner, in connection with that statement, I suppose you will welcome amendments to clarify the language if clarification be needed in that regard?

Senator Wagner:—Absolutely. I have been saying right along, and I am surprised that there has not been more specific criticism, because at the last hearing Dr. Booth said to Senator Ellender that undoubtedly the medical association would be glad to cooperate and undoubtedly would have some amendments to propose, and now we hear criticism but no suggestions, and I, like any other member of the committee, would like to have suggestions of those who ought to guide us in this thing, and that is the medical profession.

Dr. Sensenich:—I am sure that the two of us have the same thing in mind when talking about fitness and proper operation, but one is dealing with a little different situation when dealing with a medical matter than one is with most others, and if one were to apply the same civil service examinations to the positions as managers of these hospitals, or even further, if the bill went further and went into the development of diagnostic clinics—I know in a general way what that pattern is—I don't know what the institutions are that are spoken of which might fall within the definitions of this bill; but it is perfectly possible for the man who writes the best examination paper in the world to be the poorest doctor that you or I or any one else wouldn't want to trust his life with.

Senator Wagner:—This does not mean that the federal authorities make up the examination lists.

Dr. Sensenich:—I understand, but it is the method I am talking about.

Senator Wagner:—A moment ago one of the other witnesses complained because it was not a man familiar with the medical profession that was doing this prescribing. Now, we have the Surgeon General of the Public Health Service, Dr. Parran. I don't know anybody more competent. Do you?

Dr. Sensenich:—I know Dr. Parran very well, and I have the greatest respect for him—

Senator Wagner (interposing):—Do you trust him on that?

Dr. Sensenich:—May I finish?

Senator Wagner:—Yes.

Dr. Sensenich:—I don't know any one I have more respect for as a public health officer, and I am discussing Dr. Parran in connection with this bill; but that is not that experience with hospitals or the care of the sick is necessarily for the assignment of the Surgeon General. Furthermore, you are speaking of a bill which is going to operate for some time.

Senator Wagner:—Have you a suggestion which will make it more practical?

Dr. Sensenich:—I have no experience in drafting bills.

Senator Wagner:—What is your idea?

Dr. Sensenich:—I would say that the American Medical Association made its suggestions which it presented this morning in the action taken by the House of Delegates at the St. Louis meeting that this elaborate machinery be not set up, that there is no need for it, that it be established on a need basis.

Senator Wagner:—How?

Dr. Sensenich:—Have some existing agency or create an agency or board of some kind or character to pass on the need and see that your money is well spent on the supplying of facilities where they are needed, and then let the local community take care of it, because it will do a better job than you or I at some distance from it.

Senator Ellender:—What are you going to do, Doctor, where the local community has not got the money?

Dr. Sensenich:—I said if the need exists, to build it, but to be satisfied to step out, and if the local community cannot maintain it and the state cannot maintain it, I don't know any other way that you can do except with federal funds. We are in sympathy with the objective; we have not opposed that but we object to the method because we think that it is not right.

Senator Ellender:—Would it improve the bill if we should write into it, let us say, that on this Professional Advisory Committee, that the medical profession of the state shall have the right or have some say so about the appointment of this board?

Dr. Sensenich:—There are still these broad constructions in the bill which—It would not be safe.

Senator Ellender:—I am talking about that particularly. I am talking about that particular phase of it. Let us see if we cannot get on some common ground as to that phase of it.

Dr. Sensenich:—I am sorry, but what particular phase do you mean?

Senator Ellender:—In preparing plans and specifications and things like that that you mentioned in this discussion.

Dr. Sensenich:—The need is the serious matter.

Senator Ellender:—The what?

Dr. Sensenich:—The determination of the need is the serious matter.

Senator Ellender:—Who is going to determine that? Who should have that authority, in that bill? Whom would you suggest as authority on that, let us say, in the state of Mississippi?

Dr. Sensenich:—The suggestion was that, if you have no existing agency here, you create an agency which would pass on the need, and that an appropriation be made the same as it is made in any other state in the event of need.

Senator Ellender:—If you do not want to deal with Mississippi, let us deal with your state. What kind of agency would you suggest in your state that should do the work?

Dr. Sensenich:—In the first place, there would need be no agency in my state unless it had need. That is the point.

Senator Ellender:—Let us assume that you are a rich state that gets a lot of your funds from poor Louisiana and poor Mississippi and poor Montana, and you are getting oil and sulfur and salt and everything that we have got down there. Let us just forget that you are from Indiana—that is your state?

Dr. Sensenich:—Yes, Indiana.

Senator Ellender:—And that you are living in Louisiana, a rich state, wherein we have a lot of oil and we have a lot of salt, we have a lot of natural resources, but unfortunately the profits that are derived from these natural resources are not available to the people of the state. They were too poor years ago to develop them. Capital from the Northeast came down there and took possession. They are getting millions of dollars from our state today, they are getting millions of dollars from the state of Texas, and because of that those states are now unable to provide adequately for the indigent. Now, assume you are living down there and you are a doctor; what board would you suggest or what kind of a board would you suggest would be competent to pass on the needs of the community of that kind?

Dr. Sensenich:—I should be in favor of permitting the state to set up a board to represent it, but—

Senator Ellender (interposing):—This bill provides that.

Dr. Sensenich:—All right, but it gives the board, that committee, that state agency, much too much power because it sets up vast machinery.

Senator Ellender:—How would you limit it?

Dr. Sensenich:—The only purpose of that board would be the determination of the need, the same as the central board determines need, and if this community needs the hospital, and I understand that that was the suggestion made, and it is determined jointly by the federal government and the local state agency that the need exists here, and the government says "It will take $100,000; we will give that $100,000, the government will advance that money if it is not locally available"—we are saying now it is the need—"and that building is constructed" —now then for that purpose the government has no real reason to enter into this indefinite control any more than when it aids another state in the case of a hurricane; you don't go down and say "Plant so many trees" or "Do this" or "Do that in connection with rehabilitation." We will assume that in the average community they will do quite a good job of managing their own institution if you help them to obtain it. I am trying to make myself clear without telling you what kind of legislation, because after all, that is out of my province.

Senator Ellender:—From what you have just said, we are not far apart.

Dr. Sensenich:—I think that is right.

Senator Ellender:—We are not far apart, because as I interpret this bill it is to be given to those communities who are actually in need, and that is determined how? By equalizing things. Some needs may be such that the state may get but one third of whatever they may ask for, whereas others may get two thirds from the government—don't you see?

Dr. Sensenich:—Yes.

Senator Ellender:—What will determine that will be the need of that community.

Dr. Sensenich:—But do not set up big machinery which induces New York and Indiana and some other states to ask—

Senator Ellender (interposing):—You could not draft an act that would eliminate any community.

Dr. Sensenich:—It is not necessary.

Senator Ellender:—We have to write a formula.

Dr. Sensenich:—That is right.

Senator Ellender:—And if the states comply with it or if they show that they come within that formula or within the yardstick written into this bill, of course they get a share of the money but otherwise they do not.

Dr. Sensenich:—Then let us eliminate all of the massive machinery—

Senator Ellender (interposing):—Which massive machinery?

Dr. Sensenich:—I mean that set up here of institutions and hospitals and diagnostic and treatment clinics and a lot of things that I don't know what they mean, nor does anybody else, and say to any state—you can go to New York and say "You need diagnostic clinics or you need something else." It does not necessarily have to be the need of the little rural hospital that you and I are talking about at the moment, but it can be something else, some new step or some new suggestion or some new ideology as to how the thing shall be taken care of.

Senator Wagner:—The federal government does not go to the state and say "You need that." The state comes to Washington.

Dr. Sensenich:—They have a way of suggesting it—not the government itself, but the officials.

Senator Wagner:—There is a need test right in the bill.

Dr. Sensenich:—Yes, but turn to the definition of hospitals, Senator Wagner.

Senator Wagner:—To get the federal money, you have to show the need.

Dr. Sensenich:—Yes, but look at "hospitals." You and I are thinking about the ordinary hospitals.

Senator Ellender:—What page is that?

Dr. Sensenich:—Page 34; the definition of hospitals according to the bill is as follows: "The term 'hospital,' when used in this title, includes health, diagnostic and treatment centers, institutions and related facilities." I don't know what they are, but I suspect.

Senator Ellender:—How would you define that?

Dr. Sensenich:—I think that the term "hospital" is quite clearly understood throughout a great many thousands of years, and I think that is sufficient. Let us call it a hospital, as it is, and not define it in some new terms.

Senator Murray:—What is a hospital?

Dr. Sensenich:—A diagnostic clinic is something in which a patient does not reside ordinarily. An institution may cover anything—I don't know what.

Senator Murray:—You would relate it strictly to an institution then where people are taken for treatment during a period of their illness?

Dr. Sensenich:—In the generally accepted manner in which the term "hospital" is applied.

Senator Ellender:—Would you furnish us the definition of a hospital that you want to cover by this bill?

Dr. Sensenich:—I would have to get it out of the dictionary; I don't know any other place for the definition of the word "hospital."

Senator Murray:—But people are taken to hospitals for the purpose of having their conditions diagnosed?

Dr. Sensenich:—That is right.

Senator Murray:—So it is a diagnostic place?

Dr. Sensenich:—May I interrupt? A diagnostic clinic, I think, comes from the report of the National Health Conference in which they suggest the creation of 500 diagnostic and treatment clinics which are quite outside the ordinary definition, so there are things in here that I think have been prompted by that study.

Senator Wagner:—If the criticism that you made would be met, would you favor the bill?

Dr. Sensenich:—Senator Wagner, there is nothing personal in this, but I think that you could have done a better job.

Senator Wagner:—What is that?

Dr. Sensenich:—There is nothing personal in this, but I think that you could have done a better job.

Senator Wagner:—I am not saying that; you do not offend me. I think I understand some of the opposition, but I asked you this: Supposing these corrections were made that you are talking about, would you favor the bill?

Dr. Sensenich:—I could not limit it to those corrections, because I think there are other things that are objectionable.

Senator Wagner:—No matter what we did, you would not favor this legislation, isn't that the fact?

Dr. Sensenich:—No, that is not true.

Senator Wagner:—All right, then.

Dr. Sensenich:—But the type of legislation need not necessarily follow this type. I have been trying to tell you what I had in mind.

Senator Wagner:—What do you mean by the type? Your criticism has been as to details so far.

Dr. Sensenich:—They are quite important details.

Senator Wagner:—All right. You quarrel about the formula to determine need.

Dr. Sensenich:—That is right; yes, sir.

Senator Wagner:—Have you got a better formula to suggest?

Dr. Sensenich:—We have just developed that, I think.

Senator Wagner:—You have talked about it. You said you wanted to use the word "hospital" without any further specification.

Dr. Sensenich:—Prior to that I suggested that an agency be set up and determine the need the same as any other help to give to a local community.

Senator Wagner:—Before that I thought you said there was too much help.

Dr. Sensenich:—No, I beg your pardon.

Senator Wagner:—Do you think that there should be a larger setup than here provided to determine the need?

Dr. Sensenich:—No, sir, much simpler.

Senator Wagner:—How much simpler would you say?

Dr. Sensenich:—I would say a central agency, as I have already stated, a central agency to which requests should be made if need can be demonstrated.

Senator Wagner:—Now, do you mind following that up a little? Now, what is the agency; how would you set it up? We have got the Surgeon General—now, what would you set up?

Dr. Sensenich:—You also have other agencies.

Senator Wagner:—I am speaking about this particular service.

Dr. Sensenich:—I have no objection to the Surgeon General, but with that I think that he should have advice from others, and I mean not only advice but more than participating in a judgment of those who have medical experience especially in the hospitals.

Senator Wagner:—All right. Then you would include with him a committee of doctors?

Dr. Sensenich:—Some appointments, certainly. I might say that I am not digressing here as to the suggestion—

Senator Wagner (interposing):—I want to meet your suggestion if it can be met.

Dr. Sensenich:—The suggestion of the American Medical Association of some existing agency or some one to be created.

Senator Wagner:—Now we are getting down to what you want and, as I understand it, it is some one appointed by the American Medical Association?

Dr. Sensenich:—No. sir; not necessarily.

Senator Wagner:—I would not even object to your recommending it, although I do not think that you should have the final say. Now, what further?

Dr. Sensenich:—I could not go into detail.

Senator Wagner:—You are criticizing this legislation.

Dr. Sensenich:—I have already made the suggestion, but I cannot tell you just how many changes there should be in this few moments notice. I am quite sure that considerable time was spent preparing this bill.

Senator Wagner:—Now, we have the Surgeon General plus some professional men, doctors as a part of a board to determine the question of need. Now, we have that. What next would you propose?

Dr. Sensenich:—Well, sir, I cannot give you anything more than I have in general. You cannot expect me to stand here and tell you how the bill should be drawn.

Senator Wagner:—But I want to get your idea. You say this is not workable or it is not sensible; therefore you must have something in mind that is sensible or otherwise you would not be in a position to criticize.

Dr. Sensenich:—I have already made that suggestion. I will make it again—some agency—

Senator Wagner (interposing):—All right, we will take that board. How would you propose, as the other senators said that whatever rule we have must be applicable to all of the states, that is, it must be a rule which applies universally—then you would say that you would have a test as to whether the hospitals are needed according to some test of need; is that right?

Dr. Sensenich:—Investigation of the local situation in which local authorities participate.

Senator Wagner:—That is provided here.

Dr. Sensenich:—It is not required.

Senator Wagner:—What is that.

Dr. Sensenich:—It is not required.

Senator Wagner:—You would require an investigation of the situation?

Dr. Sensenich:—In which local people be given an opportunity to be heard, because they are the people who have to support it.

Senator Wagner:—Then we have that. Would that satisfy you then?

Dr. Sensenich:—And then that it be established on a need basis.

Senator Wagner:—We have that on a need basis.

Dr. Sensenich:—And define the hospital as it is defined—

Senator Wagner (interposing):—It ought not to be given unless it is needed?

Dr. Sensenich:—That is right.

Senator Wagner:—Would that satisfy you then? Would you favor it then?

Dr. Sensenich:—I would have no opposition to this bill if—

Dr. Cary (interposing):—Doctor, let me say this—

Senator Ellender (interposing):—Dr. Sensenich, forget that you are a member of the American Medical Association.

Dr. Sensenich:—I am not taking dictation.

Senator Ellender:—Maybe Dr. Cary does not like you to go so far, but forget that you are a member of the American Medical Association, you are just a plain doctor from Indiana.

Dr. Sensenich:—That is what I am, sir. With that in mind, let me restate my position which I have stated, and I think it is understood by all of you, and that is that an agency be created and the thing be established on the basis of need, and that the local community participate in determining the need and determining the remedy to be applied. Now then, I cannot tell you of the mechanism how that bill should be drawn up, but that is the formula.

Senator Wagner:—If that were provided that way, you would be for it?

Dr. Sensenich:—Pardon me?

Senator Wagner:—Would you favor the legislation?

Dr. Sensenich:—I would favor that legislation, but you formerly asked me whether I favored this bill.

Senator Wagner:—All right: that is very fair.

Senator Murray:—Doctor, we thank you for your statement; you have been very helpful. You did a very fine job and we appreciate your candor and your assistance.

Dr. Cary:—May I ask how much further time we have?

Senator Murray:—We will keep right on until we get tired. It is very interesting.

Dr. Cary:—Mr. Chairman, I wish to state at his moment that I think we have just three more witnesses, and it might be possible that we get through this afternoon.

Senator Murray:—That will be fine.

(To be continued)

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. J. Res. 138 has passed the Senate and the House, providing that reorganization plans numbered I and II shall take effect on July 1, 1939. H. R. 6076 has passed the House, providing for the registry of surgeons as staff officers on vessels of the United States.

Bills Introduced.—S. 2256, introduced by Senator Murray, Montana, proposes to promote the general welfare by enabling the several states to make more adequate provision for compensation for the disability or death of workers from silicosis or other dust diseases. The bill proposes for each fiscal year a federal appropriation sufficient to carry out the purposes of the act, such sum to be allotted to the states which have submitted and had approved by the Secretary of Labor state compensation plans and prevention plans. The bill defines the term "compensation plan" to mean a plan to provide protection to workers and their dependents from economic losses caused by disability or death resulting from any dust disease or other disease when accompanied by or aggravated by any dust disease. The term "prevention plan" is defined to mean a plan to promote the prevention and control of industrial health hazards causing dust diseases. S. 2487, introduced by Senator Downey, California, proposes to provide hospitalization and domiciliary care to retired enlisted men of the Army, Navy, Marine Corps and Coast Guard who are war veterans, on parity with other war veterans. H. R. 6113, introduced by Representative Costello, California, provides for pensions, compensation, retirement pay and hospital benefits for certain reserve officers of the army. H. R. 6393 and H. R. 6554, introduced by Representative Angell, Oregon, propose to authorize a federal appropriation of $11,580,000 for each fiscal year to enable the states to establish, extend and improve services for educating physically handicapped children, defined by the latter bill to include children who are crippled, blind, partially seeing, deaf, hard of hearing, defective in speech, cardiopathic, tuberculous or otherwise physically handicapped, and who for their education require an expenditure of money in excess of the cost of educating physically normal children. H. R. 6394, introduced by Representative Angell, Oregon, proposes to extend the benefits of the Social Security Act to include individuals who are physically disabled. H. R. 6497, introduced by Representative Doughton, North Carolina, proposes to amend the Social Security Act in numerous respects. Among other changes, the bill proposes to exclude from the provisions of the Social Security Act the service performed as a student nurse in the employ of a hospital or a nurses' training school by an individual who is enrolled and is regularly attending classes in a nurses' training school chartered or approved pursuant to state law and service performed as an intern in the employ of a hospital by an individual who has completed a four years course in a medical school chartered or approved pursuant to state law. H. R. 6536, introduced by Representative Norton, New Jersey, proposes to amend the act to establish a Civilian Conservation Corps so as to provide that an enrollee in the corps, or member or former member of the military establishment, who shall furnish blood from his or her veins for transfusion to the veins of an enrollee or discharged enrollee of the corps undergoing treatment in a government or civilian hospital authorized to treat such patient, shall be entitled to be paid therefor a reasonable sum not to exceed $50 for each of such transfusions undergone. H. R. 6545, introduced by Representative Whelchel, Georgia, proposes to authorize the Postmaster General to issue a special postage stamp commemorating the services of Dr. Crawford W. Long "for introducing the use of ether for anesthetical purposes." H. R. 6555, introduced by Representative Doughton, North Carolina, proposes to amend the federal law relating to the advance of funds in connection with the enforcement of acts relating to narcotic drugs, so as to permit such advances in connection with the enforcement of the Marihuana Tax Act

of 1937 and to permit advances of funds in connection with the enforcement of the customs laws. H. R. 6556, introduced by Representative Doughton, North Carolina, proposes to provide for the seizure and forfeiture of vessels, vehicles and aircraft used to transport narcotic drugs, firearms and counterfeit coins, obligations, securities and paraphernalia. H. R. 6558, introduced by Representative Geyer, California, proposes to authorize the Secretary of the Navy to acquire certain real property in the city of Los Angeles and to construct in Los Angeles a marine hospital. H. R. 6586, introduced by Representative Schwert, New York, provides for the necessary medical treatment for the service-connected disabilities of veterans who reside outside the continental limits of the United States or its territories or possessions.

District of Columbia

Bill Introduced.—H. R. 6509, introduced by Representative Vreeland, New Jersey, proposes to provide for insanity proceedings in the District of Columbia.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

State Medical Meeting and Election.—Dr. Harry H. Wilson, Los Angeles, was chosen president-elect of the California Medical Association at its sixty-eighth annual session in Del Monte May 1-4 and Dr. Charles A. Dukes, Oakland, was installed as president. The next annual session will be held in Coronado. Out of state speakers included:

Dr. Chester S. Keefer, Boston, Sulfanilamide and Sulfapyridine in the Treatment of Various Infections.
Dr. Stuart W. Harrington, Rochester, Minn., Surgical Treatment of Carcinoma of the Breast.
Dr. Goodrich C. Schaufiler, Portland, Ore., Pediatric Gynecology.
Dr. Ursus V. Portmann, Cleveland, Some Indications for the Use of Roentgen-Ray Treatment.
Dr. Nathaniel G. Alcock, Iowa City, who discussed a paper entitled "Is Cystoscopy Necessary in the Larger Prostatic Hypertrophies?" by Dr. Bean M. Palmer, Oakland.

Included in the program were symposiums on alcoholism, sulfanilamide, poliomyelitis, diseases of the gastrointestinal tract, carcinoma of the breast and headaches. It was decided at the recent session to assess each member of the association $10 to raise a fund to be used solely for public relations activities.

DELAWARE

Research Conference.—The first session of the ninth annual research conference of Johns Hopkins University at the Henlopen Hotel, Rehoboth, June 5-9, was devoted to biochemistry under the chairmanship of Leslie Hellerman, Ph.D., associate in physiological chemistry, as chairman. During the second week, June 12-16, lectures on organic molecules and organic reactions will be presented with Alsoph H. Corwin, Ph.D., as chairman. Further information may be obtained from Paul H. Emmett, Ph.D., Johns Hopkins University, Baltimore.

DISTRICT OF COLUMBIA

Society News.—Dr. Harry F. Dowling discussed "The Treatment of Pneumonia with Sulfapyridine" before the Washington Medical and Surgical Society April 24.——At a meeting of the George Martin Kober Medical Society April 17, Dr. Lyle M. Mason discussed "A Résumé of Sulfanilamide Therapy in Urology." A neuropsychiatric case report was presented by Dr. Joseph L. Gilbert.

The Gibson Award.—Dr. Howard F. Kane, professor of obstetrics and gynecology, George Washington University School of Medicine, Washington, received the Frank E. Gibson annual award of certificate and purse for "meritorious contributions to medical science" at the annual banquet of the Washington Medical and Surgical Society May 6. Dr. Beveridge Miller was chosen president of the society at this meeting; Dr. Henry J. Russell McNitt, vice president; Dr. Thomas C. Thompson, secretary, and Dr. Frank E. Gibson, treasurer.

Dr. Bloedorn Named Dean at George Washington.—Dr. Walter A. Bloedorn, professor of medicine, George Washington University School of Medicine, Washington, has been appointed dean of the school. The appointment fills the vacancy that occurred when Dr. Earl B. McKinley was lost on the Hawaii Clipper in July 1938. Born in 1886 at Platte Center, Neb., Dr. Bloedorn graduated at Creighton University School of Medicine, Omaha, in 1909. He later studied at George Washington University and the New York Post-Graduate Medical School and Hospital. He is also chief of staff at Gallinger Municipal Hospital, Washington, and a commander, medical corps, U. S. Navy, retired.

FLORIDA

Seventh Annual Graduate Short Course.—The seventh annual graduate short course for doctors of medicine under the auspices of the Florida Medical Association and the state board of health will be held in Daytona Beach June 19-24. Lecturers will include:

Dr. Wilburt C. Davison, dean and professor of pediatrics, Duke University School of Medicine, Durham, N. C.
Dr. Beverley R. Tucker, emeritus professor of neuropsychiatry, Medical College of Virginia, Richmond.
Dr. Maurice C. Pincoffs, professor of medicine, University of Maryland School of Medicine, Baltimore.
Dr. William T. Pride, professor of obstetrics, University of Tennessee School of Medicine, Memphis.
Dr. Raymond W. McNealy, associate professor of surgery, Northwestern University Medical School, Chicago.
Dr. Robert J. Crossen, assistant professor of clinical obstetrics and gynecology, Washington University School of Medicine, St. Louis.

Wednesday evening June 21 there will be an open meeting of the Duval County Medical Society at Ponte Vedra Beach, to which all physicians attending the course are invited.

ILLINOIS

Society News.—Drs. Waltman Walters and Edwin J. Kepler, both of Rochester, Minn., discussed "Adrenal Cortical Neoplasms" before the Peoria City Medical Society May 19.——At a meeting of the Hancock County Medical Society in Carthage May 8 Dr. Leon Unger, Chicago, spoke on hay fever.——Dr. George L. Apfelbach, Chicago, addressed the Grundy County Medical Society at Starved Rock, April 25, on "Diagnosis of Lower Back Pains."——Dr. Vivien P. Siegel, East St. Louis, discussed "Infections of the Hand" before the Madison County Medical Society in Wood River May 5.

Chicago

Dr. Bundesen Returns to Department of Health.—Dr. Herman N. Bundesen, who has been on a leave of absence since November 1938, has returned to his activities as health commissioner and president of the Board of Health of Chicago. Dr. Robert A. Black, who had been acting president of the board during Dr. Bundesen's absence, had asked to be relieved so that he could devote his full time to his private practice, it was reported.

Branch Meetings.—Dr. Guy S. Van Alstyne discussed "The Management of Biliary Tract Surgery" before the Southern Cook County Branch of the Chicago Medical Society May 16.——At a meeting of the Calumet Branch May 19 Dr. William D. McNally spoke on "Practical Aspects of Toxicology in General Practice."——Mr. Henry P. Chandler, president, Chicago Bar Association, addressed the Northwest Branch May 19 on "Cooperation of the Legal and Medical Professions."——The South Chicago Branch was addressed May 23 by Dr. Edward L. Cornell on "The Reckless Interference with the Normal Process of Labor."——Dr. Michael L. Mason discussed "Management of Open Wounds" before the Irving Park Branch May 23.

INDIANA

Distribution of Pneumonia Serum.—The state board of health has approved a plan for distributing pneumonia serum advanced by the pneumonia committee of the state medical association. Distribution points will be established in each of the association's districts, and from twelve to fifteen such centers will be operated. Hospitals or laboratories centrally located will be used. According to the state medical journal, the 1939 session of the general assembly appropriated $75,000 a year to purchase pneumonia serum and certain other serums and antitoxins. A decision by Omer S. Jackson, attorney general, holds that the board cannot use any of this fund for the purchase of sulfapyridine.

KANSAS

Dinner for the Secretary.—Clarence Munns, executive secretary, Kansas Medical Society, Topeka, was guest of honor April 21 at a meeting of the Pratt County Medical Society. Guest speakers at the meeting, which was attended by 125 physicians, were Drs. John L. Lattimore and Forrest L. Loveland, both of Topeka. Mr. Munns was presented with a chest of sterling silver consisting of a complete service for eight The gift was purchased through contributions obtained by the Pratt County Medical Society from the physicians of western Kansas. Dr. Herbert Atkins, Pratt, was toastmaster and Dr. Noble E. Melencamp, Dodge City, made the presentation.

MICHIGAN

Personal.—Dr. Helen E. P. Lanting is in charge of the newly opened clinical laboratory in Escanaba.——Dr. Thomas K. Gruber was presented with a Browning Over-and-Under Shotgun by the resident medical staff of Eloise Hospital May 1 in recognition of his having completed ten years as superintendent of the hospital.——Dr. William C. Ellet was elected mayor of Benton Harbor recently.

Society News.—The Wayne County Medical Society Glee Club gave its fifth annual concert April 24.——Dr. Ralph G. Cock was chosen president-elect of the Kalamazoo Academy of Medicine, in accordance with a recently adopted policy of the academy. Dr. Ralph B. Fast is president.——Dr. Harry J. Isaacs, Chicago, addressed the Calhoun County Medical Society, Battle Creek, May 2 on diagnosis and treatment of heart failure. ——Dr. William D. Robinson, Ann Arbor, addressed the Washtenaw County Medical Society, Ann Arbor, May 9 on "Indications for Therapeutic Use of Vitamin B."

MISSISSIPPI

State Medical Meeting and Election.—Dr. William H. Anderson, Booneville, was chosen president-elect of the Mississippi State Medical Association at its annual meeting in Gulfport in May and Dr. James P. Wall, Jackson, was inducted into the presidency. The next annual session will be held in Jackson May 14-16. Out of state speakers at the recent meeting included:

Dr. Roderick Heffron, New York, The Public Health Aspects of Pneumonia.
Dr. Paul Padget, Baltimore, The Public Health Aspects of Syphilis Control.
Dr. Oscar W. Bethea, New Orleans, Treatment of Pneumonia.
Dr. Grady E. Clay, Atlanta, Treatment of Convergence Squint.
Dr. Carl E. Granberry, New Orleans, The Tracheotomy—Its Dangers and Complications.
Dr. Edward William Alton Ochsner, New Orleans, The Surgical Significance of Amebiasis.
Dr. Cobb Pilcher, Nashville, Tenn., The Late Complications of Head Injuries and Their Treatment.
Dr. William Milton Adams, Memphis, Tenn., Modern Concepts in the Treatment of Facial Injuries.
Dr. Arthur Carlton Ernstene, Cleveland, Diagnosis and Treatment of Coronary Artery Disease.
Dr. Earl H. Floyd, Atlanta, Ga., The Relation Between Urology and Other Branches of Medicine.

Dr. Oren Moore, Charlotte, N. C., delivered the Ewing Fox Howard oration on "Modern Trend of Obstetrics." The Mississippi State Hospital Association held its tenth annual meeting just prior to the session of the state medical association.

MONTANA

State Medical Meeting at Butte.—The sixty-first annual scientific session of the Medical Association of Montana will be held at the Finlen Hotel, Butte, June 28-30, under the presidency of Dr. James C. MacGregor, Great Falls, and with the Silver Bow County Medical Association acting as host. At the annual banquet Thursday Dr. Rock Sleyster, Wauwatosa, Wis., President, American Medical Association, will give the principal address on "Medical Problems of the Day." Dr. Chris E. Emery, Butte, will be toastmaster. Presenting the scientific program will be:

Dr. Ernest Sachs, St. Louis: Head Injuries; The Present Status of Surgery of Brain Tumors.
Dr. Dalton Keats Rose, St. Louis: Bladder Obstruction, Male and Female; Neurogenic Bladder, Particularly in the Application of Handling Those Seen in Association with Ever Increasing Automobile Accidents.
Dr. James Barrett Brown, St. Louis, Management of Compound Injuries of the Face and Jaws; The Repair of Surface Defects Due to Burns and Other Causes.
Dr. Charles Darrell O'Keefe, St. Louis, Cesarean Section—Its Indication, Technic and Results; Endometriosis.
Dr. Carl V. Moore, St. Louis: Splenectomy in the Treatment of Blood Diseases; Recent Advances in the Understanding and Treatment of Deficiency Diseases.
Mr. A. G. Stacil, business manager, Nicollet Clinic, Minneapolis, Group Hospitalization.

NEW HAMPSHIRE

Society News.—The Carroll County Medical Society held its quarterly meeting in Center Ossipee May 7 with Dr. Roland D. Clapp, Lewiston, Me., as a guest speaker on recent progress in roentgenology. Dr. Clarence O. Coburn, Manchester, president of the New Hampshire Medical Society, discussed the work of the society. Mrs. Harry A. Cheney, Campton, president of the woman's auxiliary to the state medical society, addressed the women present.

NEW YORK

Symposium on Silicosis.—The fourth annual silicosis symposium at the Saranac Laboratory, Saranac, will be offered June 19-23. Lecturers will include: Philip Drinker, Ch.E., Boston; Drs. Leroy U. Gardner, director of the laboratory; William S. McCann, Rochester; Eugene P. Pendergrass, Philadelphia; Adolph G. Kammer, Chicago; Royd R. Sayers, U. S. Public Health Service, Washington, D. C.; Anthony J. Lanza, New York; Clarence D. Selby, Detroit, and Oscar A. Sander, Milwaukee, and Mr. Voyta Wrabetz, chairman, Wisconsin State Industrial Commission, Madison. Registration will be limited to 100 and the fee is $25.

New York City

Personal.—Dr. Sigismund S. Goldwater, commissioner of hospitals, received the third annual award of the City Club of New York April 28. This award is made annually to a nonelective public servant who has in the estimation of the trustees rendered outstanding public service to the city.

Dr. Alfred E. Cohn Honored.—Dr. Alfred E. Cohn of the Rockefeller Institute for Medical Research was guest of honor at a dinner at the Waldorf-Astoria April 29, which about 225 persons attended. Dr. Cohn was presented with a volume of more than 300 letters, written by friends in America and abroad in honor of his sixtieth birthday. Dr. Cohn graduated from the College of Physicians and Surgeons of Columbia University in 1904, has been on the staff of the Rockefeller Institute since 1911 and a member since 1920. His special field is research on cardiovascular disease.

Society News.—Dr. Richard Kovacs addressed the Medical Society of the County of Queens May 23 on "Physical Therapy and the General Practitioner" and John T. Keudell, acting police captain in the Grand Central Parkway Precinct, "Traffic Regulations and the Doctor."——A symposium on diagnostic aids in cardiovascular disease was presented at a meeting of the Medical Society of the County of New York May 22 by Drs. Hugo Roesler, Philadelphia, Charles E. Kossmann, George P. Robb and Israel Steinberg.——Dr. Ralph H. Boots addressed the Bronx County Medical Society, May 25, on "Chronic Arthritis."——Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, addressed the Medical Society of the County of Kings May 23 on "Current Aspects of Medical Legislation" and the Hon. Robert F. Wagner Jr., member of the state assembly, on "The National Health Program."——Dr. David Marine addressed the New York Endocrinological Society May 24 on "The Problem of Exophthalmos."——A symposium on cancer of the breast was presented by Drs. David E. Ehrlich, Samuel G. Schenck and Frank E. Adair before the Long Island Radiological Society April 27.

NORTH DAKOTA

State Medical Election.—Dr. Cyril J. Glaspel, Grafton, was chosen president-elect of the North Dakota State Medical Society at its annual meeting in Fargo May 9, and Dr. Harry A. Brandes, Bismarck, was installed as president. Drs. Frederick W. Fergusson, Kulm, and Alfred R. Sorenson, Minot, were elected vice presidents and Dr. Albert W. Skelsey, Fargo, was reelected secretary. The 1940 meeting will be held in Minot.

OHIO

State Medical Election.—Dr. William M. Skipp, Youngstown, was chosen president-elect of the Ohio State Medical Association and Dr. Parke G. Smith, Cincinnati, was installed as president at the annual session in Toledo May 4. The 1940 session will be in Cincinnati.

Society News.—Reuben L. Kahn, Sc.D., Ann Arbor, Mich., addressed the Montgomery County Medical Society, Dayton, May 5, on "Paradoxic Serum Reactions in Syphilis."——Drs. Leo P. Dolan and Arthur A. Brindley, Toledo, addressed the Auglaize County Medical Society, St. Marys, April 13, on "Urological Problems as Best Handled by the General Practi-

tioner" and "Different Types of Anesthesias" respectively.——Dr. William Gordon Hartnett, Fostoria, discussed "Diagnosis of the Cardiac Arrhythmias by Aid of the Electrocardiograph" before the Seneca County Medical Society, Fostoria, April 13.——Dr. William J. Engel, Cleveland, addressed the Erie County Medical Society, Sandusky, in April on "Treatment of Acute Urinary Retention."

OREGON

Society News.—At a joint meeting of the Central Willamette Medical Society with the Lane County Medical Society in Eugene April 6 Dr. DeWitt C. Burkes, Portland, spoke on "Diagnostic Methods in Neurology."——Dr. Joseph Levitin, San Francisco, addressed the Polk-Yamhill-Marion Medical Society April 11 in Salem on "Ileus, Intussusception and Intestinal Obstruction."

Lectures in Obstetrics.—The committee on maternal welfare of the Oregon State Medical Society and the state board of health sponsored a series of lectures in nine cities during May. Drs. Daniel G. Morton, assistant professor of obstetrics and gynecology, University of California Medical School, and John Mott Rector, visiting pediatrician, Children's and St. Mary's hospitals, San Francisco, were the lecturers. Meetings were held in Astoria, Albany, Eugene, Salem, The Dalles, Bend, Medford, Marshfield and Hood River.

PENNSYLVANIA

Society News.—Drs. Priscilla White and Howard F. Root, Boston, were guests at a clinic meeting of the Lycoming County Medical Society, Williamsport, May 12; Dr. White discussed juvenile diabetes and Dr. Root, surgical complications of diabetes. The society's third postgraduate seminar was held May 26 with Dr. Seymour D. Ludlum, Philadelphia, as the instructor on "Diseases of Constitutional Inferiorities."——Dr. Stanley P. Reimann, Philadelphia, addressed the Lebanon County Medical Society, Lebanon, May 9 on "Nonspecific Treatment of the Cancer Patient."

Philadelphia

Personal.—Drs. John Cajetan Flynn and William P. Grady will receive the honorary degree of doctor of laws at the annual commencement of St. Joseph's College, Philadelphia, June 13. Dr. Flynn is chief visiting physician at St. Joseph's Hospital and Dr. Grady senior laryngologist at St. Mary's Hospital.

Courses for Medical Alumni.—Temple University School of Medicine announces postgraduate courses for medical alumni to be given by the faculty June 13-14. There will be a registration fee of $2. Application for registration should be mailed to Dr. William N. Parkinson, dean, Broad and Ontario streets.

Society News.—The Philadelphia County Medical Society held a "doctors' and nurses' night" May 10. The speakers were Drs. Charles H. Henninger, Pittsburgh, president-elect, Medical Society of the State of Pennsylvania on "The Patient, Nurse and Doctor" and David W. Thomas, Lock Haven, president of the state society, on "Cooperation"; Miss Mary A. Rothrock, president, Pennsylvania State Nurses' Association, "Nursing in Perspective," and Miss Helen Leader, directress of nurses, Presbyterian Hospital, "Eight Hour Duty."

Pittsburgh

The Mellon Lecture.—The twenty-second Mellon Lecture, sponsored by the Society for Biological Research of the University of Pittsburgh School of Medicine, was presented May 11 by Charles Judson Herrick, Ph.D., professor emeritus of neurology, University of Chicago. Dr. Herrick's subject was "A Neurologist Makes Up His Mind."

SOUTH CAROLINA

National Foundation Sends Aid in Poliomyelitis Epidemic.—The National Foundation for Infantile Paralysis has sent to Dr. James A. Hayne, state health officer, contributions of $7,650 to aid in financing a program of treatment for victims of an outbreak of poliomyelitis in the state. Dr. Hayne has asked the federal government for an equal amount, the whole fund to be used to provide orthopedic nursing consultants, physiotherapy technicians, examinations by orthopedic surgeons, diagnoses by pediatricians, hospitalization of about 100 children for thirty days, convalescent and foster home care of about twenty-two children and orthopedic appliances. The foundation also sent to every physician in South Carolina a copy of a bulletin entitled "Care During the Recovery Period in Paralytic Poliomyelitis." It is reported that about 140 cases had developed up to June 2, of which ninety are in Charleston. The U. S. Public Health Service reports that no federal quarantine has been established.

TEXAS

District Meeting.—The annual meeting of the Panhandle District Medical Society was held in Amarillo April 11-12. Among the speakers were:

Dr. George H. Garrison, Oklahoma City, Convulsions in Children.
Dr. D. Columbus Hyder, Memphis, Tenn., Some Obstetric Tragedies.
Dr. Harry H. McClellan, San Antonio, Is Mental Disease an Inherited Defect or an Acquired Delirium?
Dr. Will S. Horn, Fort Worth, Chronic Insomnia.
Dr. Walton G. Stephens, Borger, Factors Governing Healing of Abdominal Wounds.

Dr. Ernst W. Bertner, Houston, president of the Texas State Medical Association, addressed a luncheon meeting on state medicine.

PHILIPPINE ISLANDS

Personal.—Capt. Joseph J. A. McMullin, Medical Corps, U. S. Navy, medical officer in command of the U. S. Naval Hospital, Canacao, has been appointed assistant adjunct professor of surgery at the College of Medicine in the University of the Philippines, Manila.

GENERAL

Society News.—The fourteenth annual meeting of the American Society of X-Ray Technicians will be held at the Hotel McAlpin, New York, June 27-30.——Dr. Forrest L. Loveland, Mills Building, Topeka, Kan., has been chosen secretary of the Northwest Regional Conference; Dr. Louis Fernald Foster, Bay City, Mich., is the president.

Insurance Medical Directors Meet.—The twenty-ninth annual meeting of the Medical Section of the American Life Convention will be held at The Homestead, Hot Springs, Va., June 27-29. The guest speakers will be Drs. Harold M. Marvin, New Haven, Conn., who will discuss "Some Aspects of Cardiovascular Disease," and Ray F. Farquharson, Toronto, Ont., "Recent Advances in Clinical Medicine and Practical Application to Insurance Medicine." Dr. Albert E. Johann, Des Moines, Iowa, is chairman of the medical section.

International Neurologic Congress.—In view of the doubt expressed by some Americans as to the advisability of holding the Third International Neurological Congress in Copenhagen August 21-25, the American committee has communicated with the Danish committee asking for an expression of opinion. The Danish committee has replied that they believe it is advisable to continue with the plans for the congress, that if present conditions continue there will be no question about postponement and that it will be held in Copenhagen as already determined.

Special Society Elections.—Dr. George H. Stevenson, London, Ont., was chosen president-elect of the American Psychiatric Association at its recent annual meeting in Chicago and Dr. William C. Sandy, Harrisburg, Pa., was installed as president. Dr. Arthur H. Ruggles, Providence, R. I., is the secretary-treasurer.——Dr. Gerald B. Webb, Colorado Springs, was chosen president of the Association of American Physicians at its annual meeting in Atlantic City May 3. Other officers include Drs. Hugh J. Morgan, Nashville, secretary, and William S. McCann, Rochester, N. Y., treasurer, reelected.

Medical Library Association.—The forty-first annual meeting of the Medical Library Association will be held in Newark, N. J., June 27-29, at the Academy of Medicine of Northern New Jersey. Among the speakers announced are:

Miss Linda H. Morley, Columbia University Library School, Special Library Policies and Methods.
Dr. Karl M. Scott, Atlantic City, N. J., and Lieut.-Col. Edgar E. Hume, U. S. Army, The Literature of Syphilis.
Miss Margaret Bates, University of Illinois College of Medicine, Chicago, Medical Stamps.
Dr. Arthur H. Sanford, Rochester, Minn., The Supporting Member.
Mary A. Bennett, Ph.D., and Miss Dorothy H. Litchfield, Columbia University, New York, Problems of Microphotography.

At the annual banquet Dr. Charles H. Young, Montclair, N. J., will discuss "The Airplane in Medicine" and Capt. Arthur Caperton, American Airlines, "Spectacular Flights."

Symposium on the Cell and Protoplasm.—Following the meeting of the Pacific Division of the American Association for the Advancement of Science at Stanford University, a symposium on the cell and protoplasm will be presented by biologists and physicists from June 30 to July 5. The speakers will include: Dr. Albert Szent-Györgi, University of Szeged,

Hungary, on "Vitamins"; Dr. Ross G. Harrison, Yale University, New Haven, Conn., "Cellular Differentiation and Internal Environment"; Wendell M. Stanley, Ph.D., Rockefeller Institute for Medical Research, Princeton, N. J., "Viruses" and Edwin G. Conklin, Ph.D., Princeton University, Princeton, N. J., "Cell and Protoplasm Concepts: Historical Account."

Proctologic Society Meeting.—The fortieth annual meeting of the American Proctologic Society will be held at the Hotel St. George, Brooklyn, June 25-27. Among the speakers will be:

Dr. Albert F. R. Andresen, Brooklyn, Allergic Manifestations in the Colon.
Dr. John Scudder, New York, Blood Studies in Shock and Guides to Therapy.
Drs. Jerome M. Lynch and George Johnson Hamilton, New York, Lymphosarcoma of the Rectum.
Dr. Walter A. Fansler, Minneapolis, Preoperative Preparation and Postoperative Care in Abdominoperineal Resections.
Dr. Granville S. Hanes, Louisville, Ky., Proctology Not in Books.
Dr. Garnet W. Ault, Washington, D. C., Rectal Perforations by Enema Tips.

In addition, there will be a program of case reports and a clinic at Brooklyn Hospital. A plan to hold a joint meeting July 10-11 with proctologists in London, England, has been postponed until a more favorable year.

Prize for Research on Human Genital Organs.—Announcement is made of the Francis Amory Septennial Prize of more than $10,000 for outstanding work with reference to the alleviation or cure of diseases affecting the human genital organs. Provided there is work of a quality to warrant it, the first award will be made in 1940. The total amount of the award will exceed $10,000 and may be given in one or more awards. The fund was established by the will of the late Francis Amory, Beverly, Mass., with the American Academy of Arts and Sciences as the judge and distributor. It rests solely within the discretion of the academy whether an award shall be made at the end of any given seven year period and also whether on any occasion the prize shall be awarded to more than a single individual. While there will be no formal nominations, and no formal essays or treatises will be required, the committee invites suggestions which should be made to the Amory Fund Committee, care of the American Academy of Arts and Sciences, 28 Newbury Street, Boston.

Activities in Protection of Eyesight.—The National Society for the Prevention of Blindness continued its activities in many fields during the past year, the annual report shows. It has distributed large amounts of educational material and participated in many campaigns to promote the protection of eyesight, such as the syphilis control campaign. Sight-saving classes for school children, inaugurated in 1913, have grown to 589 in 1938, an increase of thirty-one over 1937. The society cooperates with a number of colleges and universities each summer in offering special courses to train teachers for these courses. A transcribed radio program for presentation on the Fourth of July to warn against eye tragedies during the holiday was an outstanding activity of the year. The society is also working with a committee of the American Student Health Association in studying the health of college students. Revision of the society's handbook for safety engineers and others concerned in the prevention of blindness in industry was undertaken during the year. An institute on eye health offered training to welfare workers in the sight conservation aspects of their work. The society's income for 1938 was $126,000 and its expenditures amounted to $169,000. Financial support is received from 17,000 members and donors in all parts of the country.

CANADA

Canadian Medical Association Meeting.—The seventieth annual meeting of the Canadian Medical Association will be held in Montreal June 19-23, under the presidency of Dr. Kenneth A. MacKenzie, Halifax, N. S. Dr. Allen O. Whipple, New York, will deliver the Lister Oration at a general session Friday June 23 on "A Consideration of Recent Advances in Surgery in the Light of Lord Lister's Studies." Other speakers at the general sessions include:

Dr. Jonathan C. Meakins, Montreal, A Review of the Present Status of Hypertension.
Dr. Arthur J. Bedell, Albany, N. Y., Retinal Changes in Arterial Hypertension.
Dr. Edward P. Cathcart, Glasgow, Scotland, Nutrition.
Dr. Norman F. Miller, Ann Arbor, Mich., Treatment of Dysmenorrhea.
Prof. Arthur B. Appleton, London, England, Physical Exercises.

Professor Cathcart will give a public address on "Food and Nutrition" Monday evening June 19.

Public Health Association Meeting.—The twenty-eighth annual meeting of the Canadian Public Health Association will be held in Toronto June 12-14 at the Royal York Hotel. Among the speakers will be Dr. Haven Emerson, New York, on current practice in communicable disease control; Sir Arthur Salusbury MacNalty, chief medical officer of the ministry of health of Great Britain, on the British national health insurance scheme and Prof. Edward P. Cathcart of the University of Glasgow, Scotland, on nutrition. Dr. Robert E. Wodehouse, Ottawa, deputy minister of pensions and national health, is president of the association.

FOREIGN

Protection of Populations in War.—A congress of the medical and legal professions will be held in Liege, Belgium, June 24-28, to consider problems involved in the protection of the civil population in time of war. According to the announcement, all physicians, civil and military, doctors of law and officers of the land, sea and air forces, as well as technicians interested in these problems are invited to attend. The secretary general of the congress is Dr. Georges Decharneux, 13 rue des Maraichers, Liege, Belgium.

Ministry of Health Appoints Consultants.—The British Minister of Health has appointed the following consultant advisers on the organization of hospitals in England and Wales in war time, according to *Science:* Dr. Gordon M. Holmes, neurology; Dr. Bernard Hart, psychiatry; Dr. Gwynee E. O. Williams, orthopedic surgery; Sir Cuthbert S. Wallace, general surgery; Sir Harold D. Gillies, facial and jaw injuries; Dr. Arthur Tudor Edwards, chest wounds; Dr. Hugh Cairns, head injuries; Dr. Francis R. Fraser, general medicine; Dr. William M. Mollison, ear, nose and throat; Dr. Charles B. Goulden, ophthalmology, and Dr. Alfred E. Barclay, radiology. The presidents of the Royal Colleges of Physicians and Surgeons made the nominations for these appointments.

CORRECTION

Dr. Carrel's Retirement.—A news item in THE JOURNAL, May 20, page 2071, stated that Dr. Alexis Carrel, among others, would retire from the staff of the Rockefeller Institute for Medical Research and that "every laboratory facility will be provided to enable those who retire to continue their research work on their own responsibility if they care to do so." Dr. Carrel writes that his staff is being dispersed and his department closed and that this inevitably brings to an end all his research, including the development of the new method for the cultivation of entire organs in the Lindbergh apparatus. The original information was taken from *Science.*

Government Services

Admiral Butler Retires

Rear Admiral Charles St. J. Butler, medical corps, who retired for age April 1, was ordered detached March 31 as president of the naval retiring board and board of medical examiners and naval retiring board for officers of the medical corps and to proceed home. Capt. Benjamin H. Dorsey, medical corps, has advanced to the rank of rear admiral and been assigned to succeed to duty as president of these boards at the navy department, according to the *Military Surgeon.*

Colonel Siler to Retire

Col. Joseph F. Siler will retire from active service in the medical corps of the U. S. Army, June 30, after about thirty-nine years' service. Dr. Siler graduated at the University of Virginia Medical Department in 1898. He was chairman of the Thompson-McFadden pellagra commission, 1912-1915. He served as chief of professional service division, office of the surgeon general, 1925-1929; chief health officer, Panama Canal, 1929-1934. He entered the service as contract surgeon in 1900, and advanced through the various ranks until 1929, when he was appointed colonel. He was awarded the Distinguished Service Medal and has written extensively on pellagra, dengue fever and typhoid. He is a member of many scientific societies and served as president of the American Society of Tropical Medicine. The successor to Colonel Siler as director of the Professional Service Schools at the Army Medical Center has not been announced.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 13, 1939.

Blood Transfusion Service Established

The minute detail in which preparation is being made for dealing with civil casualties of air raids has been pointed out previously. The latest is the establishment of a national emergency blood transfusion service for London at four centers in adjacent cities. Blood immediately available for transfusion to air casualties will be stored in underground refrigerators. Existing donors will have the option of enrolling at their local hospitals or of giving blood at one of the stores. The present London service would cease, as ordinary patients would be transferred for greater safety to hospitals far outside its area. During the September crisis steps were taken to establish a large supply depot within a convenient distance of London. Preparations were so far advanced that the supply would have begun within seven days of the outbreak of hostilities. In the meantime hospitals were advised to store an adequate amount of blood for their immediate needs. Excavations are proceeding for the construction of an underground refrigerated store and properly protected surgery, laboratory and waiting rooms as well as residency for the medical and administrative staff.

The Medical Peace Campaign

Under the presidency of Prof. J. A. Ryle of Cambridge an organization of physicians called the Medical Peace Campaign has been formed. They argue that, as the medical profession is responsible to a large extent for the prevention of disease and suffering, it should take what measures it can to prevent war. The committee has therefore drawn up proposals addressed to physicians throughout the world.

Realizing the suffering caused by war and accepting its medical responsibility to prevent disease, the committee urges the governments of the world to take action to make war impossible. In particular it suggests that, to combat the present emergency, Great Britain, France and Russia should declare that they stand united to resist all further aggression by military force if necessary and that the governments of these countries should invite all other countries, irrespective of their form of government, to associate themselves with this declaration. They maintain that the only way to eliminate all possibility of future war is to establish the rule of international law, based on the principle of justice to all and backed by overwhelming military and economic strength. To this end they urge that a conference be called to discuss the practical measures which should be taken. Finally, regarding medicine as the most international and humane of the professions, they remind their colleagues in all countries of the great part which they may yet play in influencing public opinion on behalf of peace.

Virus Diseases

At a meeting of the Royal Society of Tropical Medicine and Hygiene at which viruses were discussed, Dr. K. M. Smith said that since Iwanowsky discovered the first virus in 1892 a large number of plant and animal viruses had been described. Of the former no fewer than 163 viruses and virus strains were on record. In the affected plants the symptoms were extremely varied. Almost the only point in common was their uniform distribution over most of the plant as the result of the systemic nature of the infection. This contrasted with the more localized lesions caused by other pathogenic agents. A less usual result was a general chlorosis or yellowing of the plant with various distortions. Virus-diseased plants generally did not die. Two kinds of intracellular inclusions were found —a large, rounded, vacuolated mass generally near the nucleus and crystalline plates, as in tobacco mosaic.

Virus diseases could be disseminated experimentally by inoculation and were spread naturally by contact or by air, water, soil and insects. Almost all the transmitting insects were Hemiptera which sucked sap by a piercing apparatus. Though animal viruses multiplied in the insect vector, there was no proof that this occurred in plant viruses.

Prof. S. P. Bedson said that animal viruses were transmitted in a variety of ways, but that insects played a less important part than with plant viruses. Rabies, venereal lymphogranuloma, molluscum contagiosum and warts were distributed by direct contact. The virus of influenza was transmitted by droplet spray infection and of variola and varicella by dried particles.

The great difference between the tissues of the plant and those of the insect rendered improbable multiplication of the plant virus in insects. The delimitation of the virus group was based on (1) small size and filtrability, (2) inability to multiply apart from living cells and (3) production of inclusion bodies. These criteria would include the agents causing trachoma, inclusion conjunctivitis, venereal lymphogranuloma, psittacosis and infection with Rickettsia. He would classify all these as a right wing group. In a left wing group he would classify the very small animal viruses which appeared homogeneous in composition—nucleoprotein. But it was impossible to say whether they were similar to crystallizable plant viruses. The remainder he would classify in a center group with right and left affinities. Rickettsia bridged the gap between the right wing group and the bacteria.

Vitamin E

At a conference on vitamin E, arranged by the Society of Chemical Industry, Dr. K. E. Mason of Vanderbilt University, Nashville, Tenn., said that placental transfer of the vitamin in the rat was nil and mammary transfer exceedingly limited, even when the intake was increased to 2,000 times the minimal. Dr. S. W. F. Underhill pointed out that the effects of vitamin deficiency in the rat were similar to those produced by hypophysectomy. Hypoplasia of the thyroid and degenerative changes in the anterior lobe of the pituitary had been found. Administration of vitamin E would cure the paralysis observed in suckling rats, stimulate normal growth and arrest testicular degeneration due to deficiency of the vitamin. Prolonged deficiency caused degeneration of the ovaries and uterus. Dr. T. S. Moore said that deficiency in female rats produced a brown discoloration but that in males the seminal vesicles were discolored. Prolonged deficiency produced sores in the skin and eventually emaciation and death. Miss A. M. Copping and Prof. V. Korenchevsky of the Lister Institute had found that deficiency from birth produced diminished weight of the body and of the internal organs.

A discussion on clinical applications was opened by Dr. P. Vogt-Muller of Copenhagen. Wheat germ oil gave 75 per cent of success in the treatment of barren cows and 70 per cent in barren sows. In human medicine vitamin E was successful in from 75 to 80 per cent of cases of habitual abortion. The treatment had also been effective in cases of threatened abortion, premature separation of the placenta and the toxemia of pregnancy. Dr. E. V. Shute of the University of Western Ontario said that a deficiency of vitamin E might be detected by a test of the estrogen vitamin E equilibrium of the blood. Deficiency of the vitamin must be very common in the nonpregnant. It was found in pregnant hypothyroid patients and in cases of abortion and accidental hemorrhage. The most important and earliest sign was uterine tenderness at the placental site. Wheat germ oil as a source of vitamin E should be fresh and preserved cold. Mr. D. W. Currie had treated

ninety-five cases of habitual abortion with wheat germ oil, alone or with progesterone, and had obtained 80 per cent of living births. In cases of threatened abortion he obtained an even higher percentage of full term pregnancies.

The International Standard for Chorionic Gonadotropin

At the third International Conference on the Standardization of Hormones, in Geneva last year, it was decided to establish international standards for hormones of the anterior pituitary and the analogous substances of urine and serum. The preparation of these standards, their storage and their dispensing were left to the National Institute of Medical Research of Great Britain. The institute has prepared the international standard for the gonadotropic substance of human urine (chorionic gonadotropin) from material provided by six different countries. The standard is dispensed in tablets of 10 mg. The international unit is defined as the gonadotropic activity of 0.1 mg. of the standard preparation, which is the amount required to produce cornification of the vaginal epithelium of the immature rat. Thus each tablet contains about 100 international units. Like international standards for other hormones, drugs and vitamins, the standard for chorionic gonadotropin is held by the National Institute for Medical Research on behalf of the Health Organization of the League of Nations. It is distributed to national centers established in other countries or to workers in countries where centers have not been set up.

First Aid Posts in London

The minister of health has approved schemes submitted by the metropolitan boroughs and the corporation of the city for the establishment of 131 fixed first aid posts, five cleansing stations and thirty-four mobile units for London. The estimated total required is 200. One physician is to be appointed by the local authority for each post and sixty voluntary helpers. Of these the total number required is 12,000 women, but already 17,000 have volunteered. The number of men volunteers required is 2,591, and almost this number has been enrolled. The fixed posts will be located mostly in hospitals or the basements of institutions.

PARIS

(From Our Regular Correspondent)

May 6, 1939.

Tetanus Anatoxin

Through a series of studies starting with the discovery of diphtheria anatoxin about fifteen years ago, Gaston Ramon has set up new methods for the prophylaxis and treatment of tetanus: vaccination proper, serovaccination, anatoxic serotherapy and emergency prevention through the use of solutions of antitoxin. Since 1926 the dose of anatoxin has been specified for antitetanus vaccination. Three injections are necessary. Unlike diphtheria anatoxin, tetanus anatoxin does not cause intolerance. Diversified protection can be assured, increasing the effects of each, through mixing tetanus anatoxin with antityphoid vaccine and diphtheria anatoxin.

Antitetanus vaccination has received a unanimously favorable reception in France; it has been estimated that one and a half million persons have been vaccinated. Antitetanus vaccination has been obligatory in the army for two years; more than 800,000 men have been vaccinated.

Compared with antitetanus serum, the anatoxin was found to be stronger and more lasting. On the other hand, none of the vaccinated subjects had tetanus. Serovaccination gives protection which is achieved rapidly but is of short duration, and postserum tetanus occurring as late as the third month after vaccination has been reported. Experience has proved that immunization can become lasting if serovaccination and the use of anatoxin are associated as a routine. Such association is recommended as a therapeutic measure also; it really is an efficacious toxin-anatoxin treatment.

The benefits of anatoxin vaccination have been extended to the horses and mules of the French army, with remarkable results. Instead of fifty-nine probable cases, only one case of tetanus has been observed in six years.

Health of Rural Populations

The *Bulletin de l'Organisation d'hygiène de la Société des nations* is publishing a series of studies dealing with the health of rural populations. These studies deal in part with curative medicine, but the most interesting phase is that dealing with preventive medicine. The prevention of diseases among rural populations involves a study of their working conditions, nutrition and housing, the installation of water pipes and the construction of sewers, all that concerns the life of the peasants and the inhabitants of small isolated localities. It is desirable that in France more attention be given to the question of sanitation in the country. The population is decreasing there, and the exodus of young people to the cities, with its regrettable social consequences, could be discouraged if rural regions were more healthful.

Personals

Professor Herissey, who holds the chair of biologic chemistry at the Faculté de médecine of Paris, and Prof. Léon Binet, who occupies the chair of physiology at the same institution, were elected to the Académie de médecine recently. Binet has published much material on varied subjects, including the functional exploration of the lung and asphyxias, and is the author of a classic treatise on physiology.

Prof. Marc Tiffeneau, who succeeded Professor Roussy as dean of the Faculté de médecine of Paris, has been elected a member of the Académie des sciences.

The Académie de médecine has lost Professor Nicolas, one of its most eminent members, who died in Nancy at the age of 78. He was permanent secretary of the Association of Anatomists of French Speech.

BERLIN

(From Our Regular Correspondent)

April 17, 1939.

The Status of Sickness Insurance

The German ministry of labor, which controls the sickness insurance organizations, published a survey on the status of the legalized sickness insurance organizations in the year 1938. The number of groups showed a further decrease; as has been stated before in these letters, efforts are being made to reduce the number of groups so as to save on the cost of administration. According to the latest official figures there exist in the old territory of the reich 4,481 legalized sickness insurance groups, with 21.5 million members, and twenty-eight supplementary groups, with approximately 2.2 million members; that is, in all there are about 4,500 groups, with a membership of 23.7 millions. The year 1938 closed with a small financial surplus, which, however, was so slight that the financial status of the insurance groups must be kept under constant control. Regarding the question of the functions of sickness insurance, the ministerial reviewer points out that today the incidence of disease should not be estimated merely from the standpoint of sickness insurance, because the incidence of disease is today a question which concerns general economics and which must be estimated in its general effects. Cases of malingering represent a burden for the insurance funds by causing unnecessary expenditures and thus preventing the use of funds for improvements in services or reduction of premiums; moreover, such cases deprive the economic life of the nation of working forces. He further stresses that

sickness insurance has the task of giving early and thorough help also in the form of prevention and prophylaxis. Efforts should be made to reduce the cases which concern only trifling matters but which take up a relatively large part of the disbursements. These funds could be used for more important functions, also in the sphere of prophylaxis. The reviewer admits that this aim, namely the reduction of minor cases, cannot be accomplished by legal measures but requires educational efforts.

The task for 1939 is the creation of a sickness insurance organization for greater Germany, that is the incorporation of the newly acquired territories, Austria and the Sudeten region.

Unrestricted Practice Abolished

By a new law a period of quackery is terminated in Germany, or at least its end is within sight. This closes a period which was initiated in 1869 as the result of a false interpretation of liberalism. The historic paradox of this entire development is that physicians and the Berlin Medical Society under the leadership of the ophthalmologist Professor von Graefe and of Virchow worked at that time for the so-called kurierfreiheit (free practice of medicine). During the many ensuing decades the medical profession did not succeed in effecting improvements and in introducing better conditions for the German people; anybody who wanted to could "cure." The national socialist movement has given attention to these problems ever since it came to power. Care was taken that the nature cure practitioners, the so-called heilpraktiker, were under some form of control and that the severest abuses were removed, but those who were permitted to remain received certain assurances and it may be said that unscientific "therapeutics" was promoted and protected by the highest authorities. Now, however, under the new law, a decisive step has been taken. The essential provisions are as follows: A person practicing medicine who does not have the "approbation" as a physician must have a permit. The practice of medicine in the meaning of this law is every professional or occupational action for the diagnosis, cure or alleviation of diseases, illnesses or bodily defects in human beings. Whoever has been a professional practitioner of medicine may continue if he secures a special permit, under the professional designation "heilpraktiker" (lay practitioner), but in the future, that is for new candidates, this permit is given only in exceptional cases. However, one concession allows that a person who demonstrates by special accomplishments his capacity for practicing medicine may, by a dispensation of the ministry, be admitted to the study of medicine on easier terms so far as he proves his aptitude for this study. Training schools for nature medicine must be closed. Violations of this law are punishable by imprisonment for as long as one year as well as by a fine.

The lay practitioners must be members of their organization, that is of the "German society for lay practitioners." A permit may be granted under exceptional conditions for the practice of the art of healing by a person not a physician who has not been active in this sphere heretofore but who wishes to be in the future. The decision as to whether such a permit is to be granted is rendered by a committee of experts of the reich's ministry of the interior consisting of two physicians and two lay practitioners. Before the committee renders the decision, the candidate must subject himself to a test of his qualifications and efficiency as a practitioner in a hospital designated by the ministry. The physician in charge of the hospital, in consultation with a lay practitioner, supervises this examination, which may last as long as six months. If the permit is granted at this time, the candidate is given the title "physician of nature medicine." Thus a title with the component "physician" is applied for the first time to a person who has not completed a regular course of medical studies. These persons are also subject to the reich's regulations for physicians, just like the regular physicians. Only a small number of persons will be affected by this.

According to another concession, "Whoever helps his fellow men in an unselfish manner to prevent or cure diseases should not be hindered in doing this"; thus it seems that if a person does not take payment for it he is permitted to practice quackery. The leader of the physicians of the German reich emphasizes that the lay practitioners did much to promote the natural therapeutic methods but that the national socialist state has already succeeded in producing a synthesis between school medicine and the natural therapeutic methods. He expresses the opinion that the majority of physicians now are acquainted with the biologic methods of treatment and are making adequate use of them. Thus a special group of nature cure practitioners is no longer necessary. He also said that in the future the lay practitioners would number about 5,000 instead of the present 13,000 and that, on the basis of the new law, this group would not receive new additions and thus would be automatically abolished within a few decades. Some therapeutic performances will not be affected by the regulations of the new law, especially those of a more mechanical nature, for instance the determination of visual acuity by the optician and the making of orthopedic apparatus.

In the future it will thus be entirely clear who, besides physicians, may practice medicine as a profession or a trade in Germany. Since the belief in miracles and superstitions is widespread among the people, this thorough regulation will no doubt produce favorable results.

Marriage and Birth Increases

Statistics on the growth of the population show a favorable development for 1938. The frequency of marriages was high, about 22,000 more marriages having been contracted in 1938 than in 1937 in the old reich. This increase is all the more noteworthy because the male youth of the years with a falling birth rate has now attained marriage maturity. An exceptionally large increase of marriages is reported for Austria (22,000 in the third quarter of 1938, more than twice as many as in the corresponding period in 1937). A similar fact was observed during the earlier period of the Nazi régime because of the easements, like loans, granted to newly married couples.

The increase in the birth rate received a new impetus in the second half of 1938; 7.7 per cent more children were born in the third quarter of 1938 than for the same period in 1937. The total number of births in 1938 may be computed to be 1,340,000 for the old reich; that is, 19.6 per cent per thousand inhabitants. If to this are added about 91,000 births in Austria and about 52,000 in the Sudetenland, the total number of births for the whole of present day Germany amounts to 1,484,000. This number is by 165,000, or 10 per cent, short of the 1,650,000 necessary to maintain population and army needs.

School for Leaders of the Red Cross

A school for leaders of the German Red Cross, opened at the end of February near Berlin, is to serve chiefly for the training of the leaders of the chief sections of the different district stations of the Red Cross. In addition there exist nine district schools which train the file leaders in courses lasting six days. About thirty persons are usually accepted for each of these six day training courses. In the opening address the president of the German Red Cross, brigade leader Dr. Grawitz, explained that in 1938 the Red Cross of all Germany had been completely reorganized. In the spirit of national socialism a new soldierly organization was formed out of the more than 9,000 societies that existed earlier. He pointed out that this new organization had proved its worth at the time of the union with Austria, at the time of the occupation of the Sudeten districts, in the care of Sudeten-German refugees and in the sanitary service of the workers who constructed the fortifications on Germany's western borders.

AUSTRALIA

(From Our Regular Correspondent)

May 20, 1939.

Tuberculosis and the Government

In view of strong representations by a deputation and outspoken criticism of the government's policy regarding tuberculosis by Dr. H. W. Palmer, until recently superintendent of a large sanatorium, the government in New South Wales is considering a proposal to provide special facilities for the accommodation and care of patients with early tuberculosis.

The recommendations, if put into effect, would come near to solving the tuberculosis problem but for the fact that most of the patients with the early form in need of the care proposed have yet to be found. Despite the thousands of persons slightly afflicted, clinics, sanatoriums and hospitals receive few patients who have not reached an advanced stage. This is thought to be due to certain limitations to which the agencies responsible for notification are subject. The general practitioner, for instance, when reporting a case of tuberculosis has to fill in elaborate forms, forwarding with them a short history of the case, a description of the present condition of the patient and an outline of the treatment advised, to assist the tuberculosis division to decide how to act. All this takes considerable time, for which the physician receives little or no reward. Then, practitioners are often too busy to find the time or take the trouble necessary to test a patient thoroughly for signs of tuberculosis. Many others lack expert knowledge and experience necessary to diagnose a disease the early symptoms of which are elusive. Furthermore, a considerable number of physicians are reluctant to brand their patients with the social stigma of tuberculosis. No wonder therefore that few cases of early involvement are reported.

Notifications from clinics are almost as disappointing, although for other reasons. Fear of losing his means of livelihood keeps a patient away until his disease is so advanced that, on an average, he has infected ten other persons. When he does present himself, note is made of his contacts, who are called on by a visiting nurse. It is by testing these that the clinic obtains the bulk of its patients, including the few patients in the early stages who never should have been infected. According to the most optimistic estimates, scarcely more than 20 per cent of all patients are in these stages. As a means of combating this state of affairs, it has been suggested that a mobile clinic be instituted which would attempt to locate possible cases of early involvement through the general practitioner.

Frequently the wage earner cannot afford to leave his wife and children, who depend on him. Consequently after he has received the distressing news that he is afflicted, work and worry combine to aid the progress of the disease, which develops rapidly until it is incurable and the sufferer may have infected others. If he goes into a sanatorium he gets a pension of £1 a week after a certain amount of departmental delay, but this sum is not nearly sufficient to maintain his wife and family, who are probably already infected and need good food. Official figures show that 50 per cent of the invalid pensions granted to women in New South Wales between the ages of 25 and 30 (the child-bearing ages) are for tuberculosis.

Many and frequent recommendations have been made to both the state and the commonwealth government to improve this state of affairs but nothing has yet been done to make them effective. That such an omission is a penny wise, pound foolish policy is proved by the fact that last year New South Wales had to spend £60,000 on tuberculosis, ineffectively, in addition to subsidies to various hospitals. It is evident that the tuberculosis problem can be solved only by making it possible for the patient in the early stages to receive treatment, and by insuring that a patient with the arrested form will not have a relapse. Any money spent in these directions will be more than offset by a reduction in the lost legion of expensive incurable patients.

Preventable Disease

That the list of diseases which were positively preventable was ever increasing and that, although the causes of many of the world's most virulent diseases had been known for years, they had not yet been stamped out were facts stressed by Sir Alfred Webb-Johnson, surgeon to Queen Mary, delivering the Anne MacKenzie memorial oration at the Australian Institute of Anatomy. He said that an expenditure equal to that being devoted to war purposes would be necessary to eradicate them and that, if only peace could be assured and the vast sums expended on armaments could be devoted to the improvement of housing and nutrition, the provision of better water supplies and all the other basic needs of health, the results might be better for mankind. He also mentioned the problem of the airplane as a possible means of rapid spread of infective disease from one country to another. Cholera, yellow fever and trypanosomiasis, which formerly were held in check by ocean barriers, could now be spread by air travelers, and this necessitated a stringent watch and control by medical authorities.

Sir Colin MacKenzie Memorial

Before the oration was delivered, the minister for health, Senator Foll, unveiled a memorial tablet which had been erected in the Institute of Anatomy by Lady MacKenzie to its founder and first director, Sir William Colin MacKenzie. Senator Foll said that the institute was its own memorial to the active life of its founder and that the late Sir Colin's work would become more and more important in the future as investigators made use of the material which he had provided

Protection Against Air Raids

Preparations for the protection of the civilian population in air raids have commenced. Throughout the country groups of men and women are being trained in first aid and decontamination duties, and physicians, police and hospital employees are being instructed in antigas measures. Some arrangement too has been made for emergency organization of essential services. There is a pressing need, however, for greater cooperation with the medical profession and for extension of facilities for the collection, evacuation and treatment of such casualties as do occur.

Marriages

JOHN KENNETH SOKOL, Spencer, Iowa, to Miss Ruth Ashley of Grand Forks, N. D., at Evanston, Ill., April 1.

DUNCAN I. C. KING, Hendersonville, N. C., to Miss Virginia Marie Braznell of Miami Beach, Fla., March 4.

CHARLES LAWRENCE WHITTEMORE to Miss Amy Dumbell Villalonga, both of New York, May 24.

MARCUS EUGENE MORRISON to Miss Sara Katherine Harlan, both of Corinth, Miss., recently.

ROBERT J. HAUSCHEL to Miss Izetta Pointdexter, both of Bremerton, Wash., February 14.

CHARLES W. MCLAUGHLIN JR., to Miss Beatrice Remeirs, both of Omaha, January 14.

JAMES OLIVER WARREN to Miss Sue Thrasher, both of Welch, W. Va., March 12.

WILLIAM CATLETT LITTELL to Miss Alma Bordelon, both of Opelousas, La., recently.

RICHARD T. HAVERSTOCK to Miss Evalyn Moore, both of Seattle, February 25.

JOSEPH DAVIS to Miss Ella Rose Goldberg, both of Louisville, Ky., recently.

DAVID J. WERNER to Miss Loyola Host, both of Milwaukee, February 18.

Deaths

Daniel Nathan Eisendrath ⊕ once a distinguished surgeon of Chicago and more recently a resident of Paris, France, died in Paris, June 1, following an operation. Dr. Eisendrath was born in Chicago, Nov. 8, 1867. He received his bachelor's degree from Johns Hopkins University in 1889 and the degree of doctor of medicine from Northwestern University Medical School in 1891. After study abroad he began the practice of medicine in Chicago. He was assistant clinical professor of surgery at Rush Medical College and attending urologist at Michael Reese Hospital. He left the United States to establish a permanent residence in France in 1930, qualifying as a practitioner under the laws of France and becoming consulting urologist to the American Hospital in Paris. He was the author of a textbook on clinical anatomy published in 1903, a textbook on surgical diagnosis, and also with H. C. Rolnick author of "Clinical Urology," the first of the several editions of which appeared in 1928. He was also the author of a number of monographs and scientific contributions devoted to surgical subjects. During the World War he served as captain in the medical corps. He was a member of the Chicago Surgical Society, the Western Surgical Association, the Chicago Urological Society and the American Urological Association. He was a fellow of the American College of Surgeons and a member of the Congrès de chirurgie (France) and of the Société belge d'urologie. For some years he served as Paris correspondent of THE JOURNAL.

Alfred Friedlander ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1895; since 1919 professor of medicine and since 1934 dean, University of Cincinnati College of Medicine; member of the American Pediatric Society; fellow of the American College of Physicians; served during the World War; chief of the medical staff in charge of all medical and educational work of the Cincinnati General Hospital and formerly superintendent; on the staff of the Hamilton County Home and Chronic Disease Hospital and the Hamilton County Tuberculosis Sanatorium; president of the Heart Council of Greater Cincinnati; author of "Hypotension," published in 1927; aged 67; died, May 28.

A. Donaldson Smith, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1889; engaged in African exploration with a scientific staff provided by the British Museum; exploration between Berbera and the Nile, and in Mongolia; was awarded the Cullum gold medal by the American Geographic Society, Kane gold medal by the Philadelphia Geographic Society; honorary fellow of the Royal Geographic Society, which awarded him the Patron's Medal; author of "Through Unknown African Countries"; aged 74; died, February 18, in the United States Naval Hospital.

Ida Josephine Brooks, Little Rock, Ark.; Boston University School of Medicine, 1891; president of the Arkansas Homeopathic Board of Medical Examiners; formerly lecturer and instructor on social hygiene and associate professor of psychology and psychiatry at the University of Arkansas School of Medicine; at one time acting assistant surgeon in the United States Public Health Service, health director and psychiatrist of the city public schools and psychiatrist of the juvenile court; aged 85; died, March 13, in St. Vincent's Infirmary of pneumonia following a fracture of the hip.

Frank Wilbur Foxworthy, Miami Beach, Fla.; Medical College of Indiana, Indianapolis, 1897; at one time a practitioner in [illegible] as on the staffs of the Methodist [illegible] Hospital and consulting physician to the board of education; served during the Spanish-American War and was awarded the Congressional Medal for valor in action; associated with several insurance companies; author of "Life Insurance Examination," published in 1923; formerly on the staff of the Victoria Hospital, Miami, and St. Francis Hospital; aged 65; died, March 15, in Florence, Ala.

Edward Jay Bernstein, Detroit; University of Maryland School of Medicine, Baltimore, 1887; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; at one time professor of ear, nose and throat, Woman's Medical College, Baltimore; at various times attending ophthalmologist and otolaryngologist to the Bay View Hospital and the Freedman's Hospital, Baltimore, and Borgess Hospital, Kalamazoo, Mich.; formerly consultant to the Grace Hospital; aged 75; died, March 30, of cerebral thrombosis.

Richard Stanwood Benner ⊕ Springfield, Mass.; Harvard University Medical School, Boston, 1903; member of the New England Obstetrical and Gynecological Society and the New England Surgical Society; fellow of the American College of Surgeons; served at various times and capacities on the staffs of the Wesson Hospital, Springfield Hospital and Mercy Hospital, Springfield; Mary Lane Hospital, Ware; Noble Hospital, Westfield, and the Wing Memorial Hospital, Palmer; aged 62; died, March 23, of coronary thrombosis.

Carroll Julian Roberts, Buffalo; University of Buffalo School of Medicine, 1903; professor of medicine at his alma mater; fellow of the American College of Physicians; formerly chairman of the city board of health; aged 58; assistant attending physician to the Buffalo General Hospital; consulting physician to the J. N. Adam Memorial Hospital, Perrysburg, and clinical director of the Edward J. Meyer Memorial (Buffalo City Hospital), where he died, April 6, of pneumonia.

Robert H. Grube, Long Beach, Calif.; Medical College of Ohio, Cincinnati, 1886; past president of the Greene County (Ohio) Medical Society; formerly member of the Ohio State Board of Health; at one time city health commissioner of Xenia, Ohio, and health officer of Greene County, Ohio; for many years on the staff of the McClellan Hospital; aged 82; died, February 23, of arteriosclerosis with hypertension and chronic myocarditis.

Harry Lee Shaw, Sumter, S. C.; Medical College of the State of South Carolina, Charleston, 1891; member and past president of the South Carolina Medical Association; past president and secretary of the Sumter County Medical Society; for many years member of the state board of medical examiners; served during the World War; on the staff of the Tuomey Hospital; aged 73; died, February 18, of cerebral hemorrhage.

Lyman Robert Forgrave ⊕ St. Joseph, Mo.; Central Medical College of St. Joseph, 1899; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; on the staffs of the Noyes Memorial and Missouri Methodist hospitals and consultant to the State Hospital number 2; aged 63; died, March 9, in St. Luke's Hospital, Kansas City, of bronchopneumonia.

Charles Courtney Grieve ⊕ Medical Director, Captain, United States Navy, retired, San Diego, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; entered the navy in 1903 and retired in 1929 for incapacity resulting from an incident of service; fellow of the American College of Surgeons; aged 65; died, February 17.

Charles R. Garr, Flemingsburg, Ky.; Hospital College of Medicine, Louisville, 1880; member of the Kentucky State Medical Association; past president of the Fleming County Medical Society; past president of the county board of health; aged 80; died, March 11, in the Good Samaritan Hospital, Lexington, of carcinoma of the rectum.

Hercules R. Webster ⊕ Texarkana, Ark.; St. Louis College of Physicians and Surgeons, 1881; an Affiliate Fellow of the American Medical Association; formerly secretary of the Miller County Medical Society; said to have written the first compulsory vaccination law (Arkansas) adopted in the United States; aged 82; died, February 16.

Herbert Lawrence Strandberg, Carteret, N. J.; University of Maryland School of Medicine, Baltimore, 1916; member of the Medical Society of New Jersey; president of the board of education and formerly member of the borough council; served during the World War; aged 48; died, February 24, of chronic congestive heart disease.

Leo Josephus Crum ⊕ Kalamazoo, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1906; past president of the Kalamazoo Academy of Medicine; served during the World War; aged 56; on the staff of the Borgess Hospital, where he died, March 15, of hypertensive heart disease and acute coronary occlusion.

Claudius James Byrne, Worcester, Mass.; Tufts College Medical School, Boston, 1910; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; aged 54; senior surgeon to the Worcester City Hospital, where he died, March 19, of hypertension with coronary artery disease and nephrosclerosis.

Challon Guy Forsee, Louisville, Ky.; University of Louisville Medical Department, 1905; member of the Kentucky State Medical Association; formerly adjunct professor of surgery at his alma mater; fellow of the American College of Surgeons; on the staff of the SS Mary and Elizabeth Hospital; aged 63; died, March 3.

Philip Frank Bernstien, Brooklyn; Syracuse University College of Medicine, 1917; member of the Medical Society of the State of New York and the American Academy of Ophthalmology and Oto-Laryngology; served during the World War; aged 47; died, March 9, in the Jewish Hospital of heart disease.

Roscoe Conkling Danford, Pana, Ill.; Northwestern University Medical School, Chicago, 1896; member of the Illinois State Medical Society; fellow of the American College of Surgeons; served during the World War; chief, surgical department, Huber Memorial Hospital; aged 67; died, March 30.

Charles David Ryan, Indianapolis; Kentucky School of Medicine, Louisville, 1903; member of the Indiana State Medical Association; served during the World War; formerly connected with the Veterans' Administration; aged 61; died, February 7, of coronary occlusion and mitral stenosis.

John Amos Knapp, Mount Vernon, N. Y.; Bellevue Hospital Medical College, New York, 1888; member of the Medical Society of the State of New York; on the courtesy staff of the Mount Vernon Hospital; aged 84; died, February 2, of arteriosclerosis, nephritis and uremia..

George Wheelock Banning, Lakeland, Fla.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; at one time on the staffs of the Mercy and St. Luke's hospitals, Davenport, Iowa; aged 69; died, February 21, in the Morrell Memorial Hospital of cerebral hemorrhage and pneumonia.

W. T. Ryan, Tracadie, N. B., Canada; McGill University Faculty of Medicine, Montreal, Que., 1901; for many years special federal quarantine officer at McAdam Junction; superintendent of the Dominion Government Hospital; aged 61; died, February 16, at Bathurst.

John Walker Wigham, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1904; L.R.C.S., L.R.C.P., Edinburgh, Scotland, 1905, L.F.P.S., Glasgow, 1905; on the staffs of the Toronto Western and St. Joseph's hospitals; aged 57; died, February 28.

John Noble Ellison ⊕ Portsmouth, Ohio; Miami Medical College, Cincinnati, 1902; past president of the Hempstead Academy of Medicine; aged 61; on the staff of the Mercy Hospital, where he died, March 30, of septicemia and infection of the knee and foot.

Walter Byrne, Russellville, Ky.; University of Louisville School of Medicine, 1910; member of the Kentucky State Medical Association; secretary of the Logan County Medical Society; served during the World War; aged 53; died, March 18, of heart disease.

Edouard Thompson Anderson, Corpus Christi, Texas; Willamette University Medical Department, Salem, Ore., 1898; member of the State Medical Association of Texas; formerly on the staff of the Spohn Hospital; aged 72; died, February 9, of arteriosclerosis.

John Arthur Funk, Hamadan, Iran, Persia; Columbia University College of Physicians and Surgeons, New York, 1900; for many years a medical missionary; in charge of the Lily Reid Holt Memorial Hospital for Men; aged 65; died, March 5, of myocarditis.

John Henry Downing, Toronto, Ont., Canada; Western University Faculty of Medicine, London, 1902; formerly member of the board of education; aged 70; died, March 10, in the Toronto General Hospital of meningitis following an infection of the ear.

George Pierce Du Bose, Washington, D. C.; University of Virginia Department of Medicine, Charlottesville, 1883; formerly connected with the United States Pension Bureau; aged 76; died, February 7, of cerebral hemorrhage and arteriosclerosis.

Ralph Bartholomew Scheier ⊕ San Francisco; College of Physicians and Surgeons, San Francisco, 1908; medical director of the Canyon Sanatorium, Redwood City, Calif.; aged 58; died, February 25, of adenocarcinoma of the urinary bladder.

Charles Roy Davis ⊕ Detroit; Cornell University Medical College, New York, 1908; fellow of the American College of Surgeons; for many years on the staff of the Grace Hospital and the Parkside Hospital; aged 56; died, March 22, of heart disease.

Orrin Henry Freeland ⊕ Mason, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; Spanish-American War veteran; formerly member of the board of education; aged 69; died, March 25, of heart disease.

Tobias M. Uhler, Easton, Pa.; Jefferson Medical College of Philadelphia, 1874; member, past president and secretary of the Medical Society of the State of Pennsylvania; aged 90; died, February 19, in St. Petersburg, Fla., of cerebral hemorrhage.

Claude Porterfield Fox ⊕ Greeneville, Tenn.; University of the City of New York Medical Department, 1888; fellow of the American College of Surgeons; aged 72; chief of staff of the Greeneville Sanatorium and Hospital, where he died, March 7.

Harry Calvin Berger ⊕ Kansas City, Mo.; Harvard University Medical School, Boston, 1915; member of the American Academy of Pediatrics; on the staff of the Children's Mercy Hospital; aged 49; died, March 5, of coronary occlusion.

Edward Everett Bickers, Eminence, Ky.; Kentucky School of Medicine, Louisville, 1898; formerly mayor; past president of the county board of health; aged 66; died, March 14, in the Deaconess Hospital, Louisville, of bronchopneumonia.

John Lester Shawl, Onarga, Ill.; Hahnemann Medical College and Hospital, Chicago, 1902; member of the Illinois State Medical Society; on the staff of the Iroquois Hospital, Watseka; aged 72; died, February 23, of heart disease.

Elisha Miller Robinson, Birmingham, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1885; member of the Medical Association of the State of Alabama; aged 75; died, February 26, of uremia, nephritis and myocarditis.

John Joseph Donoghue, Worcester, Mass.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; member of the Massachusetts Medical Society; aged 64; died, March 21, in the Pondville Hospital, Wrentham.

Herbert Kelley Gallagher, Albuquerque, N. M.; Jefferson Medical College of Philadelphia, 1922; at one time health officer of Limestone County, Ala.; aged 42; died, March 15, in St. Joseph Sanatorium of pulmonary tuberculosis.

Howard Leslie Cornell, Los Angeles; Medico-Chirurgical College of Kansas City, Mo., 1902; author of three volumes of the "Encyclopedia of Medical Astrology"; aged 66; died, February 17, of nephritis and hypertrophy of the heart.

Andrew Young Thompson ⊕ Larimore, N. D.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1908; on the staff of the Grand Forks County Hospital, Arvilla, aged 59; died, February 26, in Grand Forks.

John Harding, Perry, N. Y.; University of Buffalo School of Medicine, 1878; member of the Medical Society of the State of New York; formerly village trustee and village president; aged 83; died, February 8, of pneumonia.

Cameron Tyerwhitt Coulter, Malone, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1913; health officer; served during the World War; aged 54; died, February 15, of coronary occlusion.

Mary Salina Barradell, Chicago; Chicago College of Medicine and Surgery, 1913; member of the Illinois State Medical Society; aged 68; died, March 9, in the Roseland Community Hospital of cerebral hemorrhage.

Ira Jefferson Bush, El Paso, Texas; Louisville (Ky.) Medical College, 1890; member of the State Medical Association of Texas; aged 73; died, March 10, of strangulated umbilical hernia and myocarditis.

George H. Turner, Garrison, Texas; Louisville (Ky.) Medical College, 1892; aged 66; died, February 28, in the City Memorial Hospital, Nacogdoches, of hypertension, arteriosclerosis and bronchopneumonia.

Stanley Frank Wasielewski ⊕ Milwaukee; Marquette University School of Medicine, Milwaukee, 1933; aged 31; died, February 25, in St. Joseph's Hospital of rheumatic heart disease with auricular fibrillation.

Giuseppe Munna ⊕ Freeport, N. Y.; Regia Università degli Studi di Palermo Facoltà di Medicina e Chirurgia, Italy, 1904; served during the World War; aged 58; died, February 10, of coronary thrombosis.

William A. Staton, Coal Fork, W. Va.; Kentucky School of Medicine, Louisville, 1885; aged 78; died, February 14, in a hospital at Charleston of chronic hypertrophic prostatitis and hypostatic pneumonia.

Lemuel Alfred Anthony, Rio Vista, Calif.; Missouri Medical College, St. Louis, 1891; served during the World War; aged 70; died, February 11, in the Veterans Administration Facility, San Francisco.

Gustavus Adolphus, Clearwater, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1900; aged 69; died, March 3, in the Emory University Hospital, Atlanta, of carcinoma of the left lung.

Robert Ewing Zimmerman, Butte, Mont.; University of Louisville (Ky.) School of Medicine, 1938; intern at St. James Hospital; aged 27; was found frozen to death, February 7, near McIntosh, S. D.

Joel William McDonald, Hot Springs National Park, Ark.; College of Physicians and Surgeons, Little Rock, 1909; served during the World War; aged 57; died, February 16, of mitral insufficiency.

Bureau of Investigation

ZORBIT

A Fake Capitalized at Forty Thousand Dollars

Zorbit, Incorporated, of Montclair, N. J., was chartered in the state of Delaware in November 1937 by William Teetzel, President and Managing Director, with a capitalization of $40,000. The concern sold through the mails a reddish brown powder that when applied to the feet was represented to alleviate the pain of arthritis, rheumatism, neuritis, sciatica and lumbago.

Zorbit seems to be a Canadian fake, for the advertising declared that it "has helped thousands in Canada" and, it was added, is "now available to sufferers in the U. S. A." Such "sufferers," one assumes, are the type that a deceased circus manager described as having a birth rate of one a minute.

"Zorbit is not a cure-all"; no, indeed. It was recommended only for such conditions as those already listed. And it worked "Through the Feet." Starting with the hypothesis that "absorption of medicine is not new," it simply "remained for that eminent Canadian chemist and scientist, W. F. Teetzel, to perfect, after years of painstaking research, a formula that could be readily absorbed into the bloodstream." Result, Zorbit! One learns further from Mr. Teetzel's advertising that the Zorbit formula "was perfected in 1923 after several years research by Mr. W. F. Teetzel, for over forty years a leading pharmacist and chemist in Canada."

The reddish brown powder called Zorbit had the following composition:

Iodine, resublimed	½ part	Senna leaves	4 parts
Cascara bark, powdered	3 parts	Mandrake root	6 parts
Nux vomica	1 part	Sulfur, resumblimed	6 parts
Baking soda	4 parts	Iron carbonate	5 parts

And enough iron oxide to make the powder red!

The instructions for the use of Zorbit were to bathe the feet in warm water, leave them moist, apply a bottle-cap full of the powder to each foot and repeat the treatment on alternate days.

As this powder would *not* be absorbed into the blood stream and certainly would not restore sufferers with rheumatism, arthritis, sciatica, neuralgia or lumbago to "perfect health," the realistic Post Office Department declared Zorbit a fraud and on Sept. 1, 1938, closed the mails to Zorbit, Inc., and also to that "leading pharmacist and chemist," W. F. Teetzel.

THE VITA MINRO FRAUD

Another Fake Is Debarred from the Mails

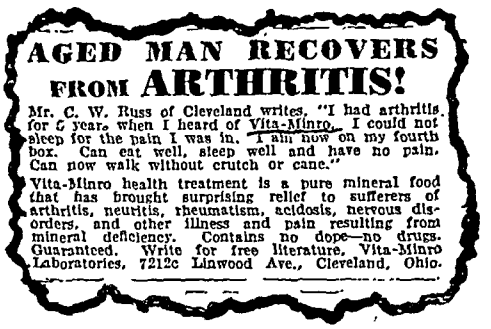
Harry L. Singletary and Clarence S. Gadsden, both of Cleveland, were, according to a federal report, engaged in promoting a cure-all called "Vita Minro Health Tablets." The business was conducted under such trade styles as "Vita Minro Biochemical Laboratories, Inc.," and "Vita Minro Biochemical Corporation."

The tablets were sold under the claim that they would restore missing vital minerals to the body, cause the glands to function normally, eliminate toxins and dangerous deposits from the blood stream and thereby cure or prevent rheumatism, arthritis, neuritis, neuralgia, indigestion, nervous disorders, dizziness, kidney disorders, low blood pressure, colds, "flu," severe headaches, dropsy—and what have you?

According to the Hon. Calvin W. Hassell, Acting Solicitor for the Post Office Department, in his memorandum to the Postmaster General recommending the issuance of a fraud order, Harry L. Singletary is an ex-locomotive engineer who with his wife operates a boarding house in Cleveland. The name of Clarence S. Gadsden, which also appears in the memorandum, is found in the files of the Bureau of Investigation of the American Medical Association, which indicate that in 1933 he was connected with an imposingly named concern, "The American Biochemical Corporation" of Cleveland, which put out "Paracelsus," a product similar to Vita Minro.

The Vita Minro Tablets, as already suggested, were sold as a cure for whatever ailed one—from soft corns to hardening of the liver! When analyzed by government chemists the tablets were found to be approximately 25 per cent table salt, 56 per cent potassium chloride, 6 per cent potassium sulfate, 7 per cent baking soda and 2 per cent chalk. Although the tablets were claimed to contain all the mineral elements essential to good health, they contained mere traces of iron, calcium and iodine and not any phosphorus!

After the Post Office Department began its investigation of this fraud, Singletary is said to have notified it that he was reorganizing the business so as to abandon the use of the mails and to sell his product through retail drug stores. Such a method of continuing a medical fraud has often been resorted to in the past. It will be interesting to see whether the stipulations of the new federal law governing the sale of "patent medicines" will effectively prevent such circumventions. The old Food and Drugs Act of 1906 limited the powers of the officials to such an extent that a clever faker, by eliminating his cruder falsehoods from the trade package and confining his lies to



other and more potent avenues of publicity—such as billboards, newspaper advertisements, circulars and almanacs—was able to continue his swindle so long as retail druggists cooperated by stocking and in some cases "pushing" the product.

On Sept. 20, 1938, a fraud order was issued against the variously named trade styles of Singletary and Gadsden as well as against the names of Harry L. Singletary and Clarence S. Gadsden themselves.

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Heato Salve.—Lucky Heart Laboratories, Inc., Memphis. Composition: Small amounts of zinc oxide and camphor, benzocaine, resorcinol and rosin, in a petrolatum and lanolin base. Not antiseptic when used as directed. Fraudulently represented to be made wholly from roots and herbs, and to heal wounds, boils, burns, "piles," etc., and to give "pep." —[*N. J. 28311; September 1938.*]

Jim Wade Hygienic Powder.—Jim Wade, Inc., Shreveport, La. Composition: Essentially copper sulfate, zinc sulfate and ammonium alum. For irritated mucous membrane, including vaginal, and for "general feminine hygiene." Fraudulent therapeutic claims.—[*N. J. 28307; September 1938.*]

Kandu Vegetable Compound Female Regulator and Builder.—Lucky Heart Laboratories, Inc., Memphis. Composition: Essentially extracts of plant drugs, alcohol, sugar and water, flavored with cloves. Fraudulent therapeutic claims.—[*N. J. 28311; September 1938.*]

Malto-De.—Alberty Food Products, Inc., Hollywood, Calif. Composition: Essentially 79 per cent of sugar, including glucose and cane sugar, with cocoa, malt and powdered dry milk. Fraudulently represented to contain 12½ per cent soluble calcium and phosphorus to each pound and to correct a deficiency in calcium, phosphorus and vitamin D, effect complete growth, well formed bones, sound, hard teeth and eliminate and prevent rickets, etc.—[*N. J. 28310; September 1938.*]

Nod.—Reader Drug Co., Chicago. Composition: 1½ grains phenobarbital and 2 grains of aminopyrine per tablet. Fraudulently represented as a harmless, non-habit forming remedy for all types of nervousness, sleeplessness, alcoholic effects, etc.—[*N. J. 28304; September 1938.*]

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ADMINISTRATION OF ANESTHESIA IN SMALL HOSPITAL

To the Editor:—The problem has arisen in our hospital as to the best method of handling anesthesia. The hospital is a small one, fifty-six beds, with an active staff of fifteen doctors. Most of the men are too busy to give anesthesia, and if we have a local man as chief anesthetist there are times when he is not available. Also there isn't one who would be willing to give the obstetric anesthesias as well. The question has come up about developing one or two nurse anesthetists and we should like to know what your opinion is of this. Can you give us any idea as to what other hospitals of this size do? We shall greatly appreciate any information you can give us.

M.D., Massachusetts.

ANSWER.—This problem is probably dependent on the persistence of the habit of looking on the administration of anesthetics as a technical procedure requiring little medical knowledge and deserving small financial recompense.

The American Hospital Association, the College of Surgeons, the American Medical Association and other organizations have gone on record as believing in the necessity of the personal direction of anesthesia service by a physician who is interested in and himself trained in anesthesia. Such a director plus a nurse technician are scarcely justified in a fifty-six bed hospital. It would seem, therefore, that with proper financial reward in sight a member of the staff now interested in internal medicine or some other specialty would find it both interesting and profitable to assume in addition the duties of anesthetist to a fifty-six bed institution. Short term postgraduate training is available in many centers. Certainly many recent graduates could be found who have had some training in anesthesia and who would be glad of the opportunity to join such a staff.

SAUERKRAUT JUICE

To the Editor:—Please give me any information you can on the medicinal qualities, if any, of sauerkraut juice. Is there any harm in using it as a saline cathartic? DAN TUCKER MILLER, M.D., St. Louis.

ANSWER.—The following definition and standard for sauerkraut has been adopted by the U. S. Department of Agriculture: "Sauerkraut is the clean, sound product, of characteristic acid flavor, obtained by the full fermentation, chiefly lactic, of properly prepared and shredded cabbage in the presence of not less than two per cent (2%) nor more than three per cent (3%) of salt. It contains, upon completion of the fermentation, not less than one and one-half per cent (1.5%) of acid, expressed as lactic acid. Sauerkraut which has been rebrined in the process of canning or repacking contains not less than one per cent (1%) of acid, expressed as lactic acid." According to Pederson (*Am. J. Pub. Health* **24**:229 [March] 1934) the commercial preparation of sauerkraut is apparently not well standardized in all parts of the country, and a number of samples examined by him were found to vary considerably in chemical composition. However, Pederson reports that excellent quality kraut contains from 2.2 to 2.4 per cent of salt, from 1.3 to 1.5 per cent of total acids as lactic and from 0.2 to 0.3 per cent of volatile acids as acetic. Pederson reports that the first few days of active fermentation is carried on by a group of acid and gas producing cocci, Leuconostoc mesenterioides Van Tieghem, which produce volatile acid, carbon dioxide and alcohol as well as lactic acid. The fermentation is completed by the lactic acid producing rod Lactobacillus pentoaceticus Fred, Peterson and Davenport. Rose (Laboratory Handbook for Dietetics) reports that sauerkraut itself contains, per hundred grams, 1.7 Gm. of protein, 0.5 Gm. of fat, 3.8 Gm. of carbohydrate, 40 mg. of calcium, 10 mg. of phosphorus and 3.3 mg. of iron.

Little information concerning the composition of sauerkraut juice is available. Middleton (*Wisconsin M. J.* **25**:554 [Nov.] 1926) quotes Starke as stating that analyses of eight cans, including seven brands of sauerkraut juice, indicated a salt content of 1.9 Gm. per hundred cubic centimeters or 1.8 Gm. per hundred grams. The juice also may be expected to contain both lactic and acetic acids and to contain the lactic acid bacillus. It is not known, however, whether the bacilli are present in sufficient numbers and viability to be of any real service in cases of excessive intestinal putrefaction.

It is well known that sauerkraut juice has a mildly laxative action for many persons. There is evidence (*Arch. f. exper. Path. u. Pharmakol.* **166**:703, 1932; see also editorial in THE JOURNAL, Nov. 5, 1932, p. 1607) that sauerkraut juice has a stimulating action on active strips of intestine from guinea pigs and rats similar to the action of acetylcholine. It has been further reported (*Arch. f. exper. Path. u. Pharmakol.* **175**:736, 1934) that sauerkraut juice contains histamine and acetylcholine in concentrations of approximately 1:25,000 parts. However, it is stated that the laxative effect of sauerkraut juice is not due to its content of these substances.

Guerrant, Rasmussen and Dutcher report (*J. Nutrition* **9**:667 [June 10] 1935) that sauerkraut juice contains 8.2 mg. of ascorbic acid per hundred cubic centimeters, equivalent to 164 international units of vitamin C. However, the report indicates that these figures are based on the analysis of one can only. Since the vitamin C content of sauerkraut itself has been reported to be highly variable, it is to be expected that the vitamin C content of different samples of sauerkraut juice will also vary widely. Rice reports the use of sauerkraut juice in the preparation of acid milk for infant feeding (*Arch. Pediat.* **51**:390 [June] 1934). Seventy-five infants were fed either fresh or evaporated milk acidified with sauerkraut juice without the addition of orange juice. No scurvy is reported to have developed in any of the children. Until further evidence concerning the ascorbic acid content of different brands of canned sauerkraut juice is available, however, it would seem inadvisable to depend on this product as a source of vitamin C in infant feeding.

TOXICITY OF SHOE DYES

To the Editor:—A patient complains of dimness of vision of the right eye of ten days' duration. The only significant finding in the physical examination was a rather marked optic neuritis in the right eye. Spinal puncture gave entirely negative results. The only significant point in the history was the fact that the patient had dyed a pair of shoes three weeks prior to the onset of her present illness and had worn the shoes daily until the onset of the present illness. The dye used was Shinola Black Dye. Would you kindly inform me whether you have any cases on record of optic neuritis following the use of shoes dyed with this dye.

SAMUEL B. NADLER, M.D., New Orleans.

ANSWER.—The carton of Shinola Black Dye contains the following printed warnings: "Do not wear shoes the day they are dyed. . . . Dye is non-toxic when used on shoes. . . . Caution: Dye is inflammable. Keep it away from fire or flame." Potential toxicity is thus recognized by the manufacturer. The fact that this dye is inflammable precludes the presence of high percentages of polychlorinated hydrocarbons. On burning, this dye yields the characteristic odor of hydrogen chloride, which suggests that some chlorinated hydrocarbon may be present in low percentages. The formula for shoe dyes is likely to change from time to time, so that no warrant exists for precise claims in the absence of careful analysis. However, in times past Shinola Black Dye is believed to have consisted chiefly of nigrosin dye dissolved or suspended in a mixture of methyl cellosolve and denatured ethyl alcohol. The denaturant may have been methyl alcohol representing approximately 5 per cent of the denatured alcohol. In the present instance, if the shoes were not worn within twenty-four hours after dyeing the likelihood of any poisoning is somewhat remote, although methyl cellosolve, if present, may have dried slowly, but absorption of methyl cellosolve through the skin is not thoroughly proved. Reference is made to injuries to the eyes from methyl cellosolve as described by Parsons in the *Journal of Industrial Hygiene and Toxicology* (**20**:124 [Feb.] 1938). Apart from the Shinola product it is to be recognized that some other shoe dyes and leather dressings still contain nitrobenzene and may contain wood alcohol, aniline oil or aniline hydrochloride. Such substances may be distinctly dangerous if shoes are dyed while on the feet or worn immediately after being dyed. Still other shoe dyes may contain orthochlorobenzene or related compounds, the toxicity of which is disputed. If carbon tetrachloride or other chlorinated hydrocarbon is present in appreciable quantities, some opportunity for optic neuritis exists, since ocular damage has been described by Wirtschafter as caused by carbon tetrachloride (Toxic Amblyobia and Accompanying Physiological Disturbances in Carbon Tetrachloride Poisoning, *J. Indust. Hyg.* **16**:4 [Jan.] 1934). On the assumption that the present injury may have been caused by the action of methyl cellosolve or some cellosolve, helpful information might have been gained from careful blood studies such as described in the Parsons reference cited and also in an article by Greenburg and others titled "Health Hazards in the Manufacture of 'Fused Collars': I. Exposure to Ethylene Glycol Monomethyl Ether" (*ibid.* **20**:134 [Feb.] 1938). Queries and minor notes on shoe polishes or dyes have appeared in THE JOURNAL from time to time:

April 27, 1929, page 1471; Jan. 17, 1931, page 212; Aug. 22, 1931, page 557; Sept. 7, 1935, page 819, also, a communication from C. S. Miner appeared in the correspondence column of THE JOURNAL, Feb. 22, 1919, page 593. Dr. R. E. Stifel reported a case of methemoglobinemia due to poisoning by shoe dye (THE JOURNAL, Feb. 8, 1919, p. 395) and there was an editorial on shoe dyes and aniline poisoning July 3, 1926, page 34.

PREGNANCY AND ROENTGEN RAYS

To the Editor:—It has often been stated that fluoroscopic and x-ray examinations of pregnant women may cause fetal monstrosities. I should like to know whether there is any contention for this statement and, if so, whether there is any period in pregnancy when the fetus is sensitive and when not sensitive; also whether x-ray films or fluoroscopic examinations differ in their effect. Would short fluoroscopic examinations be a possible cause for any fetal derangement at any time in pregnancy?

PAUL B. SHUEY, M.D., Long Island, City, N. Y.

ANSWER.—It is well established that fetal monstrosities may result from exposure of the testis, the ovary or the ovum to x-rays and radium, but the dosage must be large. It was learned during early irradiations of carcinoma in pregnancy that abortion resulted or that the child was deformed, aplastic, microcephalic, idiotic or the like, although a few exceptions have been reported. Even the gynecologic application of radium or x-rays damages the child-bearing function of the ovaries, the follicles being permanently affected.

Obstetric roentgenography, in which fluoroscopy almost never is used, does not harm the child or the ovaries; that is, unless an unusual number of films are made.

Only recently have any objections been heard to the foregoing statement, but these are from abroad and are deductions from experiments on plants. Hüssy of Basel found that irradiated beans show no effects in the first generation but that in subsequent ones hypoplastic and deformed beans occurred. Martius of Germany, an experienced roentgenologist, suggests restriction of even the taking of roentgenograms during pregnancy. The greatest danger to the ovum is in the early weeks; therefore the x-ray studies should be postponed if possible until after the fourth month of pregnancy.

X-ray examination for studies on the gastrointestinal and the urinary tract may comprise fluoroscopy as well as films, and in deciding the question of the dangers of the two one should consider the total amount of the active rays used, there being no difference in the quality of the effects.

If the patient is obese or the x-ray man less skilled or if he does not have his eyes accustomed to the dark before he starts his fluoroscope he may give the fetus an overdose of the rays. In such a case the routine films would be safer.

As elsewhere in medicine, idiosyncrasy is to be considered.

POSTMENOPAUSAL VAGINAL ULCERATION

To the Editor.—I have recently seen several cases of ulceration of the vaginal outlet in the fourchette the cause of which I have been unable to determine. In some cases the ulcers were multiple and in others only a single small isolated ulcer was present. In such cases the ulcers are pinpoint to pinhead in size, are rather punched out in appearance and are not covered by any membrane. They are surrounded by an area of erythema possibly 1 cm. in diameter and are tender but not painful. In one case they have been associated with like ulcers on the vaginal wall but in no case has there been any cervicitis or erosion of the cervix. They have occurred only in nulliparous women who are married and past the menopause. Occasionally there has been a slight watery discharge. The thing that has brought them to the attention of their hosts has uniformly been severe discomfort during intercourse. Can you give me any information regarding the possible cause and appropriate treatment?

G. HENRY KNOLL, M.D., Le Roy, N. Y.

ANSWER.—The condition described comes under the category of "senile vaginitis," which is a nonspecific inflammatory lesion of the vagina. This condition usually occurs in elderly women, but it may be observed in young women in whom an artificial menopause has been produced by operation or by radiation therapy. For this reason Davis has suggested the name "postmenopausal vaginitis" as a better term than "senile vaginitis."

Generally after the menopause there is physiologic atrophy of the organs of reproduction. The vagina is particularly affected and is shortened in its anteroposterior diameter and constricted in its lateral diameter, especially at the introitus. The mucosa usually has a glistening appearance because of the absence of normal rugae and atrophy of the squamous epithelium. During coitus the stretching produces superficial tiny lacerations and small hemorrhages. If there is an irritating discharge in the vagina or repeated trauma from intercourse or other cause, the bacteria in the vagina produce an inflammatory reaction in the exposed areas. This results in the formation of superficial ulcers and erosions in the vaginal mucosa both at the introitus and in the vagina itself. Frequently these denuded areas become apposed and adhere to one another, resulting in filmy adhesions. When these adhesions become organized there is firm union between parts of the vagina resulting in obstruction and distortion of the vagina.

The usual symptoms of postmenopausal vaginitis are a watery discharge, severe pain on intercourse, burning on urination, pelvic discomfort and perhaps also pruritus of the vulva.

In most cases of postmenopausal vaginitis, relief can readily be obtained by the administration of estrogen. This substance should be given in two forms: hypodermically and locally as vaginal suppositories. It is best to give from 2,000 to 4,000 international units of estrogen subcutaneously three times a week for about five or six weeks. During this time the patient should insert into the vagina every night a suppository containing 2,000 international units of estrogen. Usually improvement will be noted within two weeks, but treatment must be continued for five or six weeks. The cessation of the annoying symptoms is due to the changes brought about in the vaginal mucosa by the estrogenic substance. Hence there is improvement not only in the subjective symptoms but also in the appearance of the vaginal mucosa. Generally there is a recurrence of the atrophy of the vagina a few weeks after the treatment has been stopped. However, the disagreeable symptoms do not often recur. If they do, another course of treatment, but of shorter duration, should be administered.

PAINFUL HAND

To the Editor:—A Jewish right-handed roofer aged 44 complained of pain, numbness and tingling in the left hand of four months' duration. These symptoms first occurred in the third finger and gradually spread to the fourth and fifth fingers and the hypothenar (ulnar) side of the left hand. The symptoms have been constant, have been increasing in severity and seem to be worse at night, at which time brisk massage of the hand provides sufficient relief to enable him to fall asleep. An hour before the first visit, as he stepped out of a warm automobile into the street, he had a sudden attack of similar pain, which he described as a "sudden shock." This pain began in the third, fourth and fifth fingers at the plantar surface of the left hand and radiated up the anterolateral aspect of the left forearm to the elbow. The patient was plethoric, 5 feet 10 inches (178 cm.) tall, weighing 235 pounds (106.6 Kg.), and had a temperature of 98.6 F. and a blood pressure of 116 systolic, 86 diastolic in both arms. The radial and brachial pulses were equal and palpable with a rate of 80. The rest of the examination was essentially negative except for the affected hand. The left hand was moderately cyanosed, slightly swollen and showed no atrophy or clubbing of the fingers. There was a moderate tenderness over the heads of the fourth and fifth metacarpal bones on the plantar surface, and the left hand was slightly colder than the right. The left grip was definitely weaker than that of the right hand. There were no changes in touch, temperature or vibratory senses. Hoffmann's sign was negative. The urine was normal. The Wassermann and Hinton reactions were negative. Red blood cells numbered 5,090,000, with hemoglobin (Sahli) 86 per cent and white blood cells numbered 7,320; the differential smear was normal. Roentgenograms of the upper left extremity, mediastinum and cervical ribs were negative. Roentgenograms of the teeth revealed an abscess on the third left upper molar (extracted two days after the x-ray film was made). The past history was negative except for a chronic cholecystitis two years before. The patient was diagnosed elsewhere as having rheumatism and he was treated by baking, diathermy and exposures to ultraviolet rays with no relief. My treatment has consisted of alternating hot and cold soaks, baking and massage and aminophylline. The latter gave him the only relief he has ever had. Any help you can give me will be gratefully appreciated.

BENJAMIN SLATE, M.D., Cambridge, Mass.

ANSWER.—It is impossible from the observations submitted to make an absolute diagnosis. Three conditions, however, are to be considered: (1) acroparesthesia (peripheral vascular disease), (2) tumor of the spinal cord at the level of seventh and eighth cervical vertebrae, (3) scalenus anticus syndrome. The following procedure is suggested: Determine the patency of the vessels and the degree of possible vascular dilatation of the blood vessels in the left arm, forearm and hand by intradermal injection of histamine for flare formation in the arm, forearm and hand and by color changes in the dependent and elevated positions of the left upper extremity. A detailed neurologic examination including a manometric study of the fluid for a subarachnoid block is indicated.

The prognosis of the first possible diagnosis is usually fairly good with parenteral administration of tissue extract or intravenous injection of typhoid vaccine or a cervical sympathectomy.

The prognosis of the second possibility depends on the location of the tumor. If it is extramedullary and intraspinal a neurosurgical exploration may reveal a meningioma, cyst or neurofibroma, which can be removed entirely.

If none of these tests reveal any abnormal changes one must consider the third possibility (scalenus anticus syndrome). This condition is one in which the scalenus muscle becomes hyper-

trophied and spastic and by pressure on the subclavian artery may produce symptoms such as the patient complains of, as well as a possible inequality of the radial pulses. This syndrome imitates the effects produced by a cervical rib. The treatment consists of cutting this muscle at its clavicular attachment.

STERILITY AND UNDESCENDED TESTES

To the Editor:—A man aged 26 of Norse descent has been married seven years and has no children. His general health is good but he has bilateral congenital undescended testes, from which he has experienced no ill effects except some embarrassment as a boy at times when he had to undress in the presence of other children. His parents neglected to do anything about this condition while he was a child. He has intercourse with his wife (who is apparently healthy) about once a week; no birth control is practiced. The patient states that erections are good and that orgasm is present with discharge of seminal fluid. His wife has never been pregnant to their knowledge. Examination is essentially negative except for the absence of testes in the scrotum. The penis is of normal size and the inguinal rings are small and contracted. There is no external evidence of the testis on either side. Male secondary characteristics are predominant. Spermatic fluid was examined by a physician six years ago and the patient reports that sperm cells were present with slight motility. In 1938 the fluid was examined again, and the physician reported no sperm cells present. A fresh condom specimen carried to my office by the wife in the vagina revealed no sperm cells. The wife is anxious to have a child. One child was adopted a year ago but was lost through sickness. They have previously consulted several physicians and are fairly well acquainted with the problem faced. The patient would like to know whether it would be advisable to undergo an operation for bringing the testis (one or both) down into the scrotum and whether any beneficial results could be expected from the operation combined with hormone therapy—that is, in regard to his sterility? What chance is there of the testes undergoing malignant change if left where they are? Will his sexual powers become progressively weaker? M.D., Minnesota.

ANSWER.—Although most cases of this type that are relieved by endocrine therapy are treated about the time of puberty, this method should be tried before operation is attempted. The anterior pituitary-like gonadotropic substance should be employed three times a week for a period of about six months.

If this therapy is without result, operation may be considered. The condition is complicated somewhat in this case by the fact that it is difficult to state the exact location of one or both testes. It might be advisable to inject one ejaculatory duct through the prostatic urethra and have an x-ray film made which might give some indication of where the testis is. This procedure should be done only on one side and only by an expert in this field, as an attack of acute epididymitis has followed such an injection. If the testes cannot be located, the only thing to be done is to dissect down and hunt for them. The best operation is probably the one devised by Torek, described in detail in the *New York Medical Journal* Nov. 13, 1909.

It was formerly believed that undescended testes frequently become malignant as a result of pressure from their abnormal position. More extended clinical experience has shown that this is not the case. There is also no reason why the patient's sexual powers should become weaker.

EXCESSIVE SWEATING OF EXTREMITIES

To the Editor:—Will you kindly discuss the nature of and treatment for sweating of the hands and feet.

JOHN J. MOREN, M.D., Louisville, Ky.

ANSWER.—Excessive sweating results from irritation of the nerves, which may occur at any point of the central nervous system. When symmetrically limited to the hands and feet, its common cause is emotional embarrassment, excitement or fear. Evaporation of the sweat makes the hands and feet cold, and knowledge of the fact that one's hands are cold and clammy may add to the embarrassment. The same mechanism causes the axillary sweating seen so commonly in patients during a physical examination. This phenomenon occurs most frequently in adolescents and young adults and tends to improve spontaneously as they grow older.

The patient should be told the cause and encouraged to cultivate self confidence. Soaking the hands in hot water gives temporary relief. Wiping off the perspiration, dabbing the part with an astringent lotion such as alum in water 10 per cent, or from 1 to 7 per cent tannic acid or zinc sulfate in dilute alcohol. After such a lotion has dried, a dusting powder containing salicylic or benzoic acid about 5 per cent may be used. Stronger than any of these is a 25 per cent solution in water of aluminum chloride. This is quite acid in reaction. No soap should be used just before the lotion is applied and no fabrics handled until the hands are dry again after its use. Aluminum chloride, used once in three days, often lessens sweating so that a comfortable condition may be maintained thereafter by using the lotion only once a week.

The most lasting result is to be obtained from divided doses of roentgen rays, 75 roentgens of unfiltered rays once a week until it is seen that the sweating has lessened. Then the treatment should cease and progress of the case should be observed. If the sweating again becomes excessive, more treatment may be given. Treatment should always be stopped short of a full effect, for, as MacKee says, too much dryness is a much more difficult problem than too little (X-Rays and Radium in the Treatment of Diseases of the Skin, ed. 3, Philadelphia, Lea & Febiger, 1938, p. 545).

Excessive perspiration accompanies acrocyanosis, erythromelalgia and erythredema but is only one of the symptoms. The treatment is directed at the cutaneous disease. Tachycardia, tremor or other signs of hyperthyroidism accompanying hyperhidrosis should not be disregarded.

BEZOARS

To the Editor:—I am interested in finding out whether any attempts have been made in the synthetic production of cow bezoars (gallstones). If so, where can I obtain information regarding these experiments? Also whether any work has been done regarding production of any animal bezoars. J. JOSEPH HOROWITZ, M.D., Brookline, Mass.

ANSWER.—The bezoar is a concretion found in the stomach or intestine of man and animals, particularly the ruminants. This concretion is composed of layers of bile salts, soaps, calcium carbonate and phosphate, pigment and proteins around a nucleus of hair or vegetable fibers or a small gallstone. No two natural bezoars are identical in structure or appearance. There is no record available that they have ever been made synthetically.

It is possible to make an artificial gallstone by grinding the ingredients of such stones to a powder and pressing this powder into any desired form, but such artificial stones do not have the laminated appearance of natural stones (Holmes, F. S.: *South. J. Med. & Pharm.* **2**:527, 1847).

CYCLIC VOMITING

To the Editor:—One of twins aged 4 years suffers from cyclic vomiting. A maternal aunt had the same trouble for years in childhood. Are there any new theories relative to cyclic vomiting? What percentage of cases are associated with chronic appendicitis? Will you please send me references relative to the chemical theory versus the allergic theory as the causative factor? M.D., New York.

ANSWER.—There have been many etiologic theories proposed as to the cause of cyclic or recurrent vomiting. The French school, championed by Marfan, has emphasized the presence of acetone bodies in the urine and termed the condition acetonemic vomiting. Occasionally the acetone occurs in the urine before the onset of vomiting. Usually there is acidosis or a reduction in the carbon dioxide combining power of the plasma. Occasionally alkalosis has been reported. This may be explained by the loss of hydrochloric acid associated with the vomiting. Usually the blood sugar is lowered during the height of an attack. Some observers have stated that lowering the blood sugar by fasting may induce an attack. Others have reported inability to produce attacks of vomiting by means of starvation in children known to have this condition. A primary disorder of fat metabolism has been noted, namely an increased combustion of fat. Omitting cream and allowing milk of a low fat content has been said to reduce the frequency of the attacks. Certainly children suffering with this condition have an abnormal metabolism.

Some of the early observers believed that cyclic vomiting was caused by chronic appendicitis. In later years this association has not been stressed, so that the percentage of the association of cyclic vomiting with appendicitis must be small.

In children prone to cyclic vomiting attacks may be initiated by various infections, so that careful examination of these children in each attack should be made. It is conceivable that the predominant symptom of vomiting might mask an attack of appendicitis in such a child.

The allergic theory as an etiologic cause of cyclic vomiting is not stressed in recent textbooks or compilations on pediatric subjects. Jerome Glaser and Mary L. Lerner (*Am. J. Dis. Child.* **53**:1273 [May] 1937) mention allergy among a list of causes of cyclic vomiting. Allergy may manifest itself in symptoms referable to the gastrointestinal tract, as for instance allergic colic from the ingestion of foodstuffs to which the patient is definitely sensitive. However, no one has presented a convincing number of cases in which cyclic vomiting was associated with sensitivity to any specific allergens.

THYROID, PREGNANCY AND SIZE OF BABY

To the Editor:—In a discussion at a series of lectures on obstetrics here the following questions arose: Do thyroidectomized women have larger babies? Is there any evidence that offspring of thyroidectomized women are more apt to show thyroid deficiency? Is it ever justified to give a pregnant woman thyroid for overgain of weight or lowered metabolism except when she is otherwise recognized to be deficient in thyroid? I am sure that the group taking this course sponsored by the state medical society will be grateful for any information that you may furnish.

J. E. JONES, M.D., Lawton, Okla.

ANSWER.—There is good clinical evidence to substantiate the fact that the thyroid gland undergoes some hypertrophy and increased activity during pregnancy which subsides following delivery. Rarely thyrotoxicosis has its origin in pregnancy. The administration of small doses of iodine has been suggested to prevent such a complication. Many clinicians prescribe from 5 to 10 mg. of iodine during pregnancy as a prophylactic measure. The use of iodized salt usually provides sufficient iodine. In goiter regions such a prophylactic measure may be entirely indicated.

There is no good evidence that the offspring of thyroidectomized women are more likely to have thyroid deficiency than the offspring of normal women. Halsted (An Experimental Study of the Thyroid Gland of Dogs, with Special Consideration of Hypertrophy of this Gland, *Johns Hopkins Hosp. Rep.* **1**:373, 1896) reported a series of experiments in which pregnant bitches were subjected to thyroidectomies early in pregnancy and the offspring were born with greatly hypertrophied thyroid glands. A mother with myxedema may give birth to a cretin with a large thyroid gland. Such mothers, however, are of low fertility and do not often conceive. Cretins likewise are of low fertility and do not reproduce. Endemic cretinism does not exist in this country, but a sporadic cretin is occasionally encountered. These cases are due to congenital absence or insufficiency of the thyroid gland. Thyroidectomized mothers apparently do not have larger babies than normal mothers.

The administration of thyroid during pregnancy should be limited to mothers who have definite evidence of thyroid deficiency. The most easily demonstrable evidence of such deficiency is a low basal metabolic rate or symptoms of hypothyroidism. Sufficient thyroid should be admitted to bring the basal rate to the normal level and to maintain it there. Women who gain excessively during pregnancy need not show evidence of thyroid insufficiency. If an excessive gain of weight is not associated with toxemia of pregnancy, it is best controlled by diet and exercise.

GROUP ALLERGENS FOR CUTANEOUS TESTS—SENSITIVITY TO SOLUTION OF FORMALDEHYDE AND GASOLINE

To the Editor:—1. In testing the skin for allergy do pastes of grouped allergens for rubbing into the abraded skin give satisfactory results? 2. Is there a better simple but accurate method? 3. Can desensitization generally be accomplished with commercially available products? 4. What suggestions would you offer in the treatment of (*a*) a laboratory instructor sensitive to solution of formaldehyde and (*b*) a service station attendant sensitive to gasoline?

J. PAUL PROUDFIT, M.D., Washington, Pa.

ANSWER.—1. On the whole, grouped allergens such as those made for rubbing into the abraded skin do not give as satisfactory results as individual allergens. This is because in the process of grouping the concentration of each material used is naturally less than if the material were used separately. If, however, the patient is highly sensitive to some material such as cottonseed, he will give a positive reaction with group allergens as well as with individual allergens. It is frequently difficult enough to obtain positive reactions with single materials in those who are only mildly sensitive.

2. There is no method that is completely accurate, but the best method is to use scratch tests singly and follow them up with intradermal tests in those patients in whom sufficient information has not been obtained by the scratch method. By the use of the scratch method first there will be no danger of any constitutional reactions from the intradermals. Those who make all their tests intradermally run the risk of having constitutional reactions, especially to potent materials such as cottonseed, buckwheat, horse dander, ragweed and glue.

3. Commercially available products can successfully induce hyposensitization. The lessening of sensitivity is a quantitative affair and it is almost impossible to render a patient entirely desensitized. In other words, one cannot completely and permanently desensitize a person to any material to which he is sensitive. However, for all clinical purposes he can frequently be made to be free from symptoms even when exposed to reasonable amounts of the material to which he is sensitive.

4. (*a*) Sensitivity to solution of formaldehyde is probably incurable. However, the use of a respirator or even a simple expedient such as packing the nose with petrolatum might be of help. If the solution of formaldehyde causes cutaneous disorders, rubber gloves should be used.

(*b*) The same procedure would apply to one who is sensitive to gasoline. In the latter, sensitivity to ethyl gasoline, which contains tetra-ethyl lead, must also be considered.

CONGENITAL TORTICOLLIS

To the Editor:—Kindly let me know the accepted treatment for torticollis in a male infant aged 2 months. The child had a normal spontaneous birth and is the second child. The left side of the face and the left side of the head is flatter and not as prominent as the right side. The child keeps its head turned to the right with the chin over the right shoulder and persists in sleeping on the right side. He can turn his head to the left. The left sternocleidomastoid muscle appears to be more prominent than the right one. Will the deformity of the face and head clear up? Does this deformity of the head and face occur with torticollis?

M.D., New York.

ANSWER.—Congenital torticollis is most often caused by fibrous contraction of one sternocleidomastoid muscle. If the condition is mild and the position easily corrected, treatment should consist of repeated stretching to a position of overcorrection, associated with light massage of the tight muscle. After 2 months of age, and particularly when there is already the associated deformity of the face and head, which is often not noticeable at so early an age but becomes more marked as the child grows older, if the torticollis itself has not been corrected more aggressive treatment is indicated. A well padded plaster of paris cast should be applied to the head and chest, extending downward to the level of the umbilicus and maintaining a position of extreme overcorrection. A cast which is carefully applied, so that there will be no question of pressure sores developing under it, may be left on for six weeks without any danger. The cast should then be bivalved and physical therapy instituted consisting of daily stretching and massage. When this type of treatment is undertaken in the patient younger than 6 months of age, the prognosis for cure is good. In the event that the deformity does recur, an operation will be necessary. This operation consists of exposure of the sternocleidomastoid muscle, either near its attachment to the clavicle or at the tip of the mastoid process. Not only should the muscle be divided but a segment at least 1 cm. in length should be removed. From three to four days after the operation a plaster of paris cast similar to that described should be applied, but not at the time of operation. If the attempts to correct the torticollis by any or all of these measures are entirely successful, the deformity of the face and head will completely disappear. However, if the correction of the torticollis is not obtained until the child is several years older, some residual deformity, particularly asymmetry in the level of the eyes, may persist throughout life.

HYPERTENSION AND ALLERGY

To the Editor:—Please let me know whether any experimental work has been done to prove or disprove that allergy is the cause of essential hypertension.

ADOLPH KROLL JR., M.D., Passaic, N. J.

ANSWER.—There is no available evidence on this point from animal experimentation. Clinically there is a preponderance neither of allergic individuals with hypertension nor of hypertension in allergic patients. Kerppola (Coca and others: Asthma and Hay Fever in Theory and Practice, Springfield, Ill., Charles C. Thomas, publisher, 1931) found asthma in 5 per cent of 200 cases of essential hypertension. Kahn (*M. J. & Rec.* **120**:596 [Dec. 17] 1924) states that hypotension is common in allergic states but that elevation of pressure occurs during an asthmatic attack and speculates as to whether repeated attacks may result in persistent elevation of pressure. This is particularly important in respect to the use of epinephrine.

The most comprehensive statement on the matter is given by Vaughan and Sullivan (*J. Allergy* 8:573 [Sept.] 1937), containing extensive quotations of the current attitudes and giving the results on eighty-one allergic patients studied intensively with regard to clinical allergy, cutaneous tests, leukopenic indexes and blood pressure. They give detailed reports of the cases with some definite evidence of increased pressure when the patients were exposed to substances to which they were allergic. However, most of their patients failed to show this response.

Waldbott (THE JOURNAL, May 3, 1930, p. 1390) reports repeated elevations of pressure in patients repeatedly exposed to allergens or in those acquiring new sensitization. The most recent point of view as expressed by Ragland (*Clin. Med. &*

Surg., January 1938) is that since so many allergic manifestations, such as eczema and angioneurotic edema and hyperesthetic rhinitis, involve local edema, why may not the intima of capillaries and arterioles swell similarly, constituting the foundation for essential hypertension? However, evidence of this relationship is not convincing in general, regardless of the specific cases, and those encountering the hypertensive aspect are not impressed with the allergic basis of the disease.

UNILATERAL EDEMA OF LEG

To the Editor:—A white man aged 30 complains that his left leg becomes tired following a moderate amount of exertion and that his left leg is becoming larger than the right. His past and his family history are negative. On examination the patient is well nourished, and the only positive changes noted were moderately hypertrophic tonsils, marked pyorrhea of the gums and a left leg definitely larger than the right. At the thigh the left side was 2 inches larger in circumference than the right. At the calf of the leg the left side was 1¼ inches larger in circumference than the right. There is no venous or arterial disease of either leg. The bony structures are apparently normal. Reflexes in the two legs are normal and equal. No abnormal reflexes are elicited. There is no pain or tenderness on palpation. I should like to know the possible diagnosis and treatment.

M.D., West Virginia.

ANSWER.—Unilateral, noninflammatory edema of the lower extremity may be due to a chronic progressive lymphatic obstruction in the pelvis, in the retroperitoneal space or in the peripheral lymphatic system. There also may be a congenital anomaly of the lymphatics, such as aberrant or persistent lymph channels which gradually become manifest in later life.

A more frequent cause of unilateral edema, however, is deep venous obstruction; a careful history may elicit an iliofemoral thrombosis following some infectious disease or operation; it is not at all necessary to find enlarged superficial veins in deep venous obstruction. Treatment depends on accurate diagnosis. If the edema is fairly soft and pitting, elevation in bed, mercurial diuretics, such as salyrgan or mercupurin, and restriction of salt and fluid intake will hasten the return of the size of the limb to normal. Focal infection should be eradicated. Elastic support reaching from the toe to the groin must be worn to prevent refilling of the edematous limb when the patient is ambulatory. In nonpitting, hard edema, signs of mechanical obstruction should be looked for. If enlarged lymph glands are found in the groin or in the iliac fossa, a biopsy may be advisable to rule out the possibility of Hodgkin's disease, tuberculosis or glandular metastasis from another source. Roentgen treatment may control the lymphatic hyperplasias. If there is a suspicion of a low grade obliterative lymphangitis from an infected toe nail or from a ringworm infection, this source should be adequately treated. Surgical measures such as stripping of the perivenous lymphatics or establishment of better drainage of lymph into the retroperitoneal spaces may have to be done in carefully selected cases.

DEAFNESS AND PREGNANCY

To the Editor:—Would you please explain the "why" of deafness following pregnancy that has been apparently normal otherwise? Is there any treatment?

M.D., New York.

ANSWER.—The pregnant woman is subject to all those forces which produce deafness in others and in addition suffers from special hazards due to her pregnant state. The query does not give the results of examination of the external auditory canal and of the membrana tympani.

Assuming that there is no impacted cerumen or tubotympanic catarrh or other transitory and correctible deafness, one must assume that the loss of hearing, if severe, is due to a perception or a conduction type of deafness. If of the latter type it will in all likelihood be otosclerosis; if of the former variety it will be due to an auditory nerve or cochlear involvement. Both of these types of hearing disturbance may be seen during and shortly after pregnancy. A mild involvement may be so aggravated that it first becomes noticeable at these times; or the deafness may come rather suddenly in a hitherto normally hearing person. The present opinion is that these disturbances are apt to occur in pregnancy because of profound changes in metabolism and in the activity of the glands of internal secretion at this time.

The treatment of profound deafness aggravated by and occurring during or shortly after pregnancy will depend on the nature of the deafness and its severity. A complete examination and a working diagnosis of the hearing state are essential. Severe deafness will necessitate psychologic handling, training in lip reading and, in suitable instances, the use of a hearing device. Inflation of the ears and nasal operations are, as a rule, not efficacious.

DIFFERENCE IN THE BLOOD PRESSURE IN THE TWO ARMS

To the Editor:—A patient has a blood pressure on the right arm of 158 systolic and 100 diastolic and on the left arm it is 178 systolic and 110 diastolic. There is thus a difference of 20 mm. of mercury (systolic readings) between the right and the left arm. Can you tell me what might cause such a difference and what procedures I might carry out to find the correct diagnosis? I have looked up various authorities but can find no references to this difference in blood pressures on the two arms of the same individual.

M.D., Massachusetts.

ANSWER.—The difference in blood pressure between the two arms is usually a transient finding related to the time interval rather than to any actual difference between the arms. It is a common occurrence in taking the blood pressure if one starts with the right arm to find that the pressure in that arm is higher than it is two or three minutes later when taken on the left arm. Then if one goes back to the right arm one finds the pressure the same as in the left arm or a little lower. The observations are similar if one starts with the left arm.

On the other hand, there may be a real difference between the two arms. An important difference, however, is quite rare and has not yet been adequately explained in most cases except in those with syphilitic aortitis with obstruction to flow of blood into either subclavian artery or as a result of tumor or scar compressing either subclavian, axillary or brachial artery. There seems to be a congenital difference in a few cases which may perhaps be accounted for by a difference in the size or caliber of the vessels, although this has not been confirmed, or more likely a compression of one vessel or the other by an anatomic variation in the relationship of subclavian artery to clavicle and adjacent muscles. It was recognized during the World War, and probably before, that some recruits were able to decrease or obliterate the pulse in one arm by certain movements of the shoulder in an attempt to escape enlistment in the army.

The difference of pressure in the case referred to is relatively slight and if confirmed is probably to be explained on one of the anatomic factors discussed in the absence of evidence of disease. The difference is, however, unimportant.

PELVIC MEASUREMENTS AND LABOR

To the Editor:—A primigravida aged 22, 5 feet 2 inches (157 cm.) tall, has the following external pelvic measurements: anterior superior spines, 24 cm.; iliac crests, 26 cm.; trochanters, 30 cm.; external conjugate, 19 cm. The husband is a big boned man, 6 feet 2 inches (188 cm.) tall. Would you say that there is great likelihood of serious difficulty in labor?

M.D., Ohio.

ANSWER.—The external pelvic measurements are only a rough indication of the size of the pelvic cavity as a birth passageway. Although the diameters listed are somewhat shorter than the average, the pelvic planes need not be much smaller than normal. The depth of the pelvic inlet can be gaged accurately by determining the diagonal conjugate, which is the distance from the outside of the symphysis pubis to the promontory of the sacrum. If this measures more than 12 cm. the inlet of the pelvis is probably sufficiently roomy to accommodate the average size baby. Another indication of the capacity of the inlet is the course of pregnancy. In patients without cephalopelvic disproportion the fetal head usually enters the pelvic inlet about four weeks before the onset of labor. In the event that the head has failed to engage with the onset of labor, a carefully conducted test of labor may be safely carried out in an attempt to evaluate clinically the capacity of the birth canal.

TRICHOMONAS PROSTATITIS

To the Editor:—Can you give me the latest treatment for chronic prostatitis due to Trichomonas vaginalis? A woman presented herself at my office a few months ago with trichomonas vaginitis. I cleared up the condition only to have it recur about six weeks later. At that time I took a prostatic smear from the husband and found numerous pus cells and several active trichomonads in the prostatic secretion. The husband is symptom free.

HAROLD T. GOLDEN, M.D., Herkimer, N. Y.

ANSWER.—The best treatment for prostatitis due to infection from Trichomonas vaginalis is prostatic massage and application of heat to the prostate. The prostate should be massaged twice a week, firmly but gently, with the patient's bladder full. At home the patient can use a hot water prostatic heater for ten minutes each day. The prostate should be massaged until it is free from trichomonas and pus cells, and the patient should not have intercourse with his wife until he has been cured. Perhaps, as an added precaution, it would be best for him to use a condom even after both have been pronounced cured for at least two months in the hope of preventing a recurrence of the infection.

HYPNOTISM IN OBSTETRICS

To the Editor:—Some time ago there was reported in the daily press (I do not have the reference at hand) the case of an obstetric patient (a doctor's wife, I believe) who lost her life in the course of hypnotic treatment preparatory for her labor. Are you in a position to give the true facts concerning this happening? What is the latest opinion with regard to hypnosis in labor? FREDRIC LEWIS, M.D., New York.

ANSWER.—Without the newspaper reference it is not possible to give a clear opinion, but it is not known, psychiatrists say, that any person has ever died from pure hypnotism. It is conceivable that if, in hypnotic sleep, the patient is given tasks beyond the power of the heart, death might result. The dangers lie in the after-effects—hysteria, phobias, hallucinations and more or less permanent disorientations—although many psychologists deny these in toto.

Probably the woman referred to died from some complication—obstetric, medical or surgical—that was hidden by the alleged hypnotic sleep into which she had been cast. In the early days of twilight sleep an occasional rupture of the uterus or hemorrhage proved fatal.

Pure hypnotism was tried in 1821 by Récamier (said to be the inventor of the uterine curet) in general surgery. It is believed that Fauconnet, in 1860, was the first to use hypnotism for labor pains. Toward the end of the last century Bernstein and Charcot interested the world in this form of suggestion, and obstetricians experimented with it too but many did not pursue the practice long; it was difficult and uncertain, and after-effects were feared. Semianesthesia combined with suggestion worked better. In 1921, because twilight sleep gave such "bad experiences," von Oettingen reintroduced hypnosis, beginning the séances as training at the seventh month and culminating them at labor. Others tried to use posthypnotic suggestion, i. e. putting the gravida into a state of hypnotism and suggesting a painless labor at term. Although a measure of success attended these trials, few obstetricians practice the method today (Halban-Seitz, volume 2, page 811, has quite a little information on the subject).

TUBERCULOSIS OF THE SKIN

To the Editor:—One week ago I removed a small cystic mass which involved the skin and subcutaneous tissues in the region of the elbow. The pathologic report was tuberculosis cutis. The mass was first noted two months ago. The patient is in good health otherwise and is about 30 years old. One year ago I removed an anal fistula. There are no other cutaneous lesions at present. What treatment do you suggest for the tuberculosis cutis, both local and general? The scar has healed well but there remains a mass the size of a small pea in the region lying under but not connected with the skin. The original mass was as big as a good sized grape. ARNOLD BOCKAR, M.D., Warwick, N. Y.

ANSWER.—The site of the lesion should be examined with x-rays. It is possible that the skin was secondarily involved from a disease process in the underlying bone. It is generally known that other granulomatous lesions may closely simulate tuberculous ones. Assuming the underlying bone not to be involved, treating the lesion with x-rays may be helpful. General ultraviolet baths cautiously used with the dosage graduated upward may be given. Gold salts, such as sodium gold thiosulfate intravenously, at times improve some kinds of cutaneous tuberculosis. Diets with a low sodium chloride content may be tried. Finally, the general measures that are in standard use in treating tuberculosis other than of the skin should be adopted.

BLOOD SEDIMENTATION IN CHOREA

To the Editor:—Would you kindly discuss sedimentation rate relative to chorea? M.D., Ontario.

ANSWER.—Most observers are in agreement that the blood sedimentation rate is normal in chorea. When there are other manifestations of rheumatic fever along with chorea the rate is usually fast. Indeed, it would seem that a fast sedimentation rate in a patient with chorea should be considered confirmatory evidence of the presence of active rheumatic fever. Pertinent to the question is the evaluation of the association between rheumatic fever and chorea. Gerstley and his associates (Chorea: Is It a Manifestation of Rheumatic Fever? *J. Pediat.* 6:42 [Jan.] 1935) state that chorea may be caused by rheumatic fever but that this is only one of many immediate causes, psychic trauma being considered as more important. More recently, Coburn and Moore (The Independence of Chorea and Rheumatic Activity, *Am. J. M. Sc.* **193**:1 [Jan.] 1937) have agreed with this conception and state further that the presence of a normal sedimentation rate in uncomplicated chorea is strong evidence against the rheumatic origin of chorea.

It would seem reasonable to consider chorea as a symptom complex, and one closely related to rheumatic fever. In so-called pure chorea, without the presence or history of other manifestations of rheumatic fever, the incidence of rheumatic heart disease is low: Jones and Bland (Clinical Significance of Chorea as a Manifestation of Rheumatic Fever, THE JOURNAL, Aug. 24, 1935, p. 571), 3 per cent, Sutton and Dodge (Relationship of Sydenham's Chorea to Other Rheumatic Manifestations, *Am. J. M. Sc.* **195**:656 [April] 1938) 18 per cent. However, a high percentage of patients having chorea do have other manifestations of rheumatic fever at some time. The problem hence becomes one of evaluation of the presence or absence of rheumatic fever during chorea. A fast or abnormal sedimentation rate would indicate that rheumatic fever is active.

UNEQUAL BODY DEVELOPMENT

To the Editor:—Occasionally I find a patient (1) fairly well developed from the hips downward but of poor muscular development about the chest, shoulders, arms and neck or (2) normally developed down as far as the hips but with excessively enlarged legs. Is there any recognized cause for these inequalities and what can be done to correct them? At present I am interested in a patient with the first condition. M.D., Pennsylvania.

ANSWER.—These are questions which do not permit of specific answers but encourage generalization. The millions of persons who are too large in one part of the body (or too small in another) represent physiologic variations from normal. It is hard to know when they represent pathologic states. Acromegaly is recognized as a well defined condition and its cause is known, but the underlying cause of vague deviations from normal as mentioned in these questions is not known.

Much attention has been paid these questions and there are many volumes written on anthropometry. The one most widely referred to is "Human Constitution" by George Draper (W. B. Saunders Company, 1924).

Therapeutic efforts are usually disappointing. Differing results are reported following the use of various endocrine substances. Diet also is often disappointing, for a high caloric diet usually adds weight where it isn't wanted and a weight-reduction diet usually reduces the wrong part of the body. Exercises may be used to develop muscles, but the woman with thin legs doesn't want bulging muscles. Treatment, for the most part, consists in assisting the patient to an understanding of his problem and helping him effect a philosophic readjustment.

THERAPY FOR HYPOTHYROIDISM

To the Editor:—Please explain the use of thyroxine, compound solution of iodine (Lugol's solution) and thyroid in the treatment of hypothyroidism. It is not clear from the literature that I have read how these preparations should be used, separately or combined, in the treatment of hypothyroidism. M.D., South Carolina.

ANSWER.—While iodine is occasionally reported to produce improvement in some cretins, it has no part in the routine management of hypothyroidism. While thyroxine is of great scientific importance, it likewise has almost no part in the treatment of hypothyroidism. It may be of value in rare instances in which there is some uncertainty about whether or not the patient is taking the thyroid medication that is prescribed. To produce its maximum effect, thyroxine should be administered in an alkaline solution and may be given by the oral, intravenous or subcutaneous route. In nearly every case of hypothyroidism the medication of choice is desiccated thyroid, which is cheap, readily obtainable and easy to take. A preparation should be used in which the iodine content is constant.

ACETYLCHOLINE IN PAROXYSMAL TACHYCARDIA

To the Editor:—Will you please inform me regarding the use of acetylcholine in attacks of paroxysmal tachycardia. G. W. POTTER, M.D., Redfield, S. D.

ANSWER.—Acetylcholine or similar preparations have been used since 1925 in the treatment of paroxysmal tachycardia. There is considerable variation in the degree of success reported by different investigators. All are agreed that it is impossible to attain the therapeutic effect without disagreeable and occasionally dramatic side effects. Nausea and syncope, the latter accompanied by cardiac standstill at times, are the most frequent untoward symptoms. Substernal pain and a sense of constriction in the chest are frequently noted, but their significance is not clear. Flushing, salivation and sweating are nearly always

produced when the drug is administered in sufficient dosage to produce any demonstrable effect on the heart or blood pressure.

Since most attacks terminate spontaneously in a relatively short time and do not produce serious cardiac insufficiency, it is neither necessary nor wise to use this drug as a routine for this purpose. In protracted attacks or those occurring in the presence of minor organic heart disease, it might be considered if other means of stopping an attack have been tried unsuccessfully. There would seem to be reasonable doubt about the wisdom of using it in a case in which the tachycardia is a complicating feature of serious organic heart disease because of the occasional gross disturbance the drug produces in hemodynamics. If it is to be used, it should be given in proper dosage (from 20 to 30 mg.) subcutaneously and not intravenously. Atropine should be readily available to counteract serious side effects.

INTRAVENOUS INSULIN

To the Editor:—I would appreciate any information you might give me regarding the rapidity of the effect of the various types of insulin when given intravenously. I would be grateful for a bibliography.

M.D., Michigan.

ANSWER.—Longwell and Ravin (*Am. J. Physiol.* **117**:453 [Nov.] 1936) found that the action of protamine zinc insulin, when injected intravenously into rabbits, did not differ significantly from that of regular insulin given by the same route.

Berg, Gross, McAfee and Zucker (*Proc. Soc. Exper. Biol. & Med.* **32**:1080 [April] 1935) compared the effect of unmodified insulin injected intravenously on the blood sugar of normal and depancreatized dogs. They give references to the published papers of others in which the results of similar studies on men and animals were reported.

Meythaler and Kleineidam (*Arch. f. exper. Path. u. Pharmakol.* **178**:315, 1935) state that in man, following the intravenous injection of unmodified insulin, the fall in blood sugar begins within one minute.

The monograph "Insulin: Its Chemistry and Physiology," by Hans F. Jensen (New York, Commonwealth Fund, 1938) contains an extensive bibliography on this and related topics.

LONG-CONTINUED APPLICATION OF ICHTHAMMOL

To the Editor:—I have been asked by a colleague what effects could be expected from a continuous application to the skin for a period of ten years of ichthammol. Would it be likely to cause excessive pigmentation or some form of dermatitis? F. W. KENNEY, M.D., Denver.

ANSWER.—"Ichthammol is obtained by the destructive distillation of certain bituminous schists, sulfonating the distillate, and neutralizing the product with ammonia" (National Formulary—ed. 6, 1936, page 201). It has a slight antiseptic action as compared with phenol. Through its action as a reducing and exfoliating agent it is of value in parasitic conditions. Even diluted to 10 per cent strength it produces a drying effect on the upper layers of the epidermis. Some skins are easily irritated by ichthammol. Because of its sulfur content, its long continued application might easily produce a chronic dermatitis. Increased pigmentation could result from ten years' application of the drug.

MONOCYTIC LEUKEMIA

To the Editor:—Do the hematologists recognize such a condition as monocytic leukemia, and if so what is the clinical course of the illness and its symptomatology? In a case of chronic aplastic anemia what is the significance of the sudden appearance of from 30 to 40 per cent of monocytes, the patient otherwise doing well clinically?

JACOB L. STEIN, M.D., Brooklyn.

ANSWER.—Monocytic leukemia is rather generally recognized as a disease entity from the hematologic point of view. There is disagreement, however, as to whether or not it can be distinguished from other leukemias on clinical grounds alone. Forkner (*Arch. Int. Med.* **53**:1 [Jan.] 1934) believes that it can be so distinguished because of the presence of swelling with ulceration and necrosis of the mucous membranes of the mouth, whereas only hemorrhages are found in other types of leukemia. In general, monocytic leukemia is acute and runs a brief and often fulminating course similar to other types of acute leukemia. There are usually fever, lesions in the mouth, some lymphadenopathy (mostly cervical) and usually moderate splenomegaly and hepatomegaly.

The appearance of from 30 to 40 per cent of monocytes in aplastic anemia is difficult to interpret. If the absolute number of granulocytes is decreased simultaneously, it is probably a bad sign.

SEDATIVES AND GRANULOCYTOPENIA

To the Editor:—I want to prescribe a mild sedative for a patient in whom severe granulocytopenia developed four years ago while taking pentobarbital sodium, phenobarbital and a tablet containing aminopyrine. Bromides cause a rash, chloral hydrate causes excitement. Would the administration of phenobarbital alone be completely free from danger? Has any case of granulocytopenia been reported which was thought to be due to phenobarbital alone?

M.D., Saskatchewan.

ANSWER.—When granulocytopenia became comparatively frequent, suspicion was directed toward hypnotics and pain-relieving drugs, since their increased use seemed to be concomitant with the increased frequency of granulocytopenia. Certain combinations contain barbital derivatives as well as aminopyrine; it was first thought that the barbital derivatives were the chief offenders. Later it was shown that aminopyrine was the most frequent causative factor. There seem to be few if any cases in which it has been positively proved that phenobarbital in acceptable dosage has caused granulocytopenia.

Since the patient is in need of a mild sedative and is sensitive to so many preparations, it is suggested that carbromal U. S. P. XI (bromdiethyl, acetylurea) be tried. In this drug the small amount of bromine is in "masked form" and probably will not cause a rash.

CONGENITAL SYPHILIS

To the Editor:—Kindly outline the treatment of heredosyphilis in a boy aged 7 years who has not been given any form of therapy. His height is 45 inches (114.3 cm.) and his weight 46¼ pounds (21 Kg.).

M.D., New Jersey.

ANSWER.—The treatment for this patient cannot be outlined with any degree of certainty without knowledge of the manifestations of congenital syphilis which he presents, if any. Does he, for example, have interstitial keratitis? If he does, depending on the duration and severity of the ocular lesion, nonspecific fever therapy might be immediately instituted. Does he have any clinical evidence of neurosyphilis and is the spinal fluid normal or abnormal? Or, on the contrary, does he show any evidence of congenital syphilis other than inactive stigmas and a positive serologic reaction of the blood?

Regardless of the type of manifestations which he presents he certainly should be treated, since no previous treatment has been given. Without further information, however, the best that can be done is to refer the inquirer to the chapter on treatment in the monograph "Prepubescent Syphilis," by Jeans and Cooke, published by D. Appleton & Co., New York, in 1930 or to chapter 28 on the treatment of congenital syphilis in "The Modern Treatment of Syphilis," by Moore, published by C. C. Thomas, Springfield, Ill., in 1933.

REPEATED CURETTEMENTS

To the Editor:—Would repeated curettages under aseptic conditions, with or without pregnancies and in the absence of any infections or inflammations of the uterus, have a tendency to result in sterility or any other harmful effect in the patient? M.D., Chicago.

ANSWER.—No. In recent years endometrial biopsies have been performed repeatedly on patients in the physician's office with harmful results in hardly any cases. Some of these women were sterile before the biopsies were performed and conceived after these minor operations. Of course endometrial biopsies are not as extensive as curettages. However, if a curettement is properly performed—that is, if it is done under aseptic conditions and with gentle removal of only endometrial tissue—there is complete regeneration of the endometrium and no interference with the normal cyclic activity of the endometrium.

INHALATION OF CHROMIUM SALTS

To the Editor:—A man aged 20 has been working as a chrome plater for the past fifteen months. He has had several ulcers on his hands which have healed. He has at no time had any ulcers in his nose. While working he is protected by rubber gloves and wears a respirator. He has had a few attacks of coma while working. He states that he was unconscious for four hours during one of these attacks. He is nervous, and I am inclined to believe that the "so-called comatose attacks" were really hysteria. Could inhalation of chromium salts have an effect on the brain or cause coma? A. J. WEINBERG, M.D., Chicago.

ANSWER.—The action of chromium is almost entirely topical and limited to mucous membranes, the skin or its adnexa. No reference to the occurrence of coma as a direct result of chromium has been found. It certainly is not probable in the absence of other indications of severe chromium poisoning.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, June 3, page 2354.

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 20-22. Sec., Dr. J. N. Baker, 517 Dexter Ave., Montgomery.

ARIZONA: *Basic Science.* Tucson, June 20. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical.* Phoenix, July 5-6. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: *Written examinations.* San Francisco, July 10-13, Los Angeles, Aug. 7-10, and Sacramento, Oct. 16-19. *Oral examinations* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California). Los Angeles, August 7, and San Francisco, Nov. 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, July 10-12. *Applications must be filed on or before June 20.* Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Medical (Regular).* Hartford, July 11-12. *Endorsement.* Hartford, July 25. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, July 11-12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, July 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 26-27. *Medical.* Washington, July 10-11. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 19-20. Sec., Dr. William M. Rowlett, Box 786, Tampa.

HAWAII: Honolulu, July 10-13. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

IDAHO: Boise, Oct. 3-4. Dir., Bureau of Occupational License, Mr. H. B. Whittlesey, State Capitol Bldg., Boise.

ILLINOIS: Chicago, June 20-22 and Oct. 17-19. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield

INDIANA: Indianapolis, June 20-22. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, July 11. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, State Department of Health, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 13-14. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

MAINE: Augusta, July 11-12. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical (Regular).* Baltimore, June 20-23. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, June 20-21. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 11-13. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Ann Arbor and Detroit, June 14-16. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 100 W. Allegan St., Lansing.

MINNESOTA: Minneapolis, June 20-22. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June 21-22. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: *Reciprocity.* Helena, Oct. 2. *Examination.* Helena, Oct. 3-4. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Board of Registration in Medicine, Dr. T. P. Burroughs, State House, Concord.

NEW JERSEY: Trenton, June 20-21. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 9-10. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York, and Syracuse, June 26-29. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, State Education Department, Albany.

NORTH CAROLINA: Raleigh, June 19. Sec., Dr. William D. James, The Hamlet Hospital, Hamlet.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OKLAHOMA: Oklahoma City, June 14. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Medical.* Portland, June 20-22. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science.* Corvallis, July 8, and Portland, Oct. 28. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: [illegible] Philadelphia and Pittsburgh, beginning July 5. [illegible]uly 7-8. Dir., Bureau of Professional Licensing, [illegible], 358 Education Bldg., Harrisburg.

PUERTO RICO: Santurce, Sept. 5. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

RHODE ISLAND: Providence, July 6-7. Sec., Dr. Robert M. Lord, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 27. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 18-19. Director, Medical Licensure, Dr. G. J. Van Heuvelen, State Board of Health, Pierre.

TENNESSEE: Memphis, June 15-16. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Austin, June 19-21. Sec., Dr. T. J. Crowe, 918 Mercantile Bldg., Dallas.

UTAH: Salt Lake City, June 26-28. Dir., Department of Registration, Mr. G. V. Billings, 326 State Capitol Bldg., Salt Lake City.

VERMONT: [illegible] Sec., Board of Medical Registration, Dr. W. [illegible]

VIRGINIA: [illegible] Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WEST VIRGINIA: Bluefield, July 5. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Milwaukee, June 27-30.* Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

West Virginia March Report

Dr. Arthur E. McClue, secretary, West Virginia Public Health Council, reports the oral and written examination held at Charleston, March 6-8, 1939. The examination covered eleven subjects and included 110 questions. An average of 80 per cent was required to pass. Five candidates were examined, all of whom passed. Seventeen physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
St. Louis University School of Medicine		(1926)	82.5
Long Island College of [illegible]		[illegible]	89.9
New York University	"	[illegible]	87.9
University of Cincinnati	"	[illegible]	83.9
University of Tennesse	"	[illegible]	88.2

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School		(1934) (1933), (1938)	Iowa, Illinois
Rush Medical College		(1937)	Michigan
Johns Hopkins University School of Medicine		(1935)	Maryland
University of Michigan Medical School		(1934)	Michigan
St. Louis University School of [illegible]		[illegible]	Missouri
Washington University School of [illegible]		[illegible]	Missouri
Ohio State University College of [illegible]		[illegible]	Ohio
Western Reserve University Sch[illegible]	"	[illegible]	Ohio
University of Pittsburgh School [illegible]	"	[illegible]	Penna.
Medical College of Virginia		(1916) (1937, 2)	N. Carolina, Virginia
University of Virginia Department of Medicine		(1935)	Virginia
University of Toronto Faculty of Medicine		(1929)	Michigan

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Duke University School of Medicine		(1934)	N. B. M. Ex.

Wisconsin January Examination

Dr. Henry J. Gramling, secretary, Wisconsin State Board of Medical Examiners, reports the oral, written and practical examination held at Madison, Jan. 10-12, 1939. The examination covered twenty subjects and included 100 questions. An average of 75 per cent was required to pass. Fourteen candidates were examined, all of whom passed. Thirteen physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1938) 87, 89, (1939)	85
Rush Medical College		(1937)	87
University of Minnesota Medical School		(1938)	88
Marquette University School of Medicine		(1938) 88, 88,	89
University of Wisconsin Medical School		(1933) (1936) 86, 87, (1937) 89, 89,	87,

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians [illegible]	[illegible]go	(1885)	Illinois
Northwestern Univ. [illegible]		(1935),* (1935)	Illinois
School of Med. of th[illegible]	Sciences	(1937)	Illinois
State University of Iowa College of Medicine		(1936)	Iowa
Tufts College Medical School		(1923)	New York
University of Michigan Medical School		(1930), (1933)*	Michigan
University of Cincinnati College of Medicine		(1934)	Ohio
Western Reserve University School of Medicine		(1931)	Ohio
University of Pennsylvania School of Medicine		(1921)	Texas
Baylor University College of Medicine		(1929)	Texas

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard Medical School		(1930)	U. S. Navy

* License has not been issued.

Missouri Reciprocity and Endorsement Report

Dr. Harry F. Parker, secretary, State Board of Health of Missouri, reports ten physicians licensed by reciprocity and two physicians licensed by endorsement at the meeting held in Jefferson City, Jan. 12, 1939. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine		(1934)	Colorado
University of Kansas School of Medicine		(1934, 2)	Kansas
Louisiana State University Medical Center		(1938)	Louisiana
University of Michigan Medical School		(1936)	Michigan
University Medical College of Kansas City, Missouri		(1911)	Nebraska
University of Pittsburgh School of Medicine		(1936)	Penna.
University of Tennessee College of Medicine		(1931), (1937)	Tennessee
Vanderbilt University School of Medicine		(1922)	Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Washington University School of Medicine		(1928)	N. B. M. Ex.
University of Vermont College of Medicine		(1935)	N. B. M. Ex.

Book Notices

A Dictionary of Food and Nutrition. By Lulu G. Graves, Organizer and Director of Dietary Departments in Michael Reese Hospital, Chicago, Lakeside Hospital, Cleveland, and Mt. Sinai Hospital, New York, and Clarence Wilbur Taber. Cloth. Price, $3.50. Pp. 423. Philadelphia: F. A. Davis Company, 1938.

This book is the first attempt to provide a compendium of terms of interest to students of foods and nutrition. It includes not only definitions of the more common medical and scientific terms related to the science of nutrition and dietetics but also definitions of a number of such uncommon medical terms as acoria, ageusia, addephagia, eupepsia and oligocythemia. Many comparatively unknown foods such as cherimoya, chervil, genipap, grumichama, sapodilla and sapote are listed, often with interesting details as to origin, history and use. The book is complete. It contains in appendix and scattered throughout the text a number of useful tables and a bibliography of books, bulletins and journal articles pertaining to the subjects. Considerable material has been incorporated relative to the nutritive value of the more common articles of diet. Unfortunately the material relating to nutrition is marred by occasional inaccuracies, such as the statement that sulfur-dried apricots contain more vitamin A (instead of vitamin C) than the unsulfured fruit, frequent confusion of food or nutritional value with calory value and the statement that pellagra is believed to be due to the absence in the diet of vitamin G (now identified as riboflavin). For some unknown reason the definitions for caseinogen and casein are given according to British rather than American usage. The customary American terms for the chief protein of milk, before and after the action of rennin, are casein and paracasein, respectively. However, in spite of these inaccuracies, which may be corrected in future editions, the dictionary has many valuable features, which should make it a convenient and useful addition to the reference shelves of physicians, dietitians, home economists and others interested in foods and in the science of nutrition.

Our Sex Life: A Guide & Counsellor for Everyone. By Fritz Kahn, M.D. Translated from the German by George Rosen, M.D. Cloth. Price, $6. Pp. 459, with 41 illustrations. New York: Alfred A. Knopf, 1939.

This volume, published in German in 1937, is an attempt to provide for the average intelligent person the information that every one ought to have. The book is divided into several parts, the first dealing with the sex function, the second with the technic of sex activity, the third with the hygiene of sex life, the fourth with the problems of fertility, the fifth with the disturbances of sex life, the sixth with the diseases of sex life, the seventh with prostitution, the eighth with the sex life of children, the ninth with the sex life of the unmarried and the tenth with the author's solution of the sex problem. The book is well written, is handsomely illustrated and is modern in its point of view. The author is firm for continence during premarital life, although recognizing that 95 per cent of people fail of complete continence. He recognizes that no real solution has yet been offered for the sex problem of the unmarried and that only through sound education is a solution approached.

Précis de technique radiographique. Par P. Porcher, radiologiste des hôpitaux de Paris. Avec la collaboration de A. Juquelier, assistant de radiologie des hôpitaux de Paris. Cloth. Price, 150 francs. Pp. 332, with 302 illustrations. Paris: Gauthier-Villars, 1938.

The extraordinary development of x-ray diagnosis has encouraged the production of a rather large number of diagnostic works without much reference to technical detail. The state of perfection to which the manufacturers have brought their radiographic equipment has permitted a simplification of technic for ordinary radiographic work, which can be learned in a relatively short time by physicians familiar with the anatomic and pathologic detail. For the benefit of the technician and for those physicians who do their own technical work (every physician should know better than his technician how to do this work), this is a valuable book. The first half deals with the radiographic technic of exploration of the skeleton; the second part deals with the viscera, including the digestive tube and its appendages, the urinary and genital tracts and the respiratory tract. Despite the excellence of this book and the wealth of the photographs showing the various positions described, there is one serious fault, which another edition may perhaps correct. It would aid greatly if, in addition to the photographs of the patients in position for the radiographic exposures, there were added reproductions of the ensuing radiographic results. In fact, without such reproductions the value of the work is greatly reduced. Here and there a few roentgenograms are included, but they are relatively few and certainly inadequate. The book is well printed. The photographic illustrations, though small, are effective, and on the whole the work is a desirable addition to the working library of every radiologist and his helpers.

Rheumaprophylaxe und Rheumafürsorge. Herausgegeben von Dr. P. Köhler, Geh. San.-Rat. Leiter der Staatlichen Rheumaheilanstalt und des Sanatoriums Bad Elster, und Prof. Dr. Rud. Jürgens, Stellv. Direktor der Univ.-Klinik für natürliche Heil- und Lebensweisen und Chefarzt des Augusta-Hospitals Berlin. Verhandlungen der Deutschen Gesellschaft für Rheumabekämpfung Stuttgart, 17.—18. IX. 1938 (Sonderausgabe aus Zeitschrift für Rheumaforschung Band I, Heft 10, 1938.) Boards. Price, 8 marks. Pp. 156, with illustrations. Dresden & Leipzig: Theodor Steinkopff, 1938.

The German Society for the Fight Against Rheumatism met in Stuttgart in September 1938. The present volume, the record of the proceedings, was published by Steinkopff as one of a series of books appearing in the past months, all concerned with various phases of the rheumatism problem. Julius Rother of Berlin opened the meeting. He stated the subject for the symposium and set the temper of the talks by warning his colleagues of their deep responsibility to the fatherland in guarding the health of their fellow Germans. Reiter of Berlin outlined a plan under consideration whereby all those interests within the reich which are concerned with rheumatism are to be coordinated. The nation is to be divided into sectors. Statisticians, insurance companies, dentists, clinicians and bacteriologists will take part in the work. The results will be evaluated and the work directed from the central office; thus useless duplication will be avoided. Eighteen medical papers were presented. The diversity of the subject matter does not permit of individual reviews. However, the papers dealt mainly with general considerations of the incidence and prophylaxis of rheumatic diseases. The "focal infection school" was unusually well represented and discussed extensively the probable roles of dental infections and diseases of the upper part of the respiratory tract, the pelvis and the appendix. No new proofs of the focal infection hypothesis were presented, although, as usual, those with conviction regarding this hypothesis needed no further proof. Josenhans insists that much will be accomplished when every German school child vigorously massages his gums with the "zahnigel"—a gum finger cot with rubber bristles! The proceedings are of interest to those who are following the growing concern of the profession with the rheumatism problem. In Germany, as elsewhere, there is increasing realization of the serious sociological problems and the economic ravages of these previously neglected diseases.

Fevers for Nurses. By Gerald E. Breen, M.D., Ch.B., D.P.H., Senior Assistant Medical Officer, The North Eastern Hospital, London. Cloth. Price, $2. Pp. 199, with 21 illustrations. Baltimore: William Wood & Company, 1938.

This book begins with several chapters on the general features, observations to be made and principles of prevention of fevers in general. The diseases are next discussed individually according to definition, cause, incubation period, segregation period, incidence, mode of spread, course, complications, treatment and prophylaxis. The final chapter is on operative procedures. The clear, concise manner of presentation makes for easy reading. Moreover, constant reference to the patient and the nurse bring realism to items which might otherwise be overlooked.

Giperergicheskie reaktsii (v eksperimente i klinike.) Pod redaktsiey D. E. Alperna. Réactions hyperergiques (expérimentales et cliniques.) Paper. Price, 7 rubles. Pp. 240, with illustrations. Kiev: Gosudarstvennoe meditsinskoe izdatelstvo USSR, 1938.

This volume, published by the department of pathologic physiology of the Ukrainian Institute of Experimental Medicine, deals with investigations carried on in the institute into the various phases of hyperergic reactions. The papers are in Russian with a brief summary in French. The volume should prove of interest to experimental workers in this field.

Molding and Casting: Its Technic and Application for Moulage Workers, Sculptors, Artists, Physicians, Dentists, Criminologists, Craftsmen, Pattern Makers and Architectural Modelers. By Carl Dame Clarke, Associate Professor of Art as Applied to Medicine, University of Maryland School of Medicine, Baltimore. Cloth. Price, $4.50. Pp. 308, with 69 illustrations. Philadelphia: Warren-Knight Company, 1938.

This volume is useful as a reference book to sculptors, artists, dentists, criminologists, craftsmen, pattern makers and architectural modelers. It is of inestimable value to physicians interested in moulages for medical record or the production of realistic, natural and comfortable prostheses. Although in his preface the author "freely admits that this text is far from complete," the book is probably the most complete published reference book to be found on the art of molding and casting. Unlike many other persons doing this type of work, who have patented and carefully guarded their "trade secrets," Clarke has given a comprehensive outline of methods and formulas, some of which are a definite improvement on those now employed. The material is arranged in logical and orderly fashion, beginning with a history of molding and casting as applied to medicine and science in general, going on to the subject of where and how to purchase molding and casting ingredients and continuing with all the details of molding and casting simple subjects, all parts of the human body, pathologic specimens and large subjects. Following the section on molding and casting the entire body are sections on moulages of the oral cavity and moulage prosthesis. The detailed and clearly written descriptions make the volume an ideal textbook for amateurs. There are numerous references.

The Emotional Factor in Visceral Disease. By H. G. McGregor, M.D., M.R.C.P., Medical Registrar, Royal Sussex County Hospital. Foreword by R. D. Gillespie, M.D., F.R.C.P., D.P.M. Cloth. Price, $3. Pp. 198, with 4 illustrations. New York & London: Oxford University Press, 1938.

Dr. McGregor has written an interesting, timely and useful little book in which he gives much information and much good advice. It is an excellent idea to show the medical student that, even when he finds organic disease such as peptic ulcer or chronic ulcerative colitis, asthma, hypertension or hyperthyroidism, he must not forget that factors of nerve strain, fatigue, worry, fear, difficulties in adjustment to life or internal psychic conflicts may well be more important in maintaining the disease or producing exacerbations than are the organic changes to be observed in the body. Furthermore, treatment will often be useless unless the psychic factors are recognized and corrected so far as is possible. The author discusses the now well known fact that there is a definite ulcer diathesis or personality which must be recognized and dealt with during all attempts at treatment of the disease. He gives a number of case reports to show that psychic strain is likely to cause flare-ups in the course of chronic ulcerative colitis, and he shows the importance of such strain in some cases of asthma. He gives much good advice about the treatment of the nervous states, and he points out what should be well known, namely that there are only a few physicians who were born with the requisite temperament, understanding and personality to help persons with nervous and psychic troubles. The average physician, who doesn't like these patients and doesn't like to be bothered with them, usually cannot help them, and often he only antagonizes and outrages them and sends them away angry. The book should be read by all internists and by all young physicians starting out in practice.

Crime and the Man. By Earnest Albert Hooton. Cloth. Price, $3.75. Pp. 403, with 64 illustrations. Cambridge, Massachusetts: Harvard University Press, 1939.

This volume is based on a twelve year survey of the anthropology of the American criminal. It is accompanied by a more extensive work giving all the statistical data on which it is based. Much of the material was used as the foundation of a series of lectures before the Lowell Institute. The author recognizes that psychiatry, anthropology and ethnology all have been concerned with crime and that the answer is not yet available. Since the time when Lombroso contended that the skull of the criminal is distinctive, the anthropological approach to the problem has had significance. Some 15,000 criminals in ten states were examined in this study. The book seems to lead to the conclusion that special studies of the relationship of body build to crime and of alleged occupations of criminals to physique and to general sociological status suggest that the type of a criminal's offense is the resultant of several selective forces or agencies. The author finds, for instance, that tall, thin men tend to murder and to rob, tall heavy men to kill and to commit forgery and fraud, undersized thin men to steal and to burglarize and short heavy men to assult, to rape and to commit other sex crimes, whereas men of mediocre body build tend to break the law without obvious discrimination or preference. The first generation American criminals, he finds, are more persistently criminalistic than the foreign born. It is of course significant that a large scientific study of this type should lead to the definite conclusion that there is a criminal type or several criminal types. The author finds that race does not make the human animal criminalistic but that race undoubtedly influences the choice of crime in those organic inferiors who appear in each racial group. He believes that first offenders ought to be segregated and carefully studied and that paroled delinquents should be kept on a permanent reservation. He feels that the only purely environmental, nonbiologic means of crime prevention which has the slightest prospect of success is the training, supervision and education of children from depressed areas and inferior stocks prior to the onset of delinquency. Professor Hooton is a scientist who knows how to write; he has wit and literary style and what he says merits attention.

Clinical Bio-Chemistry. By Ivan Maxwell, M.D., B.S., M.Sc., Lecturer in Physiology and Clinical Bio-Chemistry, University of Melbourne. Fourth edition. Cloth. Price, 22s. 6d. Pp. 343, with 6 illustrations. Melbourne: W. Ramsay (Surg.) Pty., Ltd., 1938.

This edition contains much of the same material as before, with slight extensions in most chapters and the addition of methods for determining serum phosphatase, urinary p_H and urinary vitamin C. As in former editions, no attempt has been made to present a choice of methods with critical discussions on reliability and significance of the results. It is unfortunate that the methods for determining blood and urinary dextrose, nonprotein nitrogen by nesslerization, urea by urease paper, serum calcium and blood uric acid have not been brought down to date. The book contains much factual material of value to the clinician, and each chapter concludes with a short bibliography of clinical interest.

Medicine for Nurses. By C. Bruce Perry, M.D., F.R.C.P., Professor of Medicine, University of Bristol, Bristol. Cloth. Price, $2. Pp. 211, with 11 illustrations. Baltimore: William Wood & Company, 1938.

In his preface the author states that this book "is primarily intended for nurses studying for the Certificate of General Nursing of the General Nursing Council." In the short space of 203 small pages an attempt is made to discuss the diseases of the blood, of all the systems and of the joints and muscles, deficiency diseases, diseases of the skin and acute infectious diseases and to give some advice on the nursing requirement. Consequently there is not enough explanation of the majority of diseases to satisfy even a minimum of curiosity.

Methodik der Hormonforschung. Von Dr. phil. habil. Christian Bomskov, Laboratoriumsleiter der chirurgischen Klinik der Universität Freiburg i. Br. Band II: Ovar (Follikelhormone, Gelbkörperhormon), Hoden/Hypophysenvorderlappen. Paper. Price, 89 marks. Pp. 1,016, with 274 illustrations. Leipzig: Georg Thieme, 1939.

This book deals with the hormones of the ovaries, testes and anterior pituitary gland. Like the first volume, it is a huge compilation of scientific reports, containing a remarkable amount of data which would be obtained with difficulty under ordinary circumstances. Detailed descriptions are given of the physiologic and chemical properties, extraction methods and assay methods of these hormones. The material is presented in great detail and includes practically all methods for extraction of the various hormones, chemical procedures for their purification and synthesis and assay technics that have been published. For this reason it is an invaluable source book for the investigator in the field of endocrinology. The material, however, is not critically evaluated by the author and contains in detail abstracts of numerous reports of questionable value, demonstrating that the author either has little insight as to the actual worth of much of the material or else is merely acting as a collector of data. The volume is probably intended not to be read but only to be consulted. Considerable experience with the material in question is necessary in order to use it properly. The average medical student or physician would derive little benefit from a perusal of the book.

Der Rheumatismus: Sammlung von Einzeldarstellungen aus dem Gesamtgebiet der Rheumaerkrankungen. Herausgegeben von Professor Dr. Rudolf Jürgens, Stellv. Direktor der Universitätsklinik für natürliche Heil- und Lebensweisen und Chefarzt des Augusta-Hospitals Berlin. Band IX: Die Arthroskopie (Endoskopie des Kniegelenks): Ein Beitrag zur Diagnostik der Gelenkkrankheiten. Von Dr. med. Ernst Vaubel, Medizinische Universitäts-Klinik Frankfurt a. M. Band XI: Der akute Gelenkrheumatismus (das rheumatische Fieber). Von Dr. med. Ernst Vaubel, Medizinische Universitäts-Klinik Frankfurt a.M. Band XII: Dermatologie und Rheumatismus. Von Prof. Dr. med. Richard Frühwald, Direktor der Hautabteilung am Stadtkrankenhaus Chemnitz. Boards. Price, 10 marks; 7.50 marks; 4.50 marks. Pp. 64, with 25 illustrations; 124; 52, with 17 illustrations. Dresden & Leipzig: Theodor Steinkopff, 1938.

Since the turn of the century, physicians have learned much about the exact diagnosis of diseases of the joints. Laboratory procedures and many mechanical methods have contributed largely to this increasing skill. Thus, new light on the diagnosis of rheumatic diseases has resulted from studies of roentgenologic evidence, of fluid aspirated from joints, of specimens taken for biopsy and of immunologic data. Arthroscopic examination may now be added to this growing list. This procedure, the direct visualization of the cavities of joints by an endoscope designed for this purpose, should become important for the study and diagnosis of disease of joints, just as cystoscopic, bronchoscopic and gastroscopic examinations have proved of value. In volume IX of the present series on rheumatism, Vaubel has outlined the technic of the procedure, the indications for it and the attendant dangers, and he has described the instrument made for him by Wolf of Berlin. A description of the normal cavity of the knee joint as seen through the arthroscope is included, and also reports of eleven cases of arthritis in which he employed arthroscopic examination. Roentgenograms and descriptions of the arthroscopic appearance of the diseased joints are presented. Sixteen colored drawings are appended, which show clearly the pathologic changes as seen through the instrument. The diseases pictured include rheumatic fever, acute and chronic infection, arthritis, intermittent hydrops, "arthrosis deformans" and synovial lipoma. This book is devoted to the author's own work. The reader must look elsewhere for the history of the development of the method.

Volume XI in the series, on rheumatic fever, is an objective survey of much present knowledge. The introductory chapter deals with the important geographic, climatic and seasonal factors affecting rheumatic fever. This is followed by a section devoted to a review of pathologic and clinical considerations. The remainder of the text deals with prognosis, therapy, diagnosis and pathogenesis. Discussing the pathologic changes of rheumatic infection, Vaubel has presented a review of much of the newer work in this field. In the earliest stages one finds edema of the connective tissues of affected organs, the individual fiber bundles being separated by edema and swollen or replaced by opaque masses which, like fibrin, stain with acidophilic dyes. This lesion, which appears to be caused by a specific injury to the intercellular ground substance in which fibrils are embedded, has been named "fibrinoid swelling" by Klinge. The rheumatic granuloma, or Aschoff nodule, is a lesion belonging to the later course of the disease. In the section dealing with diagnosis a useful chapter is included regarding the electrocardiogram. Although it shows no alteration pathognomonic of the disease, it gives distinct evidence of myocardial injury in at least 62 per cent of cases of acute involvement. The character of these changes is outlined. Vaubel has observed the late effects of rheumatic fever on the joints, clinically and by arthroscopic examination. Correctly, he emphasizes that these do not include progressive, chronic arthritis; the lesions of the joints almost invariably clear without leaving any residue. Regarding prognosis, everything depends on the severity of the cardiac involvement, which, as Vaubel indicates, is far more frequent and more intense early than later in life. Of those attacked between the ages of 11 and 25, it has been shown that only 20 per cent are alive at the age of 40. After summarizing the recent work on bacteriology and immunology in rheumatic fever, Vaubel cautiously concludes that the etiology of rheumatic fever remains obscure. A specific infectious agent has not yet been proved. Evidence for the tuberculous hypothesis is slim and, as to streptococci, the most one can say is that a preceding streptococcic infection probably forms the groundwork for rheumatic fever; the streptococcus, says Vaubel, is not yet proved to be the specific exciter. He points out that those who claim that the lesions of rheumatic fever are a hyperergic response of the organism sensitized to streptococci overlook the fact that similar lesions have been induced in animals by toxins and by direct infection; the allergic hypothesis is not yet proved. The appended bibliography is fairly extensive.

Volume XII of the series is divided into two sections, the first dealing with "skin diseases which occur frequently in rheumatism" and the second with "secondary skin diseases not causally related to rheumatism." No attempt is made to arrange the dermatologic disturbances on the basis of a classification of articular diseases. Under the first of the two headings are found descriptions of certain types of erythema, purpura, urticaria and nodular eruptions which occasionally accompany rheumatic diseases. These are presented in the pedagogic manner conventional to textbooks on dermatology. Included under the first grouping is an interesting description of Freund's "erythrosis," a condition characterized by pigmentation, heat, redness and atrophy of the skin of the digits distal to the terminal phalangeal joints, with marked hyperkeratosis of the nails. This apparently occurs in association with "rheumatoid" or chronic infectious arthritis. In the second section is a division dealing with altered physiologic function of the skin in rheumatic diseases. These include disturbed sensibilities, altered cutaneous capillary pressure, dysfunction of thermoregulation, vasomotor disturbances and altered sensitivity to dietary and bacterial proteins. Some articular diseases are attributed by rheumatologists to focal infection, and dermatologists are likewise of the opinion that some dermatologic diseases are caused by foci of infection. Accordingly, Frühwald included in the text descriptions of alopecia areata, dyshidrosis, eczema, furunculosis, lichen planus, lupus erythematosus, pemphigus vulgaris and pyoderma; all are possibly related to focal infection (although not particularly to disease of the joints). No descriptions of psoriatic arthritis, keratodermia blennorrhagica or Haverhill fever are included. This volume contains some interesting data regarding associated articular and cutaneous diseases but would be much improved by more systematic arrangement.

Big Fleas Have Little Fleas or Who's Who Among the Protozoa. By Robert Hegner, Professor of Protozoology in the School of Hygiene and Public Health of the Johns Hopkins University. Based on Messenger Lectures, Cornell University, 1937. Cloth. Price, $3. Pp. 285, with 127 illustrations. Baltimore: Williams & Wilkins Company, 1938.

Whenever a chemist, a biologist, a physician or any other kind of scientist suddenly appears on the scene with the extraordinary ability to present his knowledge in such a manner as to interest the average reader, he is welcomed with loud shouts of joy and satisfaction. If he possesses as well the extraordinary ability to make sketches that are full of human interest and if he possesses also a sense of humor like that of the renowned James Thurber, he merits a pedestal. Thus we salute Prof. Robert Hegner of the School of Hygiene and Public Health of the Johns Hopkins University, whose Messenger Lectures at Cornell University in 1937 are here elaborated in a mixture of prose and verse, humor and science, such as seldom appears on the medical scene. The book is readable, enjoyable and enlightening; it deserves a tremendous audience.

The Language of the Dream. By Emil A. Gutheil, M.D. Cloth. Price, $3.50. Pp. 286, with 40 illustrations. New York: Macmillan Company, 1939.

The author of this volume was associated with Stekel and is convinced that none of the books thus far available in the field of the dream are sufficiently concrete or instructive for the average reader. He has attempted a different type of presentation, considering first the element of the dream and the basic mechanisms and next the symbols that appear in dreams, the method of interpretation and the relationship of the dream to the neuroses. His concluding chapter, dealing with the psychologic schools, indicates the differences in point of view of the freudian method from that of Adler and Jung. The book is supplemented by a bibliography, a glossary and an index. It is not likely to have much interest for the average lay reader. It will, however, be significant to all workers in the field of psychiatry, to educators and to those especially interested in the scientific significance of the dream.

The Extra Pharmacopoeia (Martindale). Volume II. Published by direction of the Council of the Pharmaceutical Society of Great Britain. In two volumes. Twenty-first edition. Cloth. Price, 22s. 6d. Pp. 1,148. London: Pharmaceutical Press, 1938.

This volume completes the first edition issued under the new ownership. Neither volume has undergone much change in general scope; the first deals with the composition and application of drug products, while this one deals with such ancillary subjects as analysis and assay of medicinal products, foods and waters. The first section is an analytic addendum concerned with substances previously described, the second section is devoted to problems of analytic chemistry and clinical pathology and the last part deals largely with bacteriologic problems. The work is broad in its scope and may well serve as a starting point in many chemical, clinical and bacteriologic investigations.

The Little Doc: The Story of Allan Roy Dafoe, Physician to the Quintuplets. By Frazier Hunt. Cloth. Price, $2. Pp. 302, with portrait. New York: Simon & Schuster, Inc., 1939.

Most of this book, which appeared in the *Saturday Evening Post*, purports to be the authentic life of Dr. Allan Roy Dafoe. The author is widely known as a competent journalist. Physicians will remember the original story of the birth of the quintuplets, which appeared shortly after the great event occurred. The book reflects some of the terrific excitement and the confusion that attended this event. Frazier Hunt dramatizes the event and, best of all, tells the real story of its entrance into the news and of its development into one of the biggest news stories of all time. The extraordinary interest for medicine is not so much in the birth of five babies as in their growth and development. Apparently there is no record anywhere in the history of medicine of five prematurely born infants weighing as little as these five weighed and surviving. The story is worth the time of any reader.

Zur Pathogenese der arteriellen Hypertension unter besonderer Berücksichtigung der Rolle der Nieren und Nebennieren im Mechanismus des weissen Hochdrucks. Von Roald Opsahl. Acta medica scandinavica, Supplementum 92. Paper. Pp. 262, with 17 illustrations. Stockholm, 1938.

Opsahl is of the opinion that pathologic anatomy may still cast much light on the nature of hypertensive diseases and here presents the results of his investigations along these lines. The first part of the book contains a brief description of the physiologic regulation of blood pressure and the mechanisms involved in the production of hypertension. The author divides persistent hypertension into three categories based on whether it results from purely renal, purely extrarenal or combined renal and extrarenal causes. The second and larger part of the book is devoted to postmortem observations with special reference to the state of the heart, the kidneys and the endocrine organs in hypertension. The student of the field may be interested in the data presented on the weights of the endocrine organs in hypertension. Opsahl concludes that renal hypertension is the result of and compensatory to impairment of glomerular filtration. This may be true but is not proved by the evidence presented. Nor, in the light of recent American work, can one agree with the author's skepticism regarding the role of decreased renal blood flow and of substances formed by the kidney in the pathogenesis of hypertension.

Sbornik trudov posvyaschenny XL-letney deyatelnosti Prof. V. N. Tonkova. [Collection of Works Celebrating 40 Years' Activity of V. N. Tonkov.] Cloth. Price, 20 rubles. Pp. 502, twith illustrations. Leningrad: Izdanie voenno-meditsinskoy akademii RKKA im. S. M. Kirova, 1937.

This volume is dedicated to Prof. V. N. Tonkov, head of the department of anatomy in the Military Medical Academy of Leningrad, by his former pupils on the occasion of his completion of forty years of pedagogic activity. The papers deal with problems in human and in comparative anatomy.

Kurzgefasstes Lehrbuch der Physiologie. Von Ph. Broemser, o. Professor für Physiologie in München. Second edition. Paper. Price, 12 marks. Pp. 371, with 198 illustrations. Leipzig: Georg Thieme, 1938.

This is a well organized and well balanced classic textbook on physiology suitable for medical students. It is not exhaustive and yet it is fundamental. No attempt is made to refer to original literature; consequently it will be of little use to advanced students or investigators.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Loss of Finger Attributed to Failure to Remove Fragment of Needle.—The plaintiff sued the defendant, attributing the loss of a finger to his negligence in failing to remove a fragment of a needle therefrom. The trial court entered a judgment of nonsuit and the plaintiff thereupon appealed to the district court of appeal, second district, division 2, California.

The plaintiff was a seamstress and on Saturday, March 2, 1935, she accidentally ran a needle into her right ring finger through the second joint, and a fragment of it became embedded in the finger. She was taken to the office of the defendant, a physician, shortly after noon. The defendant was about to leave his office but stated that he was familiar with this type of case and would have no difficulty in removing the needle. At the time the plaintiff went to the defendant's office her hand was discolored by a dark stain from the material on which she had been working. According to the evidence the defendant did not wash the finger or hand but swabbed the finger with a liquid which he stated was iodine. He tried to locate the needle with a "Zio-Lite" but was unable to do so. He then sent the plaintiff to a dentist in the building who had x-ray equipment for making roentgenograms of teeth. The dentist made a roentgenogram of the finger but it was not clear or distinct. The defendant, however, made an incision in the finger and probed for the needle for about four or five minutes without locating it. He put some gauze in the wound to establish drainage, stitched up the side of the incision and bandaged the finger and hand. He gave the plaintiff a box of pills to relieve pain and sent her home with instructions to come back the following Monday morning in order to have roentgenograms made.

Saturday evening the plaintiff's hand became very painful, and on Sunday efforts were made to reach the defendant by telephone but he could not be located. Her finger and hand had become swollen and in order to relieve the pain the plaintiff cut the bandages. She became feverish and ill. On Monday she was taken to another physician, who found evidence of infection; a roentgenogram was made and the plaintiff was sent to a hospital where the needle was extracted. Her arm became swollen up to the shoulder and eventually an amputation of the finger was necessary.

On behalf of the plaintiff, evidence was introduced tending to show that the leaving of the needle in the tissue in the present case was the primary cause of the infection. It is the usual and ordinary custom in the community, a witness testified, to take a roentgenogram of the finger before it is incised for the purpose of removing a needle, and that when a roentgenogram is faded and the needle is entirely incased in the finger and not visible to the eye it is not the customary and usual practice for a physician to cut and incise the finger, relying on that type of roentgenogram.

On a motion for a nonsuit, the court said, the trial court must assume that all the evidence in the plaintiff's favor is true and every favorable inference fairly deducible from the evidence and every favorable presumption fairly arising from the evidence must be drawn in the plaintiff's favor. Measured by these rules, the court thought that the issues in the present case should have been submitted to the jury. The court was not unmindful of the general rule that in cases of malpractice it must be shown by expert testimony that the damages suffered by the plaintiff resulted from the failure of the defendant to possess and use that degree of care and skill ordinarily possessed and used by physicians and surgeons in good standing in the locality. The testimony of the expert witness in the case, the court thought, was sufficient to meet the requirements of the general rule, considered in connection with the facts established by the lay witnesses. Even in actions for malpractice the jury may consider without the testimony of experts

matters which are within the common knowledge of mankind. It might be well argued, the court said, that it is a matter of common knowledge that a needle accidentally embedded in the finger of a seamstress might cause infection if not promptly extracted, that a clear roentgenogram would be of assistance to the surgeon and that an effort should be made to secure one.

In the opinion of the appellate court, therefore, the trial court erred in granting the motion for a nonsuit and the judgment of nonsuit was therefore reversed.—*Wires v. Litle (Calif.), 80 P. (2d) 1010.*

Autopsy: Right of Coroner to Authorize Autopsy Without Holding Inquest.—Patrick, a fireman employed by the City of Macon, Mo., collapsed and died while fighting a fire. The local physician of the defendant insurance company which insured the city against possible liability under the Missouri workmen's compensation act notified the coroner that the city had insurance on Patrick and that "they ask for an autopsy." Later in the day another physician employed by the insurer performed the autopsy. Patrick's widow sued the insurance company, alleging that it had caused the autopsy to be performed without her consent or knowledge. From a judgment for the widow the defendant appealed to the Kansas City court of appeals, Missouri.

The court of appeals found no merit in a contention that the widow's remedy was exclusively under the workmen's compensation act. This suit, said the court, is based on the theory that the widow has a quasi-property right in the remains of her husband. The wrong of which she complains occurred after the death of the husband, was in no way connected with the cause of his death and could not therefore be cognizable under the compensation act.

The court disagreed with a contention made by the insurance company that the autopsy was legally performed. In Missouri, the court pointed out, a coroner has no authority to order an autopsy except in connection with an inquest to be held before a coroner's jury. No inquest was held in this case and it was evident that the coroner had no intention to hold an inquest, for he testified that the autopsy was performed merely that he might have information on which to make out a death certificate.

The insurance company next insisted that if the coroner believed an autopsy was necessary he acted in his judicial capacity in having one performed, and the defendant insurance company was therefore protected. But, answered the court, a coroner acts judicially only with respect to determining whether an inquest shall be held and not in the "calling or holding of an autopsy." He has no authority to order an autopsy except in connection with an inquest. In the opinion of the court, the jury could conclude from the evidence that even though the coroner sought to justify the autopsy on the theory that it was necessary for him to sign a death certificate, he abused his office in authorizing the autopsy for the purpose of assisting the defendant insurance company to obtain evidence to be used to defeat any claim for compensation to be made by the widow.

For the reasons stated, the judgment in favor of the widow was affirmed.—*Patrick v. Employers Mut. Liability Ins. Co. (Mo.), 118 S. W. (2d) 116.*

Medical Practice Acts: Refusal to License by Reciprocity Graduate of Unrecognized Medical School.—Salowitz attended the Detroit College of Medicine and Surgery for three years, leaving school in 1925 with conditions in certain subjects. He entered the Chicago Medical School in October 1925 and after an attendance of two school years and an internship of one year received a diploma therefrom in June 1928. In June 1927 and in June 1928 he sought to be examined for a license to practice in Michigan, but the Michigan State Board of Registration in Medicine refused to permit him to do so because [illegible] graduated from a school "not on the accredited list as [illegible]." In September 1928 he was licensed after examination in Illinois. In 1933, and again in 1934, he sought a license by reciprocity in Michigan based on his Illinois license. On the refusal of the board so to license him he sought a writ of mandamus from the Supreme Court of Michigan to direct the board to issue the license.

The Michigan medical practice act provides in part as follows:

> The applicant may, at the discretion of the board, be registered and given a certificate of registration if he or she shall present satisfactory proof of the possession of a certificate of registration or license which has been issued to said applicant within the states, territories, districts or provinces of the United States, or within any foreign country, where the requirements for the registration of said applicant at the date of his or her license shall be deemed by said board of registration in medicine to be equivalent to those of this act.

Under this section, said the court, the granting or refusal of registration rests within the discretion of the Board of Registration in Medicine and courts will not interfere with the exercise of that discretion unless the discretion is abused. In the opinion of the court the board in this case had not acted arbitrarily. The general policy of the board for a number of years past had been to grant recognition only to graduates of class "A" medical schools. In establishing the classification of such institutions the board has accepted the recommendations of the Council on Medical Education and Hospitals of the American Medical Association. The board is a member of the Federation of State Medical Boards of the United States, an organization formed to harmonize rules and regulations maintained in the different states and to promote a uniform and harmonious reciprocal relation between states. The results of investigations made of medical schools by the Council on Medical Education and Hospitals of the American Medical Association are available to all state boards through the federation, and this method of procedure is expedient because of the practical impossibility of independent investigation of all medical institutions by each board. The Council on Medical Education and Hospitals has not at any time during the past ten years recognized the Chicago Medical School as a class "A" school. In 1927 and in 1928 the Chicago Medical School was listed by the Council as a class "C" institution and since that date has been refused any recognition at all.

Salowitz claimed, however, that the board had impliedly recognized the Chicago Medical School by allowing a graduate of that school to take the Michigan examination in June 1926. It appeared with respect to that physician, however, that he attended the Detroit College of Medicine and Surgery from September 1909 to May 1913 but was not allowed credit for any of the work because he failed to remove a condition he had received in anatomy during the first year of his medical school work. He then became associated with certain physicians in Detroit and served during the war. Later he attended the Chicago Medical College in 1923 and 1924 and graduated therefrom. But the Michigan board admitted him to examination in 1926 solely on the basis of his work at the Detroit college, the board specifically stating that he was not admitted to examination on the fact of his graduation from the Chicago Medical College.

The court therefore denied the writ of mandamus.—*Salowitz v. Michigan State Board of Registration in Medicine (Mich.), 280 N. W. 737.*

Society Proceedings

COMING MEETINGS

American Association for Thoracic Surgery, Los Angeles, July 5-7. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Physiotherapy Association, Denver, June 25-30. Mrs. Eloise T. Landis, 2065 Adelbert Road, Cleveland, Secretary.

American Proctologic Society, Brooklyn, N. Y., June 25-27. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

Maine Medical Association, Poland Springs, June 25-27. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.

Medical Library Association, Newark, N. J., June 27-29. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Montana, Medical Association of, Butte, June 28-30. Dr. Thomas L. Hawkins, 50 North Main St., Helena, Secretary.

National Tuberculosis Association, Boston, June 26-29. Dr. Charles J. Hatfield, 50 West 50th Street, New York, Secretary.

Pacific Coast Oto-Ophthalmological Society, San Francisco, June 19-22. Dr. C. Allen Dickey, 450 Sutter St., San Francisco, Secretary.

Pacific Northwest Medical Association, Spokane, Wash., June 26-29. Dr. C. W. Countryman, 407 Riverside Avenue, Spokane, Wash., Secretary.

West Virginia State Medical Association, White Sulphur Springs, July 10-12. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

8: 345-368 (April) 1939

Nitrous Oxide and Oxygen in Home Obstetrics. G. H. Teasley, Athens. —p. 345.

Sulfanilamide in Medicine. R. O. Russell, Birmingham.—p. 348.

Preoperative Diagnosis of Gallbladder Disease Through Laboratory Analysis and Fluoroscopic Examination of Gallbladder and Duodenum. W. M. Bland, Tuscaloosa.—p. 350.

Primary Lymphosarcoma of Intestine: Report of Four Cases. C. R. Lafferty, Montgomery.—p. 353.

American Journal of Clinical Pathology, Baltimore

9: 121-256 (March) 1939

Concerning the Method Proposed for Reporting the Serologic Reactions for Syphilis as Positive, Doubtful and Negative. J. A. Kolmer, Philadelphia.—p. 121.

Occurrence of Nonspecific Substance in Guinea Pig Serum Fixed by Antigen in the Wassermann Test. A. S. Giordano and Bonita Carlson, South Bend, Ind.—p. 130.

Guinea Pig Serum in Relation to Prezone and Nonspecific Wassermann Reactions. J. A. Kolmer, with technical assistance of Elsa R. Lynch, Philadelphia.—p. 136.

*Laughlen Test for Syphilis: Comparison with 1,000 Kline, 1,100 Kolmer and 100 Kahn Tests. Regena C. Beck, Richmond, Va.—p. 151.

*Reliable, Sensitive, Simple and Rapid Slide Flocculation Test for Syphilis. L. Y. Mazzini, Indianapolis.—p. 163.

Sedimentation Rate and Leukemoid Reaction in Metastatic Tumors of Bone. D. H. Kaump, Temple, Texas; F. J. Heck and E. G. Bannick, Seattle.—p. 176.

Myeloid Pattern in Pernicious Anemia. E. A. Sharp, E. M. Schleicher and J. W. Wolter, Detroit.—p. 189.

Diagnosis of Trichinosis by Digestion Method: Additional Aid to Diagnosis. F. B. Queen, Denver.—p. 209.

*Spirochetal Jaundice in Buffalo, N. Y.: Report of Fatal Case in Fish Merchant. N. W. Elton, Buffalo.—p. 219.

Serum Phosphatase in Differential Diagnosis of Obstructive Jaundice. A. S. Giordano, Agatha Wilhelm and Mildred C. Prestrud, South Bend, Ind.—p. 226.

Torula Meningitis in Child. R. D'Aunoy and C. R. Lafferty, New Orleans.—p. 236.

General Hospital Laboratory Costs. W. P. Stowe, San Francisco.—p. 239.

Laughlen Test for Syphilis.—Beck states that the Laughlen test for syphilis is less time consuming than other flocculation tests and the results are easier to read (not interpret). It is of value in following the response of serums of patients under treatment, for testing donors for emergency transfusions and for preoperative cases. The test requires as much experience and skill in its performance and interpretation as other flocculation tests and should be performed under the supervision of an experienced serologist. In comparing the Laughlen test with 1,000 Kline tests, 1,100 Kolmer-Wassermann tests and 100 Kahn tests, the Laughlen test was shown to be just as specific and a little more sensitive than the other tests. The test is suitable as a routine test; the positive and doubtful results should be checked by another reliable test. The Laughlen test has not yet been shown applicable to the testing of spinal fluids.

Flocculation Test for Syphilis.—Mazzini describes a modification of the slide flocculation test for syphilis, in which a beef heart and egg yolk extract are used. The use of lipoids from egg yolk, although weakly antigenic by themselves, permit the employment of minimal quantities of beef heart lipoids without endangering the specificity of the results. The hydrogen ion concentration of the suspension plays an important part in the sensitivity of the test, for just as maximal sensitivity of the antigen is obtained at a certain concentration of lipoids, so maximal flocculation is obtained at a definite p_H and salt concentration. The antigen suspension can readily be adjusted to different degrees of sensitivity and is easily controlled. Fluctuation in the sensitivity of every new lot of antigen is eliminated by means of titration. Daily fluctuation in the sensitivity of the antigen suspension is largely eliminated by the use of a buffered saline solution having a constant p_H (from 6.3 to 6.4). The test requires a small amount (0.05 cc.) of serum.

Spirochetal Jaundice.—Elton cites the eighth fatality from Weil's disease reported in the United States. The case is a proved instance of the disease occurring in the Great Lakes port of Buffalo. The disease ran its course in ten days and was recognized clinically by its sudden onset with chills, anuria, generalized muscular pains (especially of the abdominal wall), jaundice, fever, prostration, vomiting, cough and hemorrhagic manifestations. The hepatorenal syndrome was established by marked azotemia and ascending jaundice of great intensity, by the typical death of a guinea pig thirteen days after subcutaneous inoculation in the groin with urine obtained from the patient on the sixth day of illness and the typical death of a second guinea pig ten days after inoculation with the urine of the first guinea pig, obtained at necropsy on that animal. Levaditi stains demonstrated classic spirochetes in enormous numbers in the livers of both animals, as well as in the kidneys.

American J. Digestive Diseases, Huntington, Ind.

6: 1-72 (March) 1939

Gastroscopy in Europe. C. W. Wirts Jr., Philadelphia.—p. 1.

Application of Gastroscopy. H. R. Liebowitz, Brooklyn.—p. 2.

*Relation of Sex Hormones to Peptic Ulcer. D. J. Sandweiss, H. C. Saltzstein and A. A. Farbman, Detroit.—p. 6.

*Pectin as Prophylactic and Curative Agent for Peptic Ulcers Produced Experimentally with Cinchophen. M. Winters, G. A. Peters and Grace Washburn Crook, Indianapolis.—p. 12.

Gross Hemorrhage as Complication of Peptic Ulcer. B. B. Crohn and H. H. Lerner, New York.—p. 15.

History and Development of Gastric Analysis Procedure (Third Instalment). F. Hollander and A. Penner, New York.—p. 22.

Multiple Intestinal Carcinomas, Appearing Simultaneously. H. I. Silvers, Atlantic City, N. J.—p. 25.

Critical Appraisal of Newer Amebicides and Results of Treatment of Amebiasis with Diiodohydroxyquinoline (Diodoquin). H. G. Hummel, Little Rock, Ark.—p. 27.

Right-Sided Aortic Arch. H. N. Metzger and H. Ostrum, Philadelphia. —p. 32.

Two Carcinomas Involving the Same Stomach with an Eleven-Year Interval Between Them. R. B. Phillips and A. B. Rivers, Rochester, Minn.—p. 37.

Study of a New Spasmolytic Drug: Diphenylacetyldiethylaminoethanol Hydrochloride (Trasentin). H. Necheles, F. Neuwelt, N. Steiner and W. G. Motel, Chicago.—p. 39.

Decompression of Small Bowel in Intestinal Obstruction. R. J. Noer and C. G. Johnston, Detroit.—p. 46.

Relation of Sex Hormones to Peptic Ulcer.—Sandweiss and his collaborators found that pregnancy has a beneficial effect on the symptoms of peptic ulcer. Records of 70,310 consecutive hospital admissions during pregnancy showed only one case of ulcer. A high incidence (46 per cent) of endocrinopathies (pituitary-gonad-thyroid mechanism) was found in thirty women with ulcer. The symptoms of peptic ulcer are aggravated during the menopause. Thirty of forty Mann-Williamson dogs injected daily with gonadotropic substance were benefited. Eighteen patients with active symptoms of proved peptic ulcer were treated with daily injections of from 2 to 5 cc. of the gonadotropic substance for fourteen consecutive days. Though 78 per cent of the patients were benefited, it is the authors' impression that in the dosage used the substance produced no greater beneficial effect than other parenteral products. Daily subcutaneous doses of from 2 to 5 cc. of the substance had no effect on the free and total acid secretion either in the human being or in the dog. Preliminary observations on twenty Mann-Williamson dogs indicate that urine from normal individuals contains a "protective factor" against Mann-Williamson ulcers and that this "protective factor" is definitely absent from the urine of patients having peptic ulcer.

Pectin for Peptic Ulcers.—Winters and his co-workers treated four dogs with cinchophen and nine with cinchophen and pectin. Those treated only with cinchophen showed a 100 per cent incidence of ulcer, while those given both the cinchophen and pectin showed an incidence of only 11.1 per cent. In general all animals receiving the pectin were in excellent condition while the other four showed intermittent bloody diarrhea, anorexia and nausea. Two control dogs, definitely proved

by operation to have ulcers, were treated postoperatively with cinchophen and pectin. On the twenty-first and twenty-fifth postoperative days, postmortem examination of these dogs showed well healed ulcers.

American Journal of Medical Jurisprudence, Boston

2: 161-202 (March-April) 1939

Mental Abnormality in Relation to Crime. P. A. Draper, Colorado Springs, Colo.—p. 161.
Convulsive Seizures of Petit Mal Type as Sequela of Epidemic Encephalitis. C. D. Camp, Ann Arbor, Mich.—p. 166.
Effects of Gunshot Wounds on Human Tissues. C. P. Van Amburgh, Boston.—p. 168.
Malingering. J. R. Garner, Atlanta, Ga.—p. 173.
Crime and Justice. S. Glueck, Boston.—p. 178.

American Journal of Medical Sciences, Philadelphia

197: 437-592 (April) 1939

Influence of Acid and Alkaline Salts on Blood in Hypochromic Anemia Treated by Iron Parenterally. F. J. Pohle and C. W. Heath, Boston.—p. 437.
*Preserved Citrated Blood "Banks" in Relation to Transfusion in Treatment of Disease, with Special Reference to Immunologic Aspects. J. A. Kolmer, Philadelphia.—p. 442.
Sulfanilamide Therapy in Gonorrhea: Review of Literature and Report of 298 Cases. C. Ferguson, M. Buchholtz and R. Y. Gromet, Staten Island, N. Y.—p. 452.
Search for More Effective Morphine-like Alkaloids. N. B. Eddy, Ann Arbor, Mich.—p. 464.
Massive Dose Arsenotherapy of Syphilis by Intravenous Drip Method: Five Year Observations. H. T. Hyman, L. Chargin and W. Leifer, New York.—p. 480.
Four Physiotherapeutic Devices for Treatment of Peripheral Vascular Disorders. H. Montgomery and I. Starr, Philadelphia.—p. 485.
Diagnosis of Tularemia. W. F. Friedewald and G. A. Hunt, St. Louis.—p. 493.
Spontaneous Interstitial Emphysema of Lungs. J. McGuire and W. B. Bean, Cincinnati.—p. 502.
Incidence of Various Types of Gastric Disease as Revealed by Gastroscopic Study. R. Schindler, Chicago.—p. 509.
Review of a Five Year Tuberculosis Program Among University of Wisconsin Students. R. H. Stiehm, Madison, Wis.—p. 517.
*Studies in Diabetes Mellitus: VII. Nondiabetic Glycosuria. A. Marble, E. P. Joslin, Boston; L. I. Dublin and H. H. Marks, New York.—p. 533.
Why Diabetics Discontinue Protamine Insulin. R. Wilder Jr., Boston.—p. 557.

Preserved Blood and Immunologic Aspects.—Kolmer states that, while sodium citrate is slightly anticomplementary, the complement of citrated (0.35 per cent) human blood kept at from 4 to 6 C. was well preserved up to twenty-one days. The same has been found true of undiluted citrated guinea pig complement kept at from 2 to 4 C. The bactericidal activity of normal citrated human blood for Staphylococcus aureus, beta hemolytic streptococcus and Bacillus coli decreased after from seven to twenty-one days of preservation. The phagocytic activity of the neutrophils of preserved citrated human blood was definitely reduced for Staphylococcus aureus, beta hemolytic streptococcus and Bacillus coli within seventy-two hours after collection of blood, becoming markedly so on or about the fifth day, followed by almost total absence of phagocytic activity on and after the seventh day of preservation. This may have been due to the deterioration of normal opsonins but was mostly due to autolytic and degenerative changes in the leukocytes. The erythrocytes of preserved citrated human blood showed evidences of swelling and dehemoglobinization as early as forty-eight hours after collection with progressive degenerative changes up to fourteen days, when at least 30 per cent were shadows, swollen and fragile. The neutrophils of preserved citrated human blood showed evidences of disintegration with reduction in numbers as early as twenty-four hours after collection, with progressive disintegrative and autolytic changes. The platelets of preserved citrated human blood showed distinct clumping immediately, and there was evidence of deterioration twenty-four hours after collection. They became scarce at the end of forty-eight hours, and only blue chromatin masses remained after five days. The author believes that citrated human blood preserved at from 4 to 6 C. may be useful in the treatment of acute hemorrhage and shock for the purpose of restoration of volume but is inadvisable for the treatment of the anemias, the blood dyscrasias or infections and certainly should not be employed for these purposes after it has been preserved from two to three days.

Nondiabetic Glycosuria.—Of 2,065 patients that Marble and his colleagues saw from 1900 to 1935 who at first observation were thought to have nondiabetic glycosuria they traced all but 1.5 per cent as of May 1, 1937. The condition of the patients was ascertained at the time of tracing. After certain exclusions 1,946 remained on whom this study was based, of which 1,142 are men and 804 women. Of these 1,636 were living and 310 had died. In 193 cases (9.9 per cent of the total) true diabetes has developed. In most instances the diabetes was mild. Factors favoring diabetes were, in approximately the order named, advancing age, overweight, high blood sugar values and in the younger patients a family history of diabetes. The percentage becoming diabetic rose with increasing duration since the initial observation. It was higher in Jewish than in gentile patients. Among the 310 fatal cases 262 deaths were of patients whose glycosuria remained benign, but a significant proportion of these deaths occurred within a year of the first visit. Both among those becoming diabetic and among those remaining nondiabetic the incidence of deaths from cardiovascular and renal diseases was particularly high. The incidence of cancer as a cause of death was five times as high in the nondiabetic as in the diabetic group. There was no death from diabetic coma. Glycosuria, apart from diabetes, may be an accompaniment and a warning sign of degenerative disease and thus be of unfavorable diagnostic import. In the absence of complications, nondiabetic glycosuria seems to exert little or no adverse influence on the life span.

American J. Obstetrics and Gynecology, St. Louis

37: 545-728 (April) 1939. Partial Index

Studies on the Endometrium in Association with the Normal Menstrual Cycle, with Ovarian Dysfunctions and Cancer of the Uterus. W. E. Herrell, Rochester, Minn.—p. 559.
*Behavior of Basal Metabolism in Course of Developing Toxemia of Pregnancy: Correlation with Cholesterol, Placental Infarcts and Retinal Examination: Study of Sixty-Two Consecutive Adolescent Colored Primigravidas. E. D. Colvin and R. A. Bartholomew, Atlanta, Ga.—p. 584.
*Clinical Syndromes Referable to Failure of Ovulation, with Special Reference to Certain Cases of Sterility and Functional Bleeding. E. Novak, Baltimore.—p. 605.
*Increased Incidence of Fetal Abnormalities in Cases of Placenta Praevia. J. P. Greenhill, Chicago.—p. 624.
Prevention and Treatment of Postoperative Thrombophlebitis. N. W. Barker and V. S. Counseller, Rochester, Minn.—p. 644.
*Relation of Ureteral Pain to Menstruation. N. P. Sears, Syracuse, N. Y.—p. 685.
Benign Tumors of Cervical Stump Following Supravaginal Hysterectomy. M. N. Hyams, New York.—p. 690.
Effect of Estrogenic Hormone on Hydrogen Ion Concentration and Bacterial Content of Human Vagina, with Special Reference to the Döderlein Bacillus. L. Weinstein and J. H. Howard, New Haven, Conn.—p. 698.
Brenner Tumors of the Ovary: Clinical and Pathologic Study of Ten New Cases with Brief Review of Literature. M. B. Dockerty and W. C. MacCarty, Rochester, Minn.—p. 703.
Use of Testosterone Propionate in Treatment of Dysmenorrhea. H. S. Rubinstein and A. R. Abarbanel, Baltimore.—p. 709.

Basal Metabolism and Toxemias of Pregnancy.—Colvin and Bartholomew state that for a long time in the antepartum clinic and lying-in ward of the colored division of Grady Memorial Hospital it has been a recognized fact that an unusually high percentage of the cases of toxemia of pregnancy occur among primigravidas not more than 18 years of age. Bearing this fact in mind, it seemed to them that the hidden factors in toxemia are more concerned with the age of the patient than with the question of parity and that if the primigravida is more prone to develop toxemia it is due to the fact that she is usually young rather than that she is carrying her first child. Therefore they made a study of sixty-two Negro adolescent primigravidas, twenty-four of whom became toxic; that is, nine showed mild to moderate toxemia, eleven preeclampsia, three eclampsia and one abruptio placentae. For the purpose of comparison, 100 consecutive primigravidas from 25 to 30 years of age, from the authors' private cases, were studied. Toxemia developed in twenty-one. There were no cases of eclampsia or abruptio placentae in this group. It was found that adolescent gravidas with basal metabolic rates of plus 10 or more show little or no elevation of blood cholesterol and apparently are not so liable to toxemia and those with basal metabolic rates below plus 10 show hypercholesteremia and are increasingly subject to toxemia as the basal metabolic rate decreases. The high incidence of toxemia of pregnancy in patients whose basal metabolic rates are within a range commonly accepted as normal and who show only moderate hyper-

cholesteremia emphasizes the importance of the trauma of fetal movements as the probable predisposing cause of cholesterol vascular change and the exciting cause of thrombosis in the placental arteries. During the course of developing toxemia there occurs a sharp rise in the basal metabolic rate, associated with a drop in the blood cholesterol. During the puerperium of toxic patients the basal metabolic rate falls to or below its former low level and the whole blood cholesterol rises to or above its former high level. Spasms and constrictions of the retinal vessels are consistently found in all cases of severe toxemia and parallel the severity of toxemia and rise in blood pressure. The high content of arginine in placental tissue is the probable source of hyperguanidinemia in toxemia of pregnancy, through autolysis of acute placental infarcts. Hyperguanidinemia is the probable explanation of vascular spasms and the clinical and pathologic evidences of toxemia of pregnancy. The possibility of preventing cholesterol vascular change in the placental arteries by adequate doses of thyroid extract during pregnancy and the restriction of cholesterol-containing foods seems to be the most effective way of preventing toxemia of pregnancy.

Failure of Ovulation.—Novak calls attention to the fact that failure of ovulation occurs in ostensibly normal women and that it is the responsible factor in some cases of sterility and is the most frequent cause of functional bleeding. There is after all much analogy between the two sexes. Complete aspermia is not at all infrequent in men who otherwise seem quite normal, in whom there is no history of gonorrhea, mumps or other infections and in whom the genito-urinary specialist finds no evidence of infection of the prostate or seminal vesicles. The author states that the same statement can be made as to necrospermia, which likewise is a frequent observation. That anovulatory cases and cases of defective ova which lead to early and perhaps repeated abortion are of endocrine causation, probably of pituitary source, seems certain. It is important to recognize these abnormalities of ovulation, even though further developments must be waited for before they can be treated with any hope of consistent success. Functional bleeding likewise implies a primarily pituitary dysfunction. A promising field of investigation in the effort to find a means of promoting ovulation in nonovulating women is the study of the effects on the ovaries of ovulating and nonovulating women of the gonadotropic principles found in the blood serum of pregnant mares.

Fetal Abnormalities and Placenta Praevia.—Greenhill shows that fetal monsters and deformities occur more frequently in cases of placenta praevia than otherwise. Evidence is presented showing the great part played by environment in the etiology of monsters. Clinical data to support this are obtained from the high incidence of malformed embryos and twins in cases of tubal pregnancy in which the decidual reaction is only slightly developed. The decidual reaction in the isthmus of the uterus is poorly developed and this plays a part in the causation of abnormal fetuses in cases of placenta praevia. The incidence of fetal monsters and deformities for 4,446 cases of placenta praevia (representing approximately 4 million obstetric cases) was 2.5 per cent as contrasted with 0.94 per cent for all obstetric cases. In approximately half of the abnormal fetuses associated with placenta praevia the deformity consisted of defects which can easily be recognized roentgenologically. Therefore roentgenograms should be taken in every case of placenta praevia. The detection of fetal monsters will usually lead to conservative treatment, although cesarean section will have to be employed in some cases in spite of the fetal abnormality.

Ureteral Pain and Menstruation.—Sears cites the records of fourteen patients whose chief complaint was painful menstruation. The pain differed from that of typical dysmenorrhea in that it occurred in the side and radiated along the course of the ureter. Dilation of the ureter of eleven patients resulted in relief, indicating that the pain did originate in that organ. In three women the symptoms, although seemingly related to the ureter, failed to be influenced by dilation. One of these was partially benefited by denervation. This patient also presented some evidence that allergy may play a part in her distress. One patient has obtained at least temporary relief from presacral neurectomy.

American Journal of Ophthalmology, St. Louis

22: 357-476 (April) 1939

Lectures on Motor Anomalies: VIII. Paralysis of Individual Eye Muscles: Abducens Nerve Paralysis. A. Bielschowsky, Hanover, N. H.—p. 357.
American Ophthalmology Grows Up: Turbulent Years from 1908 to 1915. S. J. Beach, Portland, Maine.—p. 367.
Contribution to Theory and Practice of Tonometry: II. Analysis of Work of Professor S. Kalfa with the Applanation Tonometer. J. S. Friedenwald, Baltimore.—p. 375.
Subjective Study of Visual Aberrations. E. Jackson, Denver.—p. 384.
Erythema Nodosum with Nodules in Conjunctivae: Case Report. L. S. Greene and M. W. Perry, Washington, D. C.—p. 389.
Shall We Use Cycloplegics? W. H. Crisp, Denver.—p. 392.
Glareless Illuminated Holder for Visual Acuity Test Charts with Variable Intensity of Light. C. E. Ferree and G. Rand, Baltimore.—p. 399.
Practical Measurement of Accommodation and Convergence. H. G. Martin, Milwaukee.—p. 406.
Reaction and Buffer Activity of Normal Ox Lenses. P. W. Salit, Iowa City.—p. 413.
Dislodging Force Utilized in Intracapsular Cataract Extraction. T. J. Dimitry, New Orleans.—p. 416.

American Journal of Physiology, Baltimore

125: 625-812 (April) 1939. Partial Index

Renal Function in Experimental Adrenal Insufficiency. H. E. Harrison and D. C. Darrow, New Haven, Conn.—p. 631.
Passage of Sorbitol from Blood into Aqueous Humor and Cerebrospinal Fluid. L. Rosner and J. Bellows, Chicago.—p. 652.
Hydrogen Ion Concentration of Cerebral Cortex and Arterial Blood Under Insulin. C. Marshall, W. S. McCulloch and L. F. Nims, New Haven, Conn.—p. 680.
*Inhibition of Blood Clotting: Unidentified Substance Which Acts in Conjunction with Heparin to Prevent Conversion of Prothrombin into Thrombin. K. M. Brinkhous, H. P. Smith, E. D. Warner and W. H. Seegers, Iowa City.—p. 683.
Effect of Chemicals on Cochlear Potentials. E. M. Walzl, Baltimore.—p. 688.
Adrenalin and Metabolism of Peripheral Tissues. L. Cammer and F. R. Griffith Jr., Buffalo.—p. 699.
Absorption of Protein Split Products from Chronic Isolated Colon Loops. J. E. Rhoads, A. Stengel Jr., Cecilia Riegel, F. A. Cajori and W. D. Frazier, Philadelphia.—p. 707.
Hydrogen Ion Concentration Changes in Ischemic Human Muscle After Voluntary Contraction. G. L. Maison and A. C. Forster, St. Louis.—p. 735.
Hyperparathyroidism Produced by Diet. E. J. Baumann and D. B. Sprinson, New York.—p. 741.

Inhibition of Blood Clotting.—Brinkhous and his colleagues show that the inhibition of thrombin formation by heparin requires the presence of a plasma factor not previously recognized. This factor alone is not effective as an "antiprothrombin," and heparin alone appears to have absolutely no effect in this regard. The two in conjunction, however, are highly effective in preventing the formation of thrombin. The new factor has not been identified, and the authors state that it is abundantly present in plasma and in serum. It is apparently not diffusible, for it is to be found in serum which has been dialyzed against physiologic solution of sodium chloride.

American Journal of Tropical Medicine, Baltimore

19: 97-206 (March) 1939. Partial Index

Spotted Fever in Brazil: Summary. E. Dias and A. V. Martins, Minas Geraes, Brazil.—p. 103.
*Endemic Typhus Fever in Texas: Epidemiologic and Clinical Comparison with Forms of Typhus Seen Elsewhere. H. A. Kemp, Dallas, Texas.—p. 109.
Consecutive Inoculations with Plasmodium Vivax and Plasmodium Falciparum. M. F. Boyd, S. F. Kitchen and C. B. Matthews, Tallahassee, Fla.—p. 141.
Experimental Amebiasis in Rats with Cysts of Human Carriers, with Especial Reference to Probable Mechanism Involved. H. Tsuchiya, St. Louis.—p. 151.
Occurrence of Monilia in Normal Stools. T. G. Schnoor, Durham, N. C.—p. 163.
Diagnosis of Trichinosis. J. B. McNaught, San Francisco.—p. 181.
Coccidioidin Skin Test. J. F. Kessel, Los Angeles.—p. 199.

Endemic Typhus in Texas.—Kemp points out that endemic typhus in Texas shows few differences from the same disease in other Southern states. It is characterized by its duration of fourteen days, its freedom from complications and sequelae and its low mortality rate. It appears to spare infancy, childhood and old age. The majority of the cases occur among workers of the middle class, particularly in males. It appears to be concerned with occupation in that a great majority of the cases occur in persons employed in shops, grocery stores, grain depots and warehouses in which rat infestation is quite high. At the

same time a considerable number of cases occur among members of the lower social strata whose homes and places of employment show the same degree of rat infestation. Endemic typhus in Texas seems to be almost identical with the clinical manifestations of tropical (Malayan) typhus. At the same time certain distinctions obtain: difference in vector and failure of the serum in Texas cases to agglutinate the anindologenic strain of Proteus. In addition to this the disease in the American Southwest appears to show certain definite clinical and epidemiologic differences from Brill's disease, however similar the two are immunologically.

American Review of Tuberculosis, New York

39: 419-556 (April) 1939

Industrial Dusts and the Mortality from Pulmonary Disease. A. J. Lanza and R. J. Vane, New York.—p. 419.
*Tuberculous Lesions in Male Industrial Workers: Their Incidence and Significance as Disclosed by Stereoscopic Chest Roentgenograms. D. E. Cummings, R. N. Downs and M. Berg, Saranac Lake, N. Y.—p. 439.
Tuberculosis Control in Industry. W. A. Sawyer, Rochester, N. Y.—p. 456.
Surgical Treatment of Tumors of Lung and Mediastinum. F. S. Dolley and J. C. Jones, Los Angeles.—p. 479.
*Blastomycosis (American Blastomycosis, Gilchrist's Disease): II. Report of Thirteen New Cases. D. S. Martin and D. T. Smith, Durham, N. C.—p. 488.
Roentgenologic Anatomy of the Chest: II. Bronchial Distribution. C. B. Peirce, Montreal, and B. W. Stocking, Jackson, Mich.—p. 516.
Pneumoperitoneum in Treatment of Pulmonary Tuberculosis: Local Effects on the Peritoneum. H. G. Trimble, J. L. Eaton and Gertrude Moore, Oakland, Calif.—p. 528.
Accidental Pneumoperitoneum: Report of Eight Cases. L. R. Gaetán, Río Piedras, Puerto Rico.—p. 537.
Cultural Methods in Diagnosis of Tuberculosis: Comparison of Four Types of Mediums with Animal Inoculation in Detection and Isolation of Tubercle Bacillus in Clinical Practice. H. G. Whitehead, with technical assistance of Harriet Hicok, Baltimore.—p. 540.

Tuberculous Lesions in Industrial Workers.—Cummings and his associates state that the Field Division of the Saranac Laboratory has determined the incidence of tuberculous lesions recognizable in good stereoscopic roentgenograms of the chests of large groups of workmen engaged in several industries located in various parts of the United States. A preliminary analysis of these groups disclosed that, of 4,012 white male workmen in whose roentgenograms evidence of an occupational exposure to dust could not be found, 4.76 per cent had tuberculous lesions. The x-ray observations of 5,000 steel mill workers were analyzed and compared with 5,000 male miners. The crude incidence rate of 5.24 per cent of the steel mill workers compared favorably with that for "normals." The incidence of tuberculous lesions increases with age, rising among steel mill workers from about 1 per cent in those less than 20 years of age to 12.5 per cent for those from 65 to 74 years of age. The rise in incidence with age is due to the development of new infections at all ages rather than to the survival of groups whose incidence was considerably higher in former years. The ratio of the incidence of tuberculous lesions to mortality from pulmonary tuberculosis has been found fairly constant at most age groups for white male steel mill workers. This ratio indicates that one death occurs for each eighty cases with recognizable lesions. Among miners the incidence of tuberculous lesions has been shown to increase as the degree of reaction to dust progresses. Age has exerted an influence on the incidence of lesions in presilicotic miners but its effect has been overshadowed in the presence of true silicosis when the incidence rates have risen to astonishing levels. Tuberculosis with silicosis is an occupational disease in seven out of eight miners less than 35 years of age but in only half of the miners more than 65 years of age.

Blastomycosis.—Martin and Smith report thirteen cases of American blastomycosis (Gilchrist's disease). Cases 1, 2 and 3 illustrate the clinical picture of the terminal stages of systemic blastomycosis in which no type of therapy is effective. Cases 4, 5 and 6 show the rapid spread of the disease during treatment with iodides. Patient 4 had a chronic pulmonary infection, presumably blastomycotic, for five years before admission. He improved slightly during the first three weeks in the hospital, but, after the diagnosis of blastomycosis was established and iodide therapy was instituted, the disease spread rapidly and the patient died within four weeks. In case 5 the administration of iodides did not prevent the development of subcutaneous abscesses. In case 6 new foci in the lungs and additional lesions in the bones developed while iodides were being administered. Cases 7, 8 and 9 illustrate the manifestations in patients who, when first seen, were in good physical condition and should have responded to therapy. Patient 7, although infected for six years, had not become hypersensitive to the fungus and no antibodies developed. Patient 8 improved rapidly with iodide therapy in the hospital and continued to improve for six months after discharge, at which time he was apparently well and iodide therapy was discontinued. After remaining in good health for a year, the patient had a relapse and died. Patient 9 was inadequately treated with iodides and, although he had a slowly progressive disease for four years, he did not become hypersensitive and no antibodies developed. Patients 10, 11 and 12 improved satisfactorily with the combination of iodide and vaccine therapy. Patient 10 is of special interest in that she is the only surviving patient who had a high titer of serum antibodies. She was moderately allergic and, after desensitization by vaccine treatment, responded well to iodides. She is in good health four years after the onset. A high degree of allergy without serum antibodies existed in case 11. Injection of desensitizing doses of vaccine followed by iodide therapy resulted in rapid healing of the lesions. The failure to develop serum antibodies after vaccine therapy is offered as evidence that the beneficial effect of the vaccine did not result from active immunization. The harmful effect of iodides on the cutaneous lesions of a markedly allergic patient are shown by case 12. Fever, loss of weight and extensive spread of the lesions occurred after iodide administration and improvement resulted only after the iodides were stopped and vaccine therapy was instituted. Partial desensitization was accomplished in case 13 by the intravenous injection of the carbohydrate fractions of the fungus.

Annals of Medical History, New York

1: 105-202 (March) 1939

Athanasius Kircher. R. H. Major, Kansas City, Mo.—p. 105.
Murder by Disease. L. Tushnet, Irvington, N. J.—p. 121.
Early Medical Schools: The Cult of Aesculapius and the Origin of Hippocratic Medicine. G. E. Gask, London, England.—p. 128.
Chiron and His Pupil Asclepius. J. D. Gilruth, Edinburgh, Scotland.—p. 158.
Francis Peyre Porcher, M.D. (1824-1895). J. M. Townsend, Charleston, S. C.—p. 177.
Carlos Finlay. E. G. Givhan Jr., Birmingham, Ala.—p. 189.
A Letter from Dr. Williams Smibert of Boston to His Former Fellow Student at Edinburgh, Dr. John Morgan, of Philadelphia, Written Feb. 14, 1769. W. B. McDaniel 2d, Philadelphia.—p. 194.

Annals of Surgery, Philadelphia

109: 481-640 (April) 1939

Segmental Pneumonectomy in Bronchiectasis: The Lingula Segment of the Left Upper Lobe. E. D. Churchill, Boston, and R. Belsey, London, England.—p. 481.
Grading and Prognosis of Carcinoma of Colon and Rectum. R. S. Grinnell, New York.—p. 500.
Malignant Tumors of Salivary Glands. W. F. MacFee, New York.—p. 534.
Mixed Tumors of Sublingual Gland. M. K. Smith, New York.—p. 551.
Esophagogastrostomy for Carcinoma of the Esophagus. J. V. Bohrer, New York.—p. 555.
Duodenal Stasis: Clinical and Experimental Observations. A. Oppenheimer, Beirut, Lebanon, Syria.—p. 564.
*Morbidity Following Cholecystectomy. E. L. Eliason and J. P. North, Philadelphia.—p. 580.
*Prothrombin Deficiency and Effects of Vitamin K in Obstructive Jaundice and Biliary Fistula. J. D. Stewart, Boston.—p. 588.
Acute Hematogenous Osteomyelitis of Long Bones: Clinical Review of 160 Cases. H. P. Brown Jr., Philadelphia.—p. 596.
Cystic Disease of the Spleen. B. Sherwin, C. R. Brown and A. F. Liber, New York.—p. 615.
Rhabdomyosarcoma of the Urinary Bladder. E. Uhlmann, A. Grossman and J. K. Calvin, Chicago.—p. 624.
Further Observations on Benign Tumors of Tendon Sheath. A. B. Ragins and F. L. Shively Jr., Chicago.—p. 632.

Morbidity Following Cholecystectomy.—In a follow-up study of 264 cases from one to four years after cholecystectomy for cholecystitis, Eliason and North found that only 6 per cent (sixteen) were not relieved of the symptoms for which operation was designed. In four relief was delayed, and in others extraneous factors developed after operation which were attributed, incorrectly by the patient, to the gallbladder. The 6 per cent who continued with many of the same symptoms after removal of their gallbladders fall into two equal groups. In eight, no gross evidence of gallbladder disease was evident at

the time of operation, and cholecystectomy could not be expected to give relief. In the other eight the surgeon found a diseased gallbladder, and usually gallstones, yet the patient was not helped by cholecystectomy. In the latter group the chief source of the patient's complaints was extrabiliary and the finding of a biliary lesion was purely incidental. A certain number of these diagnostic errors were inevitable, despite thorough preoperative study of the cases. In others the errors might have been avoided by attaching due significance to symptoms which were regarded simply as atypical, by more careful attention to the patients' own description of their symptoms, and by a recognition of the fact that, even when gallstones are actually present, it may not be fair to attribute all the patients' digestive symptoms to them, since many gallstones are "silent" ones.

Prothrombin Deficiency and Vitamin K.—Stewart used vitamin K in the treatment of twelve patients suffering from obstructive jaundice and varying degrees of liver damage and one with a postoperative external biliary fistula. The amount of vitamin K-cholic acid mixture taken varied from 0.8 to 24.8 Gm. and the duration of treatment from one and a half to fourteen weeks. The average increase in plasma prothrombin under vitamin K therapy was 32.8 per cent. The frequency with which plasma prothrombin is reduced in obstructive jaundice is striking. The author states that during the course of this study only one case has been seen in which obstruction to bile flow for more than a week has not been associated with plasma prothrombin levels of less than 84 per cent. This patient's appetite had remained remarkably good and the biliary obstruction was incomplete. In the preoperative group the response to vitamin K-cholic acid has been invariable. It seems to be true, however, that the more severe the liver damage the less marked is the prothrombin recovery. Little if any correlation is discernible between the degree of depression of plasma prothrombin and the plasma bilirubin level. This is not surprising, since the excretory function of the liver is only one of the factors concerned in the maintenance of plasma prothrombin. Also, even when bilirubin is being excreted, bile deficient in cholic acid and hence less effective in promoting absorption of vitamin K may be formed by the damaged liver. A drop of from 20 to 40 per cent in plasma prothrombin concentration immediately after operation is to be expected, dependent perhaps on such factors as blood loss and dilution of plasma, clotting and depression of liver function by anoxemia and anesthesia. The fall is transitory, however, if vitamin K-cholic acid feeding is resumed at once. A safe preoperative plasma prothrombin level, preferably above 75 per cent, is highly desirable. Since the prothrombin level may change quickly, the need for frequent determinations in the early postoperative period is necessary. Blood transfusion is needed to replace lost blood, but vitamin K-cholic acid therapy is indicated in order to prevent further bleeding. The plasma prothrombin level depends on the functional capacity of the liver as well as on absorption of vitamin K from the intestine.

Archives of Dermatology and Syphilology, Chicago

39: 617-792 (April) 1939

Cutaneous Manifestations of Chronic (Idiopathic) Lipoidosis (Hand-Schüller-Christian Disease): Report of Four Cases, Including Autopsy Observations. C. W. Lane and Margaret G. Smith, St. Louis.—p. 617.
Acne Urticata Polycythaemica: Positive Oxidase Reaction in Lesions Macroscopically and Microscopically. F. D. Weidman and J. V. Klauder, Philadelphia.—p. 645.
Positive Wassermann Reaction in Spirochetal Infections Other Than Syphilis: Report of Case. T. W. Murrell, Richmond, Va.—p. 667.
The City Hospital: History of Its Dermatologic Division. P. E. Bechet, New York.—p. 672.
*Familial Benign Chronic Pemphigus. Howard Hailey and Hugh Hailey, Atlanta, Ga.—p. 679.
Glossodynia and the Painful Form of Wandering Rash of the Tongue. S. S. Greenbaum, Philadelphia.—p. 686.
Varioliform Eruption from Sulfanilamide. D. E. H. Cleveland, Vancouver, B. C.—p. 693.
Hemiatrophia Faciei Progressiva. E. B. Tauber and L. Goldman, Cincinnati.—p. 696.

Familial Benign Chronic Pemphigus.—The Haileys describe what they believe to be a heretofore unreported dermatologic entity—familial benign chronic pemphigus. They cite four cases of the condition in brothers involving two families. The individual lesion began as small vesicles, which rapidly became flaccid bullae. Early rupture followed, with formation of an amber-colored crust. The peripheral spread was bullous. Nikolsky's sign was present. Possible etiologic factors, such as occupation, ingestion of drugs, exposure to sunlight, irritation from clothing or from chemicals and the presence of an anatomic anomaly, were definitely eliminated. The condition is familial and recurs over a long period of years. While simple wet dressings are palliative, apparently no treatment influences the course of the disease. It is benign in that no constitutional signs or symptoms accompany it. Varying degrees of itching are present. The eyes of one of the patients were affected by the condition. After the condition of the eyes cleared up, both corneas and conjunctivas were normal, as was the skin in all four patients.

Archives of Ophthalmology, Chicago

21: 577-730 (April) 1939

*Treatment of Trachoma with Sulfanilamide. P. Richards, Albuquerque, N. M.; W. G. Forster, Fort Apache, Ariz., and P. Thygeson, New York.—p. 577.
Effect of Certain Chemical Stimuli on Caliber of Retinal Blood Vessels. I. Puntenney, Chicago.—p. 581.
Biomicroscopy of Cicatrices After Iridectomy and the Operation of Elliot or of Heine. P. T. Archangelsky, Tashkent, Soviet Union.—p. 598.
Alcohol-Tobacco (Toxic) Amblyopia Treated with Thiamin Chloride. L. V. Johnson, Cleveland.—p. 602.
Induced Size Effect: II. Experimental Study of Phenomenon with Restricted Fusion Stimuli. K. N. Ogle, Hanover, N. H.—p. 604.
Congenital Type of Endothelial Dystrophy. F. H. Theodore, New York.—p. 626.
Additional Research on Vernal Conjunctivitis. L. Lehrfeld and J. Miller, Philadelphia.—p. 639.
Aids in the Fitting of Contact Lenses. H. Eggers, New York.—p. 647.
Louis Émile Javal 1839-1907: Centenary Tribute. J. E. Lebensohn, Chicago.—p. 650.
Psychologic Considerations in Study of Binocular Function. E. Krimsky, Brooklyn.—p. 662.
Occupational Keratitides and Corneal Dystrophies. M. Davidson, New York.—p. 673.

Treatment of Trachoma with Sulfanilamide.—Richards and his co-workers treated twelve Indian children, all showing active trachoma with follicular hypertrophy and pannus, with sulfanilamide. All showed striking improvement, and at the end of four and a half months the conjunctiva in each instance had become follicle free and smooth. Except in one eye, corneal infiltrates disappeared and the corneal activity was apparently checked. Two untreated children used as controls showed no improvement during the period of observation but improved rapidly when sulfanilamide was given later. Sulfanilamide brought about the disappearance of the epithelial cell inclusion bodies characteristic of active trachoma.

Archives of Pathology, Chicago

27: 661-810 (April) 1939

Nature of Vegetations of Bacterial Endocarditis. A. C. Allen, New York.—p. 661.
*Progressive Alcoholic Cirrhosis: Clinical and Pathologic Study of Sixty-Eight Cases. E. M. Hall and W. A. Morgan, Los Angeles.—p. 672.
The Normal, the Acromegalic and the Hyperplastic Nephritic Human Nephron: Further Consideration of Plastic Reconstructions of Louis A. Turley. A. L. Grafflin, Boston.—p. 691.
Arrested Pulmonary Coccidioidal Granuloma. A. J. Cox and C. E. Smith, San Francisco.—p. 717.
Hyperparathyroidism and Renal Disease. W. A. D. Anderson, Memphis, Tenn.—p. 753.

Progressive Alcoholic Cirrhosis.—Hall and Morgan present a study of sixty-eight cases, selected from several thousand necropsies as instances of the progressive, or active, type of alcoholic cirrhosis as described by Hall and Ophüls. This condition may be conveniently designated as subacute alcoholic cirrhosis. Fifty-seven of the patients were consumers of alcohol in some form and fifty-one were "heavy drinkers," chronic alcoholic addicts. Only one of the sixty-eight patients denied that he consumed alcohol. This group of patients were, then, quite largely suffering from alcoholism. The livers were mostly of the large (average weight 2,760 Gm.), pale yellow fatty type, with the connective tissue actively proliferating about disintegrating hepatic cells. The picture was that of early or subacute alcoholic cirrhosis. Jaundice was present in 50 per cent of the patients; in twenty-four the icteric index was 50 units or higher. Approximately 50 per cent of the livers contained excessive amounts of fat. The authors believe that in the majority of cases the enlargement and fatty infiltration of the liver con-

stitute the first development and that this passes imperceptibly into the subacute phase of cirrhosis, to be followed later, if the patient survives long enough, by the appearance of the small hobnail liver. A small percentage of the patients die during the subacute stage as a result of complicating infections, dietary deficiency diseases, hepatic insufficiency, portal hypertension, alcoholic psychoses and other disorders. They also believe that the term "alcoholic cirrhosis" has a firm basis in etiology. Much of the confusion regarding this subject has been due to the study of the chronic Laennec type of case, in which cirrhosis due to alcohol cannot be distinguished readily from that due to other causes.

Bulletin New York Academy of Medicine, New York

15: 221-288 (April) 1939

Diagnostic Significance of Changes in Leukocytes. M. M. Wintrobe, Baltimore.—p. 223

Use of Sulfapyridine in Treatment of Pneumonia. Preliminary Report. N. Plummer and H. Ensworth, New York.—p. 241.

Id. H. F. Flippin, Philadelphia.—p. 249

Id. Absorption, Acetylation and Excretion of Sulfapyridine. H. E. Stokinger.—p. 252

Treatment of Depersonalization. P. Schilder, New York.—p. 258

Present Status of Protamine Insulin. H. Lande, New York.—p. 273.

Endocrinology, Los Angeles

24: 435-598 (April) 1939. Partial Index

*Clinical Interpretation of Endometrial Biopsy. Report of 300 Cases. J. Kotz and Elizabeth Parker, Washington, D. C.—p. 447.

Effects on Uterine Motility of Urine Excreted During Normal Labor, Normal Menstruation and Dysmenorrhea. Doris Phelps, Nashville, Tenn.—p. 462.

Augmentation of Pituitary Gonadotropic Hormone by Chlorophyll, Plant Growth Hormones and Hemin. W. R. Breneman, Bloomington, Ind.—p. 488.

Patency of Uterotubal Junction of the Rabbit. Experimental Observations with Aid of Carbon Dioxide Insufflation (Rubin Method). M. Feresten and S. Wimpfheimer, New York.—p. 510

Mineral Salts as Toxic Factors in Urinary Prolan Concentrates. R. J. Main, Richmond, Va.—p. 523.

Fractionation Studies on Adrenal Cortex Extract with Notes on Distribution of Biologic Activity Among Crystalline and Amorphous Fractions. M. H. Kuizenga and G. F. Cartland, Kalamazoo, Mich.—p. 526

Electrocardiographic Changes During Hypoglycemia and Anoxemia: Cortical Depression and Autonomic Release. H. E. Himwich, S. J. Martin, F. A. D. Alexander and J. F. Fazekas, Albany, N. Y.—p. 536.

*Hyperglycemia Without Glycosuria Associated with Disturbances in Metabolic Processes. C. F. Davidson, Seattle.—p. 542

Regeneration of Autografts of Thyroid Tissue in Partially and Completely Thyroidectomized Rats. D. J. Ingle and R. W. Cragg, Rochester, Minn.—p. 550.

Interpretation of Endometrial Biopsy.—Kotz and Parker studied the menstrual cycles of 500 women, 300 of whom were controlled for a sufficient length of time to obtain accurate data on the menstrual history and adequate biopsy material for study. The types of cases studied included amenorrhea, oligomenorrhea, hypomenorrhea, menorrhagia, metrorrhagia, menopause, sterility and dysmenorrhea. A complete history with emphasis on the character of the menstrual cycles since the onset at puberty was obtained in each case and general and pelvic examinations were done. Laboratory work consisted of blood counts, urinalysis, Kahn reactions, basal metabolism rates and blood tests for the estrogenic and gonadotropic substances. There were no specific endometrial patterns for the menstrual disorders. Amenorrhea may possibly be an exception, since here the endometrium was usually in a stage of follicular arrest or atrophy. When other types occurred, menstruation followed shortly thereafter. Specific changes in cases of the menopause were not demonstrable but the endometrium merely reflected the degree of ovarian failure. In the early menopause an abnormal luteal phase was found; later, with further loss of ovarian function, the follicular and eventually the atrophic phases occurred. Oligomenorrhea and polymenorrhea occurred with practically every type of endometrium. In the cases of scanty and irregular periods 78 per cent showed evidence in the endometrium of some luteal function, although in 38 per cent it was of an abnormal type. In the cases of functional bleeding or polymenorrhea 51 per cent showed complete lack of corpus luteum function while an additional 33 per cent showed abnormal corpus luteum function as evidenced by the endometrial pattern. The occurrence of bleeding from all phases of the endometrial development with varying levels of the ovarian hormones would seem to suggest that a third factor—the bleeding factor—is a necessary activator of this phase of the cycle. In the purely functional type of dysmenorrhea there was usually a relative and often actual preponderance of the action of theelin. Pseudomenstruation, which is often considered to be synonymous with anovulatory menstruation, occurred in forty cases.

Hyperglycemia Without Glycosuria.—Davidson points out the association between hyperglycemia and deviations in a wide variety of metabolic processes and advances the theory that hyperglycemia, by itself, may be one of the determining factors in certain clinical manifestations. Hyperglycemia has not generally been considered as a causative factor responsible for disturbances in metabolism which might be reflected in clinical manifestations. The demonstration of hyperglycemia without glycosuria in a large number of cases (seventeen of which are reported) presenting a wide variety of complaints has given the author an opportunity to observe the effects of treatment designed to correct this deviation in metabolism. Improvement in clinical manifestations associated with therapeutic measures has occasioned the development of a theory that hyperglycemia may act as a determining factor in initiating and maintaining unfavorable metabolic conditions, which in turn are reflected clinically. Clinical improvement occurred when measures designed to correct hyperglycemia, the existence of which has been demonstrated through dextrose tolerance testing, were instituted. The patients, except one, could not be considered typically diabetic in the sense that they exhibited hyperglycemia with glycosuria, as repeated urine examinations failed to reveal sugar in the urine, in some instances over a period of years. The inappropriate concentration of dextrose and not the inappropriate supply of insulin is ascribed as the direct cause of such clinical exhibitions. Such histories as those submitted and experience with several score of other equally striking cases treated in the course of ten years have prompted the author to formulate the theory that hyperglycemia by itself operates at times as a determining influence in the initiation and maintenance of metabolic disturbances which may be described as metabolic processes operating under other than optimal conditions and which in turn are reflected in clinical manifestations.

Illinois Medical Journal, Chicago

75: 285-380 (April) 1939

Rectal Stricture of Lymphogranuloma Venereum. C. F. Martin, Philadelphia, and T. F. Reuther, Chicago.—p. 337.

*Menopause and Painful Stiffening of Shoulder. W. W. Voight, Chicago.—p. 340.

Lipocalcinogranulomatosis with Recurrent Salivary Calculi. E. Jonas, A. Dick and R. E. Forster, Chicago.—p. 344

Osteomyelitis of Lower Jaw Caused and Maintained by Fusospirochetal Infection. T. Benedek, S. J. Zakon and I. T. Harris, Chicago.—p. 347.

President's Address. Southern Illinois Medical Society, 1937. G. C. Otrich, Belleville.—p. 351.

*Studies in Autohemotherapy: II. New Method of Treating Hyperemesis Gravidarum. L. Saxon and J. E. Stoll, Chicago.—p. 352

Some Present Day Aspects of Treatment of Psychoses. Beulah Bossel man, Chicago.—p. 355.

Necrobiosis Lipoidica Diabeticorum. H. Rattner, Chicago.—p. 359.

Some Fundamental Considerations in Psychoneuroses. M. Brown, Chicago.—p. 361

Toxicity of Sulfanilamide: Severe Transient Myopia Following Use of Sulfanilamide. Report of Case. M. A. Spellberg, Chicago.—p. 366

Statistics Concerning Stages of Trachoma in the Southern Illinois Trachoma Clinics. M. Hirschfelder, Harrisburg.—p. 368

Hypothermia in Induced Hyperinsulinism. A. P. Bay, Western Springs.—p. 369.

Comparative Study of Some Patients' Heads. Preliminary Report at the Anna State Hospital. J. W. Davis, Anna.—p. 372.

Remissions in a Case of Schizophrenia by Two Unusual Mechanisms. J. J. Madden and N. K. Rickles, Chicago.—p. 373

Proctoscopic Examination. E. B. Williams, Chicago.—p. 374.

Menopause and Painful Stiffening of Shoulder.—Voight describes the painful stiffening of the shoulder that he has observed to occur in women during or at the beginning of the climacterium who were engaged actively as typists, pianists or teachers using the arm a great deal in their demonstrational teaching methods. The characteristic symptom in these cases was a marked pain in the right shoulder—the "used" arm—at first causing discomfort in the abduction of the arm and then leading to progressive limitation of this motion and eventuating, in one case, in complete adduction contracture. In one case of a left handed person the left shoulder was affected. Following the onset of pain and limitation of abduction, there develops as a rule limitation of rotation movements, the motion anteriorly

showing the least interference with movement. During this time palpation and x-ray examination of the shoulder joint reveal no changes. It is evident, therefore, that the seat of the disease and the disturbances in mobility are situated extrascapularly. In the diagnosis of this condition the most important factor is to exclude a humeroscapular arthritis. The author brought his cases to recovery by iontophoresis with histidine salve and massage, with the additional use, in appropriate cases, of the abduction splint. To these methods the author adds injections of large doses of progynon, thus attacking, he believes, the cause of the condition as well as the local involvement. The local methods were extended to the spaces under the deltoid and subscapularis.

Autohemotherapy for Hyperemesis Gravidarum.—Saxon and Stoll advocate autohemotherapy for the relief of hyperemesis gravidarum, based on an allergic concept of the condition. The dosage that they employed ranged from 3 to 10 cc., depending on the severity of the symptoms. The intervals between treatments were chosen according to the effect of the treatment and to the progress of desensitization in each individual. Four cases are reported which show the effect of this method. The authors state that they have used autohemotherapy in about seventy-five cases of hyperemesis and have yet to see a case that did not respond.

Journal of Aviation Medicine, St. Paul

10: 1-64 (March) 1939

Pulmonary Gaseous Exchanges at Low Barometric Pressure and in Air Mixed with Nitrogen. D. B. Dill, H. T. Edwards and S. Robinson, with collaboration of H. A. Armstrong and J. W. Heim, Dayton, Ohio. —p. 3.

Air Transport Flying from the Medical Standpoint. R. Greene, Coral Gables, Fla.—p. 12.

Place of Electrocardiograph in Examination for Flying: Discussion of Electrocardiograph in Flying Examination, Its Possibilities and Limitations. C. L. Leedham, Randolph Field, Texas.—p. 31.

Brief Report on Correction of Excessive Heterophorias and Other Defects by Use of Orthoptic Instruments. A. H. Schwichtenberg, Wright Field, Ohio.—p. 44.

Preliminary Report of Study of Color Perception and Its Practical Application in Aviation. P. B. Wiltberger, Columbus, Ohio.—p. 47.

Journal of Bone and Joint Surgery, Boston

21: 269-530 (April) 1939. Partial Index

Arthroplasty of the Hip: New Method. M. N. Smith-Petersen, Boston. —p. 269.

Arthrography in Congenital Dislocation of the Hip. E. Severin, Stockholm, Sweden.—p. 304.

*Skeletal Metastasis in Cancer. C. F. Geschickter and I. H. Maseritz, Baltimore.—p. 314.

New Operative Treatment of Tuberculous Coxitis in Children. A. Farkas, Budapest, Hungary.—p. 323.

Overgrowth of Femoral Shaft Following Fracture in Childhood. A. P. Aitken, C. W. Blackett and J. J. Cincotti, Boston.—p. 334.

*Gold Therapy in Proliferative (Especially Atrophic) Arthritis. J. A. Key, H. Rosenfeld and O. E. Tjoflat, St. Louis.—p. 339.

Operative Reconstruction of the Paralyzed Upper Extremity. L. Mayer, New York.—p. 377.

Rapid Roentgenography in Operating Room, with a Single Solution. F. R. Wilkinson, New York.—p. 387.

Use of Cellophane as Permanent Tendon Sheath. T. Wheeldon, Richmond, Va.—p. 393.

Posterior Fasciotomy in Treatment of Back Pain. C. H. Heyman, Cleveland.—p. 397.

Epiphysiodesis Combined with Amputation. F. vom Saal, Oklahoma City. —p. 442.

Operation to Improve Abduction Power of Shoulder in Poliomyelitis. Alvia Brockway, Los Angeles.—p. 451.

Utilization of Body Weight in Treatment of Residual Deformity in Clubfoot. R. S. Melville, Dundee, Scotland.—p. 456.

Osteochondritis Dissecans of the Elbow Joint. F. G. Murphy, Chicago.—p. 464.

Muscle Tester for Poliomyelitis Cases: Attachment for a Permanent Record. A. A. Schmier, New York.—p. 475.

Skeletal Metastasis in Cancer.—Geschickter and Maseritz emphasize the incidence of skeletal metastasis in which there is no clinical evidence of a primary lesion and submit data relative to osseous invasion by metastatic carcinoma. Their data are based on a study of 5,739 cases of carcinoma arising from various organs. There were 356 cases in which carcinomas metastasized to bone. The primary source of the metastasis was definitely determined clinically in 296 instances. The first indications of disease in the remaining sixty metastases of unknown origin were symptoms referable to the skeletal system. "Rheumatic pain" was a common complaint, and in several instances the patients were treated for arthritis. In one case a mass was palpated in the neck, which later proved to be a lymph node metastasis; in the other fifty-nine cases there were no subjective or objective signs referable to other systems. The prostate was the most common source of skeletal metastasis, the breast second and the kidney third, while the stomach, lung, thyroid and other organs were involved less frequently and in the order given. The size of the primary lesion is no index of the probability of metastasis. Metastasis to bone may occur many years after the primary operation and in the present series of 2,306 cases of breast cancer skeletal metastasis was observed as late as 18.25 years postoperatively; the average time was 31.3 months. Irradiation of the osseous lesions relieves pain and prolongs the life of the patient.

Gold Therapy for Arthritis.—Key and his associates treated seventy patients with arthritis of the proliferative type with myochrysine (sodium aurothiomalate). The patients were not selected, except that before treatment was started it was agreed that the patient had an active arthritis of the proliferative type, which appeared to be chronic and progressive and of sufficient gravity to warrant the repeated administration of an admittedly dangerous drug. In only three cases had the disease been present less than one year; in the others from one to more than ten years. A control series was not studied, but the previous treatment of fifty-three of these patients with atrophic arthritis was recorded. In spite of various types of previous treatment, the disease had remained active and therefore the authors believe that in such a group of patients controls are not necessary. The preparation was administered by intramuscular injection with a fine needle in the deltoid or gluteal region. In adults the usual initial dose was 0.05 Gm.; one week later 0.1 Gm. was given and this dose was continued for twenty weeks until the patient had received 2 Gm. of myochrysine or 1 Gm. of gold. If a toxic reaction occurred, the treatment was discontinued or the dose was decreased. In children the initial dose was 0.0125 Gm. and this was increased to 0.025 Gm. At the end of the first course of treatment the patient was given a rest period of six weeks; then, if the disease was still active or if the blood sedimentation rate was accelerated, a second course was given; after a second rest period of from four to six months, a third course was given if indicated. Twenty patients received 1 Gm. or less of myochrysine, twelve from 1 to 2 Gm., twenty-six from 2 to 4 Gm. and twelve from 4 to 6 Gm. Of the two cases of proliferative arthritis following rheumatic fever, the disease was apparently arrested in one and considerable improvement occurred in the other during the treatment but treatment was discontinued owing to severe toxic reactions. In the four cases of proliferative arthritis which appeared to be due to the gonococcus, the gold treatment appeared to have little if any beneficial effect and it was not continued. The arthritis was not improved in the two cases of lymphogranuloma, but in one of these the rectal condition showed marked improvement while treatment was being given. In the nine cases of spondylitis ankylopoietica, the gold therapy did not result in sufficient improvement to warrant its continued administration. Its use was discontinued and sulfanilamide was substituted, which appears to have caused definite improvement, though it is still too early to state whether or not it will arrest the disease. Of the fifty-three cases of atrophic arthritis, in two the arthritis was aggravated, in six there was no improvement, in seven there was improvement while under treatment (but the patients did not return for final check-up), in four there was slight improvement, in thirteen moderate improvement occurred, in eighteen the improvement was marked and in three the disease appears to have been arrested. The signs of improvement were disappearance of swelling in ten patients, decrease of swelling in twenty-five, increased movement in twenty-seven, disappearance of pain in twenty-one, diminution of pain in fifteen, decrease in the sedimentation rate in thirty-six of forty-six patients tested and increase in physical activity of thirty-seven of the forty-seven patients checked for this factor. Twenty-two patients resumed their house work, four of the seven children returned to school, six resumed their occupations and five merely stated that they were able to do more than they could before this treatment. Thirty-six of the forty-three underweight patients gained weight while under treatment. There also was a marked improvement in the morale of most of the patients, even in many who had toxic reactions.

Journal of Experimental Medicine, New York

69: 485-606 (April) 1939

Nephritis and Its Influence on Hemoglobin Production in Experimental Anemia. G. H. Whipple and Frieda S. Robscheit-Robbins, Rochester, N. Y.—p. 485.
Antibody Response to Swine Influenza. C. T. Rosenbusch and R. E. Shope, Princeton, N. J.—p. 499.
*Vitamin C in Relation to Experimental Poliomyelitis with Incidental Observations on Certain Manifestations in Macacus Rhesus Monkeys on Scorbutic Diet. A. B. Sabin, New York.—p. 507.
Soluble Malarial Antigen in Serum of Monkeys Infected with Plasmodium Knowlesi. M. D. Eaton, New York.—p. 517.
Effect of Pregnancy on Immunity of Mice Vaccinated Against St. Louis Encephalitis Virus. H. L. Hodes, New York.—p. 533.
Effects of Anaphylaxis and of Histamine on Coronary Arteries in the Isolated Heart. E. C. Andrus and H. B. Wilcox Jr., Baltimore.—p. 545.
Studies on Mechanism of Immunity in Tuberculosis: Role of Extracellular Factors and Local Immunity in Fixation and Inhibition of Growth of Tubercle Bacilli. M. B. Lurie, Philadelphia.—p. 555.
Id.: Mobilization of Mononuclear Phagocytes in Normal and Immunized Animals and Their Relative Capacities for Division and Phagocytosis. M. B. Lurie, Philadelphia.—p. 579.

Vitamin C in Poliomyelitis.—From his experiments on monkeys, Sabin found that both natural and synthetic preparations of vitamin C had no effect on the course of experimental poliomyelitis induced by the nasal instillation of the virus. Immediately after the virus was instilled the administration of vitamin C was begun, and if the vitamin were capable of exerting any effect on the virus or the tissues it could have done so even before the virus had begun to multiply. Monkeys whose store of vitamin C was depleted reacted in the same way as those receiving an adequate diet. The author finds no apparent explanation for the difference between his results and those reported previously by Jungeblut. During the present investigation, monkeys on a scorbutic diet died of spontaneous acute infections, chiefly pneumonia and enterocolitis, while their mates receiving an adequate diet remained well. Osseous and other changes of human scurvy developed in the monkeys that survived the scorbutic diet, and the vitamin C used in this study produced healing and calcification in the bones as well as it checked the edema and hemorrhagic diathesis.

Journal-Lancet, Minneapolis

59: 85-118 (March) 1939

Accuracy in Eye Examination. L. G. Dunlap, Anaconda, Mont.—p. 85.
The Sinus Problem. A. W. Morse, Butte, Mont.—p. 87.
*Acute Diffuse Bronchiolitis: Report of Case. C. A. McKinlay, Minneapolis.—p. 90.
Peptic Ulcer. R. G. Allison, Minneapolis.—p. 91.
Infantile Cerebral Palsy. J. F. Pohl, Minneapolis.—p. 94.
Cervical and Vaginal Pathology and Treatment. H. C. Hesseltine, Chicago.—p. 97.
Acute Pneumonitis or Atypical Pneumonia. W. G. Rainey and J. R. Burbidge, Princeton, N. J.—p. 101.
Essential Hypertension. J. R. Kleyla, Omaha.—p. 104.
Minnesota Medical Problems. J. M. Hayes, Minneapolis.—p. 108.
Whither and Why in College Health Work? W. E. Forsythe, Ann Arbor, Mich.—p. 110.
Painless and Comfortable Electrical Labyrinthine Tester. C. D. Wright, Minneapolis.—p. 113.

Acute Diffuse Bronchiolitis.—McKinlay reports a case of acute diffuse bronchiolitis in a woman of 20 in whom the main physical sign was the presence of medium and somewhat fine moist rales over considerable portions of both pulmonary fields, which later became quite universal. In the absence of signs of frank consolidation and appreciable alteration in breath sounds, the impression gained was that of acute diffuse bronchiolitis as distinguished from bronchitis or bronchopneumonia. Later roentgen examination showed the development of contiguous areas of bronchopneumonia and simulated the signs of miliary tuberculosis. The course of the disease was characterized by mild respiratory symptoms and slight fever of nine days followed by a febrile period of nineteen days. The temperature was moderate and fell by lysis. While of rare occurrence in young adults during recent years, reports of similar cases indicate that bronchiolitis with similar features is not uncommon in infants and the aged, and during epidemics it is also often seen in adults. The entity suggests a specific etiologic agent (Haemophilus influenzae).

Journal of Nervous and Mental Disease, New York

89: 405-624 (April) 1939

Fifty Years of Psychiatry and Neurology. O. Diethelm, New York.—p. 409.
Balance in Psychiatric Research. E. D. Bond, Philadelphia.—p. 419.
The Man Factor in Disease. G. Draper, New York.—p. 423.
Hippocampus and Its Relations to Corpus Callosum. F. Tilney, New York.—p. 433.
Somatic Correlations with Unconscious Repudiation of Femininity in Women. K. A. Menninger, Topeka, Kan.—p. 514.
Jelliffe, the Psychiatrist and Psychoanalyst. A. A. Brill, New York.—p. 529.
Jelliffe, the Neurologist. H. A. Riley, New York.—p. 536.
Jelliffe, the Bibliomaniac. R. H. Hutchings, Syracuse, N. Y.—p. 542.
Jelliffe, the Man. L. Casamajor, New York.—p. 543.
The Editor Himself and His Adopted Child. S. E. Jelliffe, New York.—p. 545.

New England Journal of Medicine, Boston

220: 495-544 (March 23) 1939

American Medicine and the National Health Program. M. Fishbein, Chicago.—p. 495.
Medicine and the Public. J. P. Peters, New Haven, Conn.—p. 504.
Surgical Approach for Ligation of Patent Ductus Arteriosus. R. E. Gross, Boston.—p. 510.
*Citrates in Treatment of Infantile Rickets. A. T. Shohl and A. M. Butler, Boston.—p. 515.
The Water Soluble Vitamins. A. P. Meiklejohn, Boston.—p. 518.

Citrates in Treatment of Rickets.—Shohl and Butler used citrate mixtures in the treatment of two cases of infantile rickets. The amount of citrate given each patient daily corresponded approximately to that contained in five or six large oranges. X-ray studies showed that healing had taken place during the administration of citrates, without vitamin D therapy. The deposition of lime salts was first detected in these patients on the ninth and fourteenth days of therapy, respectively. Not only the early date of deposition but the amount of deposition compared favorably with that obtained with cod liver oil. Both patients gained in weight during the periods in which the rickets was healing. The serum analyses in both patients showed a lowering of the total calcium and a rise in the phosphate, and subsequently in case 1 a rise in both. In this respect the children reacted similarly to rats. Tetany was never manifest by either a positive Chvostek's sign or convulsions. Latent tetany was absent. This new form of therapy not only offers an adjunct to accepted measures for the treatment of infantile rickets but also may have application to other types of disorders of calcium and phosphorus metabolism.

220: 545-582 (March 30) 1939

Cancer of the Ovary. J. V. Meigs, Boston.—p. 545.
Lipodystrophia Facialis: Case Report. R. Guralnick and H. Green, Boston.—p. 553.
Transfusion Syphilis. F. Ronchese, Providence, R. I.—p. 556.
*Death in Newborn and Stillborn Infants. J. S. P. Beck, Worcester, Mass.—p. 558.
Children's Surgery. W. E. Ladd, Boston.—p. 564.

Death in Newborn and Stillborn Infants.—In twenty-five deaths of infants varying in gestation age from five to nine months and in which postmortem material and clinical data were available, Beck observed that the cause of death in 64 per cent was traceable to intra-uterine disturbances other than those related to the fetus or to difficult delivery. The remaining 36 per cent consisted of congenital malformations incompatible with extra-uterine life (12 per cent), injuries due to difficult labor (20 per cent) and syphilis (4 per cent). The close relation between death and the complications of pregnancy or labor or both, the author states, is in complete harmony with a recently reported (Bundesen and his associates) relation involving many hundreds of similar cases. All ailing prospective mothers should be brought as near to normal health as possible before delivery is allowed to start if the welfare of the infant is the more important. The blood in anemia should be brought to normal range, in acidosis or alkalosis the carbon dioxide combining power of the blood should be adjusted to normal, in nutritional edema the blood proteins should be raised, and the toxemias of pregnancy should be treated with great care. Mothers having a history of abortions, miscarriages, stillbirths or premature births should be given vitamins and suitable endocrine therapy in the antepartum period to carry the pregnancy to term. Narcotics and anesthetics seem contraindicated in mothers whose health is below par. Infants of such mothers will do badly

immediately following birth and the armamentarium for immediate and effective removal of foreign materials from the respiratory passages should be ready for use. Effective means for resuscitation should be made available for immediate use during the critical period just after the cord is severed. It seems logical to cleanse the nose and throat before the cord is cut and to use resuscitation measures afterward.

New York State Journal of Medicine, New York

39: 659-768 (April 1) 1939

Nondogmatic Psychotherapy. A. Gallinek, New York.—p. 665.
Radiologic Diagnosis of Coronary Thrombosis: New Approach. L. H. Berk, New York.—p. 672.
Urinary Infections in Infants and Children: Comparison of Therapeutic Methods. B. W. Carey Jr., Boston.—p. 685.
Fractures of Radius or Ulna—Lower Fifth—in Adolescence. D. E. McKenna, Brooklyn.—p. 692.
Short Wave Medical Diathermy: Clinical Applications. J. S. Coulter, Chicago, and S. L. Osborne, Evanston, Ill.—p. 699.
Plea in Behalf of the Anoxemic Patient. J. H. Evans, Buffalo.—p. 709.
Practical Epidemiology of Gonococcic Infections in Children. T. Rosenthal and J. Weinstein, New York.—p. 718.
Delayed Photosensitization of Skin Due to Sulfanilamide: Case Report. W. V. Wax, Catskill.—p. 723.
Summary of Report of the New York State Legislative Cancer Survey Commission. M. L. Levin and R. S. Ferguson, New York.—p. 725.

Public Health Reports, Washington, D. C.

54: 459-512 (March 24) 1939

Disabling Sickness and Nonindustrial Injuries Among Drivers and Other Employees of Certain Bus and Cab Companies, 1930-1934, Inclusive. H. P. Brinton.—p. 459.
Studies of Sewage Purification: IX. Total Purification, Oxidation, Adsorption and Synthesis of Nutrient Substrates by Activated Sludge. C. C. Ruchhoft, C. T. Butterfield, P. D. McNamee and Elsie Wattie.—p. 468.

54: 513-560 (March 31) 1939

Engineering Problems in Milk Sanitation. L. C. Frank.—p. 513.
Induction of Carditis by Treatment of Infected Guinea Pigs with Insulin. M. P. Schultz and Edythe J. Rose.—p. 527.

Review of Gastroenterology, New York

6: 78-159 (March-April) 1939

Metastatic Cancer of Stomach. G. T. Pack and G. McNeer, New York.—p. 78.
Metabolic Disorders in Gastrointestinal Disease. J. P. Peters, New Haven, Conn.—p. 84.
*Incidence of Endamoeba Histolytica Infestation in Philadelphia: Its Treatment. J. H. Arnett, Philadelphia.—p. 91.
Relation of Traumatism to Peptic Ulcer. E. L. Kellogg and W. A. Kellogg, New York.—p. 96.
Influence of Splanchnic Innervation on Motility of Human Stomach. L. E. Barron, Boston.—p. 109.
Schistosomiasis (Schistosoma Mansoni): Report of Seven Imported Cases. A. S. Price, New York.—p. 115.
Clinical Significance of Gastroscopy. R. Schindler, Chicago.—p. 122.
Food Allergy of Digestive System. J. S. Smul, New York.—p. 128.
Pathology of the Gangrenous Gallbladder. C. F. Branch, Boston.—p. 136.
Management of Gallbladder Disease. M. Clinton, Buffalo.—p. 140.

Endamoeba Histolytica Infestation in Philadelphia.—In a stool survey of 1,060 freshmen in a college in Philadelphia, Arnett found that 4.1 per cent were positive for Endamoeba histolytica. A study of this group in relation to their home residence indicated a significantly higher percentage of positives (5.1 per cent) in students from Philadelphia within fifteen miles of City Hall than in those who came from New Jersey within fifteen miles of Philadelphia's City Hall (0.9 per cent). The health records of the positive cases indicated that, as regards gastrointestinal symptoms or other evidence of disease, they were not inferior to a group of the same size in which no intestinal parasites were found. A survey among a small group of inmates and employees of an institution for the aged in Philadelphia indicated an incidence of 11.3 per cent of stools positive for Endamoeba histolytica. A study of 293 stool specimens from food handlers in a Philadelphia institution showed a positive incidence of 6.5 per cent. When divided into those previously examined and those examined for the first time, the incidence among the former was 1.6 and among the latter 10.3 per cent. This difference appears to be due to the fact that the previously positive persons were successfully treated, so that in subsequent yearly examinations they appear negative. Treatment consisted of the oral administration of iodochlorhydroxy-quinoline, chiniofon and *p*-carbamido-phenylarsonic acid. Satisfactory results were secured from these three drugs without failures and without serious reactions. In no case has recurrence been noted. The author states that his data confirm Craig's estimate that between 5 and 10 per cent of the population of the country harbor Endamoeba histolytica in the intestinal tract but do not confirm the belief that symptoms are commonly encountered in these carriers.

Tennessee State Medical Assn. Journal, Nashville

32: 77-112 (March) 1939

Vitamin B. R. J. Buckman, La Follette.—p. 77.
Metrazol in Treatment of Psychoses. C. C. Turner, Memphis.—p. 81.
Progress in Medical Science. P. H. Levinson, Chattanooga.—p. 88.

32: 113-150 (April) 1939

Problem of Arthritis. A. Weinstein, Nashville.—p. 113.
Extra-Uterine Pregnancy. C. E. Newell, Chattanooga.—p. 120.
Manifestations of Gallbladder Disease with Analysis of 841 Operative Cases. W. D. Haggard and J. A. Kirtley Jr., Nashville.—p. 126.
Early Management of Traumatic Injuries, with Special Reference to Highway Accidents. B. Malone 2d, Memphis.—p. 133.

Virginia Medical Monthly, Richmond

66: 191-254 (April) 1939

Simplified Classification of Commercial Preparations of Sex Hormones. W. G. Crockett, Richmond.—p. 191.
Use of Shock Therapy in Treatment of Affective Disorders. D. C. Wilson, University.—p. 197.
*Some Newer Points of View on Peptic Ulcer as a Clinical Problem. T. G. Miller, Philadelphia.—p. 204.
Practical Value of Gastroscopy to the Internist. E. B. Mewborne and E. L. Alexander, Newport News.—p. 209.
Economic Status and Control of Cancer. E. P. Lehman, University; I. C. Riggin, Richmond, and J. A. Cocke, University.—p. 213.
Compensatory Mechanisms in Anemia. F. L. Apperly, Richmond.—p. 215.
Varicose Veins of the Broad Ligament. R. M. DeHart, Christiansburg.—p. 218.
Diagnosis and Treatment of Obstructing Tuberculous Lesions of the Tracheobronchial Tree. P. P. Vinson, Richmond.—p. 221.
Sleeve Wire Fixation of Fractures: Method of Fixation of Fractures in Which Fragments Are Separated; Report of Forty-Four Cases of Fractures of Proximal End of Tibia. T. Wheeldon, Richmond.—p. 223.
Acute Glomerulonephritis: Observations on Clinical Course, Prognosis and Treatment. B. S. Leavell, J. R. Beckwith and J. E. Wood Jr., University.—p. 226.
Partial Occlusion of Superior Mesenteric Artery. J. A. Gannon, Washington, D. C.—p. 235.

Peptic Ulcer.—Miller states that peptic ulcer can no longer be regarded clinically as merely a local disease of the stomach or duodenum. The internist must concern himself with the person's heredity, with his physical, mental and emotional makeup, with the nature of his endocrine and his autonomic nervous equipment, with his environment and social status and with his personal habits of life. Whether or not the etiology of ulcer is proved eventually to depend on conditions outside the stomach or duodenum itself, such an established clinical association is of diagnostic importance and it seems to have a bearing on treatment. As important as the physical constitutional characteristics of the subject of ulcer is his psychic personality. He usually is of a nervous temperament, worries unduly and is introspective. He is nervous in the sense of being fearful, highly sensitive, intense and strenuous. There is also some experimental work tending to show a relationship of peptic ulcer to glandular dysfunction. Peptic ulcer, furthermore, frequently develops in predisposed people when they are subjected to unusual emotional strain, continued worry and anxiety. The use of tobacco or alcohol is believed by many to be of etiologic significance, and either may be the precipitating factor in a person predisposed constitutionally to ulcer. Other personal habits which involve overwork, loss of sleep and nervous exhaustion probably act in the same fashion and deserve special attention in prevention and treatment. Sex and age traditionally are of importance, but ulcer may occur at any age. An excess of free hydrochloric acid is commonly regarded as of etiologic and diagnostic value, and certainly its association is frequent, at least in duodenal ulcer. It is present in many normal persons, however, and presumably characterizes a certain constitutional type. Neutralization of the free hydrochloric acid is most important to cure, a clinical fact which in itself indicates an etiologic relationship. These various clinical aspects of ulcer are of etiologic as well as of diagnostic value, though the crucial considerations from the diagnostic angle are, of course, the history and x-ray observations.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

36: 1-82 (Jan.-March) 1939

Present Position on Tonsil Operations. M. Yearsley.—p. 1.
Transient Pulmonary Infiltration with Blood Eosinophilia (Loeffler's Syndrome). F. P. Weber.—p. 15.
Chloroma in Children. F. R. B. Atkinson.—p. 18.
*Renal Dwarfism. R. M. Bates.—p. 34.

Renal Dwarfism.—Bates describes a case of an adult mentally defective dwarf who during life, and at the postmortem examination, was thought to have renal rickets. Histologic examination of one femur showed no rachitic change and the parathyroids were normal. The high blood pressure and retinitis pointed to chronic nephritis, but this presumably followed a renal and ureteral dilatation, which also occurs in the nonhypertensive variety of renal dwarfism. While a small ureteral stone may have played a part in the production of dilatation on the right side, the enormous dilatation on the left side appeared to be secondary to a congenital stenosis of the ureteral orifice. The author suggests that a more exact nomenclature be used in which dwarfism with rickets be called "renal rickets" and dwarfism without rickets "renal dwarfism." Renal infantilism would be reserved for cases in which true infantilism is associated with renal dwarfism. Such cases might or might not show rickets. The three conditions are probably parts of one large whole. It may be that renal damage in infancy causes the circulation of chemical substances in the blood stream influencing, to a greater or lesser degree, general growth (pituitary), growth of the long bones (parathyroids) and sexual development (gonads direct or through the pituitary).

British Journal of Medical Psychology, London

18: 1-104 (March) 1939. Partial Index

Mental Disease and Crime: Outline of Comparative Study of European Statistics. L. S. Penrose.—p. 1.
Experiments on Physically and Mentally Defective Children with Perceptual Tests. J. C. Raven and A. Waite.—p. 40.
Studies in Application of Mental Tests to Psychotic Patients. M. Davidson.—p. 44.

British Journal of Radiology, London

12: 129-192 (March) 1939

Cardiac Aneurysm. J. Parkinson, D. E. Bedford and W. A. R. Thomson.—p. 129.
Tracheal and Bronchial Modifications During Course of Certain Cardiopathies Affecting the Pulmonary Artery. D. Routier and R. Heim de Balsac.—p. 150.
Intrathoracic Aneurysms. P. Kerley.—p. 158.
Laryngocele. J. Blewett.—p. 163.
The "Quality" of High Voltage Radiations: Part II. "Quality" within a Scattering Medium. J. R. Clarkson and W. V. Mayneord.—p. 168.
Use of Invisible Radiations in Police Work. L. C. Nickolls.—p. 182.

British Journal of Urology, London

11: 1-110 (March) 1939

Perinephric Abscess. J. E. Semple.—p. 1.
Complicated Extrophy of the Bladder Presenting Many Unusual Features: Case. K. F. Russell.—p. 31.
Chyluria of Filarial Origin. P. N. Ray and S. S. Rao.—p. 48.

British Medical Journal, London

1: 431-490 (March 4) 1939

Gallstones: Ten Years' Surgical Experience. L. Barrington-Ward.—p. 431.
Acute Dilatation of the Stomach. H. Bailey.—p. 434.
*Etiology of Glaucoma. P. Weinstein.—p. 436.
Some Aspects of the Venereal Disease Problem in the Federated Malay States with a Serologic Survey of Indian Laborers. I. D. Gebbie.—p. 438.
Arterial Embolectomy: Notes of Case. A. M. McMaster.—p. 441.
The Supine Position in Emergency Treatment of Patients with Fractured Spine. G. Hyman.—p. 444.

Etiology of Glaucoma.—Weinstein studied the possible relation of glaucoma to blood pressure. The study showed that the systolic blood pressure of 100 sound persons ranged from 120 to 200 mm. of mercury and the diastolic from 60 to 95 mm., while the corresponding values in 150 persons suffering from glaucoma were 120 to 230 mm. and 60 to 115 mm. respectively. The difference is not sufficient to suggest the existence of hypertonia in glaucomatous persons. Attention was next directed to the small vessels, but no values that are characteristic of the tension of glaucoma could be determined either within the large vessels or within the precapillaries. It was found however that, when the ocular tension increases, the pressure within the intra-ocular vessels increases also but that that of the extrabulbar vessels does not. Müller and Parrisius discovered by capillaroscopy that the vasomotor instability of glaucomatous persons was a characteristic peculiarity. Mészáros, Tóth and the author came to the same conclusion. The reactive hyperemia (the filling up of the bloodless finger with blood, normally within one to two seconds) is prolonged in glaucomatous persons. These data seem to prove that the capillary pressure increases in glaucomatous persons. During investigations by means of the tonograph the author observed that there is a difference between the amplitude of the oscillations in glaucomatous hypertonic persons and that in sufferers from thrombosis of the central retinal vein. The tonographic reading in glaucomatous persons at 200 mm. of mercury pressure shows a normal oscillation of from 8 to 10 mm., against over 15 mm. in thrombotic individuals, proving that there is a decrease of elasticity in the walls of the vessels. Inflammatory glaucoma rarely occurs in persons suffering from grave arteriosclerosis (nephrosclerosis and diabetes) but their capilloscopic reading, as well as the tonogram and the dermal-tension value, differs from that found in cases of glaucoma. The acute capillary dilatation observed during glaucomatous attacks is possible only with an elastic wall of the vessels and not in the rigid brittle wall of arteriosclerotic persons. Of the 3,254 glaucomatous patients reviewed from the First Ophthalmological Clinic from 1904 to 1933—and of the smaller series from the ophthalmologic department of the policlinic—60 per cent were women, and 80 per cent of the acute attacks befell women at the time of the climacteric. This ratio explains the relation of glaucoma to the endocrine system and renders the vasomotor instability of glaucomatous persons easily understood, as during the climacteric women are disposed to congestion, perspiration and similar vasomotor reactions. The frequency of glaucomatous attacks in winter is conspicuous. This connection with meteorologic conditions again points toward vasomotor instability of the capillaries. Primary glaucoma, in contrast to the inflammatory type, develops because of arteriosclerotic alteration and accordingly does not show any great increase in ocular tension. The destruction of the optic nerve seems to be the sequel to the circulatory defect and to the resulting alimentary deficiency. The third type of glaucoma is that following thrombosis of the central retinal vein. As a rule the victims are people of advanced age whose blood pressure is high and the amplitude of whose tonographic reading is large. In whatever organ thrombosis may be located, pathologic products such as carbonic acid, lactic acid, citric acid and hydrochloric acid accumulate, and this must necessarily be the case within the eye. It is probable that under the influence of these substances the vitreous body slowly begins to swell up and gradually increases the ocular tension, and glaucoma in these cases of thrombosis of the central retinal vein is probably caused by an alteration in the hydrogen ion concentration.

Glasgow Medical Journal

13: 105-156 (March) 1939

Recent Theories of the Nature of Glaucoma. I. C. Michaelson.—p. 105.
*Carcinoma of Pancreas. Marjorie Gillespie.—p. 118.

Carcinoma of Pancreas.—According to Gillespie, in a total of 1,861 postmortem examinations performed during the last seven years forty-three pancreatic tumors were found, 2.3 per cent, or about 10 per cent of all tumors. Thirty-one of these cases occurred in men and twelve in women. Their ages varied from 36 to 79 years, the mean being 60 years. In thirty-two cases the neoplasm originated in the head, in five in the body and in six in the tail of the pancreas. In only fifteen of the tumors of the head of the pancreas was jaundice present. Jaundice is an aid to diagnosis, but no jaundice was evident in more than half of these cases. Metastases to various parts of the body were found in thirty-three instances. Metastases were more common in carcinomas of the parenchyma than in those of

the duct. Microscopic sections were available in only thirty-one cases. Of these, eleven were duct carcinomas and twenty were carcinomas of the parenchyma. Of the former, ten originated in the head and one in the tail; of the latter, ten were tumors of the head, six of the body and four of the tail. The duct carcinomas showed infiltration of other organs by direct extension in six out of the eleven cases. The organs affected were the liver, the duodenum and the left adrenal. All the parenchymatous carcinomas showed wide metastases, the adrenals being the most commonly affected organs. The duct carcinomas tended to be scirrhous in type, the neoplastic ducts being surrounded by masses of fibrous tissue. The parenchymatous tumors consisted of masses of cells varying in shape—oval, cuboidal or round.

International Journal of Psycho-Analysis, London

20: 1-136 (Jan.) 1939

If Moses Was an Egyptian. . . . S. Freud.—p. 1.
Preliminary Notes on the Problem of Akhenaten. J. Strachey.—p. 33.
A Dream of Descartes: Reflections on Unconscious Determinants of Sciences. S. Schönberger.—p. 43.
Relations Between Clinging and Equilibrium. P. Schilder.—p. 58.
Regression of Ego-Orientation and Libido in Schizophrenia. R. Bak.—p. 64.
Discussion of Certain Forms of Resistance. Helene Deutsch.—p. 72.

Irish Journal of Medical Science, Dublin

No. 158: 49-96 (Feb.) 1939

War, Famine and Pestilence. J. T. Wigham.—p. 49.
Circulation of Maternal Blood Through the Placenta. Ninian Falkiner.—p. 59.
Intracranial Cysts. A. A. McConnell and S. J. Douglas.—p. 66.
Ovarian Dysmenorrhea: Short Review of the Etiology, Diagnosis and Treatment. O. Browne.—p. 73.
Antenatal Nutrition in Dublin: Preliminary Survey. G. C. Dockeray and W. R. Fearon.—p. 80.

Journal of Mental Science, London

85: 185-380 (March) 1939

Methodologic Consideration of Jung's Typology. W. Stephenson.—p. 185.
*Histologic Changes in the Brain in Mongolism. A. Meyer and T. B. Jones.—p. 206.
Disturbances of Glucose Tolerance and of the Acid-Base Equilibrium in Manic-Depressive Insanity. J. K. Marshall.—p. 222.
Some Verbal Problems Connected with Character Nomenclature. R. C. Oldfield.—p. 245.
Congenital Ichthyosis, Idiocy, Infantilism and Epilepsy—The Syndrome of Rud. R. M. Stewart.—p. 256.
Facial Expression in Schizophrenic Drawings. F. Reitmann.—p. 264.
Phenylpyruvic Oligophrenia: Three Cases. R. M. Bates.—p. 273.
Thrombophlebitis Occurring in Patients Receiving Barbiturates: Unrecorded Complication of Sleep Treatment. H. A. Palmer.—p. 276.

Histologic Changes in the Brain in Mongolism.—Meyer and Jones examined histologically the brains of fifteen cases of mongolism and in ten of these they found definite changes. These changes consisted mostly of widespread proliferation of the fibrous glia, which often was not accompanied by corresponding changes in the myelin and cell picture. The pathogenesis of the changes is discussed, and it is shown that the observations are not likely to represent the pathologic substrate underlying mongolism. They throw light, however, on the interpretation of the changes reported by previous writers. Most of these investigators discussed the changes in the brain as an expression of the pathologic process underlying mongolism. Reserve is necessary in submitting far-reaching conclusions. The authors' material, which represents a wide variation in length of life, shows that relatively recent changes may be found even in persons who die in the third decade of life. It is therefore likely that all such changes must be regarded as accidental to the pathologic changes of mongolism. It may well be that the incidence of pathologic changes is greater in mongolism than in other conditions, owing to the peculiar constitution of the mongol. One might even assume that the same functional abnormality underlying mongolism produces also the histologic changes which, though constant, would obtain a certain significance as indicator of the pathogenesis of mongolism; but this is at present purely speculative. Enough is not known about the reaction of the brain to bodily diseases, especially in infancy and childhood, and therefore it cannot be decided whether this reaction is more severe in mongols than in other defective and normal persons. Systematic control will be necessary before a real appreciation of the cerebral changes in mongols will be possible. Investigations in this direction are in progress in this laboratory. There is no consistent correlation between the size of the brain stem and the degree of glial scarring, though it is conceivable that the glial scarring, if severe, might contribute to the smallness of size. Mongols are considered to be "able bodied" and gross neurologic symptoms are absent. The authors' investigation has demonstrated to them how erroneous comparative work based on measurements of cyto-architectonics and myelo-architectonics alone might be. Such comparative studies are necessary, but they must include a complete histologic analysis if serious errors are to be avoided.

Journal of Pathology and Bacteriology, Edinburgh

48: 245-492 (March) 1939. Partial Index

*Wernicke's Encephalopathy (Polio-Encephalitis Haemorrhagica Superior): Its Alcoholic and Nonalcoholic Incidence. A. C. P. Campbell and J. H. Biggart.—p. 245.
Effect of Presence of Malignant Tumor on Development of a Second Malignant Tumor. G. M. Bonser and K. I. Connal.—p. 263.
Immature Cell Erythremia in Adult. M. C. G. Israëls.—p. 299.
Leuko-Erythroblastic Anemia and Myelosclerosis. Janet M. Vaughan and C. V. Harrison.—p. 339.
Effect of Sympathectomy on Development of Experimental Arterial Disease. C. V. Harrison.—p. 353.
Study of Lesions Produced Experimentally by Cowpox Virus. A. W. Downie.—p. 361.
*Experimental Diabetes Insipidus. J. H. Biggart and G. L. Alexander.—p. 405.
Red Cell Fragility in Tropical Macrocytic Anemia. Barbara D. F. Evans and Lucy Wills.—p. 437.
Factors Which Determine the Fate of Hemolytic Streptococci (Group A) in Shed Blood and in Serum. A. T. Fuller, L. Colebrook and W. R. Maxted.—p. 443.

Wernicke's Encephalopathy.—Campbell and Biggart cite twelve cases of Wernicke's encephalopathy, in only one of which frank chronic alcoholism could be established; in the others alcohol could be completely eliminated as a causal factor. The nonalcoholic cases occurred as complications of a wide range of primary conditions: gastric carcinoma (three cases), chronic dyspepsia with gallstones and old gastro-enterostomy, pernicious anemia, macrocytic anemia following intestinal resection, pregnancy (two cases; hyperemesis was present in one case), bronchiectasis, chronic pyosalpinx and a vague illness in a child, possibly whooping cough. The pathogenesis of the encephalopathy is not clear. However, of the pathogenic factors which may be present singly or in combination, vitamin deficiency, especially deficiency of vitamin B_1, seems to be the most obvious possible common factor in the range of primary diseases which lead to the encephalopathy. Wernicke's encephalopathy is a clearcut pathologic entity which, unless specifically looked for, may easily be missed at postmortem examination.

Experimental Diabetes Insipidus.—In an attempt to arrive at some conclusion as to the factor or factors responsible for the production of diabetes insipidus, experiments were begun by Biggart and Alexander some three years ago on the dog. They found it possible to produce diabetes insipidus in the dog (temporary polyuria in fifteen and permanent in fourteen) by a lesion which involves the supra-optic nuclei or the supra-optic hypophysial tracts. It appears that the hypothalamus and the posterior hypophysis complex must be considered a functional unit as regards water metabolism; the experiments suggest that the supra-optic hypophysial tract serves as the motor-secretory mechanism for the elaboration of the antidiuretic factor. In other words, even when the lesion found in a patient with diabetes insipidus is confined to the hypothalamus, the syndrome is in effect an endocrine deficiency due to the lack of stimulus for the secretion of the hormone. It is probable that there exists some quantitative relationship between the amount of damage done to the supra-optic hypophysial tracts and the presence of the polyuria, as in the present experiments unilateral damage never resulted in permanent polyuria. The three phases which were seen during the onset of the permanent experimental polyuria were a transient polyuria, a period of normal output and finally the appearance of the permanent phase. Hypophysectomy or pancreatectomy abolished this polyuria, while thyroid medication usually increased it. The authors conclude that the supra-optic nuclei are in some way sensitive to the water needs of the body, that they serve as the nervous centers which stimulate the secretion of the antidiuretic factor and that

this factor is in all probability manufactured in the pars nervosa. Diabetes insipidus results when this neuro-endocrine system loses its functional integrity, either by reason of a hypothalamic lesion interrupting the path of motor-secretory impulses or by reason of replacement or destruction of the secretory tissue in the pars nervosa. In order that such loss of functional integrity may be clinically apparent, a certain amount of functioning anterior hypophysial tissue must be present. This diuretic function of the anterior hypophysis is probably mediated through other endocrine glands, and the evidence available suggests that the thyroid and pancreas are of importance in this respect.

J. Royal Inst. Public Health and Hygiene, London

2: 71-136 (Feb.) 1939

Control of Infectious Diseases in Schools. Discussion at the Institute on 19th January. A. F. Adamson.—p. 81.
Physical Fitness in Royal Air Force Flying Personnel. G. S. Marshall. —p. 91.
Subacute Rheumatic Infection. G. D. Kersley.—p. 101.
Value of Sulfur and Iodine in Treatment of Chronic Arthritis. E. Fletcher.—p. 104.
Health Education and the Local Authorities. J. M. Mackintosh.—p. 112.
Role of the General Practitioner. J. B. Miller.—p. 121.
Medical Examination of the Applicant for Employment. S. A. Underwood.—p. 126.

Journal of Tropical Medicine and Hygiene, London

42: 49-64 (Feb. 15) 1939

The Problem of the Amebic Carrier. H. W. Y. Taylor.—p. 49.
Note on Filariasis in the Southern Province, Ceylon, 1938. W. L. P. Dassanayake.—p. 51.
Diseases of the Skin in Negroes. L. J. A. Loewenthal.—p. 53.

Lancet, London

1: 491-552 (March 4) 1939

A Plea for the Woman in Gynecology and Obstetrics. C. Lane-Roberts. —p. 491.
Neurotropic Strain of Human Influenza Virus. C. H. Stuart-Harris. —p. 497.
*Colloidal Aluminum Hydroxide in Treatment of Peptic Ulcer. T. I. Bennett and A. M. Gill.—p. 500.
*Clinical Administration of Androgens: Comparison of Various Methods. G. L. Foss.—p. 502.
Uterine Hemorrhage Induced by Oral Administration of Pregneninonol. B. Zondek and S. Rozin.—p. 504.
*Isotonic Sodium Bicarbonate Solution in Diabetic Coma. E. Kirk.—p. 505.
Cardiazol Treatment of Schizophrenia and Allied States in Indian Patients. M. V. Govindaswamy.—p. 506.
Isolated Avulsion Fracture of the Lesser Tuberosity of the Humerus. J. P. McGuinness.—p. 508.

Colloidal Aluminum Hydroxide for Peptic Ulcer.—Bennett and Gill believe that it is not justifiable to treat any patient with peptic ulcer by any medicinal substance with neglect of diet. Since many patients show great clinical improvement when treated by diet alone, it is difficult to assess the relative value of various alkalis. They have, however, treated some thirty outpatients of both sexes, between 29 and 72 years of age, suffering from gastric, duodenal or anastomotic ulcers by placing them on small frequent soft or fluid feeds with an alkaline powder taken one hour after each feed. After various periods each patient was asked to substitute aluminum hydroxide gel for the powder and to note any differences. All but two patients expressed a preference for the gel; nearly all were completely free from pain while taking this preparation, but five obtained no relief. The clinical impression was that the benefit was fully equal to that derived from the alkaline powder. Diarrhea, which is often very troublesome in patients under treatment with alkalis, was absent in all but one patient. Five patients had slight constipation, which was easily counteracted with liquid petrolatum. Aluminum hydroxide does not produce alkalosis.

Clinical Administration of Androgens.—Foss compared the efficiency of various preparations of androgens given by different routes in maintaining sexual function in a male postpuberal eunuch. The preparations were given in succession with short free intervals over a period of a year, and bland ointment and injections of sesame oil were given as controls. The minimal weekly effective dose of testosterone propionate when given by subcutaneous injection was 40 mg. To obtain an equivalent effect it was found necessary to give from two to three times this dose rubbed in as ointment, six times the dose rubbed in as tincture or twenty times the dose orally. Progesterone was found to prolong the action of testosterone propionate when given in conjunction with it. Total testicular extracts had little effect when given by injection and no effect when given by mouth.

Isotonic Sodium Bicarbonate Solution in Diabetic Coma.—Kirk reports two cases of diabetic coma with severe acidosis in which treatment with insulin did not rapidly bring about the expected improvement of the acidosis. Treatment with isotonic (1.3 per cent) solution of sodium bicarbonate immediately relieved the coma.

Medical Journal of Australia, Sydney

1: 249-286 (Feb. 18) 1939

Psychiatry: Past, Present and Future: Lecture I. Retrospect. W. E. Jones.—p. 249.
*Trauma and Intracranial Tumors. L. B. Cox.—p. 256.
Hemorrhage of Brain Stem as Significant Complication of Intracranial Tumors. L. B. Cox.—p. 259.
Sudeck's Atrophy. N. Little.—p. 263.
A Miscellany. L. Duncan.—p. 265.

1: 287-330 (Feb. 25) 1939

Psychiatry: Past, Present and Future: Lecture II. Present Position and Future of Psychiatry. W. E. Jones.—p. 287.
Anxiety States in General Practice. K. B. Noad.—p. 294.
Id. D. W. H. Arnott.—p. 297.
Nerve Anastomosis in Treatment of Facial Paralysis. H. C. Trumble. —p. 300.
Alleged Painful Sequelae and Poor Results of Antrostomy. A. B. K. Watkins.—p. 302.

Trauma and Intracranial Tumors.—In a series of 150 consecutive cases of proved intracranial tumor, Cox found that trauma appeared to have been related to the onset of symptoms in four cases (2.6 per cent) or possibly five (3.3 per cent). In two of these, intracranial tumors were almost certainly present at the time of the injury. In one the microscopic study strongly suggested that the injury had caused focal changes within the tumor, about which a considerably enhanced rate of subdivision of the neoplastic cells was taking place. In two cases tumors were found in the regions of known sites of injury of a fairly severe grade. It is likely that in one of these the tumor did follow the injury; in the other it is possible that the tumor followed the injury, for, although a long period elapsed between its clinical onset and the injury, it was of a slowly growing type. It is thought that a brain containing a tumor is more likely to be injured by a blow than a normal brain. This seems to be true also for areas of the central nervous system containing simple malformations. A brain already the seat of inflammation would certainly have an enhanced susceptibility to injury. This may explain the apparently traumatic origin of many of the inflammatory and degenerative conditions of the central nervous system.

New Zealand Medical Journal, Wellington

38: 1-62 (Feb.) 1939

Chronic Gastric Ulcer: Considerations Regarding Treatment. M. A. Falconer.—p. 11.
Rhabdomyomatosis of Heart Associated with Tuberose Sclerosis of Brain and Multiple Cysts of Kidneys. D. T. Stewart.—p. 19.
Points in Diagnosis and Prevention of Ascaris Infection. C. Lane.—p. 23.
An Unusual Bathing Fatality. J. B. Liggins.—p. 27.
Transurethral Prostatectomy. C. M. Greenslade.—p. 30.

Chinese Medical Journal, Peiping

55: 93-200 (Feb.) 1939

Calcium and Phosphorus Metabolism in Osteomalacia: VII. Effect of Ultraviolet Irradiation from Mercury Vapor Quartz Lamp and Sunlight. H. I. Chu, T. F. Yu, K. P. Chang and W. T. Liu.—p. 93.
Acute Abscess of Lung. F. T. Ranson.—p. 125.
Amebiasis of the Penis. H. E. Shih, Y. K. Wu and V. T. Lieu.—p. 139.
Studies on Beta Hemolytic Streptococcus: I. Technic of Serologic Classification (Griffith). R. H. P. Sia.—p. 146.
Id.: II. Serologic Types Isolated from Scarlet Fever Patients and Their Contacts. C. J. Wu and R. H. P. Sia.—p. 150.
Preliminary Observations on Effects of Filarial Infection on Culex Pipiens Var. Pallens Coq. S. M. K. Hu.—p. 154.
Plague Work in Fukien: B. Sanitary Survey of North Fukien Towns. Y. N. Yang, E. Landauer, C. K. Kao and P. C. Lin.—p. 162.
New Concentration Method for Demonstration of Tubercle Bacilli in Stools. H. F. Chang and B. H. Y. T'ang.—p. 174.
Actinomycosis of the Cervix Uteri: Report of Case. H. E. Campbell and A. V. Greaves.—p. 180.

Annales de Médecine, Paris

45: 161-240 (March) 1939

Disturbances in Sugar Metabolism in Course of Azotemia. M. Villaret, L. Justin-Besançon, A. Rubens-Duval and P. Barbier.—p. 161.
Anatomoclinical Study of Cerebral Form of Arterial Hypertension. F. Thiébaut.—p. 184.
*Cardiovascular Disturbances and Myxedema. P. Savy, R. Froment and M. Jeune.—p. 216.
Deep-Seated Forms of Hodgkin's Disease: Purely Abdominal Form of Hodgkin's Disease. I. Stoia and P. Stanciulesco.—p. 232.

Cardiovascular Disturbances and Myxedema.—In this report Savy and his associates discuss the pathogenic and therapeutic aspects of the cardiovascular disturbances which are observed in the course of myxedema. They show that two types of cardiovascular disturbances can be observed in myxedema. To the first group belong those which can be traced directly to the myxedematous condition and which subside or disappear under the influence of organotherapy with thyroid. In the order of their frequency they are the diminution of voltage of the electrocardiographic tracings, more or less severe degrees of cardiac hypertrophy, some disturbances in tension and, in exceptional cases, anginal symptoms. All of these disturbances are benign and easily cured if they are not of too long standing. To the second type belong the lasting and incurable forms of cardiovascular disturbances. They are often aggravated rather than improved by thyroid therapy. Their prognosis is unfavorable and the connection with the thyroid insufficiency is uncertain or indirect. To this group belong coronaritis with or without anginal signs and with or without myocardial infarct; also considerable and persistent hypertensions and certain cases of cardiac insufficiency. The pathogenesis of these different types of cardiac disorders still involves numerous uncertainties. Although the tissular infiltration which is characteristic of the myxedematous state intervenes in the genesis of cardiac hypertrophy, and although the disturbances of neuromuscular excitation or of the cellular metabolism without doubt account for the modifications of the electrocardiographic voltage, on the other hand the role of thyroid insufficiency in the development of the arterial lesions is still only probable. The solution of the latter problem is of first importance for exact estimation of thyroid insufficiency as well as for the well founded total thyroidectomy in the treatment of angina pectoris and still more to throw light on the etiology and the pathogenesis of arterial disturbances, nearly all of which are as yet unknown.

Archives des Maladies de l'Appareil Digestif, Paris

29: 121-240 (Feb.) 1939

Russel-Body Cells (Metaplasmocytes) of Gastric Mucosa and Iron Metabolism. F. Moutier.—p. 121.
Is Syphilitic Celialgia Merely Unrecognized Pancreatitis? J.-R. Pinsan.—p. 187.
*Statistical Data on Speed of Sedimentation in Gastroduodenal Ulcers. M. Demole and P.-E. Perret.—p. 194.

Speed of Sedimentation in Gastroduodenal Ulcers.—Demole and Perret report the technic and conclusions of their clinical examination of 102 cases of gastroduodenal ulcers. Only cases were included in which diagnosis was confirmed by the roentgenograms. In several cases retests were made. The age of the patients ranged from 20 to 90, with a preponderance in the years between 30 and 65 and with the classic predominance of men (seventy-eight) over women (twenty-four). The Westergreen technic was employed and resulted in the formation of three groups: normal (group 1), somewhat accelerated (group 2) and exceedingly rapid (group 3). Group 1 contained sixty cases (59 per cent), group 2 contained twenty-eight (27 per cent) and group 3 was represented by fourteen (14 per cent). The 102 cases show the following distribution: group 1, simple ulcers forty-one (80 per cent), complicated ulcers nineteen (37 per cent); group 2, simple ulcers eight (16 per cent), complicated ulcers twenty (39 per cent); group 3, simple ulcers two (4 per cent), complicated ulcers twelve (24 per cent). The high percentage of normal sedimentation (80) in simple ulcers was expected. Certain complications, such as perivisceritis, have no effect on sedimentation. Acceleration is seen in 63 per cent of the complicated ulcers. Grouped according to site (gastric, pyloric, duodenal) ulcers exhibited the following distribution: group 1, gastric twenty, pyloric six and duodenal thirty-four; group 2, gastric fifteen, pyloric three and duodenal ten; group 3, gastric eight, pyloric one and duodenal five. It can be assumed, they say, that in ulcers showing normal sedimentation the chances of improvement are better. Ulcers with accelerated sedimentation are likely to suffer relapse or lead to grave complications. Extensive variation of acceleration may appear in the same patient even within a few days, which emphasizes the need of retesting. On the other hand, a surprising stability in sedimentation may be observed extending over several years. Hemorrhages do not cause an immediate acceleration. Therefore, an apparently normal sedimentation may well have been preceded by a recent and even serious hemorrhage. The authors conclude that: 1. In the great majority of cases a "pure" gastroduodenal ulcer has no effect on the sedimentation speed. A foreign cause is nearly always found at the bottom of an ulcer clinically or roentgenographically simple but accompanied by accelerated sedimentation. 2. Complication of an ulcer by hemorrhage, stenosis, biloculation, perforation or induration does not invariably modify the speed of sedimentation. 3. Consequently, if an ulcer with rapid sedimentation is clearly established and nothing in the general condition of the patient, after detailed examination, can account for this acceleration, either the presence or the imminence of a complication must be suspected.

Journal de Médecine de Lyon, Lyons

20: 139-174 (March 5) 1939

Nervous and Muscular Lesions Connected with Vitamin E Avitaminosis. A. M. Pappenheimer.—p. 139.
*Chronic Pylephlebitides in Banti's Disease. P. Croizat and M. Picard.—p. 145.
Arboreal Mosquitoes of the Region of Lyons: Larva and Nympha of "Aedes Pulchritarsis." E. Roman.—p. 153.
Studies on Metabolism of Vitamin C: Critical Study of Tillmans's Method; Its Clinical Value for Urinary Tests. M. Vauthey.—p. 161.

Chronic Pylephlebitis in Banti's Disease.—Croizat and Picard do not report new facts on the pathologic anatomy nor do they elucidate completely the still disputed pathogenesis of chronic pylephlebitis in the course of Banti's disease, but they aim to discuss the probable if not certain symptoms of pylephlebitis. They include under this term disorders of the portal system in the widest meaning of the word; that is, even lesions of the distal branches of the portal network. They analyze sixteen cases, some of which had already been surveyed in previous reports. Recently they observed a new case of pylephlebitis in Banti's disease and, since it demonstrates the diagnostic difficulties and the seriousness of the evolution, they describe and discuss this case in detail. It concerned a woman aged 35 who came under their observation in April 1938. The anamnesis revealed that she had had a keratitis during childhood and Pott's disease at the age of 14. The present disorder began in June 1937 with impairment of the general condition and with dyspeptic disturbances. Then ascites developed, which necessitated repeated punctures. After one of these punctures the existence of an enormous splenomegaly was observed and it was found that the patient had had attacks of diarrhea with bloody stools. For a while the patient's condition remained unchanged; under the influence of injections of diuretics the ascites remained stationary, and an existing anemic condition was improved by hepatotherapy. However, since neither the ascites nor the splenomegaly receded, a pylephlebitis was thought of and a surgical operation was decided on. The operation corroborated the diagnosis pylephlebitis. The ascites recurred after the operation, but after puncture it returned slowly. The patient died several months later. In the course of the necropsy it was found that the spleen presented the aspects of Banti's disease. Observations in this case and the analysis of other cases convinced the authors that chronic pylephlebitis is a frequent complication of Banti's disease. It seems to be definitely established that it is secondary to the splenic lesions and not a primary disorder. Unfortunately, pylephlebitis does not have a pathognomonic symptom and for this reason its diagnosis is difficult. Nevertheless, in the order of their frequency the most important symptoms are gastrointestinal hemorrhages, which the authors encountered in two thirds of the cases analyzed by them; then ascites and edema of the inferior members, which was observed in half of the cases. Laboratory methods furnish no information. Nevertheless, the correct diagnosis is of great importance because it contraindicates splenectomy, which, in the chronic cases of pylephlebitis, always results in death from acute, postoperative pylephlebitis.

Journal d'Urologie, Médicale et Chirurgicale, Paris

47: 177-272 (March) 1939. Partial Index

*Rapid Cure of Orchiepididymitis by Injecting Procaine Hydrochloride into Vas Deferens. M. Imbert.—p. 177.
Anesthetic Blockage of Renal Pedicle: Its Diagnostic and Therapeutic Value. R. Liotier and P. Bonnefoi.—p. 193.
Case of Renal Tuberculosis of Left Kidney with Congenital Anomaly of Right Kidney. H. Datyner.—p. 205.
Case of Congenital Hypoplasia of Right Kidney. E. Teposu, P. Bruda and I. Bratu.—p. 214.

Injection of Procaine Hydrochloride for Orchiepididymitis.—Imbert decided to treat acute cases of orchiepididymitis by blocking the terminations of the perideferential nerves by means of the injection of an anesthetic. He describes his experiences with this method by briefly reporting the clinical histories of twenty-three patients with acute orchiepididymitis, fifteen of which were of gonococcic origin, one of colibacillary origin and in seven of which the orchiepididymitis developed in the course of urinary disorders. He resorted to anesthetic blocking of the perideferential nerves also in one case of chronic orchiepididymitis. He uses a glass syringe of 20 cc. capacity, a fine and long needle and a 1 per cent solution of procaine hydrochloride. As a rule, it is necessary to anesthetize the point of puncture; nevertheless, if the patient is afraid or if the deferent canal is painful and congested, ethyl chloride may be applied at the point of injection. After disinfection of the skin the funicular portion of the cord is grasped and taken between the thumb and index finger of the left hand. The needle is attached to the syringe and with the right hand is introduced into the middle of the cord; injection is made in a manner so as to bathe the cord with the anesthetic. After the injection the patient remains in bed and the scrotum is elevated. Only one injection is necessary as a rule, but if on the following day the pain is not diminished it is best to renew the injection. A third injection may be made if necessary. The operation is simple and harmless; it never gives rise to complications, except that a slight swelling may exist for several days at the site of injection. The analgesic effect of the treatment becomes manifest at the end of one or several hours, the temperature decreases and the general condition and the appetite improve. The scrotal edema disappears and the thickening of the tunica vaginalis diminishes. From the second day on, the scrotum becomes wrinkled and palpation of the testes and of the epididymis is possible. After three days the patient can resume his occupation if he so desires, but if possible he should rest a little longer; for, although the pain and inflammation may have disappeared, the anatomic cure is not yet complete. The author gained the impression that approximately two weeks is required for anatomic cure in gonococcic orchiepididymitis and three days in the orchiepididymitis with banal infection. He also observed that for the simple orchitis which develops in urinary disorders the aforementioned treatment is sufficient; if a colibacillary orchiepididymitis exists, it is necessary to treat the septicemia. Vincent's serum or autovaccine gives the best results and is an excellent adjuvant to the procaine hydrochloride injections. In gonorrheal orchiepididymitis, the author employs gonococcic vaccines and calcium salts in addition to the procaine hydrochloride. Regarding the effect on spermatogenesis, the author says that he observed spermatozoa in normal numbers and of normal vitality in a subject in whom the orchiepididymitis had involved both sides. Thus he hopes that the risk of azoospermia is less after the described treatment with procaine hydrochloride than in some other ambulatory methods, such as intra-epididymal injections.

Bollettino d. Istit. Sieroterapico Milanese, Milan

18: 67-130 (Feb.) 1939. Partial Index

*Investigations on Persistence of Agglutinogenic Power in Old Vaccines. B. Babudieri.—p. 67.
Action of Para-Aminophenyl-Sulfonamide (Sulfanilamide) and Its Derivatives on Development and Evolution of Experimental Streptococcic Infection in Rabbits. F. Vacirca.—p. 81.

Agglutinogenic Power in Old Vaccines.—Babudieri determined the persistence of antigens in typhoid-paratyphoid and typhoid-paratyphoid-cholera vaccines, as shown by the agglutinogenic power of the vaccines. He experimented on rabbits by using vaccines prepared two or three years previously with either formaldehyde or phenol as an antiseptic. The author found that (1) the dose of the vaccines, within certain limits, has no influence on the produced amount of agglutinins, (2) the H and O antigens are well preserved but the Vi antigen, which exists in freshly prepared vaccines, does not exist in old ones and (3) the O antigen is not entirely thermostable. Therefore, when bacterial suspensions which contain the O antigen are placed under a temperature of 100 C. for two hours and then used in making quantitative determinations of the agglutinins in a given blood serum the results may be false.

Archivos Argentinos de Neurología, Buenos Aires

20: 89-213 (March-April) 1939

*Cerebral Metastatic Tumors. R. Soto Romay.—p. 89.
Leptomeningeal Neuroblastoma: Cases. R. Carrillo and M. Oribe. —p. 172.

Cerebral Metastases.—Soto Romay made a clinical and anatomic study of twenty cases of cerebral metastases out of a group of 286 cases of cancer of different locations in which a necropsy was performed. The author found that the greatest incidence for the production of cerebral metastases is for patients between 30 and 40 years of age in either sex. Epitheliomas of the lung, the breast and the adrenals are the most frequent tumors which give cerebral metastases. The number, size, distribution and exact location of the metastases vary in different cases. The brain, the cerebellum and in rare cases the optostriate nuclei are the nervous structures most frequently involved by metastases, which may be isolated or multiple and involve one or various structures at the same time. Frequently the cerebral symptoms are the first ones which show the presence of cancer in some other organ. The symptoms of cerebral metastases are similar to those given by primary cancer of the brain. In the majority of the cases, intracranial hypertension and edema of the papilla exist. The diagnosis of cerebral tumor is done by the presence of intracranial hypertension and edema of the papilla in the absence of the various conditions which may cause hypertension (acquired hydrocephalus, serous meningitis, encephalitis and other cerebral conditions). It is confirmed by iodoventriculography (x-ray examination of the brain after introduction of opaque substance). A diagnosis of probable cancerous metastases is made in the presence of intracranial hypertension, with edema of the papilla and actual existence or a history of cancer in the past in the given patient. Cancer of the lung, either primary or secondary, does not exist in all the cases of cerebral metastases. The evolution of cancerous metastases depends on the location of development of the tumor, probable compression of important structures, malignant type of the given tumor and general conditions of the patients. As a rule the metastases follow an evolution to final cachexia in from two to six months. Certain local conditions, such as cerebral softening and cerebral hemorrhages near to or far from the tumor, accelerate the evolution of the tumor. The microscopic type of cancer metastases of the brain is not necessarily the same as that of the primary tumor. The metastatic nodules cause infiltration and destruction of the nervous tissues.

Archiv für klinische Chirurgie, Berlin

195: 203-454 (March 18) 1939. Partial Index

Analysis of Methods of Treatment of Burns and of Cod Liver Oil Therapy of Third Degree Burns. W. Krieg.—p. 203.
*Prevention and Treatment of Tetanus. H. Gottesbüren.—p. 250.
Statistical Study of Fifty Cases of Gastric Cancer in Persons Under 30. M. Takenouti.—p. 305.
Limited Gastric Resection for Gastroduodenal Ulceration. V. Hoffmann. —p. 312.
*Results of Surgical Treatment of Hernia. E. von Novák and A. Rigler. —p. 342.

Prevention and Treatment of Tetanus.—Gottesbüren points out that the tetanus bacillus is not nearly as ubiquitous in its habitat as Clostridium welchii. Zeissler in his study of anaerobic flora found that, while Clostridium welchii was found in 100 per cent of the specimens of soil examined, the bacillus of tetanus was found in only 27 per cent. The generally accepted view that the incidence of tetanus depends on the nature of the soil is contradicted by Hinstorff, who did not find any such relationship in a study of 567 cases occurring in 1928 and 1929. The author discusses prophylaxis of tetanus under three headings: surgical prophylaxis, passive immunization and active immunization. Friedrich's method of excision of the wound within the first six hours is too radical and not applicable to cases of extensive traumatization. Adequate treatment,

in the opinion of the author, consists of enlarging the wound so as to expose all pockets and dead spaces and to remove blood clots, necrotized tissue and particularly the foreign bodies present. The wound is kept open by gentle packing. The general support of the organism is of the greatest importance. The author advocates the injection of 2,500 units of antiserum (1,500 American units) within the first twelve hours, the sooner the better. The hypodermic method is preferred because of its somewhat slower absorption and, therefore, longer action than is the case with the intramuscular or intravenous methods. From two to five times this dose is advisable in territories with reputation for tetanus. The duration of the protective effect of serum is from seven to ten days. Because operative procedures undertaken some time after the injury have a tendency to reactivate the latent tetanus infection, it is advisable to repeat the dose. Cases of this type are to be anticipated by a combined passive and active immunization. The latter was made possible by the work of Ramon and Löwenstein, who detoxified the tetanus toxin by adding formaldehyde to it. Active immunization presents the advantage of offering definite protection against tetanus without any of the untoward effects of the passive immunization, such as serum shock and serum sickness. The results in the treatment of developed cases of tetanus are still far from satisfactory. Cases with an incubation period of less than ten days give a mortality of 70 per cent. The tendency is to use enormous doses of antiserum. When blood transfusion is indicated in a case of tetanus, the author feels that it is of advantage to use a donor who had been actively immunized against tetanus.

Surgical Treatment of Hernia.—Von Novák and Rigler state that all hernias, with the exception of those occurring in infants, can be cured by surgical intervention. It is, however, essential to operate early in order to avoid surgical procedures on huge hernias in elderly persons. The wearing of a truss is to be permitted only when definite indications exist and only on the prescription of a doctor. A herniotomy presents definite hazards for persons with organic disease. This is particularly true of large hernias in elderly individuals. For this reason such patients should be submitted to a thorough examination. Elderly patients should be operated on only for definite indications and preferably during the summer time. All herniotomies should be performed as far as possible under local anesthesia and every means employed to avoid straining. The authors consider a herniotomy as an operation requiring considerable technical skill and therefore not to be entrusted to a beginner. In the postoperative period the patients are kept in bed eight days and are to abstain from work for not less than six weeks. Since bilateral hernias do not recur oftener than a unilateral one and since a patient subjected to a bilateral herniotomy is exposed to a greater hazard than one subjected to a unilateral herniotomy, one should carefully weigh the question of performing a bilateral operation at the same time. The mortality in a series of 3,604 herniotomies, both simple and incarcerated, carried out in the course of fifteen years at the surgical clinic of the Pázmány Péter-Universität, Budapest, amounted to 2.3 per cent. The mortality amounted to 1 per cent for the simple cases and 15.2 per cent for the incarcerated cases. Disturbances in wound healing occurred in 6.4 per cent and recurrences in 7.9 per cent.

Folia Haematologica, Leipzig

61: 289-464 (No. 3-4) 1939. Partial Index

Unusual Forms of Pernicious Anemia. S. Thaddea and F. Sauerbruch.—p. 289.
*Modification of Hemopoiesis by Sternal Puncture. R. Stodtmeister and P. Büchmann.—p. 312.
Relative Sedimentation Rate of Basophil Leukocytes and Myelocytes. A. G. H. Lindgren.—p. 317.
Acute Myeloblastic Leukemia (Leukemia and Pregnancy). W. Tschopp.—p. 319.
Cytologic Study of Marrow in Flat Bones of Man. J. Stasney and J. M. Higgins.—p. 334.
Reactions Around Granulation Tissue in Bone Marrow During Miliary Tuberculosis and Boeck's Disease. R. Stahel.—p. 345.
Aspects of Multiple Myeloma with Amyloidosis. L. Stadler.—p. 353.

Modification of Hemopoiesis by Sternal Puncture.—Stodtmeister and Büchmann state that the present status of knowledge seems to indicate that the cellular composition of the bone marrow is identical in the different parts of the skeletal system. In employing sternal puncture as a diagnostic method, the question arises whether this intervention might perhaps modify the function of the bone marrow in its entirety. It is the object of this report to find an answer to this question. In a number of patients who had undergone sternal puncture the reticulocytes and leukocytes were determined at hourly intervals. Since it seemed desirable to make the studies on patients in whom the bone marrow was in a state of heightened reactivity, several patients with pernicious anemia were selected for these tests. However, studies were made also on patients with secondary anemia and on a patient with inflammatory leukocytosis. In addition to these clinical tests, experimental studies were made on dogs. Ten medullary punctures were made on these animals in the course of sixteen days. Some of the punctures were made on successive days and, to increase further the irritating action on the bone marrow, the authors on two days punctured not only the sternum but also the tibia of the dogs. The first six punctures were preceded as well as followed by a complete hemogram and the reticulocytes were counted in the blood as well as in the bone marrow. In the last four punctures only the leukocytes and reticulocytes were counted before and after the puncture. The authors report the results of these tests and, in evaluating them, they stress that it should not be overlooked that reticulocytes and leukocytes are subject to spontaneous fluctuations. They reach the conclusion that an intervention on the living bone marrow, such as the sternal puncture represents, has no effect on the cellular composition of the blood. Moreover, it is a minor intervention which can be made without hesitancy even in ambulatory practice. The puncture can be made pain free by infiltrating the skin and the periosteum with procaine hydrochloride. The pains during the aspiration can be counteracted by administering morphine before the puncture.

Münchener medizinische Wochenschrift, Munich

86: 361-392 (March 10) 1939. Partial Index

Intracranial Blood Circulation in Human Subjects During Various Body Postures and Positions of Head. O. Muck.—p. 361.
Chemotherapy of Malaria on Basis of Parasitologic Knowledge. W. Kikuth.—p. 362.
Electrocardiographic Changes in Primary Chronic Rheumatism. B. Kern.—p. 365.
*Problem of Sterile Marriage: Treatment of Postgonorrheal Sterility in Man. K. Ehrhardt.—p. 369.
*Caisson Disease in Bridge Construction. R. Koenig.—p. 370.

Postgonorrheal Sterility in Men.—According to Ehrhardt the treatment of postgonorrheal male sterility has heretofore been regarded as giving little promise of success; but he is convinced that the surgical method first introduced by Hagner of Washington will prove successful in many cases. The method consists in making an anastomosis between the epididymis and the vas deferens above the part that has been obliterated by the gonorrheal inflammation. Following its exposure the epididymis is split and examined for the presence of spermatozoa; the lumen of the vas deferens is opened and the two openings are joined. It is advisable to open the vas deferens not too high up, so that if the first intervention is unsuccessful a second one can be made. The author admits that he considered this method at first with skepticism, but the patient to whom he first suggested it was willing to try any method that might prove successful, the more so since, as regards function, nothing could be lost and something might be gained. Moreover, the intervention is comparatively simple. In the aforementioned case motile spermatozoa could be detected in the semen three weeks after the operation, and two months later the wife was found to be pregnant. The pregnancy resulted in the birth of a normal child. The author cites two other cases in which this operation was performed, admitting however that the percentage of successes cannot be estimated as yet. Nevertheless he thinks that many cases of postgonorrheal sterility will respond to this surgical procedure.

Caisson Disease.—Koenig observed a considerable number of cases of caisson disease in workers constructing bridge piers under rather difficult conditions, that is, under a pressure of 30 meters of water (excess pressure of about three atmospheres). He illustrates the varying symptomatology of caisson disease with four case histories. The most characteristic

symptoms in the first case were muscular and articular pains. The author says that these symptoms are the chief complaints of 62 per cent of the workers with caisson disease. The pains vary in severity from mild forms to severe forms with paralysis. In most cases unpleasant drawing sensations near the joints appear about thirty minutes after the worker comes out of the decompression chamber. The intensity of these pains is not uniform; they may disappear for seconds and then reappear with greater intensity. They may flash from one joint or group of muscles to another one. Paralytic symptoms of a spastic nature are comparatively rare; more frequent are reduced muscular tonus and weakened or abolished patellar tendon reflexes in the presence of bilaterally positive Babinski reflexes. The duration of the symptoms varies greatly. In the second case the light red foamy sputum, severe cyanosis and dyspnea indicated a partial acute pulmonary edema. The dark blue marmoration of the skin of the trunk indicated paralysis of the peripheral vessels. In the third and fourth cases the symptoms were typical of severe circulatory disturbances and of impairment of the central nervous system. The conditions of collapse may become so severe that they threaten life. The symptoms of central impairment are vertigo, spontaneous nystagmus, excessive perspiration, nausea, vomiting and severe fatigue. As the most important therapeutic procedure the author recommends immediate placement in the compression chamber. The pressure should be brought to a point at which the symptoms disappear and it should be kept there for from fifteen to thirty minutes. The subsequent decompression should be slow. In a case in which consciousness has been lost, the pressure must be increased slowly so as to avoid rupture of the tympanic membrane. The administration of cardiac and circulatory remedies may prove a valuable addition to the use of the compression chamber.

Strahlentherapie, Berlin

64: 201-376 (Feb. 18) 1939. Partial Index

Teleroentgen Therapy of Cancer Metastases. L. Mallet.—p. 201.
Results of Close Range Roentgen Irradiation of Exposed Rectal Carcinomas. H. Chaoul.—p. 219.
Investigations on Metastases of Esophagus. Eva Proske.—p. 227.
*Impairment of Lung by Irradiation. R. Bauer.—p. 249.
Impairment of Lung by Roentgen Rays: Fatal Outcome. E. Schairer and E. Krombach.—p. 267.
Impairment of Intestine by Roentgen Irradiation. H. Buhtz.—p. 291.
Dosimetry in Short Wave Therapy. P. Wenk.—p. 328.

Impairment of Lung by Irradiation.—Bauer thinks that, in view of the large number of intensive irradiations of the thorax, ray injuries of the lung must be more frequent than the literature on the subject indicates. He reports the clinical and roentgenologic aspects of a case of roentgen ray injury of the lung which terminated in death. A mediastinal tumor, which had spread through the left upper field and which probably was a thymogenic carcinoma, provided the occasion for three series of irradiations. The doses of roentgen rays did not exceed those generally applied in cases of malignant pulmonary tumors. In the first series of irradiations 7,810 roentgens was applied to five different fields in the course of six weeks. Three months later, 5,600 roentgens was administered to the same five fields in the course of three and one half weeks, and after another three months 3,900 roentgens was applied to four fields in the course of four weeks. The author admits that the third series was applied after a shorter interval than is usually the case, for, as a rule, the third series is applied only after an interval of six or nine months, but in this case its earlier administration seemed justified in view of the rapid exacerbation, which was regarded as the manifestation of renewed tumor growth. The necropsy revealed, in addition to the extensive ray induration that resulted in death, a large indurated body in the upper mediastinum, in which tumor cells were no longer demonstrable. On the basis of a review of the literature the author discusses the factors that may lead to severe ray injuries of the lung. He thinks that, in addition to the size of the dose and its distribution as regards time and space, inflammatory, pulmonary processes and an individual predisposition to an inflammatory-connective tissue reaction of the lung play a part. Because it is difficult to estimate the depth dose in thoracic irradiations, great caution is required in such irradiations.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

105: 1-272 (Feb. 18) 1939. Partial Index

Erythropoiesis and High Mountains. A. Vannotti and H. Markwalder.—p. 1.
Studies on Coagulation of Blood with Especial Consideration of Hemophilia: Influence of Urine on Artifically Retarded (Hemophilia-like) Coagulation of Plasma. W. Grunke and J. Koletzko.—p. 46.
Action of Intravenous Administration of Hypertonic Solution of Sodium Chloride on Albumins and Globulins of Serum and on Viscosity of Blood and Serum in Healthy Persons and in Patients with Heart Disease. G. Russo.—p. 149.
Serum Phosphatase in Myeloid and Lymphatic Leukemia. D. Albers.—p. 155.
Treatment of Diabetes with Roentgen Rays. E. von Kolta and E. Irányi.—p. 168.
*Hodgkin's Disease: I. Experimental Investigations on Etiology of Hodgkin's Disease. P. Uhlenhuth and K. Wurm.—p. 205.

Etiology of Hodgkin's Disease.—Uhlenhuth and Wurm base their studies on the etiology of Hodgkin's disease on the assumption that it might be an infectious disease; they regard this theory as justified in view of the clinical course, of the character of the pathologic-anatomic changes and of epidemiologic observations. Reviewing the literature on the etiology of Hodgkin's disease, the authors point out that a tuberculous etiology has been discussed repeatedly. However, on the basis of the results obtained so far they reject a tuberculous etiology but think that it is necessary to make further investigations on this problem. Positive tuberculin tests and positive serologic reactions for tuberculosis are important in patients with Hodgkin's disease because they suggest the simultaneous existence of a tuberculosis and make it necessary to be cautious in the application of roentgen therapy. The types of streptothrix and the diphtheroid bacilli are of no significance in the etiology of Hodgkin's disease and the same can be said of the granular antiformin-fast rods described by Fränkel and Much. So far it has been impossible to corroborate the presence of Gordon's elementary bodies in Hodgkin's disease. But although Gordon's test has proved a failure as regards the explanation of the cause of Hodgkin's disease, and although this test can no longer be regarded as a corroborating factor for the virus theory of Hodgkin's disease, it is nevertheless valuable as a diagnostic aid and it is especially helpful in the microscopic examination of lymph nodes that have been obtained by biopsy; this was demonstrated by the authors in three cases. The agent that is active in Gordon's test is not restricted to human subjects but has been observed also in the spleen of white mice. Wurm's suggestion that the agent which is pathogenic for the brain of rabbits (Gordon's test for Hodgkin's disease) represents a constituent of eosinophil cells is supported by observations made by the authors. This substance seems to have some connection with a body that is identical with the Charcot-Leyden crystals. The authors did not succeed in transmitting Hodgkin's disease to animals. Efforts to develop a diagnostic sero-reaction remained without success.

Zeitschrift für Tuberkulose, Leipzig

81: 353-426 (Feb.) 1939. Partial Index

Theory of Early Infiltrate Still Acceptable? H. Braeuning.—p. 355.
Onset of Pulmonary Tuberculosis in Adults and Malmros-Hedvall's "Initial Focus." F. Redeker.—p. 361.
*Results of Pneumothorax Therapy in Presence of Giant Cavities. Cellarius and Lemberger.—p. 382.
Supplementary Apparatus for Thoracoscopy. E. Dorn.—p. 386.

Pneumothorax Therapy and Giant Cavities.—Cellarius and Lemberger investigated the fate of giant cavities under the influence of pneumothorax therapy. Their studies were made on a material comprising eighty-seven cases of giant cavities with a diameter of 5 cm. or more. Especial attention was given to the presence of exudate and adhesions. The authors show that the opinions are still divided regarding the role of an exudate in the presence of an artificial pneumothorax. Whereas about one third of the investigators are of the opinion that the advantages and disadvantages are about even, about one half of them think that the disadvantages exceed the advantages and the remaining number emphasize only the disadvantages of the exudate. Only exceptionally is it suggested that the serous exudate is desirable by reason of its favorable effect. As regards the adhesions, it is generally

conceded that those which keep the cavity extended exert a harmful effect. However, not all adhesions exert the same unfavorable effect. The authors classify their eighty-seven cases of giant cavities according to whether they were uncomplicated by adhesions and exudates or complicated by either or both of these. In the first group of eleven cases neither adhesions nor exudates existed, in the second group of ten cases there were exudates but no adhesions, in the third group of thirty-eight cases there were adhesions but no exudates and in the fourth group of twenty-eight cases there were both adhesions and exudates. Summarizing the results obtained with pneumothorax therapy in eighty-seven cases of giant cavities, the authors say that 63.25 per cent of favorable results indicate that at least an attempt should be made with this type of treatment. In some cases pneumothorax therapy fails because of extensive adhesions, and surgical treatment becomes necessary. Pneumothorax therapy produced the most favorable results (100 per cent efficiency) in cases without adhesions and exudate. Equally favorable were the results in the cases with mediastinal and medial adhesions at the apex, when exudate developed. Of the cases without such adhesions but with exudate, 30 per cent failed to respond favorably to pneumothorax. This seems to indicate that the mediastinal adhesion gives a more secure point of attack for the diagonal traction and pressure effect of the exudate. The authors found that pleural exudates are advantageous in all cases with adhesion. To be sure, they disregarded the mechanically ineffective angular and small exudates. The authors do not agree with the investigators who regarded an exudate as a complication that is always undesirable. They think that this attitude is justified only in the cases in which there exists a total pneumothorax without pleural adhesions. Even in these cases the exudate may help in overcoming the stiffness of the wall of a cavity. The authors think that exudates are an advantage in all cases with adhesions, provided of course that a mechanical compression is possible. They emphasize the favorable effect of pneumothorax therapy in giant cavities that are located near the hilus; this is important, because they do not readily yield to other forms of collapse therapy.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

83: 867-982 (Feb. 25) 1939. Partial Index

Sarcoid of Boeck. J. J. Zoon.—p. 868.
Simple Colorimetric Method for Determination of Oxygen Saturation of Blood. J. H. P. Jonxis.—p. 876.
Clinical Aspects of Acute Rheumatism. P. H. Kramer.—p. 881.
*Morphologic and Experimental Contribution to Pathogenesis of Hepatic Changes in Exophthalmic Goiter. J. Zeldenrust and C. C. van Beek. —p. 889.
Treatment of Sciatica. A. Gans.—p. 900.

Pathogenesis of Hepatic Changes in Goiter.—According to Zeldenrust and van Beek, the hepatic changes that are detected in necropsies after exophthalmic goiter differ widely. They consist of atrophy, fatty degeneration, stasis, cirrhotic changes and occasionally acute yellow atrophy of the liver. The opinions about the pathogenesis of these changes differ just as widely as the changes themselves. Whereas one group of investigators regards the hepatic changes in exophthalmic goiter as resulting from toxic impairment of the liver, others ascribe the greatest importance to the circulatory disturbances of cardiac origin. Still another point of view was advanced by Rössle, who in the livers of patients with exophthalmic goiter noted irregular blood perfusion which did not always concur with the aspects of cardiac stasis. He also detected signs of pericapillary edema and he regarded these changes as signs of serous hepatitis, which, like the degeneration of the hepatic cells, he supposed to be of a toxic nature. Necrosis he regarded as the result of a more severe toxic action. After citing investigators who agreed with Rössle and some who disagreed with him, the authors describe the clinical histories of and the postmortem observations in two cases and then give a tabular survey of fourteen cases that were studied at the pathologic laboratory of the university of Leyden. In the summary they emphasize that exophthalmic goiter is frequently accompanied by atrophy of the liver following degeneration of the hepatic cell. Occasionally the hepatic impairment is so severe that necrosis of the hepatic tissue does occur and that the clinical and morphologic aspects indicate acute yellow atrophy of the liver. Moreover, acute as well as chronic signs of cardiac stasis can be observed. The degenerative changes in the hepatic cells explain the often irregular distribution of hepatic stasis. The authors observed no indications of serous hepatitis. Although they admit that the blood distribution in the liver may be dependent also on nervous factors, their morphologic investigations did not reveal that these factors were important for the changes in the hepatic cells, because the manifestations which supposedly are indicative of vasomotor disturbances can be interrupted also as the result of the concurrence of atrophy, degeneration and cardiac stasis. The clinical and morphologic aspects of the heart justify the assumption that they have a pathogenic role in hepatic stasis.

Acta Medica Scandinavica, Stockholm

99: 1-97 (March 9) 1939. Partial Index

Studies on Ascorbic Acid by Means of the Photelgraph. T. Guthe and K. K. Nygaard.—p. 1.
*Some Factors of Blood Coagulation, Especially with Regard to Problem of Hemophilia. W. M. Bendien and S. van Creveld.—p. 12.
Problem of Neurosis. H. Löfvendahl.—p. 28.
Pseudo-Achylia. W. Kerppola.—p. 45.
Experimental Investigations on Toxicity of Mandelic Acid. B. Schovanec, J. Stolz and R. Zadina.—p. 61.
*Clinical Aspects of Giardiasis. P. de Muro.—p. 78.
Schistosomiasis in South Africa. F. G. Cawston.—p. 92.

Coagulation of Blood and Hemophilia.—Bendien and van Creveld studied the coagulation-promoting activity of fresh normal serum and plasma. They found that in plasma the coagulation-promoting factor is attached to fibrinogen; in serum this factor is not ultrafiltrable and is present in a coarse-disperse phase. However, the factor is not identical with nor attached to euglobulin. They describe a method for precipitation from the serum of the so-called coagulation globulin, the substance which promotes coagulation. It proved possible to prepare solutions of coagulation globulin which promoted coagulation more effectively than did the original fresh serum. When these solutions were kept in the cold or in a sterilized condition their coagulation-promoting activity decreased only slowly. The authors describe the effects of oral, intramuscular and intravenous administration of such solutions on the coagulation time of some hemophilic patients. Only with the intravenous injections were distinct reductions of the coagulation time of the blood observed. A modification of Eley's method is described by means of which the authors could prepare from human placentas solutions that were poor in protein content but had a strong coagulation-promoting activity in vitro on hemophilic plasma and blood. No therapeutic effect was seen of the oral or intramuscular administration of these products in hemophilia or of the oral administration of the original Eley product. Clear sterile solutions could be prepared from placentas which repeatedly could be injected intravenously into animals without detrimental effect. The same solutions could repeatedly be injected into patients with hemophilia also without a disagreeable reaction; the clinical results as regards the effect on the coagulation time were, however, distinctly inferior to the experiences with the serum products, although in vitro the coagulation-promoting influence of the placental extracts was much stronger. In one patient with hemophilia, who suffered from a prolonged renal hemorrhage and who did not react even to two blood transfusions, the hemorrhage ceased after one intravenous injection of 4 cc. of the placental extract. The authors discuss the possible identity and the protein-like character of the coagulation-promoting substances present in serum and in placental extract and suggest a relation of this "coagulation-globulin" to prothrombin.

Clinical Aspects of Giardiasis.—De Muro says that before the World War most authors considered Giardia intestinalis a harmless saprophyte. This opinion was based on the fact that Giardia sometimes exerts no pathogenic action at all and may be found in healthy persons. However, it is known from bacteriology that the presence of healthy carriers does not exclude pathogenic action. The author mentions several epidemics of giardiasis that were observed during the war and then reviews the literature on clinical observations and experimental and

pathologic data. His own studies were made in forty-five cases of giardiasis. It was found that giardiasis appears under four different clinical forms: enterocolitis, rectocolitis, enterohepatobiliary syndrome and pancreatic insufficiency. Enterocolitis was the form observed most frequently. It existed in twenty-eight (62.2 per cent) of the cases. Because the symptomatology is similar to that of amebiasis, the differentiation may prove difficult. Giardia enterocolitis displays at the beginning scanty phenomena. The main feature is the abnormality of the stools. As a rule the patient goes through a period with two diarrheal or soft stools a day, alternated by periods of normality or constipation. The stools resemble cattle dejections, yellowish brown with pearl gray shades, owing to the great abundance of mucus. The smell is fetid and the reaction alkaline. As a rule there is no blood. After some time the irregular movements of the bowels become associated with slight crises of pain, diffused at times over the entire abdomen and sometimes localized in the cecocolic region, in the transverse colon and in the colic flexures, particularly the hepatic one. After a long time the general condition becomes impaired. Many patients present a more or less profound asthenia with considerable pallor of the skin and of the visible mucous membranes, presenting the aspects of slight hypochromic anemia with no leukocytosis and sometimes with a few eosinophils. Besides derangement of the bowels, asthenia and slight anemia, the principal symptoms, there are other symptoms. The tongue is somewhat reddened and often coated, the breath is fetid, the appetite lacking or fanciful. The digestion is slow and difficult and is at times accompanied by slight stomach cramps and decided meteorism. Chemical tests show as a rule gastric hypochlorhydria. Some patients present nervous disturbances, which become more severe when the intestinal troubles increase. The rectocolitic form of giardiasis was observed in three of the author's patients. Two of these patients had a catarrhal form and one an ulcerative one. The author shows that proctosigmoidoscopy has greatly increased the knowledge of this form. The enterohepatobiliary syndrome, in which there exists at the same time duodenitis, cholecystitis and hepatitis, was observed in fourteen of the forty-five cases. The author further describes studies on pancreatic insufficiency in giardiasis. On their basis he feels justified in asserting that in chronic giardiasis there often exists a latent pancreatic insufficiency.

Nordisk Medicin, Helsingfors

1: 83-146 (Jan. 14) 1939

Hospitalstidende

*Etiology of Hydronephroses. J. C. Christoffersen.—p. 93.
Simple Preventive Treatment for Determination of Vitamin D by Direct Measurement of Width of Epiphysis Zone. P. Schultzer.—p. 101.

Etiology of Hydronephroses.—Christoffersen discusses the etiology of 127 cases of hydronephrosis, in all of which the diagnosis was verified by x-ray examination, in many on operation and in some at necropsy. Forty-one cases (thirty-six infected) were calculous hydronephroses, thirty-one were due to aberrant blood vessels, seventeen to ureteral anomalies, eight to nephroptosis with a kink in the ureter, five to compression of the ureter and four to cicatricial strictures in the ureter; twenty-one are ascribed to dynamic causes. Operative treatment was conservative as far as possible. Primary nephrectomy was necessary in three cases, secondary nephrectomy in two.

Norsk Magasin for Lægevidenskapen

*Treatment of Lymph Node Metastases from Carcinoma of Lip and Oral Cavity. R. B. Engelstad.—p. 105.
*Papilledema and Hypertension. I. Aasland.—p. 108.
Four Cases of Perilunar Dorsal Luxation of Wrist. K. Harstad.—p. 110.

Lymph Node Metastases from Carcinoma of Mouth.—Engelstad states that, of 135 patients with carcinoma of the oral cavity and 141 with carcinoma of the lip treated during a three year period, 32.6 and 65.2 per cent respectively are well after an observation period of from two and a half to six years. Of the patients with oral carcinoma without glandular metastases 61.1 per cent are well and of those with glandular metastases 17.4 per cent, while of those with lip carcinoma without glandular metastases 87.7 per cent and of those with glandular metastases 48.2 per cent are well. The author concludes that in not a few cases of glandular metastases from carcinoma of the oral cavity and a fairly large number of those from cancer of the lip teleradium treatment effects a cure, and in other cases the treatment may make inoperable cases operable. The primary treatment of these glandular metastases should always be radiologic; teleradium is used in most cases. If after about eight weeks the results are not satisfactory or if later there is recurrence or new metastases appear in the irradiated region, total bloc resection of the affected glandular area is done. The local effect of the combined treatment, he says, is good. The mortality in his material was high because a large number of the glandular metastases were inoperable; in many cases, partly also because the primary tumor was too advanced to be controlled, and in some cases probably because the cancer at the time of admission had extended beyond the field of the regionary glands. Prophylactic treatment of the glandular areas was not usually carried out, except irradiation of the submandibular region in connection with treatment of the primary cancer, but it is believed that a more extended irradiation would probably be valuable in oral cancers.

Papilledema and Hypertension.—Aasland says that, while the etiology of the various disorders in which choked disk may appear differs, the common factor in all is arterial hypertension. He thinks that the extreme form with intracranial pseudotumor occurs only in malignant hypertension. The picture of pseudotumor depends on arterial hypertension in the cranial blood vessels with secondary symptoms of circulation insufficiency in the form of general edema and increased intracranial pressure. The increased pressure of the cerebrospinal fluid which is often present in malignant hypertension is assumed to be an accessory factor in the mechanism of choked disk. Two cases of intracranial pseudotumor associated with malignant hypertension are reported. There were bilateral papilledema of 5 and about 7 diopters respectively. The blood pressure varied from 230 to 250 mm. of mercury. In the second case the pressure of the cerebrospinal fluid rose to 360 mm. No signs of renal disease were established in either case. Necropsy revealed no evidence of cranial tumor. In spite of recommended treatment, such as intravenous hypertonic solutions, repeated lumbar puncture and depressive craniotomy, the prognosis is grave. According to statistics 90 per cent of the cases are fatal within two years after the beginning of the hypertensive changes in the eyeground, and most of the remaining 10 per cent within the next two years.

1: 147-206 (Jan. 21) 1939

Treatment of Tuberculosis of Larynx. T. Blomroos.—p. 147.
*Indications and Technic in Treatment of Cancer of Larynx. P. Frenckner.—p. 152.

Treatment of Cancer of Larynx.—Dividing laryngeal cancer into five groups according to the treatment called for, Frenckner says that in group 1, with cancer which involves only the anterior two thirds of one vocal cord and does not extend to the anterior commissure, treatment may be operative, endolaryngeal removal in the earliest stages, or laryngofissure with excision, or radiologic, a combination of the operative and radiologic methods best insuring freedom from recurrence. In group 2, with cancer of one vocal cord invading the anterior commissure of the other vocal cord, radiology offers the greatest advantage. In group 3, with more widespread but still limited unilateral cancer, and in group 4, with more extensive intralaryngeal cancer, laryngectomy followed by radiotherapy is the method of choice. In group 5, with extralaryngeal cancer, only radiologic treatment is to be considered; operative treatment is possible only in certain restricted tumors with particularly favorable location. As to technic, a U-formed cut with strong flap covering the field of operation is advised, with removal of the larynx from below. A special tampon cannula is recommended. About half of the author's laryngectomized patients learn to speak with the esophagus well enough to carry on in their work, use the telephone and so on, from 35 to 40 per cent produce a weak and indistinct voice with which they make themselves understood in their immediate environment, and a small fraction have to depend on an artificial voice box. The material is mostly from the last five years, but the results as far as can be judged from a recent review seem to compare favorably with statistics from other countries.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, No. 24 — COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS — JUNE 17, 1939

FACTORS TENDING TO MINIMIZE THE PROSTATECTOMY HAZARD

WITH PARTICULAR REFERENCE TO WOUND ASEPSIS

EDWIN DAVIS, M.D.

OMAHA

The average person has a natural dread of prostatectomy. In fact the average physician or general surgeon has no real conception of the safety with which this procedure may be carried out via the perineal route with sacral block anesthesia. I presume to carry this statement even further by suggesting that probably only relatively few in a select audience of urologic surgeons have a full realization of the opportunity for precision and accuracy which this procedure affords and realize that almost complete elimination of surgical hazard has become possible.

Mortality figures may be mentioned merely as a matter of record and with no purpose other than to emphasize the possibilities resulting from systematic elimination of the various hazards. My own mortality rate for perineal prostatectomy in a series of cases previously reported on a number of occasions and now totaling 741 is 2.7 per cent. Every postprostatectomy death, from any cause whatever, prior to dismissal from the hospital has been counted. This record includes two consecutive series, totaling 121 and 107 respectively, each without a single death. There has been but one death in the last 144 consecutive cases. Others, particularly Young,[1] Hinman[2] and Cecil,[3] have reported comparable figures, in fact better figures. There is no reason why a limited few should have a monopoly on perineal prostatectomy, since the technic may be mastered by any one with moderate skill and sufficient determination and patience. Young[1] has mentioned that four successive residents at the James Buchanan Brady Urological Institute of Johns Hopkins Hospital performed 190 consecutive prostatectomies on unselected patients from public wards with only three deaths (1.5 per cent).

Amazing though this statement may seem, there is no reason why the mortality rate of perineal prostatectomy in the aged and debilitated should not be made to compare favorably with that of herniotomy in the young and robust.

My present purpose is to enumerate and to discuss briefly the various factors which are responsible for this conspicuously low mortality rate and which have placed perineal prostatectomy in the category of so-called finished operations. This term seems permissible because (1) the mortality rate so closely approximates the "normal" death rate[4] for the age of 70 and because (2) questionnaire records[5] show that, of aged persons, many of whom have unrelated ailments and symptoms which might readily be confused, 82.3 per cent voluntarily classify themselves as "well" and 98.8 per cent as "well or improved."

The lowering of the mortality rate has been essentially a process of elimination of the various hazards one by one. The chief hazards, together with the "remedy" or method of control of each, are listed in the accompanying table.

UREMIA

As known by every one (but ignored by many), the answer to the uremia question is preoperative drainage by retention catheter or via the suprapubic route for days, weeks or many months, insistently and inexorably carried out, for as long as may be necessary, regardless of urging to the contrary by patient, relatives or physician. The surgeon has but few privileges, but one of these is to decline to operate. The necessity for adequate drainage is too well understood to require further comment. One might as well seriously discuss the advisability of hemostasis. There is little excuse for deaths due to postprostatectomy uremia.

INFECTION

A brief discussion of postprostatectomy sepsis, together with the presentation of a method tending to decrease this hazard, is the chief occasion for this paper.

Prostatectomy without infection of the urinary tract is impossible. In fact a period of fever during the time of preliminary drainage is decidedly the rule rather than the exception and is to be welcomed because of the immunity supposedly conferred. At any rate, high postoperative temperature reactions are relatively far more frequent among those who have not gone through a period of preoperative fever. Time and the natural processes of immunity, with the aid of free dependent drainage, tend automatically to take care of such infections of the urinary tract. In fact except in the debilitated and patients with additional lesions of the urinary tract, gross pyuria ordinarily disappears spontaneously several weeks after perineal prostatectomy.

Read before the fiftieth annual meeting of the American Association of Genito-Urinary Surgeons, Absecon, N. J., May 4, 1938.

1. Young, H. H.: Surgical Treatment of Prostate, J. A. M. A. **110**: 280 (Jan. 22) 1938.
2. Hinman, Frank: The Modern Operation of Plastic Perineal Prostatectomy, Tr. Am. A. Genito-Urin. Surgeons **30**: 265, 1937.
3. Cecil, A. B.: Preoperative Treatment of Prostatic Obstruction, Surg., Gynec. & Obst. **58**: 630 (March) 1934.
4. According to the American experience tables of mortality, of 100 persons alive at the age of 70, six may be expected to die before reaching 71. Carrying this comparison to its extreme in absurdity, if the period of hospitalization for prostatectomy was one year, the "normal" death rate might be said to be more than twice the postprostatectomy death rate.
5. Davis, Edwin: Analysis of Results in 378 Consecutive Cases of Perineal Prostatectomy, Tr. Am. A. Genito-Urin. Surgeons **24**: 387, 1931.

Postprostatectomy systemic infection, however, is a different matter. I refer to the occasional occurrence of postoperative invasion of the blood stream, characterized by chills, a high temperature and evidence of sepsis, and have in mind three postprostatectomy deaths in my own series directly attributable to this cause. Were evidence of invasion of the blood stream

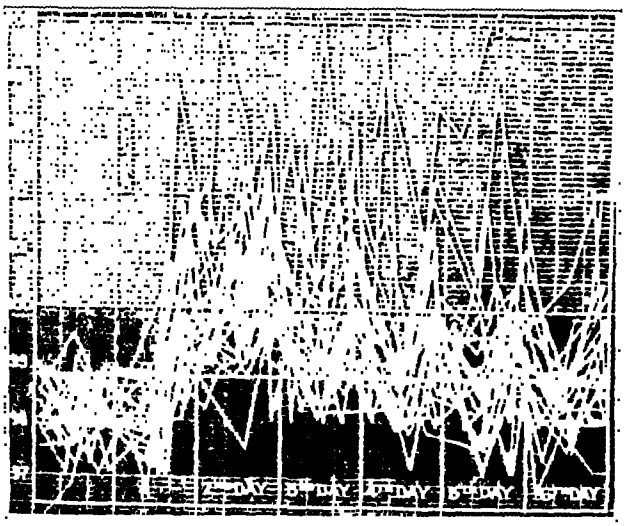


Chart 1.—Temperature reaction following perineal prostatectomy, demonstrated by superimposed temperature curves from twenty-five consecutive cases. In order to make the elevations more conspicuous, the portion of the rulings below the 100 F. line has been blurred. Note the great excess of rulings above the 100 F. line as contrasted with chart 2. Note also the conspicuous absence of rulings below the 99 F. line on the second postoperative day.

necessary, it might be stated that one of these patients had multiple small staphylococcic abscesses distributed over the trunk and extremities.

Since the assumption seemed permissible that such systemic reactions are due to the liberation of virulent bacteria into fresh "unvaccinated" tissues, an attempt at wound antisepsis during operation was considered to be worth the effort. A routine surgical technic was adopted, including irrigation of the urethra and bladder with a 2 per cent mercurochrome, alcohol and acetone solution [6] immediately before incision and flooding of the wound with the same solution immediately before closure. Wound sterilization was not expected, but wound antisepsis, with a consequent decrease in numbers and virulence, or in the "dose" of bacteria to which fresh tissues were exposed, was hoped for. The use of this technic was started in January 1932, as suggested by Harris,[7] who had previously reported favorably on a similar technic as applied to suprapubic prostatectomy.

If the assumption is permitted that the temperature is a reliable index of the degree of sepsis, it may be said that this technic has given distinctly beneficial results. Moreover, there have been no more deaths directly attributable to sepsis, such as had previously occurred. This improvement may be graphically demonstrated. Charts 1 and 2 represent the superimposed temperature curves of the first postoperative week in two series of twenty-five consecutive cases of perineal prostatectomy, immediately before and immediately after the adoption of the new technic. For the purpose of clearer demonstration, the portion of each chart below 100 F. has been purposely blurred, thus rendering the elevations relatively more conspicuous. In chart 1, representing the temperature curves prior to the adoption of the new technic, the excess of lines above the 100 F. level (as compared with chart 2) is too conspicuous to require further comment.

Chart 3 represents an arithmetical rather than a graphic demonstration that the mercurochrome technic has resulted in a flattening of the average postprostatectomy temperature curve. The two curves represent an accurate portrayal of the average temperature reactions of the two series of twenty-five patients (before and after use of the new technic) during the first postoperative week. The method of computing was merely

Factors Tending to Minimize the Various Prostatectomy Hazards

Hazard	Minimized by
Uremia	Preoperative drainage
Infection	Oral and wound antisepsis; dependent drainage
Immediate hemorrhage	Perineal hemostatic bag; visualization of field and suture ligature
Delayed hemorrhage	Endoscopic fulguration; oral and wound antisepsis
Anesthesia	Sacral block method; avoidance of veins
Abdominal distention	Perineal route
Postoperative "shock"	Perineal route; sacral block anesthesia
Epididymitis	Vasectomy preceding preliminary drainage
Vascular "accidents"	(Prayer)

to average the maximum daily temperature of each of the twenty-five patients. The difference between the two curves is too striking to be ignored. Whereas the average maximum postprostatectomy temperature before the use of the mercurochrome technic was 101.5 F., the average maximum temperature after the institution of the new technic was only 100.2 F. It may be stated that the maximum elevation occurs on the day following the operation.

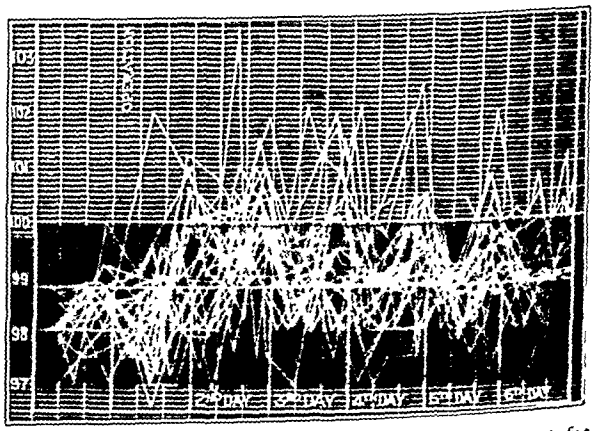


Chart 2.—Temperature curves from the first consecutive twenty-five cases immediately following the adoption of the new mercurochrome technic of wound antisepsis. Note the relatively few rulings below the 99 F. line on the second postoperative day, as contrasted with chart 1.

On the suspicion that the figure 100.2 F., being an average for only twenty-five cases, might not be truly representative, an additional seventy-five cases were observed, bringing the total on which the average was based to 100. The average maximum postprostatectomy temperature was then found to be 100.6 F. rather than 100.2 F. Considering the large number of consecutive cases entering into this tabulation, there can be no question as to the accuracy of the figure.

6. Scott, W. W., and Hill, Justina H.: Presentation of a Preoperative Skin Disinfectant, an Alcohol-Acetone Aqueous Solution of Mercurochrome, J. Urol. **14**: 135 (Aug.) 1925.

7. Harris, Augustus: The Prevention of Infections in Prostatectomy, Am. J. Surg. **14**: 480 (Nov.) 1931.

Without undue enthusiasm, it seems permissible to state that any method of wound antisepsis causing a flattening of the postprostatectomy temperature curve may be regarded as another factor tending to lessen the hazard of prostatectomy. This preliminary report is purely tentative. It is possible that another drug or a variation of the technic here suggested might be far more efficient. It is likewise true that a modification of this method might be applicable in other surgical fields.

IMMEDIATE HEMORRHAGE

A combined hemostatic and drainage bag for perineal prostatectomy was presented in 1927.[8] This bag proved effectual in all but four cases of 741 (99.5 per cent), occurring early in the series, in which emergency suprapubic cystotomy, with suture ligature, became necessary. There was one death directly attributable to hemorrhage. Later in the series it gradually became apparent that additional time and effort devoted to suture-ligature through the perineal incision, at the time of operation, tend to eliminate even this small percentage of hemorrhage. There is no reason why hemostasis need be left to chance, even in the slightest degree. The patient is comfortable and free from pain and there is no necessity for haste. As repeatedly observed through the perineal incision, such arterial bleeding as there may be comes chiefly from tissues underneath the "floor" of the bladder, immediately adjacent to the orifice. The main spurters tend to have an anterior rather than a posterior location and tend to occupy approximately "10 o'clock and 2 o'clock" positions with respect to the vesical orifice. The inflated bag within the bladder being used as a tractor, the bladder neck may be pulled down and the under surface clearly visualized and made accessible. Each portion of the under surface of the bladder neck may be inspected in turn by varying the direction of the traction on the hemostatic bag. An excellent opportunity for visualization and suture-ligation of spurters is thus afforded, after which a "pucker" suture is placed on each side, compressing the relaxed tissues of the two lateral cavities and closing the capsule. This technic practically eliminates the immediate hazard of postprostatectomy hemorrhage.

DELAYED HEMORRHAGE

In 1932 I[9] called attention to an "epidemic" of delayed massive postprostatectomy hemorrhage, occurring from the tenth to the twenty-sixth postprostatectomy day, and suggested an explanation on the basis of a specific infection, including in my paper a method of control consisting of endoscopic aspiration of clots followed by location and fulguration of the bleeding point. The work on which this communication was based preceded the advent of endoscopic prostatic resection by a number of years. The "epidemic" consisted of the amazing number of five cases of delayed massive hemorrhage, in thirteen consecutive cases of prostatectomy, three of these in direct succession, as contrasted with only ten cases of delayed hemorrhage in the preceding 410 cases of prostatectomy, thus permitting no conclusion as to cause other than that the basis was a specific infection. This complication has not been subsequently observed over a period of years, and it may well be that the technic of wound antisepsis described has been a factor in its control. It may also be that one of the newer internal urinary antiseptics (mandelic acid or sulfanilamide) will prove to be of value in this respect. At any rate, it may be conservatively stated that wound antisepsis and endoscopic fulguration have eliminated the real hazard connected with delayed hemorrhage.

ANESTHESIA

The sacral block method, described as applied to perineal prostatectomy in 1922 by Crowell and Thomson,[10] has given complete satisfaction throughout the years and leaves nothing to be desired. There have been no deaths attributable to the anesthesia, no complications and no sequelae. In 1931 I[11] referred to the "infallibility" of the sacral block method, reporting a series of 229 consecutive cases without a single failure in anesthesia. This number has since been increased to 592, still without a failure. Sacral block anesthesia for perineal prostatectomy, properly achieved, is literally infallible. Moreover, adequate time, permitting deliberateness in hemostasis, is afforded. I consider the sacral block method ideal for the specific purpose of perineal prostatectomy.

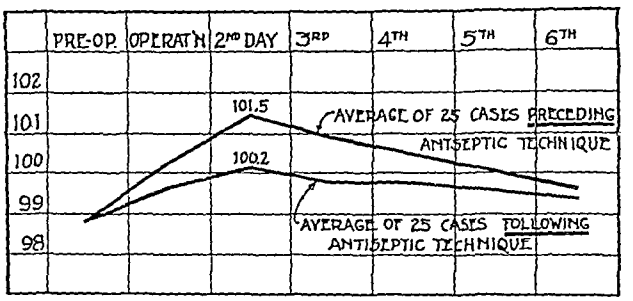


Chart 3.—The average maximum daily elevation of temperature in two series of twenty-five cases of perineal prostatectomy observed before and after the adoption of the mercurochrome technic of wound antisepsis.

OTHER COMPLICATIONS

Abdominal Distention.—This postoperative complication, so frequently the cause of distress and calamity following abdominal or suprapubic incisions, is conspicuously absent with the perineal approach to the prostate. There was only one case in the entire series in which abdominal distention occasioned any real trouble.

Postoperative "Shock."—This term is here loosely employed to designate that condition of semiconsciousness or unconsciousness, together with lowered blood pressure and increased pulse rate, in which the patient is returned to his room after many (if not most) major operations. When the perineal approach to the prostate is used, with sacral block anesthesia, the patient returns to his room in the condition with respect to color and general appearance which preceded the operation. I have frequently observed an elderly patient reading or writing the morning of the operation. Whatever "shock" may be, this condition is conspicuously absent after use of the sacral block method and the perineal approach.

8. Davis, Edwin: Distensible Bag for Hemostasis and Drainage Following Perineal Prostatectomy, J. Urol. **18**: 201 (Aug.) 1927.
9. Davis, Edwin: Massive Secondary Postprostatectomy Hemorrhage Controlled by Endoscopic Fulguration, J. Urol. **28**: 365 (Sept.) 1932.
10. Crowell, A. J., and Thomson, R.: Sacral Anesthesia in Perineal Prostatectomy, J. Urol. **8**: 81 (July) 1922.
11. Davis, Edwin: Sacral Block Anesthesia in Perineal Prostatectomy: Its Infallibility When Accurately Administered, J. A. M. A. **97**: 1771 (Dec. 12) 1931.

Epididymitis.—Suppurative epididymitis, with chills, fever and sepsis, occurring as late as (or later than) the third postoperative week, was frequently a far more serious matter than the prostatectomy. Routine local infiltration vasectomy, performed at the beginning of preliminary drainage, has practically eliminated epididymitis.

Vascular "Accidents."—Such occurrences as cerebral or coronary thrombosis or pulmonary embolus suddenly interrupting an otherwise smooth convalescence are not to be anticipated, and there is but little to be done by way of prevention. They must be left largely to chance and "prayer." Fortunately, such accidents are rare. It is likely that many cerebral and coronary affairs are coincidental occurrences, wholly unrelated to the operation, and might well have taken place without operation. The same applies to pulmonary embolus. Of thirty-nine cases of pulmonary embolism, demonstrated by autopsy at the University of Nebraska College of Medicine [12] during a recent three year period, there were nine in which the embolus was massive and was considered to be the primary cause of death. Of these nine fatal cases, six were either postpartum or postoperative, while in the remaining three no surgical procedure had been employed.

CONCLUSIONS

Wound antisepsis with mercurochrome during perineal prostatectomy tends to flatten out the postoperative temperature curve and therefore may be presumed to lessen the hazard of infection.

Of the various hazards of perineal prostatectomy, including uremia, infection, hemorrhage (immediate and delayed), complications due to the anesthesia, epididymitis and vascular "accidents," all but the last named are controllable and have been reduced to a negligible minimum.

As determined by a tabulation of the maximum daily postoperative elevations of temperature occurring in 100 consecutive cases of perineal prostatectomy, the average maximum elevation (which occurs on the day following operation) is only 100.6 F.

1436 Medical Arts Building.

12. Birge, Richard: The Problem of Pulmonary Embolism, Senior Thesis, University of Nebraska College of Medicine, 1935.

Clinical Observation and the Experimental Method.—Progress in medicine can be followed historically along two main lines. The first is that traced from Hippocrates through Sydenham; it is the method of observation, and it has given us our descriptions of disease. The capacity of clinical observation to separate and define diseases was greatly enforced by the work of the famous morbid anatomists; the combined observations laid the foundations of modern clinical medicine. Laennec and Skoda, exponents of tested methods of physical examination; Bright, Hodgkin, Corrigan, Addison, who so ably identified and described individual diseases—these names but exemplify that most brilliant period of clinical activity, which was at its height in the earlier years of last century. The second line of progress has been by the experimental method, using this word in its broadest sense; it is exemplified in the physiological field by the work of the physician Harvey and by Claude Bernard; in the bacteriological field by Pasteur and Koch. While the methods of pure observation have long since passed their period of greatest activity, the experimental method continues to display amazing progress and growth.—*Lewis, Sir Thomas:* Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

THE CRITERIA OF EFFECTIVE TREATMENT IN MULTIPLE SCLEROSIS

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Multiple sclerosis is often referred to as a rare and mysterious disease. It is probably neither. In the five years from 1931 to 1935 the diagnosis of multiple sclerosis was made for 204 new patients admitted to the Boston City Hospital (approximately 1,800 beds). The corresponding figure for poliomyelitis during the same years was 100, for encephalitis 101 and for proved subacute bacterial endocarditis fifty. In evaluating these statistics it should be noted that no particular effort was being made to bring patients with multiple sclerosis into the hospital for study, as the investigation of multiple sclerosis was being carried out on purely experimental lines and no form of special treatment was being offered. The Boston City Hospital is one of the few hospitals in Boston to which patients with poliomyelitis in the early stage are admitted. While the statistical value of the figure given is open to question, it is obvious that multiple sclerosis presents an important medical and economic problem.

GENERAL PROGNOSIS

The prognosis is usually considered unfavorable. Osler's textbook states that "ultimately, the patient, if not carried off by some intercurrent infection, becomes bedridden," and this perhaps epitomizes the standard opinion. Any treatment which is followed by improvement even in a small proportion of cases is therefore likely to be acclaimed with enthusiasm, especially by physicians with limited experience with the disease. Many different forms of therapy have been proposed and, since excellent results have been claimed for all of them and some are drastic and even dangerous, it seems worth while to make a survey of the results obtained.

STATISTICS

A signal service has been performed by Brickner,[1] who has compiled from the literature the recorded results of many forms of treatment, including the use of antiseptics such as arsenic, antimony, mercury and "germanin," heat and fever, special vaccines and serums, sympathectomy, quinine and even hypnotism, which was followed by success in one case.

From Brickner's table it is possible to prepare statistics on recovery, though rather crude ones. If one excludes all reports of one or two cases and includes only the series in which the actual number of patients treated and the actual number considered improved are definitely given, one arrives at a total of 1,407 cases reported, in 665, or 47.5 per cent, of which the patient was stated to have profited by his treatment. With a few forms of treatment, for example with the use of salicylates, nuclein, liver extract, lecithin given intraspinally and sympathectomy, 100 per cent of improvement was reported, but never in any series larger than eleven cases. Improvement was reported from various forms of fever treatment in 60 per cent of cases, from

Read at the graduate course for the College of Physicians, Boston, April 2, 1938.
From the Neurological Unit, Boston City Hospital, and the Department of Neurology, Harvard Medical School.
The investigations on which this report is based were financed mainly by the Multiple Sclerosis Fund of Harvard University.

1. Brickner, R. M.: A Critique of Therapy in Multiple Sclerosis, Bull. Neurol. Inst. New York 4:665-698 (April) 1936.

roentgen treatment in 58 per cent, from quinine in 49 per cent, from fibrolysin in 48 per cent, from various arsphenamines in 45 per cent and from Purves-Stewart vaccine in 35 per cent. These are the only series large enough to have any pretensions to statistical value.

VARIOUS FORMS OF TREATMENT AT THE NEUROLOGICAL UNIT

It is probable that many of the reports summarized are optimistic. At the Neurological Unit my colleagues and I have had experience with a number of different forms of treatment. This clinic was the first, as far as I know, to utilize a high vitamin diet and injections of liver extract in cases of multiple sclerosis (1928-1930). About ten patients received this treatment; there was no tangible change in the status of any of them. Since then I have seen six patients who are subjectively better with vitamin therapy, but they have not been protected against relapses. We came dangerously near to being enthusiastic over the results of forced spinal drainage, but when we reviewed the twelve cases in which it was used, it was obvious that no permanent improvement had been effected. I have seen ten patients and the brain of an eleventh who have had fever treatment. None of them were subjectively or functionally improved; indeed all but one of the surviving patients considered themselves worse. Arsphenamine, "germanin," typhoid vaccine, quinine, amphetamine (benzedrine) and various other medications have been used in the wards and outpatient department uniformly without success. In eight of thirteen instances in which infections (such as furuncles, infected teeth, sinusitis, cellulitis and cystitis) were found, improvement accompanied the surgical treatment or natural subsidence of the infection.

Even when all these figures are taken together, they are founded on too small a series to be of more than suggestive value. A commission has been appointed by the American Neurological Association to observe and report on a far larger series.

THE COURSE WITHOUT TREATMENT

To evaluate even approximately the benefits of the various forms of therapy so far proposed, it is important to review the natural course of the disease. Unfortunately, few untreated patients have been the objects of such intensive observation as those undergoing treatment.

A survey of the records of 516 patients receiving no systematic treatment has recently been made by von Hoesslin [2] from the hospitals of Munich. He pointed out that the prognosis in multiple sclerosis is by no means as hopeless as many textbooks would lead one to believe. Substantial remissions, so complete that the patients considered themselves practically well, occurred in ninety-two (or over 17 per cent) of his cases. In twelve the remission lasted from fourteen to forty-three years.

The proportion of recovery in a group of 133 patients representing 1,093 "patient years" of the disease followed and analyzed from this point of view by Dr. Madelaine Brown and me [3] gave comparable results. Twenty-seven patients were working (20 per cent), sixty-three were ambulatory (47 per cent), twenty were helpless (15 per cent) and sixteen were dead.

Such statistics are of little value for comparison with those given for the effects of treatment. In attempting to find some possible common basis we determined to study the outcome of the first symptom observed in each case. It is likely that the first symptom is often due to a single lesion, perhaps to the only lesion, and, further, that subsequent lesions are the result of the same process and should have a similar course. In fifty-eight, or 44 per cent, of 133 cases studied the first symptom entirely cleared up, as far as the patient was aware. In an additional thirty-four cases, remission or alleviation of symptoms was reported at some time during the course of the disease. Of 550 separate complaints found in the 133 histories, 274 were reported to have been alleviated spontaneously. The accompanying table gives the incidence of recovery from the various types of symptoms. In general, isolated symptoms were found to be more prone to alleviation than the same symptoms occurring in a group. It appears that those presumably due to small lesions usually disappear promptly, while lesions apparently affecting larger areas are apt to leave more or less permanent residuals or at best to heal so slowly that it is difficult to say when recovery has occurred.



FIG. 1.—"Encephalitic" reaction in an acute extension of an old sclerotic plaque. *Masson stain, high power enlargement.*

The length of time required for recovery is variable. Two patients accurately described a central scotoma lasting only a few hours. About five mentioned attacks of diplopia lasting only a day or two. At the other end of the scale, one patient was bedridden, with dizziness, scotomas, paraplegia and ataxia for six years and then substantially recovered and has led an active life since.

In going over history after history, one receives the unescapable impression of a constant ebb and flow of symptoms. Even in the cases of chronic progressive sclerosis, which make up some 17 per cent of all, the progression is rarely uniform and relentless, like that of a tumor, but is usually broken by quiescent periods.

THE COURSE OF INDIVIDUAL LESIONS

It is further possible to find a correlation between the natural history of various symptoms and the histologic picture of different types of plaques. In practically every case of multiple sclerosis in which a careful examination is made (a survey has been made in this laboratory of about 3,000 slides from some thirty cases) new lesions as well as old ones will be found. The fresh ones are characterized by edema and symptomatic inflammation (fig. 1). In older ones, myelin has become phagocytized and the surviving axis cylinders—almost

2 Von Hoesslin, Rudolf: Ueber multiple Sklerose Exogene Aetiologie, Pathogenese und Verlauf, Munich, J. F. Lehmanns Verlag, 1934.

3 Putnam, T. J., and Brown, Madelaine R.: On Remissions in Multiple Sclerosis, Arch. Neurol. & Psychiat., to be published.

invariably found reduced in number if properly examined and sometimes reduced to an insignificant remnant—have regained a normal appearance and presumably normal function.[4] It is common to find evidence of activity about the edges of large old lesions (fig. 2). Thus one finds that a healing process is constantly going on but often intermingled with an intermittent process of acute destruction, exactly as one might expect from a consideration of clinical symptoms.

THE POSSIBLE EFFECT OF TREATMENT ON LESIONS AND SYMPTOMS

From the appearance of the old lesions, as they are seen in case after case, there appears to be little hope that any form of treatment will cause axis cylinders to grow again, myelin to reform or glial scars to resolve. The damage is done; the tissue is sometimes as devoid of parenchymal elements as infarcts of comparable size.

It is difficult to escape the conviction that the same is true of the acute lesions also if one makes a detailed study of the steps of the reaction. The damage to axis cylinders, which are after all the essential functioning elements, is already extensive in the earliest plaques one can find. Figure 3 shows one probably not over

Principal Symptoms in 133 Cases of Multiple Sclerosis (Putnam and Brown [3])

	As First Symptom		As Subsequent Symptom	
	Total	Alleviated	Total	Alleviated
Paraplegia	19	9	70	22
Ataxia, tremor	23	10	44	15
Monoplegia	24	13	33	18
Scotoma	20	16	32	20
Numbness of one extremity	20	15	26	13
Bladder symptoms	6	4	30	15
Diplopia	18	12	24	14
Numbness of both legs	7	5	19	15
Speech defect	2	2	22	4
Mental deterioration	2	0	16	1
Hemiparesis	6	3	11	5
Pain (radicular)	1	0	10	5
Hemianesthesia	5	4	4	4

a week old, as determined by the history of the case and the method of timing histologic reactions worked out by Alexander and Newbill.[5] There is more apparent damage to axis cylinders than in many older plaques. From this stage on, barring infections elsewhere or poor nutrition, some healing is inevitable and the duration and extent of the lesion determined.

If the lesions run their course irrespective of treatment, it is no wonder that the symptoms they produce should do the same. If one assumes, as seems reasonable, that patients usually seek a new form of treatment when a new lesion occurs and that 44 per cent of fresh lesions are capable of a complete functional recovery, it is perhaps not remarkable that 47.5 per cent of patients given treatment of any kind have been reported to show some improvement. Sometimes the benefit reported to follow the therapeutic experiments previously summarized has been slight or wholly subjective; sometimes it followed the treatment by a year or more, and in many instances it was obviously temporary. Both pathologic data and statistical studies should make one cautious in accepting symptomatic improvement as evidence of the success of specific treatment. The criterion of successful therapy should be in the prevention of relapses.

4. Putnam, T. J.: Studies in Multiple Sclerosis: VIII. Etiologic Factors in Multiple Sclerosis, Ann. Int. Med. 9: 854-863, 1936; also material in preparation.

5. Alexander, Leo, and Newbill, P.: Time Determination of Histopathologic Lesions in Central Nervous System, to be published.

POSSIBLE CAUSES OF UNDUE OPTIMISM WITH REGARD TO TREATMENT

In making the criticism that optimism is often unfounded, it is far from my purpose to suggest any lack of sincerity on the part of the sponsors of new methods of therapy. It is a callous man who does not feel moved to make the attempt to alleviate the miserable condition of patients incapacitated by multiple sclerosis or to avert the disaster which hangs over those mildly afflicted. As long as doctors are ignorant of the nature of the underlying process, it is only natural that they should turn to treatments which are effective for other conditions with similar symptoms, such as neurosyphilis. The textbook picture of the course of multiple sclerosis is founded on late chronic involvement, but with modern methods of diagnosis, earlier and more benign forms are recognized and the physician is encouraged if the downward progress is found to be slow. Few forms of treatment are given to bedridden patients, and statistics tend to become artificially loaded with cases of fresh, remittent sclerosis. This is clearly shown in the present series; of thirty-eight patients seen in office practice, sixteen were working, thirty-six were ambulatory and none have died; while of ninety-five patients seen in the wards during approximately the same period, only twenty-seven were ambulatory, eighteen were helpless and seventeen have died.

There is apt to be a complementary tendency to fallacy on the patient's side. The invalid who is confined to a hospital for chronic diseases does not shop for treatment; the ambulant sufferer threatened with incapacity is likely to. The euphoria of patients with multiple sclerosis is well recognized. I remember one who was brought in a wheel chair week after week for ultraviolet irradiation over a period of years until he became bedridden, each time stating for the record that he was better. Encouragement definitely alleviates the disease, if only temporarily, and it is a feature which is common to all treatments. Even though the degree of recovery is definitely limited by the destruction of axons, the doctor is not free from the responsibility of promoting healing. If he were dealing with a fracture or a wound on the surface of the body, he would insist on mechanical rest of the part, avoidance of infection, adequate measures against any existing anemia or dietary deficiency and, as far as possible, protection against worry.

In addition, the art of symptomatic treatment is worth cultivating. Some of the measures which are useful in relieving specific symptoms have been discussed in another publication.[6] Sometimes placebos have to be administered. Liver extract and bromides are well adapted to this purpose.

THE PREVENTION OF FRESH LESIONS

General Measures.—If lesions tend to appear suddenly in an acute state or to grow by acute extensions, the principal effort should be devoted to preventing their appearance. One way of doing this is to avoid the external circumstances which appear to precipitate relapses. These excitants are ordinarily stated to be injuries, infections, exposure to cold and pregnancy. Von Hoesslin's [2] critical study bears out the usual impression. Among the 516 cases which he reports, the disease in 132 was apparently precipitated or aggravated by exogenous factors. The presumed cause was

6. Putnam, T. J.: The Diagnosis of Multiple Sclerosis and the Outlook for Treatment, M. Clin. North America 21: 577-593 (March) 1937.

injury in fifty-two cases, pregnancy and delivery in twenty-three, infection in twenty-two, extreme overexertion in fifteen, chilling in ten, emotion and excitement in eight and poisoning in two. The statistics of the Neurological Unit are in general agreement.

For patients with multiple sclerosis, such disturbances are to be avoided if possible. Obviously it will seldom be possible to insure against all of them.

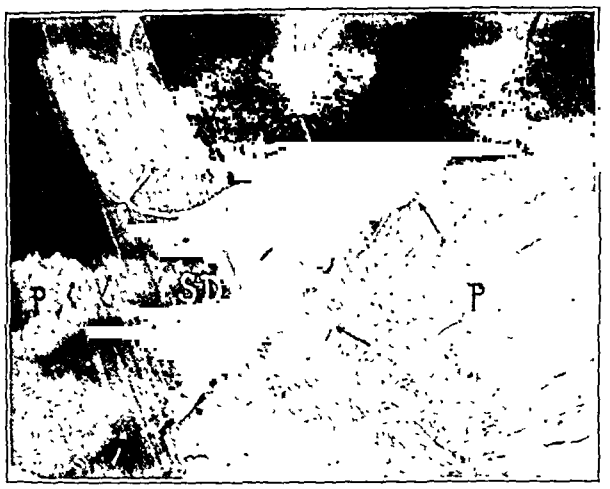


Fig. 2.—Marginal extensions (arrows) above two old gliosed plaques (*P, P*) in the cerebral white matter. A band of fresh secondary degeneration (*SD*) is in progress between them. Mallory stain, × 5.

Are Specific Measures for Preventing the Occurrence of Fresh Lesions Conceivable? It is seldom possible to devise a successful treatment without a knowledge of the fundamental mechanism of the disease. For this reason the first eight years of the work carried out under the Harvard Multiple Sclerosis Fund consisted of a systematic and critical review of the theories of pathogenesis of the disease and an attempt to compare the development of its lesions with pathologic processes of known origin.[7] When the hypothesis of an origin in a thrombosis of small vessels in the nervous system began to intrude itself on the unwilling minds of the investigators, an elaborate series of studies was planned to test the theory from many angles of approach. These included the production of lesions in animals by experimental venous obstruction and by intravenous injection of coagulants, a search for evidences of vascular obstruction in plaques and a comparison of plaques with other pathologic processes, a search for the specific "silver cells" of multiple sclerosis in thrombotic lesions and a comparison of the mineral content of plaques with that of infarctions. All these investigations confirmed the original hypothesis. It is of interest that McKhann,[8] working in the field of the pathology of the clotting mechanism, has come to the conclusion that some such disease should exist.

Can such a conception be used for therapeutic purposes? In animal experiments it was found possible to protect against many times the usually fatal dose of a coagulant such as lung extract by preliminary administration of any one of a number of anticoagulants, such as cysteine, heparin, "germanin" and certain dyes. A cautious trial of certain of these agents is under way with a group of patients selected as having the disease in a remittent stage with fairly regular relapses. It is certainly possible to give some of these agents over a long period without injury to the patient and to prolong the clotting time of the blood by their administration.[9] They have no immediate effect on established symptoms, and those at present available cannot be depended on to prevent relapses. Whether or not they produce a significant decrease in the incidence of exacerbations and whether more efficient measures may be found by systematic search remains to be seen.

7. Putnam, T. J.: Lesions of "Encephalomyelitis" and Multiple Sclerosis: Venous Thrombosis as Primary Alteration, J. A. M. A. **108**: 1477-1480 (May 1) 1937.

8. McKhann, C. F.: Material in preparation.

SUMMARY

1. Multiple sclerosis is characterized by a tendency to spontaneous remissions of greater or less degree. Some definite improvement at some time occurred in 69 per cent or more of 133 cases studied. Complete disappearance of the first symptom was reported by 44 per cent of the patients. The incidence of remissions was far higher for ambulatory patients seen in office practice than for ward patients.

2. A survey of the reported results of the more widely used forms of treatment shows that the proportion of patients improved varied from 35 to 60 per cent, with an average of 47.5 per cent, in a total of 1,407 cases analyzed.

3. The effects of the more popular types of therapy in the present series have not been encouraging.

4. On the basis of the statistical evidence and also of the microscopic appearance of plaques studied at various stages of development, there is good reason for believing that the maximum extent of the future recovery from acute lesions is determined at the time the lesions are formed and that reparative processes run their course irrespective of treatment (aside from attention to hygiene and nutrition).

5. The criterion of the success of any treatment of multiple sclerosis should probably be the prevention of relapses.



Fig. 3.—Fragmented cylinders in a fresh extension of an old plaque from a case of multiple sclerosis. Bodian stain, section 10 microns thick, high power dry lens.

9. Putnam, T. J., and Hoefer, P. F. A.: Cysteine Hydrochloride as an Anticoagulant for Clinical Use, to be published.

PELVIRADIOGRAPHY AND CLINICAL PELVIMETRY

COMPARATIVE VALUES IN THE PROGNOSIS OF THE OUTCOME OF LABOR

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Pelvimetry is an important phase of modern obstetrics, yet the subject remains somewhat confusing and lacking in precision. The external pelvic measurements are at best inadequate as a true index of pelvic types. The internal measurements, however, offer certain accurate data covering the pelvic inlet, the contour, the sweep of the subpubic arch and the outlet. X-ray examination was originally employed for the purpose of attesting fetal presence, multiple fetus and fetal deformities. During the last fifteen years, as a result of the investigations of Thoms, Chambers, Jarcho, Spalding, Ball, Hirsch and others, several methods of x-ray pelvimetry

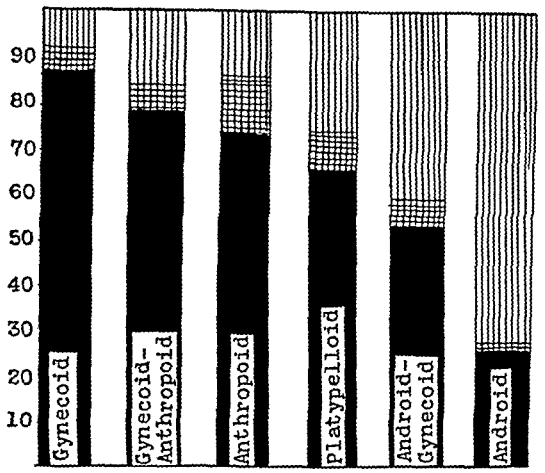


Fig. 1.—Types of pelvis and types of delivery. The black areas indicate spontaneous deliveries, the crosshatching elective forceps deliveries and the parallel lines instrumental deliveries.

have been introduced. These investigations culminated in the classic contribution of Caldwell and Moloy,[1] who have provided, with the use of roentgen rays, a simple yet practical and accurate classification of the various pelvic types and have augmented our knowledge of the mechanism of labor.

This study covers a series of 350 patients, including 315 ward and thirty-five private patients. The x-ray examination was made ten days prior to the calculated date of labor. In instances of miscalculation, when labor was delayed by several weeks, x-ray examination was repeated at term. In the classification of the various types of pelves, such factors as size of inlet, relationship between head and inlet, sacrosciatic notch, inclination of sacrum and lateral bore, sacral promontory, subpubic angle, shape of arch, length of rami and side walls of the pelvis were taken into consideration. The classification adopted was that of Caldwell and Moloy.

From the Maternity Division of Beth Israel Hospital.
Read before the Section of Obstetrics and Gynecology, New York Academy of Medicine, Dec. 28, 1937.
Drs. I. Seth Hirsch and Myron A. Schwartzchild aided with the roentgenologic aspects of this study. The technic used herein was that which they have described.

1. Caldwell, W. E., and Moloy, H. C.: Am. J. Obst. & Gynec. 26: 479 (Oct.) 1933.

In this series the percentages of the various major pelvic types closely approximate the original figures of Caldwell, Moloy and D'Esopo,[2] with the exception of the platypelloid type. This type, considered a rarity by the original observers, was found in appreciable numbers in our series. This may be explained on the basis of racial differences, since the series consisted entirely of patients of the Jewish race, wherein females of the hyposthenic and pyknic type are frequently encountered.

TYPES OF PELVIS

Gynecoid.—The gynecoid pelvis is the type most frequently encountered in any series; it occurred in 158 of our 350 cases (fig. 1). The highest incidence of spontaneous deliveries with the major types occurred with this type. Of the 158 patients 136, or 84 per cent, were delivered spontaneously; and of the 16 per cent of operative deliveries nearly 60 per cent were low forceps and one half of these were elective. Two of the four cesarean sections in this group were performed because of extrapelvic conditions. Contraction of the inlet was uncommon and dystocia, when it occurred, developed at or below the level of the spines.

Anthropoid.—The anthropoid type was next in frequency, with fifty-two cases. Easy delivery was the rule in the majority; forty, or 77 per cent, of the patients were delivered spontaneously. Half of the operative deliveries were elective low forceps deliveries. The only cesarean section performed in this group was of a 38 year old woman with a history of six previous spontaneous miscarriages.

The fetal head frequently engaged in a posterior position, but spontaneous rotation (anteriorly) occurred in the majority of cases. While we agree with Thoms[3] that a persistent occipitoposterior position is more frequent with the anthropoid than with other types, the incidence in our series was low, this complication being noted on only seven occasions. There were three deliveries by forceps in the occipitoposterior position; two of the fetuses were rotated by forceps and two delivered spontaneously with face to pubis. A probable cause of this favorable outcome is that the anthropoid pelvis has actually larger dimensions than any other type, both at inlet and outlet. The majority of the justo major pelves in our series were anthropoid, which is commensurate with the physique of women of this type.

Android.—Forty-four women in our series showed the true android type of pelvis and twenty-three the mixed android type (i. e., with android posterior segments and gynecoid forepelvis). The android type of pelvis entails the most difficult deliveries. Spontaneous delivery in this group was the exception rather than the rule. In only sixteen of forty-four parturient women (36.4 per cent) did labor terminate so favorably. Difficult midforceps extraction was required in eleven cases (25 per cent). There were twelve cases (27 per cent) of cesarean section and five additional cases in which this operation was evidently indicated, labor terminating either in craniotomy, spontaneous stillbirth after protracted labor, or version after so long a time had elapsed after rupture of the membranes that cesarean section would have been precarious. Thus the incidence of delivery by the abdominal route would have been 39 per

2. Caldwell, W. E.; Moloy, H. C., and D'Esopo, D. A.: Am. J. Obst. & Gynec. 28: 482 (Oct.) 1934.
3. Thoms, Herbert: Surg., Gynec. & Obst. 56: 97 (Jan.) 1933.

cent. Unlike the other pelvic types, dystocia started at the inlet, with progressive difficulty at the midpelvis and outlet.

Hence it is of utmost importance that the obstetrician recognize clinically the android pelvis, for this type presents a definite hazard to both mother and fetus. In less than one third of the cases of this type in our series did labor terminate spontaneously with a living baby.

With the mixed types the percentage of operative deliveries declined (39.1 per cent), but such deliveries were nevertheless more frequent than with the other major types, except the true android. Thus, although the average inlet dimensions were barely greater than those of the true android pelvis, the presence of the wide anterior segment increased considerably the chances for engagement of the fetal head. However, had cesarean section been resorted to in the four cases in which delivery terminated in either craniotomy or fetal death after prolonged labor, the incidence of this operation would have been 26 per cent rather than 8.7 per cent.

The troublesome dystocia dystrophica syndrome, described by Cornell [4] and Greenhill,[5] is not associated exclusively with any particular type of pelvis as far as we have been able to determine. Thoms said that this syndrome is found most commonly with the anthropoid type, but we have encountered it most frequently with the android. The physique of the patient described by Cornell typifies the android rather than the anthropoid type.

Platypelloid.—As has been noted, the platypelloid type of pelvis occurred more frequently in our series than is usually the case; there were twelve cases of true platypelloid pelvis and nine cases of mixed type. Delivery was effected easily in sixteen of these cases. In three cesarean section was required, and in two version was successful after the fetal head had failed to engage. As a rule, in this type of pelvis the narrow anteroposterior diameter is amply compensated for by a broadened transverse diameter. Furthermore, obstruction to the fetal head is usually encountered only at the inlet and, once this is traversed, uneventful delivery may be reasonably expected.

FURTHER USES OF X-RAY PELVIMETRY

The fact that x-ray pelvimetry makes it possible to determine the type of pelvis in each case, which, as has been shown, is of practical importance in determining the probable course of labor, is not its only value. It gives more accurate measurements of the pelvic diameters, especially of the inlet, than clinical methods, as has been demonstrated in our series. It also discloses the position and relationship of the important pelvic landmarks, especially when the stereoscopic method is employed—factors of definite significance to the obstetrician.

Measurements and Size of Inlet.—The x-ray measurements of the pelvic inlet appear to be consistently greater than those clinically determined. Not infrequently the true conjugate obtained by x-ray examination is the same measurement recorded by the clinician as the diagonal conjugate. This disparity arises from errors in the clinical methods, especially in deducting 1.5 to 2 cm. from the diagonal conjugate, particularly when the inclination of the symphysis is toward the sacrum. Again, when false promontories exist or when the sacrum slopes forward rather than backward, lower levels than the true promontory are palpated and smaller measurements are obtained than actually exist (fig. 2). Thus, contractions of the anteroposterior diameter are diagnosed erroneously.

Stander [6] designated as a borderline pelvis one whose conjugata vera measured between 7.5 and 9 cm. and stated that "in more than one half of such cases, spontaneous labor can be looked for; where the conjugata vera falls between 9 and 10 cm. spontaneous labor is the rule." This, however, is contrary to our experience. There were twenty-three pelves in our series with the true conjugata (or anteroposterior diameter) varying between 8 and 9.9 cm. In the twenty cases in which this diameter varied from 9 to 9.9 cm. the following results were obtained: spontaneous delivery in four, or 20 per cent (sum of the anteroposterior and transverse diameters, 23.3 cm.); difficult forceps delivery in three, or 15 per cent; craniotomy in two, or 10 per cent (sum of the anteroposterior and transverse diameters, 21.6 cm.); version in one, or 5 per cent, and cesarean section in ten, or 50 per cent. In the remaining three cases, in which the conjugata vera measured 8 or 8.9 cm., cesarean section was performed.

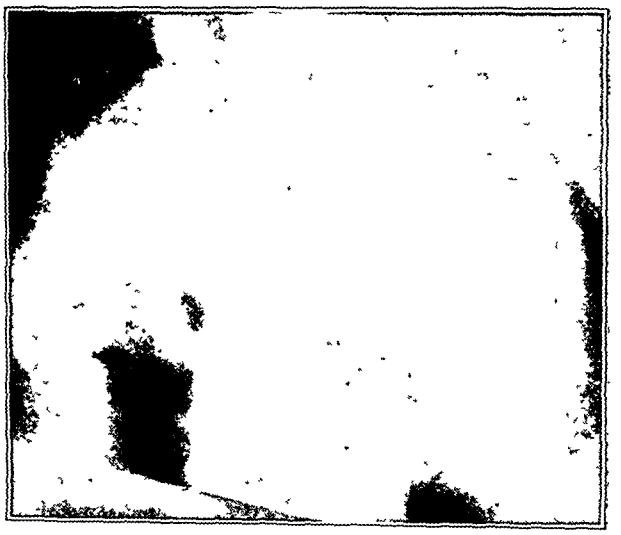


Fig 2.—The false promontory shows that a lower level than the true promontory may be palpated

These results in our series show therefore that any pelvis with a conjugata vera of less than 10 cm., as determined by x-ray examination, is to be considered as contracted. The transverse diameter of the inlet, however, deserves special consideration, for a broadening of the pelvis transversely will compensate for a narrowing of the anteroposterior diameter. While no hard and fast rules can be drawn, it would seem from our series that, when the sum of the conjugate and transverse diameters of the inlet equals or exceeds 24 cm., engagement of a fetal head of average size will almost invariably occur. Hence, in the four cases cited in which spontaneous delivery occurred despite a contracted anteroposterior diameter, the sum of the inlet diameters was 23.3 cm. and the average fetal weight was 7 pounds. In the nineteen cases in which a cesarean

4 Cornell, E. L. Surg., Gynec. & Obst. 53:707 (Nov.) 1931.
5 Greenhill, J. P. S. Clin. North America 4:811 (June) 1924; Internat. Clin. 4:171 (Dec.) 1925.
6 Stander, H. J. Williams Obstetrics, ed. 7, New York, D. Appleton-Century Company, Inc., 1936.

or instrumental delivery was performed, the sum of the inlet diameters averaged 21.6 cm., with an average fetal weight of 6 pounds 9 ounces. In eighteen cases of android pelvis in our series in which this figure was less than 22 cm. regardless of the length of the conjugata vera, not a single delivery by vagina of a living baby occurred.

Sacrosciatic Notch.—The importance of the sacrosciatic notch as a reflection of contraction of the poste-

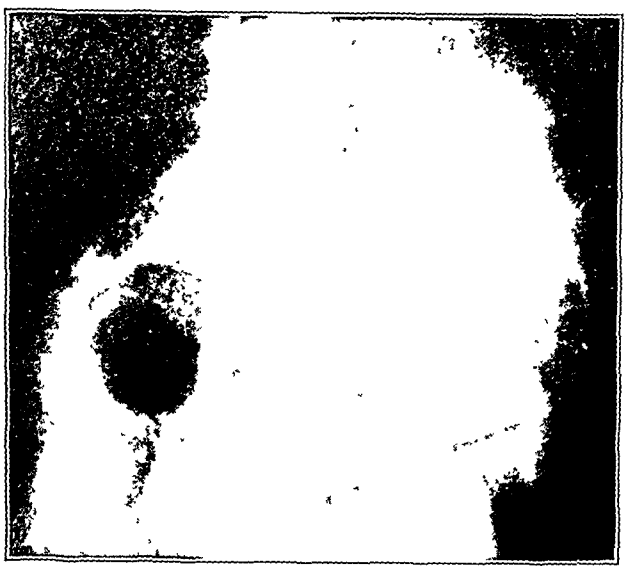


Fig. 3.—The pelvic inclination of the superior strait is increased and the sacrum flares backward.

rior segment has been adequately stressed by Caldwell and Moloy. Suffice it to say that the narrow notch is almost invariably found in the android pelvis, and when it is present careful attention must be directed to the anterior segment and subpubic arch before predicting successful delivery.

Ischial Spines.—The presence of excessively prominent spines by itself will rarely give rise to dystocia. Only in associating with convergent side walls and lateral bore do these projections become factors in obstructing the passage of the head. With the anthropoid pelvis, however, because of the narrowing of the transverse diameter, dystocia due to flaring spines may occur.

Inclination of Sacrum and Lateral Bore.—The sacral tilt and lateral bore are visualized on the lateral view of the pelvis. The tilt of the sacrum shows considerable variation even in the normal pelvis, where it is usually found directed moderately backward. A forward tilt is encountered infrequently. It is most often found in the android type of pelvis. A sacrum directed backward, almost parallel to the horizon, is more common and may be encountered in all type of pelves. It, however, was most frequently associated with the platypelloid and android varieties. This backward flare of the sacrum may be detected clinically by external examination. It occurs usually in the short stocky woman with exaggerated lumbar lordosis. When the pelvic inclination (plane of the superior strait) is increased in association with a sacrum flaring backward and a straight or a convergent lateral bore, labor is usually complicated, and it is with pelves of this type, usually android, that we have noted a high incidence of both difficult delivery and cesarean section (fig. 3).

In most pelves with a normal or somewhat exaggerated backward slope of the sacrum the lateral bore becomes divergent, affording a more spacious midpelvis. Again, in the less common variety where the sacrum is directed relatively forward in the pelvis, both the midpelvis and the outlet are encroached on, and frequently this results in a midpelvic arrest. This is a common cause of midpelvic arrest in the android pelvis (25 per cent of this type occurred in our series).

Fortunately in the anthropoid type, where the transverse diameter at midpelvis is frequently narrower, even than at the inlet, the sacrum usually tilts backward and has a curve more accentuated than normal; this often results in a divergent lateral bore. This affords room for spontaneous rotation of a well flexed head in the posterior half of the pelvis. The mechanism was observed in several pelves of this type, and it was ascribed to a roomy posterior segment below the inlet. This pelvic spaciousness was due to a wide sacrosciatic notch associated with exaggerated posterior tilt and curvature of the sacrum.

Promontory.—A high promontory is usually the accompaniment of a six piece sacrum and is seen most frequently in the anthropoid pelvis; it is less common in the android and least common in the gynecoid. Little importance can be attached to the height of the promontory, except that a high promontory is most prevalent in the male type of pelvis.

Side Walls.—The side walls of the pelvis are visualized both in the outlet film and in the stereoscopic view, although a better knowledge of the degree of slope is obtained from the former. Normally the lateral walls of the pelvis slope gently inward with the maximum

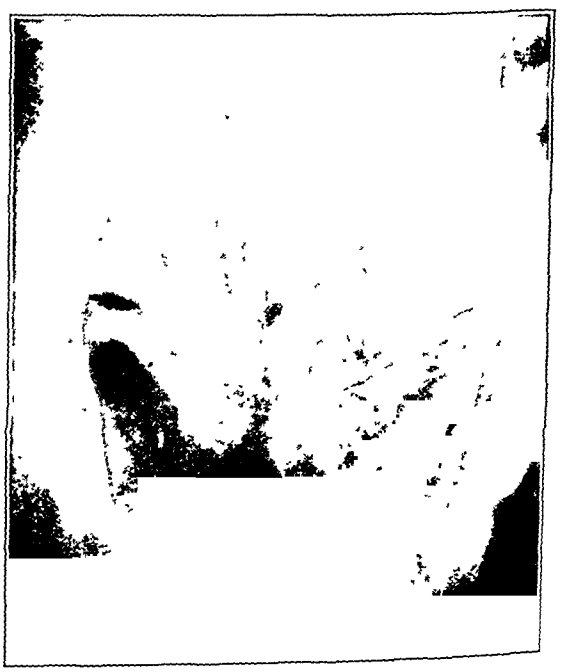


Fig. 4.—An android pelvis with convergent side walls.

inclination at the ischial spines, making for a slight convergence of the pelvic side walls and diminishing the transverse diameter of the midpelvis. Occasionally the walls are straight or parallel to each other. Varying degrees of midpelvic contraction due to convergence of the side walls are encountered. In the anthropoid

pelvis this convergence may account for the frequency of persistent occipitoposterior position, which has been stressed by Thoms. The relatively narrowed transverse diameter of the inlet is encroached on by the converging lateral walls, preventing the head from rotating and necessitating delivery without rotation to an anterior position. In the android pelvis there is a marked tendency to excessive convergence of the side walls as they approach the spines, resulting in a true funnel-shaped birth canal. Failure of the fetal head to rotate spontaneously at lower levels may be due to the soft tissues. Not infrequently in primiparas a difficult delivery may occur as the result of an arrest of the fetal head in a transverse position below the spines, where no bony obstruction can be demonstrated, while subsequent deliveries are rapid (fig. 4).

delivery. Fortunately, however, such minor true relative contractions at the outlet give rise to no great problem in delivery.

Relationship Between Head and Inlet.—One of the most important criteria in prognosticating the outcome of labor appears to be the relationship between the fetal head and the pelvic inlet as viewed stereoscopically. This may be considered to be of even greater value than the pelvic measurements, particularly with borderline and relatively contracted pelves. The information derived from the stereoscopic view, however, must be combined with clinical and other x-ray criteria.

RESULTS

The accompanying tables present a summary of our observations on the 350 parturient women who were

TABLE 1.—*Type of Delivery According to Pelvic Type*

Type of Pelvis	Number of Cases	Percentage	Spontaneous Delivery	Operative Delivery	Percentage Operative	Correct Percentage Operative	Conjugata Vera	Transverse Diameter
1. Gynecoid	158	45.1	136	22	14.0	8.9	11.4	13.3
2. Gynecoid with narrow forepelvis	16	4.5	14	2	12.5	6.2	11.6	13.2
3. Gynecoid anthropoid	21	6.0	17	4	19.0	14.3	11.7	12.8
4. Anthropoid	52	14.3	40	12	23.0	13.5	12.5	12.4
5. Anthropoid gynecoid	6	1.7	4	2	33.3	33.3	12.3	13.2
6. Android	44	12.6	16	28	63.6	62.4	10.3	12.6
7. Android gynecoid	23	6.6	13	10	43.5	39.1	10.3	13.0
8. Android anthropoid	9	2.6	8	1	11.0	11.0	12.2	13.6
9. Android platypelloid	1		1	..	..	.	10.0	13.2
10. Platypelloid	12	3.4	8	4	33.3	25.0	10.2	14.4
11. Platypelloid gynecoid	7	2.0	6	1	14.3	14.3	10.9	14.7
12. Platypelloid android	1			1	100.0	100.0	8.8	13.7
Totals	350		263	87	24.8	20.6		

TABLE 2.—*Types of Operative Delivery*

Type of Pelvis	Number of Cases	Operative Delivery	Low Forceps Delivery	Elective Low Forceps Delivery	Mid Forceps Delivery	Cesarean Section	Version	Craniotomy	Spontaneous Stillbirth
Gynecoid	158	22	13	6	5	4*	..	..	..
Gynecoid with narrow forepelvis	16	2	2	1	.	.	..	..	..
	21	4	3	1	1	..	..	.	..
	52	12	7	6	4	1†	.	.	..
	6	2	2	.	..	.	.	..	..
Android	44	28	2	1	11	12	2	1	2
	23	10	2	.	3	2	1	2	2
	9	1	1			.	.		..
	1		.	.		.			..
	12	4	1	1		2	1	.	..
	7	1		..		..	1	.	..
	1	1		.		1			..
Totals	350	87	33	16	24	22	5	3	4

* Two cesarean sections performed for extrapelvic conditions
† Cesarean section performed because of six previous spontaneous miscarriages

Subpubic Angle, Shape of Arch and Length of Rami—Narrowing of the subpubic angle, while commonest in the android type, is found in all pelvic types but least frequently in the anthropoid and platypelloid varieties. In our experience clinical examination is somewhat more accurate in distinguishing moderate contractions of the outlet than x-ray examination, for by the latter method "narrow outlet" is diagnosed too frequently. Unfortunately our technic does not permit accurate measurements of the biischial diameter or the length of the rami, the latter playing an important part in outlet contractions. While marked contractions are easily detected radiographically, minor contractions frequently are overlooked. Furthermore, when the fetus is large the outlet which appears ample on x-ray examination proves insufficiently roomy for spontaneous

examined roentgenographically near or at term and whose progress in labor was closely studied. Table 1 shows pelvic types, percentage of spontaneous and operative deliveries (with correction for conditions other than dystocia requiring operative delivery) and average inlet measurements.

A more detailed analysis of the mode of operative delivery required with the various pelvic types is presented in table 2.

In comparing the accuracy of the clinical and the radiologic prognosis of the outcome of labor in our series, we divided the diagnoses into four general groups and compared these with the clinical results, as shown in table 3.

A. *Clinical and X-Ray Diagnosis, Ample Pelvis.*—In this large group, comprising nearly two thirds of

the entire series, only four pelves proved to be contracted that were not so diagnosed either clinically or by x-ray examination, and in these cases the contractions were slight, so that delivery was easily effected by forceps, with no detriment to mother or fetus. Hence, when clinical and x-ray diagnosis pointed to a normal delivery, the error in a large series proved almost negligible.

B. *Clinical Diagnosis, Contracted Pelvis; X-Ray Diagnosis, Ample Pelvis.*—It is in this particular group that we believe that pelviradiography has its greatest value, namely when the pelvis has been judged contracted on the basis of the usual methods of external and internal pelvimetry. We have stated that the clinical measurements are almost invariably smaller than those obtained stereoscopically and have cited the reasons for this disparity. Of the thirty cases in which the x-ray examination showed an ample pelvis and the pelvis was considered contracted by the clinician, the clinician was correct in only 16.6 per cent. In six cases in which the possibility of cesarean section was considered on clinical grounds, the radiographic prediction of spontaneous delivery was later substantiated. Of the five pelves correctly diagnosed by the clinician as contracted and erroneously labeled ample by the roentgenologist, only one was sufficiently contracted to give rise to difficulty in delivery; the remaining four were only moderately contracted at the outlet.

TABLE 3.—*Diagnosis Versus Clinical Results*

Diagnosis	No. of Cases	Proved Ample	Proved Contracted	Percentage Correct
A. Clinic: ample X-ray: ample	257	253	4	Clinic: 98.4 X-ray: 98.4
B. Clinic: contracted X-ray: ample	30	25	5	Clinic: 16.6 X-ray: 83.4
C. Clinic: ample X-ray: contracted	19	5	14	Clinic: 26.3 X-ray: 73.7
D. Clinic: contracted X-ray: contracted	44	5	39	Clinic: 88.6 X-ray: 88.6

C. *Clinical Diagnosis, Ample Pelvis; X-Ray Diagnosis, Contracted Pelvis.*—In this group, again, x-ray examination proved somewhat the more accurate. In the five cases in which difficulty in delivery was predicted by x-ray examination despite ample clinical measurements, spontaneous delivery occurred. However, the contraction diagnosed roentgenologically in each case was at the outlet, and in not a single instance was abdominal section advised. In one case a test of labor was advised, resulting in spontaneous delivery, but only after labor had progressed for fifty-seven hours. On the other hand, fourteen pelves considered ample clinically proved to be contracted according to x-ray examination: In five cases elective cesarean section was considered the only means of insuring a living baby, despite clinical opinion to the contrary. The results were three spontaneous deliveries of stillborn infants after protracted labor, one craniotomy and one cesarean section after a test of labor. In the remaining nine cases, contractions of a less serious nature were correctly diagnosed by x-ray examination and the infants delivered from below.

D. *Clinical and X-Ray Diagnosis, Contracted Pelvis.*—Of forty-four patients for whom dystocia was predicted both clinically and roentgenologically, five were delivered spontaneously and thirty-nine required operative or instrumental aid, the correct diagnosis being made for 88.6 per cent. However, this is too flattering to both the clinician and the obstetric roentgenologist, for it does not represent their prediction as to the outcome of labor, which, with the contracted pelvis, is of paramount importance. Thus a diagnosis of "contracted pelvis" carried little meaning unless the observer specified whether the contraction militated against delivery of a living baby through the natural channel. In seventeen cases, as a result of both clinical and x-ray examination, elective cesarean section was performed, with no resultant fetal or maternal mortality. In ten other cases, in which cesarean section was indicated on the basis of x-ray evidence and in which forceps delivery was suggested on the basis of clinical evidence, the labor resulted in two craniotomies, two midforceps deliveries with living babies, two difficult forceps deliveries with stillbirths, one cesarean section after adequate test of labor, one midforceps delivery with traumatic separation of the symphysis (living baby), one difficult midforceps delivery with postpartum hemorrhage and sepsis (duration of labor thirty-six hours, living baby) and one version after twenty-four hours of labor (head floating, laceration of the cervix, severe postpartum hemorrhage, living baby).

COMMENT

A clinical diagnosis of contracted pelvis was made far too often. While pessimistic opinions were rendered clinically as to the prognosis of labor in seventy-four cases, only 59.1 per cent of these opinions proved correct, as compared with 84.1 per cent of accuracy for x-ray prognosis. It was further found that both clinical and radiographic methods reached a high degree of accuracy in the diagnosis of "ample" pelves. For the entire series the x-ray prognosis was correct in 94.6 per cent of cases and the clinical in 86.3 per cent. This is expressed graphically in table 4.

In comparing the accuracy of clinical and x-ray predictions of the outcome of labor and in deciding the method of delivery, we received opinions from both the staff and the courtesy obstetricians. The greatest accuracy was attained when the two methods (clinical and x-ray) were combined, i. e. when obstetricians familiar with pelviradiography examined the films as well as the patient. We do not believe that the roentgenologist alone can render a more accurate opinion (except academically) than the experienced obstetrician. For the inexperienced clinician, however, the x-ray record should be a valuable guide. Moreover, both the obstetrician and the roentgenologist must know their limitations. We do not mean to imply that pelviradiography will prove an absolute panacea for clinical doubts, nor does it approach mechanical accuracy. It does, however, lend a more suitable means of comparing the adaptability of the fetal head to the pelvis

TABLE 4.—*Accuracy of Diagnosis*

	Diagnosis	No. of Cases	Proved Contracted	Proved Ample	Percentage Correct
Clinic	Contracted	74	44	30	59.1
X-ray	Contracted	63	53	10	84.1
Clinic	Ample	276	18	258	93.5
X-ray	Ample	287	9	278	97.0

than has hitherto been available. Furthermore, with exact knowledge of pelvic types, the x-ray method provides a scientific approach to the problem of the type of forceps most suitable for the individual case, including its mode of application. Similarly it furnishes an index to the optimum pelvic level for rotation should the maneuver be necessary.

Heretofore, when the physician was equipped with a clinical knowledge of pelvic types, the selection and the application of forceps was a matter of personal equation based on trial and error. Many attempts at rotation have failed in the case of the anthropoid pelvis. In the anthropoid pelvis with a relative contraction of the transverse diameter, the head engages in the long anteroposterior diameter. Attempts at rotation are dangerous to both mother and child. With the aid of the stereoscope such futile and dangerous trials may be avoided, dislodgment and rotation above the contraction plane or a delivery in the posterior position being substituted. The Kielland forceps is most suitable for this type of rotation and delivery.

With the platypelloid pelvis, corresponding to the simple flat pelvis, rotation is inadvisable for a transverse arrest. Here delivery is facilitated first by traction in the transverse plane and then by rotation at the outlet. The Barton forceps is most suitable, especially in the presence of an asynclitism.

For a traverse arrest in the android or android-gynecoid pelvis, rotation is best accomplished by the use of the Kielland forceps.

We feel that clinical experience without the use of pelviradiography has the advantage over the use of x-ray interpretation alone, and it is of paramount importance for the obstetrician of the future to develop himself clinically rather than to rely solely on x-ray methods. Finally, we believe that the greatest acumen in determining the relative size of passage and passenger and in selecting the appropriate operative procedure is best obtained when the experienced obstetrician combines his clinical knowledge with pelviradiography.

CONCLUSIONS

The various pelvic types, as demonstrated by x-ray pelvimetry, are of definite significance in determining the course of labor.

X-ray measurements were consistently greater than those obtained clinically.

The relationship between fetal head and inlet as seen stereoscopically is one of the most important criteria in x-ray prognosis of the outcome of labor, particularly with the borderline and relatively contracted pelvis.

When clinical and radiologic opinions agree that a pelvis is ample for the fetus, normal delivery may be expected in the vast majority of cases.

X-ray pelvimetry provides an excellent "negative test" for pelves diagnosed clinically as contracted. Hence every woman suspected of pelvic contraction should receive the benefit of a pelvic stereogram.

Pelviradiography has its greatest value in determining inlet contractions but is less efficacious in predicting dystocia below the ischial spines.

The greatest accuracy was attained when both clinical and x-ray observations were correlated.

Pelviradiography is an obstetric study rather than a radiologic problem, and interpretation of films is preferably rendered by the obstetrician trained in roentgenology.

LEIOMYOSARCOMA OF THE DUODENUM

REPORT OF A CASE AND REVIEW OF THE LITERATURE

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The duodenum is the seat of tumors of mesoblastic origin in rare instances. Leiomyosarcoma of the duodenum is of interest because of its extreme rarity and because of its similar behavior in every case reported, as will be shown. Only five cases have been reported to date. We record the sixth case and give a brief review of the literature.

Our search reveals only three articles that are confined to the subject of leiomyosarcoma of the duodenum. The articles are in the main case reports. A comparative study of these cases has not been made heretofore. Perhaps this is because the series is so small.

In this paper we shall not attempt to discuss leiomyosarcoma of the gastrointestinal tract except as it pertains to cases involving the duodenum. Raiford,[1] in his treatise on tumors of the small intestine, has dealt with the subject in such a thorough fashion that little can be added. Mumey's[2] article on sarcoma of the small intestine deals exceptionally well with the several types of sarcoma to be found in the region of the small intestine. Confusion is brought about in some of the past articles by the authors including lymphosarcoma and by covering the various divisions of the small intestine instead of confining the discussion to that of the duodenum. Lymphosarcomas do not arise from the same tissue as do leiomyosarcomas. They grow differently, producing a different pathologic picture and different symptoms, as we shall show. A careful analysis of the cases of leiomyosarcoma confined strictly to the duodenum will give information of sufficient interest to warrant our complete study of the subject.

REPORT OF CASES IN THE LITERATURE

The first case report was by von Salis[3] in 1920. His patient was a man aged 40 who had had symptoms of peptic ulcer for seven years. There had previously been an operation performed for the gastric symptoms. Three months before his admission with leiomyosarcoma he had fever and had felt an abdominal mass. At operation a lobulated tumor the size of a baby's head was found arising from the muscular wall of the third portion of the duodenum in its distal part. A fistula to the lumen of the bowel and an abscess were present. The tumor did not produce obstruction or dilatation of the duodenum. The patient lived four months after operation. The tumor was found to be a leiomyosarcoma at autopsy. Diagnosis was not made previous to the operation, and the type of operation performed was not described.

Brdiczka, as reported by Slot,[4] described a case of myosarcoma of the duodenum in a woman aged 60,

From the Surgical and Pathological Services of Butterworth Hospital.

1. Raiford, T. S.: Tumors of the Small Intestine, Arch. Surg. **25**: 122-177 (July), 321-355 (Aug.) 1932.
2. Mumey, N.: Sarcoma of the Small Intestine, Colorado Med. **29**: 12 (Jan.) 1932.
3. von Salis, H. W.: Ueber das Sarcom des Duodenum insebesondere das Myosarkom, Deutsche Ztschr. f. Chir. **160**: 180 (Dec.) 1920; abstr. J. A. M. A. **76**: 972 (April 2) 1921.
4. Brdiczka, I. G.: Roentgenpraxis **3**: 625 (July 15) 1931.

diagnosed by x-ray examination. The patient was operated on and a tumor the size of a baby's head was found in the right epigastrium attached to the bulb of the duodenum. The patient died suddenly at the end of one week of pulmonary embolism. There were no demonstrable metastases. This case was the second recorded in the literature and has not been mentioned in any other case report.

Andersen and Dooh [5] added a third case in 1933. A machinist aged 37 had been treated for duodenal ulcer for five years. He presented a recent acute loss of weight and edema of the lower extremities. He had had tarry stools for seven weeks and muscular weakness for three weeks. X-ray examination of the gastrointestinal tract was negative. A clinical diagnosis of carcinoma of the colon was made. Such conditions as retroperitoneal tumor, mesenteric tumor and kidney tumor were considered. The patient died without operation, very suddenly, of pulmonary embolism. At postmortem examination a large mass was found arising from the second and third portions of the duodenum which, judged by the description, was equal to the size of a fetal head. It was located in the right epigastrium and right hypochondrium. Ulceration and fistulization were found. There was no dilatation and no stenosis. There was thrombosis of the iliac and pulmonary veins. Histologically the mass was found to be a primary leiomyosarcoma.

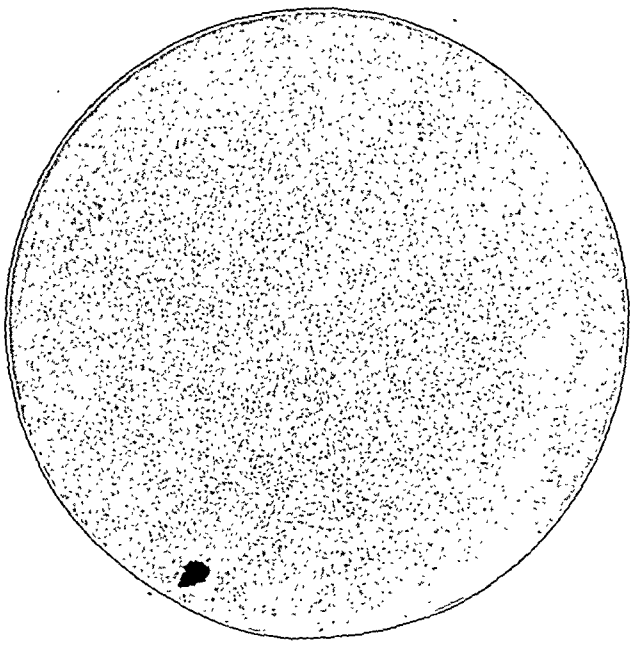


Fig. 1.—Section of leiomyosarcoma of the duodenum under low power.

Silverstone's [6] interesting case was the next to appear in the literature, in 1934. A woman aged 51 complained of epigastric pains, unrelated to food, at intervals for two years. However, the character of the pain had become more severe during the past two months. She had suffered from vomiting for three months. She also had a toxic adenoma of the thyroid. A diagnosis of duodenal tumor was not made before operation. At operation a tumor arising from the third portion of the duodenum and approximately the size and shape of a uterus was removed with a cuff of the duodenum, and the duodenum was sutured transversely. To relieve tension a posterior gastroenterostomy was performed. Death occurred on the fourth postoperative day from thyrotoxicosis. Autopsy revealed no leakage.

Seymour and Gould [7] reported the fifth and last case in 1936. A man aged 54 complained chiefly of pain in the abdomen, loss of weight, progressive jaundice and itching, all of three months' duration. He presented a mass in the epigastrium the size of a grapefruit. The roentgenologist reported "intraduodenal tumors or one lobulated tumor due to polyp or malignancy." There was no operation. Death occurred in less than four months from the time of first symptoms. Autopsy revealed a small tumor arising from the posterior wall of the first portion of the duodenum with ulceration, fistulization and abscess formation. No metastases were found.

REPORT OF AUTHORS' CASE

P. V., a white man aged 63, a laborer, referred to the surgical service of one of us (J. C. F.) at Butterworth Hospital by Dr. C. J. Geenen, April 6, 1937, complained chiefly of a mass in the abdomen which was first noticed three months before. It had been tender at times but there had been no gastric distress or difficulty in elimination by the bowel. He had lost 30 pounds (13.6 Kg.) since the appearance of the mass and had noticed considerable muscular weakness. The patient's past health had been excellent. The family history was negative for cancer and tuberculosis.

At examination a mass the size of a grapefruit was found just below the umbilicus behind the right rectus muscle. The mass was freely movable from side to side and could be displaced upward when the patient was in the recumbent position. The heart tones were of good quality, with a rate of 70, and regular. The blood pressure was 130 systolic and 80 diastolic. The urine was normal. The white blood cell count was 7,450; the red blood cell count was 4,600,000 and the hemoglobin content 100 per cent. X-ray examination of the gastrointestinal tract was negative for an intrinsic lesion, but the roentgenologist suggested a growth from without pressing on the transverse colon.

A clinical diagnosis of a tumor of the greater omentum or pedunculated retroperitoneal tumor was made. The possibility of a tumor of the transverse colon was considered.

The patient was prepared for operation by two days of rest in bed, irrigations of the colon and forced fluids. His blood was typed and it was found to be group IV by the Moss method. Suitable donors were obtained.

Operation was performed by one of us (J. C. F.) April 8. A right paramesial incision was made half above and half below the level of the umbilicus. When the peritoneum was opened a lobulated tumor the size of a fetal head presented. It was covered with peritoneum and had sufficient pedicle so that it could be delivered readily into the incision. The transverse colon and the greater omentum were above the tumor. The coils of the jejunum and ileum were below. The peritoneum covering the tumor was found to be the right half of the transverse mesocolon. The superior mesenteric artery and the greater vessels of the mesocolon were identified, both of which were gently retracted to the left after the peritoneum had been slit and stripped down on either side of the tumor. The dissection was carried down on the left side of the tumor parallel to the superior mesenteric artery, due precaution being used not to injury the artery. The tumor was shelled out readily until the pedicle was reached, at which point many small vessels were encountered. These were controlled by multiple forceps. The duodenum from which the tumor arose came into view. An abscess was encountered in the pedicle the size of an English walnut. Without much difficulty the tumor was freed down to the origin of the pedicle in the anterior wall of the duodenum just beyond the middle of the third portion. A cuff

5. Andersen, Dorothy, H., and Dooh, Elsie F.: Leiomyosarcoma of the Duodenum, authors' reprint with additions from Arch. Path. **16**: 795-802 (Dec.) 1933.

6. Silverstone, M.: Sarcoma of the Duodenum, Brit. J. Surg. **22**: 332-336 (Oct.) 1934.

7. Seymour, W. J., and Gould, S. E.: Leiomyosarcoma of the Duodenum, Am. J. Cancer **28**: 572-578 (Nov.) 1936.

of the wall of the bowel was excised, a clean removal of the entire mass being made. The vessels were ligated and a few small oozers were touched up with a Bovie cautery. The rent in the duodenum was closed transversely with one row of Connell's suture with chromic 0 and a second row of Lembert's suture with silk. It was felt that an insufficient lumen remained at the site of repair; hence a posterior duodenojejunostomy was quickly done from the terminal part of the second portion of the duodenum to a free loop of the jejunum without tension. The rent in the mesocolon was closed and anchored to the anastomosis with several interrupted sutures to prevent herniation. Pulsations of the midcolic artery and the superior mesenteric artery were present. A cigaret drain was inserted down to the transverse mesocolon to take care of slight soiling, which occurred from the abscess encountered in the tumor pedicle. The abdomen was closed in layers in the usual manner.

A pathologic report was made by one of us (W. P. L. McB.). On gross examination the specimen measured 10 by 6 by 6 cm. and had the appearance of multiple nodes that have become matted together. When the mass was sectioned it was found that some of the nodules had degenerated while others were intact. The cut section had a smooth homogeneous pink appearance resembling a sarcoma. There was no attempt at encapsulation. Microscopic examination revealed that the individual cells were arranged in bundles and were supported by a thin stroma. Some of the cells were slightly elongated while others were well rounded. They varied in size. Mitotic figures were not common and there was a moderate amount of round cell infiltration. The blood vessels were thin walled and in some areas they were quite numerous.

The patient was returned to his bed in good condition. A blood transfusion was administered the following day. He was kept well supported by fluids subcutaneously and intravenously. He made a smooth recovery until the eighth postoperative day, when an elevation of temperature to 101 F. developed. His pulse rose from 90 to 110 a minute. The twelfth day duodenal fluid escaped through the wound. Rigid treatment was instituted for the duodenal fistula without avail. The amount of duodenal contents escaping increased rapidly. The wound continued to slough in spite of all our efforts. Blood transfusions were given frequently and from 6,000 to 8,000 cc. daily of dextrose and saline solution was given intravenously and subcutaneously. The patient gradually failed and died on the twentieth postoperative day.

Postmortem examination was performed by one of us (W. P. L. McB.). The body showed moderate loss of weight. The thorax was well developed and there were no palpable lymph nodes. There had been a recent surgical incision in the upper part of the abdomen which had been covered with thick paste, and there was a rubber drain protruding from the incision. Permission was limited to abdominal exploration, which was accomplished by enlarging the surgical incision. The edges of this incision had been digested by the intestinal juices and the upper part of the abdomen was found to be filled with fecal matter. Examination showed that the suture line had been broken at the site of anastomosis, which allowed fecal matter and intestinal juices to escape. At the junction of the cecum and the ascending colon there was a complete separation of the bowel, and on closer examination the remains of a thrombosed vessel were seen beneath the serosa running parallel to the line of separation. The ends of the bowel at the point of separation were ragged and necrotic. It would appear that the thrombosed vessel produced a circular area of ischemia, which in turn was digested by the intestinal juices, permitting the intestine to separate. The liver showed a moderate amount of purplish mottling, the edges were rounded and no nodules were noted. The gallbladder was slightly distended but there was no stone in the common duct. The spleen was slightly enlarged and the cut surface was soft, pulpy and dark red. The pancreas was normal. The kidneys were not adherent to the surrounding fat, the capsule stripped easily leaving a smooth surface, and on cut section the pyramids were sharply outlined with the cortex of normal thickness. The adrenals, ureters bladder and prostate were normal. No demonstrable metastases to the lymph nodes were present.

On microscopic examination sections taken from the duodenum showed destruction of the mucosa and infiltration of the muscular coats with leukocytes. The serosa was covered with a purulent exudate. The liver showed cloudy swelling and chronic passive congestion. The spleen showed congested sinuses and a moderate number of inflammatory cells. Examination of the pancreas, adrenals, kidneys and bladder was negative.

COMMENT

Etiology.—The age incidence of leiomyosarcoma of the duodenum in the reported cases has varied between 34 and 67 years. Of the six patients with this condition on record, four have been men and two women.

Pathology.—In the strict sense of the word, the term leiomyosarcoma should be abandoned in favor of the term malignant myoma, the term sarcoma being reserved for malignant tumors with their origin in the connective tissue. But since the term has become an



Fig. 2.—Section of leiomyosarcoma of the duodenum under higher power than in figure 1.

accepted one in our present day literature there seems to be no reason to drop it. Malignancy, hemorrhage and degeneration are the outstanding characteristics of a sarcoma.

The histologic diagnosis of any sarcoma may be one of the easiest or one of the most difficult tasks that confront a pathologist, depending chiefly on the degree of differentiation. Those showing the least differentiation are usually the most malignant and to them the terms "small round cell sarcoma," "large round cell sarcoma," "mixed cell sarcoma" and the like have been applied. Here again an unsatisfactory nomenclature must be accepted. Conversely, the more differentiated the tumor becomes the less malignant it becomes and, as a corollary, the more it resembles some normal tissue. To these tumors the terms "fibrosarcoma," "myxosarcoma" and the like have been applied.

Hemorrhage in any new growth should arouse one's suspicions that it is liable to prove to be a sarcoma.

The vessels in this type of growth are thin walled, easily invaded and, according to Broders,[8] "the tumor cells grow right up to the vessel walls." Associated with hemorrhagic tendencies is the frequency of mucoid degeneration or, as in our case, liquefaction and suppuration of the tissue.

Leiomyosarcoma, on account of its source of origin in the muscular wall, tends to grow outward so that the lumen of the bowel is not encroached on. This is in contrast to lymphosarcoma, which tends to obliterate the lumen of the bowel.

Treatment.—Surgical removal, when feasible, offers the only hope of a cure. Since most of the tumors are pedunculated, complete removal with a cuff of the duodenum at the site of origin is often possible. If the lumen of the bowel is insufficient after closure of the rent, a short circuiting anastomosis may be made.

SUMMARY

The five cases of leiomyosarcoma that are reviewed and the sixth case that is reported here have many characteristics in common, which are as follows:

1. The usual period during which the patients were aware of symptoms was from seven weeks to three months. In three cases it was three months, in one case two months, in one case seven weeks and in one case it was not stated.

2. The most common site of origin was the third portion of the duodenum.

3. X-ray examination has failed in every instance to show constriction of the duodenum and has been of no aid in making the diagnosis except in one case, that of Brdiczka.

4. The size and shape of the tumor has been that of a fetal head in four cases, of a grapefruit in one case and of a uterus in one.

5. In no case has the tumor had a capsule. Necrosis, abscess formation and fistulization to the lumen of the bowel are common.

6. The growth does not cause stenosis or dilatation of the lumen of the bowel, and it grows by pushing the transverse mesocolon ahead; hence surgical removal without damage to the superior mesenteric artery and its branches is rendered difficult. Trauma to the vessel intima sustained by retraction may lead to thrombosis, which in turn may cause a breaking down in the anastomosis and other necrotic areas in the bowel, as in our case.

7. Four patients have undergone operation; one lived four months and three died within three weeks. Two patients were not subjected to operation; one lived four months and one died in one week. In every case death has been caused by pulmonary embolism or pulmonary thrombosis with one exception, namely the case of Silverstone, in which the cause of death was thyrotoxicosis.

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8. Broders, A. C.: Personal communication to the authors.

Applicants Refused for Insurance.—Life insurance companies of the United States declined 335,000 applications for ordinary life insurance in 1937. How many of these who were refused suspected that they were not acceptable for life insurance is, of course, not known. Experience indicates that far the greatest number believed themselves to be in good health. —Sensenich, R. L.: The Quantity and Quality of Life, *Milwaukee M. Times*, April 1939.

STRAMONIUM POISONING

A REPORT OF TWO CASES

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Stramonium poisoning presents a definite clinical entity which has not been emphasized sufficiently in American medical literature. While it is not common, it does occur with enough frequency to warrant a thorough discussion of its manifestations, diagnosis, prognosis and treatment.

This form of poisoning follows ingestion of any part of the Jimson weed, a plant prevalent in this country and in all temperate and tropical zones. Jimson weed is only one of the various names by which it is known. Other names are Jamestown weed, thorn apple, stink weed, devil's apple and apple of Peru. Datura stramonium is the botanical term; the plant is a species of Solanaceae, or nightshade family. It is a large coarse herb which attains a height of from 3 to 6 feet, depending on the richness of the soil, with its branches almost as broad. The leaves are large and angular, from 4 to 6 inches long. The white flowers, which emit a strong sweet scent, are succeeded by egg-shaped seed capsules the size of a walnut and covered with numerous sharp spines. When ripe this seed vessel opens at the top, throwing back four valvelike forms and leaving a long central structure on which are many rough dark brown reniform seeds measuring 2 by 3 mm. All parts of the plant are poisonous, but especially the seeds, which contain the three alkaloids atropine, scopolamine (hyoscine) and hyoscyamine.



Datura stramonium, approximately one-third size.

Probably the first cases of stramonium poisoning reported in this country occurred in 1676 and are recorded by Beverley:[1]

> This being an early Plant, was gather'd very young for a boil'd salad, by some of the Soldiers sent thither, to pacifie the troubles of Bacon; and some of them ate plentifully of it, the effect of which was a very pleasant Comedy; for they turned natural Fools upon it for several Days. One would blow a Feather in the Air; another would dart straws at it with much Fury; and another stark naked was sitting up in a Corner, like a Monkey grinning and making Mows at them; a Fourth would fondly kiss and paw his Companions, and snear

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1. Beverley, Robert: History and Present State of Virginia, 1705, book 2, p. 24.

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in their Faces, with a Countenance more antik than any in a Dutch Droll. In this frantik Condition they were confined, lest they in their Folly should destroy themselves; though it was observed that all their Actions were full of Innocence and Good Nature. Indeed, they were not very cleanly; for they would have wallow'd in their own Excrements, if they had not been prevented. A Thousand such simple Tricks they play'd and after Eleven Days, return'd themselves again, not remembering anything that had pass'd.

An outbreak of stramonium poisoning equally striking and deserving particular emphasis because of the possibility of recurrence was described vividly by Garvin and Ruh [2] in 1923. Thirty boys, ranging in age from 6 to 8 years, picked and ate varying amounts of the seeds of the Jimson weed, which grew plentifully in the vicinity of their orphanage. Within a few hours, after the children had been put to bed, pandemonium broke loose. Some of the children began to bark like dogs, others tried to pick objects out of the air, while still others crawled under their beds crying and moaning. The visiting physician administered emetics and most of the patients were normal the next day, but several had a high fever for two or three days. It was noted that all the children had dilated pupils and a deep red flush over the entire body.

Watt and Breyer-Brandwyk [3] described an outbreak among forty-eight mine boys in Southwest Africa who had eaten beans containing the seeds of the stramonium plant. Ismael [4] recorded cases of poisoning from gruel which contained seeds that had been harvested with wheat.

The international aspect of this form of poisoning is reflected in the host of reports which are being added to the literature. Ismael [4] in Egypt, Mukopadhya [5] in India, Estapé and Bloise [6] in Uruguay, Neyron [7] in France, Howle [8] and Parkinson [9] in Australia, Van Ravenswaay [10] in the Netherlands and Grinnon,[11] Wilcox [12] and McNally [13] in the United States are only a few of the observers who have described this syndrome. By far the most complete summary on the subject is that of Jennings,[14] who reviewed the literature to 1935 and added two cases.

REPORT OF CASES

CASE 1.—J. Q., a white boy aged 13, was admitted to the John Gaston Hospital at 7:20 p. m. Sept. 25, 1938, in active delirium. The boy's father stated that the patient had seemed perfectly normal until about four hours before admission, when he rapidly lost consciousness, threshed wildly about and cried out incoherently. No history of premonitory symptoms could be elicited. One month before admission the patient had had chills, fever and sweats, in the order named, apparently malaria, "cured" by Groves chill tonic. There had been no relapses. The night prior to admission the patient, known to be asthmatic, had suffered a slight attack of asthma, which subsided spontaneously in two hours after he had vomited once. The father denied knowledge of all other symptoms, except that he had given his son two compound cathartic pills on the morning of admission, which resulted in one loose bowel movement associated with moderate bilateral lower abdominal griping.

At examination the patient was wildly delirious. He was well developed and well nourished and had an axillary temperature of 99 F., a rapid regular pulse rate of 150 a minute and a respiratory rate of 28 a minute. He was extremely restless, tossing all over the bed, picking at objects in the air and intermittently crying out shrilly. Choreiform movements of all four extremities were present, but there was no twitching of the face. The skin was flushed and dry. There was marked circumoral pallor but no exanthems. We were immediately struck by the extreme and equal dilatation of the pupils, remarking that he looked as though he had had a large dose of atropine. There was no reaction to light. The tongue was very dry and covered on the dorsum by a grayish fur. The mucous membranes of the mouth and throat were also flushed and dry. There were no exanthems. The rest of the examination of the head gave negative results. The neck was slightly stiff. Tachycardia was present, but otherwise the heart was normal. The lungs, abdomen and genitalia were all completely normal. Except for the active delirium, slight rigidity of the neck, choreiform movements and dilated pupils the neurologic examination gave negative results.

The laboratory procedures showed nothing abnormal except for a leukocyte count of 20,700 and an occasional estivo-autumnal malarial parasite. The spinal fluid was clear and colorless, flowed under normal pressure and contained 44 lymphocytes per cubic millimeter.

In spite of the leukocytosis and the bizarre physical signs, we immediately administered 15 grains (1 Gm.) of quinine dihydrochloride intramuscularly into the right buttock, fearing that we might be dealing with the pernicious comatose form of malaria. Three grains (0.2 Gm.) of soluble phenobarbital was given subcutaneously to control the mania, and a liter of 5 per cent dextrose in saline solution was administered every six hours by hypodermoclysis. Within a few hours he was sleeping quietly.

The next morning, twelve hours after admission, the patient recovered consciousness and stated that he did not remember anything that had transpired since 3 p. m. the previous afternoon. Except for marked thirst and blurred vision due to dilated pupils he had no complaints. His temperature, pulse rate and respiratory rate had returned to normal. The skin was no longer flushed, but the mouth was still dry. He drank tremendous quantities of water avidly.

Further questioning at this time revealed that two hours prior to the onset of his delirium he had gone out into a nearby field and had picked Jimson weed seeds, having been told that a tea brewed from these seeds was a sure cure for asthma. His mother poured four level tablespoonfuls of the seeds into a small kettle of boiling water and strained the tea through a cloth before giving him a cup of it. This he flavored with sugar and cream before drinking. He immediately began to feel drunk and had to lie down on his bed. He noticed extreme thirst and nervousness, which became progressively worse until he lost consciousness.

The patient was kept in the hospital for forty-eight hours and was then discharged free from symptoms, with the exception of moderate dilatation of the pupils.

A careful search in the records of the John Gaston Hospital revealed only one other case of stramonium poisoning:

CASE 2.—J. H., a Negro aged 18, was admitted to the John Gaston Hospital Aug. 4, 1937, because of irritability, dryness of the mouth and throat, wide dilatation of the pupils, which did not react to light, and exaggeration of the deep reflexes. The skin was hot and dry. The temperature was 102.4 F., the pulse rate 84 and the respiratory rate 20 a minute. Otherwise the physical examination gave negative results. He gave a

2. Garvin, J. A., and Ruh, H. O.: Acute Poisoning Due to Eating the Seeds of the Jimson Weed (Datura Stramonium), Arch. Pediat. **40**: 827-831 (Dec.) 1923.

3. Watt, J. M., and Breyer-Brandwyk, M. G.: Poisoning by Datura Stramonium L. (Stink-blaar; thorn-apple), J. M. A. S. Africa **1**: 562-563 (Nov. 12) 1927.

4. Ismael, A.: Poisoning by Datura and Hyoscyamus, Practitioner **94**: 121-128, 1915.

5. Mukopadhya, G. M.: Datura Poisoning, Indian M. Gaz. **48**: 312, 1913.

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10. Van Ravenswaay, A.: Two Cases of Poisoning by Seeds of Datura Stramonii, Nederl. tijdschr. v. geneesk. **57**: 298, 1921.

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12. Wilcox, H. B.: Two Cases of Stramonium Poisoning, Tr. Luzerne Co. M. Soc. **12**: 167-169, 1904.

13. McNally, W. D.: A Case of Stramonium Poisoning, J. A. M. A. **65**: 1640 (Nov. 6) 1915.

14. Jennings, R. E.: Stramonium Poisoning: Review of Literature and Report of Two Cases, J. Pediat. **6**: 657-664 (May) 1935.

history of having drunk tea made of Jimson weed seeds. Three grains of soluble phenobarbital was administered subcutaneously. Within thirty minutes he was well sedated, and he slept quietly all night. The next morning, eleven hours after admission, he appeared normal except for dilated pupils and said that he felt all right. At that time his temperature was 98.4 F., his pulse rate 88 and his respiratory rate 18. He was discharged from the hospital free from symptoms.

The symptoms, treatment and prognosis of stramonium poisoning have been beautifully reviewed by Jennings. He emphasized that the form in which the drug is taken has a great deal to do with the way it manifests itself clinically. When the seeds or leaves are eaten it may take hours for the symptoms to develop, because of the delay of absorption; when a tea made from the seeds is drunk, as in our two cases, the onset may occur within minutes. There may be variability not only in the time but also in the mode of onset. Poisoning by the seeds usually causes a maniacal picture, while ingestion of the leaves produces a comatose form. The degree of poisoning depends on the total quantity of the active principles of the weed absorbed, the potency of these principles, the promptness and the effectiveness of the treatment and the sensitivity of the patient to the three alkaloids atropine, scopolamine and hyoscyamine.

The maniacal form, as its name implies, is characterized by almost ceaseless and apparently purposeless activity. As in our first case, the symptoms may take the shape of choreiform movements of the extremities, with sudden almost clonic movements of the body. Both clonic and tonic convulsions have been reported by various authors. Associated with these convulsions may be opisthotonos simulating that of meningitis and, if the seizure lasts for any length of time, cyanosis. Patients with less severe involvement may engage in absurd pursuits such as picking at imaginary objects in the air, pretending that they are blowing feathers, laughing senselessly, barking like dogs, crawling under the bed, crying out repeatedly or pacing the room. Occasionally destructive impulses may come to the front, causing the patient to attack his attendants belligerently or to do himself bodily harm. A maniacal patient may rapidly go into coma.

The comatose form varies from mild stupor to profound coma with the loss of conjunctival and corneal reflexes. Depending on the depth of the coma, the patient may be easily aroused or may progress into a state of collapse with failing pulse, subnormal temperature, depressed respirations and deep cyanosis. Death sometimes follows, especially if heroic treatment is not administered without delay.

Two premonitory symptoms should be stressed: progressively increasing thirst and disturbances of vision. The patient may drink enormous quantities of water, as in case 1. Visual disturbances are readily accounted for by the marked dilatation of the pupils. Various other early symptoms have been described, such as a feeling of intoxication, euphoria, irritability, restlessness and fear. An occasional patient may suddenly lose consciousness without having noticed any of these prodromes.

The chief observation on physical examination is excessive dilatation of the pupils. In practically no other condition is mydriasis so extreme. There is no reaction to light or to accommodation. Second in importance is the condition of the skin, which is usually flushed, hot and dry. So vivid may be the diffuse erythema that it may simulate the flush of scarlet fever. Occasionally a nonpunctate scarlatiniform rash is present. The lips, tongue and buccal and pharyngeal mucosa are dry and diffusely hyperemic unless collapse with cyanosis is present. The neck may be slightly stiff, as in case 1. Tachycardia is almost invariably present, the pulse rate sometimes being as high as 140 a minute. According to Ismael, the rapidity of the pulse is the best index of the degree of intoxication. Fever may or may not be present; the temperature has been found to be as high as 105 F. Subnormal temperature accompanies collapse. The respiration is usually increased, but in the comatose form it is frequently depressed. Cheyne-Stokes and Kussmaul breathing have been reported. Vomiting, marked obstipation and urinary retention may complete the picture.

The duration of the symptoms depends on the amount of the active principles of the weed ingested, the potency of these principles, the sensitivity of the patient and the promptness and effectiveness of treatment. Most patients recover in one or two days except for the mydriasis, which may persist for a week or longer. When large quantities of the seeds are not evacuated from the gastrointestinal system, slow continuous absorption of the alkaloids occurs and the acute symptoms may persist for days, ending in collapse or slow improvement. McNally cited the case of a 7 year old boy who died in coma thirteen hours after eating 120 seeds. Other deaths have occurred.

Sequelae are not common. Transitory disorientation may persist for a few days, but usually the higher faculties are not damaged. However, cases of permanent insanity and complete amentia have been recorded.

Treatment to be effective must be prompt. As soon as the diagnosis is made or suspected the stomach should be lavaged with water or with 4 per cent tannic acid solution, which precipitates the alkaloids. While the stomach tube is in situ it is advisable to administer a large dose of magnesium sulfate, in order to sweep the poison out of the intestine. If any difficulty is met in passing the tube, emetics such as ipecac, mustard or apomorphine should be given without delay. A drop of croton oil has been recommended for its purgative effect.

Various sedatives may be employed to quiet the patient. In both of our cases we obtained good results with 3 grains of soluble phenobarbital administered subcutaneously. Paraldehyde by rectum, 25 per cent solution of magnesium sulfate intramuscularly, barbital and other barbiturates have been highly effective. Morphine is contraindicated because of its tendency to cause cerebral congestion and because of its known synergistic action with atropine and scopolamine, two of the three alkaloids of Datura stramonium. It is hardly necessary to add that a dark quiet room is conducive to sedation. Warm packs are thought to be of aid in relaxing the patient and in causing diaphoresis, which hastens excretion of the drugs.

Ismael, who had wide experience with stramonium poisoning in Egypt, recommended the use of pilocarpine as a physiologic antidote. Pharmacologically this drug would seem to be definitely indicated, since it has an antagonistic effect on the parasympathetic nervous system, but, as Jennings pointed out, the dose needed is impossible to determine, since it is so difficult to estimate the amount of poisonous alkaloids ingested. The safest way to give it is in small repeated doses, regulated according to the reaction of the patient. In elderly people it may cause pulmonary edema.

BLOOD SUGAR VERSUS URINE SUGAR

AS OBSERVED IN PATIENTS TREATED WITH PROTAMINE ZINC INSULIN AND WITH ORDINARY INSULIN

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If one reviews the literature on diabetes, especially the mode of diagnosis, the prognosis and the guidance of its treatment, one will find that the great majority of physicians depend much on the chemical analysis of the urine for sugar (dextrose). Indeed, this procedure has many practical advantages: it is easy to obtain a specimen and the examination may be made by the patient, it can be done within a few minutes and repeated as often as desired by the patient or the physician, it is free from the dangers of infection, and the apparatus is simply carried about.

For many years laboratory workers throughout the world have attempted to construct a satisfactory qualitative and quantitative method of studying substances that simulate reducing carbohydrate (true sugar or dextrose) in the urine. Up until the last few decades a reliable study of the elimination of sugar in the urine has been practically impossible because of the lack of proper or suitable technic.

PRODUCTION OF GLYCOSURIA

Since the adoption of the Benedict and the Fehling tests or some modification of them, physicians and laboratory workers have tried to determine more accurately the individual renal threshold for dextrose so as to enable the physician to calculate the diabetic patient's diet, estimate his insulin dose and govern his activities, thus intimately relating the renal threshold with the problem of the relationship of glycosuria to glycemia.

The term "glycosuria" itself has aroused much speculation. Many physicians use the term to indicate the first appearance of sugar in the urine. Benedict and his co-workers [1] feel that progress in the study of carbohydrate metabolism would be more rapid if the term "glycosuria" could be abolished. Since there is a constant presence of minimal traces of sugar in the normal urine, the term is without special significance and is misleading. They suggest employing the term "glycuresis" to indicate increased sugar, not a new appearance of sugar in the urine.

Peters and Van Slyke,[2] in view of the sharp difference between ordinary excretion and glycosuria, interpret the term "glycosuria" as the extraordinary appearance of dextrose in urine, and they feel justified in retaining the term "glycosuria." They also state that "the reduction of Fehling's or Benedict's copper solution may be due to nonglucose substances such as lactose or pentoses, or to a mere concentration in a urine of small volume per hour, of the unidentified reducing substances present in every normal urine, but ordinarily in too great dilution to affect the copper reagents used." [2]

Sherrill and MacKay [3] state that the normal retention of dextrose in the blood by the kidney appears in all probability to be brought about by the almost complete reabsorption by the tubules of dextrose that is filtered from the plasma in the glomerular filtrate. They feel that this reabsorption is normally not absolutely complete, since Peters and Van Slyke [2] and others have shown that the ordinary urine of all normal persons contains small quantities of reducing substances which could be found by the use of methods sensitive to low concentrations but not by the ordinary qualitative sugar test with Fehling's or Benedict's copper solution. This amount in the urine they state is equivalent to about 0.3 to 1.5 Gm. of dextrose excreted in twenty-four hours in a concentration of from 0.02 to 0.10 per cent and for practical purposes may be considered negative.

In view of the general acceptance of the fact that renal threshold for dextrose is considered to be that concentration of sugar in the blood above which sugar appears in the urine, Sherrill and MacKay [3] conclude from their observation that this threshold for dextrose is that concentration of dextrose in the plasma at which the reabsorption of dextrose by the renal tubules from the glomerular filtrate is insufficient to prevent the excretion of an appreciable quantity of dextrose in the urine. A factor they feel in determining this concentration is the degree of renal activity—not alone the number of functioning renal units but the activity of these or the volume of glomerular filtrate being formed in each individual unit. Van Slyke [4] states that, if the renal tubules are not normally active in the reabsorption, dextrose may get through into the urine even when the blood sugar content registers normal. In that case a condition of renal "glycosuria" exists. Also this not infrequently occurs in patients with the degenerative type of nephrosis.

Page and Corcoran [5] are of the opinion that the presence of sugar in the urine will depend on the efficiency of the tubular mechanism and on the blood sugar level. "From contemporary evidence," they state, "it appears likely that the reabsorption of carbohydrate by renal tubules, like the secretion of phenol red, is dependent upon the presence of some hypothetical body in tubule cells which acts as a transfer mechanism." Ni and Rehberg [6] have shown the content of dextrose in the reabsorbed fluid to vary between 168 mg. and 498 mg. per hundred cubic centimeters; they also have observed greater variations and that sugar reabsorption goes on all the time but that the increase is less and less as the blood sugar gets higher. They are of the opinion that one of the factors determining the reabsorption of sugar may be the difference of concentration between blood and urine at the place of reabsorption. Himsworth [7] concludes from his observation that the concentration of the sugar reabsorbed is determined by the sugar content of the blood in the peritubular capillaries.

Hawkins and his co-workers [8] feel that the only reasonable method of expressing the dextrose in the urine is in the rate of dextrose excreted per unit of

The diets prescribed in this study were prepared under the direction of Mary Ann Carver, B.S., chief dietitian of the diabetic department of the Philadelphia General Hospital. The laboratory details of the experiment were carried out by Daniel Klein, Ph.D., chief chemist of the diabetic department, and his two associates Miss Mildred Inwood, B.S., and Miss Mildred Rose. Drs. Leon Smelo and Philip Gerber gave the author valuable assistance.

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time. Benedict and his co-workers [1] feel that the volume of urine and qualitative tests are of little significance and that the real criterion is absolute quantity of sugar eliminated per hour. Sugar, they say, may undergo variations as wide as 100 per cent or more in absolute amount per hour and in percentage in the urine. They feel that the relationship of sugar in the urine to the ingestion of food must be kept constant during such an experiment and that an accurate measure of the influence of any substance on the excretion of sugar can be determined only by a quantitative determination. Myers [9] believes that the intervals of the examination of the urine should not be much longer than two hours, or a significant sugar increase may be lost in the normal fluctuation for a longer time. Thus, according to Benedict and his colleagues [1] an increase of 15 mg. of sugar eliminated in the first two hours would usually be definitely positive while the same absolute increase in the urine of five or six hours might not warrant a definite conclusion.

DETERMINATION OF RENAL THRESHOLD FOR DEXTROSE

Himsworth feels that in view of the known variations of the blood sugar many investigators have based their conclusions on the presence or absence of sugar in a twenty-four hour specimen, in spite of the obvious inaccuracy of such conclusions. Frank [10] was able to show from observations two different blood sugar levels —one level at which sugar first appears in the urine and the other level at which sugar disappears in the urine; the former was the higher blood sugar level. Since his observations, other investigators have confirmed his results and have established two renal thresholds, one of appearance and the other of disappearance. Sherrill and his co-workers [3] have concluded from their experiments on the determination of the renal threshold for dextrose that "the threshold as a 'normal figure' is a misnomer; also that a normal average for the renal threshold should never be given because it may be misleading." They believe that for practical purposes the renal threshold for dextrose is of clinical interest only when dextrose is detected in the urine, for this indicates either hyperglycemia or a so-called renal diabetes. In the absence of sugar in the urine qualitatively, they feel that the renal threshold has no place. Williams and Humphreys' [11] studies of the renal threshold for sugar in diabetes found no constant blood sugar level for the appearance of urinary sugar. They concluded that diabetes should be controlled on the basis of the blood sugar level rather than by urine tests.

Since it is generally understood that the apparent renal "threshold" for dextrose of normal persons is that concentration of sugar in the blood above which the sugar appears in the urine, the average figures have been variously given for venous blood between 160 and 180 mg. per hundred cubic centimeters. But these figures are subject to much controversy. John [12] notes in a series of 337 cases of ambulatory patients with glycosuria, subjected to a dextrose tolerance test, that in 63 per cent the glycosuria was of the nondiabetic type and in 37 per cent of the diabetic type. He also observed cases in which no glycosuria was detected throughout the dextrose tolerance test, although the blood sugar rose very high, in certain cases above 200 mg. per hundred cubic centimeters. He concludes that there is no such thing as a normal "threshold" but that for all persons there is an individual "threshold." Lawrence [13] gives the average figures for renal "threshold" for sugar at about 0.17 to 0.19 per cent blood sugar and admits that variations occur in diabetes. These changes consist in a raising of the threshold above 0.2 or even 0.3 per cent blood sugar, with the result that urine tests for sugar give little indication of the satisfactory control of the disease, making the patient appear sugar free when the blood sugar is high. Mackay [14] concludes from his observations that the renal threshold for sugar, if there is one, is a much more variable factor than is generally supposed. Glassberg [15] states that the kidney threshold for dextrose shows wide individual differences. It may be below 100 or above 250 mg. of true blood dextrose. It appears independent of age and sex.

Richardson [16] observes that, if a renal threshold above 180 mg. is found, urine examinations cannot be depended on to maintain a satisfactory adjustment. Ward [17] found in routine blood sugar examinations of 257 patients that 110 of these patients had a hyperglycemia and twenty-six patients of the latter group glycosuria. He emphasized the practical value of routine blood sugar studies in the detection of disturbances of carbohydrate metabolism. Goto and Kuno's [18] studies on normal adults found renal threshold for dextrose to be between 114 and 231 mg. per hundred cubic centimeters. Campbell and his co-workers [19] conclude from their observations that the renal threshold for true sugar varies from 99 to 228 mg. per hundred cubic centimeters. Joslin [20] gives the average between 0.16 and and 0.18 per cent of sugar for the whole blood. Levinson and MacFate [21] give for renal threshold from 140 to 200 mg. per hundred cubic centimeters. Holst [22] observed that 70 per cent of the 150 persons who were refused life insurance because of glycosuria were found to have no pathologic condition and that in the remaining 30 per cent of this group diabetes developed in between five and sixteen years. Williams and Humphreys [11] also found persons rejected for life insurance and treated as diabetic patients because of the occasional or even frequent finding in the urine of copper reducing substance with a normal power to utilize dextrose.

Rabinowitch [23] emphasizes the fact in his observations that for certain persons, following the institution of insulin treatment the absence of sugar in the urine ceases to be a reliable index of progress. Major and

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Davis [24] have observed diabetes with blood sugar ranges from 333 to 425 mg. per hundred cubic centimeters without glycosuria. Williams and Humphreys [11] say that in severe cases of nephritis patients may excrete small quantities of sugar in the urine, frequently giving rise to the misapprehension that true diabetes exists. Mason [25] found from his observations in acute nephritis that in hourly periods after the ingestion of 100 Gm. of dextrose the blood sugar values were elevated from 0.10 to 0.217 per cent without urinary sugar. He concludes that the renal threshold is elevated in acute nephritis. Myers and Bailey [26] found blood sugar levels to range from 0.10 to 0.22 mg. per hundred cubic centimeters with no glycosuria in twenty-three observations on seven patients with interstitial nephritis. Faber's [27] interpretation of glycosuria is conducive to possible error in two directions: "(*a*) Harmless excretion of sugar may be regarded as an incipient diabetes, an error which may have economic, social and, not least important, psychic consequences of a grave nature for the patient, (*b*) it will be just as unfortunate if early diabetes is regarded as benign glycosuria, for the mistake in such cases is often not discovered until the disease has progressed and is perhaps already so far advanced that the most appropriate time to attack and arrest its development has passed."

TABLE 1.—*Average Blood Sugar Levels with No Excretion of Dextrose*

Case	Sex	Age	Complications	Insulin per Day: Protamine	Insulin per Day: Ordinary	Insulin per Day: Total	Blood Sugar: 1 Hr	Blood Sugar: 2 Hr	Urine Sugar in Grams
41	♀	63	Coronary occlusion				178	143	Negative
39	♀	65	Gangrene of 1-2 toe of left foot				185	135	Negative
21	♀	42	Frontal sinusitis	9	8	17	142	129	Negative
17	♂	66	Cardiac decompensation	24	38	62	203	204	Negative
11	♀	37	Syphilis	11	20	31	191	174	Negative
22	♀	73	Infected callus on left large toe		50	50	190	128	Negative
8	♂	71	Bilateral amputation	16	16	32	204	185	Negative
69	♀	57	Cataract of right eye	20	12	32	200	169	Negative
72	♀	81	Second degree burn on right foot		10	10	198	172	Negative
5	♀	67	Cardiac decompensation	18		18	137	138	Negative
78	♀	70	Diabetic ulcer of foot (right)	10	34	44	254	190	Negative

EXPERIMENTAL OBSERVATIONS

In view of this great diversity of opinion among so many investigators and clinical workers throughout the world concerning the relationship of glycosuria to glycemia in the problem of renal threshold for dextrose, and realizing that treatment of numerous diabetic patients is frequently guided by the results of the chemical analysis of the urine for sugar, my associates and I decided to ascertain in a large number of diabetic patients under our care the relationship of glycosuria to glycemia as produced by their regular prescribed diets and insulin (protamine and ordinary).

Of the large total number of diabetic patients under observation, studies on only sixty-one patients were tabulated because we felt that these were sufficient to explain our conclusions. There were twenty-seven males and thirty-four females; age variations were from 5 to 87 years. The duration of diabetes varied; some were unaware of the existence of diabetes until a few days before they entered the hospital; in others the diabetes had existed from several months to twenty-five years. Many suffered from more than one apparent complication, and the diabetes of the group was of varying severity.

The groups studied were those (1) on protamine zinc insulin, (2) on ordinary insulin, (3) on protamine and ordinary insulin and (4) on diet alone. The insulin (both forms) prescribed was given within fifteen to twenty minutes after meals [28]—the protamine, when prescribed with the ordinary insulin, was given immediately after it. In a few cases protamine zinc insulin alone was given after either breakfast or supper for one meal, while the ordinary insulin was given after the other meal (breakfast or supper). No form of insulin was prescribed for lunch.

We realize that the paramount disturbance in diabetes is in the power of oxidizing the carbohydrate of the meal and that the chief rise in blood sugar and the greatest likelihood of glycosuria, whether in mild or in severe diabetes, occurs usually after the morning meal [29]. In mild diabetes the fasting blood sugar is not infrequently within the normal range, but following the meals it often rises to various abnormal levels [8]. For this reason we obtained our blood specimen for the estimation of dextrose after breakfast (one and two hours), while the urine specimen was taken within the three hour interval after breakfast, after the fasting urine had been discarded.

All the patients under observation emptied the bladder (fasting urine) in the morning before breakfast, after which they ate their regular prescribed breakfast followed by insulin (ordinary or protamine or both) if prescribed. An hour later a blood specimen (venous) was obtained and another an hour later (one to two hour specimens) for the estimation of dextrose. All the urine voided within three hours after breakfast was examined for dextrose content in grams.

TABLE 2.—*Average Blood Sugar Levels with Average Excretion of Dextrose Less Than 1 Gm.*

Case	Sex	Age	Complications	Insulin per Day: Protamine	Insulin per Day: Ordinary	Insulin per Day: Total	Blood Sugar: 1 Hr	Blood Sugar: 2 Hr	Urine Sugar in Grams
46	♀	60	Infected callus on left large toe				212	224	0.8
20	♀	60	Diabetic ulcer of right foot	20	55	75	182	197	0.4
18	♀	68	Perforated appendix	11	47	58	243	203	0.07
15	♂	72	Malnutrition		26	26	267	183	0.18
23	♀	57	Carbuncle on the buttock	15	10	25	180	105	0.8
27	♀	49	Carbuncle on the neck, abscess on the thigh	57	39	96	246	202	0.2
9	♂	58	Carcinoma of the tongue	13	19	32	204	175	0.05
60	♂	70	Gangrene of right great toe	30		30	170	179	0.7
31	♀	58	Hysterectomy		10	10	228	171	0.6
71	♂	57	Cellulitis of right foot				183	163	0.7
56	♀	57	Bilateral cataract	38		38	223	291	0.7
53	♀	63	Infected left large toe		60	60	227	189	0.2

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In our blood sugar estimation we obtained venous blood in preference to the arterial (capillary or cutaneous). We realize that the ideal condition would be to use arterial plasma; but this is not practical, and it has become customary to use the whole blood. The reason for the venous method is that it is the one generally carried out in our department.

TABLE 3.—*Average Blood Sugar Levels with Average Excretion of Dextrose Between 1 and 5 Gm.*

Case	Sex	Age	Complications	Insulin per Day: Protamine	Insulin per Day: Ordinary	Insulin per Day: Total	Blood Sugar: 1 Hr.	Blood Sugar: 2 Hr.	Urine Sugar in Grams
32	♀	48	.....	..	40	40	208	171	1.5
67	♀	55	.....	..	90	90	324	274	2.2
13	♂	55	Acidosis	40	50	90	166	173	1.4
12	♂	24	Retinitis, partial deafness	42	29	71	287	201	1.7
16	♀	61	Infected callus on right large toe	20	44	64	286	260	1.5
49	♀	48	Acidosis	24	46	70	237	167	3.8
47	♂	65	Amputated left leg	..	36	36	224	208	4.1
45	♀	70	Infected foot (right)	15	43	58	330	206	1.9
42	♂	40	Carbuncle on the buttock	12	12	24	190	130	1.7
37	♀	72	.....	21	14	35	287	215	1.4
36	♀	44	Procidentia	10	17	27	187	156	3.0
63	♀	74	.....	..	75	75	244	232	1.3
62	♀	45	Cardiac decompensation	37	22	59	182	193	1.3
51	♀	49	Left perirenal abscess	49	97	146	306	383	3.5
70	♂	45	Infected callus on left large toe	..	45	45	265	199	2.8
50	♂	75	Infected callus on right large toe	..	50	50	200	159	1.6

There is much diverse opinion as to the arteriovenous difference in blood sugar, in spite of the fact that the consensus is that in normal persons the postprandial blood sugar is usually slightly higher in the arterial than in the venous, but in the fasting state the sugar content of the two bloods is usually the same. In moderate diabetes the divergence between arterial and venous blood sugars is diminished, and in severe diabetes it may be absent or even reversed, the venous blood sugar actually exceeding the arterial.[2] Rabinowitch [30] points out that the absence of any arteriovenous difference in the presence of hyperglycemia following the ingestion of dextrose appears to be an indication for the use of insulin. Peters and Van Slyke [2] state that the presence of arteriovenous difference does not preclude but that its absence strongly indicates true diabetes. In view of the fact that our examinations of blood sugar were made following breakfast and were not fasting, and that the blood sugar concentration (postprandial) is usually higher in the arterial than in the venous, we may interpret our venous blood sugar concentration to be lower than the arterial for those on insulin therapy if we accept Lawrence's [31] explanation that insulin restores the normal difference between arterial and venous blood sugar in those diabetic patients in whom it did not exist.

The diets prescribed ranged from 100 to 250 Gm. of carbohydrate, from 60 to 100 Gm. of protein and from 80 to 150 Gm. of fat daily, well balanced, rich in vitamins and all the essential elements.

Thus in our group of patients each averaged approximately a total of three blood sugar examinations for each of the two hours following breakfast and three urine tests for dextrose within the three hour interval. The postprandial examinations (blood and urine sugar) were repeated at intervals of five or more days. In table 5 are tabulated results of separate examinations. Because of the difficulties frequently encountered, especially among the elderly diabetic patients, in obtaining a specimen of urine, we utilized the three hour interval after breakfast for obtaining the urine, withdrawing specimens of the blood at the end of each one and two hour (postprandial) interval.

In our method of administering insulin we tried to avoid the sudden alteration or reduction of the blood sugar levels so as to reduce the possibility that occurs occasionally of instances in which the threshold of appearance is higher than the threshold of disappearance, probably causing glycosuria to occur on one occasion and not in another, with a blood sugar of approximately the same level or value. By preference we slowly reduced the blood sugar level and thereby attained more accurate results.

In the twenty-four hour urine study we took another group of fourteen patients on insulin (protamine and ordinary and the two combined). The total urine voided in twenty-four hours was collected and examined for the number of grams of dextrose. The blood sugar estimations were made one and two hours after breakfast. Not infrequently the fasting blood sugar was taken in conjunction with postprandial blood sugars as shown in table 6.

RESULTS

We observed, as shown in table 1 (zero group), patients with a total average blood sugar level above normal, occasionally over 200 mg. per hundred cubic centimeters at the end of the first or the second hour who had no "spill" or excretion of dextrose in the urine. In the individual blood sugar examinations of these patients following their breakfast (postprandial) practically the same observations were found. Higher blood sugar levels without glycosuria were observed with both forms of insulin therapy (ordinary and protamine zinc insulin) than with either insulin alone or without insulin.

Table 2 classifies a group of patients whose average spill was less than 1 Gm. of dextrose in the urine. This amount of excretion in the urine is often considered of "no significance" by many physicians. But in this group one finds that many of the patients averaging high levels of blood sugar at the end of the first and second hour spilled less dextrose in the urine than did those averaging low levels of blood sugar.

TABLE 4.—*Average Blood Sugar Levels with Average Excretion of Dextrose Exceeding 5 Gm.*

Case	Sex	Age	Complications	Insulin per Day: Protamine	Insulin per Day: Ordinary	Insulin per Day: Total	Blood Sugar: 1 Hr.	Blood Sugar: 2 Hr.	Urine Sugar in Grams
20	♂	17	None	12	19	31	219	169	14.07
68	♂	72	Gangrene of right toe	14	52	66	277	223	6.03
43	♀	28	None	11	20	31	345	287	9.5
3	♂	37	Acidosis, right optic atrophy	15	40	55	286	223	6.6
76	♂	18	None	10	25	35	322	330	15.4
75	♂	57	None	..	62	62	260	294	7.0
73	♂	69	Gangrene of both great toes	10	52	62	271	233	9.7
54	♀	77	Osteomyelitis of left great toe	..	60	60	289	280	23.0
52	♀	67	Gastro-enteritis	49	97	146	285	252	5.2

In the separate or individual blood sugar examinations of these same patients, as in case 15 on ordinary insulin, we found that the blood sugar level at the end

30. Rabinowitch, I. M.: Simultaneous Determination of Arterial and Venous Blood Sugars in Diabetic Individuals, Brit. J. Exper. Path. 8: 76-84 (Feb.) 1927.

31. Lawrence, R. D.: Effect of Insulin on the Sugar Content of Arterial and Venous Blood in Diabetes, Brit. M. J. 1: 516 (March 22) 1924.

of the first hour after breakfast rose to 296 mg. per hundred cubic centimeters; at the end of the second hour it descended to 212 mg. with no spill of the dextrose in the urine within the three hour period. At another interval, a few days later, it ascended to 320 mg. per hundred cubic centimeters at the end of the first hour and descended to 234 mg. at the end of the second hour with 17 Gm. of dextrose in the urine. In case 18 on protamine and ordinary insulin at the end of the first hour the patient's blood sugar level was 292 mg. per hundred cubic centimeters; the second hour it descended to 240 mg. with a spill of 0.3 Gm. of dextrose in the urine. At another interval, three days later, at the end of the first hour it was 232 mg. and the second hour 210 mg. with no spill of dextrose in the urine. In case 25, on protamine and ordinary insulin at the end of the first hour the blood sugar was 157 mg. per hundred cubic centimeters; the second hour it descended to 123 mg. and 0.8 Gm. of dextrose was spilled in the urine; at another interval, the next day the first hour the blood sugar rose to 208 mg. per hundred cubic centimeters; the second hour it descended to 180 mg. with no spill of dextrose in the urine. In case 56, on protamine zinc insulin in the first hour the blood sugar level was 162 mg. per hundred cubic centimeters, the second hour 172 mg., and 0.7 Gm. of dextrose was spilled in the urine; at another interval, two days later, it was 284 mg. the first hour and 370 mg. the second hour and 0.6 Gm. was spilled in the urine. In case 71, without insulin the blood sugar at the first hour was 134 mg., 155 mg. the second hour, and 2.8 Gm. was spilled; at another interval, several days later, the blood sugar the first hour was 224 mg., the second hour 206 mg., with no spill.

TABLE 5.—*Individual Blood Sugar Levels with Variations in Quantitative Excretion of Dextrose*

Case	Sex	Age	Complications	Insulin per Day: Protamine	Insulin per Day: Ordinary	Insulin per Day: Total	Blood Sugar: 1 Hr.	Blood Sugar: 2 Hr.	Urine Sugar in Grams
1	♂	75	Gangrene of left foot	14	..	14	240	142	2.1
				18	..	18	262	206	Negative
				18	..	18	240	228	1.4
10	♀	63	Gangrene of large left toe	10	20	30	192	125	Negative
				..	..	..	234	246	0.6
				..	..	..	232	178	2.4
12	♂	24	Optic atrophy, partial blindness and deafness	20	25	45	280	268	Negative
				10	8	18	334	252	0.6
				12	33	45	270	195	Negative
				20	30	50	230	138	3.7
				15	30	45	410	338	1.0
15	♂	72	Malnutrition	..	22	22	232	169	Negative
				..	..	..	288	169	0.2
				..	..	..	320	234	0.7
				..	..	..	296	212	Negative
18	♀	68	Perforated appendix	12	53	65	210	197	Negative
				12	58	70	292	240	0.3
				12	50	62	240	166	Negative
19	♂	65	Duodenal ulcer	24	40	64	240	264	0.4
				24	40	64	236	244	0.4
				24	56	80	228	220	Negative
24	♂	67	Abscess of left foot	12	35	47	163	105	0.3
				14	16	30	186	126	Negative
				..	32	32	206	164	Negative
25	♀	60	Osteomyelitis of left great toe	20	55	75	157	123	0.8
				20	55	75	208	180	Negative
38	♀	62	Uterine prolapse	..	56	56	234	175	1.0
				..	45	45	226	176	Negative
				..	40	40	208	134	0.5
42	♂	60	Cataracts, carbuncle on buttock	10	15	25	222	165	Negative
				..	..	..	184	107	Negative
				10	10	20	202	168	1.3
64	♂	63	Cardiac decompensation; left leg amputated in 1932	..	10	10	210	212	1.1
				..	15	15	162	163	Negative
				..	25	25	212	185	Negative
71	♂	57	Cellulitis of right foot	..	..	..	134	155	2.8
				..	..	..	186	125	Negative
				..	..	..	224	206	Negative
28	♂	70	Carbuncle on neck	12	35	47	240	240	0.5
				..	10	10	193	152	Negative
				..	..	..	204	162	0.8

Thus the amount of excretion or spill of dextrose in the urine after breakfast in relation to the blood sugar levels in the individual patients observed in these cases appears to correspond with that of the patients whose averages are given in table 2, in that many of the patients with high blood sugar levels spilled less dextrose than those with low blood sugar levels.

These patients spilled an average of between 1 and 5 Gm. of dextrose in the urine. There were a few patients with low average levels of blood sugar whose average spill within the three hour period was greater than those with a high level of blood sugar; e. g., compare case 51 with case 49; case 36 compared with the rest with the exception of cases 13, 47 and 62. We have also observed that patients excreting or spilling occasional dextrose in the urine, approximately the same amount within three hours after their breakfast, had variable blood sugar levels at the end of the first and second hour (cases 13, 12, 16, 45, 42, 37, 32, 63, 62 and 50).

In table 4 are grouped those patients who excreted a total average of dextrose in the urine above 5 Gm. In this group are some patients whose average spill of dextrose in the urine was greater with a low level of blood sugar than others with a high level, as in case 29 compared with the rest of the group excepting case 76.

TABLE 6.—*Individual Blood Sugar Levels with Dextrose Excretion in Twenty-Four Hour Urine*

Patient	Sex	Age	Complications	Insulin per Day: Ordinary	Insulin per Day: Protamine	Insulin per Day: Total	Blood Sugar Postprandial: Fasting	Blood Sugar Postprandial: 1 Hour	Blood Sugar Postprandial: 2 Hours	24 Hour Urine Sugar in Grams
M. F.	♀	57	None	18	10	28	...	292	228	16.0
				21	10	31	300	396	304	17.6
I. K.	♀	58	None	27	..	27	100	196	318	Neg.
				30	..	30	...	186	182	Neg.
T. K.	♀	36	None	50	12	62	190	...	284	Neg.
				60	12	72	175	222	178	Neg.
M. S.	♀	50	None	40	10	50	186	250	218	Neg.
				46	20	66	163	...	102	Neg.
E. S.	♀	70	Diabetic ulcer on right large toe	15	..	15	...	390	308	Neg.
				48	10	58	...	326	356	0.5
				38	..	38	...	288	250	2.2
B. S.	♀	46	Amputated left leg	352	..	352	...	...	240	10.4
				200	..	200	...	...	324	Neg.
				140	..	140	...	...	276	Neg.
A. B.	♀	46	None	15	..	15	...	...	188	10.6
				40	20	60	...	...	200	Neg.
				10	12	22	...	...	286	23.0
E. B.	♀	63	None	150	40	190	...	...	232	Neg.
				170	60	230	...	...	190	Neg.
O. S.	♀	17	None	55	58	113	192	...	308	Neg.
				50	50	100	68	182	102	4.6
M. B.	♀	63	Diabetic ulcers on both feet	27	10	37	160	252	200	19.2
				30	10	40	...	254	200	Neg.
E. B.	♀	39	Hysterectomy	110	10	120	280	340	310	16.3
				120	30	150	252	340	320	64.0
				115	15	130	...	...	292	20.8
N. C.	♀	47	Diabetic ulcer on right foot	10	..	10	...	234	204	Neg.
				13	..	13	126	192	257	Neg.
				10	..	10	...	200	131	Neg.
I. F.	♀	63	Osteomyelitis of phalanges of 3d right toe	63	20	83	...	210	190	Neg.
				80	20	100	...	183	210	Neg.
				..	..	..	...	212	178	Neg.
M. C.	♀	64	Cellulitis of left great toe	10	..	10	...	236	240	Neg.
				13	..	13	...	210	157	Neg.

In this group are also patients whose average blood sugar levels were lower but who were excreting more dextrose than many of those with higher blood sugar in other tables (those in the group in table 3 whose average spill was between 1 and 5 Gm.). A few also in table 2 who spilled less than 1 Gm. approached the blood sugar levels of those in table 4.

In comparing the average blood sugar levels given in table 4 with the individual blood sugar levels of those

of other groups, such as those in table 5, one finds that many of the patients shown in table 5 at infrequent intervals had higher blood sugar levels with no spill, as in cases 1, 12, 15, 18, 19 and 38.

Table 6 includes a few of the patients whose blood sugar level after meals was far above normal but whose twenty-four hour urine was normal. This was observed in patients given combined protamine zinc insulin and ordinary insulin as well as in patients given ordinary insulin or protamine zinc insulin alone. Blood sugar as high as 390 mg. per hundred cubic centimeters one hour after breakfast was observed with normal twenty-four hour urine on ordinary insulin alone. With the exception of a few, the majority of the patients on the protamine and ordinary insulin therapy maintained moderately higher average levels of blood sugar after meals with normal twenty-four hour urine than those with either form of insulin alone. Our examination revealed that at one interval a patient excreted a variable amount of dextrose although having a lower postprandial blood sugar level than at another interval when the postprandial blood sugar level was high and analysis of the urine negative for sugar. These results occurred not only in different patients but also in the same patient at different times.

(To be continued)

Clinical Notes, Suggestions and New Instruments

NONTROPICAL SPRUE

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This case of nontropical sprue is reported because of the typical exacerbations with the patient on a faulty diet, the repeated remissions with the patient on a hospital sprue regimen, the association with a previously performed gastro-enterostomy, the marked loss of stature and the not unusual negative postmortem observations. The patient was hospitalized four times for sprue in a period of five years and three months and spent seventeen and one-half months in three different hospitals. The records from all these institutions are here brought together.

REPORT OF CASE

History and Examination.—A man aged 42, a chef, first seen by one of us on his first admission to the King County Hospital at Seattle May 21, 1931, had not been in the tropics. His complaints were diarrhea, weakness, loss of weight, pain in the back and swelling of the lower extremities. For many years he had had stomach trouble marked by postprandial epigastric pain usually relieved by food or soda, and certain types of food were very irritating to him. He recalled having been extremely and dangerously ill in 1918 with a gastric complaint associated with marked vomiting. From 1918 to 1925 he had constant recurrences of gastric pain and vomiting. In 1925 a gastro-enterostomy for "an ulcer of the distal end of the stomach and one in the colon" gave complete relief of previous complaints, but he commenced to have light yellow stools, occasionally but not always of a foul odor. From 1928 to the time of admission his stools had been watery and there were from five to eight a day with no blood or mucus. In the period of six or eight months prior to admission he lost about 40 pounds (18 Kg.). In the past year he had had edema occasionally. He was emaciated, weighing 115 pounds (52 Kg.), and was 5 feet 7 inches (170 cm.) tall, with a markedly protruding abdomen, slight pitting edema of the lower extremities, a shuffling gait and tenderness over an area on both sides of the vertebral column from the ninth to the twelfth vertebra.

Course.—During the first two months of hospitalization a mycelium resembling Monilia psilosis was isolated on one occasion from the stool. Marked anemia of the pernicious type developed, the red cell count falling from 3,750,000 to 2,630,000 and the hemoglobin content from 87 per cent to 50 per cent. The serum calcium content ranged between 5 mg. and 9.6 mg. per hundred cubic centimeters. X-ray studies revealed marked decalcification of the bones, a functional gastro-enterostomy passage and what appeared to be an old compression fracture of the twelfth dorsal vertebra. His edema vanished with bed rest, returned and again disappeared after the administration of ammonium chloride and salyrgan. With cod liver oil and a low fat, low carbohydrate and high protein diet he improved, although diarrhea was intermittently present. He was transferred to the convalescent unit of the hospital, where he received a general diet, radiant heat, general ultraviolet radiation and massage. He was discharged markedly improved. No laboratory data were gathered at the time of discharge.

A summary of the hematologic studies and serum calcium determinations made during his stay in this hospital, together with the determinations made during his subsequent hospitalizations, is presented in the accompanying table.

After his discharge Jan. 3, 1932, the patient was fairly well with a general diet and calcium taken by mouth. His appetite was good. He was physically able to drive an automobile and trailer from Seattle to Huntington, Long Island, N. Y. In November, eleven months after discharge, he contracted influenza and spent two weeks in bed. After this attack he rapidly lost vitality and weight (40 pounds; 18 Kg.). By March 1933, fourteen months after discharge from the hospital, his chronic diarrhea was again well established, the pain in his back had returned, edema of the ankles had reappeared and he was unable to regain weight. He was admitted to the Roosevelt Hospital, New York, December 27, complaining of diarrhea, yellow frothy stools and weakness. He had had a sore tongue and tetanic cramps in his hands for three weeks. His appearance and the results of examination were the same as on his previous hospitalization except that he was now definitely kyphotic and his knee jerks were hypo-active. The musculature was markedly wasted. The blood calcium content was 6 mg. and the serum phosphorus 3.5 mg. per hundred cubic centimeters December 28. A blood count showed 2,700,000 red cells per cubic millimeter, with a hemoglobin content of 65 per cent. With a Turner sprue diet, a reduced iron intake, liver extract given intramuscularly, calcium lactate, viosterol and ultraviolet radiation, in three weeks the serum calcium content had risen to 10 mg., the hemoglobin to 80 per cent and the red cell count to 2,780,000. X-ray studies of his bones again showed marked general osteoporosis. X-ray study of his gastrointestinal tract demonstrated a deformity of the duodenal cap and a functioning gastro-enterostomy passage. May 5, 1934, after a hospital stay of about five months, he was discharged for convalescence to the Burke Foundation, where he remained two weeks.

For the next months he restricted his activities somewhat but was strong enough to walk about daily. His appetite was good; his diet, however, was not always correct, since he frequently increased his carbohydrate at the expense of his proteins, and occasionally the total caloric requirement was not obtainable.

December 13 he reentered the Roosevelt Hospital with a history of having had fainting spells and attacks of unconsciousness, emotional upsets, a decrease in weight from 100 to 88 pounds (45 to 40 Kg.), gas after meals, dyspnea and, during the two weeks before admission, nausea, vomiting and diarrhea.

At this third hospital admission within a three and one-half year period the same physical signs were noted except that his emaciation had increased and his deformity had become accentuated. His blood pressure was 70/46 and his reflexes were hyperactive instead of hypo-active, as on the previous admission. Trousseau and Chvostek signs were absent. The serum calcium content had fallen to 6.3 mg. per hundred cubic centimeters, and a blood count showed 42 per cent hemoglobin and 2,080,000 red cells. During his five week stay he gradually improved and gained weight on a high protein, high vitamin and high calcium diet. His diarrhea was controlled and his general condition improved. His last blood study showed a calcium content of 8.3 mg. and a phosphorus content of 3.95 mg. per hundred cubic centimeters. The hemoglobin had risen to 60 per cent and the number of red cells to 3,100,000. He

left at his own request Jan. 18, 1935, with a diagnosis of recurrent sprue following gastro-enterostomy.

For seventeen and one-half months after discharge he lived outside of a hospital. During this time he attempted to take a high protein diet with calcium and viosterol. He had an occasional moderate attack of diarrhea but rarely vomited and was physically capable of driving a car and of carrying on modified activity. By April 1935 his general condition had improved, his appetite was good, he had returned to a general diet and he was able to resume his occupation on a small scale by making and selling sandwiches in a tavern. In November he again started to fail, lost weight and had a recrudescence of his chronic diarrhea. About Aug. 20, 1936, he had an acute attack of nausea and vomiting accompanied by loss of weight which lasted for one week, at the end of which time he was seized with intense epigastric pain associated with considerable abdominal rigidity. August 27 he was admitted to the Bridgeport Hospital, his fourth and last hospital admission in five years.

His complaint was severe abdominal pain of eight hours' duration. He was poorly developed, extremely undernourished, in no apparent distress, apathetic, cooperative and slightly

Results of Hematologic Studies and Serum Calcium Determinations

Hospital	Date	Hemoglobin, %	Red Cells, Millions	White Cells, Thousands	Differential Count and Smear	Serum Calcium, Mg. per 100 Cc.
King County Hospital, Seattle	5/23/31	87	3.75	6.5	.....	....
	7/ 6/31	..	....	....	.....	5.00
	7/13/31	70	3.50	10.1	80 polymorphonuclears, 15 lymphocytes, 2 transitional forms	5.00
	7/29/31	..	....	....	.....	7.5
	8/ 7/31	..	....	....	.....	9.6
	8/14/31	50	2.63	10.9	Macrocytes, anisocytosis, poikilocytosis	7.35
	8/17/31	..	....	....	.....	7.91
	8/26/31	..	....	....	.....	5.80
	9/ 9/31	60	2.55	15.6	92 polymorphonuclears, 8 lymphocytes	....
Roosevelt Hospital, New York	12/28/33	65	2.70	14.9	88/12 Macrocytes	6.0
	1/ 9/34	..	....	....	.....	7.70
	1/19/34	80	2.78	....	.....	10.00
	2/ 2/34	95	3.70	....	.....	....
	2/14/34	96	3.42	....	.....	....
	2/16/34	..	....	....	.....	8.90
	2/23/34	..	....	....	.....	8.50
	3/16/34	..	....	....	.....	9.70
Roosevelt Hospital, New York	12/13/34	42	2.08	14.6	86 polymorphonuclears, 10 lymphocytes, anisocytosis, macrocytes	6.3
	12/28/34	42	3.10	....	.....	....
	12/31/34	..	....	....	.....	....
Bridgeport Hospital	8/28/36	80	3.35	45.7	99 polymorphonuclears, 1 lymphocyte, macrocytes, toxic, granules, metamyelocytes, myelocytes	.... 6.4
	8/29/36	78	3.05	38.75	97 polymorphonuclears, 3 lymphocytes	....

tender over the epigastrium. There was slight spasm of the upper abdominal muscles. Laboratory examinations showed hemoglobin values of 80 per cent and 78 per cent, red cell counts of 3,350,000 and 3,050,000 and white cell counts of 45,700 and 38,750. Among the leukocytes toxic granules were observed, and of the leukocytes 38 per cent were banded types, 23 per cent metamyelocytes, 3 per cent myelocytes and 1 per cent large lymphocytes. The serum calcium content was 6.4 *mg. per hundred cubic centimeters.*

He failed to respond to any form of treatment and four days after admission died.

Autopsy.—Postmortem examination revealed physical deformities as a result of bone absorption; these were most marked in the vertebral column, so that the body height had decreased 7 inches (18 cm.) after the first hospitalization in 1931.

A posterior gastro-enterostomy passage was identified, but no evidence either gross or microscopic of pathologic change involving the stomach, pylorus or duodenum could be established. There was moderate hypoplasia of the bone marrow with numerous megakaryocytes. Cultures of material from the colon and small intestine were negative for pathogenic organisms.

COMMENT

There appear numerous references in the literature to the sprue syndrome associated with involvement of the duodenum. The possibility exists in this instance, in view of the lack of evidence at autopsy of gross duodenal disease, that the recurrent preoperative and postoperative epigastric distress was a part of the early symptoms of nontropical sprue, of which the more characteristic signs developed later.

THE RELIEF OF ARTHRITIC SYMPTOMS FOLLOWING URTICARIA

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In 1933 Hench [1] reported analgesia accompanying hepatitis and jaundice in cases of arthritis, fibrositis and sciatic pain. The exact mechanism responsible for the improvement in these cases has not been determined.

After this observation he produced artificial jaundice by the *intravenous administration of bilirubin. The results obtained,* however, were not entirely satisfactory and were not comparable to those observed after natural jaundice.[2] Thompson and Wyatt [3] reported that the results of injections were not as satisfactory when bilirubin was used alone as when it was combined with the sodium salt of dehydrocholic acid (decholin sodium).

It is doubtful, however, that the results of either natural or artificial jaundice are due entirely to the increased serum bilirubin, because relief of symptoms has been observed when there was no evidence of jaundice. In a previous paper I [4] reported that the relief of arthritic pain followed an attack of urticaria induced by cinchophen when there was no evidence of jaundice. In Hench's [1] case 16 complete cessation of pain followed urticaria after administration of cinchophen six weeks before the onset of visible jaundice. Two patients in his series who were given cinchophen experienced relief of the arthritic symptoms before the onset of visible jaundice, but there was *no urticaria.*

In a study of the relation between cutaneous sensitivity, hepatic function, leukopenic index and toxic effects from cinchophen,[5] urticaria followed the administration of cinchophen in nine cases and there was relief from arthritic symptoms in five of these. There was a slight elevation of the icterus index and serum bilirubin value in some instances, but they remained below the icteric stage. (I considered the normal icterus index to be between 4 and 8 and the normal serum bilirubin value 1 mg. per liter or below. I have found in my study that jaundice is not usually visible until the icterus index is 20 or above and in most instances around 25.) This indicated, as Hench [1] and I [4] have previously suggested, that the relief obtained in jaundice might be due to other factors besides increased bilirubin.

Consequently it was considered advisable to report in detail cases in which relief followed urticaria, with the hope that this might stimulate further study of the phenomenon.

REPORT OF CASES

CASE 1.—L. B., a woman aged 28, had rheumatoid arthritis involving the hands, elbows, shoulders, knees and feet. Cinchophen 7½ grains (0.5 Gm.) was given three times a day

1. Hench, P. S.: Analgesia Accompanying Hepatitis and Jaundice in Cases of Chronic Arthritis, Fibrositis and Sciatic Pain, Proc. Staff Meet., Mayo Clin. **8**: 430 (July 12) 1933.

2. Hench, P. S.: Effect of Jaundice on Chronic Infectious (Atrophic) Arthritis and on Primary Fibrositis, Arch. Int. Med. **61**: 451 (March) 1938; The Effect of Spontaneous Jaundice on Rheumatoid (Atrophic) Arthritis: Attempts to Reproduce the Phenomenon by Various Means Including "Artificial Jaundice" (Induced Hyperbilirubinemia), Proceedings of the International Congress on [illegible] and the Bath Bi-Centenary Congress on Chron[illegible]

3. Thompson, H. E., and Wyatt, B. L.: Experimentally Induced Jaundice (Hyperbilirubinemia), J. A. M. A. **109**: 1482 (Oct. 30) 1937. Experimentally Induced Jaundice (Hyperbilirubinemia), Report of Animal Experimentation and of the Physiologic Effect of Jaundice in Patients with Atrophic Arthritis, Arch. Int. Med. **61**: 481 (March) 1938. Induced Nontoxic Jaundice (Hyperbilirubinemia) in Patients with Atrophic Arthritis, J. Kansas M. Soc. **34**: 327 (Aug.) 1938.

4. Rawls, W. B., in discussion on Hench, P. S.: The Effect of Jaundice on Chronic Infectious Arthritis and on Primary Fibrositis, J. A. M. A. **109**: 1481 (Oct. 30) 1937.

5. Rawls, W. B.; Gruskin, B. J.; Ressa, A. A., and Gordon, A. S.: The Relation Between Skin Sensitivity, Liver Function, Leukopenic Index and Toxic Effects from Cinchophen, J. Lab. & Clin. Med., to be published.

for six days (total 135 grains, or 8.7 Gm.), after which severe urticaria developed, lasting seven days. Immediate partial relief (grade 2) [6] of the arthritic symptoms followed the onset of the urticaria, and at the end of seven days the pain, soreness, swelling and stiffness of the joints had almost entirely disappeared (grade 3). This was one of the first cases observed, and the icterus index before the administration of cinchophen was not determined but there was no visible jaundice at any time. On the tenth day following the onset of the urticaria, however, the icterus index was 8.7. The patient remained symptom free for five months and stated that it was the best period she had experienced in several years.

CASE 2.—M. S., a woman aged 68, had mixed arthritis involving the feet, ankles, knees, wrists and hands. Cinchophen 7½ grains (0.5 Gm.) was given three times a day for two weeks (total 315 grains, or 20.4 Gm.), after which severe urticaria developed lasting seven days and involving the entire body. There was complete relief within twenty-four hours after the onset of the urticaria, and the patient remained symptom free for five weeks. The symptoms then returned but were less severe (grade 2) for another three weeks. There was only slight relief from the cinchophen per se but the relief following the urticaria was striking. The liver function tests gave normal results. The icterus index was 6 before and 8 after the administration of cinchophen. There was no visible jaundice at any time.

CASE 3.—A. P., a woman aged 59, had mixed arthritis involving the hands, wrists, shoulders, knees and feet. Cinchophen 7½ grains (0.5 Gm.) was given three times a day for five days (total 112½ grains, or 7.3 Gm.), after which urticaria developed; this was associated with angioneurotic edema of the lips, tongue and mouth and lasted four days. With the disappearance of the urticaria there was marked relief (grade 3) of the joint symptoms, although there had been some increase in the joint symptoms during the attack of urticaria. The relief persisted for six weeks. Liver function tests gave normal results. The icterus index was 5.9 before and 8 after administration of cinchophen. There was no visible jaundice.

CASE 4.—C. O'B., a woman aged 41, had rheumatoid arthritis involving the fingers, hands, wrists, elbows, knees, ankles and feet. Cinchophen 7½ grains (0.5 Gm.) was given three times a day for four days (total 90 grains, or 5.8 Gm.), after which severe urticaria developed, lasting three days. There was complete relief of the arthritic symptoms with the onset of the urticaria, and the patient remained symptom free for nine weeks. The symptoms then returned, but were less constant and less severe (grade 2) during the next six weeks. The galactose tolerance and the bilirubin excretion test gave positive results. The icterus index was 7.2 before and 8.5 after administration of cinchophen. There was no visible jaundice at any time.

CASE 5.—C. G., a woman aged 50, had rheumatoid arthritis involving the fingers, hands, wrists, knees and feet. Cinchophen 7½ grains (0.5 Gm.) was given three times a day for five days, after which severe urticaria developed and persisted seven days. The arthritic symptoms persisted during the urticaria but there was almost complete cessation (grade 3) of these symptoms for seven weeks after the urticaria subsided. The azorubin S, the hippuric acid and the bilirubin excretion test gave positive results. The icterus index was 8 before and 12.5 after administration of cinchophen. There was no visible jaundice at any time.

COMMENT

In five of nine cases of urticaria following the administration of cinchophen there was some relief from the arthritic symptoms, which was far more striking than that obtained with cinchophen per se. There was reduction and in some cases disappearance of swelling, muscle spasm, fatigue, soreness and stiffness of the joints and other conditions with a marked increase in function. The degree as well as the duration of relief varied in different cases. In some there was complete cessation of symptoms, while in others the relief was only partial. The relief from the arthritic symptoms was in general proportional to the severity and duration of the urticaria. The longest period of relief was five months, the shortest three weeks and the average nine weeks. There was no appreciable increase in the icterus index in four cases, and, although there was an increase in the fifth, it remained in the subicteric stage. The relief obtained in these cases was not due therefore to jaundice. Four patients who did not obtain relief had urticaria as severe as did the five who obtained relief. In case 3 the symptoms were worse during the urticaria, although relief was obtained after the urticaria subsided. In case 5 the pain remained the same during the urticaria but was relieved after it subsided. These observations lead one to conclude that the factor which produces the urticaria may not be the same as that which produces relief of the arthritic symptoms. Cinchophen toxicity apparently involves several chemical changes, and it is possible that the chemical reaction in the four cases of urticaria without relief was not the same as that in the cases in which urticaria was followed by relief of symptoms. The reactions responsible for both urticaria and relief occurred in cases of relief following urticaria, whereas only the chemical reaction responsible for the urticaria occurred in those in which there was no relief of symptoms. In cases 1, 2 and 4 these reactions occurred simultaneously, but in cases 3 and 5 they occurred separately.

6. Grade 1 designates slight relief, grade 2 moderate relief, grade 3 definite relief and grade 4 complete relief.

CONCLUSIONS

1. The evidence obtained in this small series of cases suggests that with cinchophen toxicity there are several definite chemical reactions and that the one which produces relief of the arthritic symptoms during or after urticaria is not the one which produces the cutaneous reaction.

2. Jaundice is not the only means of producing dramatic relief of symptoms in rheumatoid arthritis.

3. The relief from arthritic symptoms following jaundice is not necessarily caused by increased bilirubin alone.

115 East Sixty-First Street.

PRODUCTION OF ERYTHEMA AND TAN BY ULTRAVIOLET ENERGY

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The ultraviolet wavelength region from approximately 2,500 to 3,500 angstroms encompasses the wavelengths found to be most valuable in the prevention and cure of rickets, the production of erythema and tan in human skin, the killing of germs, and various therapeutic applications. However, the effectiveness of equal amounts of energy at various wavelengths in this region varies enormously for each of these reactions. Some studies of the relative effectiveness of energy of different wavelengths for some of these reactions have been made, notably for the cure of rickets, the killing of germs and the production of erythema.

Several investigators, including ourselves,[1] have studied the effectiveness of ultraviolet energy in producing erythema, and an "erythemal effectiveness" curve has been tentatively established by combining all the data available.[2] The accepted data for wavelengths longer than 3,150 are of questionable accuracy because the energy of longer wavelengths is relatively low in erythemal effectiveness and available artificial ultraviolet sources are low in energy in the spectral region from 3,150 to 4,000. In therapeutic applications erythema has proved to be a valuable indicator of dosage of ultraviolet; hence it is important to know the relative effectiveness of different wavelengths in its production.

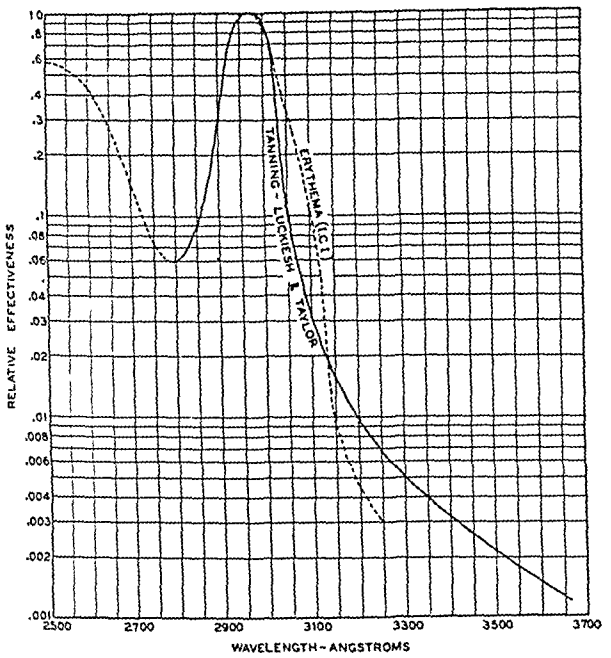
For the foregoing reasons we have extended our previous studies by another research, from which we have established a spectral tanning curve and have extended the spectral erythemal curve in the long wave region. We obtained high energy densities by focusing the image of the arc of an S-1 lamp in quartz or Corex bulb through quartz lenses onto the arm

1. Luckiesh, Matthew; Holladay, L. L., and Taylor, A. H.: Reaction of Untanned Human Skin to Ultraviolet Radiation, J. Optic. Soc. America **20**: 423 (Aug.) 1930.
2. Evaluation of Ultraviolet Radiation, Tr. Illum. Engin. Soc. **30**: 568, 1935.

of the subject, using various glass filters to limit the wavelength region incident on the skin. As a result of exposures of eighteen male subjects, principally between the ages of 25 and 35, we obtained the spectral "tanning effectiveness" curve shown in the accompanying chart. For comparison we also show the "erythemal effectiveness" curve as adopted by the International Commission on Illumination. Our data on tanning apply to the resultant tan as observed from four to ten weeks after exposure, when all erythemal inflammation has disappeared.

Ultraviolet energy in the wavelength region from 2,500 to 2,600 angstroms can cause a strong erythema, visible a few hours after the exposure, but the inflammation subsides and disappears after a few days, leaving little or no tan. We find, however, that the energy of wavelengths longer than approximately 3,300 angstroms, especially that at 3,650 angstroms, produces what appears to be a direct tanning effect. Immediately after an exposure of sufficient intensity and duration the exposed spot appears brownish, approximately the color of tanned skin. The next day the spot is still tanned, with relatively less inflammation than spots exposed to energy of shorter wavelengths.

Although we find that an apparent direct tanning effect with less inflammation can be obtained with the longer wavelengths,



Relative spectral effectiveness of radiant energy in the production of erythema (as adopted by the International Commission on Illumination) and tan (Luckiesh and Taylor).

the energy density and duration of exposure necessary are prohibitive if one desires to become tanned. A much more efficient and effective method is to expose oneself repeatedly to natural or artificial sunlight, making the exposure sufficient to obtain an appreciable erythema.

In order to determine the exposure required to produce a definite tan, visible after two months or more, twelve subjects were exposed to an artificial sunlight lamp (type S-4) at a distance of 2½ feet. Twelve spots on each subject were given exposures graduated in length from two and one-half to ten minutes. The average exposure required to produce a minimum erythema visible one day later was four minutes. The average exposure which produced a minimum tan visible two months after exposure was seven and one-half minutes. Six months after exposure five of the subjects still had spots which were visibly tanned. The ultraviolet rays from this sun lamp are principally in narrow bands at 2,967, 3,022 and 3,130 angstroms. Most of the erythema and tan are produced by the lines at 2,967 and 3,022 angstroms.

Suberythemal doses of ultraviolet rays given three times a week until seven doses were received produced no tan on two persons, but a single exposure of about 70 per cent of the sum of the smaller doses did produce erythema and tan. These results indicate that if tanning is desired the exposures should be long enough to produce some erythema. This is probably true regardless of the type of source, whether sunlight or a sun lamp. Some work done by Dr. H. J. Gerstenberger[3] with which we were in close touch, in which tungsten lamps with ultraviolet transmitting bulbs were used, proved that suberythema exposures or doses of ultraviolet energy can prevent and cure rickets in children. Daily exposures of the order of one-tenth to one-fourth of that required to produce a minimum perceptible erythema were found to be sufficient to bring about recovery.

Special Article

CONFERENCES ON THERAPY

TREATMENT OF ADDISON'S DISEASE

NOTE.—*These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors.*

DR. ADE T. MILHORAT: Dr. Loeb of the College of Physicians and Surgeons of Columbia University will open the discussion.

DR. ROBERT F. LOEB: Thomas Addison in 1849 first pointed out that serious disease of the adrenal capsules was incompatible with life; that was an extraordinarily important observation. In 1855 he published his beautiful monograph on Addison's disease, in which his clinical description, typical of most of the English school of clinicians at that time, is incomparable. In that treatise he also pointed out that little was known of the physiology of the adrenal glands except that they were essential for life, and he felt that perhaps the severity of the disease was more or less proportional to the extent of damage in those structures. From that time our understanding of the functions of the adrenal cortex really did not progress until epinephrine was isolated. Then, quite naturally, that advance aroused more interest in the adrenal glands; it was thought that perhaps the lack of this substance from the medulla might be held responsible for the picture of adrenal insufficiency. However, it soon turned out that the blood pressure could not be maintained in the addisonian patient nor could any particular improvement be brought about by the extensive use of epinephrine. The adrenalectomized animals died despite this type of therapy. Perhaps they died a little more quickly than without any therapy. This was an important negative observation because it definitely established that the factors in the adrenal glands essential to life resided in the cortex.

In 1912 Porges in Vienna first pointed out that patients and animals with adrenal insufficiency show from time to time manifestations of low blood sugar. This was, perhaps, the first demonstration of a specific defect in metabolism in contrast to the general observation that the adrenal cortex was essential for life. Naturally, at that time Porges attributed that defect in carbohydrate metabolism to a disturbance in the adrenal medulla. That interpretation does not appear to be correct today.

Perhaps the next significant step was made by E. K. Marshall in Baltimore, who showed in 1916 that in

3. Gerstenberger, H. J., and Horsch, A. J.: The Cure of Infantile Rickets with Tungsten Filament Radiation, J. A. M. A. **97**:766 (Sept. 12) 1931. Also later results by Dr. Gerstenberger, as yet unpublished.

adrenalectomized animals there was a retention of urea and a decrease in excretion of phenolsulfonphthalein and that death was associated with these manifestations of renal insufficiency. He expressed the idea at that time that perhaps the adrenal cortex had some controlling influence on certain functions of the kidney.

After that the dissection of the physiologic activities of the adrenal cortex progressed rather rapidly. In 1927 Baumann and Kurland showed, in studying the blood of adrenalectomized animals, that a number of changes occurred in addition to the tendency to low blood sugar and to retention of nonprotein nitrogen. They discovered that the blood sodium was low and pointed out that the potassium might be elevated. Then Marine and Baumann in the same year tried various types of replacement therapy and found that their adrenalectomized animals seemed to live longer if they gave solutions of sodium chloride than if they gave other kinds of solution.

Later on, the study of Addison's disease bore out similar facts, namely that the picture of adrenal insufficiency in man (acute adrenal insufficiency) was characterized by dehydration, which had been observed previously, by striking loss of sodium accompanied by a corresponding decrease of chloride and bicarbonate, by an increase in potassium in the blood serum, and by the retention of nonprotein nitrogen, phosphate and sulfate and other substances which are retained in any severe type of renal insufficiency. Also it became evident not only that patients with Addison's disease could have relatively low blood sugar but that they might have severe hypoglycemic reactions, and in recent years we have seen five patients who virtually had hypoglycemic coma at one time or another.

There are some disturbances which appear to be secondary to these fundamental changes. One is the lowering of the basal metabolic rate which usually takes place mostly when the animal or patient is in severe insufficiency. Furthermore there is a decrease in blood flow as well as a decrease in blood volume, which again is perhaps a late manifestation of insufficiency. There are hypochlorhydria, nausea and gastric intolerance, which have been attributed by some to a drop in the chloride ion which accompanies the fall in the blood sodium. There is also hypotension, which usually is present to some degree even when the electrolyte pattern of the blood is entirely normal but which is possibly related to electrolyte and water disturbances.

In addition to the fundamental changes mentioned there is another which is probably also primary in nature; that is the feeling of weakness and lassitude which is the chief complaint of the vast majority of patients with adrenal insufficiency and which is the striking objective manifestation of animals in adrenal insufficiency. This may prove to be entirely dependent on the trouble with salt, water and sugar metabolism. The mechanism of pigmentation which should be considered as primary in nature is totally obscure.

These are some of the changes which follow the destruction of the adrenal cortex in man. Naturally the question arises as to how these errors in metabolism may be corrected. It is interesting not only from a physiologic standpoint but also from the point of view of the patient with Addison's disease. In the last twelve years, extracts of the adrenal cortex have been developed. I might add, however, that Sir William Osler was the first to use an extract of the adrenal cortex in the treatment of a patient. In 1896 Sir William made a glycerin extract of thirty hog adrenal glands and administered this to a man who had Addison's disease. He thought there was some improvement, but the patient died of miliary tuberculosis, for which Sir William was not entirely responsible!

In 1927 Rogoff and also Hartman independently made extracts of adrenal glands, which they felt definitely prolonged the life of adrenalectomized animals and perhaps had some value in the treatment of Addison's disease. In 1929 Pfiffner and Swingle made an alcoholic extract of the adrenal glands which seemed to have considerably more potency. That was heralded as being the turning point in the treatment of a hitherto fatal disease, and the early results from the use of adrenal cortex extract were most dramatic. I think that the enthusiasm died down fairly promptly and it is now apparent that many of the results which were obtained at that time with the use of the adrenal cortex extract might more properly be attributed to the replacement of salt and water in those individuals who were in a state of adrenal insufficiency. The role of the extract was probably not highly significant.

We now know that the dosage of commercial extracts required to maintain an adrenalectomized dog in normal health without salt added to its diet is of an order of magnitude such that if the pharmacologists permitted translation to man, which is probably not permissible, it would take perhaps 50 cc. a day to maintain a large adrenalectomized human being—perhaps even more under certain conditions.

SOME FEATURES OF TREATMENT

The treatment of Addison's disease, as is true in other metabolic diseases, should be directed first toward the correction of the physiologic disturbances which result primarily from the absence of the adrenal cortex. The consideration of the adrenal medulla in this connection does not seem to be important. The next important consideration is that of the specific replacement of adrenal cortical hormones lacking in adrenal insufficiency. The third principle in the treatment of Addison's disease consists of avoiding those factors which are known to intensify the disease picture.

To me these principles are much like those involved in the treatment of diabetes; curiously enough there are many analogies between the treatment of diabetes and the treatment of Addison's disease in man.

In the mild case in which adrenal insufficiency is well compensated, that is, one in which the physiologic disturbances which we can measure are relatively slight, the replacement of the sodium ion, by merely feeding salt, will help the situation. In other words, just correcting this one physiologic disturbance may prove adequate. On the other hand, in the presence of severe insufficiency this measure does not succeed, and it is necessary to add the factor of hormone replacement as far as this is possible.

In treating a patient with Addison's disease, keep in mind that even though he may have relatively mild adrenal insufficiency he, like the patient with diabetes, is more or less perched on the brink of a physiologic volcano. An acute infection, a trauma associated with pain, a surgical procedure or indiscretions in diet will frequently shift the picture quickly from one of compensated adrenal insufficiency to one of a severe adrenal crisis. In the adrenal crisis treatment must be just as promptly and just as actively instituted as in the case of diabetic acidosis, in which neglect or procrastination usually results in death—needlessly I might add.

What else can we do about [illegible] disturbances which are present in [illegible]? First, diet. Keep in mind that we are dealing primarily with a chronic disease, often tuberculous in origin. I think that the most important consideration in the diet is the maintenance of the patient's nutrition. If the patient's nutrition can be maintained, consider secondarily the theoretical importance of the constituents of that diet. We know, as I have mentioned, that potassium is retained in the body in adrenal insufficiency. It is retained partly because of a disturbance in the ability of the kidney to excrete potassium. It is retained probably also because there is a curious alteration of flow of potassium to the cells. That is nicely demonstrable in recent experiments with desoxycorticosterone acetate, which effects an increase in potassium excretion far greater than could be explained on the basis of loss from extracellular fluid. So there is the disturbance in potassium metabolism, and we know that when one does not excrete the potassium ion (whether one does not excrete it because one has severe renal insufficiency or because one has adrenal insufficiency) if you inject potassium intravenously a fatal elevation in level develops much more readily than in a normal individual. We know that adding several grams of potassium to the diet of an adrenalectomized dog makes it necessary to give either large amounts of sodium chloride or larger amounts of cortical extract, or both, to maintain life. With these facts in mind, and because Wilder and Allers pointed out that the ingestion of a good deal of potassium ion causes a further loss of the sodium ion from the body, the Mayo Clinic developed a low potassium diet, which has a sound theoretical basis. Unfortunately, if there is any ubiquitous ion in our food it is the potassium ion. It is the normal constituent of cells, and to make a potassium-free diet we would theoretically have to construct a diet without cells.

To avoid the usual amounts of potassium in the diet certain foods are restricted, namely dried fruits and dried vegetables, concentrated sauces, condiments, unpolished cereals, large amounts of meat and soups, which are really nothing but potassium juice with a little sodium added. In addition to limiting these foodstuffs at the Mayo Clinic they advise that meats and vegetables be prepared by cutting them into tiny pieces and cooking them in six to eight volumes of water in Patapar bags and then serving them to the patient. But I find that most of our patients are either fussy about their food and do not take it very well in that form or perhaps we have not developed the appropriate culinary arts. Anyway, I think that if a patient can be induced to eat a truly low potassium diet there is a distinct theoretical and also practical advantage in it. However, if you have to choose between having your patient lose weight or eat 2 or 3 Gm. of extra potassium a day, I would recommend that you let him have the potassium and not be in the situation that the Germans used to ascribe to us in relation to the treatment of diabetes in the days of the Allen regimen, when we used to fast them for two weeks. Isn't that right, Dr. Du Bois?

DR. EUGENE F. DU BOIS: Yes.

DR. LOEB: As the Germans used to say, "You in America stick out your chests and pride yourselves because your patients die sugar free." There was something in their point of view.

The carbohydrates of the diet must also be considered. As I have said, patients tend to have hypoglycemia, and I warn you to be on your guard. A patient with Addison's disease, one perhaps with focal neurologic signs or a confusional state, is frequently the subject of severe hypoglycemia. Perhaps the best way to avoid it is to ask patients to eat small supplementary amounts of candy or sugar between their meals and when they go to bed. I am not sure whether this course has really any particular virtue for the patient, because we know that with people who have a tendency to hypoglycemia the blood sugar may decline abruptly during the sleeping hours after carbohydrate administration for the day has stopped. Still we do encourage patients to ingest carbohydrate frequently but I cannot say that we have seen fewer hypoglycemic episodes by virtue of frequent carbohydrate feeding.

To summarize the diet: Calories come first; low potassium diet, if possible, next; and finally adequate carbohydrate.

The role of salt, as I have mentioned, appears to be of considerable importance in the treatment of Addison's disease as it is in the adrenalectomized animal. We know that completely adrenalectomized animals may be maintained without any other factor (no cortical extract) for many months if just given large amounts of salt, sodium chloride or sodium citrate. So also in patients we see many severe crises which are completely relieved by the administration of large amounts of sodium chloride in water without the use of cortical extract. We see this so frequently that we find it impossible to attribute much value to cortical extract in the doses usually given. Most patients with Addison's disease seem to get along for a number of years with no medication other than salt in doses of from 10 to 20 Gm. a day in addition to their meals. Many of them take it in the form of 1 Gm. tablets. They put their ration in their pockets during the day and take one perhaps every hour. Other patients find it more palatable to drink a large volume of salt solution. Very few are able to tolerate capsules.

There is one feature of sodium administration which has been greatly stressed by a number of workers: We know that with the sodium ion decreasing in the blood by virtue of its increased excretion through the kidneys in adrenal insufficiency there is frequently also a drop in the bicarbonate ion as well as the chloride ion, and because of that Wilder and Allers have felt that one should administer a sodium salt without a fixed acid radical in addition to sodium chloride. For that reason they advise the use of sodium citrate or sodium bicarbonate as well as sodium chloride. With this in view I summarized a series of twenty of our patients who were treated with salt alone. The average normal sodium concentration of the serum is 140 milliequivalents per liter, the chloride being about 104 milliequivalents and the bicarbonate being about 26 milliequivalents. The average sodium on admission in the series of addisonian patients was 125.1, the average chloride was 92 and the average bicarbonate was 23 milliequivalents per liter. After these twenty patients had been treated with nothing but sodium chloride, the average sodium at the end of treatment was 138.5, the chloride was 104.1 and the bicarbonate was 25 milliequivalents. In other words, just by administration of sodium chloride the kidney selectively retained the proper anion to restore the normal electrolyte pattern of the blood as it does in the treatment of diabetic acidosis. We know that with the administration of sodium chloride the body will save base, build up the bicarbonate and excrete the excess chloride. Conse-

quently in adrenal insufficiency I do not think there is any need for the administration of the sodium citrate or bicarbonate, but I can see no harm in it.

Finally, a few words about the use of cortical extract. I have already intimated that certain commercial cortical extracts in doses of from 5 to 10 cc. a day have no definite objective physiologic effect. Patients often say they feel better, but they say they feel better with so many things that I do not believe one can ascribe much significance to that statement. I think it is, on the other hand, not to be denied that a little cortical extract must be better than none. However, a dose of 10 cc. a day costs about $3, and if you cannot demonstrate any physiologic effect from it in your patient I am not sure that it is a justified expenditure. The same applies to the treatment of crises; unless you use large amounts you are not doing anything at all significant. I think it is fair in the treatment of the crisis to give intravenously about 4,000 cc. of salt solution with 5 per cent dextrose in the course of twenty-four hours and to add to that from 40 to 50 cc. of cortical extract, and then if the patient is not doing well perhaps to give from 10 to 15 cc. intravenously or intramuscularly at six hour intervals in addition. Thorn has shown that extract in those amounts will cause retention of sodium and an excess excretion of potassium in normal subjects and in addisonian patients, so that we know that amount may produce some effect.

As I have said, I have had this skepticism of the therapeutic value of extract given in the usual dosage. In the past few months, as you probably know, Reichstein has not only isolated from adrenal glands but synthesized desoxycorticosterone acetate and we have had our first chance at a clinical trial in the past few weeks. I must say that the results are both dramatic and encouraging. In one case the administration of 50, 50, 25, 25, 25 and 25 mg. a day,[1] respectively, over a period of six days caused, first, an increase in plasma volume of 15 per cent, an increase in interstitial fluid, if that is what we measure with the thiocyanate method, of about 15 per cent, a gain in weight, a marked retention of sodium and of chloride, and a doubling of the excretion of potassium ion. That was a result of the first two days' treatment in a patient who was stabilized on a metabolic regimen and whose sodium level was stabilized at 132 milliequivalents. Following this initial increase in fluid volume there was an increase in the sodium concentration in the blood to normal, a fall in potassium to normal and a striking drop in the level of nonprotein nitrogen, and the patient showed striking subjective improvement at the end of these six days. Withdrawal of the desoxycorticosterone resulted in a reversal of this process: first a loss of weight, with a loss of sodium chloride, and secondarily a drop in concentration with some rise in the other constituents. Readministration of the drug, then in doses of just 25 mg. a day, again reversed the process. So we know that in that dosage this substance had a striking effect in a man with adrenal insufficiency. Whether it has any effects on carbohydrate metabolism in man is not certain, but if we had to hazard a guess it would be in the affirmative. Whether it has any effect on pigmentation likewise we do not know. Whether it has any effect on peripheral vascular tone we also do not know. Those questions lie for the future to answer, but I will say that we have at last something which is sufficiently potent to convince the skeptic.

1. This material was furnished by the laboratories of Roche-Organon, Inc.

DR. EPHRAIM SHORR: Dr. Loeb has covered the ground so thoroughly that there remains little for me to do except to illustrate, by means of a patient with Addison's disease, those principles of treatment which he has laid down, so largely as a result of his own fundamental work in this field. This patient will permit you to see the phenomena which are diagnostic of the condition. His history is that of weakness of about six months' duration prior to his admission in September 1938. The weakness was progressive with progressive pigmentation of the skin, including mucous membranes of the mouth and tongue, a hypotension on admission of 87 mm. systolic and 67 diastolic, and gastrointestinal symptoms such as anorexia and postprandial distress, with a moderate loss of weight. He was admitted in considerable distress and has since been studied by Dr. Harrison of the Department of Pediatrics, and myself. We have kept a record of his blood pressure taken at frequent intervals and we have results of electrolyte studies on urine and blood during the course of his stay. On admission, in view of his unsatisfactory condition, we deemed it necessary to administer large amounts of sodium chloride and sodium citrate intravenously. There was a short, stormy period until our efforts in this direction, combined with a cortical hormone preparation (Upjohn), finally succeeded in improving his condition. With this therapy the hypotension was succeeded by blood pressures of approximately 120/80. The symptomatic relief was accompanied by a reversal of the electrolyte failure which he presented on admission. His chloride excretion in the urine was greater than his intake. With these therapeutic measures he finally came into electrolyte balance. The amount of cortical extract necessary to achieve this balance was 20 cc. daily, given in two doses of 10 cc. Blood urea, initially elevated, also returned to normal. Gastrointestinal difficulties disappeared and his muscular strength improved sufficiently to enable him to walk about the wards and to climb two flights of stairs.

The dietary regimen which has since been followed has in general adhered to the principles laid down by Dr. Loeb. As pointed out, it is not too easy in the face of the capricious appetites of these patients to keep the potassium content of the diet at the low figures recommended by the Mayo group. We have succeeded in making a diet palatable for him which contains about 3.5 Gm. of potassium a day. The salt content of the diet has been in the neighborhood of 8 or 10 Gm. a day. He cannot tolerate salt in tablet form and this is about as much as he can take with comfort in his food. We should prefer him to take more but are quite satisfied with this present diet, aided by what appears to be a potent cortical extract.

A second point that Dr. Loeb has mentioned as of assistance in diagnosing the presence of Addison's disease has been the effect of the withdrawal of salt on the electrolyte picture. In this patient the effects of the withdrawal of cortical hormone have been striking and characteristic of true Addison's disease. On a number of occasions the cortical hormone has been diminished. Within three days of reducing the cortical hormone from 20 cc. a day to 10 cc. a day, electrolyte failure occurred, with a return of all of the symptoms of the disease. The chloride in the blood fell from 97 milliequivalents to 91 milliequivalents, and the urinary chlorides rose until a negative balance replaced the positive balance in which he was, prior to withdrawal.

During this time the chloride intake was maintained at a constant level. With resumption of the cortical extract in the amounts of 20 cc. a day, these figures again returned to normal. I think it is apparent from this effect that the cortical extract is genuinely effective in this case.

As to the general handling of the case, we are confronted with the problem of the etiologic factor, which is tuberculosis. The involvement is apparently confined to the kidneys and adrenals. The urinary sediment has been found positive for tubercle bacilli by the guinea pig test. The chest is still entirely free of tuberculous lesions, as shown by x-ray examination.

An immediate problem now confronts us. He is febrile and has a severe tonsillitis. With this tonsillitis, which has been of about twelve hours' duration, an unwelcome change in his symptoms has occurred. In addition to the weakness he has become low in spirits. Depression has been a very striking phenomenon throughout in this case and has always been exaggerated during the periods when the hormone was reduced or withdrawn.

The presence of an infection of this sort complicates the treatment of Addison's disease and makes it much more difficult, just as infection in the diabetic greatly increases the severity of the disease and the resistance to insulin. We can anticipate that within the next few days more heroic measures may be necessary to help the patient tide over his infection. It will be of interest to see whether electrolyte studies will indicate that the formerly adequate dosage of cortical hormone will now prove inadequate, just as in a diabetic patient with infection the previous dosage with insulin generally needs to be increased in infection.

DISCUSSION

DR. HARRY GOLD: What were the blood sugar and the blood urea of this patient?

DR. SHORR: On admission the blood urea was elevated, but with therapy it has come to normal limits. In fact, during periods of diminution in cortical extract therapy we have had electrolyte failure without any increase above normal of blood urea. The sugar on admission when he was quite severely ill was 92 mg. per hundred cubic centimeters, which with the method we use here is a high normal.

DR. JANET TRAVELL: I should like to ask Dr. Loeb about the completely adrenalectomized dogs that were maintained on a high sodium chloride intake. Did they also have the reduction in the potassium intake?

DR. LOEB: As I said, Allers and Harrop both independently carried out these studies, and their dogs were on a mixed diet. If you introduce a meat diet, which is a pretty high potassium diet, it becomes more difficult.

DR. TRAVELL: You can maintain them though if you increase the amount of salt?

DR. LOEB: Yes, but I believe Dr. Harrop found it necessary to introduce salt by tube because the salt requirement was so high. There is one thing I should like to emphasize: I do not think the problem with adrenal insufficiency is solved even with desoxycorticosterone. I think you may have seen a paper in the last issue of the *Journal of Clinical Investigation* by Willson and Sunderman. They pointed out that just the withdrawal of water in the presence of salt administration may precipitate a picture of shock in which the sodium concentration of the blood approaches normal. We have had six patients who have died classic addisonian deaths with peripheral cyanosis, hypotension, the whole clinical picture but with a perfectly normal electrolyte pattern in their blood, with the exception of dehydration. Whether or not there will turn out to be a peripheral vascular disorder similar to that seen in histamine shock, in the picture of adrenal insufficiency, and whether this will be controlled by this one cortical hormone I think is an open question.

DR. SHORR: Have you seen the reports in the *Lancet* of the uses of desoxycorticosterone in England by Levy-Simpson?

DR. LOEB: He reported two cases, but I did not feel that the data which he had presented were particularly convincing from the chemical standpoint.

DR. SHORR: The intramuscular mode of administration was employed, which apparently in some of the cases was associated with painful swellings and had to be discontinued.

DR. LOEB: We gave our product subcutaneously, and it was absolutely painless.

DR. SHORR: Capsules also were implanted.

DR. LOEB: Which is also being done by Dr. Thorn in Baltimore with apparently striking success.

DR. MCKEEN CATTELL: I trust the synthetic material will be more readily obtainable and less expensive.

DR. SHORR: Have you had any experience with the oral administration of any cortical hormone preparation?

DR. LOEB: I have seen a patient, who could afford it I might add, take from 25 to 60 cc. of cortical extract a day by mouth and I think 10 or 15 cc. parenterally twice a week go into a typical crisis and then with the administration of salt and more cortical extract come out of it. I was not impressed with the differences in this patient when he was taking large or smaller amounts. Pfiffner years ago pointed out in his calibrated dogs that he found cortical extract more or less effective by mouth. He felt that the necessary dosage was something like 10 to 1 in relation to parenteral administration. Thorn, in his article in *Endocrinology*, intimates that the ratio is probably 3 or 4 to 1. I may be hyperskeptical about the whole thing, as I am not greatly impressed. One thing to be kept in mind in attempting to evaluate therapy is that in this disease, as in other diseases, patients occasionally lived for many years without the advantages of modern therapy. Bramwell reported that a patient with Addison's disease certainly went in and out of crises all by himself, without salt and without extracts. As soon as we have some therapeutic agent that we can give with a hypodermic, post hoc reasoning becomes an almost insuperable temptation.

DR. SHORR: It seems reasonable to anticipate that if one could give enough of the synthetic preparation it could be absorbed by mouth in therapeutic amounts. The chemical composition is so close to that of the sex hormones, which are very well absorbed in the mouth, that we may expect the cortical hormone to be absorbed well also.

DR. LOEB: I think there is no question at all but that our troubles with cortical extract are essentially quantitative in nature as far as the salt and water disturbances are concerned and possibly as far as carbohydrate disturbances are concerned. By this I mean that, if it were possible to administer sufficiently large amounts, striking effects would be obtained. Whether salt, water

and carbohydrate disturbances are going to prove to be the whole story is another matter. I rather doubt it.

DR. H. B. RICHARDSON: What active preparations of adrenal cortical hormone are available on the market?

DR. LOEB: I am sure that the Upjohn, Wilson, Organon and the Parke-Davis material are all potent in animals although there are no comparative assays available. But again I think the problem concerns the amount of material which you can administer to a patient a day. Desoxycorticosterone acetate is so sparingly soluble it has to be given in sesame oil, which is a disadvantage as far as rapidity of absorption is concerned when compared with the available cortical extracts which can be given intravenously. I have asked the chemists about the possibility of shaking desoxycorticosterone into serum to have it available for emergency use, because the slow absorption delays the effects, and in a crisis the present preparation would begin its action too late.

DR. SHORR: It would look as if the Upjohn preparation, which is the only one we have used systematically in this patient, has been effective.

STUDENT: I have heard that in patients with severe burns you sometimes find at autopsy hemorrhage in the adrenal cortex. I was wondering whether those patients when recovered from their burns stood any chance of developing the Addison syndrome.

DR. LOEB: I never heard of one subsequently developing Addison's disease. I should think it unlikely because, whereas part of the picture of shock may be due to an adrenal hemorrhage, exudation of serum from the surface and possibly absorption of necrotic tissue products are probably the chief factors.

DR. GOLD: What are your minimum requirements for the diagnosis of Addison's disease, and are there any conditions other than frank Addison's disease in which cortical hormone is useful?

DR. LOEB: That is a large question. I think that the withdrawal of salt from the diet gives one as good an idea of whether or not clinically significant Addison's disease is present as any test I know. If symptoms of the disease are not strikingly accentuated by this procedure in the course of seven days and if there is no decrease in blood sodium beyond 4 milliequivalents per liter, the diagnosis would indeed seem doubtful. Recently Cutler, Power and Wilder have devised another diagnostic test but I have had no experience with it. Salt withdrawal should not be undertaken in an outspoken case without great caution and the diagnostic test should be undertaken only with the patient under observation in a hospital.

If a patient can tolerate withdrawal of salt for seven days I feel it is unwise to administer cortical hormone. I think Ingle's work is very significant, and I think we may be in trouble if we start using the hormone indiscriminately. Ingle has shown that in the normal rat moderately large doses of cortical extract cause striking atrophy of the adrenal cortex. I feel that in the prolonged treatment of "tired women" and the like the use of cortical extract in significant amounts may prove dangerous. I think it is possible that it may be worth while to study the effect of cortical hormone when it is available in large amounts in the state of shock and in certain other conditions in which there are peripheral vascular disturbances, but I am loath to use it over long periods of time, as I said, in any one who has not well established Addison's disease.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. H. A. CARTER, Secretary.

SUPREME MODEL SHORT WAVE DIATHERMY NOT ACCEPTABLE

Manufacturer: Scientific Diathermy Corporation, 200 West Thirty-Fourth Street, New York.

An apparatus recently placed on the market is the "Supreme Model Short Wave Diathermy." It is sold to the public and, according to the advertising copy referred to the Council, solicitations are made to radio jobbers for agencies. It is a portable apparatus in a case with a carrying handle. When the front cover is removed there is seen a knob for control, an automatic timer dial and an electric meter. It is of light construction and is equipped with one thermionic tube. The electrodes consist of two oblong pads with a thin rubber coating.

This device is marketed to the public by means of advertising in newspapers under the heading "Arthritic and Rheumatic Pains" and announcing "Free Demonstration." According to the advertising, lay salesmen will demonstrate this unit at the home of any one interested. The advertising pamphlet entitled "Radiant Health from Radio Waves" implies that short wave diathermy is indicated in the following diseases: arthritis, rheumatism, circulatory disturbances, sciatica, neuritis, sinus infection, hay fever, lung pathology (except tuberculosis), prostatitis, colds and general injury. Rapid relief and recovery are cited in some instances. The pamphlet also contains such absurd statements as "Fight off old age! Use short-wave radiothermy!" "With this amazing new invention, painless days are here at last!" "Radio-waves smooth away your pains. Relief is quick and lasting—" "Especially those who could ill afford costly professional treatments, welcome the short-wave machines with heart-felt thanks."

One advertising sheet for the attention of radio jobbers and dealers is quoted:

> "Here it is . . . the Biggest News that has come to the Radio Industry in years! Radio Jobbers, Radio Dealers, Radio Servicemen all have watched the Receiver Sales curve DIP . . . they've watched diminishing sales and the smaller profits . . . but today a real opportunity exists in this brand new field of Radio-Thermy!
>
> "The Scientific Diathermy Supreme Model illustrated here lists for $149.50 with regular discounts to Dealer and Jobber. It's easy to demonstrate and as easy to sell!
>
> "Every home is a prospect for this modern miracle, which is recommended for the relief of Arthritis, Rheumatism, Lumbago, Common Colds, and many other ailments.
>
> "If you're looking for a NEW SOURCE OF PROFITS IN 1939 . . . Swing to Radiothermy and you'll swing into big money!"

Although no specific therapeutic agency except heat is cited by which the diseases named are benefited, there is the implication that something different and wonderful is achieved by short wave diathermy, as for example "modern miracle." In the pamphlet there appears to be an attempt to give a great scientific aura to short wave diathermy by reproducing headlines alone, or excerpts of newspaper stories or articles on scientific subjects. In some instances these concern other kinds of therapy. One article quoted from dealt with the use of electrical cautery devices, another with so-called electric massage, and others with fever-inducing apparatus.

Finally, apparent duplicates of testimonials by lay individuals were reproduced and accounts were given in the advertising of the frequent demonstation of the apparatus by laymen to others for the relief of many kinds of ailments. The advertising is typical in general tone of that for common nostrums meant to appeal to the uninformed.

In the opinion of the Council on Physical Therapy, the Scientific Diathermy Corporation is practicing methods that are detrimental to the public interest and rational therapeutics. Sales methods which promote the practice of self treatment of disease by those unqualified to practice medicine appeal to the public with persuasions which are unscientific and may harmfully enhance a feeling of false security on the part of the public.

Such wanton disregard of the best interest of the public probably will not be tolerated after the new food and drug act becomes operative.

In view of the foregoing report, the Council on Physical Therapy voted not to include the Supreme Model Short Wave Diathermy in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

ACIFORM II NOT ACCEPTABLE FOR N. N. R.

Aciform II (Aciform Corp.) is a preparation stated to contain in each cubic centimeter 0.0018 Gm. of formic acid, 0.004 Gm. of iodine, 0.0002 Gm. of sulfur, 0.0001 cc. of "terpene (camphene from Borneol camphor)" and 0.055 cc. of 95 per cent alcohol. In Germany the term "Aciform" is used for two preparations, "Aciform I" being a combination of formic acid, iodine plus "terpenes," and "Aciform II" containing formic acid, iodine, sulfur and a "terpene." The preparation has not been presented by the firm for the Council's consideration.

The advertising distributed by the firm since 1938 has announced this product as a new parenteral therapeutic agent for the treatment of "Acute and Chronic Arthritis, Lumbago, Sciatica, Neuralgia, and the associated Neuro-Muscular Disturbances." It is claimed that "Aciform II" is the result of "many years of laboratory research, and of clinical study in the fields of the physio-chemistry and chemo-therapy of inflammatory conditions in the human body." Only two reports on the results of these investigations have appeared in the scientific literature (Erlsbach, O., and Burger, A.: *Med. Klin.* **33**:1605 [Nov. 26] 1937, and Mayers, L. H., and Livingston, S. K.: The Treatment of Arthritis and Associated Conditions, *Indust. Med.* **8**:75 [Feb.] 1939). These reports are insufficient to support the claim that "Aciform II . . . has been subjected to the most critical tests in the leading medical centers of Europe in the treatment of the indicated diseases, with a record of successes that is reported as falling nothing short of the dramatic" and that this therapy ". . . is so spectacular, that without the unassailable evidence that is constantly being compiled from the experience of clinicians of highest standing, would be well nigh unbelievable."

The following description of the pharmacodynamics of "Aciform II" therapy could not be confirmed despite the availability of a well equipped medical library:

"The inflammation produced in the tissues by acute lumbago, sciatica, and acute and chronic arthritis is marked by certain histological changes. These include stasis, changes in the blood volume and ionization, and alterations in the small blood vessel walls. In addition there is an upset in the osmotic balance, and local tissue edema from the various exudations. The principle of ACIFORM therapy is the restoration of normal circulation, the elimination of toxins resulting from tissue damage, and the production of lymph flow with the resultant removal of tissue edema. This permits cellular repair, re-growth, and return to normal function."

The writer of the advertising also draws on the time-worn phrase "synergistic action of the components," which has been much used to give a scientific color to dubious therapeutic claims. The following quotation from the advertising is a naive admission of the lack of competent evidence for the therapeutic value of Aciform II:

"How many forms of useful therapy do you know that are being widely and successfully employed, that cannot be regimented into the hard and fast grooves of therapeutic theory as laid down in the text books and by accepted medical authorities.

You are, without a doubt, employing some of them for the benefit of your patients. You know they work, regardless of the 'why' and of generally accepted theory."

This admission is repeated in the recent article by Mayers and Livingston, of which reprints have been mailed widely to physicians. In this report it is stated that:

"The mode of action of the new preparation is admittedly obscure and empiric. It is thought that the components in the presence of the terpene are diffused and disseminated in the tissues in an action comparable to that evidenced in greater molecular dissociation. The therapeutic principle of the parenteral acid therapy is *presumably* [italics ours] the restoration of normal circulation in an affected part, the elimination of toxins resulting from tissue damage, and the production of lymph flow with the resultant removal of tissue edema. Such action permits cellular repair and a return to a more normal function. This new therapy has the advantage of producing such results immediately and safely by injection into the involved and adjoining areas."

The literature has been surveyed extensively, but little has been found that would support the claims advanced for "Aciform II" therapy. In Martindale's Extra-Pharmacopeia, 1936 (p. 36), it is stated that formic acid injections are of value in rheumatic disorders. The mode of action is claimed to be similar to that of cantharides in giving tone to muscles and restraining muscular tremors. The exact relationship between improving muscle tone and clearing up an infected joint is not discussed.

Formic acid therapy, like numerous other remedies promoted for "lumbago," "sciatica," and so on, can be dismissed from the armamentarium of pharmaceutic preparations without the slightest chance of depriving the sufferer from these conditions of any possible relief.

The Council declared Aciform II (Aciform Corp.) unacceptable for inclusion in New and Nonofficial Remedies because it is a preparation of unscientific composition marketed under a coined proprietary name with exaggerated and misleading claims of therapeutic value.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

ASTORIA BRAND FREE-FROM-PRESERVATIVE GREEN CHERRIES

Manufacturer.—Fruit Products Corporation, Belleville, N. J.

Description.—Bottled, peppermint flavored and artificially colored preserved green cherries; for use in decorating and flavoring foods. No artificial preservatives are used; oil of peppermint, citric acid, U. S. Department of Agriculture certified color and a small amount of alcohol are added. The alcohol is used to dissolve the flavoring.

Manufacture.—The method of manufacture is the same as that described for Astoria Brand Free-From-Preservative Cherries (red) (THE JOURNAL, Sept. 17, 1938, p. 1101).

Analysis (submitted by manufacturer).—The manufacturer reports that the proximate composition of these cherries is essentially the same as for Astoria Brand Free-From-Preservative Cherries (red) (THE JOURNAL, Sept. 17, 1938, p. 1101).

Calories.—1.2 per gram; 34 per ounce.

HOSTESS NEW BLEND BRAND SALAD DRESSING

Manufacturer.—Hostess Products Corporation, Long Island, N. Y.

Description.—Salad dressing containing cottonseed oil, water, cider vinegar, distilled vinegar, sugar, fresh egg yolk, corn starch, salt, tapioca and oil of mustard seasoning.

Manufacture.—Egg yolk, salt, sugar and spices in definite proportions are beaten together at high speed; oil is beaten in, then water and vinegar. The emulsified mixture is combined with formula proportions of a starch paste containing tapioca, corn starch, vinegar, sugar and water, and automatically filled into glass jars.

Analysis (submitted by manufacturer).—Moisture 41.1%, total solids 58.9%, ash 1.8%, sodium chloride (NaCl) 1.4%, fat (ether extract) 42.6%, protein (N × 6.25) 0.9%, reducing sugars as invert sugar 5.5%, total carbohydrate including crude fiber (by difference) 12.5%, titratable acidity as acetic acid 1.0%, lecithin phosphoric acid (P_2O_5) 0.047%, total phosphoric acid (P_2O_5) 0.122%, estimated egg yolk solids 2.6%, estimated egg yolks 5.3%.

Calories.—4.4 per gram; 125 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

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SATURDAY, JUNE 17, 1939

UNSATURATED FATTY ACIDS IN NUTRITION

Since the consideration in THE JOURNAL of the general thesis of the existence of indispensable fatty acids in nutrition,[1] information has been obtained which makes it possible to evaluate more accurately the function of these acids. The earlier work clearly established that the rat does not thrive on diets rigidly devoid of fat but acquires a characteristic deficiency disease. Although the many symptoms of this experimental condition were alleviated by giving a few milligrams of fat to the rats, it was established that the need of the animals was not for fat in general but for certain specific unsaturated fatty acids. The administration of either linoleic or linolenic acid resulted in a cure of the deficiency disease. Moreover, the ineffectiveness of other unsaturated fatty acids and of saturated fatty acids in curing the symptoms led to the suggestion that linoleic and linolenic acids cannot be synthesized in appreciable quantities by warm blooded animals. These fatty acids, therefore, become indispensable for living organisms and assume a position similar to that of certain amino acids, vitamins and minerals as a necessary constituent of a complete diet. The presence of at least one of the two fatty acids is required to promote the normal well-being of experimental animals.

Ample confirmation of the thesis of indispensable fatty acids has been presented, and investigators have expanded the original observations to include the study of other untested fatty acids in an effort to evolve some general conclusions as to why certain fatty acids are capable of curing the "fat deficiency" syndrome while others are not. Arachidonic acid has recently been added to the list of acids capable of alleviating the deficiency symptoms;[2] this fatty acid, administered as the methyl ester, was shown to be approximately three times more effective as a curative agent than is linoleic acid. Other types of unsaturated fatty acids tested were negative with respect to curative power. From a consideration of the results, certain features of a fatty acid molecule seem to be required in order that the substance may be capable of alleviating the fat-deficiency symptoms: at least two double bonds are necessary (linoleic, linolenic and arachidonic acids) and these double bonds must occupy certain positions (positions 9:10 and 12:13, as in the aforementioned acids). Evidently the third and fourth double bonds, as present in linolenic and arachidonic acids respectively, cannot be of any importance because linoleic acid, with two double bonds, is as effective as linolenic acid with three. The fact that arachidonic acid is superior as a curative agent to any other substance thus far tested leads to the tentative hypothesis that the need of the animal body is primarily for this acid. Under these circumstances the other curative fatty acids may be regarded as beneficial by virtue of their conversion to arachidonic acid in the body.

Detailed studies of the essential fatty acids in their relation to the fat-deficiency disease of rats have been recently reported[3] by investigators at the Lister Institute in London. These authors have attempted to compare quantitatively the ability of certain fatty acids to alleviate the principal symptoms of the fat-deficiency disease. In addition, some explanation was sought for the specific curative action of certain fatty acids. Although the latter goal has not been attained, the quantitative nature of the investigation, together with the large amount of data presented, mark these contributions as noteworthy. The English investigators employed resumption of gain in body weight and healing of skin lesions as criteria of the efficacy of certain materials to supplement the fat-free diet. It was demonstrated that methyl linoleate was much more potent and lasting in action than methyl linolenate; the latter was approximately one sixth as potent as the former. A study was also made of the ability of various oxidation products of linoleic acid and linolenic acid to alleviate the deficiency symptoms. It seemed possible that an oxidation product might be formed as a further stage in some metabolic process and that these products might be of some significance in elucidating the part played in metabolism by these unsaturated fatty acids. However, the oxidation products that were tested failed to benefit cutaneous lesions and were ineffective in prompting increase in weight. However, a fatty acid containing twenty-two carbon atoms and six double bonds, isolated from cod liver oil, was found to be potent in promoting increase in weight but to have little or no action in curing lesions of the skin. This leads to the interesting conclusion that the capacity of unsaturated fatty acids to supplement a fat-free diet in promoting gain in body weight is not necessarily associated with ability to heal skin lesions.

1. Essential Fatty Acids, Current Comment, J. A. M. A. **100**: 1342 (April 29) 1933.
2. Turpeinen, Osmo: J. Nutrition **15**: 351 (April) 1938.
3. Hume, Eleanor M.; Nunn, L. C. A.; Smedley-Maclean, Ida, and Smith, Hannah H.: Biochem. J. **32**: 2162 (Dec.) 1938.

As another step in elucidating the role of the essential fatty acids in metabolism, the Lister group [4] has also determined the nature of the fatty acids stored when the rats were kept on a fat-deficient diet and has studied the alterations which occurred in these stored fatty acids when the curative acids were fed. The livers of the animals fed a fat-free diet contained no fatty acids with four or more double bonds. When small doses of methyl linoleate supplemented the fat-free diet, however, fatty acids of four or more double bonds were deposited in the liver fat. Similar results were obtained when methyl linolenate was used as the dietary adjunct. From these thorough investigations it appears that, whereas the essential linoleic or linolenic acids may have some direct effect on the skin, their main function is to supply material from which higher and more unsaturated fatty acids may be synthesized. Moreover, since in the fat-deficiency disease there is an inability to store fat, it seems evident that the more unsaturated fatty acids have some influence in enabling the organism to store fat in its depots and tissues.

4. Nunn, L. C. A., and Smedley-Maclean, Ida: Biochem. J. **32**: 2178 (Dec.) 1938.

ORIGIN OF THE STEROIDAL HORMONES

Significant among recent developments in chemistry has been the demonstration of the close similarities existing among the chemical structures of many physiologically important compounds. This resemblance extends in many instances into the realm of physiologic function. Particularly striking in this respect are the sex hormones and the hormonal substances of the adrenal cortex. All these compounds contain the steroid nucleus. Moreover, the similarity is further emphasized by the clinical syndrome of adrenal virulism, by the ability of certain of the sex hormones, e. g. progesterone, to restore the adrenalectomized animal, and by the recent actual isolation of progesterone as a constituent of adrenal cortical tissue. The problem of the origin of the steroidal hormones in the organism is therefore important. The processes by which the mammalian organism synthesizes these relatively complex molecules would, if understood, contribute greatly to understanding synthetic reactions in the body.

In the light of their chemical structure the steroidal hormones may arise from the degradation of cholesterol. The ubiquitous distribution of the latter steroid, containing the cyclopenteno-phenanthrene nucleus, and the presence of this nucleus in the sex hormones and in those of the adrenal cortex, makes this hypothesis of the origin of the steroidal hormones of particular interest. Indeed, from the point of view of theoretical organic chemistry it is possible to represent a mechanism for the conversion of cholesterol to a compound of sex hormone-like or adrenal cortical hormone-like activity. Moreover, actual experiment has demonstrated that certain of the steroidal hormones and related substances with physiologic activity may be prepared by the degradation of cholesterol and other sterols.[1] It has been claimed [2] that cholesterol may be converted by enzymatic actions into sex hormones.

Notwithstanding the evidence supporting this interesting hypothesis, certain objections to adopting this theory unequivocally become apparent. From a consideration of theoretical organic chemistry it is difficult to visualize the mechanism by which necessary oxygen atoms may be substituted into the steroid nucleus, a reaction required for supporting a biologic origin of the adrenal cortical substances from cholesterol. Moreover, the drastic conditions which must be employed in the laboratory to oxidize the side chain of cholesterol may be construed as an argument against the occurrence of this reaction in the organism.

In order to circumvent the objections to cholesterol as the "mother" substance of the steroidal hormones, Marker [3] has recently made some new suggestions regarding the origin and interrelationships of the steroidal hormones. During the past two years this investigator and his colleagues, working at the Pennsylvania State College, have published a long series of noteworthy papers dealing with investigations of the steroids in the urine of various species. Numerous reduction products of progesterone have been isolated. With the establishment of the structure of each of these compounds has come strong support for the suggestion that these products are all formed by biologic reduction of progesterone. Moreover, it is possible to hypothecate these reduction processes via reactions which are in good agreement with transformations known to occur in vitro. From urine there have also been isolated compounds the structures of which indicate that androstenedione, the corresponding parent male hormone, and also the cortical hormone, may undergo biologic reduction. From a consideration of the structural interrelationships among the many steroids isolated from urines and reported present in gland extracts, Marker postulates a hypothetical substance as the precursor of the steroidal hormones. The structure of this suggested precursor is closely related to the configurations of the known sex and adrenal cortical hormones; it is that of a substance with steroid nucleus and containing highly reactive groupings which are particularly susceptible to reduction reactions.

The logic of the arguments proposed by Marker in support of his hypothesis are, for the most part, sound. In some instances theoretical reasoning is employed which is criticized as being unreasonable. This is true in connection with certain reactions commonly considered as vigorous laboratory transformations and also in the suggestion of an involvement of enzymes in some

1. Koch, F. C.: Physiol. Rev. **17**: 153 (April) 1937. Steiger, M., and Reichstein, T.: Helvet. chem. acta **20**: 1164, 1937.
2. Rondoni, P.; Carminati, V., and Corbellini, A.: Ztschr. f. physiol. Chem. **241**: 71, 1936.
3. Marker, R. E.: J. Am. Chem. Soc. **60**: 1725 (Aug.) 1938.

of the stages of steroid transformations. Nevertheless the arguments of Marker are thought provoking and serve to correlate the mass of data accumulated in his laboratory. Such ideas stimulate suggestions for future investigation of the important problem of the biogenesis of the steroidal hormones.

THE PLACE OF SULFANILAMIDE IN CHEMOTHERAPY

The recent review of Marshall [1] on the pharmacology of sulfanilamide correlates a vast amount of experimental work dealing extensively with the experimental results which form the basis for the intelligent use of sulfanilamide and related drugs in certain bacterial diseases. Interest in the search for drugs as bacterial chemotherapeutic agents was aroused thirty-five years ago by Ehrlich's results in chemotherapy. Marshall points out however that, despite the advances which have been made in the chemotherapy of protozoan infections since Ehrlich's time, the development of greatest practical importance in bacterial chemotherapy was the introduction, within the last few years, of drugs containing the sulfonamide group. Neoprontosil and sulfanilamide were at first thought to be specific against the beta-hemolytic streptococcus; however, subsequent investigation has indicated that these drugs or allied compounds may be effective against infection due to several different genera of bacteria. The efficacy of sulfanilamide in experimental mouse infections due to the meningococcus, gonococcus, Eberthella typhi and paratyphi B, Clostridium welchii, the Sonne strain of dysentery bacillus, and the staphylococcus seems to be well demonstrated. With regard to pneumococcic infection with types I, II and III in mice, the drug appears to possess some activity, although different investigators do not agree on the magnitude of the effect.

Sulfanilamide resembles urea and ethyl alcohol in its equal distribution in the organism, apparently diffusing readily into all tissues and fluids of the body. Although the acute toxicity of sulfanilamide under certain conditions has been studied on many varieties of animals, comparatively little information is as yet available with regard to the effect of repeated doses and chronic toxicity. While it is true that drugs may sometimes produce toxic effects in human beings which cannot be predicted from animal experiments, the value of such experiments in avoiding harmful effects in man is well known. Additional animal experiments will undoubtedly help to make the use of sulfanilamide as safe and effective as is compatible with its chemical constitution. With regard to the mechanism of the action of sulfanilamide, comparatively little is known. In this connection Marshall believes that the balance of evidence indicates that sulfanilamide affects the invading organism as a result of bacteriostatic or bactericidal action which, in many cases, is not sufficient to effect sterilization without the cooperation of the defensive reaction of the host. The relative roles assumed by these two factors probably vary, depending on different conditions of infection and concentration of the drug.

In the main, the results obtained with sulfanilamide and allied compounds in experimental infections in animals have been duplicated in the treatment of certain infectious diseases in man. Sulfanilamide has been tried in many types of disease; according to Marshall it is yet too early and the cases are too few to assess fully its value in most of the conditions investigated. The advent of sulfanilamide and related compounds has, nevertheless, altered in a favorable sense the prognosis of hemolytic streptococcus as well as other bacterial infections; furthermore, it has demonstrated the possibility of effective chemotherapy for bacterial diseases.

1. Marshall, E. K., Jr.: Bacterial Chemotherapy: The Pharmacology of Sulfanilamide, Physiol. Rev. 19: 240 (April) 1939.

Current Comment

BACTERIAL EXAMINATION OF EATING UTENSILS

In a survey of the bacteriology of eating utensils, Carlisle and Hartinger [1] followed the technic employed by Cummings and Yongue, using brain-veal agar and plain agar in petri dishes as the culture mediums. The cultures from "clean," recently washed plates, cups, glasses and spoons which had been handled but not used for meals showed a total bacterial count for the entire surface of the plate, cup, glass or spoon ranging from 64 to 110, whereas cultures from used unwashed utensils showed a content ranging from 38,000 to 190,000. Dishwater remaining after washing dishes which had been handled and used by patients and personnel showed a bacterial count of 80 per cubic centimeter. This is below average expectation and means that few bacteria survive the exposure to hot soapy dish water. Dishes that were washed in hot soapy water at 172 F. and then rinsed in hot water at the same temperature were found to be sterile. Contamination found on unused utensils which had been handled but were still unused was due to ordinary air and hand contamination; pathogenic organisms were not found. Although tubercle bacilli were not found on the utensils in the combined ward mess for neuropsychiatric and tuberculous patients, it was recommended that the dishes after being washed in the usual manner at 172 F. be sterilized in a steam sterilizer for at least five minutes at a temperature of 212 F. The survey also demonstrates the necessity of avoiding air-borne and hand-borne contamination as much as possible—a problem which can be met by requiring hand washing prior to the handling of dishes. The cleansing of hands, the prevention of flying dust and the screening of mess hall windows, together with the bacterial examination of "clean" dishes, it is concluded, should constitute a regular routine for the purpose of maintaining a high degree of institutional sanitation.

1. Carlisle, C. L., and Hartinger, A. L.: Bacteriological Examination of Eating Utensils, M. Bull. Vet. Admin. 15: 294 (Jan.) 1939.

ORGANIZATION SECTION

ABSTRACT OF HEARINGS ON THE WAGNER HEALTH BILL

(Continued from page 2442)

STATEMENT OF DR. BENSON

Dr. Cary:—The next one to speak will speak on the subject of the Care of the Indigent. I present Dr. Robert L. Benson of Portland, Ore., a member of the Oregon State Welfare Commission, and also a member of the Oregon State Board of Health.

Dr. Robert L. Benson, Portland, Ore., member of the Oregon State Public Health Commission and member of the Oregon State Board of Health:—For years I have been a member of the state relief and welfare agency of Oregon under three state administrations of three different political parties. Anything that I can say here is nonpartisan.

Senator Wagner:—May I interrupt you? I am a little curious, and I am sure the chairman won't mind. You said that you worked under three political parties. What is the third one?

Dr. Benson:—Independent. I believe I am familiar with the needs. In Oregon federal participation in general assistance was withdrawn in 1935. Since that time, Oregon has borne the burden of indigent care and has ministered generously to the relief of want. Road funds, liquor revenue and all possible sources of income have been diverted to meeting this demand. They have been difficult years, but in spite of this we feel that we have been successful. The Oregon state budget is still balanced and we are solvent.

The Pacific Coast section has recognized, like most parts of the country, that the millions of destitute people of the nation require material aid. Most urgent of these demands concern adequate shelter, necessary food, essential clothing and fuel. Secondary only to these is the need for medical care.

The following briefly describes Oregon's effective setup for handling the problems of the medically needy: The state relief agency always refers medical problems to its medical member for study and recommendations. He, in turn, has a full time medical adviser whose duty it is to visit all parts of the state to study their respective needs. We also employ a chief medical social worker under medical supervision to direct the activities of the various case workers as they are confronted with persons needing medical attention.

The Oregon State Medical Society is consulted on all important affairs relating to practice among the needy of the state. The society has a special standing committee which meets several times each month with the committee from the state relief agency to decide on policies to be adopted. The two, after collaboration, have a definite detailed plan for handling all questions relating to medical care of the indigent throughout the state.

The results have been gratifying. There has never been a situation that has not been ironed out. Diagnosis and treatment have been made available to the medically needy. Nursing care and hospitalization have been provided wherever needed. As far as possible, the time honored relationship of patient and doctor has been maintained, an exception being in the metropolitan Portland district, where the medical profession cooperates with the medical school clinic. Difficult cases are brought to the metropolitan center for study by a specialist in private practice, in a large number of cases. Autonomy in method of handling is left to the county unit and its medical adviser, subject to approval of the state relief agency.

The financial burden has been borne jointly by the state and the counties without aid from the federal government, usually on the basis of 60-40 or 50-50. Oregon is at present spending for medical care an average of about $1.07 per month for each person on relief, two thirds of which goes for hospitalization. This means an outlay of $4.28 a month per indigent family of four persons. Physicians have in general offered their services freely with the result that their fees outside of Multnomah County, the metropolitan area, have absorbed about 12 per cent of the total medical cost. The expense to the state amounts at present to about $65,000 a month, or a total for 1938 of $795,752.77. It is a small state in population, something over one million.

In the more thickly settled states of California and Washington the situation has been generally similar, but their accounting system is different and does not admit of ready comparison. Their needs are, however, identical with ours and their response to the need equally generous. The medical profession of the Pacific Coast states agrees fully with the profession of the whole country that the millions of people on public assistance throughout the United States must be furnished with adequate medical care. Our chief concern is that such aid shall be in a form that will uphold and improve the high standards of service previously achieved in medical practice.

The National Health Conference, held in Washington July 18, 19, 20, 1938, and which I attended, received five separate recommendations of the Interdepartmental Committee. Number III concerns Medical Care for the Medically Needy, and IV, A General Program of Medical Care with its implication of compulsory sickness insurance. In the Wagner Health Bill we find these two grouped under one heading: "Grants to States for Medical Care." Are we to infer that the proponent of this act undertakes to group indigent medical care and the care of the self-supporting brackets under one category? Again, must the state, to qualify for a grant, obligate itself to accept, besides the universally recognized need for indigent medical care, a program for medical care to income groups which may be incompatible with its local needs? We find such a plan highly objectionable and entirely unnecessary. Those who have had years of experience in relief agencies realize that indigent medical care requires one setup and that the self-supporting group must be handled in an entirely different way. It is essential that they be kept separate.

In conclusion, we are entirely in sympathy with the humanitarian principle of ministering in a generous measure to the medical needs of the indigent. Such care should be in the hands of the medical profession. Medical care of the lower self-sustaining brackets is a separate problem and should be met by a voluntary prepaid plan within the option of the state in which it is to operate. For the higher paid brackets of the population there is no need for any provision which will undermine self determination and independence. The advanced achievements and high standards of medical practice should be maintained at their present level and encouraged to further strides.

We shall be glad to further scientific medical progress in every possible way, but we cannot fail to oppose a proposal such as S. 1620, which will supplant these high standards by a system which is vague, visionary, inordinately extravagant and subversive of the best interests of an independent and self-reliant people.

Expenditures for medical care as proposed by the Wagner bill involving matched funds have been anticipated in Oregon by the County Judges' Association, which has expressed its inability to admit further large matching programs. The state legislature has expressed itself similarly. In conclusion, let me introduce a letter addressed to me this month by the governor of Oregon, Hon. Charles A. Sprague, as follows:

> In reply to your letter of May 1 with respect to the Wagner bill providing funds for public health administration, I wish to say that in my judgment of the state of Oregon is not in position to increase its contribution in the direction of social security.
>
> Last year about one third of its expenses for general assistance went for medical aid and hospital care. If these funds could be regarded as the state's contribution on a matching basis, we would receive additional sums from the federal government for use in the state.
>
> We are not unmindful of the need of proper care of the poor, but the tax burden which has been assumed for general social welfare purposes is as heavy as can well be sustained by our people.
>
> CHARLES A. SPRAGUE, Governor.

I close by stating that, while we have due regard for the need of adequate care for the needy, the feeling in Oregon in general is not in favor of greatly increased cost, and, as we are all aware, confining myself to the care of the indigent, there is proposed here for the first year $35,000,000 for medical care and unlimited amounts thereafter, and there is no provision as to

whether that will all go to the care of the indigent. Our concern is that these needy people, the really indigent, shall have whatever care is offered.

Senator Ellender:—Doctor, I am much interested in the Oregon plan that you have outlined. You say that the state contributed to the extent of about $100,000 per year?

Dr. Benson:—To what?

Senator Ellender:—Medical care.

Dr. Benson:—No, it is about $800,000.

Senator Ellender:—How is that money distributed as among the counties of your state? What is the yardstick?

Dr. Benson:—The county puts in a budget, and that budget is gone over and audited and passed on by the State Relief Agency. There is not a great deal of trouble in doing that.

Senator Ellender:—All of the counties of course do not get the same amount?

Dr. Benson:—No.

Senator Ellender:—It depends on their needs?

Dr. Benson:—It depends on their needs, yes, sir.

Senator Ellender:—What kind of service is furnished to these people?

Dr. Benson:—That is left to the local option, but in general we have a system under which the physicians have agreed locally to a fee schedule that will make possible care for all of these people under the budget at hand.

Senator Ellender:—Do you fix the fees?

Dr. Benson:—Yes, sir, we have a schedule of fees.

Senator Ellender:—In other words, those doctors take care of these indigents, the fee is fixed by the state?

Dr. Benson:—No, sir.

Senator Ellender:—How is it fixed?

Dr. Benson:—This fee has been fixed by the local medical society, the state medical society.

Senator Ellender:—Are the doctors paid out of this $800,000 that is raised by the state, and then the counties contribute?

Dr. Benson:—That is right.

Senator Ellender:—Does the same go for hospitalization?

Dr. Benson.—Yes, sir.

Senator Ellender:—Is that plan working well in Oregon?

Dr. Benson:—I think it is working very well. Of course it is not giving all of the aid that we would like to give, but I think we can say that the percentage who go without needed medical care is extremely low.

Senator Ellender:—But you could give better service and have better results if you had more money?

Dr. Benson:—Yes, sir.

Senator Ellender:—To what extent have the state agencies taken advantage of the Social Security money that is now being furnished to the state?

Dr. Benson:—We are using it.

Senator Ellender:—Is there any evidence of federal control in the state of Oregon by virtue of the use of this federal money?

Dr. Benson:—Yes, quite a bit.

Senator Ellender:—What is that?

Dr. Benson:—Quite a bit?

Senator Ellender:—All right. Will you tell us to what extent there is?

Dr. Benson:—I probably could not tell you to the entire extent which it has been done.

Senator Ellender:—No, but you have been in the state department for three administrations.

Dr. Benson:—I have not been in charge; I have been a member.

Senator Ellender:—You have been connected with it?

Dr. Benson:—Yes, sir.

Senator Ellender:—Tell us to what extent the federal government has shown control over the state agency by virtue of furnishing this money that your state does get under this law.

Dr. Benson:—The federal government is not participating except in certain programs.

Senator Ellender:—What programs?

Dr. Benson:—Old age.

Senator Ellender:—I am talking about the maternal and child care. I think under the bill they are now getting $3,800,000 for those services. Is the state participating to any extent in that fund?

Dr. Benson:—Yes.

Senator Ellender:—Will you tell the committee to what extent the federal government has tried to take advantage of that?

Dr. Benson:—Not very much.

Senator Ellender:—Can you qualify that? "Not very much" means some, to me. But to what extent has it taken advantage or has it taken control of it or had its hand in the pie, as it were?

Dr. Benson:—I might inform you that that is not under our agency in Oregon. That is under the state board of health.

Senator Ellender:—Would you know of your own personal knowledge if any influence has been used?

Dr. Benson:—I don't know of any at all, Senator.

Senator Murray:—Has there been any criticism by the medical profession that the federal government has interfered in that program?

Dr. Benson:—I imagine there has, Senator. If you think there is any federal or state agency that does not get criticism—you can be sure that there is criticism.

Senator Murray:—But you do not consider it justified?

Dr. Benson:—Well, I have no knowledge of any justified criticism of that control, no. Of course, it is not under our agency; we are not being concerned with it directly.

Senator Ellender:—Doctor, how would you look on a bill, let us say, drafted by this committee carrying out the same principles and the same medical aid that is being afforded now to the people of Oregon under the Oregon plan?

Dr. Benson:—I think that if it were confined to administering to the needy, to the indigent, I think that Oregon would yield to the same temptation that pretty nearly any state would of accepting a gift.

Senator Ellender:—How would you feel about it?

Dr. Benson:—I would be for accepting it.

Senator Ellender:—For accepting it?

Dr. Benson:—Yes.

Senator Ellender:—Your main reason, as I understand you emphasized in your answer to me, was with respect to the need for it; in other words, give it to those communities that want it and can show need for it?

Dr. Benson:—That is right. I want to qualify it further, however, that I would want to be absolutely certain, Senator, that the statement of that need came from Oregon if we are speaking of Oregon, or from any other state—

Senator Ellender (interposing):—Yes, but Doctor—

Dr. Benson (interposing):—Just a minute. I want to finish this answer because this is important to me.

Senator Ellender:—I do not want to cut you off.

Dr. Benson:—I do not believe in the promulgation of any big program that through propagation thrusts itself on states, and I fear that that is the trend in this bill. I think all the aid that the states need, and I know a state that is as honest in its administration as ours has been can be trusted with it, all the aid that would be acceptable to us is an aid that comes through our own application on the basis of a known need that is local, and we do not want any matching funds poured in our direction which would tempt our state and other states to just create a need. That is a temptation.

Senator Ellender:—Under this bill, as I understand it, you would not have any funds poured into Oregon unless it could show a need for it. The bill provides for certain yardsticks, and unless the states applying can measure up to those yardsticks, they are going to get nothing, and it is up to you to show a need for it under the specifications as contained in the bill. Now, if you or anybody else or any other witnesses can propose any other yardstick that would carry out what I conceive the bill has or what I think it has, I would like to have it made certain that no state or no community shall have any of these funds unless there is need for it. Certainly I would not want to advocate that the government collect taxes here and there and just simply pour forth just before the state asked for it; I don't want that.

Dr. Benson:—But here is the thing that you probably do not get here in the capital of the nation, but certainly we get it at home, and it is not only in our state but in all states, whenever it comes to the matching of funds, and we hear this stated time after time, not that we must have that but that we can get that. I am talking of, as I said before, a temptation which they will yield to.

Senator Ellender:—You have cited Oregon as a model state?

Dr. Benson:—One of the model states.

Senator Ellender:—Has Oregon obtained any money from the government that it was not entitled to under the laws since the federal government has gone into this way of trying to help the people of our nation?

Dr. Benson:—Now, I would have to answer that by saying that all things are relative. Needs are relative, and it is so easy for a state to show a need when it comes to a dollar for their 50 cents spent, and when their 50 cents spent suddenly grows into a dollar, there is certainly a temptation to feel a need that they did not need before. I know that is true in Oregon and in other states; it is human nature.

Senator Ellender:—Notwithstanding the fine reputation that you have given to Oregon, still you think that if the opportunity is afforded that they would probably ask for it?

Dr. Benson:—Yes, I do; we are human.

Senator Ellender:—That is your view?

Dr. Benson:—Yes, sir.

Senator Ellender:—Well, there is a lot of weight to that view.

Senator Wagner:—You read a letter from your distinguished governor, and I want to read another letter that came out of the West. I will just read portions of it

Our experience in dealing with problems of dependency during these past years has impressed upon the health and welfare administrators of this state the significant part that ill health and inadequate health facilities play in the lives of people who are recipients of public assistance. Consequently, in the development of our Social Security Program, we have seen a close working relationship between these two branches of public service. Out of this experience has come the realization that an expansion of public health facilities will play a large part in our future attempts to lessen the economic and social dependency of our citizens.

Further on in this same letter it is stated:

We have read the material that has been gathered over the past several years by the Interdepartmental Committee on Health and Welfare, and we realize that these exhaustive surveys undoubtedly have brought to the attention of the committee the facts underlying the whole problem and the plans outlined to meet the problem. However, if there is any further information that you believe we might supply, please feel free to call upon us. We shall continue to watch with interest the progress of this constructive legislation.

Sincerely yours,
CLARENCE D. MARTIN,
Governor of the State of Washington.

He takes apparently a different view, doesn't he?

Dr. Benson:—No, I do not think so, Senator. That was largely public health, you see. I am, like most members of the medical profession, in favor of enlargement of public health activities. For instance, just to make my point clear, if we were to spend a sum of money to go down in Florida, or any other state—I used to live in Florida and I think of the way the mosquitoes used to bite there and I had malaria there, and I had a fever too both from mosquitoes—if those swamps are to be drained and we can rid them of those diseases, and also of the yellow fever that Florida had that swept away a large percentage of their people, I am for that too, more and more development in a reasonable way of public health.

Senator Wagner:—In anything that I say I do not want you to understand that I question your desire to improve the public health. We are all for that, but we are trying to find a method.

Dr. Benson:—That is what Governor Martin is speaking of there.

Senator Wagner:—He is speaking of the whole program—I did not read the whole letter, but I will read the portions that I did not read previously:

As a recognition of this need, the 1939 state legislature made provisions for making moneys available in the event that the federal government inaugurates a national health program through which matching funds will be made available to the respective states. This is an indication that the state of Washington recognizes the principles of such a program and is ready to accept them should congressional action put them into effect. It is my understanding that a national health program, such as the one outlined in the bill which you have introduced, would fit in with existing health and welfare programs, and would, therefore, augment the services now available. It would give federal financial assistance to many of the phases of the program which the states and counties are operating on a small scale now. Where deficiencies in the services are already recognized, such assistance would prove of great value to the respective states as they carry out their programs of social security and public health. It is my further understanding that the legislation which Congress has before it aims to assist states along the lines of the health and welfare programs which the states themselves have initiated.

In talking about health, one of the doctors this morning I think minimized a little bit the extent of need of more adequate health service. Here is a statement from the head of the Welfare Department of New York:

A recent study made by the Department of Welfare of New York City indicates that, in New York State, sickness of the breadwinner alone is responsible for approximately 15 per cent of the cases on home relief—and this is merely one type of public aid. In other words, in any one month in this state, over 136,000 men, women and children and more than 47,000 cases are dependent upon home relief because the wage earners have lost their jobs through illness. The approximate cost of this burden is over $22,000,000 annually. And, remember, we are excluding institutional care, those persons served by the hospital and health departments and all other forms of public aid.

You see what a great economy we could in the long run provide by making our citizens healthful. I am sure you agree with every word of that.

Dr. Benson:—Senator, in comment on that, that whole matter relating to prepaid care of industrial groups is an interesting topic and we could drag on here for days. If I could make my position clear, I am sure that you won't find it so unreasonable—

Senator Wagner (interposing):—I do not think you are unreasonable.

Dr. Benson (continuing):—As regards my ideas on indigent care, but I believe that the state and the counties, the political subdivisions, should furnish adequate medical care for the indigent, and I go further and I believe that, if they are unable to furnish all that, they should go to the federal government and ask for a grant as a gift or on a matching basis, a grant in aid. My whole point is that I feel that the matter should be simplified. We should be kept within bounds so that the federal government is on a balanced budget the way my state is. Mine is a poor state, but we are on a balanced budget, and I believe the federal government ought to be.

Senator Murray:—We will stand in recess then until tomorrow morning at 10 o'clock.

(Whereupon, at 4:20 p. m., a recess was taken until Friday, May 26, 1939, at 10 o'clock a. m.)

Friday, May 26—Morning

The subcommittee of the Committee on Education and Labor of the United States Senate met at 10 a. m. in the Senate Office Building, Senator James E. Murray (chairman) presiding. Present were Senators Murray, Ellender, Thomas and Davis. Also present was Senator Robert F. Wagner.

Senator Murray introduced into the record some statements of witnesses who were not going to be present.

One from Mr. H. B. Anderson, secretary of the Citizens' Medical Reference Bureau, Inc., with headquarters at 1860 Broadway, New York.

Also a resolution passed at the National Convention of the National Lawyers Guild, held at Chicago Feb. 12, 1939, pertaining to a National Health Program.

Also a statement of the United Rubber Workers of America, to the Senate Committee on Education and Labor, on the National Health Program.

Also a statement on the National Health Bill by the Amalgamated Clothing Workers of America.

Also a statement made by the United Office and Professional Workers of America.

Also incorporated in the record was a statement of Dr. Walter E. Vest of Huntington, W. Va., president of the Public Health Council of West Virginia, Huntington, editor of the *West Virginia Medical Journal* and past president of the West Virginia State Medical Association.

STATEMENT OF DR. WALTER E. VEST ON INSURANCE AGAINST UNEMPLOYMENT DUE TO SICKNESS

Dr. Walter E. Vest:—The disability compensation program dealt with in title XIV of the Wagner Health Bill is collaterally allied to rather than an integral part of a medical care program. Essential medical care will materially reduce the cost of disability insurance, and appropriate hospitalization and scientific rehabilitation, however provided, are necessary to keep the actual expenditure incident to such a program within reasonable bounds.

Compensation for loss of wages during illness may, when a part of a mutual voluntary indemnity insurance plan, have a favorable influence on the duration of disability and early return to employment. Self interest and self respect tend to prevent abuse of mutual indemnity plans.

Where the workman's financial responsibility is small in proportion to the benefit expected during disability, there is a tendency to assume and take advantage of a state of invalidity. In other words, the workman has a financial interest in assuming and continuing a state of apparent invalidism.

Properly safeguarded, payments for wage loss due to sickness, administered in like manner as payments compensating for unemployment due to other causes, would relieve much of the economic burden of illness in the low income segment of the population.

The American Medical Association endorses the principle of insurance against loss of wages during sickness. It is indispensable, however, that the physician's function in caring for the sick workman should be completely separated from medical certification of compensable disability. This should be the function of a qualified medical employee of the disbursing agency.

The Wagner Health Bill, however, is not satisfactory for the following reasons: (1) It requires the furnishing of medical services in addition to cash indemnity, (2) it furnishes a stepping

stone toward universal compulsory sickness insurance and (3) it provides for federal control of what should be essentially a state function.

Senator Murray:—Is Homer Folks here?

Mr. Folks:—Yes.

Senator Murray:—Will you come forward, please? Mr. Folks, I understand that you are anxious to get away and desire to make a statement at this time?

Mr. Folks:—That is right, sir, both.

Mr. Homer Folks, secretary of the State Charity Aid Association, New York, then presented a statement favoring the Wagner Health Bill.

ABSTRACT OF STATEMENT BY HOMER FOLKS

Mr. Folks:—In the United States in 1938, 69,324 persons died in the fruitful years of life, in the early middle aged period, when they are carrying the major responsibilities of life to their families and their communities, from a cause which we do understand, from a cause which we can control, which we are very slowly approaching a control of but which, if we only applied more fully what we now know, could be eliminated as any substantial cause of death in a very much shorter time than it otherwise will be. It is a national problem because these deaths are distributed over the entire country.

A second reason for federal participation is that no one state can do it alone.

The third reason is that while the cities and counties and the states have heretofore done quite a bit. They cannot now provide the sums required for hospital care.

Now the National Tuberculosis Association has just three points in its plan, which I say in substance is in the Wagner bill. The first of those is that we plan over a period of years to bring the number of tuberculosis hospital beds up to a minimum of two per annual death in each state in the Union. We suggest in our plan that the federal authorities aid for a period of six years in the maintenance of the additional hospital beds, not the existing ones. Third, that the federal government assist the states in finding the cases of tuberculosis which most need to be hospitalized. There are new methods of doing that, developed within the last few years, the significance of which is only relatively as yet understood; namely—I am speaking now for the National Tuberculosis Association, not of my personal knowledge professionally because I am not a doctor, but I know their views—that tuberculosis, early tuberculosis, can only be discovered definitely by an x-ray examination of the chest, and in no other way; that no practitioner without an x-ray machine can discover early tuberculosis.

Senator Murray:—Is that proposition recognized by the medical profession generally?

Mr. Folks:—I don't know, I guess so, I hope so, I think so. It is recognized by the National Association for Tuberculosis where the experts are—at least. They certainly must know it. If you are really going to find the people who are in a stage when they can be cured readily, you have got to go at it with the x-ray examination of the chest. And so we propose here that the federal government assist in that particular matter up to 50 per cent.

As an individual, I did my home work on the Wagner bill last night, a second time. I read it through from the first word to the last one and gave the whole evening to understanding it and seeing it. I have been a little critical of it at times, as it seemed to be pretty complicated and pretty hard to understand. I finished up last evening with an entirely different feeling about the bill as a piece of workmanship. To my mind it is a splendidly written piece of legislation. It wasn't just written, it grew, it is coherent, it is consistent, it is in harmony all the way through, and to my mind it is an excellent piece of bill drafting, and I hope it will get your most serious and favorable attention.

STATEMENT BY DR. CHARLES GORDON HEYD

Dr. Charles Gordon Heyd, New York, professor of surgery, New York Post-Graduate Medical School, Columbia University, was presented.

Dr. Heyd:—Mr. Chairman, I should like to draw to your attention a paragraph from the proposed National Health Act of 1939, page 5, paragraph 7, line 7:

> Provide for cooperation and, when necessary, for working agreements between the state health agency and any public agency or agencies administering services related to the services furnished under the state plan, including public agencies concerned with welfare, assistance, social insurance, education or medical care.

This paragraph appears twice in title V, once in title VI, once in title XII and once in title XIII.

This bill, therefore, expressly provides for working agreements, "including social insurance." Furthermore, two individuals and one executive control, administer this bill. First, the Chief of the Children's Bureau; second, the Surgeon General of the Public Health Service, and third, the Social Security Board.

These three individuals, with the consent or approval of the Secretary of Labor and the Secretary of the Treasury, "shall allot to the states the sums appropriated in accordance with rules and regulations which they shall make and prescribe."

It has been said that the power to tax is the power to destroy, and the power to give and withhold money is the power to coerce and control. There is, inherent in this bill, the power to dominate the entire field of medicine and to induce states to submit plans to certain three individuals in Washington, or bureaucrats, and "Failure to comply substantially with any requirement . . . further payments will not be made to the state" (page 22, sec. 605, line 12).

Senator Murray:—Wouldn't it be necessary, doctor, to have any law that way, that they would set up a formula or a basis for the granting of the assistance and if they didn't comply, then they wouldn't be entitled to receive the assistance?

Dr. Heyd:—That is true; the Comptroller General has to see that the funds are distributed within the law.

Senator Murray:—That is the only way anyhow—

Dr. Heyd (interposing):—But the prescribing of the rules, Mr. Chairman, is by these three individuals.

Senator Thomas:—Whom would you have them by?

Dr. Heyd:—Whom would I have them by? May I, Mr. Chairman, finish my remarks, and then I shall be perfectly willing to answer any questions.

Senator Thomas:—Excuse me, Doctor, but I have to run, and that is why I asked the question here.

Dr. Heyd:—Senator, I am trying to present an argument and if I stop I really believe that it will invalidate the continuity of the argument.

This bill would create a vast, complicated system of sickness insurance with a centralized control by the federal government of every phase of medical service. It would control the education of doctors, hospitals, the distribution of medical services, pharmaceutical houses, instrument makers, and all of the allied industries that go to the field of medicine.

It would provide a vast bureaucracy for the distribution of medical services and in essence would be a form of national sickness taxation. The government would have to collect the money, approve of it, distribute it, employ trained laymen and professional personnel for its distribution. It has all the defects that are inherent in the compulsory health system in any of the totalitarian states.

Furthermore, the bill will not provide good medical service. It deals with quantity rather than quality, and it provides a means for distributing minimum medical service.

There is not in the bill any provision for periodic health examinations, immunization, for any discoveries in the field of medicine. It freezes medical science and makes it static instead of allowing the onward procession with scientific progress.

Furthermore, the bill will increase illness because it gives an alleged "free medical service." Paradoxical as that may seem, the history of sickness insurance is an increase in illness. In Germany, in 1888, thirty-three individuals out of 100 availed themselves of sickness insurance. In 1925, 52 per cent, or more than half of the people insured.

Again, in the number of days of sickness, there was a gain. The number of days of sickness per hundred insured increased in the same period of time from 547 days to 1,250 days.

This bill, with its implicit instructions for sickness insurance, social insurance, will sterilize medical discovery. There isn't an American, be he layman or doctor, that is not proud of the contributions of American medicine during the last twenty-five years—insulin, vitamin therapy, liver therapy for anemia, high voltage roentgen therapy, increase in the knowledge and advancement in the treatment of cancers are all due to the free enterprise of science and the medical world in this country because it is not shackled by government control.

The bill will prolong illness. In the United States a workman will lose six or seven days a year. In England, under the panel system, nine or ten; and in Germany, fourteen. When an individual is given alleged "free medical service," there is no particular urge for him to get well quickly.

Senator Wagner:—Would you mind repeating that again?

Dr. Heyd:—When an individual is given alleged "free medical service," there is no particular urge for him to get well quickly.

Senator Murray:—What do you mean by that, Doctor?

Dr. Heyd:—Let me make a note of that and I will come back to that when I am through.

Senator Murray:—All right.

Dr. Heyd:—Now the second phase of my argument.

The phrase "including the training of personnel," page 8, sec. 5, line 22, occurs six times in titles V, VI and XIII and actually compels the various states to pass enabling acts. There are at least seven of the states of this country in which enabling acts have been passed or have been introduced. I need only refer to the Goldstein bill in New York, which was introduced in the assembly of New York State, which provides for the complete regimentation of the medical profession. I beg to submit here a copy of the Goldstein bill.

Senator Murray:—That may be filed with the committee.

The document referred to was filed with the committee.

Dr. Heyd:—I would like to quote one portion from that proposed legislation:

> In the event an insufficient number of persons elect to become members of the staff pursuant to this section within one year after this section as hereby amended takes effect, any additional number of staff members shall be procured by aiding students and prospective students to obtain the necessary training, experience and qualifications at professional schools and colleges with a financial subsidy of not to exceed one thousand dollars per annum to each such student who will agree, upon graduation from such school or college, to elect to become a member of the staff subject to the terms and provisions of this chapter and the rules and regulations of the department for a period of at least three years.

In 1933, while in Moscow, I heard those identical words of that paragraph from the Assistant Commissar of Health.

Now the training of personnel by government subsidy will entirely change the basis of our education. It will lower the quality, remove the basic qualifications and make entrance into a medical school dependent on favor, recommendation.

Furthermore, this bill jeopardizes the voluntary hospitals. This American hospital system is a peculiar product of our civilization and culture—the integration of voluntary effort into government effort. It works well, and yet there is not one word in this projected bill that will maintain this marvelous structure of the voluntary hospitals.

Furthermore, the bill does not solve medical indigence. It does not supply an adequate, efficient medical or dental service. A huge bureaucracy is created. Fifty per cent of the personnel will be nonprofessional people, and the amount of money that is spent for medical care will be that sum of money less the cost of the administration of this huge lay personnel.

Psychologically and fundamentally, it destroys character because the giving of something for nothing undermines character, and the idea that the government can pay for everything brings about a slow deterioration of the race.

Furthermore, this bill will dominate all citizens because a complete control of the medical service, such as is envisaged in this bill, will mean that every citizen is under the control, in one way or another, of the influence of this bureaucratic medical system.

Senator Wagner, I think this will explain in a measure the little doubt that I didn't make myself clear.

Under this bill cash benefits for wage loss, while sick, impairs the physician's usefulness and in turn blackmails the doctor. The effect of making the doctor certify to cash benefits for sickness places the physician under the economic necessity of certifying illness for fear of losing his patients, and if an individual is treated in a hospital, receiving compensation while he is sick, and he is maintained in that hospital at government expense, he has very little incentive to get well.

Understand me, I am for paying the workman when he is sick, his wages, but he should be paid from the organizations that deal with unemployment. It is not part of the distribution of medical services.

This bill is financially wasteful and extravagant. The form of poor relief or medical dole is incorporated therein.

Since taxes are spread generally, they must be paid in the long run by the great mass of the people.

Now you have distributed funds through the Public Health Bureau and the Child Welfare Bureau without any difficulty and you have given to the state of Nevada, under the Children's Bureau, for 1938, $1,614. The Public Health Bureau in the same time gave, in the state of Nevada, $411. The total of those two amounts is $2,025.

Now the basic cost of distributing all of the public health services in any state, be it a low expense state or a high expense state, is $1.31, and that is the figure that the populace in the rich state of New York spends. Yet the state of Nevada received $2.02.

So I bring that as an example of financial waste and extravagance.

Senator Murray:—Doctor, in the state of Nevada you have tremendously wide stretches of territory; you couldn't expect a state like that to maintain the low cost of service that you would in a big state like New York or in any part of the state of New York, isn't that true?

Dr. Heyd:—I will grant you, Mr. Chairman, that that is an offset.

Mr. Chairman, there is no magic in government spending. Government does not create money or values. This National Health Bill will, it is true, spread the cost of medical service. It must be paid for in taxes, there is no such thing as free medicine, but it will buy less medical service than the same amount of money spent as under the present setup.

This bill with its centralized control is an implement of the totalitarian state.

Senator Wagner:—What is that?

Dr. Heyd:—This projected bill, that bears your name, is an implement of the totalitarian state, with its centralized federalized control.

Senator Murray:—You see out of this a totalitarian state coming?

Dr. Heyd:—No, no, I said it is one of the implements.

Senator Wagner:—I see.

Dr. Heyd:—Gentlemen, it is easier for any one here, or you, to walk out of this building and get medical service, than it is to get food or shelter or clothing, and aside from certain areas in the United States, which organized medicine freely admits need care and want care and are perfectly willing that Mr. Wagner shall give them care under certain institutions and organizations, but it is easier to get medical care in the five or six thousand towns, of over ten or fifteen thousand population, a stranger, than it is to go out and get shelter or food or clothing.

Senator Murray:—Doctor, your statement is a severe indictment of the bill, but I am sure that we all welcome it. It will stimulate our study and close analysis of the bill. We want the medical profession to come here and attack the bill with all the force they possess, because if there is anything wrong in it I am sure that Senator Wagner and every member of this committee wants to correct it. I think that the medical profession is best fitted to come here and do that job of analyzing this measure, and I want to thank you for your very strong statement. Of course we may not thoroughly agree with you on everything, but it is going to stimulate our very close study of the bill.

Dr. Heyd:—Thank you so much for your courteous treatment.

Senator Ellender:—Doctor, if I am to understand your argument, you don't believe that the federal government should spend any money for such purposes?

Dr. Heyd:—I didn't say that, Senator.

Senator Ellender:—Well—under what circumstances, then, would you permit the federal government to aid the states?

Dr. Heyd:—Whenever the need is demonstrated.

Senator Ellender:—All right. That statement has been made by every physician who has so far appeared for the American Medical Association. What I am very anxious to have written into the records is your views as to how that can be done. Now you needn't have in mind that we want you to dictate in the record a bill to that effect, simply give us the ideas and we are going to get the lawyers who draft our bills to do the work.

Dr. Heyd:—I am happy to comply with that, and welcome the opportunity. My first point in my argument is to present what I believe are the dangers here.

Senator Ellender:—Let's forget that bill and you say you are in favor of having the federal government aid the states?

Dr. Heyd:—Yes, sir.

Senator Ellender:—To help the sick?

Dr. Heyd:—Yes, have the federal government create a Department of Health to coordinate all health activities.

Senator Ellender:—Would you say that the present health department is insufficient?

Dr. Heyd:—I am not here and I have no competence to criticize the present health department.

Senator Ellender:—I am not talking about the personnel, forget the personnel; I am talking about the law establishing it.

Dr. Heyd:—Senator, you asked me for my views as to how I would get federal money to those deserving areas.

Senator Ellender:—Yes, sir, and you said the creation of a federal department—

Dr. Heyd (interposing):—A federal Department of Health.

Senator Ellender:—You have that now under the federal government. Would you improve on that or would you suggest any changes, or how would you do it?

Dr. Heyd:—The creation of a federal Department of Health; two, a Secretary of Health; three, the coordination of all health activities in that department; four, the creation of a sufficient sum of money under proper legislative and Congressional controls in that department; and five, the allocation of funds from that amount on due presentation and demonstration of the need, wherever that need may be.

Senator Ellender:—Now let's go to your first suggestion. Would you improve the law that is now on the statute books with reference to the creation of a health department?

Dr. Heyd:—I am not competent, Senator, to offer any criticism as to the law. I have never been trained in it.

Senator Ellender:—Now why do you mention a Secretary?

Dr. Heyd:—Because if medicine is one of the three great industries of this country, and the whole ideology of the Wagner bill is to save sick people, I think it needs a full-time man, trained to do nothing else but that.

Senator Ellender:—You mean to take care of—

Dr. Heyd (interposing):—All the health activities of the federal government.

Senator Ellender:—One Secretary?

Dr. Heyd:—Yes.

Senator Ellender:—Would you make that a cabinet officer or what; how would you handle that?

Dr. Heyd:—I think if I were handling one of the two or three biggest industries in the country, as big as most of the other departments, that that should be a cabinet officer.

Senator Ellender:—Now you know the goverment must appropriate each year funds before they can be distributed among the states. Now what would you start that fund at?

Dr. Heyd:—Senator, I know less about that than you do. I am not competent to tell you how much money would be required. I know that this bill projects nearly 900 million in three years.

Senator Ellender:—How much?

Dr. Heyd:—Nine hundred million, doesn't it, within the ten years that it is supposed to run—well, it doesn't matter, the figures are there.

Senator Ellender:—I don't think your figures are correct.

Dr. Heyd:—They may not be.

Senator Ellender:—How would you define "need"? Who would determine that?

Dr. Heyd:—I would have a man like Homer Folks to tell me what the needs were.

Senator Ellender:—How would you organize that, who would have the power to organize and appoint Homer Folks?

Dr. Heyd:—The federal government.

Senator Ellender:—What rights would the states have in supervising this work, if any?

Dr. Heyd:—I am not prepared to answer that, I am not a constitutional lawyer.

Senator Ellender:—I am asking you, under your plan would you have the state cooperate with the federal government or vice versa, or who would have the last say, let's say?

Dr. Heyd:—The last say, as it is now, with the federal government.

Senator Ellender:—In other words, any plans that would be worked out, and in which the federal government would furnish money, you would expect the federal government to maintain authority?

Dr. Heyd:—Yes.

Senator Ellender:—And what authority would you vest in the states?

Dr. Heyd:—That I am not prepared to answer; I can't frame a bill on my feet; I am only anxious to prevent this train coming into a washout with a red signal.

Senator Ellender:—Of course you know this, that I, and nobody else on this committee, would vote to surrender the rights that belong to the states to the federal government.

Dr. Heyd:—We are both agreed on that.

Senator Ellender:—But under your plan that is what would happen; in other words, you would direct it all from Washington, as you say, and the entire matter would be left to the Secretary and the Public Health, and the states would have nothing to do with it?

Dr. Heyd:—Oh no, after the need had been passed on and the money had been given to the states, a state, local organization, state or county or municipality, would distribute that money for the purposes that were written into that grant.

Senator Ellender:—Well, the need, then, would be determined by the federal government through a person appointed by the federal government, and, after that need was made certain, then the federal government would turn over to some state health service, or whatever might be established. Now to what extent would you permit the federal government to oversee, as it were, these funds after they got into the hands of the state department of health?

Dr. Heyd:—That is already, I think, in the law, that the Comptroller General must see that the funds expended are within the terms of the enactment, or whatever it is.

Senator Ellender:—And you wouldn't consider that federal control, that is, the taking away of states' rights, would you?

Dr. Heyd:—I think that we differ in our point of view. The federal government, if it puts up money, obviously must have control over the money. I am talking about the federal control of medical service.

Senator Ellender:—Well, what I was trying to get from you was some plan that you would make, don't you see, and which would not incorporate all of these various phases of this bill that you are not in agreement with. Now just what authority would you give the federal government after the funds reached the state?

Dr. Heyd:—I am not prepared to answer that, that requires thought and consideration. I am not competent to do that.

Senator Murray:—Doctor, could you study out this matter and submit a plan that you think might be feasible?

Dr. Heyd:—I am quite sure the American Medical Association, with its people, could work out that detail if there was a failure to accomplish it in Washington.

Senator Murray:—In other words, you feel that a National Health Program would be proper, but you—

Dr. Heyd (interposing):—I did not say that, Mr. Chairman. I did not say that. Senator Ellender asked me what I would suggest to meet conditions of local need or medical need and I submitted what I thought was a competent and effective plan, the Department of Health, the Secretary, all medical activities in that department—

Senator Ellender (interposing):—Am I to understand that although you suggest that plan you would be against it?

Dr. Heyd:—Against the Wagner bill 100 per cent.

Senator Ellender:—Now would you leave this question of the determining of need solely in the hands of the party appointed by the government or would you have this party cooperate with the state agency who is to spend the money?

Dr. Heyd:—Either way, it could be worked out amicably. When minds are for the same objective, they can usually meet if the fundamental principle is sound.

Senator Ellender:—Now, Doctor, you have stated that a person who receives treatment is not as likely to get well as one who must pay for it; am I right in that?

Dr. Heyd:—I will accept your version of it, yes.

Senator Ellender:—You don't believe in Christian science?

Dr. Heyd:—Do I believe in Christian science?

Senator Ellender:—Yes.

Dr. Heyd:—You mean as therapy or medical treatment?

Senator Ellender:—I don't know, but I would judge from the question that I have just asked and to which you have agreed that is on the borderline of Christian science, as I, as a layman, understand it, that it is a working on the mind, isn't it? The fact that I go to a hospital and I mustn't pay, I will just stay in bed and accept the hospitalization?

Dr. Heyd:—I think that is true in about ninety-five out of 100 cases.

Senator Ellender:—Do you like to stay in the hospital?

Dr. Heyd:—Yes, sure.

Senator Murray:—Doctor, I would like to go to a hospital and stay there a week now and get a good rest. (Laughter.)

Senator Ellender:—Would you expand on that for us?

Dr. Heyd:—Yes, and I will give you a direct answer to it.

Senator Ellender:—I don't mean these chronic cases, I mean generally speaking?

Dr. Heyd:—You mean, like you might be sick after this session?

Senator Ellender:—Yes, but I have, seriously, been sick just a few times and I was glad to get out of the hospital, not because it cost money but to get out of that environment.

Dr. Heyd:—Let me explain that to you. Here is an individual. I want time to make two examples. Here is an individual who doesn't like his job particularly and he develops a nice big boil on the back of his neck, and he goes to a hospital and he is fed well and he has a lot of pretty girls wait on him and he has dressings. Do you suppose that fellow is in a hurry to get out and go back to work?

Senator Ellender:—I don't think a man who has a boil would be admitted to any of these hospitals; just open it and put him out.

Dr. Heyd:—Did you ever have one?

Senator Ellender:—Yes.

Dr. Heyd:—With a temperature of 104 and the possibility of meningitis and dying?

Senator Ellender:—That is a different proposition; if those conditions exist I would then say he ought to stay in. And another thing, Doctor, it strikes me that any plan that would be worked out by the federal government through the states would leave it to the doctors to determine that, as to whether or not he should remain there, as is done now in charitable institutions that I know of in my own state. They usually give them a card and say "You are well" or "You have got to be transferred" or something of that kind. Isn't that usually true?

Dr. Heyd:—Right! Example No. 2. The Associated Hospitals in New York City have over one million subscribers. You are familiar with that. That is the three cents a day plan. Under their plan, by paying $10 a year, any individual, a policyholder, can, on the advice of a doctor, go to a hospital. Under that plan all the hospital charges are paid up to thirty days. In 1938 the admission of people to hospitals with colds, with trivial cuts, was so great as to practically make severe inroads into the reserves of that organization, showing you that when people do not pay for their per diem maintenance in hospitals they tend to prolongation.

Example 3. In the Veterans' Hospitals it takes twenty-nine days to take out tonsils and discharge the patient. In civilian hospitals it takes three to four days.

Senator Ellender:—And you attribute that to the fact that in one instance they must pay and in the other they must not?

Dr. Heyd:—The psychology of getting something for nothing.

Senator Ellender:—I know. But is not the medical profession, that is, the person who does that, to blame largely, not the patient?

Dr. Heyd:—They are particeps criminis, I believe.

Senator Ellender:—Don't you think they are 99 per cent criminis?

Dr. Heyd:—Oh no.

Senator Ellender:—I don't know, but it strikes me that the—

Dr. Heyd (interposing):—Don't forget the doctors in the Veterans' Hospitals are government employees.

Senator Ellender:—Civil service—the merit system. (Laughter.)

Senator Ellender:—On page 5 of the bill you cited section 7?

Dr. Heyd:—Yes, sir.

Senator Ellender:—And I understand your conclusion, that is, what you derive from that section, is that it may lead to socialized medicine; am I right?

Dr. Heyd:—It is inevitable in the terms.

Senator Ellender:—Personally I am not in favor of that, Would you suggest any language to negative that?

Dr. Heyd:—I cannot suggest language on my feet to cover such an important matter.

Senator Ellender:—Of course these hearings are not going to close today, and we expect to hold hearings later, but would you have some one to suggest?

Dr. Heyd:—No sir, you can't patch this house up.

Senator Ellender:—Wait a minute, Doctor, let's not take the entire bill. I am talking about that portion of it dealing with socialized or social medicine, and you cited this paragraph on page 5 and several others that would lead you to believe that that is inevitable if that language, as I understand it, is retained. Now what I would like to have is a suggestion from you or any member of the Association, in fact anybody against the bill, who thinks that this would lead to socialized medicine, that language, I would like to have it negatived.

Dr. Heyd:—Senator, it is my considered opinion that you cannot amend this bill and make it workable.

Senator Ellender:—That is all.

Senator Wagner:—Doctor, you just said people getting something for nothing, that that is the psychology which keeps a man in a hospital longer than he should?

Dr. Heyd:—Yes, sir.

Senator Wagner:—Do I understand you to mean by that that people who are poor and helpless and sick and want to get well ought not to receive any care because they can't afford to pay for it?

Dr. Heyd:—No sir, they should receive all the care they need.

Senator Wagner:—What do you mean, then, by this thing you just said a moment ago, that getting something for nothing is just prolonging illness rather than curing it?

Dr. Heyd:—There comes a time, Senator, when a person, after an illness or an operation, a certain given number of days, when he is considered well enough to go home.

Senator Wagner:—I am not talking about that, I have heard that, I don't agree with you at all, but that isn't what I am talking about. I am talking about the person that hasn't got the money to pay for an operation and he is sick and he is helpless, what about that person?

Dr. Heyd:—Senator, won't you be fair and let me finish my argument on that?

Senator Wagner:—You started it, you said after an operation—I am talking about something before an operation, I am talking about the person that hasn't the money with which to pay for an operation, and yet he needs it and he is very ill and he is poor, he hasn't the money, he is in that lower income group. What about that person?

Dr. Heyd:—He should receive medical attention without any question.

Senator Wagner.—Aren't you afraid of ruining that person by giving him medical attention because he is getting it free?

Dr. Heyd:—On the contrary, we are making him well.

Senator Wagner:—You said a moment ago that getting something for nothing makes persons ill rather than well.

Dr. Heyd:—No, it tends to prolong illness, they are totally different, Senator.

Senator Wagner:—Tends to prolong illness?

Dr. Heyd:—Yes, sir.

Senator Wagner:—Well, we don't want to prolong illness, and how are we going to stop it?

Dr. Heyd:—I don't think you will stop it under your bill.

Senator Wagner:—How would you stop it?

Dr. Heyd:—I would carry on the present medical system that has been so successful.

Senator Wagner:—Has it been?

Dr. Heyd:—Has it been successful?

Senator Wagner:—Yes.

Dr. Heyd:—I am going to give you the answer, that it has been.

Senator Wagner:—Aren't you relating what you are saying as the result of your experience?

Dr. Heyd:—Yes, sir.

Senator Wagner:—That helping these people that are getting it for nothing prolongs their illness?

Dr. Heyd:—Yes.

Senator Wagner:—Don't we want to cure them?

Dr. Heyd:—Certainly.

Senator Wagner:—How are we going to do that?

Dr. Heyd:—Under the scheme that I outlined to the Senator, centralized Department of Health, and—

Senator Wagner (interposing):—Is that the way you are going to do it?

Dr. Heyd:—Carry on the present medical setup that has been so effective and aid areas that need help by federal funds.

Senator Wagner:—Aren't you going to set up—I understood you to say that you wanted to substitute another setup?

Dr. Heyd:—Not to destroy the present medical distribution, no, sir.

Senator Wagner:—Well, does this bill destroy the present method of distribution?

Dr. Heyd:—In my opinion it does.

Senator Wagner:—Well, what is it that does?

Dr. Heyd:—Well, if this bill were enacted you would have forty-eight commissioners of health coming to Washington, to interview three individuals and making requests for allotments, and they would or would not get those allotments, and when you have the power to give or withhold money you can coerce or control that medical service.

Senator Wagner:—Now let's get right down on that point. What did you suggest in place of that; didn't you suggest a moment ago a Department of Health?

Dr. Heyd:—Yes.

Senator Wagner:—To which the forty-eight states would come?

Dr. Heyd:—No, sir.

Senator Wagner:—Who would come?

Dr. Heyd:—Any subdivision of the states that had a local need could come and petition that department and have the merits of their request passed on.

Senator Wagner:—Well, what is the difference between the state coming and any subdivision of the state coming?

Dr. Heyd:—Because in this bill you make the deficiencies of one state a pattern for spreading all of this allotment over the whole forty-eight states and dependencies. My fundamental proposition is where the need is demonstrated.

Senator Wagner:—Very well, then, if this bill—I think it is based on need, but I am not going to argue that with you—suppose the bill is changed according to your suggestion now and, instead of only the head of the state coming, any subdivision of the state may come, isn't that what you suggested a moment ago?

Dr. Heyd:—No, sir, I would have nothing to do with this bill.

Senator Wagner:—Well, under any bill?

Dr. Heyd:—I didn't say that, and you can't read into my language anything like that. I said—

Senator Wagner (interposing):—I am asking you, suppose a bill is introduced which will provide for the central bureau here in Washington with a health commissioner at the head, with funds supplied by Congress, and with an authorization to give to states or political subdivisions according to the needs of those communities for medical aid. Would you then favor such a bill, Doctor?

Dr. Heyd:—When such a bill is introduced I should like to study it and discuss it with you; I will not sign a blank check.

Senator Wagner:—Well, of course that isn't centralization of power, is it, having a central bureau such as you recommend where the commissioner at the head has the right to determine whether a state should receive money or not?

Dr. Heyd:—It may have something of centralization in it.

Senator Wagner:—Well, isn't that bureaucratic?

Dr. Heyd:—No, the Post Office Department in Washington, that is centralization.

Senator Wagner:—I understood you to say that you were opposed to centralization.

Dr. Heyd:—I am opposed to the centralization that flows from this bill.

Senator Wagner:—Well, with all due respect to you, what you are suggesting is much greater centralization than the provisions of this bill suggests.

Dr. Heyd:—I don't believe so, Senator.

Senator Murray:—May I call his attention to this provision in here, on page 4, at the bottom of page 4, in connection with the grants to states:

> Provide for an advisory council or eouncils, composed of members of the professions and agencies, public and private, that furnish services under the state plan, and other persons informed on the need for, or provision of, maternal and child health services.

Under that section it depends on the profession, as a medical profession, and other public agencies, to determine the need for the assistance that is to go to the state. Wouldn't you favor that?

Dr. Heyd:—With all due deference to you, Mr. Chairman, those advisory councils have no power, it says "members of the profession." They might be a minority and in substance that section means that the advisory council would be rubber stamps.

Senator Murray:—Could that be corrected, then, if that is not satisfactory as it stands, could it be amended so as to make it feasible?

Dr. Heyd:—I don't believe you can amend this bill and make it workable.

Senator Wagner:—A moment ago you said something about the distribution of monies to Nevada?

Dr. Heyd:—Yes, sir.

Senator Wagner:—Well, what was the purpose of that, to show they were getting more money than they should get?

Dr. Heyd:—No, the purpose of that was to show that the ordinary per capita expense of a well rounded health service is $1.32, and the money received for those two items from the Children's Bureau and the Public Health Service was $2.02, indicating in a relative way the element of the increased cost that grows from the filtering down of funds.

Senator Wagner:—Well, if that was so, you shouldn't be for any federal aid; if giving federal aid increases the expense of medical service, how do you justify your being for any federal aid?

Dr. Heyd:—Well, certain functions in medicine must be taken care of by the federal government.

Senator Wagner:—How do you know that that is a case where medical care was needed and an increased sum was needed to take care of the individuals in that state?

Dr. Heyd:—I am prepared to admit that it was needed or it probably would not have reached there.

Senator Wagner:—If you are prepared to admit that, then what was your point in citing it to us?

Dr. Heyd:—Because it heads the list of states that received this aid, in amount of money, and I can't imagine that the wants in child welfare and in maternal welfare can be greater in Oklahoma than in New York City, because they have less population, they have less babies born and they must have less crippled children, and yet they got more money.

Senator Wagner:—Did you examine these facts?

Dr. Heyd:—These are facts that have been supplied by these bureaus, sir.

Senator Wagner:—I mean, did you inquire as to what the need was in those particular instances?

Dr. Heyd:—No sir.

Senator Wagner:—Well, don't you think if you wanted to make a fair statement that you ought to have inquired whether that much money was needed to give proper medical care?

Dr. Heyd:—No, I see no reason to believe that those bureaus didn't give the required amount of money.

Senator Wagner:—Well, if they did, then it was a very desirable aid, wasn't it?

Dr. Heyd:—I presume it was.

Senator Wagner:—Well, you quoted it in criticism.

Dr. Heyd:—Yes, sir.

Senator Wagner:—And yet now you say it might very well have been needed.

Dr. Heyd:—Yes.

Senator Wagner:—Doctor, do you know the organization known as the National Committee to Uphold Constitutional Government?

Dr. Heyd:—Yes, sir.

Senator Wagner:—Have you anything to do with that organization?

Dr. Heyd:—No, sir. What do you mean by "anything to do" with it?

Senator Wagner:—I will put it another way. I have a telegram, a copy of a telegram that you sent. I take it that you sent it to more than one individual?

Dr. Heyd:—Certainly.

Senator Wagner:—And in this telegram you say:

> Today's mail brings you from Sumner Gerard booklet "Political Medicine and You." Leaders of medicine convinced pending Wagner National Health Bill and supplementary bills being pressed various state legislatures harbor grave dangers impairing standard of medical profession, crippling research and threatening church and volunteer hospitals. Since this issue is being carried to every state we are convinced necessity nationwide educational campaign proposed booklet, page 22. Will you read and give support measured by importance of issue or if already supporting interest others.
>
> CHARLES GORDON HEYD,
> Past President American Medical Association.
> JOHN A. HARTWELL,
> Past President Academy of Medicine, N. Y.

That is signed by you?

Dr. Heyd:—Yes.

Senator Wagner:—To how many people did you send such a telegram, do you know?

Dr. Heyd:—I haven't the remotest idea.

Senator Wagner:—Well, you must have some idea, I can't accept your answer that you haven't the remotest idea.

Dr. Heyd:—I signed the master telegram that was sent out as a sampling, I think to fifty individuals in New York, and then it was probably extended, I don't know to how many, sir.

Senator Wagner:—It would be extended by whom?

Dr. Heyd:—By the Gannett organization.

Senator Wagner:—That is what I want to know; the Gannett organization sent these telegrams ostensibly signed by you?

Dr. Heyd:—Yes, sir.

Senator Wagner:—To all of the doctors alone or others too?

Dr. Heyd:—That I don't know; probably all types of people.

Senator Wagner:—This was sent to a bank.

Dr. Heyd:—It was sent to all the citizens.

Senator Wagner:—Did you supply that list?

Dr. Heyd:—No, sir.

Senator Wagner:—Did the Gannett organization supply the list?

Dr. Heyd:—If they had a list they certainly got it, because we did not supply it.

Senator Wagner:—Well, you said you originally sent out fifty and then there were any number more sent out after that?

Dr. Heyd:—I believe so.

Senator Wagner:—Well, aren't you a little more particular about the use of your name than not inquiring even as to who these telegrams were sent to?

Dr. Heyd:—No; I was quite prepared that that telegram go to every citizen in the United States.

Senator Wagner:—I see—to support the Gannett organization?

Dr. Heyd:—I have contributed to it.

Senator Wagner:—And you asked these people to contribute to it?

Dr. Heyd:—Yes, sir.

Senator Wagner:—Do you know what their activities have been?

Dr. Heyd:—Only in a general way; I know the phase of the medical activities.

Senator Wagner:—You think it was all right for you as a doctor to associate yourself with propaganda of that character?

Dr. Heyd:—As a citizen, yes.

Senator Wagner:—Well, as a doctor?

Dr. Heyd:—As a doctor.

Senator Wagner:—You were talking some little while ago about the provisions in this bill which provide for payments for temporary disability and you said, as I understood you, and if I am wrong will you please correct me, that one of the reasons you opposed that is that one receiving some cash benefits because of loss of wages, that it would have the effect of continuing their unemployment and illness in order to receive the compensation, although the illness had disappeared. In effect was that what you said?

Dr. Heyd:—Experience demonstrates that that is correct, both in England and in Germany.

Senator Wagner:—Well, is it so with reference to workmen's compensation?

Dr. Heyd:—I think it is true of workmen's compensation.

Senator Wagner:—Well, do you know anything about the studies that have been made in New York State and other states.

Dr. Heyd:—Yes, sir, I went to Governor Lehman and had the doctors' committee appointed that framed the amendment to the workmen's compensation act of New York State.

Senator Wagner:—When was that?

Dr. Heyd:—In the previous term of Governor Lehman, when the amendment to the present workmen's compensation act was enacted. That is, I should say, about three or four years ago.

Senator Wagner:—Are you acquainted with any investigations that have been held in New York on that very subject?

Dr. Heyd:—Yes, sir.

Senator Wagner:—Don't you know that they show that there hasn't been any such experience in New York?

Dr. Heyd:—Since the enactment of the amendment it has been clear and clean, Senator, because the policing of the profession is stated in the amendment to the workmen's compensation as being the responsibility of the medical society of the county, but previous to the amendment the workmen's compensation was scandalous.

Senator Wagner:—Will you point out to me any investigation that shows that, do you mean the conduct of the doctors?

Dr. Heyd:—The conduct of the doctors, the conduct of the insurance chasers, the conduct of the auditors, of the insurance companies. Governor Lehman appointed this commission to study it, composed of five members of the New York Academy of Medicine and five from the Medical Society of the County of New York, and on the recommendations of that committee, the workmen's compensation act was amended, and since that amendment it has been cleaner.

Senator Wagner:—What is the nature of the amendment?

Dr. Heyd:—That is one of your bills, the original bill, I know. First the medical society was enjoined to prepare a detailed schedule and they worked with the insurance companies and devised a schedule which was fair and reasonable and within the compensation of the workman. Second, on disputed bills the bill must be passed by a tribunal of a county medical society. Third, there were double penalties if the insurance company stole a case, that is, if I saw a case and the insurance doctor came in and took the case away. And a lot of things that tended to purify the atmosphere surrounding the injuries to workmen.

Senator Wagner:—Well, are cash benefits now paid under workmen's compensation?

Dr. Heyd:—Yes, sir.

Senator Wagner:—And is medical service paid under workmen's compensation?

Dr. Heyd:—Yes, sir.

Senator Wagner:—And what portion of compensation is for medical service and what for cash payments?

Dr. Heyd:—I can't tell you that.

Senator Wagner:—Would you be surprised if I told you that about 90 per cent goes for medical services and 10 per cent for cash payments?

Dr. Heyd:—No, I would not be surprised, I would expect you to know.

Senator Wagner:—So that the medical profession is getting a real benefit out of the workmen's compensation?

Dr. Heyd:—The medical profession of the state of New York is eminently satisfied with the workmen's compensation in the state of New York.

Senator Wagner:—Well now, if that is so, I don't understand why the disability, which is the same theory except it is for an illness which was not acquired in the scope of employment, why wouldn't that work just the same as it does with the workmen's compensation law?

Dr. Heyd:—Well, there are a lot of reasons, Senator, why it wouldn't work as well. First, you have the control of the injured workman, he is working for a company, they know where he is, they know the manner of the injury, he selects his own doctor and he goes there, and all during that time there is the supervision by the company's doctor to prevent prolongation.

Now in contrast to that, in England and in Germany the prolongation of sickness beyond any reasonable time was so great that many times special agencies of the government had to be appointed to investigate this and to get rid of the malingering. There are a lot of very obvious psychologic factors in the two pictures.

Senator Wagner:—And you think we are not competent to prevent these prolongations?

Dr. Heyd:—Oh no, I am quite sure that the federal government can devise a means that is comparable to the workmen's compensation, but it is not in your bill.

Senator Wagner:—All right, will you suggest some provision that will strengthen that particular section of the bill?

Dr. Heyd:—I don't think you can amend the bill, Senator.

Senator Wagner:—Well, forget this particular bill.

Dr. Heyd:—I am not called on to write a bill, Senator.

Senator Wagner:—I see, that is your idea of public spirit?

Dr. Heyd:—I came down here in the spirit of public spirit.

Senator Wagner:—Simply to oppose?

Dr. Heyd:—Yes.

Senator Wagner:—Not to suggest, make any constructive suggestions?

Dr. Heyd:—May I put a question to you, Senator? Suppose I see a railroad train coming, where there is no bridge and a washout, am I going to start building a bridge or am I going to get a red flag and stop that train?

Senator Wagner:—That is not at all analogous. Dr. Heyd, do you know whether the medical journals contain any letters which criticize your action in sending this telegram, or your association with the so-called Gannett movement?

Dr. Heyd:—Yes, I know of half a dozen.

Senator Wagner:—May I read one of these letters?

Dr. Heyd:—By all means.

Senator Wagner:—This is to the Editor of Public Forum in New York *Medical Week:*

> In order to combat the Wagner Health Bill some of our physicians have formed the Physicians Committee for Free Enterprise in Medicine, a committee working with Gannett's National Committee to Uphold Constitutional Government.
>
> There may be some physicians in Manhattan, as there were in Brooklyn, who did not quite understand the function of the group they were joining. Therefore it is pertinent to point out some facts about the Gannett committeee.
>
> The activities of this committee are such that the Senate was impelled to question Gannett as to who the backers were. But this Gannett refused to divulge.
>
> The most interesting aspect of the committee is the fact that Gannett chose Dr. Edward A. Rumely to be its manager. This Rumely is none other than the "war-time pro-German propagandist who, with the aid of pro-Germans bought the New York *Evening Mail* for the purpose of presenting the Kaiser's cause. . . . He was convicted of trading with the enemy and sentenced to serve a year and a day in the federal penitentiary in Atlanta. (George Seldes, "Lords of the Press, page 211.)

Does any group in America which really wishes to maintain our constitutional democracy need the services of a man who was convicted as a spy? Are there no others whose motives are above suspicion? And it would be interesting to inquire whether Rumely's sympathies for the Kaiser's military machine have not grown apace with the development of Hitler's supermilitarism. One cannot escape the suspicion that a committee to uphold the constitution which needs the services of a former spy smacks of that patriotism which is the last refuge of a scoundrel.

The fact that outstanding men in the profession have joined the Gannett committee puts the whole profession in a very questionable light before the lay public. The opinions of these men are not representative of the profession as a whole, as was shown at the meeting of the Kings County Medical Society (reported in the New York *Times*, April 23, 1939), where a resolution condemning the Free Enterprise group was passed by a vote of ten to one. The fact that some of these men are officers of the New York County Medical Society puts the problem directly before the membership of that society.

I have mentioned the above facts about the Gannett committee on the chance that these officers were not acquainted with them. If, knowing them, the President, the President-elect, the Secretary and the Editor of *Medical Week*, among others, are still content to lend their support to a spy-run organization which refuses to divulge its financial backing, then it becomes incumbent on the membership to question whether these men are qualified to act as the official spokesmen for organized medicine. The choice is clearcut and should be an easy one for men of integrity to make.

MARTHA MENDELL, M.D.

201 West 16th Street.
April 23, 1939.

There are a number of others along the same lines, but I don't propose to read them. Do you remember reading that letter?

Dr. Heyd:—Yes, I know Dr. Mendell.

Senator Wagner:—Is it true that the Medical Society in Brooklyn took a vote on this proposition?

Dr. Heyd:—I think that is true.

Senator Wagner:—In favor of this legislation?

Dr. Heyd:—That I don't know.

Senator Wagner:—Was this vote ten to one as reported?

Dr. Heyd:—That I don't know.

Senator Wagner:—Well, there is just one other question. I don't want to pursue this indefinitely. You said something about research, of the bill possibly interfering with research. Of course I don't understand how it possibly can interfere with research, and in my opinion it encourages it, but one of the eminent doctors in New York came before this committee and stated that the National Health Department has done research work which is equal to the work of any private research laboratory, and he was a professor up at Columbia.

Dr. Heyd:—That is the National—

Senator Wagner (interposing):—The National Health Service, which is conducting research work constantly.

Dr. Heyd:—Has done research comparable to—

Senator Wagner (interposing):—To that of private institutions that conduct research.

Dr. Heyd:—I don't believe the body of facts would sustain that statement.

[Here there was an extensive discussion of the subsidizing of medical education.]

Dr. Cary:—Mr. Chairman, at this time may I enter in the record some information which I think the committee should have.

[Report entitled "Hospital Service in the United States, 1939," was filed with the committee.]

Dr. Cary:—At this time I have the pleasure of presenting the Editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Dr. Morris Fishbein, who will continue the discussion.

Senator Murray:—Dr. Fishbein.

STATEMENT OF DR. MORRIS FISHBEIN

Dr. Fishbein:—We have been presenting here, during the past two days, and on some previous occasions, the statements of men who have developed information concerning the medical point of view regarding the Wagner act. I do not wish to take the time of the committee to repeat either the arguments or the general statements that have already been made. I hope, rather, to cover ground that has not yet been covered or perhaps to correct some of the misstatements and misimpressions that have been made by some of those who have appeared previously.

I would call attention first to the fact that I have had opportunity in the past week and previously to read some of the recorded hearings that have already taken place. I believe it will be in the interest of bringing out the facts to mention some of the statements that have been made and to call attention to the differing point of view held by the representatives of the medical profession.

I would like first to point out that perhaps in a malicious, perhaps in a wholly humorous, manner the representatives of the medical profession who are sent by the American Medical Association are commonly referred to as a "hierarchy." It has been said by a previous witness at the hearing that the views represented by these men are just the views of this inner group and do not in any way represent the views of the vast majority of the doctors in the United States.

Senator Murray:—No one on this committee has referred to them as a hierarchy, or made any slurring remarks toward any member of the American Medical Association.

Dr. Fishbein:—With that statement, I will omit any further discussion of that point.

Senator Murray:—If a statement of that kind appears in the public press, we could not be held accountable.

Dr. Fishbein:—It appears in the record of the hearings.

Senator Ellender:—A witness so testified?

Dr. Fishbein:—Yes, Mr. Lee Pressman of the CIO.

Senator Murray:—Of course we could not be held responsible for statements made by a witness.

Dr. Fishbein:—No. I merely wished to correct the point of view that what we have had presented here is just the view of the officers who are here. The views which we have presented were adopted by the House of Delegates of the American Medical Association after a considerable number of hearings held by a Reference Committee before which there appeared scores of men.

Senator Ellender:—Doctor, I think some member of the Association testified yesterday that there were 130 some-odd members—

Dr. Fishbein:—113,113 physicians are members as of May 1, 1939, out of a total licensed to practice of approximately 170,000, of whom approximately 14,000 are over 65 and 145,000 actually in practice.

Senator Ellender:—Now the delegates met in St. Louis?

Dr. Fishbein:—Yes, sir.

Senator Ellender:—How are they selected?

Dr. Fishbein:—They are selected by the houses of delegates, the representative bodies of the individual state medical societies. These houses of delegates are in turn selected by the county medical societies which compose the individual state medical societies.

Senator Ellender:—How are the selections made from the states?

Dr. Fishbein:—They are made by nomination and election from the state medical society house of delegates.

Senator Ellender:—In what proportion to each state?

Dr. Fishbein:—The proportion is 168 delegates for 113,113 physicians. There were approximately 7,500 physicians in attendance.

Senator Ellender:—And the power to act, though, on any proposition that came before the Association, was in the hands of these delegates?

Dr. Fishbein:—Entirely in the hands of the House of Delegates, which determines policies and is the only body which can determine policy for the American Medical Association.

Senator Ellender:—Now some witness testified yesterday that hearings were held?

Dr. Fishbein:—Yes.

Senator Ellender:—Witnesses were produced before the House of Delegates?

Dr. Fishbein:—Yes.

Senator Ellender:—How many persons or doctors appeared in favor of the Wagner bill before your House of Delegates?

Dr. Fishbein:—Before the Reference Committee of the House of Delegates I would say that there were possibly five or six men who thought that, with suitable amendments, something might be done with the Wagner act.

Senator Ellender:—Who were those men, members, delegates, or were they members of the Association?

Dr. Fishbein:—Some of them were delegates, some were members of the Association and some were representatives of the hospital associations.

Senator Ellender:—How many were delegates?

Dr. Fishbein:—I would say not more than five of those who favored the Wagner act with amendments.

Senator Ellender:—Out of how many witnesses?

Dr. Fishbein:—Out of a score or more witnesses.

Senator Ellender:—Well, could you be a little more specific?

Dr. Fishbein:—I would be glad to send you a record of the hearings with the exact number of men and the men who made the statements and approximately what they said.

Senator Ellender:—I appreciate your offer, but we have so much to read now.

Dr. Fishbein:—My personal impression of the hearings which I attended—and at which I myself did not speak—was that those who were inclined to favor the Wagner act with amendments were the men in the House of Delegates who represented the state health officer group. The representatives of hospital groups and individual delegates who were not associated with state health departments were not inclined, in general, to favor the Wagner act with or without amendments.

Senator Ellender:—How did you come to classify them—

Dr. Fishbein (interposing):—They are known, of course. The members of the House of Delegates who happen to be state health officers are, of course, quite widely known.

Senator Ellender:—The selection, however, is made from back home?

Dr. Fishbein:—Yes.

Senator Ellender:—What proportion of the doctors do you think these five delegates represented throughout the entire membership?

Dr. Fishbein:—The five delegates who inclined to favor the bill with amendments?

Senator Ellender:—Yes.

Dr. Fishbein:—I would say somewhere between 5 and 10 thousand.

Senator Ellender:—What efforts were made by the House of Delegates to invite other witnesses to come in and testify?

Dr. Fishbein:—It is a rule that any one who has interesting material or evidence to present may appear and men did appear who were not even members of the Association.

Senator Ellender:—Was that widely advertised?

Dr. Fishbein:—It was announced in most of the newspapers of the United States, and certainly in the headlines of the newspapers in the city where the convention was being held.

Senator Ellender:—If five delegates were in favor of the bill as amended—in spite of that many—is the committee to understand that the delegates were unanimous in opposing the Wagner bill?

Dr. Fishbein:—When the vote was called for, the action of the Reference Committee as brought in to the House was adopted without a single dissenting vote.

Senator Ellender:—Was the vote tabulated or a viva voce vote?

Dr. Fishbein:—It was a viva voce vote, and no one said no. I will proceed, then, to a brief discussion of the possibility of amending the act.

At the Reference Committee the question was raised of the possible amending of the act or certain portions of the act in order to make it available to meet certain needs which I believe all of us recognize actually do exist. On that occasion representatives of the three hospital associations which lead in the United States, namely the Protestant Hospital Association, the Catholic Hospital Association and the American Hospital Association, spoke to the committee. The statement was made that each of these men had worked out fifty different amendments to the section dealing with hospitals alone, which might possibly make that begin to meet the needs that it was proposed to meet.

As we have considered the development of the Wagner act, it has appeared to us that there has been a relentless, persistent, almost a ruthless drive for the development of this legislation over a certain period of time. We trace this development from the beginning of the National Health Survey, which, as you know, was a house to house canvass of 750,000 urban and 50,000 rural families, made by 4,500 WPA workers under the direction of the United States Public Health Service.

Senator Wagner:—Doctor, you use a rather strong term, and I don't know that I was guilty of any such offense. I never intended to indulge in ruthlessness.

Dr. Fishbein:—I will endeavor to explain the term as I go along.

Senator Wagner:—I would like to have it explained now.

Dr. Fishbein:—We see a definite development of this legislation without any opportunity being given—although our services were frequently offered—to the medical profession, to consult with those who were developing the National Health Program, the National Health Conference and the bill itself, which grew out of the National Health Program.

Senator Wagner:—Well, Doctor, of course I am not acquainted with all of these activities you talk about, but a Dr. Booth from my own state appeared before this committee early and I think it was Senator Ellender that asked him if he wouldn't cooperate with the committee by suggesting amendments.

Dr. Fishbein:—You refer to this committee. I referred to the time of the drafting of the bill.

Senator Wagner:—Yes, I know.

Dr. Fishbein:—The committee has been more than kind in giving us full opportunity to present the point of view of the medical profession. This is the first occasion on which such an opportunity has actually been given.

Senator Wagner:—Well of course, this is the first occasion that we have had hearings on the bill. This is the time to cooperate.

Dr. Fishbein:—I refer largely to those who were concerned with the development of the National Health Program, the National Health Conference, the hearings on the National Health Program, after it was developed, and the time of the drafting of the bill. I have no objection whatever to saying again that I believe the fullest opportunity is now being given here to the medical profession as represented by the American Medical Association for the first time to express its point of view.

Senator Ellender:—Doctor, in that connection are you aware of the fact that many of the bills that are introduced and on which hearings are held you wouldn't recognize them after they got out of this committee?

Dr. Fishbein:—I am quite sure of that.

Senator Ellender:—Well, that, in a measure, is the purpose of these hearings, so we can get your ideas and if we can write them into this bill. That is what we desire to do, and that is why I emphasized to Dr. Booth, after he testified, and I think some of it is in the record, but I begged him to go to St. Louis and try to get the medical association to work with us, to try and offer some suggestions.

Dr. Fishbein:—That point of view was given the most serious consideration.

Senator Ellender:—So that the suggestion made to Dr. Booth was made to the Association—

Dr. Fishbein (interposing):—The possibility of amending the act was considered but the House of Delegates did not choose to believe that it was possible to amend this act to make it meet the needs that it is proposed to meet, and the general objectives which we all agree are desirable.

Senator Wagner:—By amending an act you can offer a completely new act, if you really desire legislation.

Dr. Fishbein:—It is quite possible that I shall recommend later the striking out of all of the act except the enacting clause and suggest certain other possibilities for meeting the needs.

Senator Ellender:—If you could do that, that is exactly what the committee would like to have you do. And will that have the O.K. of the Association?

Dr. Fishbein:—I will give you the action taken in regard to that when I come to it.

Senator Wagner:—I am not saying that I am going to support it, but I certainly will welcome the suggestions. And I may say this. This is not any breach of confidence. I spoke to Dr. Booth after the hearing and I asked him if he wouldn't impress on the American Medical Association—I know something about your activities and I suppose you are harder to convert than some others, but I am never hopeless about those things—and I asked him if he wouldn't say to the members of the Association that I am anxious to receive their cooperation and their advice and guidance in this matter, and he asked me whether he was authorized to say that, and said absolutely.

Dr. Fishbein:—May I say, Senator, we would have felt better if we had had opportunity at the time the bill was drafted to present some of these points.

Senator Wagner:—Well, the opportunity is here now.

Dr. Fishbein:—Yes, we are proceeding now from that.

Senator Murray:—Senator Wagner is not a member of our committee, so we have got an advantage over him here. We are going to handle this bill.

Dr. Fishbein:—That is very good!

Senator Murray:—I think we are getting to develop into a sort of a mutual admiration society here this morning.

Dr. Fishbein:—It is very simple to be pleasant.

Senator Murray:—I think we are getting along very nicely.

Dr. Fishbein:—I think so too.

Now one of the main objectives to which the American Medical Association representatives have referred in connection with the drafting of suitable legislation to meet the general objectives on which we are all agreed is the possibility of an attempt of a unified organization under the federal government for the handling of medical affairs, and integrating properly the care of the sick, preventive medicine, child welfare activities, industrial medicine and many other similar aspects of medical care, into a suitable arrangement.

I may say that when I first heard the words "Interdepartmental Committee to Coordinate Health and Welfare Activities of the United States Government" I was under the strange impression that it proposed to do what the title indicated, namely to draw together all of those activities of the government which were concerned primarily with the problems of medical care and of welfare as associated with medical care.

However, as we went along we discovered that that was not apparently the intention and is apparently not the expressed intention at the present time.

I would point out that the federal government now, in addition to the army and navy medical department, has innumerable departments which are greatly concerned with the problem of medical care, which by this act are still left to operate independently, to duplicate certain activities, to spend a good deal of unnecessary time and money and employ excessive personnel.

Now I will refer specifically to those departments. I would point out that the Children's Bureau, which is located in the Department of Labor, has both medical functions and other functions which are not strictly medical. Many of the functions thus concerned are also acted on to some extent by the United States Public Health Service and perhaps to some extent by other agencies which I will mention as I go along.

In the Department of Agriculture we have the Food and Drug Administration, whose problems as you know are largely medical in character.

In the Federal Trade Commission we have supervision over the claims made for various foods, drugs and similar products, used in relationship to medical service.

Also in the Department of Commerce there is a Bureau of Mines which is concerned with a certain number of medical functions.

In the Department of the Interior there is the care of the Indians, the control of two medical schools, the care of several institutions for the mentally defective.

In the Department of the Interior also there are certain educational functions which are, to some extent, medical in character.

In the United States Public Health Service, which is associated with the Department of the Treasury, there are certain functions which are wholly in the field of preventive medicine; other functions which are in the field of medical care. Then there is the control of narcotics, narcotic addiction, and the administration of two hospitals for that purpose, one of which is now located in Texas and the other in Kentucky.

In fact, there is no division of the government which does not now have certain medical functions. I believe the total expenditure on all of these functions, aside from the army and navy medical departments, amounts approximately to between $125,000,000 and $150,000,000 a year.

It occurred to us that an interdepartmental medical committee to coordinate these different departments under a single head, whether or not he is a member of the cabinet or one of the new types of secretaries to be created, is after all for the government to establish, but certainly unification of these functions might be of importance.

Now in addition, as you know, there have been created in recent years a considerable number of federal functions which are outside cabinet control, created as new divisions of the government. Therefore we have in the CCC a medical department, we have in the WPA a considerable amount of medical activities, we have the PWA concerned with the building of hospitals, and hospital construction has been active with government aid during the last few years.

I receive regularly from the PWA and the WPA and these other departments significant items of publicity having to do with the considerable amount of hospital building which they have aided in recent years, and the number of additional beds supplied through such agencies.

Senator Wagner:—You favor that?

Dr. Fishbein:—Yes, I think it is excellent. I propose later to refer to certain wastages of which I have personal knowledge. As a citizen I think these should have a little governmental investigation.

Under a certain branch of the government which has to do with the aiding of the rural areas there are now in existence in some twenty-eight or twenty-nine states plans for aiding people in rural districts to get complete medical care. Obviously that sort of function should be intimately associated with any government attempt to handle the problem of medical care. If I may, I will refer to an article in the *Saturday Evening Post* entitled "Rehearsal for State Medicine."

I could go on with other government functions, but I believe I have indicated the widespread—

Senator Ellender (interposing):—I wish you would go on with more of them, if you know of any. This is very interesting and I would like to probably "jine" some of them, as the darkies say.

Dr. Fishbein:—I could refer to the Coast Guard Service, which carries on a certain amount of first aid relief.

Now then, I concede that it would be the service of the Interdepartmental Committee to Coordinate the Health and Welfare Activities of the United States Government to bring this matter before the Congress of the United States as probably its first function. Obviously the creation of a suitable mechanism to handle medical care in the United States should depend on setting up an agency in which there would be an avoidance of duplication of effort and proper integration of each phase of the service under a single head. This would produce both economy and efficiency and a great deal of absence of the difficulty which is now involved in having to meet numbers of different governmental agencies in order to accomplish a single purpose.

Senator Ellender:—Would you be able to outline these various agencies that are now engaged in this work? You evidently have this worked out?

Dr. Fishbein:—We have a complete analysis for all the agencies of the government, and the appropriations made for each of them in different years.

Senator Ellender:—Can you furnish that to the committee?

Dr. Fishbein:—Yes, we would be glad to do that right away.

Senator Ellender:—It indicates the departments?

Dr. Fishbein:—The department, the amount of money spent, the nature of the medical service and many other facts that would be of great importance to this committee.

Senator Wagner:—Are you for putting them all together under one head?

Dr. Fishbein:—I believe it would be desirable to integrate the various medical functions of the government in a unified setup which would prevent duplication of effort, loss of efficiency and wastefulness.

Senator Wagner:—In other words, to sum up what you have just said, you do favor putting them all under one head, all that you have enumerated?

Dr. Fishbein:—Yes, within the possibilities of government, because I will now point out, and I hope to emphasize, the point that I am not a lawyer, primarily, and that while—

Senator Wagner (interposing):—Or a politician, are you?

Dr. Fishbein:—I hope not. I have never been accused of that.

Now as far as concerns the Constitution, I will say that the mechanism of fitting present activities, or future activities of the government into the Constitution is not my function.

The Interdepartmental Committee, on the basis of the National Health Survey, brought out what was called a National Health Program, which was a long range program planning for the development of the medical activities of the United States over the next ten years. At the time of the National Health Conference, I expressed the opinion that I did not consider it would be safe to plan a program of medical care for the United States for the next ten years on the basis of conditions as they exist today. With the amount of unemployment that exists today, with the amount of need that exists today, we have one concern; with the amount of employment and the amount of need that might exist ten years from today, we have another concern.

It is desirable to plan ahead, but frequently such planning turns out to be unfortunate. I remember attempting in 1918 to aid a distinguished committee to try to estimate the number of soldiers with nervous and mental disease, with cancer, with degenerative disease, and other conditions that would require care in all of the years from 1930 up to 1950. This was necessary in order to prospect a hospital building campaign for the future.

If we look back on the plans then projected in the light of conditions then existing and with our knowledge of medicine as it then existed, many of our estimates will have been found wholly away from the actual needs at the present time. I refer, for example, to the changes that may be brought about by the development of a new discovery that would relieve us of the care of a considerable number of persons with dementia paralytica, or the development of insulin, or the development of liver extract for pernicious anemia, or various new methods for the handling of cancer, or tuberculosis, which give us an entirely new picture after twenty years.

In this connection also I would like to refer briefly to the differences of scientific opinion that may exist in estimating a

so-called need. At present, for example, a distinguished officer of the United States Public Health Service has made addresses in various portions of the United States condemning to some extent the use of the tuberculin test as a means for determining whether or not a child has tuberculosis, or its relationship to tuberculosis. In the statement made by Mr. Homer Folks—

Senator Wagner (interposing):—You mean the x-ray test?

Dr. Fishbein:—Tuberculin test. In the statement made by Homer Folks, he was quite content to rely on the x-rays apparently alone. I know of no doctor in the United States who would rely on the x-rays alone in making a diagnosis for tuberculosis. I know of no authority in the United States at the present time, except perhaps this one authority in the United States Public Health Service, who is convinced that the tuberculin test might as well be discarded. That is a debatable point in medicine. And yet, presuming that this particular officer were to be put in charge of setting up the standard for determining needs in relationship to tuberculosis and the sole authority placed on him, he would find himself in a considerable disagreement with members of the medical profession who are generally recognized throughout the United States to be leaders in their field.

Senator Murray:—Doctor, it is apparent that you won't conclude your testimony for some time.

Dr. Fishbein:—Well, if you are interested in it, I can go on quite a while.

Senator Murray:—We are much interested, but we want to give you a full opportunity to tell us everything that you want to.

Dr. Fishbein:—I will be glad to come back after lunch.

Senator Murray:—We will recess now, then, until 1:30 and you can proceed at that time.

Friday, May 26—Afternoon

Senator Murray:—We will proceed with the hearing. You may resume, Doctor.

STATEMENT OF DR. MORRIS FISHBEIN (resumed)

Dr. Fishbein:—Mr. Chairman, at the time of the adjournment this morning I had reached a point in the development of the Interdepartmental Committee which led toward the National Health Program of the National Health Conference, and that in turn toward the development of the Wagner Health Bill. Now at the time of the National Health Conference a number of the representatives of the medical profession were present and had opportunity to speak. However, the time of that conference was the first opportunity that was available to the representatives of the medical profession to see the National Health Program. Obviously the time was hardly sufficient to examine carefully into the proposals that were made, or the evidence or data on which the proposals were based. Just as soon, however, as the National Health Conference adjourned the American Medical Association called a special session of its House of Delegates, the third such special session in the history of the organization, for the purpose of examining the National Health Program and adopting the point of view of the medical profession toward the National Health Program.

At the special session of the House of Delegates a considerable amount of evidence was presented, differing, to some extent, with the data that had been developed and offered by the National Health Survey, in relationship to the National Health Program. In addition a special committee was appointed by the House of Delegates to confer with the Interdepartmental Committee, and with its Technical Advisory Committee, relative to the proposals of the National Health Program. That committee met on two occasions, I believe, with the Interdepartmental Committee and had opportunity there to present some of its objections to certain portions of the program, and some objections with respect to some of the basic data and other considerations that were considered fundamental by the medical profession.

I mention this merely because, in the previous testimony presented here by Miss Josephine Roche, the point is made that nineteen such conferences were held by the Interdepartmental Committee between the time of the National Health Conferences and the sending of the National Health Program by the President of the United States to the Congress in January. A considerable amount of study and careful analysis of the National Health Program, as sent in January and as presented in July, reveals no significant change, modification or variation resulting from the nineteen conferences. Certainly none of the basic points brought out by the medical profession were introduced into the National Health Program as sent to the Congress by the President.

I would like to mention that the President of the United States himself did not urge immediate enactment of the National Health Program; that he recognized the report of the United States Public Health Service on the excellent health conditions in the United States during 1938, and that the President of the United States sent the National Health Program to the Congress with a recommendation for careful study, and that it is now with the Ways and Means Committee, I believe, of the House of Representatives.

Also, I would like to point out in this connection that obviously if an emergency existed the President might well have recommended, let us say, immediate enactment of some portions of the National Health Program; nevertheless, no such recommendation was made, and we had but a recommendation for careful study.

Another consideration which came before this committee concerned the proportion of the medical profession who favor the passage of the Wagner Health Bill. The statement was made that 1,500 pediatricians of the United States are behind the Wagner act. Now I know of no evidence, no data which would warrant such a statement. In fact I made particular inquiry of the Legislative Committee of the American Academy of Pediatrics, and of a considerable number of its members relative to the question as to what extent an effort had been made to find out exactly what the pediatricians thought of the Wagner Health Bill, and what number of pediatricians were behind the Wagner Health Bill, using the exact words which appear in the record. I am unable to find any evidence to substantiate that, and I am able to find a considerable amount of evidence differing from that point of view. That does not mean to say, however, that I am not of the opinion that many of the pediatricians of the medical profession would welcome certain types of aid to the development of a further preventive medicine program in relationship to child care or in relationship to extending the ability to feed infants properly in certain portions of the large cities or, in fact, in many other ways. However, there is nothing specific to be offered in that connection.

Another appearance before this committee had to do particularly with the problems of maternal mortality. I believe it will be important to the committee to have a little consideration—brief I hope to make it—having to do with the exact figures relating to maternal mortality in the United States. They are frequently compared to the disadvantage of the United States in all sorts of promotions that are planned to secure vastly increased funds in relationship to maternal mortality. Quite commonly the comparison is made with England, Ireland, Scotland and Wales, pointing out that the maternal mortality rates in the United States are worse than in England, Ireland, Scotland and Wales, or that the maternal mortality rates are worse than those of Sweden or of the Scandinavian countries. I would like to point out in this connection that the comparison is quite unfair. If you will take the rates in some of our better constituted states, as for example New York, Massachusetts, Michigan and Illinois, and compare them with England, Ireland, Scotland and Wales, we appear to have a considerable advantage in relationship to such comparison. A more interesting comparison, one better warranted, would be one which would take into account the fact that in the United States we have our frontiers within the country. Therefore a more reasonable comparison would be the United States as a whole with England, Ireland, Scotland, Wales and portions of South Africa and the Balkans. Such a comparison would give us a comparable situation and perhaps a more reasonable comparison as to maternal mortality rates.

Furthermore, I would like to point out that most of those who have appeared here before your committee in relationship to the question of the extent of maternal mortality work and the care of mothers in childbirth have been the obstetricians, representatives of the obstetrical specialty, who have given their full time to obstetrics in hospitals, and often particularly in maternity hospitals. While I am aware of the fact that there are conditions in our frontier areas in which maternal aid can be improved and much can be done for mothers in childbirth, it is not quite correct to accept the point of view of the obstetrician who has developed his entire technical knowledge in the hospital. I would like to point out, nevertheless, that the comparison I have just stated here was given to me by Dr. Joseph B. De Lee of the Chicago Lying-in Hospital, whose record in this matter is well recognized.

In other testimony which was offered here, I believe in Senator Wagner's personal appearance before the committee, particular emphasis was placed on certain facts in relationship

to two diseases, diphtheria and infantile paralysis. There was no tuberculosis in Detroit, the gentleman said, of any account. Senator Wagner said that he would produce later the authority whom he had consulted with regard to this matter.

It is generally well recognized in medical practice that the maintenance of a drive on a single disease is likely to result in almost any part of the country in a temporary lowering of the rates in relation to that disease. However, it is not possible to maintain such a drive on a single disease as a permanent effort. At such moments we put our entire effort against a single disease. I could point to the drive against diphtheria which took place in Chicago, or I could point to this drive against tuberculosis in Detroit and recognize that the chief value of such a drive is its educational effect on the community, calling the attention of the community for the time being particularly to that disease. But it is not possible to maintain such a drive. Frequently there is a reaction after the drive which takes you into a condition in which perhaps you are worse off than you were before the drive started. I think if anyone will look at the tuberculosis work in Detroit since the drive has stopped it will be discovered that even now it is not maintained at the level at which it was maintained during the time of the drive. With no amount of money would it be possible to maintain that particular kind of a drive permanently in any community. One of the chief reasons would be that such a drive would dislocate entirely the preventive medicine effort. By the extra effort put on a single disease one diminishes equally the effort against a considerable number of other diseases.

How do the figures compare before the drive and since the drive? With a condition like tuberculosis it is not safe to base figures on a matter of a year or two. But comparing the rates of the entire area over a long period of time with the rates of cities of comparable population it will not be found that such a drive has a permanent effect. It does have some value in educating the public. Such figures are susceptible to all sorts of analyses, as I believe Prof. Haven Emerson pointed out yesterday. Certainly that fact must be taken into account in relationship to the general trend downward of a considerable number of diseases at certain periods and a trend upward at other periods.

Again it has been said that a vast fund is of the greatest importance in attacking many of our disease problems. In the report on the National Health Program, much is made of the possibility of control of crippling diseases, and particularly infantile paralysis. I happen to be associated closely with the handling of more than a million dollars which has been collected in connection with the National Foundation for Infantile Paralysis. In recent meetings of the body of the organization charged with the dispensing of the funds, having a million dollars available to be disposed of in any manner that this committee might wish, the committee having practically supreme authority over the disposition of this one million dollars, it was exceedingly difficult to find a way to spend $100,000 efficiently and successfully in encouraging research in infantile paralysis. Having a million dollars, it was difficult to find a legitimate number of research projects warranting the prompt expenditure of $100,000 by men capable of doing good research work. Making an allotment is not the primary consideration in the development of an attack on disease. Knowledge is the first consideration, and knowledge can be accumulated only in relationship to the possibility of having men capable of doing research under conditions where good research work can be done, and in addition to that having material on which to work. For example, if we had an infantile paralysis epidemic extending over large areas of the United States we could do a lot more research on infantile paralysis than we are able to do. It is the tendency of the disease to disappear during the cold weather and then to break out anew during warm weather. Unless we have cases in which to make tests and studies it is extremely difficult to make studies.

Let us consider the question of the provision of hospitals. As I mentioned this morning, there has been no lack of hospital construction, no lack of the additional building and provision of new beds in recent years. We have seen a considerable number of hospital projects being carried out on a scale much beyond and at a rate much beyond what we had five or ten years ago. I believe the senator from Louisiana is acquainted with the great hospital which is now being constructed in New Orleans, providing a great number of new beds. I recently visited Richmond, Va., where a thirteen-story hospital is now being built, largely with public funds, and where I was informed three other additional hospitals are contemplated, and the funds are apparently being sought. I have seen one hospital to which I wish to refer in this connection, namely the hospital which was built in Hot Springs, N. M., costing $2,000,000, with the provision of ninety beds for crippled children. The town has 300 people and is approximately 185 miles from any place.

Senator Wagner:—You did not mention these hospitals, of course, in criticism of their construction?

Dr. Fishbein:—I am about to criticize the one in New Mexico, not the other two, the new one in Richmond or the new one in New Orleans. I am criticizing the one in New Mexico as an example of the fact that abuses may arise in relation to the building of certain of these hospitals. Obviously the one in New Orleans was a necessity. In fact, if I may digress at this point, I think I may have had something to do with aiding and encouraging the building of the hospital in New Orleans. I came to New Orleans sometime ago and discovered four Negroes using one bed in a city-managed institution. I saw to it that it got proper publicity in the press. That intensified, to some extent, the drive for sufficient hospital facilities.

Now then the hospital in New Mexico to which I referred has ninety beds for crippled children. When the time came to man the hospital it was discovered that no accredited orthopedic surgeon was available in New Mexico for the job. Therefore, by special action of the legislature an orthopedic surgeon was employed from El Paso, Texas, at a pay said to be $7,200 a year to ride 185 miles into New Mexico once a week to do the necessary surgery. The rest of the time the hospital was under the management of a resident who was developing himself as a specialist in the field of orthopedics.

A population of a certain size can develop only a certain number of cripples. That fact must be taken into account. With a population of a certain size you develop a certain number of cripples; that is, unless an epidemic of crippling disease breaks out. Now after its establishment the hospital is actually in difficulties and it will not have a sufficient number of cripples to use the facilities. It was built particularly for that purpose. Already it is a matter of concern, both to the people of New Mexico and to the country generally, and of all physicians interested in these matters, as to what is to be done with this hospital. If you will estimate the cost you will discover that it cost $22,200 a bed for a building and equipping, whereas it is possible to build a good hospital today at a cost of $5,000 a bed.

Senator Murray:—Who built it?

Dr. Fishbein:—It was built partially on federal funds and partially on state funds.

Senator Murray:—At what cost?

Dr. Fishbein:—$2,000,000.

Senator Murray:—Couldn't it be converted into a general hospital, used for other purposes?

Dr. Fishbein:—I will say, from correspondence that I have available, there is evidence that that is a matter which is worrying particularly the senators from New Mexico.

Senator Wagner:—Doctor, how were the funds obtained? Wasn't there a proper showing made in order to be able to make the money available?

Dr. Fishbein:—I believe that that would be a matter of suitable inquiry. I believe that there is a custom that those who obtain money are supposed to show a need, and that having shown this need certain money dispensing agencies are authorized to grant the funds for that purpose. I know of no other method of obtaining money in Washington except through that technic.

Senator Wagner:—Was that money obtained from the WPA or the PWA?

Dr. Fishbein:—I have not checked into that particularly. I merely know the hospital is a crippled children's hospital built with state and federal funds.

Senator Wagner:—At a cost of $2,000,000?

Dr. Fishbein:—At a cost of $2,000,000 for building and equipment.

Senator Wagner:—Do you know what proportion was contributed by the government?

Dr. Fishbein:—I can investigate and supply that, if you wish to have the figures.

Senator Murray:—Go ahead, Doctor.

Dr. Fishbein:—Now the suggestion was made, incidentally, from two different sources: One, that this be developed as an institution for the tuberculous, the other that it be developed for the care of children convalescent from rheumatic fever. The latter suggestion would be obviously impossible, because it would not be considered a good atmosphere, or a good temperature to which to ship children with rheumatic fever.

At one point the National Health Program recommends additional funds in relationship to rheumatic fever for the removal of a considerable number of tonsils and adenoids.

Senator Wagner:—What would be the greatest benefit in counteracting the disease?

Dr. Fishbein:—It would be in restoring the patients to working condition. Here again is a case in which the medical profession, speaking as experts in relationship to the condition called "rheumatic fever," would be inclined to express doubt. So many of the points have to do with the need and the manner in which the need is to be determined that we must recognize the fact that there can be differences of opinion among physicians, and well qualified physicians, as to these matters of need. Any simple mechanism which leaves the decision in the hands of one or two persons is a matter for special consideration. I am inclined to believe that there ought to be enough people and enough of a cooperative effort between the state and federal agency concerned so that there would be no question as to an actual scientific determination of need. I do not believe the Wagner act suitably protects the people or the money of the United States in relationship to that determination.

Senator Wagner:—Have you any suggestion as to how to make that effective?

Dr. Fishbein:—I have, Senator. I believe it must be much more regulated than is provided in your measure, and that it would certainly involve the development of competent scientific evidence in the determination of need, based on the experience of recognized experts whose opinions would be given weight and value, and which might not be discarded at the behest of a single individual.

Senator Wagner:—Doctor, I take it you are acquainted with title VI of the Social Security Act?

Dr. Fishbein:—I believe that much good has been done in relationship to some of the use of money that is given to the United States Public Health Service to meet certain needs, yes, sir.

Senator Wagner:—That is similar to the provisions of this act?

Dr. Fishbein:—Yes. I believe also that a careful scrutiny in relationship to the practicability of those projects should be made by the scientific investigators, who would study and make a careful resurvey of the exact manner of use. This would reveal wastage in some instances.

Senator Wagner:—Is that surmise or do you know that that is so?

Dr. Fishbein:—Well, that is based largely on the statements that are sent to a periodical of the type of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION by physicians in various parts of the country who venture their criticism. I am not willing to accept such criticism on the statement of one physician who writes. I believe that, if the federal government were interested in resurveying directly the manner of disposition of money and meeting certain needs in relationship to preventive medicine, occasionally it could be found that the money was not employed with the greatest of efficiency.

Senator Wagner:—That is a matter of examination?

Dr. Fishbein:—Yes.

Senator Wagner:—As to the general method involved, as to the aim in making grants in aid?

Dr. Fishbein:—I propose to discuss the question of grants in aid and to offer my own concept of some different method of meeting the needs. I think there are needs that are required to be met. In fact, in my opening statement I said no one can disagree with the general objectives that have been stated for the Wagner act.

Senator Wagner:—That is a good beginning.

Dr. Fishbein:—Thank you, sir. I think you and I could get along very well.

Senator Wagner:—I think so, too. My son told me that.

Dr. Fishbein:—Yes, he told me he was going to tell you.

Senator Wagner:—Listening to you, I think he had tremendous courage in trying to debate the matter with you. I suppose you were generous with him.

Dr. Fishbein:—You are not going to embarrass me, I hope.

Senator Wagner:—No.

Dr. Fishbein:—When we consider the needs expressed as the result of the National Health Survey we discover that, according to the figures which are offered, approximately 17 per cent of the people with incomes of $3,000 a year or over, families with incomes of $3,000 a year or over, failed to receive or obtain medical care for chronic disabling illness. According to the same survey, 30 per cent of people with annual incomes per family of $2,000 or less failed to receive medical care for chronic disability or chronic disabling illness, and 28 per cent of people on relief failed to receive medical care for chronic disabling illness.

Senator Wagner:—You do not mind these interruptions?

Dr. Fishbein:—No, sir, I enjoy these interruptions.

Senator Wagner:—Yesterday we had a report from one of the quasi-welfare commissioners of New York.

Dr. Fishbein:—Yes.

Senator Wagner:—He said that on the present relief roll, of those receiving relief, 15 per cent were due to illness.

Dr. Fishbein:—I wouldn't doubt that. That would coincide rather well with these figures, particularly as New York in medical affairs is far beyond the rest of the country; in fact, it is stated in New York that today 50 per cent of the people receive free medical care. I am not sure of that figure, but I think your son made that statement in Brooklyn on Tuesday night. I have not yet verified it; I expect to verify it, however.

There is nothing in the National Health Survey which establishes any reason why 17 per cent of the people living in families with incomes of $3,000 a year or over fail to receive medical care. Obviously, unless all of the family's money was utilized for other purposes, something would have been available for medical care. The correction of that condition would not lie primarily in the lack of funds. I might say that I have my own concept as to why 17 per cent of people in families with incomes of $3,000 a year or over failed to receive or generally use medical care for chronic disabling illness. I am of the belief that about 10 per cent of the people of the United States do not want medical care under any circumstances. I mean even if it were put in their hands for nothing they would not take it. That is based on a survey made by the American Psychological Association, which discovered in the United States approximately twenty-seven groups who do not believe in medicine in any way, shape or form and who oppose its use whenever they can. Now obviously that would be deducted from the 17 per cent, which would leave you 7 per cent.

In the state of Massachusetts a survey was made under the supervision of the health department, using five trained medical investigators, with house to house contacts, involving 30,000 families. It indicated that only 3 per cent of the people of Massachusetts failed to receive medical care because of lack of funds, and 71 per cent of those who failed to receive medical care failed to receive it because of some breakdown in the line of communications that ought to bring those needing medical care to the places where medical care was available for them.

Obviously this question might well be argued from a philosophical point of view. It was referred to by Dr. Robb in his discussion yesterday. Obviously we do not have enough provision for the education of the public. There is a failure of the profession commonly known as social service to achieve its object of acting as a liaison between the medical profession and those needing medical service. I feel that in many instances they have been content to make a diagnosis of the condition and then not do what could be done in relationship to the correction of the condition.

Now we go to the 30 per cent of families with incomes of $2,000 a year or less who failed to receive medical care because of chronic illnesses. It is my belief that we must deduct from that figure the 17 per cent I have already mentioned in relation to those families with incomes of $3,000 a year or over. I take it the people with families with an income of $2,000 a year or under are normally intelligent but no better educated and of no finer type of intellect, which would cause them to do something that people with $3,000 a year or over would not do, leaving you a differential for that group of 13 per cent.

Again we must recognize that of the people in the United States with incomes of $2,000 a year or under we have a vast preponderance of certain poorer groups in the population, particularly the Negro group. There are perhaps from 90 to 95 per cent in the Negro group with families with incomes of $2,000 a year or under, whereas from 45 to 55 per cent of whites, roughly, would be in families with incomes of $2,000 a year or under. Thus we come to a localization of this problem, particularly in those states which the President himself has characterized as public problem No. 1. In those states the question of medical care is intimately bound with the economic situation of the state. The state of Senator Ellender is to be particularly congratulated on having made a considerable amount of progress in solving this problem by a technic developed in that state. Although I am not in a position to criticize the technic one way or the other, in any event they have answered the problem to a more considerable extent than that same problem has been answered in other states with a similar population and a similar character of medical problem.

Senator Wagner:—Isn't that also a question of providing for technical hospital service?

Dr. Fishbein:—I believe the provision for technical hospital service is a great help. I may point out that in the state of Mississippi, for example, they have 0.7 bed per thousand for the Negroes as contrasted with something like 2.3 or 2.4 for the

whites, and as contrasted with 3.5 for the population generally. The state of Mississippi certainly has not come as far as the state of Louisiana in this regard. Whether or not Mississippi can do so is a question that is to be determined.

Senator Wagner:—Doctor, right there, may I ask you if the state of Mississippi does not have the resources to take care of its quota of medical services and hospitalization that the federal government should not step in to provide those resources?

Dr. Fishbein:—I believe that no citizen of the United States for whom a demonstrated need for medical service which he is unable to supply exists should do without medical service.

Senator Wagner:—Even though it may be apparent that the federal government has to help?

Dr. Fishbein:—Yes. I believe that we are confronted here with a humanitarian problem that is outside the range of other problems.

As to the technic, again I make the reservation that I would not like to see a technic set up which would destroy democratic standards.

Senator Wagner:—Do you think we have intelligence enough to formulate methods to obtain these objects?

Dr. Fishbein:—I think we have, but sometimes we do not use it.

Moving on to the 28 per cent of persons on relief who failed to receive medical care, I point out that in many states people on relief are entitled to medical care merely by applying for it. For example, in the city of Chicago, through the state relief agency and with the aid of local funds, a system has been set up whereby any person in the community requiring medical services may apply at the relief agency and receive medical services from a physician of his choice, some 2,800 physicians having registered their names as willing to give medical service on call to any person requiring medical aid. The fees are adjusted through the relief agency by cooperative agreement between the relief agency and the medical society. The need is determined by special social service investigation under the direction of the cooperative group which has the medical care in charge. A system similar to that is the one referred to by Dr. Benson yesterday affecting the state of Oregon; again suitable relief is developed under local control, utilizing medical agencies with the assistance of state funds and without asking the federal government for a contribution. This indicates that in some places acceptable measures may be set up to solve the problem quite satisfactorily, whereas in other places the problems cannot be solved with the means or the facilities that are available.

As I have said, I am not a constitutional lawyer; I am not prepared to write an amendment; I do not believe I ought to be asked; and I do not believe the medical profession ought to be asked to amend the Wagner act. In consultation with various hospital officials as to that phase of the bill, it was pointed out that experts in the field of hospital administration would require more than 100 amendments just to fix that one portion and to coordinate it with the hospital conditions that we have in the United States today.

The Wagner bill, as I have already pointed out, would perpetuate a system of administration, through diverse agencies, which must inevitably result in duplication of effort.

As practical-minded people and with some knowledge of human psychology, we recognize the desire of an agency, once established, to continue and to expand; but of course that is not our particular concern. We recognize also the desires of various groups of people with special interests to have such agencies placed under a control where they may perhaps have a more immediate connection than under another control. For example, I notice it was the desire of two of the representatives of labor who have appeared before this committee that all functions having to do with industrial hygiene and preventive medicine in relationship to workers in industry ought not to be assigned to any of the agencies mentioned under the Wagner act. Mr. Pressman and Mr. Woll both said they would prefer to amend the act by moving those over to the Labor Department. You have that in the record of the hearings.

Senator Wagner:—I remember that very well. New York State would do it very well.

Dr. Fishbein:—That might be. I am not prepared to say. I would be willing to accept your statement, but, as I said, under this law it cannot be done successfully.

Senator Wagner:—Why?

Dr. Fishbein:—New York is a rich state. It has a vast taxing power, it has considerable funds.

Senator Wagner:—What I would like to do now under this bill—

Dr. Fishbein (interposing):— —is to equalize.

Senator Ellender:—You mentioned the rich state of New York. It gets some of its money from Louisiana and from Texas, from the natural resources throughout the country.

Dr. Fishbein:—I recognize that.

Senator Ellender:—What we want, what we desire is that the states that get the money from us give a little back to us.

Dr. Fishbein:—It is my belief that the task of attempting to equalize these matters for the forty-eight states and the territories of the United States, without a breakdown of the democratic system of government by which we have come to the point in which we now are, is not the task of the medical profession but primarily the task of the Executive and the legislators. It is the medical profession's task to maintain standards of medical service which have brought this country up to the present high place which it occupies. It is our purpose to endeavor to get the widest possible distribution of this high quality of medical service to the greatest number of people to whom it can possibly be distributed, and then if, in doing that, we can still maintain democracy, we have achieved a fine objective.

Senator Wagner:—I was interested in the cooperation because you did state earlier that you complained because you were not asked to sit down and aid in the drafting of the legislation.

Dr. Fishbein:—Yes.

Senator Wagner:—Which showed that somebody in your organization, probably your group—

Dr. Fishbein (interposing):—Not me.

Senator Wagner:—No, but it showed that somebody in your group was interested in aiding in the drafting of this legislation.

Dr. Fishbein:—I believe our function in relationship to the drafting of legislation should be to state the standards and objectives. After we have stated the standards and objectives it is up to the experts to draft appropriate legislation.

Senator Wagner:—I did not say you should be asked to sit down with those who were drafting the legislation.

Dr. Fishbein:—I think we have the function of being recognized as authorities in the field of medical practice and medical service.

Senator Wagner:—Every one wants your guidance. I misunderstood you. I thought you complained because your organization was not asked to sit in with others to draft the legislation.

Dr. Fishbein:—Senator, I made no complaint, I merely stated a fact. We were not asked.

Senator Wagner:—You said just a moment ago you should not be asked to aid in the drafting of legislation.

Dr. Fishbein:—I think that might very well be done by those who propose to draft the legislation, after such considerations as we might be able to present on the basis of our expert knowledge.

Senator Ellender:—That is all we ask you to give us now.

Dr. Fishbein:—I propose to read again now, and very carefully, and I believe with special adaptation to the circumstances that have heretofore been set up, the recommendations of our House of Delegates. In introducing it I would say we are convinced that any state in actual need for the prevention of disease, the promotion of health and the care of the sick should be able to obtain such aid without using a system that inevitably stimulates every other state to seek to develop evidence by which it can qualify for a share of the available funds. Certainly the astute minds which conceived the system of federal subsidies and grants in aid with matching appropriations should be able to develop some legislative technic which would accomplish the result without the obvious faults of this type of legislation. Our House of Delegates suggested either a federal agency to which any state in need of federal financial assistance might apply, or a new agency created specifically for this purpose, or some adaptation of the relief mechanism already in existence.

We are not constitutional lawyers, and the nation has not indicated any strong desire to change the constitution in order to make available new technics in the administration of medical service.

Let us go back to the original plan for treating here, first of all, an assemblage of all the various functions of the federal government concerning that medical care. In attempting to develop legislation of this type, in reference to certain small functions, and to keep them distributed between a variety of federal agencies, the result has been a duplication of effort and a manipulation, for various reasons and in various ways, of the funds available.

As a practical observer in affairs of this sort I have observed on occasion the systems of technic by which those desiring funds applied for them. Obviously there is nothing to prevent a man desiring funds in his state from coming to the federal officer solely in charge of making the recommendation and saying to him "What do we have to do in my state to get some of this

money?" When he is told the rules and regulations under which he must apply and under which he must develop a plan, he then develops a plan which meets the obligations and the requirements.

Furthermore, there are all sorts of technics developed for stimulating the public request for funds. If one wishes to focus on any particular problem in the health field there is well established technic for focusing attention. If the committee is interested, according to my observation, the technic is simply this: A certain amount of publicity is given to the general fact that such a question exists. The next step is to call a conference, to which various numbers of people are requested to come and contribute information, most of those requested having been determined in advance as being somewhat favorable to the idea. Then, having had all this publicity developed through the conference, more announcement of the concept is promoted in order to build up what is commonly called a demand; then the demand having been created, some one is requested to develop legislation to meet the demand.

In the present instance the medical profession has, all along this route, endeavored to insert here and there certain cautions, certain desires, certain requests, certain evidence. As I stated in the preamble to my remarks, in recognition of those desires we request a consideration of the alternative evidence.

Senator Ellender:—Doctor, you recognize that for any state to obtain any of these funds it is necessary for that state to raise its share?

Dr. Fishbein:—Under the present system of grants in aid with matching appropriations, yes, sir.

Senator Ellender:—I mean under the bill we are now considering.

Dr. Fishbein:—Yes, sir.

Senator Ellender:—Is it your view that the same technic is engaged in by the local authorities in a state?

Dr. Fishbein:—I did not gather the significance of the question.

Senator Ellender:—You say that before the demand is created it is necessary that the state itself comply?

Dr. Fishbein:—Yes, sir, and I think that such a technic may be engaged in, and sometimes quite successfully.

Senator Ellender:—And through that medium the taxpayers of that state are asked to raise their pro rata share so as to afford them the right to come up to Washington and get their share of the funds?

Dr. Fishbein:—I believe if any one presents, with a sufficient amount of urging. I have myself frequently, I am frank to say, been engaged in developing a desire for legislation in various states for the control of accidents from Fourth of July fireworks, which I believe have destroyed a great many eyes and made a great many cripples. We indicated the number of cripples that were caused each year by the Fourth of July fireworks. We published these records and released them to the newspapers and called attention to the fact that here is a serious situation. Something ought to be done about this. Pretty soon a lot of people said "Why, something ought to be done about this. People are being blinded and made cripples, and something ought to be done about this."

That is the way we have approached the Wagner Health Bill. People have said there are needs that need to be solved, there are needs that need to be met. We agree with them. We do not believe in overemphasizing the need. We have certain figures, and we have had the figures checked from various sources.

Senator Ellender:—Doctor, any plan that would be worked out you think ought to be worked out under the suggestion made by you?

Dr. Fishbein:—Made by me? By the American Medical Association.

Senator Ellender:—You are speaking for them?

Dr. Fishbein:—Yes, sir.

Senator Ellender:—Any commission, or any official charged with the authority to cover the purposes of the act, would necessarily have to listen to the citizens of all states?

Dr. Fishbein:—Yes, sir. I do not say how much he should listen.

Senator Ellender:—I am just wondering how it would be possible to hurdle the objection that you now are speaking of. In other words, in any act that is passed, Doctor, you can readily understand it is necessary to provide funds in advance.

Dr. Fishbein:—I agree with that.

Senator Ellender:—All right. Now the fund that was provided for may be sufficient to make a start.

Dr. Fishbein:—Yes, sir.

Senator Ellender:—And those funds must be distributed according to a yardstick laid in the bill. Now what is the yardstick you propose in this bill?

Dr. Fishbein:—I maintain the yardstick in this bill is so vague and indefinite in many particulars that it leaves far too much to one authority.

Senator Ellender:—Would you be able to write a yardstick?

Dr. Fishbein:—I might be able to improve the yardstick.

Senator Wagner:—Would you add or subtract?

Dr. Fishbein:—I am of the opinion that it is necessary to have a system of checks and even perhaps double checks. It can be worked out in relation to scientific research. New ideas and new developments are not accepted as such, particularly in the field where the establishment of a perfect yardstick is not yet possible. I can cite an example. I have seen a child born of an indigent family with a harelip that ought to have, at the earliest possible moment, the necessary surgery to correct that harelip. The child would otherwise be handicapped through life. It would not be able to earn what it might earn after suitable correction. I certainly would do all I could do in my own power to aid that child, to correct the harelip, if the money was not forthcoming. In most of the states excellent facilities are available to people who can get the child to the place where such facilities are available.

There is also the possibility that lop ears might interfere with the earning power of a young man. But how far out would the lop ears be before it would be recognized as a need? What agency would determine a simple thing of that sort? Could everybody desiring a correction of his appearance, in order to make a better social appearance, be entitled to bring that in as a need to a medical agency?

I can give you other diseases much more significant. Let us say we have the question of the syphilitic. We have a bill providing three million the first year and five million the second, and then up as far as Congress cares to appropriate to handle that particular problem. Now then there are in the United States a certain number of the syphilitic who are a menace to every one who is anywhere around them. There are a considerable number of cases of latent syphilis whose Wassermann reaction is positive but who would not be a menace to everybody around them. They have a positive test. Sometimes you can treat the patient for years without getting a negative Wassermann reaction yet they can go on with their work without bothering anybody. The doctor can enjoy himself treating them for a long period of time, sometimes with considerable success and sometimes with no success. Who is to set up a yardstick? Shall we set up the yardstick that every man is conceded to be entitled to free treatment for his syphilis until he gets a negative Wassermann reaction? If you do, then the money you have appropriated will not begin to meet the problem. The doctors do not feel the negative Wassermann reaction or the positive Wassermann reaction should determine whether a man becomes a charge on the community.

Senator Wagner:—Doctor, there have been diverse criticisms of those standards set up. Some say they are too restrictive. You make the criticism that they are too vague. Have you in mind now some standards that might be provided?

Dr. Fishbein:—I do not believe I could have in mind such a standard. I do not believe any individual you can get up here, including the best authorities in the United States, could stand here and elaborate the vast system of standards that would be necessary. I need only refer to the attempt to set up suitable standards in relationship to medical care of veterans or in relationship to any sort of medical care at public expense. Committees have sat for days, weeks and months endeavoring to study these expenditures in relation to the care of patients and even yet these standards are constantly subject to change.

Senator Wagner:—When you made the criticism I thought you had in mind some definite way in which it could be corrected.

Dr. Fishbein:—I do not think it could be. I believe the only system would be relative to suitable judgment, based on properly integrating each problem in the general scheme. A problem would then be entitled to have funds devoted to it in any individual state without forcing the development of such a need in some other state. I do not believe the need of New York in relation to some of these conditions is as great as the need in some other states.

Senator Wagner:—That is undoubtedly true. I was trying to think nationally.

Dr. Fishbein:—That is the way I am thinking all the time. Having the picture before us, obviously there must be some system of check and, as I have said, double check. After you have given the money you should be absolutely sure that the

money has been well spent. There must be investigations. The Public Health Service could go out and resurvey occasionally.

Senator Murray:—The government follows that system of checks in connection with the PWA. They have engineers on each project.

Dr. Fishbein:—I think there should be something similar in relation to devotion of funds for medical purposes.

Senator Wagner:—I think there is.

Dr. Fishbein:—I doubt that there is; or, if there is, it is not functioning 100 per cent.

Senator Wagner:—Is not the maternal care, child care and the health service, is not that done very well, very efficiently by the federal government today in granting aid to states?

Dr. Fishbein:—Senator, I can send you copies of various reports that have been made by independent investigating agencies, but I do not care myself to be put into the position of standing here criticizing the conduct of any special governmental department in this field.

Senator Wagner:—I was not going to ask you to criticize any governmental department, except I always understood that was particularly efficiently run.

Dr. Fishbein:—I will be glad to send you a report made by an independent and unbiased investigating agency as to the manner in which the funds were used under the Sheppard-Towner bills, as to where the money was spent, what was done with it and what was accomplished.

Senator Wagner:—The reason I am particularly interested is that some of the other witnesses testifying, Doctor, have contended the provisions were too restrictive, that the federal government was attempting to control the activities of the states by simply seeing that the moneys were expended for the purposes for which they were employed. Now you take the other point of view, and I am sympathetic with your point of view, that there ought to be supervision of the moneys that are spent by the states.

Dr. Fishbein:—Supervision and checking.

Senator Wagner:—There have been some of your fellow doctors who have taken the contrary view.

Dr. Fishbein:—That is between you and them.

Senator Murray:—These reports you referred to, Doctor, will be sent to the committee?

Dr. Fishbein:—I will arrange to have the reports sent, yes, sir. I hope my associates are taking note of it. We already have begun the report on each federal department concerning medical care and the amount of money spent.

Senator Murray:—Doctor, in view of your knowledge and evident efficiency in this field, I would like to see you take this bill of ours and sit down and analyze it section by section for us.

Dr. Fishbein:—I will ask my associates to aid in such analysis of the bill. We have gentlemen who are well versed in the public health portions of it, who could make a complete analysis of the bill, but I would indicate the extreme difficulty, if not almost an impossibility of doing much with this bill as it now stands.

Senator Murray:—It is not necessary to do anything with the bill.

Dr. Fishbein:—Well, Senator, our analysis goes to our corrections.

Senator Murray:—Would you have difficulty in analyzing each section?

Dr. Fishbein:—I am sure that Dr. Woodward of the Bureau of Legal Medicine and Legislation and Dr. Leland of the Bureau of Medical Economics, and Dr. West, will all participate in that report.

Senator Ellender:—Doctor, in making your analysis and criticism I want you to offer suggestions.

Dr. Fishbein:—I have made some, and if I think of any others I will be delighted to make them.

Senator Ellender:—I mean with reference to each section of the bill, beginning with title I.

Dr. Fishbein:—I think the chief difficulty of the bill is the endeavor to make it all inclusive, with obviously inadequate multiple agencies. Thank you.

Senator Murray:—Thank you, Doctor, for your comprehensive statement.

Dr. Cary:—Mr. Chairman, I wish to thank you on behalf of the American Medical Association for the courteous treatment you have accorded the American Medical Association.

ABSTRACT OF STATEMENT BY MISS MILDRED SCHPEISER

Subsequent to the appearance of the representatives of the American Medical Association, hearing was given to Miss Mildred Schpeiser, who appeared on behalf of the American Youth Congress and who seemed to be largely concerned with sex education. She supported the National Health Program, stating "As organized youth, 8,000,000 strong, we are already especially concerned with this matter of adequate medical care. . . . We see this bill as the first step toward the goal."

ABSTRACT OF STATEMENT BY DR. C. C. LUND

Next appeared Dr. Charles C. Lund, representing the Massachusetts Medical Society. He opposed the Wagner bill, stating that his Committee on State and National Legislation of the Massachusetts Medical Society was unanimous in opposition to the Wagner Health Bill in its present form. Dr. Lund supported in general the objectives stated by the representatives of the American Medical Association.

ABSTRACT OF STATEMENT BY DR. J. A. O'HARA

Next appeared Dr. J. A. O'Hara, president of the Louisiana State Department of Health, who stated that they would favor legislation, subject however to a number of suggestions for modifications, including support for general hospitals already existing, asking the state medical advisory council to be appointed by the state medical societies, asking that all health and medical service be placed under the exclusive jurisdiction of the United States Public Health Service. He indicated that in Louisiana there are 100,000 people medically indigent, 6,000 cases of tuberculosis without suitable care, approximately 10,000 children requiring orthopedic care and hospitalization, and he feels that an increase in the amount of money appropriated for beds in mental hospitals is warranted.

ABSTRACT OF STATEMENT BY DR. A. T. MCCORMACK

Next appeared Dr. A. T. McCormack, Louisville, state health commissioner of Kentucky. Dr. McCormack presented a resolution adopted by the Conference of State and Provincial Health Authorities of North America. Eliminating the provincial representatives, they urged the passage of sections 1, 2, 3 and 5 of the National Health Program, opposed the compulsory health insurance, and asked for unification of all federal public health agencies in a national department of health. He stated that usually plans developed in the states are accepted without change or amendment by federal authority. He discussed at length the mechanism of public health administration in Kentucky. Dr. McCormack said "I think the report of the Technical Committee is one of the greatest documents that has ever been written on social welfare in the history of mankind." Dr. McCormack stated that surveys had been made in many of the counties of Kentucky in cooperation with the American Medical Association's survey and that as a result a resolution had been adopted urging the creation of a Bureau of Medical Service in the Division of Local Health Work of the State Department of Health whose duties it shall be to assist the legally qualified and registered medical profession of Kentucky in providing complete service for the indigent and the medically indigent residents of the commonwealth. Dr. McCormack suggested amendments to the Wagner Health Bill calling for unification of the different agencies and calling for utilization of existing hospital facilities. He said there was no reason why it would be difficult to amend the Wagner Health Bill, and he suggested a preamble to the effect that it is the express purpose of the act that no plan approved under it shall provide for the regimentation, federalization or socialization of the practice of medicine, and that it is its express intent to provide for the continuation of the private practice of medicine, which has brought to the people of the several states the benefits of scientific research and medical care. Dr. McCormack stated that the matter of training personnel had been so completely misconstrued that it is astonishing, and that he could not understand the attitude of the previous representative on subsidies for medical education.

ABSTRACT OF STATEMENT BY DR. FELIX J. UNDERWOOD

Next was Dr. Felix J. Underwood, Jackson, Miss., secretary of the state board of health. Dr. Underwood stated that he did not feel the proposed act would "establish a system of health insurance or require the states to do so." He confined his remarks to titles V and VI and stated that he found some objections in some of the other titles. He agreed with Dr. McCormack on the necessity for utilization of existing beds. He said "If every state and local governmental agency could have had the experience extending over many years that has been enjoyed by the state health authorities in dealing with the Children's Bureau and the Public Health Service, 'the wolf cry of bureaucracy and federal domination and control' would never have been raised."

ABSTRACT OF STATEMENT BY MR. DOUGLAS V. SVENSON

Douglas V. Svenson, Deputy Commissioner of Public Welfare for Louisiana, said that the people of the state of Louisiana wholeheartedly favored the principles of the proposed National

Health Act. He thought the bill ought to be revised to give opportunity for use of state-owned and operated facilities that have been constructed since Jan. 1, 1936. He stated that he was wholeheartedly for the bill.

ABSTRACT OF STATEMENT BY DR. C. E. LARIO

Next Dr. Clarence E. Lario, Baton Rouge, president of the Louisiana State Medical Society, stated that he thought the medical profession representatives appeared "with a red flag flaring in front of them, definitely opposed to all form of reform . . . but gradually they became a little more cooperative." He stated that he trusted the committee would, in all sincerity, work with the American Medical Association and the various state societies.

Session of June 1

Before the subcommittee of the Committee on Education and Labor on June 1 Senator Shipstead appeared, stating that he was himself a dentist for twenty years before coming to the Senate, and asked consideration of representatives of the dental profession whom he then presented.

Dr. C. Willard Camalier, past president of the American Dental Association, stated that there are 62,000 practicing dentists in the United States and that 47,000 are members of the American Dental Association. He introduced Dr. Harold Oppice, chairman of the National Health Program Committee of the American Dental Association, who presented the considerations of the American Dental Association relative to the National Health Program and also special considerations of the difficulties with S. 1620. He believes that dentistry should have a separate title in the bill and made proposals by which dentistry can participate in the National Health Program. He pointed out that dentistry and dental services are not mentioned in any line or title of the bill. It was his belief that the bill might lead to a system of compulsory health insurance.

ABSTRACT OF STATEMENT BY DRS. MORREY AND WALLS

Dr. Morrey, Director of Public Relations, estimated that it would take $60,000,000 a year to take care of the dental aspects of service to indigent children, including an educational program plus operative care. It was impossible to estimate the cost for adults. Senator Murray stated to Dr. Walls that the Senate subcommittee would like to have from the dental profession the amendments or proposals necessary to cover dentistry in the health bill. Dr. Walls suggested that it would require until the first of August to develop these and asked if that would be too late. Senator Murray said "I do not think so. It is not going to be possible for us to have this bill enacted in this session, so that would be perfectly proper. Dr. Wall also stated that these hearings were the first time official Washington considered that dentistry played a big part in the health of the nation.

ABSTRACT OF STATEMENT BY DR. P. G. SMITH

Dr. Park G. Smith, president of the Ohio State Medical Association, explained its opposition to the National Health Bill, emphasizing many of the points emphasized by representatives of the American Medical Association. Senator Murray said "I am very much in accord with your views with reference to the bearing of the economic conditions on this subject of national health. I think your observations there are very wise, and I think that improvements in that field will go a long way toward remedying the health situation too."

ABSTRACT OF STATEMENT BY MR. J. G. CROWNHART

Mr. J. G. Crownhart, secretary of the State Medical Society of Wisconsin, discussed particularly that section of the bill on grants to states for medical care. He submitted to the committee his report on health insurance abroad. He said "The Wagner bill is so designed as virtually to insure the inauguration of state compulsory sickness insurance plans subject to the control and direction of the federal government."

ABSTRACT OF STATEMENT BY MR. JAMES E. SLOCUM

In the afternoon session first appeared James E. Slocum, research director for the National Chiropractic Association, who recommended that the committee always keep in mind the right of the citizen to choose his own doctor and method of healing and urged that the committee include doctors of chiropractic in the federal health program. In the discussion with the committee, he said that there were approximately thirty chiropractic colleges in the country, many of them standardized on the four year course, and that they graduate between 2,000 and 2,500 a year, and that there are between 15,000 and 16,000 practitioners. He said the difference between his profession and osteopathy was philosophical. He did not think that of recent years the medical profession opposed the theory of chiropractic so much. He said that chiropractors are now licensed in forty-three states and that there are approximately 40,000 drugless practitioners in America.

ABSTRACT OF STATEMENT BY MR. ABRAHAM EPSTEIN

Abraham Epstein of the American Association for Social Security said that he was no enthusiast of the bill, that from 40 to 50 per cent of people in the low income group do not get medical care. They want a self-respecting independent system whereby they can distribute their costs. He said that insurance is the proper method for doing this and that insurance fits most aptly in sickness. He suggested, therefore, compulsory health insurance. He objected to the bill because it tries to compromise with the American Medical Association and practically gives them everything, and yet they try in their general stupidity to come out and say that the one thing that they object to is the health insurance program. He also said that in a health insurance program you can have the least governmental interference. All that the government does is to collect. He endorsed everything in the bill except the administrative feature in the last provision. He did not think that they would accomplish anything, however, by passing the whole bill. He said he did not know what was in the bill even the day before it was introduced, and that he thought this was an attempt to compromise with the American Medical Association. Further he said "If they had asked me, and I am an old bird at that thing, I would have said right at the start that there is no chance for you ever to get Dr. Fishbein and his crowd to accept anything, no matter what statements they issue." He said the defect of the bill was the fact that it tried to avoid health insurance. He said "Senator Wagner has made several statements. Before the doctors he states that there is no health insurance here. I can tell you, you really could have a health insurance program under this bill. I don't think that these tactics will do any good. That is no way of fooling the American Medical Association; it cannot be done, and I do not think that there is any possible chance of converting them." Senator Wagner said that there was nothing in the bill to compel a health insurance program by any state. Mr. Epstein said that this was his objection to the bill. He then urged the passage of the Capper bill, which is a health bill now before the Committee on Finance.

ABSTRACT OF STATEMENT BY MR. W. F. MONTAVON

Next appeared Mr. William F. Montavon, director of the legal department of the National Catholic Welfare Conference. He found that the Wagner bill fails to provide for and indeed would make impossible in some cases any cooperation of governmental and nongovernmental agencies, that it would divide the elements now providing medical care into two rival groups, those serving under a state plan and those not so serving. Between these two groups there would be no place for the nongovernmental agency. He feels that it should be compulsory on the government to give preference to the private hospital, which is an American tradition. He said that the conference of the hospital agencies with the Interdepartmental Committee had not influenced in any way its report. He also left with the committee an analysis of the Social Security Law and S. 1620.

ABSTRACT OF STATEMENT BY MONSIGNOR JOHN O'GRADY

Next appeared Monsignor John O'Grady, secretary of the National Conference of Catholic Charities, who discussed particularly the interest of the private charity and the private hospital.

ABSTRACT OF STATEMENT BY REV. A. M. SCHWITALLA

Rev. A. M. Schwitalla, representing the Catholic Hospital Association, discussed the costs of hospitals and described the work of the Catholic Hospital Association, and the actions of the Joint Committee of the three national hospital associations. He said that "the National Health Act not only ignores the partnership which has existed traditionally between the public and private agencies but it places the public agencies into a position in which we believe they will sooner or later constitute an actual menace to the non-tax supported hospital." He said that "the act recommends a pattern of governmental dominance over health care tried in its implications only in those countries in which the American form of democracy is unknown. He felt that there was no way to amend S. 1620 satisfactorily but that there should be drafted a new bill. He filed with the committee a report of the three hospital associations relative to the bill.

ABSTRACT OF STATEMENT BY MR. BRYCE L. TWITTY

Mr. Bryce L. Twitty, president of the American Protestant Hospital Association, supported the same general point of view as did also Dr. Claude W. Munger, representing the American Hospital Association. He stated that the bill was not satisfactory in its present form, that it must be given more study and that there must be important amendments.

(To be continued)

OFFICIAL NOTES

RADIO BROADCASTS

The radio broadcasts by the American Medical Association and the National Broadcasting Company, under the title Your Health, continue as previously announced each Wednesday over the Blue network of the National Broadcasting Company at 1 p. m. eastern standard time (12 noon central standard time, 11 o'clock mountain time, 10 a. m. Pacific time).

Starting April 30, daylight saving time took effect in Chicago. The program is therefore being broadcast at the same hour Chicago daylight saving time, which means one hour earlier central standard time, two hours earlier mountain time and three hours earlier Pacific time. In communities where daylight saving time is in effect there is no change in the hour of the broadcast.

Owing to network conflicts the Chicago broadcast does not occur at 1 o'clock Wednesday but there is a rebroadcast from a recording over station WENR at 8 o'clock each Wednesday evening (8 o'clock Chicago daylight saving time, 7 o'clock central standard time). The program broadcast each Wednesday evening is identical with the network program of Wednesday afternoon.

The last program to be broadcast, together with its date and topic is as follows:

June 21. Better Babies.

This terminates the fourth series of dramatized programs, and the sixth consecutive season of broadcasting over the networks of the National Broadcasting Company. Announcements as to further radio programs will appear in THE JOURNAL in advance of the dates scheduled.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 2353 and H. R. 6225 have been reported to the Senate and House respectively, proposing to authorize an appropriation to construct a medical school building at Carlisle Barracks, Pennsylvania. H. R. 6635 has passed the House, proposing to amend in several respects the Social Security Act. This bill proposes, among other things, (1) to freeze the old-age insurance tax at 1 per cent on the employee and on the employer for the three years 1940, 1941 and 1942; (2) that only the first $3,000 an employer pays an employee for a year is to be taxable under the unemployment compensation provisions; (3) to liberalize certain benefits; (4) to exclude from the provisions of the act service performed as a student nurse in the employ of a hospital or a nurses' training school by an individual who is enrolled and is regularly attending classes in a nurses' training school chartered or approved pursuant to state law and service performed as an intern in the employ of a hospital by an individual who has completed a four year course in a medical school chartered or approved pursuant to state law.

Bills Introduced.—S. 2543, introduced by Senator Neely, West Virginia, proposes to accord all the benefits now given to veterans of the World War to persons who served as members of boards to carry out the provisions of the selective draft act. S. 2547, introduced by Senator Murray, Montana, proposes to impose additional duties on the United States Public Health Service in connection with the investigation, treatment and control of tuberculosis. The bill provides federal subsidies to assist states, counties, cities, health districts and other political subdivisions of the states to establish, extend and improve measures for the prevention, treatment and control of tuberculosis, including the provision of facilities for sanatoriums and other care for persons with tuberculosis. The U. S. Public Health Service will be authorized to make studies, investigations and demonstrations to develop more effective measures of prevention, treatment and control of the disease. For the fiscal year ending June 30, 1940, the bill proposes to authorize not exceeding the sum of $7,750,000, for the fiscal year ending June 30, 1941, not exceeding the sum of $33,500,000, for the fiscal year ending June 30, 1942, not exceeding $37,000,000, and for each fiscal year thereafter, such sum as may be necessary, provided that subsequent to the fiscal year 1945 the federal appropriations authorized shall not exceed $17,500,000. H. J. Res. 316, introduced by Representative May, Kentucky, proposes (1) to establish a federal department of public health as an independent agency under the executive branch of the government to which will be transferred all public health activities and services financed wholly or in part by the federal government, with the exception of the Army, Navy and Veterans' Administration services; (2) that it shall be unlawful for any person to use any seal, stamp or certificate of another person denoting or implying superiority in purity, quality, usefulness or effectiveness of any drug, food, cosmetic, therapeutic lotion, therapeutic device or diagnostic and surgical assists, unless authorized by the rules and regulations of the United States Public Health Service; (3) to provide that disability on account of sickness shall be considered, under the Social Security Act, as unemployment after three days of such disability and until the termination of such disability; (4) that there shall be established in the District of Columbia a United States Medical and Surgical College to which graduates of accredited medical and surgical colleges shall be admitted for training for Army, Navy or public health work, on designation by senators and representatives in Congress. The college will be authorized, it is proposed, to provide medical, surgical and clinical facilities for the diagnosis and treatment of all types of illness and physical and mental disabilities, the facilities to be available for all patients whose income is not in excess of $600 per annum, if single, or $1,200 per annum if married and supporting dependents; (5) to create a joint congressional committee to make a thorough study of all public health problems and to recommend to Congress a system whereby individuals in the low-income groups may be able to purchase full coverage insurance to cover the costs of sickness "in lieu of federal and state grants-in-aid."

DISTRICT OF COLUMBIA

Changes in Status.—S. 1805 has been reported to the Senate, without amendment, proposing to establish a lien for moneys due hospitals for services rendered in cases caused by negligence or fault of others. H. R. 6509 has been reported to the House, proposing to provide for insanity proceedings in the District of Columbia.

FRENCH SICKNESS INSURANCE

The French system of sickness insurance is following the example of nearly all other systems by showing a constant and fairly rapid increase in expenditures. According to the *Monthly Labor Review* (48:312 [April] 1939) the increases in payments since 1930 are as follows:

Disbursements by Sickness Insurance in France, 1930 to 1936

Year	Disbursements (in Francs)
1930-1931	714,644,616
1932	875,873,375
1933	935,401,696
1934	998,126,448
1935*	1,097,925,128
1936*	1,011,279,135

* Provisional figures.

This increase is somewhat exaggerated by the depreciation in the franc, which is now quoted at 2.65 cents. Since January 1937 the contribution for all types of social insurance has amounted to 8 per cent of the wage, with a maximum of 100 francs a month.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

State Medical Election.—Dr. Delamere F. Harbridge, Phoenix, was chosen president-elect of the Arizona State Medical Association at its recent annual session in Phoenix, and Dr. Charles S. Smith, Nogales, was installed as president. Other officers include Drs. Dan L. Mahoney, Tucson, vice president; Leslie R. Kober, Phoenix, secretary, and Clarence E. Yount, Prescott, treasurer. Dr. Harbridge was secretary of the association from 1917 until this year; in 1937 he was presented with a solid gold diamond studded badge emblem in appreciation of his having served twenty years in the position. He is also an honorary member of the Philadelphia County Medical Society.

ARKANSAS

State Medical Meeting and Election.—Dr. Henry T. Smith, McGehee, was chosen president-elect of the Arkansas Medical Society at its annual session in Hot Springs National Park May 8-10 and Dr. Albert S. Buchanan, Prescott, was installed as president. Other officers are Drs. John M. Proctor, Hot Springs National Park, Berry L. Moore, El Dorado, and Thomas J. Stewart, Wynne, vice presidents; Royal J. Calcote, Little Rock, treasurer, and William R. Brooksher, Fort Smith, secretary. The 1940 convention will be held in Fort Smith. The scientific program included the following out of state speakers:

Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, American Medicine and the National Health Program.
Dr. Arthur E. Hertzler, Halstead, Kan., Cardiotoxic Goiter.
Dr. Joseph Brennemann, Chicago, Appendicitis in Children.
Dr. Tinsley R. Harrison, Nashville, Value of Drugs in Treatment of Cardiac Disease.
Dr. Elmer D. Twyman, Kansas City, Mo., Some Experiences in the Treatment of Cancer.
Dr. William R. Cubbins, Chicago, *Fractures of the Neck of the Femur.*
Dr. Jefferson C. Pennington, Nashville, Tenn., Painful Nephroptosis and Its Treatment.
Dr. Louis T. Byars Jr., St. Louis, Repair of Open Wounds and Deformities Resulting from Burns.
Dr. Louis Rudolph, Chicago, The Management of the Prolonged First Stage of Labor.

A public meeting Monday was addressed, among others, by Dr. Hertzler on "The New Deal in Medicine" and Dr. Fishbein, "Fads and Quackery in Healing."

CALIFORNIA

Eleven Encephalitis Cases Following Measles.—In an epidemic of measles in San Francisco from September 1938 until about the first of May, there were eleven cases of postmeasles encephalitis. Six deaths occurred in a total of 10,236 cases of measles, five of which were recorded in the group presenting encephalitis. According to the *Bulletin of the San Francisco County Medical Society*, the first case of postmeasles encephalitis in the last twenty years was reported in 1936. In the 1938-1939 epidemic three cases were reported from private hospitals and eight cases from the San Francisco Hospital. The onset of the encephalitis was nearly always sudden, developing a few days after the onset of the measles rash. Convulsions were present in eight cases and a significant part of all the fatal cases; paralysis of the lower extremities was recorded in three cases.

DISTRICT OF COLUMBIA

Personal.—Dr. J. Winthrop Peabody has written that he has not resigned as general superintendent of the District tuberculosis hospitals to devote his entire time to private practice as reported in THE JOURNAL, May 27, page 2181. The item was based on a newspaper report.

FLORIDA

State Medical Meeting and Election.—Dr. John S. Turberville, Century, was chosen president-elect of the Florida Medical Association at its annual meeting in Daytona Beach May 1-3, and Dr. Leigh F. Robinson, Fort Lauderdale, was installed as president. Other officers include: Drs. James Ralston Wells, Daytona Beach, Thomas H. Bates, Lake City, and Joseph W. Taylor, Tampa, vice presidents, and Shaler A. Richardson, Jacksonville, secretary-treasurer. The 1940 session will be held in Tampa. The speakers on the scientific program included:

Dr. William C. Roberts, Panama City, Puerperal Infections versus the General Practitioner.
Dr. Ferdinand Richards, Jacksonville, Five Hundred Consecutive Operative Gynecological Cases.
Dr. Erasmus B. Hardee, Vero Beach, Treatment of Automobile Accidents.
Dr. James Frank Wilson, Jacksonville, Some Observations on the Treatment of Pellagra.
Dr. Alva T. Cobb Jr., Gainesville, Eugenic Sterilization.
Dr. Wilbur A. McPhaul, Jacksonville, Public Health Yesterday, Today and Tomorrow.
Dr. Nathaniel L. Spengler, Tampa, The Thyroid and Adrenal Glands: Factors in the Control of Fever, Heat Regulation and Climate.
Dr. John Webster Merritt, Jacksonville, Hyperthyroidism—Medical Phases.
Dr. William Duncan Owens, Miami, Hyperthyroidism—Surgical Aspects.
Dr. Sherman B. Forbes, Tampa, Atrophic Rhinitis and Otosclerosis.
Dr. Robert L. Elliston, Fort Lauderdale, Importance of Case Records Relative to the Cancer Problem.
Dr. William W. McKibben, Miami, Pediatrics Fifty Years Ago and Today.
Dr. Robert B. McIver, Jacksonville, Management of Injuries to the Ureter.
Drs. Arthur H. Weiland and Charles R. Burbacher, Coral Gables, Treatment of Hip Fractures by Internal Fixation.
Dr. Hugh West, DeLand, Acute Intestinal Obstruction: Diagnosis and Physiologic Treatment.
Dr. Lloyd J. Netto, West Palm Beach, Acute Appendicitis.
Dr. Ralph A. Gowdy, Miami Beach.

Other societies meeting at this time were the Florida Radiological Society, Florida Pediatric Society, Florida Railway Surgeons Association, Florida Internists Society and the Florida Society of Dermatology and Syphilology.

GEORGIA

Society News.—Among others, Dr. Madison Hines Roberts discussed intracranial hemorrhage in the newborn before the Fulton County Medical Society, Atlanta, May 4, and Dr. John Calvin Weaver, "A Simple Appliance for Continual Drainage of the Spinal Canal in Meningitis." Dr. William R. Crowe Jr., Atlanta, addressed the society May 18 on "Low Nodal Paroxysmal Tachycardia with Report of Case Treated with Monopotassium Phosphate" and Dr. Wadley R. Glenn, Atlanta, "Appendicitis: Factors Influencing Its Mortality and Morbidity in the Negro."

Changes in Health Officers.—Dr. Charles C. Hedges, senior medical officer, Federal Trade Commission, Washington, D. C., has been appointed health officer of Savannah and Chatham County. Dr. Glenn J. Bridges, Millen, health officer for Jenkins County for two years, has been appointed assistant city and county health officer; this position has been vacant since the death of Dr. Alfred Larson last year, who died the same day as did the health officer Dr. Victor H. Bassett. Dr. Thomas H. D. Griffitts, U. S. Public Health Service, has been acting health officer. Dr. Robert F. Young, Cartersville, has resigned as health officer of Bartow County to enter private practice in Hope, Ark., it is reported.

IDAHO

Annual Registration Due July 1.—All practitioners of medicine and surgery holding licenses to practice in Idaho are required by law to register annually on July 1 with the Department of Law Enforcement and at that time to pay a fee of $2. If a licentiate has not paid the annual registration fee by October 1 his license can be canceled but will be restored within five years thereafter on payment of the delinquent fees and a $10 penalty. If a license has been canceled for more than five years, it can be reinstated only on the payment of $25 and on the licentiate's passing an examination, the nature of which shall be determined by the Department of Law Enforcement.

ILLINOIS

Society News.—Dr. George B. Eusterman, Rochester, Minn., addressed the Rock Island County Medical Society in Rock Island May 9 on "Recent Important Advances in the Diagnosis and Treatment of Gastroduodenal Disease."——Dr. Michael H. Streicher, Chicago, addressed the St. Clair County Medical Society in Belleville June 1 on "Diseases of Colon and Rectum and Proctoscopic Examination."——At a meeting of the Bureau County Medical Society, Princeton, May 9, Dr. James H. Mitchell, Chicago, discussed "Diagnosis and Treatment of Common Dermatoses."

Chicago

Annual Meeting of Chicago Medical Society.—Dr. Rock Sleyster, Wauwatosa, Wis., President of the American Medical Association, will be the guest of honor at the annual dinner meeting of the Chicago Medical Society at the Palmer House June 21. Dr. Charles B. Reed will be toastmaster. Entertainment and a dance have been arranged.

Course on Glaucoma.—An intensive course on glaucoma will be presented at the Illinois Eye and Ear Infirmary for five days beginning September 11 under the direction of Dr. Harry S. Gradle. The course will be limited to ten physicians who are practicing ophthalmology alone or with otolaryngology. About forty members of the staff will give the instruction, which will consist of two hours of lectures each day with demonstrations and practical instruction the remainder of the day. The plan also includes luncheons with round table discussions. The details may be obtained from Dr. Samuel J. Meyer, secretary of the course, Illinois Eye and Ear Infirmary, 908 West Adams Street.

INDIANA

Committee to Conserve Vision.—The Indiana State Medical Association has appointed a committee on the conservation of vision. The resolution authorizing the creation of the committee outlines its duties as follows: (1) to encourage ocular hygiene, (2) to disseminate knowledge for the prevention of blindness and the conservation of vision, (3) to acquaint the public and particularly industries and schools concerning proper illumination and other protective measures for the eyes, and (4) to help create and advise sight conservation classes.

State Tuberculosis Meeting.—The twenty-eighth annual session of the Indiana Tuberculosis Association was held at the Hotel Lincoln, Indianapolis, April 18-19. The speakers were, among others, Drs. Henry C. Sweany, Chicago, on "The Tuberculosis Problem Viewed in the Light of Recent Pathologic Studies"; Paul A. Teschner, Chicago, "Telling the Public the Facts," and Mr. Holland Hudson, New York, "Current Commonplaces of Rehabilitation." Woodson S. Carlisle, South Bend attorney, was chosen president, succeeding Dr. Maurice R. Lohman, Fort Wayne.

KENTUCKY

Society News.—Drs. Charles Harold Avent and W. Likely Simpson, Memphis, Tenn., addressed the Fulton County Medical Society, Hickman, recently on "Ruptured Appendix" and "Foreign Bodies in the Trachea, Esophagus and Bronchi" respectively.——At a recent meeting of the Calloway County Medical Society, Murray, the speakers were Drs. Edison D. Fisher and Coleman J. McDevitt on Buerger's disease and diabetes, respectively.——Dr. Louis Wallace Frank, Louisville, addressed a public meeting sponsored by the Grant County Medical Society in Williamstown in April on cancer.——Dr. Delmas K. Kitchen, Detroit, addressed the Boyle County Medical Society, Danville, April 19 on "Clinical Endocrinology."——Dr. E. Murphy Howard, Harlan, addressed the Letcher County Medical Society, Whitesburg, April 25 on "Gonorrhea and Its Complications."——At a recent meeting of the Licking Valley Medical Society in Dry Ridge the speakers were Drs. William E. Gardner on dementia praecox; William J. Martin Jr., rectal diseases, and William Austin Bloch, influenza. All are of Louisville.

MAINE

State Medical Meeting.—The eighty-seventh annual session of the Maine Medical Association will be at Poland Spring House, Poland Spring, June 25-27, under the presidency of Dr. Willard H. Bunker, Calais. Out of state speakers will include:

Dr. Merrill J. King, Boston, External Diseases of the Eye.
Dr. Paul A. Chandler, Boston, Glaucoma.
Dr. Francis C. McDonald, Boston, Some Pediatric Problems of the Respiratory Tract.
Dr. James S. Greene, New York, Speech Defects.
Dr. Francis G. Blake, New Haven, Conn., The Chemotherapy of Pneumonia.
Dr. John J. Moorhead, New York, Treatment of Ordinary Injuries.
Dr. John T. Morrison, New York, Rural Community Hospitals.
Dr. Gordon M. Morrison, Boston (subject not announced).

Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, will speak at the banquet Tuesday evening on "American Medicine and the National Health Program." Fifty-year service medals will be presented at the banquet to Drs. Charles B. Sylvester, Portland; Gustav A. Pudor, Portland; Bernard A. Bailey, Wiscasset (posthumously), and Henry I. Durgin, South Eliot. The past presidents' and county secretaries' luncheon will be held the same day. The scientific program also includes a round table discussion on postoperative complications, a symposium on psychoanalysis and one on traumatic surgery, and a clinicopathologic conference with summations on each case by Dr. Reginald Fitz, Boston. There will be a conference of the Medico-Legal Society Tuesday morning.

MARYLAND

New Officer in Charge of Quarantine Station.—Dr. Calvin B. Spencer, passed assistant surgeon, U. S. Public Health Service, has been appointed officer in charge of the U. S. Quarantine Station for the port of Baltimore, located at Curtis Bay. He replaced Dr. Le Grand B. Byington, who was transferred to the plague laboratory of the service at San Francisco.

State Medical Election.—Dr. Edward P. Thomas, Frederick, was chosen president of the Medical and Chirurgical Faculty of Maryland at its annual meeting in April, to take office January 1, and Dr. Richard T. Shackelford, Baltimore, was chosen secretary. The latter will succeed Dr. Walter D. Wise, Baltimore, who has been secretary since 1931. The 1940 session will be in Baltimore April 23-24.

MICHIGAN

Personal.—The Wayne County Medical Society, Detroit, held a memorial session at its recent annual meeting in honor of the late Dr. George E. McKean, who served as president and as a trustee. A portrait of Dr. McKean, painted by Roy Gamble, was unveiled. Dr. Alexander W. Blain delivered the dedicatory address.——Dr. Paul W. Bloxsom, Grand Rapids, has been appointed one of Kent County's two coroners, succeeding the late Dr. Harmon C. Wolfe. Dr. Simeon LeRoy, Grand Rapids, is the other coroner.——Dr. William E. Shackleton has been appointed chief of the medical staff at Borgess Hospital, Kalamazoo.

Society News.—Mr. William J. Burns, executive secretary, state medical society, discussed "Legislative Accomplishments and Group Health Service" before the Calhoun County Medical Society, Battle Creek, June 6.——The Flint Business and Professional Women's Club was recently awarded a memorial trophy, presented each year to the Michigan organization promoting the best educational campaign during cancer control month. The award is made through the state unit of the American Society for the Control of Cancer.——Dr. John J. Corbett, Detroit, addressed the Jackson County Medical Society, Jackson, May 16, on "The Injection versus the Operative Treatment of Hemorrhoids."

MINNESOTA

Orthopedic Club Observes Fifteenth Anniversary.—The Minnesota-Dakota Orthopedic Club celebrated its fifteenth anniversary at the Gillette State Hospital for Crippled, St. Paul, May 5-6. The program consisted of an operative clinic and the presentation of cases. Originally called the Minnesota Orthopedic Club, the name was amended in 1934 to include physicians in North and South Dakota. Meetings are held alternately at Duluth, Rochester, St. Paul and Minneapolis.

MISSOURI

Physician Honored.—Dr. Harvey L. Cunningham was guest of honor at a dinner April 10 given by the Cape Girardeau County Medical Society in recognition of his completion of fifty years in the practice of medicine. Principal speakers were Drs. Frederick E. Woodruff, St. Louis, and George W. Walker, Cape Girardeau. Dr. Cunningham was presented with a metal desk set holding two pens, a clock and a gold plate bearing the inscription "To Dr. H. L. Cunningham with the compliments of the Cape Girardeau County Medical Society to commemorate fifty years of service to humanity in the practice of medicine."

NEW JERSEY

Society News.—Dr. Henry J. Tumen, Philadelphia, addressed the Cumberland County Medical Society in April on "Management of Duodenal Ulcer" and Dr. Arthur W. Bingham, East Orange, chairman of the commission on maternal welfare of the Medical Society of New Jersey, spoke on antepartum care as related to maternal mortality.——Dr. Charles A. Flood, New York, among others, addressed the Passaic County Medical Society, Paterson, recently on "Results of Medical Care in the Treatment of Peptic Ulcer."

NEW YORK

Lake Keuka Meeting.—The annual meeting of the Lake Keuka Medical and Surgical Association will be held June 22 at Keuka College, Lake Keuka. Among the speakers will be:

Dr. Martin S. Kleckner, Allentown, Pa., Facts and Fallacies Regarding Proctologic Diseases.
Dr. Stuart B. Blakely, Binghamton, The Psychology of Pregnancy.
Dr. Carlyle N. Haines, Sayre, Pa., Uses and Dangers of Sulfanilamide.
Dr. Louis Emmitt Brown Jr., Sayre, Pa., Uses and Dangers of Sulfapyridine.
Drs. Samuel T. Marshall and Richard B. Cattell, Boston, Surgical Management of Gastric Lesions.
Drs. Harry M. Murphy and Fraser D. Mooney, Buffalo, Gastroscopy and Its Diagnostic Value.

Jail Inmates Exposed to Smallpox.—Health officers are reported to be conducting a wide search for 196 persons released from the Onondaga County Penitentiary, Jamesville, since May 11, all of whom were exposed to a man with smallpox committed that day. The last known addresses of the 196 prisoners covered twenty-two states, it was said. One former prisoner located on the Onondaga Indian Reservation broke out with the disease and vaccination of the entire population of the reservation was undertaken. In addition to the prisoners released, 136 were transferred to other institutions. Eleven cases developed at the jail and other cases in the surrounding area among guards and other persons in direct contact with the institution.——Sixteen cases of smallpox have developed in four towns in Chautauqua County: Ripley, Sherman, Westfield and Mina, the state health department reported May 26. Schools in Ripley were closed and vaccination clinics were set up in the school houses. Up to May 25 3,000 persons had been vaccinated. It was reported that none of the persons who had contracted the disease had ever been vaccinated. This outbreak was traced to a truck driver who traveled between Syracuse and Cleveland. It was reported June 1 that a woman who had visited in Ripley contracted smallpox after she returned to her home in Pennsylvania.

New York City

Syphilis Infrequent Among Marriage Applicants.—An analysis of blood tests required of applicants for marriage licenses from July 1, 1938, when the law went into effect, through December 31, reveals that less than 1 per cent of those examined had syphilis, the New York City Department of Health reports. Premarital blood tests were made on 58,903 persons with positive results in 559, or 0.95. Of the total number 52,585 tests were made by health department laboratories. When the applicants were classified into whites and Negroes, the percentage of infection among the whites was 0.61 and among the Negroes it was 9.82. In 4,386 cases the color was not stated. Among the 559 positive tests 319 were in men and 240 in women.

Medical Information for Fair Visitors.—The five county medical societies of New York, in cooperation with the department of hospitals and the Greater New York Hospital Association, have arranged a special medical-hospital information service for World's Fair visitors from out of town who may need medical or hospital care and may not know where to turn for professional advice or attention. The plan is to establish an information office in each borough telephone office. A call to the office will be answered with a list of reputable physicians nearest the residence of the person calling. Cards bearing this information and the telephone numbers to be called will be distributed to out of town visitors or places where information about the fair is made available.

OHIO

Personal.—The Hempstead Academy of Medicine gave a surprise party recently for Dr. John W. Obrist, Portsmouth, in honor of his completion of fifty years of practice and presented him with a gold-headed cane.——Dr. and Mrs. Stanton Heck, Salem, celebrated their fortieth wedding anniversary and Dr. Heck's fiftieth anniversary in the practice of medicine with a reception at their home April 2. Dr. Heck graduated from the Medical College of Ohio, Cincinnati, in 1889.——The American Society of Clinical Pathologists at its annual meeting in St. Louis May 13 conferred its Burdick Award, a gold medal given annually for an outstanding contribution to medical science, on Dr. Harry Goldblatt, professor of experimental pathology at Western Reserve University School of Medicine, Cleveland. The award was in recognition of Dr. Goldblatt's research on hypertension and diseases of the kidneys.

OKLAHOMA

State Medical Meeting and Election.—Dr. Henry H. Turner, Oklahoma City, was chosen president-elect of the Oklahoma State Medical Association at the annual meeting in Oklahoma City, May 1-3; Dr. Walter A. Howard, Chelsea, was installed as president. The house of delegates voted to establish headquarters of the association in the Plaza Court Building, Oklahoma City, with Mr. R. H. Graham, executive secretary, in charge. An editorial board was elected for the association's journal, composed of Drs. Ned R. Smith, Tulsa; Lewis J. Moorman, Oklahoma City, and Leonard S. Willour, McAlester. Dr. Willour remains as secretary-treasurer-editor. Guest speakers who addressed general scientific meetings were:

Dr. Joseph F. Hamilton, Memphis, Tenn.: Peripheral Vascular Disease, Diagnosis and Treatment; Pseudomycotic Leg Ulcers.
Dr. William Wayne Babcock, Philadelphia: Surgery of the General Practitioner; Intestinal Malignancy.
Dr. Austin A. Hayden, Chicago: The Democracy of American Medicine.
Dr. Edward N. Smith, Oklahoma City: Toxemias of Late Pregnancy.

The Oklahoma Pediatric Society held its meeting Monday May 1 with Dr. Philip C. Jeans, Iowa City, as guest speaker on "Nutrition of the Infant and Child."

PENNSYLVANIA

Seminar at Danville.—*A postgraduate seminar was presented at Geisinger Memorial Hospital, Danville, May 10 under the auspices of the Montour County Medical Society, Danville. Dr. Harold L. Foss and his associates conducted operative clinics, which were followed by a program of papers and demonstrations. Guest speakers were Drs. George Crile Jr., Cleveland, on "Diagnosis and Treatment of Jaundice"; Harold G. Wolff, New York, "Headache," and Frederick A. Coller, Ann Arbor, Mich., "Some Chemical Aspects of Preoperative and Postoperative Care."*

Philadelphia

Schireson Indicted by Grand Jury.—The *Philadelphia Inquirer* reported June 9 that Henry J. Schireson, self styled plastic surgeon who formerly operated in Chicago, was indicted by a federal grand jury June 8. He was charged with concealing $130,000 in assets while filing a petition for voluntary bankruptcy in 1937. It was stated that he employed three aliases and that he swore his assets amounted to only $334. He was also indicted on a perjury charge arising out of the fact that he testified before the bankruptcy referee that he was not married and that he did not live in Merchantville, N. J., a suburb of Philadelphia, the *Inquirer* said. The indictment asserts that Schireson is married and that he lives in Merchantville, according to the newspaper story.

Society News.—The Philadelphia County Medical Society devoted its meeting May 24 to "Health of the School Child" and invited the public. Dr. Edward J. G. Beardsley made a talk on health; Mr. Charles Kurtzhaltz, director of the Philadelphia Health Council and Tuberculosis Committee, spoke on "How the Public Health Is Protected" and a sound film sponsored by the health council, "Body Defenses Against Disease," was shown. Dr. Myer Solis-Cohen, chairman of the committee on public relations, awarded prizes in a health poster contest. ——Dr. Oscar Mercier, Montreal, Canada, addressed the Philadelphia Urological Society May 22 on "Surgical Management of the Horseshoe Kidney" and showed a film on "Surgical Management of Rupture of the Urethra."——Drs. Samuel B. Hadden and Matthew T. Moore, among others, addressed the Philadelphia Neurological Society May 26 on "Neuralgic Headache and Facial Pain" and "Nicotinic Acid and Vitamin B_1 in the Treatment of Multiple Sclerosis" respectively.—— Dr. Bernard L. Wyatt, Tucson, Ariz., addressed the Philadelphia Rheumatism Society May 4 on "Chronic Arthritis: Differential Diagnosis, Special Treatment, Methods, Medical, Orthopedic, Physical Therapy."——Dr. William J. Kerr, San Francisco, delivered a Mary Scott Newbold Lecture of the Philadelphia College of Physicians May 3 on "New Approach to the Etiology and Treatment of Angina Pectoris."

TENNESSEE

Society News.—Dr. Henry M. Goodyear, Cincinnati, delivered the "Foundation Lecture" in otolaryngology at the recent annual meeting of the Tennessee Academy of Ophthalmology and Otolaryngology in Jackson on "Points of Practical Interest in the Diagnosis, Time of Operation and Treatment, in Acute and Chronic Ear Conditions, Including Mastoid, Lateral Sinus, Labyrinth, Meningeal and Petrous Infection." Dr. Virgil G. Casten, Boston, delivered the "Foundation Lecture" in ophthalmology on "Disturbances of Motility and of Visual Fields."

——Drs. Hollis E. Johnson, John C. Burch and Samuel C. Cowan addressed the Nashville Academy of Medicine and Davidson County Medical Society, Nashville, May 30, on "Management of Tuberculosis Complicating Pregnancy."—— At a meeting of the Dyer, Lake and Crockett Counties Medical Society May 3 the speakers, all of Memphis, were Drs. Dick C. McCool, on "Metrazol and Insulin Shock Treatment in Certain Mental Diseases"; Raphael Eustace Semmes and Francis Murphey, "When to Suspect a Brain Tumor."

WASHINGTON

Society News.—The King County Medical Society was addressed May 15 among others by Drs. James F. Blackman on "Bronchoscopic Aspiration of Mucus After Operation" and Oscar S. Proctor, "Extrapleural Pneumothorax and Oleothorax." A symposium on anesthesia was presented before the society April 17 by Drs. Arthur O. Tucker, George R. Marshall and William A. Millington. Dr. William G. Cameron, Tacoma, discussed legislative news.——Dr. Joel W. Baker, Seattle, addressed the Spokane County Medical Society, Spokane, April 13 on "Surgical Considerations in Carcinoma of the Rectum and Rectosigmoid Junction."

WISCONSIN

Annual Conference of Secretaries.—The annual conference of the secretaries of county medical societies was held in Madison April 23. The speakers were Dr. Albert E. Rector, Appleton, president of the State Medical Society of Wisconsin, on the work of the society; Mr. George B. Larson, assistant secretary of the state society, on voluntary insurance plans now on trial in Wisconsin; Dr. James C. Sargent, Milwaukee, on hospital insurance; Dr. Dexter H. Witte, Milwaukee, on "Speaking Before the Public"; Mr. J. George Crownhart, secretary of the state society, legislation affecting the public health, and Dr. Rock Sleyster, Wauwatosa, now President of the American Medical Association.

Society News.—Dr. Frederick A. Figi, Rochester, Minn., addressed a joint meeting of the Winnebago County medical and dental societies in Oshkosh May 4 on "Malignant Diseases of the Mouth."——Dr. Harold E. Marsh, Madison, addressed the Columbia-Marquette-Adams County Medical Society, Portage, May 16 on "The Chemotherapy of Pneumonia."——Drs. Frederick H. Falls, Chicago, and Mabel G. Masten, Madison, addressed the Dane County Medical Society, Madison, May 9 on "Abortion" and "Polyneuritis of Pregnancy" respectively. ——At a meeting of the Brown-Kewaunee-Door County Medical Society, Green Bay, May 11 the guest speaker was Dr. Ovid O. Meyer, Madison, on "Treatment of Anemias."——Dr. Howard W. Haggard, New Haven, Conn., recently addressed the Douglas County Medical Society, Superior, on problems confronting the medical profession.

GENERAL

Special Society Elections.—Dr. Allen O. Whipple, New York, was elected president of the American Surgical Association at its recent annual meeting and Dr. Charles G. Mixter, Boston, was reelected secretary. The 1940 session will be in St. Louis.——Dr. John MacK. Brown, Los Angeles, was chosen president-elect of the American Laryngological, Rhinological and Otological Society at its annual meeting in May and Dr. Lee M. Hurd, New York, was inducted into the presidency. Dr. Carlton Stewart Nash, Rochester, N. Y., is the secretary. New York was tentatively selected as the place for the 1940 session.——At the annual meeting of the American Association of the History of Medicine in May Dr. Esmond R. Long, Philadelphia, was elected president to take office January 1. Dr. Henry E. Sigerist, Baltimore, is the secretary. The next annual session will be in Atlantic City, N. J., May 4-5.

Board of Obstetrics and Gynecology.—The American Board of Obstetrics and Gynecology announces that 228 of 259 candidates examined in St. Louis May 13-16 were certified, twenty-nine failed and two did not finish the examination. Because of increased expenses of administration the board found it necessary to increase the application and registration fees to $15 and $75 respectively. The board also announces that henceforth it will hold only one Group B, Part I examination a year. The next Part I examination will be held in various cities of the United States and Canada December 2. Applications for this examination must be filed not later than October 4 with the secretary. The general oral and pathological examinations for all candidates (groups A and B) will be conducted by the entire board in Atlantic City, N. J., June 7-9, 1940. Applications for admission to Group A, Part II examinations must be on file not later than March 15, 1940, in the secretary's office. For further information and application blanks address Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh.

Pacific Coast Oto-Ophthalmological Society.—The twenty-seventh annual meeting of the Pacific Coast Oto-Ophthalmological Society will be held at the Fairmont Hotel, San Francisco, June 19-22, under the presidency of Dr. Frederick C. Cordes, San Francisco. Included among those presenting papers will be:

Drs. Cordes and Michael J. Hogan, Hemangiomatosis Retinae (Von Hippel's Disease): Report of a Case Treated by X-Ray.
Dr. Henry P. Wagener, Rochester, Minn., The Significance of Spasm in Retinal Arteriolar Disease and in Retinitis.
Dr. Otto M. Rott, Spokane, Wash., Method of Procedure in the Diagnosis of Otitic Intracranial Complications.
Dr. LeRoy A. Schall, Boston, Diagnosis and Treatment of Cancer of the Upper Respiratory Tract.
Dr. Howard E. Carruth, Portland, Ore., The Evisceration Operation—A Modification.
Dr. Irving M. Lupton, Portland, Clinical Observations in the Treatment of Acute Streptococci Otitis Media During Sulfanilamide Therapy.
Dr. Carroll L. Smith, Spokane, Lymphocytoma.
Dr. Carl D. F. Jensen, Seattle, Sympathetic Ophthalmia Complicating Cataract Extraction.

The program also includes four courses each in ophthalmology and otolaryngology.

Annual Health Awards to Cities.—Cleveland won the first award for cities of over 500,000 population in the annual city health contest for 1938 sponsored by the U. S. Chamber of Commerce in cooperation with the American Public Health Association. Winners in the other population groups were: 250,000 to 500,000, Providence, R. I.; 100,000 to 250,000, Grand Rapids, Mich.; 50,000 to 100,000, Newton, Mass.; 20,000 to 50,000, Plainfield, N. J., and less than 20,000, Englewood, N. J. Special awards were given to Baltimore; Brookline, Mass.; Detroit; Greenwich, Conn.; Hackensack, N. J.; Hartford, Conn.; Newark, N. J.; New Haven, Conn.; Pasadena, Calif.; Syracuse and Schenectady, N. Y. Each of these has previously won first awards and maintained its high standards in 1938. The rural health contest, which is financed by the W. K. Kellogg Foundation of Battle Creek, Mich., resulted as follows: Northeastern division, Cattaraugus County, N. Y.; Eastern division, Wicomico County, Md.; Southeastern division, Charleston County, S. C.; North Central division, Gallatin County, Mont.; Western division, Los Angeles County, Calif. In a special contest for tuberculosis control Hartford, Conn., and Newton, Mass., tied for first place and New Haven received an award of merit. In a similar contest for syphilis control Louisville, Ky., was the winner. Numerous awards of merit were also conferred. These awards are made not necessarily to the healthiest communities, it was pointed out, but for the effectiveness with which a community is meeting its health problems.

FOREIGN

Prize for Orthopedic Work.—Competition for the Umberto I. Prize was opened by the Rizzoli Orthopedic Institute of Bologna, Italy, January 1 and will close December 31. The prize is offered for the best "work or invention in orthopedics." Foreign as well as Italian scientists are invited to take part, according to an announcement. Application for information should be made to the president of the Rizzoli Institute, Bologna.

Courses in English in Paris.—The Faculty of Medicine of Paris, the Association for Improvement of Medical Relations and the American Medical Society of Paris have organized a series of courses to be given in English by medical authorities in various hospitals in Paris during May, June and July. A program of the courses may be obtained by writing to the Faculty of Medicine or the American Medical Society, care of the American Hospital of Paris, 63, Boulevard Victor-Hugo, Neuilly-sur-Seine.

Course in Malariology.—The Institute of Malariology in Rome is offering a course in malariology July 25 to September 20. Among the subjects to be covered are: hematology, protozoology, malaria parasites and microscopic diagnosis, pathology of malaria, clinical study of malaria, entomology, epidemiology of malaria and malaria prophylaxis. There will be practical work and laboratory demonstration, a survey of a malarious area, visits and residence in experimental stations and in a center of induced malaria. The course is open only to graduate physicians.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 27, 1939.

The Medical Profession Prepared for an Emergency

In previous letters it has been stated that a national register of physicians, comprising 95 per cent of their number, who will be available for the various branches of medical work in the event of a national emergency has been compiled by the Central Emergency Committee of the British Medical Association. This committee has now been reconstituted so as to make it representative of every branch of medical practice. Having prepared plans for the utilization of the profession, it will be the instrument for putting them into operation if the emergency should occur. In every division of the British Medical Association a local emergency committee has been established and is supplied with a copy of the local section of the national register. This committee will deal with all questions of medical personnel referred to it and will consult representatives of medical insurance committees, local authorities and voluntary hospitals. All requests for medical personnel from the military services or other government departments will be made to the Central Emergency Committee. The earmarking of practitioners for local duties, such as first aid posts, has been done by the local committees provisionally but had to be confirmed by the central committee. Consultants and specialists on the staffs of the London hospitals will be earmarked by a special committee of the Royal Colleges of Physicians and Surgeons. Pathologists will be dealt with by a subcommittee of the central emergency committee and the Medical Research Council. Physicians engaged predominantly in scientific work will be dealt with by a committee of the Royal Society in cooperation with the Central Emergency Committee.

Practitioners employed in time of war for whole time service in hospitals for the treatment of casualties will be paid $2,500 a year plus an allowance of $500 if board and quarters are not provided. An additional $2,500 may be paid to those in a supervisory capacity, whether as a medical superintendent of a hospital containing more than 500 beds or as a specialist controlling a department. Medical officers placed in positions of greater responsibility may receive remuneration up to $7,500 per annum. Services at first aid posts will be paid at the rate of $6 for a session of two hours or $12 for a longer period in any one day.

Surgery in Old Age

At the section of Surgery of the Royal Society of Medicine the president, Mr. C. H. S. Frankau, opened a discussion on surgery in old age. He pointed out that age was not merely a question of years but depended on degenerative processes associated with a diminished blood supply. The saying "A man is as old as his arteries" would be more accurate if it embraced the heart muscle. Injury to the soft parts might be disproportionately serious in the aged. Severe bruises must therefore be treated with caution; all pressure should be avoided and after from twenty-four to forty-eight hours an electric pad applied intermittently was often of value. But intense heat or cold (such as an icebag) might precipitate gangrene. Open wounds were more liable to infection, and healing was slow.

FRACTURES

It was not true to say that fractures in old persons united slowly or not at all, excepting intracapsular fracture of the neck of the femur. Most cases of Colles fracture gave good results if properly reduced and immobilized. In fractures of the long bones union was delayed but eventually complete. Fractured patella in the old was often considered unsuitable for treatment. But why condemn a man of 70 to the life of a cripple when removal of his patella would give him a useful limb? Another side of the picture was the unpredictable and unexplained phenomenon of disunion occurring some weeks after apparent healing of a fracture. In plaster treatment, pressure sores over bony points must be prevented by careful padding. Massage he regarded as not only valueless but dangerous to old persons, owing to liability to dermatitis, which might lead to subcutaneous venous thrombosis.

ACUTE ABDOMINAL CONDITIONS

Acute appendicitis in old age might resemble intestinal obstruction of slow onset with an "acute indigestion" pain commonly referred to the epigastrium, rarely to the right iliac fossa, with a persistent pyrexia. Physical signs were indefinite and the abdomen was distended. Sometimes there was visible peristalsis, and tenderness was general and greatest in the hypogastric and umbilical regions. At operation there was little peritoneal exudate, the intestine was sticky and red, and the appendix was rarely shut off by adhesions. These patients tolerated operation well. Another type presented "an acute attack of indigestion" followed by inability to take food, constipation or diarrhea and persistent slight pyrexia. Examination was indefinite at first but later revealed a hard tender mass in the right iliac fossa (appendical abscess). The abscess formation was remarkably slow. As in all cases of appendical abscess, operation should be delayed until localization was complete, and if the appendix was not found at once it should not be sought.

For short attacks of biliary colic surgery was not advisable, provided they were controlled by morphine and atropine and provided the gallbladder was not persistently distended. But if the attacks increased in frequency or severity or the gallbladder became distended, operation was inevitable. Unless it was "hanging by a pedicle," drainage was preferable to removal.

CARCINOMA

Carcinoma in the old usually progressed slowly with less tendency to disseminate. In the breast, removal of the gland was usually adequate; in the colon, exclusion by anastomosis was safer than excision; in cancerous pyloric stenosis, gastroenterostomy was the most that should be done. In the discussion Mr. V. Z. Cope maintained that carcinoma of the stomach should be removed whatever the age. He had operated successfully on a patient of 78.

The Frequency of Blood Donation

How often may a donor give blood without harm to himself? The report that the unanimous opinion of the staff of the General Infirmary of Leeds that "to give blood more than once in six months is harmful to the donor and not of maximum help to the patient" has led to a rejoinder from Dr. H. F. Brewer, medical officer to the British Red Cross Society London Blood Transfusion Service. In these days when volunteering for blood donation in a time of national emergency may be required on a large scale he feels that such a statement should not pass unchallenged, as it is contrary to experience in this and other countries. He states (*Brit. M. J.* **1**: 895 [April 29] 1939) that at present the London Blood Transfusion Service has 2,698 donors, of whom 630 are Rover Scouts (the youngest age of acceptance is 18 years). The established minimum safe interval is three months for males and four months for females, and the majority of donors give blood at these intervals. In an experience of eight years' medical supervision of the London Blood Transfusion Service, Dr. Brewer has found that such frequency in no way impairs health and indeed provides a margin of safety. Periodic hemoglobin

estimations of donors after the usual bleedings (from 400 to 750 cc.) shows a constant return to the normal figure within two months. Since the end of 1931, 1,076 members of the service who have given blood on ten or more occasions (a few up to fifty) at such intervals have been examined and these include fifty Rover Scouts. The examinations were carried out less than three months after the last bleeding. It was found that health was in no way impaired or any degree of anemia produced.

VIENNA

(From Our Regular Correspondent)

May 10, 1939.

Changes in the Medical Profession

The medical profession in Austria has been completely adapted to conditions in the "old empire," that is Germany, since the beginning of 1939. The changes have been significant both in private and in sick fund (krankenkasse) practice. With the elimination of about 2,000 Jewish physicians, a considerable number of men, mostly young physicians, have established themselves here, many from Germany, a fact to which the public has yet to get used. In the hospitals the overwhelming majority of the attending physicians are quite young; some have not even graduated but are in the last semesters of their studies. Many former heads were discharged. Some hospital departments were discontinued. The sick fund practice was also completely reorganized and adapted to the German model. The physicians are paid on the basis of a system of points complemented by a system of number of heads in the allotted territory for each physician. Payment is not high as a rule; however, in the case of extremely busy physicians the income is considerable. In districts inhabited by poor people, the practicing physician has a guaranteed minimum of 500 marks monthly; to this is added extra pay for every child of the physician. This system of increasing the family is commendable. A definite amount is granted for the first and second child, this is doubled for the third child and the amount increases again with the fourth and with the fifth child. At the same time the income tax becomes progressively smaller. The introduction of medical attention on Sundays is of special importance for the public. In every district about 10 per cent of the residing physicians, including specialists, are at the disposal of private and sick fund patients from Saturday evening to Monday morning. Their names and addresses can be had in every pharmacy and police station. The Pharmacopeia Germanica, which has been introduced into Austria, differs somewhat from the Pharmacopeia Austriaca. Especially important changes have been made for the prescription of cocaine and morphine and their derivatives. Every physician is obliged to keep a "cocaine" and a "morphine" book, in which each prescription containing cocaine or morphine has to be recorded. Narcotics prescribed for the physician's own use have to be recorded also. The prescribed quantity must not exceed 0.1 Gm. for cocaine and 0.2 Gm. for morphine per patient daily. Precise rules regulate prescriptions for addicts. These limitations do not apply to ethylmorphine hydrochloride, codeine, pantocain, eucaine and tutocain. Many drugs that are bought in Germany have become much cheaper on account of the abolition of customs. Pharmacists' taxes, on the other hand, have become higher. Drug prices have become lower on the whole, but physicians' fees have increased somewhat; in return physicians have to pay higher taxes than formerly, since control became more precise and the taxes were raised. As far as one can judge, the average income of Aryan physicians has increased somewhat. The position of still active Jewish physicians is becoming steadily worse because the number and paying ability of Jews is constantly decreasing and such physicians may treat Jewish patients only.

Physical Condition of Young Men in Austria

An article by the army medical officer Müller in the latest issue of the *Aerzteblatt für Oesterreich* gives information on the physical condition of men born in 1917 and 1918. Both volunteers and conscripts of this class reported for mustering. In Austria 4⅔ per cent of the conscripts were on the border of the admissible stature of 154 cm., in the old empire 3.9 per cent. The proportion of dental caries in need of immediate treatment was 33 per cent in Austria and 25 per cent in the old empire. Diseases of the digestive apparatus were far more frequent in the first group. These diseases may be responsible for the greater frequency of general bodily weakness at this age in Austria (7 per cent against 3 per cent). Consequences of finger injuries, such as crooked or stiff fingers, were likewise much more frequent, perhaps on account of poorer accident prevention. The frequency of goiter in Austria is known; 16.7 per cent of the men in this class had it against 7.54 per cent in the old empire, mostly in earlier stages to be sure, without disturbances of health. Examination of the young men on the basis of profession is of interest. Of all classes examined in Austria, 30.77 per cent were engaged in farming and forestry. Of these men 68 per cent were found in completely good health; men in these professions showed the lowest health percentage. Of the metal workers, 81.55 per cent of the men were in completely good health. The average for Austria was 75 per cent of all men mustered. These figures have but conditional value, as in 21 year old men we need not yet look for a reaction to professional activity, while in 32 year old men the reactions may have become quite marked.

The Constancy of Jewish Racial Characteristics

Dr. Walzel organized an exhibition on "the physical and psychic appearance of the Jews" in the department of anthropology of the Naturhistorisches Museum of Vienna. The exhibition serves scientific rather than propaganda purposes, although some parts of it will not pass the test of severe scientific criticism. On display are illustrations from the time of the Roman emperors, illustrations of monuments in the Near East and recent photographs from the police headquarters of Vienna, obtained in the course of official investigations and displayed with or without the consent of those concerned. On the basis of these illustrations one may conclude that the characteristics of the Jews have not changed essentially in the last 3,000 years. Among these characteristics are the "half-moon" profile, the "duck bill" profile, the "parrot" nose, the "6" shaped nose, the curved lower rim of the eyelid and the lip forms. The illustrations of the Antropologisches Institut show clearly defined characteristics passing from parents to children. Although examination of the blood has shown no fundamental difference between Germans and Jews, there is probably some difference in the incidence of certain constitutional diseases (diabetes, leukemia, obesity). Psychic diseases apparently permit certain differentiations also, yet there are no exclusively "Jewish diseases." Fluctuations in body size, furthermore, may have been for many years just as constant with Jews as with Germans and depend on the same factors: environment, food and ways of living. An interesting illustration shows finally that the German legislators' laws for the "protection of the German blood" do not differ in essence from the ancient laws of the Jews for the preservation of the Jewish people.

Death of Professor Finger

Prof. Ernest Finger, former university professor of dermatology and syphilology, died recently at the age of 83. He had been a pupil of Professor von Siegmund and was head of the Klinik für Syphilidologie und Dermatologie of Vienna in the Allgemeine Krankenhaus from 1904 to 1927. Professor

Finger acquired a prominent position through his clinical work, which he carried on in true humanitarian spirit, and his textbooks have been translated into various languages. He did great work in starting the fight against venereal diseases in Austria in 1907 and brought highly practical help through promoting therapy in his own treating stations in Vienna and the Austrian provinces. He brought help of special value through his "evening ambulances." His services came into full play in later years through a large scale organization for finding the sources of infection, as well as through general enlightenment of the population about the dangers of venereal diseases. As a pioneer he will live in the history of medicine.

Death of Professor Schaffer

Prof. Joseph Schaffer died recently in Innsbruck at the age of 79. He gained renown fifty years ago through his researches in microscopic anatomy and histology. He was appointed head of the Histologisches Institut of the University of Vienna and founded in Vienna, with Dr. Ebner von Rofenstein, the well known Histologische Schule, from which institution were appointed the best known representatives of this branch of science to the universities of Central Europe. His textbook on histology was translated into many languages. For the last twenty years Schaffer devoted himself to the study of cutaneous glands in mammals.

ITALY

(From Our Regular Correspondent)

May 15, 1939.

Annual Congress of Surgery

The Società italiana de Chirurgia recently held its annual reunion in Rome with Prof. Roberto Alessandri as president.

SUPPURATION AND GANGRENE OF LUNG

Prof. Raffaele Paolucci spoke on suppuration and gangrene of the lung. According to the speaker the old formula "ubi pus ibi evacua" stands for suppuration of the lung. However, frequently the abscess is spontaneously evacuated through the bronchi. Medical treatments, physical therapy and bronchoscopy aim to stimulate spontaneous evacuation of pulmonary abscess but the treatments have no specific value. Medical treatment is continued if there is a tendency to spontaneous cure of the abscess. The patient is observed by the physician in collaboration with the bronchoscopist, the roentgenologist and the surgeon. The mortality rate after operation in the acute forms is 15 per cent and in the chronic forms it is about 50 per cent. As a rule, simple acute abscesses are cortical; they can be controlled by simple pneumonectomy or pleurotomy and end in recovery of the patient in 100 per cent of the cases. Putrid acute abscesses are treated by tamponage followed by resection of the parietal lid of the abscess in almost all cases. The operation induces cure of the abscess in 85 per cent of the cases. In 3 per cent the abscess can be cured by tamponage without parenchymal operation. Lobectomy or progressive resection of the involved parenchymal zone is indicated in chronic suppuration. The mortality rate in these cases is about 50 per cent. Massive gangrene develops in about 4 per cent of the cases and does not yield to either medical or surgical treatment. Perforation of a putrid abscess into the pleura is extremely grave. Exploratory punctures, transthoracic parenchymal injections of drugs and artificial pneumothorax are contraindicated in suppuration of the lung. Artificial pneumothorax in the treatment of suppuration frequently causes putrid empyema.

OSTEOMYELITIS

Prof. Raffaele Brancati of the University of Parma spoke on chronic and acute osteomyelitis. Primary hematogenic osteomyelitis of adolescents usually develops at the metaphysis and in adolescents under the age of 14. It is caused by staphylococci of diminished virulence which are carried by histioblasts to the metaphysis. The most important forms of secondary osteomyelitis are those which involve the cranial bones, especially the petrous portion of the temporal bone and the maxillas. The diagnosis of petrositis is made from the appearance of Gradenigo's syndrome (suppurative otitis media and mastoiditis complicated by trigeminal temporoparietal pain and abductor paralysis). Pain in the head of a bone with functional incapacity, fever and leukocytosis in a youth under the age of 15 points to a diagnosis of acute osteomyclitis and it is advisable to place him immediately under the care of a surgeon. In general, the prognosis is better for infants than for older children. There is a tendency to operate in the early stages of the disease. The classic operation consists in opening the metaphysis and the medullary canal and in plugging.

The next congress will be at Naples and the topics will be (1) closed trauma of the abdomen, (2) surgery on the adrenals and (3) treatment of syndromes of the type of Banti's disease.

Meeting of Dermatologists

The Società Italiana di dermatologia e sifilografia met recently at Palermo with Professor Flarer as president.

Professor Tommasi of Palermo University spoke on a treatment for metasyphilis which he has used since 1931. The treatment consists of administration of antirabic vaccines either fresh or prepared with phenol. They are given to the patients by means of serial vaccinations, which are followed by intramuscular injections of acetarsone or by intravenous injections of arsphenamine in large doses. The treatment is harmless, nonpyretogenic and well tolerated. Dr. Cottini of Bonn carried on experiments with Tommasi's treatment and compared the results with those obtained from chemical pyretotherapy. He found that the administration of rabic vaccines induces diminution of the size of the syphiloma and of the number of spirochetes in experimental syphilis in rabbits, whereas chemical pyretotherapy has no action on experimental syphilis. The speaker has used the treatment for the last eight years in forty cases. He obtained immediate satisfactory results from the treatment in twenty-four cases of the group of forty. In twelve of the twenty-four cases, late results showed complete control of the disease. Antirabic vaccines give the same percentage of satisfactory results as the Wagner treatment.

Professors Malfa and Bosco reported the results of studies for ascertaining the influence of roentgen irradiations of the spleen on serologic tests for syphilis. The speakers observed that reactions which are negative or slightly positive before the application of roentgen irradiations on the spleen become positive or increase in positivity after them. According to the speakers, roentgen splenic irradiations can be used as a test for actual control of syphilis.

Professor Coppolino was able to identify aerophilic and aerophobic types of gonococcus from menstrual blood. Menstruation does not interfere with the vitality of the gonococcus. Because of the fact that gonorrhea in women is spontaneously reactivated during menstruation, cultures of menstrual blood, which is taken during the first few days of menstruation, are of diagnostic value in gonorrhea in apparently normal women. Such cultures are also of value in making a diagnosis on the recovery of the patients from the disease.

DERMATOLOGY

Professor Tommasi discussed the value of Reenstierna antiserum in the treatment of leprosy. The antiserum is prepared by inoculating sheep with glycerin bouillon cultures which contain acid fast and non-acid fast forms of mycrobacterium of leprosy. New and old cultures and the toxins and products of disintegration of the bacilli are used. The speaker gave the treatment recently to three lepers. The serum has a favorable effect on the ulcers but none on the further general evolution of the disease.

Professor Monacelli reported the results obtained from chemotherapy in a group of lepers at the leprosarium of Messina. Rubrophen (trimethyl-dioxy-oxotritan) Sailer's preparation, was the dye used. Satisfactory results have been previously reported from administration of the drug in the treatment of cutaneous and surgical tuberculosis. The drug has a favorable effect on leprosy. The symptoms and general condition of the patient improve. Toxic phenomena have been observed in some cases which show the advisability of carrying on further work, especially for determination of the proper dose.

Professor Flarer spoke on atabrine as local treatment of oriental sore. He obtained satisfactory results in fifty cases of a new series.

Professor Petronici reported satisfactory results from benzyl benzoate in the treatment of scabies. He resorted to the treatment in 648 cases and found that it has a rapid action on scabies without inducing unpleasant secondary reactions. The technic is simple and the method is economical.

BUCHAREST

(From Our Regular Correspondent)

April 17, 1939.

The State of Public Health in Rumania

While Rumania endeavors to keep pace with western civilization, little has been done as yet to teach the population how to guard its health. Although the urban population is well cared for, the rate of physicians to the population being, in general, 1:400, private practitioners are scarce in the rural districts because the peasants are unaccustomed to pay for medical service and the villages consequently offer little attraction for young practitioners. There are rural districts where the rate is one physician to 25,000 people. Official physicians having under their care such large areas cannot possibly give good medical service. While the birth rate is favorable in some regions, many of the babies die before the age of 1 year. In the last five years there has been an improvement in this respect because of the employment of well trained midwives and an increase in the number of qualified physicians.

The ministry of public health has provided for every county hospital (there are seventy-six in all) an epidemic section. In recent years arrangements have been made for the dispensaries in the villages to have special rooms for patients with epidemic diseases. It is planned to establish this year from 150 to 200 more dispensaries. The rural population will be instructed to appear at these dispensaries at the very beginning of their illness.

The population of Bessarabia, chiefly because of bad customs and habits, is not very cleanly. Men generally wear dark shirts, unchanged even for a month. It is no wonder that they become infested. In the last two years, forty delousing detachments have been at work. The late minister, M. Costinescu, sent 100 young physicians, and others came later, serving their half year of military service, to improve public health and chiefly to institute personal cleanliness. The minister also has sent 40,000 white shirts into this danger zone in order to accustom the people to changing shirts at least once a week. In every Bessarabian village baths and delousing stations were constructed. With these strict hygienic measures, there is some hope that satisfactory health conditions will prevail in Bessarabia.

Malaria is common, especially in Bessarabia, in East Moldavia, in the Danube valley and in Dobrogea. There are villages where eighty of 100 inhabitants suffer from this disease. According to official figures the number of cases of malaria in Rumania is not far from three quarters of a million. It is pitiful to see these debilitated, anemic persons and still more so to see the underdeveloped children. In 1936 an energetic campaign against malaria was conducted in the county of Constanta, between Constanta, a large port, and Mangalia. During 1937 an interministerial conference was held with university professors in the royal palace, conducted by King Carol II, who is a strong supporter of the movement. In the state budget, adequate sums have been allotted for this antimalaria work. The areas most in need are the villages about the city of Jassy, capital of the province of Moldavia. The draining and filling in of the valley of Barla was begun in April 1937 and now is nearing completion.

Another common disease in the villages of Muntenia and Moldavia is pellagra. During the World War the soldiers became accustomed to wholesome food, but little by little they returned to the old custom of selling their wheat and living exclusively on bread made of maize flour. Although there is a goat or cow to almost every house, few people drink milk. The people are instructed what food to eat through the school teachers, who have an opportunity to judge from the children whether the families feed themselves properly. During the summer vacation teachers take postgraduate courses in Bucharest, Cluj and Jassy, but some years are necessary for the 20,000 teachers of the country to receive this training.

Absolutely gratuitous antisyphilitic treatment has been introduced for the indigent. The results are satisfactory. In some districts several years ago the number of stillbirths was frightful, while at present such births occur infrequently.

In certain regions the population enjoys prosperity and nourishing foods. The government regards it a supreme duty to provide for the even distribution of foods in all parts of the country, and it pays great attention to the suppression of profiteering in foods. It is the vogue in Banat, one of the richest provinces of Rumania, to have only one child per family, and the mortality rate far exceeds the birth rate. There are villages where only a few young men can be recruited. This social problem is being solved by the joint action of physicians, the church and the school.

Regulation of Foreign Diplomas

Applications for permission to have validated a foreign diploma have to be sent to the ministry of public education with the following documents enclosed: original diploma, a notarized copy of this diploma, certificate of birth and birth place, a list of the schools and university attended and the official list of subjects studied. The minister of public education then submits the application to one of the Rumanian universities. The applicant has to pay 500 lei to the university. The ministry of public education publishes in the official gazette every month the list of those who have been validated in the preceding month.

Physician Appointed Governor General

King Carol II has appointed Dr. Coriolan Tataru, professor of dermatology at the university of Cluj and president of the National Medical Association, as governor general of Somes province.

Marriages

FRED L. NORTON, Belle Vernon, Pa., to Miss Helen Cooke Patterson of Connellsville, February 21.

WILLIAM K. OWEN to Mrs. Myra Williams, both of Birmingham, Ala., February 26, at Attalla.

ISAAC L. VAN ZANDT, Fort Worth, Texas, to Miss Ruth Boddeker of Galveston, February 11.

EDGAR BRYAN QUARLES, America, Ala., to Miss Ruth Brookins of Gloversville, N. Y., recently.

KARL G. KASTL, Granton, Wis., to Miss Priscilla Jane Richard of Appleton, February 16.

URBAN H. ZEHNPFENNIG, Merkel, Texas, to Miss Modyne Sheppard of Dallas, February 4.

J. WELLINGTON TRUITT, Gainesville, Texas, to Miss Ruth Bounds of Denison, February 4.

Robert George King, New York, to Miss Louise Perkins of New Canaan, Conn., March 25.

WELDON DOAK BLASSINGAME, Fort Worth, Texas, to Miss Helen Shyrock, February 4.

WILLIAM H. GIDNEY, West, Texas, to Miss Lois Cox of Dallas, January 26.

Deaths

Arthur Thoms Jones ⊕ Providence, R. I.; New York University Medical College, New York, 1896; member of the New England Obstetrical and Gynecological Society, New England Surgical Society and the American Urological Association; fellow of the American College of Surgeons; past president of the Rhode Island Medical Society; consulting surgeon to the Memorial Hospital, Pawtucket, St. Joseph's and Miriam hospitals, Providence, Woonsocket (R. I.) Hospital, Westerly (R. I.) Hospital and the South County Hospital, Wakefield; aged 64; died, March 19, of coronary occlusion, pulmonary embolus and arteriosclerotic heart disease.

Edward Morton Heacock ⊕ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1909; fellow of the American College of Surgeons; member of the Radiological Society of North America; on the staffs of the Lutheran Memorial and Evangelical Deaconess hospitals; aged 62; died, March 12, of coronary sclerosis.

Walter Woodley Gosling, Red Bank, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1923; member of the Medical Society of New Jersey; fellow of the American College of Surgeons; on the staffs of the Fitkin Memorial Hospital, Neptune, and the Riverview Hospital; aged 41; died, March 4, of cerebral hemorrhage.

William H. Haughey ⊕ Battle Creek, Mich.; Detroit College of Medicine, 1888; past president and secretary of the Calhoun County Medical Society; was secretary of the council and councilor of the third district of the Michigan State Medical Society; aged 82; died, April 14 of a gallbladder condition following pneumonia.

Charles Edward Glynn ⊕ Davenport, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; served during the World War; aged 66; on the staff of the Mercy Hospital, where he died, March 5, of arteriosclerosis and hypertension.

William W. Gill, Enid, Okla.; Northwestern Medical College, St. Joseph, Mo., 1893; Beaumont Hospital Medical College, St. Louis, 1901; member of the Oklahoma State Medical Association; county superintendent of health; aged 71; died, March 25, of coronary thrombosis.

Elizabeth Taylor Gray, Boston; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1895; member of the Massachusetts Medical Society; formerly on the staff of the New England Hospital for Women and Children; aged 75; died, March 24.

Isaias Alexander Lehman, New York; University of Kharkov Faculty of Medicine, Russia, 1900; member of the Medical Society of the State of New York; on the staff of the Morrisania Hospital; aged 62; died, March 2, in the Bronx Hospital of carcinoma of the pancreas.

Treber Coleman Crawford, Portsmouth, Ohio; Starling Medical College, Columbus, 1897; member of the Ohio State Medical Association; formerly city physician; on the staff of the Portsmouth General Hospital; aged 70; died, March 7, of Parkinson's syndrome and myocarditis.

George Alexander Hartley ⊕ Battle Creek, Iowa; State University of Iowa College of Medicine, Iowa City, 1908; medical director and owner of the Odebolt (Iowa) Hospital and the New Battle Creek Hospital; aged 56; died, March 17, of an overdose of gas taken for pain.

Mary Elizabeth Lawrence, Waterford, Conn.; Boston University School of Medicine, 1893; aged 84; for many years on the staff of the Lawrence and Memorial Associated Hospitals, New London, where she died, March 6, of bronchopneumonia and arteriosclerosis.

Thomas D. Doan, Palmyra, Ill.; St. Louis University School of Medicine, 1905; member of the House of Delegates of the American Medical Association in 1918; member and formerly vice president of the Illinois State Medical Society; aged 70; died, March 1.

Edward Daniel Helfrich ⊕ Columbus, Ohio; Ohio Medical University, Columbus, 1902; member of the American Academy of Ophthalmology and Oto-Laryngology; formerly member of the state legislature; aged 63; died, March 21, of cerebral hemorrhage.

Thomas Jackson Ratliff ⊕ Colorado, Texas; St. Louis College of Physicians and Surgeons, 1897; past president and secretary of the Mitchell County Medical Society; city health officer; formerly county health officer; aged 70; died, February 18.

George Boston Glover, Monticello, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1887; member of the Medical Association of Georgia; aged 77; died, March 27, in a hospital at Thomasville, Ga., of prostatic hypertrophy.

Raymon Herkles Henslee, Winters, Texas; Baylor University College of Medicine, Dallas, 1925; past president and secretary of the Runnels County Medical Society; served during the World War; aged 41; died, March 2, of pneumonia.

James Cook Ayer ⊕ New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; served during the World War; formerly on the staff of the Bellevue Hospital; aged 76; died, March 20.

John David Dean, Birmingham, Ala.; University of Texas School of Medicine, Galveston, 1928; member of the Medical Association of the State of Alabama; aged 34; died, March 25, in the South Highlands Infirmary, of acute polyneuritis.

Jacob Murray Hoskins, Marion, Ohio; Kentucky School of Medicine, Louisville, 1904; member of the Ohio State Medical Association; served during the World War; aged 56; died, March 1, of chronic bronchitis and cardiac hypertrophy.

James Owen Shannon, Franklin, Tenn.; Vanderbilt University School of Medicine, Nashville, 1877; past president and secretary of the Williamson County Medical Society; aged 82; died, February 4, of hypertensive cardiovascular disease.

George Washington Clendenan, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, 1882; at one time mayor of West Toronto and medical officer of health; formerly associate coroner; aged 78; died, March 18.

Fred Raymond Lewis ⊕ Rochester, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1911; on the staff of the Rochester General Hospital; aged 57; died, March 8, of facial erysipelas and bronchopneumonia.

John Curtis Grandstaff, Preble, Ind.; Eclectic Medical Institute, Cincinnati, 1899; member of the Indiana State Medical Association; formerly county health officer and coroner; aged 66; died, March 31, of coronary thrombosis.

Ralph Harold Hertzler ⊕ Newton, Kan.; Northwestern University Medical School, Chicago, 1908; served during the World War; on the staff of the Bethel Deaconess Hospital; aged 52; died, March 30, of coronary sclerosis.

Harry Crittenden Harris, Glen Ridge, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1883; formerly member of the school board and board of health; aged 78; died, March 2, of chronic myocarditis.

Jefferson D. Ratliff, Seymour, Texas; St. Louis College of Physicians and Surgeons, 1901; formerly city and county health officer; aged 77; died, February 24, in a hospital at Wichita Falls of complications of renal stones.

Emil Heller Henning, Baltimore; University of Maryland School of Medicine, Baltimore, 1908; formerly health officer in the public school division of the city health department; aged 58; died, March 4, of Hodgkin's disease.

John Clarence Kelly, Mitchell, Ind.; College of Physicians and Surgeons, Baltimore, 1882; aged 80; died, March 10, in the Homeopathic Hospital, Wilmington, Del., of carcinoma of the tonsil with abdominal metastasis.

George Franklin Edmunds, Bristol, Vt.; Baltimore Medical College, 1892; member of the Vermont State Medical Society; aged 76; died, March 18, in the Bradenton (Fla.) General Hospital of arteriosclerosis.

Frank E. Flowers, Mannington, W. Va.; College of Physicians and Surgeons, Baltimore, 1907; member of the West Virginia State Medical Association; mayor-elect; aged 55; died, March 31, of angina pectoris.

George Henry Lamley ⊕ Blissfield, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; aged 61; died, March 3, in Toledo, Ohio, of influenza, chronic nephritis and myocarditis.

Lyman George Haskell, Gainesville, Fla.; Boston University School of Medicine, 1897; formerly director of physical education at the University of Florida; aged 67; died, March 18, of a cerebral hemorrhage.

John Frey Binkley, West Palm Beach, Fla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1917; member of the Florida Medical Association; served during the World War; aged 51; died, March 22.

Arthur Le Roy Garrison, Cleveland; Western Reserve University Medical Department, Cleveland, 1902; aged 62; died, March 19, in the Elyria (Ohio) Memorial Hospital of chronic nephritis and uremia.

Frank Washington Tarbell, Smyrna Mills, Maine; Columbia University College of Physicians and Surgeons, New York,

1908; past president of the Aroostook County Medical Society; aged 59; died, February 25.

Edward Stevens Lane, Bristol, Vt.; University of Vermont College of Medicine, Burlington, 1893; member of the Vermont State Medical Society; aged 72; died, March 30, of sclerosis of the coronary artery.

Edgar Dumont Wing, Galesburg, Ill.; University of Pennsylvania Department of Medicine, Philadelphia, 1873; health commissioner; aged 91; died, February 1, of uremia due to prostatic obstruction.

Clifton Dean Briggs, New Bedford, Mass.; Boston University School of Medicine, 1889; at one time physician to the late President Grover Cleveland; aged 72; died, March 21, of coronary thrombosis.

James Lafayette Jordan, Huntsville, Ala.; Birmingham Medical College, 1911; member of the Medical Association of the State of Alabama; aged 47; died, March 21, of hypertension and chronic nephritis.

Alvin Bartley Coxwell, Monroeville, Ala.; Louisville (Ky.) Medical College, 1907; member of the Medical Association of the State of Alabama; aged 55; died, March 23, of coronary thrombosis.

James Warren Rutherford, Chatham, Ont., Canada; University of Toronto Faculty of Medicine, 1899; aged 63; died, February 27, as the result of injuries received in an automobile accident in 1935.

Walter Gilbert Casey ⊕ Talladega, Ala.; University of the South Medical Department, Sewanee, Tenn., 1906; on the staff of the Citizens' Hospital; aged 67; died, March 9, of coronary occlusion.

Levi Harry Leonard ⊕ Manchester, Ohio; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1895; aged 72; died, March 24, of coronary occlusion.

Rolando Hamilton Henry, Princeton, Ill.; Miami Medical College, Cincinnati, 1884; member of the Illinois State Medical Society; also a pharmacist; aged 82; died, March 25, of coronary thrombosis.

William E. Chapman, Leland, Ill.; Hahnemann Medical College and Hospital, Chicago, 1904; served during the World War; member of the Illinois State Medical Society; aged 63; died, March 19.

John William Barson ⊕ Joplin, Mo.; University of Louisville (Ky.) Medical Department, 1898; on the staffs of the Freeman and St. John's hospitals; aged 76; died, March 15, of heart disease.

Philander A. Wheeler, Lake Wales, Fla.; University of Vermont College of Medicine, Burlington, 1872; aged 91; died, February 18, in the Bartow General Hospital at Bartow of arteriosclerosis.

Joseph B. Trice, Van Buren, Ark. (licensed in Arkansas in 1905); member of the Arkansas Medical Society; formerly a medical missionary; aged 60; died in February at a hospital in Fort Smith.

Martin Hoke, Spring Grove, Pa.; Jefferson Medical College of Philadelphia, 1881; member of the Medical Society of the State of Pennsylvania; aged 79; died, February 21, of mitral stenosis.

Wilbert A. Staley ⊕ Warrensburg, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; aged 67; died, February 9, of coronary sclerosis.

George Howard Pierce, Brooklyn; Yale University School of Medicine, New Haven, Conn., 1886; member of the Medical Society of the State of New York; aged 78; died, February 3, of pneumonia.

Theodore Kynette Gregg, Spartanburg, S. C.; Meharry Medical College, Nashville, Tenn., 1929; aged 37; died, March 28, in St. Agnes Hospital, Raleigh, N. C., of subacute bacterial endocarditis.

Edward Julius Lorenze, New York; University of the City of New York Medical Department, 1886; member of the Medical Society of the State of New York; aged 73; died, February 4.

Leonard Edward Fraser ⊕ Iowa Falls, Iowa; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1905; aged 58; died, February 2, in the Ellsworth Memorial Hospital.

Joseph H. Bertrand, De Forest, Wis.; College of Physicians and Surgeons of Chicago, 1886; member of the State Medical Society of Wisconsin; aged 76; died, March 8, of uremia.

Otto Frederick Jens, Chicago; Jenner Medical College, Chicago, 1901; Illinois Medical College, Chicago, 1902; aged 69; died, March 18, of coronary thrombosis and pernicious anemia.

Benjamin Franklin Jones, Danville, Ky.; Howard University College of Medicine, Washington, D. C., 1890; member of the city council; aged 80; died, March 22, of cerebral hemorrhage.

Harvey Erwin Blacksten, Excelsior, Mo.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1884; aged 77; died, March 6, in Versailles, of organic heart disease.

Carl Eugene Koenig ⊕ Seattle; Jefferson Medical College of Philadelphia, 1908; member of the Radiological Society of North America; served during the World War; aged 57; died, March 17.

William Halbert McCracken, Alligator, Miss.; University of Tennessee Medical Department, Nashville, 1888; aged 72; died in February at the Baptist Memorial Hospital, Memphis, Tenn.

George William Lawton, Maywood, Ill.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; aged 67; died, March 3, in Natchez, Miss., of heart disease.

Jeremiah Thomas Dwyer ⊕ Oswego, N. Y.; Long Island College Hospital, Brooklyn, 1891; on the staff of the Oswego Hospital; aged 68; died, February 27, of coronary artery disease.

Orra M. Flack, Boswell, Ind.; Medical College of Ohio, Cincinnati, 1893; member of the Indiana State Medical Association; aged 72; died, March 11, of an injury received in a fall.

Arthur Robert Lindsay ⊕ Lawrenceville, Ill.; Northwestern University Medical School, Chicago, 1909; aged 53; died, March 15, in a hospital at Vincennes, Ind., of acute cholecystitis.

Charles E. Grayston, Huntington, Ind.; Medical College of Ohio, Cincinnati, 1881; Fort Wayne (Ind.) College of Medicine, 1885; aged 81; died, March 27, of cerebral hemorrhage.

Lawrence Joseph Morton, Brooklyn; Long Island College Hospital, Brooklyn, 1884; for many years on the staff of St. Mary's Hospital; aged 80; died, February 26, of arteriosclerosis.

Harry Theophilus Randle, Aurora, Colo.; Beaumont Hospital Medical College, St. Louis, 1902; aged 66; died, February 17, in Denver of chronic asthma and chronic emphysema.

Emmet Michael Brown ⊕ Beattyville, Ky.; Rush Medical College, Chicago, 1930; county health officer; aged 43; was found dead, March 16, in a hotel at Louisville of myocarditis.

William Posey Blalock, New York; Columbia University College of Physicians and Surgeons, New York, 1937; intern at St. Luke's Hospital; aged 31; died, March 10, of pneumonia.

Marcia Gilmore, Pasadena, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1884; aged 79; died, February 13, of chronic bronchitis and pneumonia.

Jiles Wade Horn, Grubbs, Ark.; Kansas City (Mo.) College of Medicine and Surgery, 1923; served during the World War; aged 50; was found dead, March 20, of heart disease.

Walter Hugh Brent ⊕ Hammond, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1905; aged 60; died, March 18, of heart disease and hypertension.

Cecil Dabney, Baltimore; University of Virginia Department of Medicine, Charlottesville, 1910; at one time a medical missionary; aged 55; died, March 7, of coronary occlusion.

Thomas Wright Collins, Muldrow, Okla.; Medical Department of Tulane University of Louisiana, New Orleans, 1904; aged 70; died, March 13, in a hospital at Fort Smith, Ark.

Lewis Cass Skinner, Knoxville, Tenn.; North Carolina Medical College, Davidson, 1902; aged 72; died, February 8, in the Knoxville General Hospital of chronic myocarditis.

Anna M. Stiles Graves, Newark, N. J.; New York Medical College and Hospital for Women, New York, 1873; aged 86; died, February 20, of a fractured femur received in a fall.

Charles Goldman, Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1901; aged 61; died, January 31, in the Emergency Hospital, Annapolis, Md.

Charles Watts Alexander, Oklahoma City, Okla.; Memphis (Tenn.) Hospital Medical College, 1890; aged 72; died, March 8, of coronary thrombosis and angina pectoris.

Walter B. Braden, Seattle; University of Oregon Medical School, Portland, 1902; aged 66; died, March 7, of coronary thrombosis and cholecystitis with one large gallstone.

W. C. Currey, Flemington, W. Va.; University of Maryland School of Medicine, Baltimore, 1881; aged 85; died, March 25, of chronic myocarditis and arteriosclerosis.

Malcolm Douglas, Santa Barbara, Calif.; Albany (N. Y.) Medical College, 1904; served during the World War; aged 62; died, February 12, of carcinoma of the pancreas.

Robert S. Humphrey, Cherryville, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1874; aged 85; died, February 20, of uremia and chronic nephritis.

Samuel C. Browne, Scio, Ore.; Eclectic Medical Institute, Cincinnati, 1890; aged 83; died, February 28, in the Albany (Ore.) General Hospital of cerebral hemorrhage.

Frederick Russell Tower ✠ Arlington, Mass.; Harvard University Medical School, Boston, 1892; aged 77; died, February 25, in the Ring Sanatorium and Hospital.

Edward Taylor Julian, Harlan, Ind.; Kentucky School of Medicine, Louisville, 1891; aged 73; died, February 25, in St. Joseph's Hospital, Fort Wayne, of uremia.

Herman Bick ✠ New York; University and Bellevue Hospital Medical College, New York, 1915; on the staff of the Fordham Hospital; aged 46; died, January 24.

James Franklin Frye, Whitehouse, Ohio; Western Reserve University School of Medicine, Cleveland, 1929; aged 38; died, March 2, of carcinoma of the stomach and liver.

Carl Eugene Edwards, Bradley, Ohio; Ohio State University College of Medicine, Columbus, 1914; served during the World War; aged 49; died, February 18.

James Tilford Cooley, Waverly, Tenn.; Vanderbilt University School of Medicine, Nashville, 1889; aged 81; died, March 13, of carcinoma of the prostate gland.

Edwin Hungerford, Denver; Eclectic Medical College of the City of New York, 1874; aged 90; died, March 29, of a fractured hip received in a fall and senility.

Alva Melville De Vilbiss, St. Paul, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1898; aged 65; died, March 27, of chronic nephritis and uremia.

William Marion Davis, Worthington, Ind.; Marion-Sims College of Medicine, St. Louis, 1899; aged 67; died, March 18, of cerebral hemorrhage and arteriosclerosis.

Samuel Morison McConnell, Rochester, Pa.; University of the City of New York Medical Department, 1879; aged 94; died, February 26, of coronary occlusion.

John Warth English, McDowell, W. Va.; Washington University School of Medicine, Baltimore, 1897; aged 65; died, March 29, in a hospital at Huntington.

Julia B. Day Godfrey, Chicago; Hahnemann Medical College and Hospital, Chicago, 1891; aged 90; died, March 1, of carcinoma of the uterus and vagina.

Finley C. Spates, St. Paul; Hahnemann Medical College and Hospital, Chicago, 1883; aged 83; died, February 26, of hemiplegia and valvular heart disease.

Thomas Jennings Stem, Clovis, N. M.; University of Nashville (Tenn.) Medical Department, 1885; aged 81; died, February 19, of Raynaud's disease.

Thomas W. Burton, Springfield, Ohio; Eclectic College of Physicians and Surgeons, Indianapolis, 1892; aged 78; died, March 23, of interstitial nephritis.

George H. Kriz, Milwaukee; Baltimore University School of Medicine, 1898; aged 65; died, March 6, in the Columbia Hospital of cerebral hemorrhage.

Axel Fritz Grove, Fairfield, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1903; aged 73; died, March 30, of bronchopneumonia.

Joseph J. Kuczkowski, Chicago; Loyola University School of Medicine, Chicago, 1926; aged 42; died, February 23, in Vienna, Germany, of myocarditis.

Frank Warnock Brand, Urbana, Ohio; Homeopathic Hospital College, Cleveland, 1889; aged 72; was found dead in bed, March 29, of heart disease.

Eliza Lawton Whiteley, Lemongrove, Calif.; Hahnemann Medical College and Hospital, Chicago, 1886; aged 85; died, February 19, of arteriosclerosis.

Arche E. Pardue, Hamlin, Texas; Louisville (Ky.) Medical College, 1898; aged 67; died, February 26, of arteriosclerotic heart disease and hypertension.

James Francis Freeman, Evansville, Ind.; University of Birmingham Faculty of Medicine, England, 1875; aged 83; died, March 9, of pneumonia.

Franklin Burton Ladd, Fort Wayne, Ind.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 73; died, March 14, of angina pectoris.

Lottie Ambler Cort, Brooklyn; New York Medical College and Hospital for Women, New York, 1883; aged 79, died, February 14, of hypertension.

Stephen A. D. Miller, Seattle; Starling Medical College, Columbus, 1886; aged 75; died, February 13, of hypostatic pneumonia and Parkinson's disease.

Mathew Samuel Holt, Weston, W. Va.; Jefferson Medical College of Philadelphia, 1877; formerly mayor; aged 88; died, March 31, of pneumonia.

Creed Turner Cannaday, Cotter, Ark.; Memphis (Tenn.) Hospital Medical College, 1898; aged 86; died, February 20, of cerebral hemorrhage.

Henry Barridge Morton, Wichita, Kan.; Marion-Sims College of Medicine, St. Louis, 1895; aged 67; died, February 12, in a local hospital.

William Oliver Brickell, Friendsville, Tenn.; Tennessee Medical College, Knoxville, 1895; aged 70; died, March 27, of coronary occlusion.

Henry Zachariah Ewing, Hartford, Kan.; Kansas City (Mo.) Medical College, 1904; aged 69; died, March 11, of cerebral hemorrhage.

Charles Henry Oakwood, Los Angeles; Medical College of Indiana, Indianapolis, 1883; aged 83; died, February 20, of chronic myocarditis.

Arthur Wegeforth, San Diego, Calif.; Baltimore Medical College, 1890; aged 68; died, February 9, of cardiac decompensation and hepatitis.

William Franklin Howerter, Sciota, Pa.; Medico-Chirurgical College of Philadelphia, 1903; aged 63; died, February 25, of heart disease.

Henry MacVicker Smith, Santa Ana, Calif.; University of Buffalo School of Medicine, 1898; aged 69; died, February 19, of pneumonia.

Henry Blackburn Johnstone, Fenelon Falls, Ont., Canada; University of Toronto Faculty of Medicine, 1907; aged 58; died, February 22.

Francis Coburn Chapin, Cambridge, Mass.; Boston University School of Medicine, 1888; aged 76; died, March 22, of chronic nephritis.

Holdridge L. Henry, Capon Bridge, W. Va.; Baltimore University School of Medicine, 1887; aged 74; died, February 19, of pneumonia.

Eugene Carter Hamley, Glendale, Calif.; Rush Medical College, Chicago, 1902; aged 59; died, February 24, of coronary disease.

G. Walter Barr, Keokuk, Iowa; Jefferson Medical College of Philadelphia, 1884; aged 79; died, March 29, in Spartanburg, S. C.

Joseph Newton Chandler, Weatherford, Texas; Louisville (Ky.) Medical College, 1886; aged 75; died, March 1, of heart disease.

J. Ottis Hart, Benton, Ill.; St. Louis College of Physicians and Surgeons, 1902; aged 60; died, February 25, of myasthenia gravis.

John E. Morton, Spring Valley, Wis.; Milwaukee Medical College, 1897; aged 82; died, February 2, of cerebral hemorrhage.

Clifford B. Colwell ✠ Providence, R. I.; Baltimore Medical College, 1905; aged 57; died, March 9, of cardiorenal vascular disease.

James M. Hindman, Advance, Mo.; St. Louis College of Physicians and Surgeons, 1902; aged 71; died, March 18, of senility.

John James Van Male, Challenge, Calif.; California Medical College, Oakland, 1887; aged 80; died, February 16, of senility.

John H. Judkins ✠ Northfield, Vt.; Baltimore Medical College, 1893; aged 72; died, March 13, of coronary thrombosis.

Alfred G. Ward, Mobile, Ala.; Medical College of Alabama, Mobile, 1894; aged 66; died, February 27, of coronary occlusion.

Thomas McCall Anderson, New York; Baltimore Medical College, 1908; aged 56; died, March 24, of coronary thrombosis.

Sara Eleanore Schwerer, Crafton, Pa.; University of Pittsburgh School of Medicine, 1931; aged 40; died, February 2.

William Grant, Wolfville, N. S., Canada; Halifax Medical College, Halifax, N. S., 1892; aged 78; died, February 5.

H. Frank Clark, Rarden, Ohio (licensed in Ohio in 1896); aged 79; died, March 30, of myocarditis and nephritis.

Henry M. Green, Knoxville, Tenn.; Knoxville Medical College, 1901; aged 59; died, March 19, of pneumonia.

Correspondence

TREATMENT OF HERPES ZOSTER

To the Editor:—In the March 1931 issue of the *Archives of Dermatology and Syphilology* Dr. E. Wood Ruggles of this state suggested the intravenous injection of sodium iodide as a specific for herpes zoster. In the summer of 1935 I had a succession of twelve or more cases of zoster in a very short time and, recollecting the suggestion of Dr. Ruggles, used the sodium iodide in each case with really miraculous results.

Dr. Ruggles recommended giving 2 Gm. intravenously on the first, second, fourth and seventh days.

The success of this treatment has been so universally satisfactory in my own practice, as well as among the patients of professional brothers whose attention has been called to its efficiency, that I am taking the liberty of urging its exhibition by others who are unfamiliar with its virtue. I note in the latest editions of Sutton and Andrews that this remedy is mentioned but the dosage is not given. In several of my cases in young or delicate women the dose was cut in half. I have also made it a practice of giving the dose selected every other day, and never more than four doses have been found necessary.

NATHAN THOMAS BEERS, M.D., Brooklyn.

SULFANILAMIDE IN EDEMA FLUIDS

To the Editor:—I have not noticed any reports of sulfanilamide concentration in human edema fluid of noninflammatory origin. A patient with intractable pitting edema of the lower extremities due to the nephrotic stage of chronic glomerulonephritis was treated by the insertion of Southey tubes into both legs. Sulfanilamide was given prophylactically to minimize the frequently resultant infection which has brought this often valuable procedure into disrepute. An initial dose of 4 Gm. followed by 1 Gm. every four hours was given, and twenty hours later samples of blood and edema fluid were taken simultaneously. The concentration of sulfanilamide in the two was the same, 4.2 mg. per hundred cubic centimeters.

The diffusibility of the drug into edema fluid is thus even more marked than into the other body transudates. Incidentally, satisfactory drainage was obtained in this case without any inflammatory reaction. It is suggested that taking advantage of the penetration of the drug into edema fluid may render the use of Southey tubes more applicable and less dangerous.

IRVING A. BECK, M.D., New York.
Mount Sinai Hospital.

DETERMINATION OF PROTHROMBIN

To the Editor:—With the rapid development of the subject of vitamin K in the treatment of hemorrhage, a certain amount of confusion can easily occur. Fundamentally all the work on this subject rests on the quantitative determination of prothrombin. Four years ago I described a method for this determination (*J. Biol. Chem.* **109**: lxxiii [May] 1935) and showed that the prothrombin was normal in amount in hemophilia but reduced in a certain number of jaundiced patients. This method subsequently proved itself to be a sensitive test in all known hemorrhagic diseases characterized by a diminution of prothrombin. Because of its simplicity the test has been widely used clinically and, judging from the reports in the literature, has been found quite satisfactory. In a recent paper Drs. Scanlon, Brinkhous, Warner, Smith and Flynn (THE JOURNAL May 13, 1939, p. 1898) call attention to a new bedside test for determining prothrombin which consists in adding 0.9 cc. of blood to 0.1 cc. of thromboplastin. Unfortunately, this test is not new, for I, with Drs. Stanley-Brown and Bancroft (*Am. J. M. Sc.* **190**:510 [Oct.] 1935) used a test almost exactly like theirs (differing only in adding 0.1 cc. of thromboplastin to 1 cc. of blood) for demonstrating a normal prothrombin concentration in hemophilic blood. We did not feel justified at that time in recommending the test as a clinical method. The mechanical difficulties of carrying out a bedside test are well known, especially if it is of a quantitative nature requiring accurate timing with a stop-watch. It seems far preferable to require the little additional work entailed in my method and gain thereby the accuracy which is well justified and demanded, in view of the importance of reliable quantitative data concerning the prothrombin level in jaundiced subjects, newborn babies and other patients potentially in danger of hemorrhage.

ARMAND J. QUICK, M.D., Milwaukee.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

TEST FOR ALCOHOL IN URINE

To the Editor:—How are tests to determine the alcoholic content of urine made? What is the technic and interpretation as applied to drunken drivers?

M.D., Wisconsin.

ANSWER.—A simple test for alcohol in body fluids is based on the fact that alcohol can be distilled from an acid mixture and that the color obtained by mixing measured amounts of the distillate with standard potassium dichromate produces changes in color from orange to blue. By preparing test tubes containing known amounts of alcohol and potassium dichromate, permanent color standards can be obtained, which may be used for comparison when performing tests on samples of unknown alcoholic content. The standards may be purchased from the LaMotte Chemical Company, Baltimore, or prepared from the following directions:

Strong Permanent Standards

Color Standards Corresponding to per Cent Alcohol by Weight	Prepared by Using	With Water, Cc.
0.0	.....	1.00
0.05	0.50 cc. of 0.10 per cent alcohol by weight	0.50
0.10	1.00 cc. of 0.10 per cent alcohol by weight	0.0
0.12	0.60 cc. of 0.20 per cent alcohol by weight	0.40
0.14	0.70 cc. of 0.20 per cent alcohol by weight	0.30
0.16	0.80 cc. of 0.20 per cent alcohol by weight	0.20
0.18	0.90 cc. of 0.20 per cent alcohol by weight	0.10
0.20	1.00 cc. of 0.20 per cent alcohol by weight	
0.22	0.73 cc. of 0.30 per cent alcohol by weight	0.27

To each tube add 3 cc. of fifteenth normal potassium dichromate (0.33 per cent in 50 per cent sulfuric acid). Place tubes in boiling water four minutes and seal.

Weak Permanent Standards

Color Standards Corresponding to per Cent Alcohol by Weight	Prepared by Using	With Water, Cc.
0.0	.....	2.0
0.005	1.0 cc. of 0.01 per cent alcohol by weight	1.0
0.010	2.0 cc. of 0.01 per cent alcohol by weight	0.0
0.013	0.52 cc. of 0.05 per cent alcohol by weight	1.48
0.016	0.64 cc. of 0.05 per cent alcohol by weight	1.36
0.019	0.76 cc. of 0.05 per cent alcohol by weight	1.24
0.022	0.88 cc. of 0.05 per cent alcohol by weight	1.12
0.025	1.00 cc. of 0.05 per cent alcohol by weight	1.00
0.028	1.12 cc. of 0.05 per cent alcohol by weight	0.88
0.031	1.24 cc. of 0.05 per cent alcohol by weight	0.76
0.034	1.36 cc. of 0.05 per cent alcohol by weight	0.64
0.037	1.48 cc. of 0.05 per cent alcohol by weight	0.52

Add 1 cc. of potassium dichromate reagent to each tube. Place tubes in boiling water bath twelve minutes.

Technic of Test: Distil a mixture of 10 cc. of urine with about 10 cc. of half saturated picric acid containing about 10 per cent tartaric acid, collecting the first 10 cc. of the distillate and mix. In separate tubes similar to those used for the standards, place 1 cc. in one and smaller measured

amounts in the others, making the volume up to 1 cc. in each case. Add 3 cc. of the potassium dichromate reagent to each tube and place in boiling water bath four minutes. Compare colors with those of the standard scale. Divide the reading by the fraction of a cubic centimeter of distillate used, which gives the percentage of alcohol by weight. The use of several tubes permits close checking of the results and gives greater opportunity for having readings on the scale.

If results are too low to be read, use the weak standards, with 2 cc. of the distillate and known smaller amounts, bringing the volume to 2 cc. in each case, add 1 cc. of the reagent to each tube and place tubes in boiling water twelve minutes.

If blood is being tested take 2 cc. of whole blood, plasma or serum, add about 15 cc. of the picric-tartaric reagent and collect the first 10 cc. of the distillate. This is tested on the weak standard scale and the result multiplied by 5. Specimens of urine which have been saturated with benzoic acid retain their alcoholic content indefinitely.

Interpretation: No minimal figure of alcoholic content in body fluids can be set as having absolutely no effect on individuals. However, most persons are definitely under the influence of alcohol at 0.10 per cent, and all who have been examined under well controlled experimental conditions are found to have lost some of that clearness of intellect and control of themselves which they would normally possess, when the alcohol reaches 0.20 per cent. The Committee on Tests for Intoxication of the National Safety Council, therefore, recommends that persons with a concentration of alcohol of less than 0.05 per cent in the blood or 0.07 per cent in the urine should not be prosecuted as being under the influence of alcoholic liquor. When the alcoholic reading is between 0.05 per cent in the blood (or 0.07 per cent in the urine) and 0.15 per cent in the blood (or 0.20 per cent in the urine) the alcohol test can be used for confirming obvious intoxication. When the alcoholic concentration exceeds 0.15 per cent in the blood or 0.20 per cent in the urine there is sufficient impairment to diagnose the person as being under the influence of alcohol even without confirmation by physical signs. These figures are needlessly high but have been accepted as practical since there will be no danger of injustice. An additional important interpretation of the results is the possibility of calculating the amount of unoxidized alcohol in the body at the time the specimen was taken. For example, a person weighing 150 pounds whose urine contains 0.20 per cent of alcohol has accumulated in his body 4 ounces (120 cc.) of absolute alcohol by volume.

TRANSVERSE MYELITIS AND NEOARSPHENAMINE

To the Editor:—A 50 year old woman with asymptomatic syphilis was given a fifteen weeks course of bismuth followed by two injections of neoarsphenamine (0.3 and 0.45 Gm.). After the second injection of neoarsphenamine there was nausea and vomiting, a maculopapular eruption, edema of the face and (three days after the injection) sudden paralysis of the legs and bladder. The spinal fluid gave a negative Wassermann reaction, an 0—0 colloidal gold curve and 5 cells. Despite repeated doses of 1 Gm. of sodium thiosulfate intravenously, the use of large doses of thiamin chloride and whole B complex, the patient at present, ten days after the onset of the paralysis, shows no change. The cranial nerves are normal, as are the upper extremities. There is a band of hyperesthesia at the level of the umbilicus (the tenth thoracic vertebra). From the hips down, including the saddle area, there are absence of pain and temperature sensation, normal sense of position, movement and vibration, and absolute paralysis. The abdominal reflexes are absent. The knee jerks and ankle jerks, at first diminished, are now hyperactive and equal. There is a bilateral Babinski reflex. Plantar stimulation frequently results in a primitive withdrawal response of the extremity. Besides catheterization and antiseptic treatment to the bladder, the patient is receiving increasing doses of potassium iodide and moderate doses of vitamin B complex. What additional therapy can you suggest and what is the prognosis? Do you believe that this patient had vascular thrombosis, hemorrhage or myelitis in the thoracic cord?

M.D., Indiana.

ANSWER.—From the description and history, it would appear that a transverse myelitis had developed in this patient. The treatment is symptomatic; namely, care of the bladder, massage of the lower extremities, and local heat in the region of the thoracic vertebra, now that sodium thiosulfate has been given. The prognosis is indeterminate, since about 30 per cent of these patients regain function of the lower extremities, undoubtedly depending on the amount of hemorrhage that has occurred in the spinal cord. This complication occurs often in patients who have an intercurrent respiratory infection and is also seen in persons who have not had arsphenamine, so it is not possible to incriminate only the arsenic in those cases in which such treatment has been given. The fact that this patient was demonstrating evidence of intolerance to the neoarsphenamine, however, lends weight to the inference that the arsenic in this case assumed an etiologic role.

ANGIONEUROTIC EDEMA FROM FRYING BEEFSTEAK AND FROM OXYDOL SOAP

To the Editor:—Six months ago a white woman aged 32 began to have infrequent mild attacks of angioneurotic edema when she fried beefsteak or used oxydol soap. The attack is not brought on by using the same shortening for frying other foods or in the use of other soaps nor is it brought on with the ingestion of beef. What tests can be made, and can the patient be desensitized? The attacks are now much more frequent and severe. There is no history of familial allergy. If she cannot be desensitized, what is the best form of treatment for prevention?

M.D., Michigan.

ANSWER.—Instances of allergic reactions, both of the respiratory and of the cutaneous type, due to odors from the frying or cooking of foods are not uncommon. In the majority of such cases of food sensitivity ingestion will also cause allergic symptoms. However, there are undoubted instances in which allergens will cause allergic manifestations only by inhalation and not by ingestion. Examples of these are bakers who are sensitive to wheat flour and can eat wheat products without any disturbance. During the ordinary process of cooking beef, no doubt the major part of the allergic activity of this food is destroyed, and what is left undestroyed may be so thoroughly digested that but little of the active element goes into the circulation. Oxydol soap, as is the rule with many soaps of similar character, has no doubt as its basis beef fat. This may account for the similarity in action between the soap and the frying of beefsteak. However, this soap also has a fairly strong chemical irritant which may act in a nonspecific way to disturb the allergic individual. The test that would appear to be indicated here is a test with beef protein. If the latter reacts, desensitization treatment with a beef extract might result in a sufficiently great tolerance to prevent symptoms. If the patient cannot be desensitized, it is likely that the preparation of beefsteak by such methods as broiling will eliminate the difficulty.

COCCYGODYNIA

To the Editor:—Would you kindly outline the treatment for coccygodynia? In a case in which presacral nerve resection is indicated for other conditions would the coccygodynia be relieved?

M.D., California.

ANSWER.—Coccygodynia usually responds to conservative measures: rest, avoidance of pressure on the coccyx, warm baths and sometimes radiant heat. If this fails, removal of the coccyx gives relief in the majority of cases.

A generation ago the indiscriminate use of coccygectomy tended to discredit the operation, but in recent years there has been a more careful selection of cases, limiting the selection to those cases wherein the pain is confined to the coccyx only. Many times neurasthenic persons complain of radiating pains up the spine in the region of the sacro-iliac joints, and the pain in the coccyx is only one of many complaints. These patients do not respond well to coccygectomy.

It is doubtful whether resection of the presacral nerve would relieve pain in the coccyx.

ACCURACY OF BLOOD CULTURES IN BACTEREMIA

To the Editor:—In infections of the blood stream such as streptococcic septicemia, are groups of the pathogenic organism always present in the circulating blood or are these organisms present only at infrequent intervals? In other words, is there not a great possibility of many positive blood cultures reported by laboratories being contaminations rather than micro-organisms from the blood streams, as suggested by Boyd in his Surgical Pathology?

M.D., Kentucky.

ANSWER.—In infections of the blood stream such as streptococcic septicemia, organisms may be constantly present in the blood stream or these organisms may be present only at intervals. A distinction is sometimes made, more or less theoretically, between septicemia, in which bacteria supposedly multiply in the blood stream, and bacteremia, in which organisms are in the blood stream at intervals but are destroyed at a rate somewhat the same as their rate of entry. This would have no bearing, however, on the question as to whether or not any positive blood cultures reported by laboratories are contaminations rather than micro-organisms from the blood stream. This question may be decided by the nature of the organism in question. For instance, it is more likely that Bacillus subtilis would be a contamination than an actual invader of the blood stream. With a staphylococcus it might come either from the skin as a contamination or from the blood stream itself. Whether it is one or the other might be decided by plate cultures better than by liquid cultures, because in case the organism came from the blood it would be present in larger numbers in the plates. On the other hand, when such organisms as typhoid bacilli are found in blood cultures the chance of their being a contamination is remote. In any case, the care in technic is a factor in such decisions.

CHRONIC ARTHRITIS AND DIPHTHERIA

To the Editor:—Two cases of chronic arthritis which developed after diphtheria raise the question as to whether or not diphtheria may be the causative factor of a chronic type of arthritis. (I am aware that infectious diseases frequently cause acute arthritis.) Have you any information relative to such a probable infection and can you suggest any therapy that might be helpful in postdiphtheritic arthritis? M.D., New York.

ANSWER.—No reference has been found to chronic arthritis of diphtheritic origin. According to Hench (Nelson Loose-Leaf Surgery, 1938) the joints may occasionally become swollen and painful early in the course of diphtheria, and in such instances specific organisms have been isolated. No details are given as to the duration of the arthritis in these cases. In one large series of cases of chronic arthritis (Bannatyne, 1898) there was a report of two patients who dated the onset to an attack of diphtheria, but again no details are given. Since attacks of rheumatoid arthritis often follow infections of varying types, only a coincidental or precipitating role can be assigned to diphtheria in these two cases without further evidence. We are unable to suggest any specific therapy for the inquirer's cases but would advise culture of joint fluid, if obtainable, and even synovial biopsy in order to establish a diagnosis.

NO KNOWN NARCOTIC ACTION FROM ELEPHANT TREE

To the Editor:—1. Along with a number of other amateur naturalists, I have lately been much interested in the finding of a half dozen or so specimens of the rare elephant tree in southern California. It grows in inaccessible places in the mountains of the desert and botanically is Bursera microphylla. I am one of the few white people who have seen it, and in tracing out all the information that I could get about it I came on some tales of the Cahuilla Indians—now living near the famous resort at Palm Springs—to the effect that the tree, or some part of it, has poisonous or narcotic effects. These tales are vague, for the old Indians are too superstitious and afraid of the tree to tell much about it and the younger ones do not know. I could not discover the part of the tree used by them nor the mode of preparation, but it seems certain that they used it for its physical effects; from the description, I was reminded of marihuana and the cannabis drugs. Can you give me any proved facts about it? What poison or narcotic is in it, what part of the tree contains it, what are the pharmacologic effects? 2. Can you tell me what poisons were used in the "poison rings" used in Roman times for suicide and during the Renaissance for murder? There are not so many poisons violent enough to kill in the dose that could be concealed in a ring, and in days when the drugs were not so highly purified a lethal dose must have been even more bulky. Doubtless many tales of them are much exaggerated, but there seems to be no doubt of the actual use of some such device, and I should be interested to know what drugs were actually used. M. J. GROESBECK, M.D., Porterville, Calif.

ANSWER.—1. No references could be found in the accessible literature to Bursera microphylla, but quite a number of other species have been studied. These all contain aromatic resins and have been used as vulnerary, alterative, antispasmodic, antirheumatic and similar indefinite indications, like elemi, aloe wood or guaiac. Nothing is known about narcotic actions, but odorous resins are frequently used in religious ceremonials. "Incense" is a well known example.

2. There is no definite information about poison rings. One guess is as good as another, and the best guess perhaps is that mystery is often thickest when there is nothing to hide.

CHRONIC MICROCOCCUS CATARRHALIS PROSTATITIS

To the Editor:—A white man aged 26 has been treated for several months for a chronic prostatitis. He has no subjective symptoms, but the prostate is tender on palpation. The causative organism by culture and by fermentation reactions was found to be Micrococcus catarrhalis. His wife was first seen by me because of a severe cervicitis, which proved to be due to the same organism. Several years ago a similar cervicitis developed in a woman following intercourse with this man. Treatment has consisted of prostatic massage at weekly intervals and a course of neoarsphenamine 0.3 Gm. at weekly intervals. Sulfanilamide 80 grains (5.3 Gm.) was given but, because of nausea and the patient's inability to work, it was discontinued after two days. Since then he has continued the prostatic massages at weekly intervals and is taking methenamine and ammonium chloride 45 grains (3 Gms.) each for five days, alternating with citrocarbonate for five days. The literature seems to be void of suggestions on the treatment of Micrococcus catarrhalis prostatitis. The patient has chronic infected tonsils and I wonder whether this could be the source of the prostatitis. I would appreciate any further suggestions as to treatment. PAUL W. TULLY, M.D., Temple City, Calif.

ANSWER.—Chronic prostatitis is an extremely resistant condition to treat. With the apparent long duration of treatment in this case, urethroscopic examination to rule out the presence of dilated ducts should be performed. If prostatic calculi have not been excluded by x-ray examination of the prostatic area, this should be done. In view of the finding of Micrococcus catarrhalis, a thorough search for dental and tonsillar foci is advised, with eradication if present. After this has been done, prostatic massages might be continued at intervals of every three to four days, along with one of the newer derivatives of sulfanilamide which might be more easily tolerated. Vesical irrigations and posterior urethral instillations with a suitable antiseptic are often of value in treating this condition.

TESTS FOR GAS POISONING

To the Editor:—Can you refer me to any tests which would be significant in connection with gas poisoning? Our gas here is a mixture of natural gas and that derived from coke. The situation is one in which a child suffered a moderate degree of gas poisoning.

FRED MOORE, M.D., Des Moines, Iowa.

ANSWER.—Natural gas is unlikely to contain dangerous quantities of carbon monoxide, but artificial fuel gas may be rich in carbon monoxide content. At the time of the alleged gassing of the child it would have been possible to determine the extent of the hemoglobin fixation by carbon monoxide. Several tests of this character are available, including the Christman test (Christman, A. A., and Randall, E. L.: A Convenient and Accurate Method for the Determination and Detection of Carbon Monoxide in Blood, *J. Biol. Chem.* **102**:595 [Oct.] 1933), which is one of the best, and the pyrotannic method, which is carried out more readily, is more frequently available but is less accurate than the Christman test. The making of examinations of the patient at this late time is of little avail. The quantity of carbon monoxide in the gas supply is undoubtedly known to the purveyor and, in addition, may be determined by any good testing laboratory.

ZEOLITE WATER SOFTENER

To the Editor:—A patient who suffers from ureteral stones has been advised to drink soft water, as the water here is rather heavy with salts. He has brought in to me a water softener put out by the National Aluminate Company, Zeolite Department, 6216 West Sixty-Sixth Place, Chicago. Can you give me any information about this product and is the water passed through it fit for drinking purposes? I will appreciate your advice on this matter at your earliest convenience.

J. E. GARDNER, M.D., Portales, N. M.

ANSWER.—The type of water softener mentioned, if operated properly, should give a soft water. The effect of softening water by the zeolite process is to exchange calcium and magnesium in the dissolved salts of the water for sodium, which is contained in the zeolite, the result being to reduce the hardness in the water treated. The water after being softened will, however, contain dissolved salts. A practical way to eliminate all dissolved salts in water used in small quantities for medicinal purposes would be to use distilled water.

NIGHT CHILLS AND LOW BLOOD PRESSURE

To the Editor:—A man aged 56 has severe chills at night. He has to get up and walk around the house to obtain relief. He sometimes becomes rigid and afterward sweats. This has been going on for several years. He has no ambition. The attacks affect the pit of the stomach and he has a disagreeable feeling in the bowels at that time. He is thin and active, being the baggage master at a railroad station. He does heavy lifting. The appetite is good and the bowels are regular; he appears nervous, can't keep his hands still, has been sleeping pretty well until lately and perspires easily. The heart is normal, with a pulse rate of 80, somewhat weak; the blood pressure is 80 systolic 60 diastolic. I have given him all kinds of medicine to raise the blood pressure, diathermy up and down the spine plus massage of the spine. Nothing will raise the blood pressure. He is active and seems normal except for the chills and the low blood pressure. Can you tell me what ails him and what the treatment is?

M.D., New Hampshire.

ANSWER.—Many important details that might contribute toward a diagnosis are omitted from this question. Are these real chills or are they chilly sensations? Real chills are always accompanied by and followed by a rise in temperature and are usually indicative of infection, either parasitic or bacterial. Is the rigidity a convulsive seizure or merely stiffness of the muscles? Accurate observation in these points would do much to limit the possibilities.

On the basis of the information given, this appears most likely to be a case of autonomic instability. It seems unlikely that there is parasitic or infectious disease, although parasitic diseases such as malaria or filariasis sometimes continue intermittently over a period of years.

Addison's disease or adrenal insufficiency must be considered. Is there pigmentation of the skin or has a blood chloride determination been done? Marked anemia, either secondary or primary, might produce such a picture.

A low blood pressure per se is not particularly objectionable, but a systolic pressure of 80 mm. is always a source of anxiety.

The correspondent does not state what medication has been used apart from diathermy and massage. Symptomatically, amphetamine sulfate might be helpful, but it may produce wakefulness if given too late in the day. Adrenal cortex extract and sodium chloride should be beneficial if this is adrenal insufficiency. A more accurate diagnosis would assist in planning the therapy.

NOCTURNAL PAINFUL URINATION IN INFANT

To the Editor:—A boy aged 11 months has been waking out of a sound sleep and crying severely. The crying continues until he urinates, after which he quiets down and goes to sleep. I have seen him once in such an attack, which lasted about a half hour; he seemed unable to urinate although he tried frequently. At this time there seemed to be tenderness over the region of the bladder and palpation there would increase the severity of his crying. I finally put him in a hot sitz bath, with relief in a few minutes. The frequency of the attacks is variable, sometimes coming on several nights in succession and then going for a week or two before another attack. The day after an attack there is usually a pronounced diuresis. Urinalysis has been consistently negative with specimens taken immediately after the attack, the next morning and at intervals between attacks. The attacks do not seem to be increasing in frequency. I put him on atropine sulfate 1: 1,000, of which he is getting three drops three times a day, with apparent relief. Other than a spasm of the bladder and sphincters, could you give any suggestions as to this case?

M.D., Minnesota.

ANSWER.—Congenital valves are a form of anomaly causing intermittent obstruction of the posterior urethra. They are composed of one or two membranous folds with one end attached to the verumontanum and the other end to the lateral urethral wall. As urine flows from the bladder the folds are ballooned out, causing a diminution of the urethral lumen and hence obstruction. An iris diaphragm, a thin membranous congenital band completely or partially encircling the posterior urethra, can also cause partial obstruction. Posterior urethral obstructions are being described with increasing frequency in young children. They are rarely encountered in girls. They usually become manifest during the first year of life.

Obstruction of the bladder neck also seems to occur as a congenital anomaly as a shelf or bar on the floor of the bladder neck. This is also mostly in males, but symptoms usually appear after 1 year of age.

A bladder stone with intermittent obstruction must also be considered, although it is doubtful whether the urine would remain repeatedly negative.

An ulcerated meatus of the penis from ammoniacal urine might temporarily adhere (fibrin and the like) until the pressure of the urine behind forces the meatal lips open. This could be detected by inspecting the end of the penis.

The other conditions mentioned would require urologic investigation.

COMMUNION CUP AND BACTERIA

To the Editor:—*Has there been any bacteriologic investigation regarding* the common communion cup as used in the Episcopal Churches? I have never heard of any such researches being made, but the practice of *passing the cup from lip to lip certainly stirs the imagination of any* one with a medical training. Whenever I mention the subject, church officials reply "Did you ever hear of an infection from this source?" This unscientific answer does not satisfy me. I still believe that bugs can get by a church door, and that even the most devout may be a host to a Tubercle bacillus—even a spirochete!

W. H. GODFREY, M.D., Toronto, Canada.

ANSWER.—No published report on the survival of bacteria on the chalice used in the Episcopal Church has been found. The possibility of the transmission of infection by this means is not to be *denied, but ancillary evidence suggests that it is* unlikely. The bactericidal activity of some of the heavy metals, or "oligodynamic action of metals," is well known. Copper, silver and gold coins, for example, carry few bacteria and rarely, if ever, function as fomites in the transmission of disease. Furthermore, the bactericidal activity of silver has been utilized, by the German workers in particular, in the disinfection of water by the catadyne process and by filtration through the so-called silbersand filters. The rim of the silver chalice, therefore, unlike that of the drinking glass or china cup, is not an indifferent surface on which the survival time of a microorganism is conditioned by its resistance to drying but is in itself actively bactericidal. After one person has made his communion, the officiating priest wipes the rim of the chalice and rotates it slightly so that the next person puts his lips to an adjoining spot. Commonly from three to five minutes elapses before a particular section of the chalice rim is touched to the lips of a second person. Bacteria that are present are therefore exposed in a thin film of mixed saliva and wine to the polished silver surface for this length of time before they are transferred to the lips of another person. The bactericidal activity of the alcohol present in the wine, even in the fortified wines such as port, is probably negligible. On the other hand, wine in prolonged contact with the chalice may acquire some degree of bactericidal activity, and its dilution with water containing appreciable quantities of residual chlorine may add to its slight germicidal properties. The fact that no epidemic has been traced to the use of the silver chalice is in itself of no little significance and is suggestive of the relative unimportance of the common use of the chalice in the transmission of disease.

ALLERGY TO LIVER PREPARATIONS

To the Editor:—A patient with pernicious anemia is markedly sensitive, allergically, to liver extract. Up to the present time I have tried Lilly's liver extract and the concentrated so-called reticulogen, and a liver extract put out by the U. S. Standard Products Company. About twenty minutes after each injection severe asthma and shock develop. She is, however, able to take liver extract by mouth without developing any allergic reactions, but I have been unable to give her sufficient liver extract to keep up her blood count. Are there any other suggestions as to forms of liver extract that I might use? Would ventriculin used alone be sufficient?

C. G. OCHSNER, M.D., Wabasha, Minn.

ANSWER.—This is a difficult situation. Liver extract from another manufacturer might be tried, preferably a highly refined and concentrated extract. In most cases of this kind, however, the patient is sensitive to all parenteral liver extracts and oral treatment must be used exclusively. Ventriculin alone or oral liver extract alone is usually satisfactory. Perhaps the dose used in this case was not large enough. In some instances spontaneous disappearance of the allergic condition has been noted after a period of months on oral treatment.

STERILIZATION OF PESSARIES

To the Editor:—Can you tell me the best method of *refinishing, sterilizing* and keeping hard rubber pessaries in condition for use? Up to the present I have been keeping them in solution of formaldehyde, but I find that the pessary loses its smooth finish in this solution.

THADDEUS L. MONTGOMERY, M.D., Philadelphia.

ANSWER.—*All pessaries, whether newly purchased or removed* from the vagina of a woman to be used again, should be thoroughly washed with soap and water and soaked in alcohol for a few days. They should then be placed in a sterile container and kept in it until ready to be used. A smooth finish is not essential for the proper functioning of a pessary.

DIET FOR ADDISON'S DISEASE

To the Editor:—With regard to a varied diet for Addison's disease I *have referred to my back numbers of medical journals and have obtained* some valuable information, but the diet suggested in them is quite confining. I would appreciate knowing where I might obtain one which has many more possibilities of a varied bill-of-fare.

R. F. DEARBORN, M.D., Orangeville, Ill.

ANSWER.—Investigations indicate that considerable advantage attends the restriction of potassium in the diets of patients with Addison's disease. To effect this without interfering with the palatability of the diet requires careful planning. Detailed directions for arranging such a diet have been published by Sister Mary Victor of the Department of Nutrition, St. Mary's Hospital, Rochester, Minn. (*J. Am. Dietet. A.*, December 1938). Reprints of the article can be obtained from the author.

INTESTINAL IMPLANTATION OF ACIDOPHILUS BACILLUS

To the Editor:—Please be good enough to outline the best system for implanting the acidophilus bacillus in the intestine. Can this be accomplished satisfactorily without the use of intestinal irrigations? If intes*tinal irrigations should be employed,* would it be satisfactory to have the patient drink 1 quart (1 liter) of isotonic salt solution the first thing in the morning once or twice a week as a substitute for intestinal irrigation?

M.D., New York.

ANSWER.—Acidophilus bacilli may be implanted in the intestine in two ways: They may be given in the form of acidophilus buttermilk or of acidophilus bacilli prepared in some other viable form. The preparation should be taken at least one hour before mealtime. Liquids leave the stomach sooner and the bactericidal action of the gastric juice does not have time to attenuate the organism. Also a glassful of buttermilk may be taken at bedtime.

This growth in the intestine is markedly accelerated if the patient consumes at least 25 to 50 Gm. of lactose a day. If one wants to implant the organism locally into the intestine the

best method is to give an enema with physiologic solution of sodium chloride and after that 1 ounce (30 cc.) of a good viable broth culture, injected by rectal tube with the patient lying on the left side, and then rolling over on the back and then over on to the right side. This should be repeated daily for two weeks, and the cultures may be kept up by mouth for an indefinite time.

If one employs a more vigorous intestinal irrigation this material can be injected at the end of the completion of the irrigation. Finally, patients should be instructed during this time to be on a relatively low protein, high carbohydrate diet.

ELECTRICAL STIMULATION OF BRAIN

To the Editor:—Does psychiatric literature report electrical shock procedures for the treatment of mental disorders? Would it be possible to produce epileptiform attacks by stimulation of the motor area of the brain? Could this area be isolated and stimulated through the skin? Should alternating or continuous current be used and in what strength and in what arrangement? What would be the dangers, contraindications and possible death limit? ERNST FANTL, M.D., Beacon, N. Y.

ANSWER.—There is no electrical shock procedure for mental disturbances. Epileptic attacks can be produced by stimulating the motor area of the brain, but only when the brain is exposed; this is done only for localizing purposes at the time of operation. With the skull intact, this cannot be done with any degree of safety.

NO METHOD TO REDUCE SKIN PIGMENT OF NEGROES

To the Editor:—Has an attempt ever been made to change the color of the skin of Negroes to white, at least the face and hands? What chemicals would have the quality to destroy the melanin without harming the rest of the skin? Could a white skin color be given temporarily or permanently to Negroes? E. FANTL, M.D., Beacon, N. Y.

ANSWER.—There is no known practical method to reduce the quantity of pigment in Negro skin so that the appearance of the skin of a Caucasian is approached. There may be a loss of pigment from patches of the skin in Negroes just as in persons of other races in vitiligo. Rarely this loss may be general. The color of the skin in such instances becomes a dead white. Even blond persons are somewhat pigmented, which gives them a different hue from that seen in vitiligo.

TWINS AND STERILITY

To the Editor:—Is the percentage of sterility greater among twins and if so is it greater among enzygotic or dizygotic twins? M.D., Illinois.

ANSWER.—There is no evidence indicating that human twins are any more or less sterile than singly born persons. The idea about sterility in twins comes from the freemartin situation in cattle. There is no such situation in human beings.

GENITO-ANAL PRURITUS

To the Editor:—About four weeks ago a man aged 34, an office worker, complained of pruritus ani of five days' duration. The anus appeared mildly inflamed, edematous and slightly prolapsed. A tentative diagnosis of beginning hemorrhoids was mentally made. The patient was given suppositories. One week later the pruritus had spread to the scrotum and five days later to the shaft of the penis. The itching was intense. The lesion could be observed on the scrotum and penis. It consisted of a reddened glazed appearance of the skin with slightly elevated, irregularly shaped pinpoint papules. Relief could not be obtained from ammoniated mercury and even ointment of nupercaine liberally applied failed to give the patient comfort. A bath (sitz) in sodium bicarbonate solution caused only smarting and gave no relief. During the past three weeks the itching has awakened the patient three or four times a night. A week ago the pruritus in the anus subsided, as did the itching of the scrotum, and four days ago the itching disappeared from the penis. Two days ago the symptoms recurred in the anus and yesterday all the symptoms returned and there is now itching of the anus, the scrotum, the penis and the groins. Any advice as to diagnosis and treatment will be appreciated. M.D., Pennsylvania.

ANSWER.—From the description given of the original appearance of this patient's anal area it seems reasonable to assume that the condition was an inflammatory response to a local irritant. This may have been of external origin or possibly from the gastrointestinal tract. Infection would be less likely, according to the description. It is entirely possible that continued exposure to an irritant or the treatment may have caused the extension of the dermatitis to the genitalia. Sudden recurrence of the condition supports the probability of an irritant as the cause of the condition, and further extension to the groins might be expected.

Treatment at this stage should consist of the mildest soothing agents available. Hot compresses of boric acid solution for from fifteen to twenty minutes several times a day, with interim application of calamine lotion N. F., plus 0.5 per cent phenol, should afford relief from pruritus and allay inflammation. When the areas become dry, a bland ointment such as zinc oxide ointment or boric acid ointment may be applied.

Meanwhile a painstaking search should be instituted for any possible sources of irritation, including home contacts, hobbies, recreational habits, excursions into the country, self medication for real or fancied anorectal troubles, laxatives or other oral medication, dietary habits, toilet tissues, soaps or other cleansing agents, laundry, clothing and the like.

When the condition has subsided, or sooner if feasible, the possibility of infection may be ruled out by microscopic or cultural investigation.

Council on Medical Education and Hospitals

ADDITIONAL HOSPITALS APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals since the publication of the last previous list in THE JOURNAL, March 11, 1939:

Hospitals Approved for Intern Training

St. Joseph Infirmary, Atlanta, Ga.
Moline Public Hospital, Moline, Ill.
Edward W. Sparrow Hospital, Lansing, Mich.
St. Lawrence Hospital, Lansing, Mich.

Residencies and Fellowships

Leo N. Levi Memorial Hospital, Hot Springs National Park, Ark.
Mixed.
Baptist State Hospital, Little Rock, Ark.
Medicine, Surgery.
Collis P. and Howard Huntington Memorial Hospital, Pasadena, Calif
Medicine.
Denver General Hospital, Denver.
Fractures.
Georgetown University Hospital, Washington, D. C.
Dermatology-Syphilology.
Providence Hospital, Washington, D. C.
Surgery.
Sibley Memorial Hospital, Washington, D. C.
Obstetrics.
Tuberculosis Sanatorium (Glenn Dale, Md., P. O.), Washington, D. C
Tuberculosis.
St. Joseph Infirmary, Atlanta, Ga.
Medicine, Surgery.
Children's Memorial Hospital, Chicago.
Orthopedics.
Grant Hospital, Chicago.
Obstetrics, Surgery.
Mercy Hospital-Loyola University Clinics, Chicago.
Medicine, Obstetrics-Gynecology, Surgery.
Mount Sinai Hospital, Chicago.
Medicine.
Research and Educational Hospital, Chicago.
Anesthesia.
University of Chicago Clinics, Chicago.
Tuberculosis.
Kosair Crippled Children Hospital, Louisville, Ky.
Orthopedics.
Sydenham Hospital, Baltimore.
Communicable Diseases.
Union Memorial Hospital, Baltimore.
Obstetrics.
Massachusetts Memorial Hospitals, Boston.
Urology.
Mary Imogene Bassett Hospital, Cooperstown, N. Y.
Medicine, Surgery.
Charles S. Wilson Memorial Hospital, Johnson City, N. Y.
Pediatrics.
French Hospital, New York City.
Anesthesia, Obstetrics.
New York Polyclinic Medical School and Hospital, New York City.
Gynecology, Medicine.
Watts Hospital, Durham, N. C.
Pediatrics, Urology.
University of Oregon Medical School Hospitals and Clinics, Portland.
Anesthesia, Urology.
Harrisburg State Hospital, Harrisburg, Pa.
Psychiatry.
Friends Hospital, Philadelphia.
Psychiatry.
Temple University Hospital, Philadelphia.
Pediatrics.
Woman's Hospital, Philadelphia.
Gynecology, Medicine, Obstetrics, Surgery.
Medical Arts Hospital, Dallas, Texas.
Mixed.
Mary Fletcher Hospital, Burlington, Vt.
Medicine.
Charleston General Hospital, Charleston, W. Va.
Traumatic Surgery.
St. Francis Hospital, Charleston, W. Va.
Mixed.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, June 10, page 2461.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Medical centers having five or more candidates desiring to take the examination, June 19-21 and Sept. 11-13. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. *Written.* Various places throughout the United States, Sept. 9. Applications must be filed by July 11. *Oral.* Part II. Philadelphia, Oct. 14-15. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Philadelphia, Oct. 30-Nov. 1. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various sections of the United States, Oct. 16 and Feb. 19. Formal application must be received before Aug. 20 for the Oct. examination and on or before Jan. 1 for the Feb. examination. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part I (Group B)* will be held in various cities, Dec. 2. *Part II (Groups A and B)* will be given at Atlantic City, N. J., June 6-8. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* August 5 and April 6. Formal application must be received before July 1 for the August examination and before January 1 for the April examination. *Oral.* Chicago, Oct. 7 and New York, June 10. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Boston, January. *Applications must be filed on or before Nov. 1.* Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 6-7. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Memphis, Nov. 22-23. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: Cincinnati, Nov. 15. Appointments must be made before July 15. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

Arizona January Report

Dr. J. H. Patterson, secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Jan. 4-5, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. One physician was licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Southern California School of Medicine		(1935)	88.4
Chicago Medical School		(1938)	80.4
Rush Medical College		(1936)	87.3
Columbia Univ. College of Physicians and Surgeons		(1930)	85.6

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Nebraska College of Medicine		(1932)	Nebraska

Illinois January Examinations

Mr. Homer J. Byrd, superintendent of registration, Department of Registration and Education, reports the written examination (graduates of foreign schools given also a practical test) held in Chicago, Jan. 24-26, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Seventy-two candidates were examined, sixty-eight of whom passed and four failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Howard University College of Medicine		(1937)	82
Chicago Medical School		(1939)	81*
Loyola University School of Medicine		(1939)	80, 82
Northwestern University Medical School		(1937) (1938)	87, 79, 82, 82, 82, 83, 83, 83, 84, 84, 84, 84, 85, 87, 87, 87*
Rush Medical College		(1936) (1937)	82,* 81, 82, 83, 85, 85, 86, 88
School of Med. of the Division of Biological Sciences		(1937)	86
University of Illinois College of Medicine		(1936) (1937)	78, 87, (1938) 80, 81, 81,* 82, 82, 83, 83,* 84, 84, 85, 85, 85,* 87,* 87, 88
University of Buffalo School of Medicine		(1936)	80
University of Rochester School of Medicine		(1937)	84
University of Wisconsin Medical School		(1935)	76*
University of Toronto Faculty of Medicine		(1937)	82
University of Western Ontario Medical School		(1935)	83
McGill University Faculty of Medicine		(1937)	82, 83
Medizinische Fakultät der Universität Wien		(1925) 76, (1929)	78
Université de Liège Faculté de Médecine		(1934)	79
Deutsche Universität Medizinische Fakultät, Prag		(1929)	81
Université de Nancy Faculté de Médecine		(1936)	75
Université de Paris Faculté de Médecine		(1937)	79
Christian-Albrechts-Universität Medizinische Fakultät, Kiel		(1923)	75
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin		(1922)	77, 80
Julius-Maximilians-Universität Medizinische Fakultät, Wurzburg		(1908)	76
Ludwig-Maximilians-Universität Medizinische Fakultät, München		(1934) 79, (1936)	78
Magyar Királyi Erzsébet Tudományegyetem Orvostudományi, Pecs		(1923)	76
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1936)	77

School	FAILED	Year Grad.
Medizinische Fakultät der Universität Wien		(1923), (1936)
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1933)
State Institute of Medical Science, Leningrad		(1924)

Twenty physicians were successful in the practical examination for reciprocity and endorsement applicants held in Chicago, January 26. The following schools were represented:

School	PASSED	Year Grad.	Reciprocity with
Stanford University School of Medicine		(1931)	California
Keokuk Medical College, College of Physicians and Surgeons, Iowa		(1906), (1907)	Iowa
State Univ. of Iowa College of Med.		(1925), (1934), (1936)	Iowa
University of Louisville School of Medicine		(1934)	Kentucky
Louisiana State University Medical Center		(1937)	Louisiana
Johns Hopkins University School of Medicine		(1923)	Maryland
St. Louis University School of Medicine		(1937)*	Missouri
Washington Univ. School of Medicine		(1933), (1934), (1935)	Missouri
Creighton University School of Medicine		(1934)*	Nebraska
University of Nebraska College of Medicine		(1921)	Nebraska
Western Reserve University School of Medicine		(1914)	Ohio
University of Pennsylvania School of Medicine		(1932)	Minnesota
McGill University Faculty of Medicine		(1922)*	Penna.
Universität Heidelberg Medizinische Fakultät		(1923)	Iowa

School	PASSED	Year Grad.	Endorsement of
University of Michigan Medical School		(1937)*	N. B. M. Ex.

* License has not been issued.

Book Notices

Iodine and the Incidence of Goiter. By J. F. McClendon, Professor of Physiological Chemistry, University of Minnesota, Minneapolis. Cloth. Price, $5. Pp. 126, with 64 illustrations. Minneapolis: University of Minnesota Press; London: Oxford University Press, 1939.

After years of research and travel, Dr. McClendon has compiled, from many sources, a vast fund of information concerning iodine and its relation to the incidence of goiter throughout the world. This book represents a tremendous amount of work both in his iodine determinations in this country and in the statistical research on determinations made elsewhere. He has made available, within a few pages, all recent statistical information concerning the well known goiter regions, together with historical data, personal impressions and letters of scientific observations covering many centuries. Briefly, he has given the geographic distribution of this age old disease. The real value of this book lies in the seventy-nine carefully prepared tables and the splendid maps and illustrations. These cover the sources of iodine throughout the world, the variations in iodine content in fruits, grains and vegetables grown in various locations and the concomitant incidence of goiter. This material is vivid and concise and should serve as valuable reference material as to both the distribution of iodine and the incidence of goiter. The treatise on the determination of iodine is excellent and the author's method of determination is still widely used. His original investigations, from 1920 to 1924, on water analysis to determine the available iodine in any community, gave scientific support to the goiter prevention movement. The theory of iodine deficiency is the basis of this prophylactic measure. His efforts in getting accurate data, showing the distribution of iodine throughout this country and obtaining the best authoritative determinations from many lands, are a definite contribution. In general they show as nothing else could the correlation of the deficiency of iodine and endemic goiter.

Allgemeine und besondere urologische Diagnostik beim Jungkind. Von Prof. Dr. C. Noeggerath, Leiter der Universitäts-Kinderklinik in Freiburg i. Br. Die Urologie in Einzeldarstellungen. Herausgegeben von Professor Dr. H. Boeminghaus. Boards. Price, 2 marks. Pp. 32. Leipzig: Georg Thieme, 1939.

This article deals with general and special urologic diagnosis in the case of children. A brief historical review of the subject is presented. It is interesting to note the statement that the year 1929 marked the birth of real interest in this subject in Germany, which began with the use of intravenous urography. Interest has been keen and widespread in the United States for the last thirty years. The author thinks the hesitation to develop the field of urology with reference to children was due probably to the fear of the child and his reaction to instrumentation. The difficulty in focusing attention on the urinary tract has been emphasized many times by many authors, and Noeggerath, as others have done, mentions the fact that the general symptoms are often difficult to interpret and often lead one astray. Attention is called to the fact that severe disease of the urinary tract may be present without either local or general symptoms. Acute pyuria is often confused with grip. During the early stages urinary evidence may be absent. The author points out that tumors in children have no localizing symptoms for a long time, that cachexia occurs very late in the course of the disease and that hematuria is uncommon. Pain and urinary symptoms are difficult to evaluate in the first two or three years of life. Attention is called to the fact that severe pyuria is often present without fever. The various special methods of examination are considered in a systematic manner, the author taking up in turn routine x-ray films, intravenous pyelograms, instrumental examination of the urethra and bladder with sounds and bougies, cystoscopic examination, ureteral catheterization and retrograde pyelograms. The limitations and technical difficulties are stressed. Although he mentions surgical exploration and discusses it briefly, the procedure is rarely employed in this country today. The author emphasizes the great importance during these various examinations of keeping the child warm, a point that is often overlooked. The younger the child the more care should be taken to protect it against the loss of body heat. The subject of anesthesia is discussed briefly. The author does not believe that patients with acute involvement should automatically be examined with instruments, because so many of them recover. Many acute attacks of pyuria run their course in six or eight weeks. The subject of chronic pyuria is fully discussed. The author makes a strong plea for early diagnosis, for only by this means can early treatment be instituted. The necessity for teamwork between practitioner, pediatrician and urologist is emphasized.

Fundamentals of Dentistry in Medicine and Public Health. By John Oppie McCall, D.D.S., F.A.C.D., Director, The Murry and Leonie Guggenheim Dental Clinic, New York City. With a foreword by Wilson G. Smillie, M.D., Professor of Public Health and Preventive Medicine, Cornell University College of Medicine, New York. Cloth. Price, $2.75. Pp. 161, with 50 illustrations. New York: Macmillan Company, 1938.

There is but little justification for the hearty and generous endorsement of this book included with other matter in the foreword. The crude drawing reproduced in figure 1 is perhaps symbolic of the work as a whole. This is a longitudinal and not a "cross section"; even a hasty comparison of it with the very accurate illustration of a similar tooth section in the Spalteholz Anatomy (vol. 3, p. 485) reveals its many serious inaccuracies. A satisfactory presentation of the relationships of the teeth to the jaw structures cannot be shown in a single illustration. Cross sections of tooth roots could have been used advantageously, as well as illustrations depicting the position of the tooth roots with reference to the maxillary sinus, the mandibular canal and the mental foramens. Debatable concepts are introduced as accepted facts, such as that hypoplasia of deciduous teeth is a relatively common occurrence, that Hutchinson's teeth are considered a reliable index of hereditary syphilis and that impacted teeth are primary foci of infection. The choice of authorities cited is questioned on the basis both of omission and of inclusion. On the other hand, some of the illustrations are excellent, notably those taken from Kronfeld and many of the reproductions of roentgenograms. Of the twelve chapters, the first four are concerned largely with the anatomic and embryologic background, the next three with dental caries and related matter, the next three with pyorrhea, gingivitis and focal infection, and the last two with the economic and social aspects of dental practice and dental disease. On the whole this book in its present form cannot be recommended for use by physicians and medical students, even though its many obvious defects are in part balanced by the generally excellent chapters on focal infection, dental care for special groups and dental disease with reference to public health.

Sensible Dieting and the Engel Vital Calorie Diets. By William Engel, M.D. Cloth. Price, $2.50. Pp. 408. New York & London: Alfred A. Knopf, 1939.

In the foreword the author defines himself as "father of a hornet's nest of fads" and accidentally the formulator of the "Hollywood diet." The book is readable if one can tolerate the nonsense neatly sandwiched in. The newly propounded concepts are not only without sound physiologic basis but are in many instances definite misstatements. If taken seriously by intelligent adults, the volume is apt to upset their faith in medical science.

"It is true that shortly after drinking a glass of water the weight may be increased by as much as a pound, but this increase is only temporary" (page 79). Who could be so gullible as to think that "shortly after drinking a glass of water the weight may be increased by as much as a pound"? Is it not still true that "a pint's a pound the world around?" If ingestion of 8 ounces of water results in a one pound increment of weight, why is the effect not immediate rather than "shortly"? "Her loss of weight was so rapid that she became the talk of Hollywood. 'How do you do it?' she was asked by her movie colleagues. 'Simple,' said she; 'I eat lamb chops and pineapple.' The words spread like magic. Few thought it worth noticing that the girl had also been admonished to drink one to three quarts of water before each meal to ease the kidney strain of her high protein diet" (page x). According to what physiologist is one "admonished to drink one to three quarts of water before each meal to ease the kidney strain of a high protein diet," which in the instance cited consisted of "lamb chops and pineapple"?

"Incidentally, a glass of beer contains only 40 to 60 calories while a drink of liquor or a cocktail contains 300 to 450. So beer, much like water, is not fattening between meals, but is very much so between mouthfuls" (page 16). How comes it that beer (erroneously stated to contain "40 to 60 calories"—actually an 8 ounce glass rates 100 calories) "much like water, is not fattening between meals, but is very much so between mouthfuls"?

Even the veriest tyro might wince at the chemical nightmare that stalks through the book. "Starch and water are the chemical equivalent of fat. That is why it is not good to drink water with your meals" (pages 15 and 55). "In any event minimize this danger by toasting your bread and baking your potatoes. This converts the starch into dextrose—the first process of digestion—thereby avoiding the fat-producing danger of undigested starch and also, happily, reducing the calorie content by 40 per cent" (page 16). According to reputable analysis, a slice of white bread weighs 25 Gm. and furnishes 65 calories; toasted it loses 8 Gm. of water, which reduces its caloric content not one whit. But then the adherent of "Sensible Dieting" would not be eating white bread, since it "is neither an energy food nor a body-building food. It is deficient in every dietary factor except starch" (page 32). He (or, more probably, she) would be devouring whole wheat bread, since it is calculated to make one successful in love (page 61).

"Acids like tomato juice and citrus fruits are, paradoxically, alkaline in reaction, if taken at the beginning of a meal. This is because their presence in the stomach inhibits the flow of the acid gastric juices. In other words, they alkalize in a negative way by preventing over-acidity. At the end of a meal, however, these fruits are acid in reaction because they merely add acid to a stomach already amply acidified" (page 38). For the enlightening of the author, neither tomato juice nor citrus fruits are alkaline, having a p_H ranging from 4.0 to 4.3 and 2.0 to 4.0 respectively.

"Roast beef is equally digestible whether rare, medium, or well done. Hamburger steak and stewed, dried, and corned beef are digested as quickly as roast beef, but produce more

acidity" (page 39). This must be some new propaganda. "Meat has sixteen amino acids. Cheese has ten fatty ones. These two groups of acids are incompatible. When mixed in the stomach they cause gas, distention, and acute digestive distress" (page 36). This is plain misstatement.

"In simpler terms, meat once a day (the average portion contains 3.5 ounces of proteins) with the usual amount of milk, eggs, and vegetables, is ideal" (page 47). If one accepts the average portion of meat to contain 3½ ounces of protein, it must be assumed that the individual is to eat pretty close to three fourths of a pound of meat a day. The high protein protagonist should feel elated with the author's recommendation, for if 100 Gm. of protein is to come from the meat it will be very easy to have an intake of 150 Gm. or more when the protein of eggs, vegetables and milk is computed.

"Calcium deficiencies may exist for many years before making themselves evident in nervous disorders. That makes it imperative for adults as well as children to include rich calcium foods—especially milk—in their daily diets. Not only is the milk the richest of calcium foods, but the body absorbs more calcium from milk than from vegetables of equal calcium content" (page 51). Contrary to the popular conception, milk is not a rich source of calcium, as it ranks about twenty-eighth in a list of foods highest in calcium. Milk, however, is an excellent vehicle for calcium, as its volumetric ingestion is so large.

"The danger for the reducer is more one of deficiency because virtually all fad diets omit those essential calcium foods, milk, cream, and cheese" (page 52). Cream is never considered rich in calcium.

"Also it develops a thirst for water, which when taken during meals, as previously explained, combines with starch to make body fat" (page 55). This appears to exploit some of the author's newer chemistry. "But prolonged heating in open pots destroys A and C, changes B into G, does not affect D, E, and G. B, C, and G are soluble in water" (page 58). To date there is no evidence that vitamin B can be changed into vitamin G. This change would be similar to transmutation of metals. "That is why milk is called the perfect food, and eggs are near perfect" (page 71). The reviewer is not familiar with the fact that eggs are a "near perfect" food. "If the extent of acidosis is carefully watched, short repeated fasts may be safely used in the reduction of obesity" (page 87). Such a proposed practice must be heartily condemned.

At least the reader might expect the author of a book on dieting to know that the small calory of physics is not the calory of the nutritionist.

Appended to the volume is a 100 calory portion food table which is full of inaccuracies.

No reviewer would be permitted space enough to justify these diatribes, but the book is limitless in its supply of objectionable or ludicrous data. One wonders what reservoir of knowledge could have been tapped to provide the "facts" which course through the ninety-eight pages of continuity. Neither the 280 pages of diets nor the appended 100 calory portion food table can be commended. No semblance of bibliographic data is presented to substantiate the bizarre "facts."

Medizinische Praxis: Sammlung für ärztliche Fortbildung. Herausgegeben von Prof. Dr. L. R. Grote, leitender Artz der medizinischen Klinik des Rudolf-Hess-Krankenhauses Dresden, Prof. Dr. A. Fromme, Direktor der chirurgischen Abteilung des Stadtkrankenhauses Dresden-Friedrichstadt und Prof. Dr. K. Warnekros, Direktor der staatlichen Frauenklinik zu Dresden. Band XXVII: Die peripheren Durchblutungsstörungen. Von Dr. med. habil. *M. Ratschow, Dozent für Innere Medizin a. d. Martin-Luther-Universität Halle a. S.* Mit einem Geleitwort von Prof. Dr. R. Cobet, Direktor der medizinischen Universitäts-klinik Halle a. S. Paper. Price, 9.75 marks. Pp. 193, with 46 illustrations. Dresden & Leipzig: Theodor Steinkopff, 1939.

This is the twenty-seventh volume of a series of monographs written for the general practitioner. It is the first German treatise on the disturbances of peripheral circulation and, as the author himself has stressed, leans heavily on Sir Thomas Lewis's classic description of the vascular disorders of the limbs. It is a short concise exposition of the present day status in this field. Certain statements may seem stimulating or controversial to the American reader, such as that large epidemics are followed by a marked increase in Buerger's disease, that insulin produces vasospasm, edema and hemorrhages and that lack of the insulin-free pancreatic extract may be the cause of the peripheral circulatory failure in diabetes, that small doses of ergotamine (0.05 mg.) are useful in the treatment of vasospasm, that large doses of androgenic and estrogenic substances are to be administered to men and women respectively for their vasodilating effect, that procaine acetylcholine infiltration of gangrenous parts gives relief from pain and that irradiation of sympathetic ganglions has a beneficial effect on peripheral circulation. The author is best known from his extensive studies on the visualization of blood vessels, and many excellent films are shown. He is not afraid of colloidal thorium dioxide, like several men in this country, but all the late effects of this radioactive substance have not been reported. The general practitioner has nothing to gain from a perusal of this monograph, as there are excellent books on peripheral circulation in English. For the man interested in this field it will give a somewhat rigid, dogmatic exposition of nothing new on the subject.

Diet Manual of the Mount Sinai Hospital, New York City. Third edition. Paper. Pp. 131. New York, 1939.

This loose leaf manual of the diets used at Mount Sinai Hospital, New York, is printed in readable type with wide margins. It includes height and weight tables and a table of the approximate measures of numerous foods that make up 100 Gm., with the number of calories for each food and the percentage of carbohydrate, protein and fat. Among the many diets outlined, with rules for using them, are the low calory diet, high calory diet, Sippy diet, low residue diet, low salt diet, alkaline-ash diet, elimination diets, diabetic diets and infant feeding diets.

Occupation Hazards and Diagnostic Signs: A Guide to Impairments to be Looked for in Hazardous Occupations. (Revision of Bulletin No. 306.) By Louis I. Dublin, Ph.D., Third Vice President and Statistician, and Robert J. Vane, Supervisor of Occupational Ratings, Metropolitan Life Insurance Co. United States Department of Labor, Bureau of Labor Statistics, *Bulletin No. 582. Paper. Price, 10 cents. Pp. 52. Washington, D. C.: Supt. of Doc., Government Printing Office, 1933.*

The third edition of this bulletin has been reissued to meet a steady demand. Nine hundred occupations, actually or potentially hazardous to the health of workers, are listed alphabetically. The hazards themselves are arranged according to a useful classification whereby symptoms, occupations in which they occur and methods of prevention are correlated. There is also a partial list of skin irritants identified with certain occupations. Physicians will find it time saving to consult this useful compilation as an introduction to more extended treatment in the standard textbooks on industrial health in the study of cases in which occupation is suspected as a contributor to poor health.

Hospital Libraries. By E. Kathleen Jones. Cloth. Price, $2.50. Pp. 208, with 8 illustrations. Chicago, Illinois: American Library Association, *1939.*

This book is designed especially for younger hospital librarians with the hope that it may solve some of their problems and guide them in their service to the medical and nursing professions as well as in the service of those patients who require "bibliotherapy." In discussing books and therapy, the author suggests excluding certain types of books, and to do this the hospital librarian must have the interest and cooperation of the physician, the occupational therapist and the medical social worker. Interloan services between hospital and other libraries in the community are described. After a full discussion of the organization of hospital libraries, the author emphasizes the importance of professional libraries and the physician's greater reliance on current periodicals rather than on books. She also stresses the need for indexes, notably the *Quarterly Cumulative Index Medicus.* The development of hospital libraries and their present and future importance apparently depends on recognition of the fact that trained library personnel is the first essential of a useful library, whether it is situated in a hospital or elsewhere. The appendixes will be helpful to librarians.

Beauty Plus: The Smart Woman's Key to Beauty, Health and Charm. By Mary MacFadyen, M.D. Cloth. Price, $1.96. Pp. 272, with illustrations by Frank N. Netter, M.D. New York: Emerson Books, Inc., 1938.

The author of this volume seems to have caught the idea of making sound hygiene attractive. The book is cleverly illustrated and is a most interesting volume of general advice for women on health, beauty, recreation and the sex life.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Hospitals: Liability for Injury to Patient from Fright Caused by Defective Electric Fan.—In a suit against the defendant, a hospital operated for profit, the patient in her petition alleged that, as the result of fright and shock caused by the flying apart and "exploding" of a defective electric fan in the room occupied by her at the hospital, she suddenly jerked or jumped in bed, tearing out the sutures which had been inserted in an operation for "an abscessed fistula in ano." Her petition alleged further that, as a result of the defendant's negligence, there developed an infection at the site of the operation, a recurrence of the fistula necessitating further surgical treatment, and also a focal infection of her kidneys, known as Bright's disease, with associated impairment of her eyesight. The trial court dismissed her petition as not stating a cause of action but, on appeal, the court of appeals of Georgia, division 1, reversed the judgment of the trial court. In holding that the petition did state a cause of action, the court of appeals said that a hospital conducted for private gain owes its patients the duty of exercising in their behalf "such reasonable care and attention for their safety as their mental and physical condition if known may require."—*Garner v. Newnan Hospital (Ga.), 198 S. E. 122.*

Workmen's Compensation Acts: Incapacity Due to Tuberculosis Following Trauma.—The employee in this case had had tuberculosis for many years but, according to his petition, "it had caused him no trouble or discomfort." In the course of his employment in 1933 he fell against a ladder and, as a result, he claimed, his tubercular condition was activated to such an extent that, two years later, he became totally incapacitated. He filed a claim for compensation under the Texas workmen's compensation act which was disallowed by the industrial accident board. The district court on appeal entered a judgment in the employee's favor and the employer's insurer appealed to the court of civil appeals, Texas.

There was no evidence, the court said, to warrant the inference that the employee's tubercular condition was no longer active at the time of the accident. Since it was admitted that the employee had had active tuberculosis prior to the injury and that approximately two years after the injury he had "tuberculosis in a far advanced state," there existed a presumption that the disease had continued from long prior to the injury. When tuberculosis is authentically established, the court pointed out, it is presumed to continue until rebuttal evidence is produced, or an occasion arises for the application of a contrary presumption. The presumption to which the employee's own pleading and evidence gave rise, that is that he had active tuberculosis from long prior to his injury, was, the court said, rebuttable but there was no evidence tending to rebut the presumption. The testimony of one physician was supposed to have a bearing on this point and to be favorable to the employee. His testimony, however, was based on the assumption that at the time of the accident the employee "was strong and healthy." Such an assumption was unsupported by evidence. With the fact presumed against the employee that he had active tuberculosis at the inception of the injury, the conclusion seemed inescapable to the court that there was a total absence of evidence to raise an issue of the fact that but for the accidental injury the employee's incapacity from tuberculosis would not have resulted.

The court disclaimed any intention of holding that, if the employee already had active tuberculosis at the time of his injury, the fact that his subsequent incapacity resulted from tuberculosis would, as a matter of law, show that he had no right to compensation. On the contrary, the law was recognized to be that recovery of compensation will not be denied "although it may appear that the injury received was aggravated by the effect of some disease existing at the time of the injury or occurring afterwards." *Guzman v. Maryland Cas. Co.* 107 S. W. (2d) 357. The question before the court was one not of law but of the existence of evidence to warrant a particular finding. The employee had the burden of showing by a preponderance of the evidence that the incapacitating tuberculosis was a part of his accidental injury, which of course the tuberculosis he already had at the time of the injury was not. According to his testimony, it was "three or four months" after the accident that he noticed a little hacking cough. That was also after he had undergone a herniotomy. It was not even shown, the court pointed out, that the employee had not taken ether in connection with the herniotomy. There was simply no evidence that the court could find tending to differentiate disease which was no part of the alleged injury from disease which was a part of such injury. Every fact in evidence, the court concluded, which might indicate that the accident had any influence whatever on the preexisting disease seemed equally referable to the natural progress of the disease.

For the reasons stated, and for the further reason that the employee had failed, without legal excuse, timely to file his compensation claim, the judgment of the district court for the employee was reversed.—*Safety Casualty Co. v. Walls (Texas), 117 S. W. (2d) 879.*

Taxes: Validity of Municipal Occupational Tax.—The City of Tampa, Fla., in exercise of power granted to it by its charter to license professions, businesses and occupations, imposed by ordinance an annual license tax of $60 on physicians and certain other professions. Subsequently, a state statute was enacted imposing an annual state license tax of $10 on professional men and, except as otherwise provided or authorized by law, imposing an additional county tax of 50 per cent of the state tax and authorizing incorporated cities and towns to impose further license taxes not to exceed 50 per cent of the state tax. The state, on the relation of certain persons engaged in the practice of medicine, law and certain other professions in the city of Tampa, brought original proceedings in the Supreme Court of Florida for a writ of mandamus to require the city tax collector to issue occupational licenses to the relators on the payment of $5 each or 50 per cent of the $10 state license tax, claiming that the state statute prohibited the city from imposing any license tax on the practice of the several professions in excess of $5 per annum. The Supreme Court, however, held that the legislature, by enacting the state statute, had not intended to repeal the prior city ordinance imposing the municipal license tax of $60 passed pursuant to authority conferred by the city's charter. In the judgment of the court, the state statute was intended only to place a limit on license taxes in those municipalities not already authorized by law to impose a greater tax. Accordingly, the petition for a writ of mandamus was denied.—*State ex rel. Holloway et al. v. Keller (Fla.), 182 So. 779.*

Society Proceedings

COMING MEETINGS

American Association for Thoracic Surgery, Los Angeles, July 5-7. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Physiotherapy Association, Denver, June 25-30. Mrs. Eloise T. Landis, 2065 Adelbert Road, Cleveland, Secretary.

American Proctologic Society, Brooklyn, N. Y., June 25-27. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

Maine Medical Association, Poland Springs, June 25-27. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.

Medical Library Association, Newark, N. J., June 27-29. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Montana, Medical Association of, Butte, June 28-30. Dr. Thomas L. Hawkins, 50 North Main St., Helena, Secretary.

National Tuberculosis Association, Boston, June 26-29. Dr. Charles J. Hatfield, 50 West 50th Street, New York, Secretary.

Pacific Coast Oto-Ophthalmological Society, San Francisco, June 19-22. Dr. C. Allen Dickey, 450 Sutter St., San Francisco, Secretary.

West Virginia State Medical Association, White Sulphur Springs, July 10 12. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Surgery, New York

41: 1-336 (April) 1939. Partial Index

Varieties of Thrombophlebitis of the Limbs: Their Origin, Course and Treatment. J. Homans, Boston.—p. 3.
Surgical Treatment of Varicose Veins and Ulcers by Segmental Sclerosis, with Discussion of Effect on Peripheral Arterial Disease and General Circulation. G. H. Pratt, New York.—p. 31.
Diabetic Gangrene: Clinical Problem. L. S. McKittrick, Boston.—p. 46.
Problems of Pain Reference to Extremities: Their Diagnosis and Treatment. T. Fay, Philadelphia.—p. 52.
Nonoperative Procedures for Relief of Lumboscintica. W. M. Steel, Philadelphia.—p. 76.
*Dashboard Fractures of Patella. C. F. Ferciot, Lincoln, Neb.—p. 139.
Role of Coracoclavicular Ligaments in Affections of Shoulder Girdle. F. Liberson, New York.—p. 145.
Cardiovascular Complications of Fracture. L. B. Laplace, Philadelphia.—p. 161.
Treatment of Fractures of Patella. J. A. Key, St. Louis.—p. 166.
Treatment of Acute Staphylococcic Suppurative Arthritis. R. L. Preston, New York.—p. 195.
Orthopedic Considerations in Treatment of Arthritis. W. T. Green, Boston.—p. 201.
Management of Postural Deformities of Lower Extremities. E. C. Myers, New York.—p. 232.
Tendon Transplantation in the Upper Extremity. A. Steindler, Iowa City.—p. 260.
Tenotomy, Its Indications and Technic. J. T. Rugh, Philadelphia.—p. 272.
The Place of the Biopsy in Diagnosis and Treatment of Tumors and Tumor-like Lesions of Extremities. L. W. Smith, Philadelphia.—p. 293.
Disturbances of Metatarsal Arch and Aid to Certain Static Foot Conditions. P. Lewin, Chicago.—p. 305.
Cutaneous Diseases of Extremities and Their Relation to Surgery. C. S. Wright and J. P. Guequierre, Philadelphia.—p. 322.

Dashboard Fractures of Patella.—After reviewing twenty-six cases of severe injury to the patella, Ferciot is impressed with the thought that the function of the patella in protecting the extensive articular cartilage of the lower end of the femur from direct trauma deserves more consideration than it has been accorded. Projecting forward as it does in the intercondylar space, the patella forms an excellent buffer mechanism for the knee joint, particularly in the flexed position. Without its protection, a large portion of the articular surface of the femur would be exposed to the insult of repeated injury. The fact that this bone exhibits extremely low reparative powers lends further credence to the impression that its function is largely protective and that it has been adapted to perform this function. If it possessed high osteogenic powers, the repeated trauma to which it is continually subjected would result in extensive proliferative changes, which would soon have a deleterious effect on the knee joint itself. In the present series twenty of the twenty-six cases could be traced. In six cases treated by external fixation the period of disability averaged 10.65 weeks. Of the six treated by open operation and fixation the average period of disability was 17.65 weeks. In the eight cases of comminuted fractures treated by excision and primary suture of the remaining fragment to the extensor apparatus, the average disability was 10.75 weeks. All of the six cases treated by casts alone had good functional results, of those treated by open reduction and fixation four had good results and two only fair, and of the eight cases of comminution treated by excision and primary suture all showed good end results. In no instance was it felt necessary to excise the entire patella, although in certain cases of severe comminution this procedure might be warranted. Proper after-care is of the utmost importance. The presence of the patella, although adding little to the mechanical efficiency of the knee, exerts a beneficial protecting influence and its preservation is urged whenever possible. Excision of fragmented portions of the bone, followed by suture of the extensor ligaments to the remaining fragment, retains this protective function and shortens the period of disability that follows dashboard fractures.

Archives of Internal Medicine, Chicago

63: 609-812 (April) 1939

*Tuberculosis of Tonsils: Its Incidence and Origin. E. R. Long, Mabel V. Seibert, Philadelphia, and L. M. Gonzalez, San Juan, Puerto Rico.—p. 609.
Chronic Progressive Occlusion of Inferior Vena Cava and Renal and Portal Veins, with Clinical Picture of the Nephrotic Syndrome: Report of Case, with Review of Literature. H. A. Derow, M. J. Schlesinger and H. A. Savitz, Boston.—p. 626.
Tense Pneumothorax: Treatment of Chronic and Recurrent Forms by Induction of Chemical Pleuritis. H. Hennell and M. F. Steinberg, New York.—p. 648.
*Sedimentation Rate and Nonfilament-Filament Ratio in Low Grade Chronic Illness: Statistical Analysis of 292 Cases. M. H. Stiles, Philadelphia.—p. 664.
Evaluation of Concentration of Serum Sulfate. E. G. Wakefield, M. H. Power and N. M. Keith, Rochester, Minn.—p. 679.
Masculinoblastoma: Primary Masculinizing Tumor of the Ovary (So-Called Large Cell Variety—Hypernephroid—Luteoma). A. Rottino and J. F. McGrath, New York.—p. 686.
Precordial Lead. I. Findings for Patients with Normal Hearts and Those with Heart Disease Other Than Myocardial Infarction. R. W. Robinson, Worcester, Mass.; A. W. Contratto and S. A. Levine, Boston.—p. 711.
Id. II. Findings for Patients with Myocardial Infarction. A. W. Contratto, Boston; R. W. Robinson, Worcester, Mass., and S. A. Levine, Boston.—p. 732.
*Effect of Benzedrine Sulfate on Gastric Emptying and Intestinal Activity. K. H. Beyer and W. J. Meek, Madison, Wis.—p. 752.
Nephrosis Due to Carbon Tetrachloride. H. Smetana, New York.—p. 760.
Liver and Biliary Tract: Review for 1938. C. H. Greene and R. Hotz, New York.—p. 778.

Tuberculosis of Tonsils.—Long and his associates examined microscopically for tuberculosis 2,000 unselected pairs of tonsils surgically removed. One half of these tonsils came from various Indian reservations, known to be communities of high tuberculosis morbidity; 600 from Puerto Rico, a region with much tuberculosis but of a lower morbidity than that of the Indian reservations, and 400 from Philadelphia, a community of low tuberculosis morbidity in comparison with the other two. Tuberculosis was found in eighty-one pairs of tonsils; that is, tuberculous tonsils were found in 6.5 per cent of the tonsils from the Indian reservations, 2.5 per cent of those from Puerto Rico and 0.25 per cent of those from Philadelphia. Roentgenograms of the chest were secured in thirty-five of the eighty-one instances in which tonsillar tuberculosis was present. Active pulmonary tuberculosis of the adult type was found in sixteen and active tuberculosis of the childhood type in two. In general, the tonsillar lesions in this group were cryptal and were more extensive than those in the rest of the thirty-five cases; on the basis of pathologic appearance the tonsillar tuberculosis was believed to have resulted from direct infection by the bacilli contained in the sputum from the associated pulmonary lesion. All stages of regression of tonsillar tuberculosis from active fibroplastic disease to scars indistinguishable from scars of other origin were seen in the series. The relatively massive tuberculosis of the tonsils in cases of pulmonary tuberculosis, its tendency to be bilateral and its chronicity all point to repeated infection of the tonsils in the course of the pulmonary disease. There is reason to believe that at some time or other the majority of patients with progressive pulmonary tuberculosis, if not all of them, have tuberculosis of the tonsils.

Sedimentation Rate in Chronic Illness.—Stiles observed the sedimentation rate and nuclear count of 292 patients with chronic or frequently recurring symptoms which were suspected of being secondary to low grade chronic infection. Of this number 277 showed evidence of either chronic sinusitis or chronic nasopharyngitis. There were fifty-two patients with chronic bronchitis, seventy-five with symptoms referable to the biliary tract, seventy-eight with gastrointestinal conditions, thirty-six with symptoms referable to the urinary tract, forty with arthritis and thirty-six with "rheumatism." The mean sedimentation rate (Westergren) for all patients was 15.9 mm.; the mean nonfilament-filament ratio was 25.2. The mean sedimentation rate for women was higher than that for men, but there was no variation in the nonfilament-filament ratio. There were no

significant variations when the sedimentation rates and nonfilament-filament ratios were distributed according to age (the extremes in the patients examined were 2 and 80 years), except for a possibly significant increased sedimentation rate in the group of patients more than 60 years of age. When the changes found were distributed according to disease, there were only questionable variations, except for colitis (high nonfilament-filament ratio), duodenal ulcer (low sedimentation rate) and rheumatoid arthritis (high sedimentation rate and nonfilament-filament ratio). When the observations were distributed according to severity of symptoms, there was a direct relationship; as symptoms increased the sedimentation rate and nonfilament-filament ratio increased. When symptoms were more or less acutely exacerbated the nonfilament-filament ratio was high, but the sedimentation rate was relatively low. The nonfilament-filament ratio appears to be a more sensitive indicator of the presence of disease than the sedimentation rate, although the readiness of its response to acute exacerbation makes the finding of an increased sedimentation rate of more significance in the diagnosis of chronic illness than the finding of an increased nonfilament-filament ratio.

Amphetamine Sulfate and Gastrointestinal Activity.—Beyer and Meek present studies concerning the influence of amphetamine on the initial and final gastric emptying in ten medical students and evidence from animal experimentation on the manner in which this effect is produced. In man amphetamine sulfate was found to decrease the time for initial emptying of the stomach to about 42 per cent of the observed normal and to increase the average time for final emptying 21 per cent. The decrease in the initial emptying time of the normal stomach following administration of amphetamine is probably due to the primary increase in tonus and activity of the stomach raising intragastric pressure and forcing the contents through a pylorus the tonus of which, if altered by the drug, may relatively be only slightly increased, rhythmicity being correspondingly diminished. The delay in final emptying is due to secondary inhibition of the stomach and possibly increased pyloric tonus. While the stomach does not fully recover from the secondary inhibition for more than an hour, final emptying is not prolonged to a significant extent. Only by using excised intestinal strips and concentrations unapproachable in the normal animal could any effect of the drug on the intestine be demonstrated. The results suggest that what value amphetamine has in overcoming functional pylorospasm of a moderate degree is probably due to initial gastric stimulation overcoming pyloric resistance rather than to any direct inhibiting effect on pyloric tonus.

Archives of Neurology and Psychiatry, Chicago

41: 659-870 (April) 1939

Vascular System of the Human Spinal Cord. T. H. Suh and L. Alexander, Boston.—p. 659.
Sulcal and Intrinsic Blood Vessels of Human Spinal Cord. R. Y. Herren, Rochester, N. Y., and L. Alexander, Boston.—p. 678.
Foerster's Scheme of the Dermatomes. F. A. Fender, San Francisco. —p. 688.
Scapuloperoneal Amyotrophy. S. Davidenkow, Leningrad, Soviet Union. —p. 694.
*Treatment of Disturbed Patients with Sodium Chloride Orally and Intravenously in Hypertonic Solutions. K. M. Bowman and S. Keiser, New York—p. 702.
Art of Psychotic Persons: Restraint-Activity Index and Its Relation to Diagnosis. P. G. Schube and J. G. Cowell, Boston.—p. 711.
*Tremor: Physiologic Mechanism and Abolition by Surgical Means. P. C. Bucy and T. J. Case, Chicago.—p. 721.
*Picrotoxin as Convulsant in Treatment of Certain Mental Illnesses. A. A. Low, M. F. Blaurock, M. Sachs, C. Wade and E. Ross, Chicago. —p. 747.
Mental and Physical Growth in Pubertas Praecox: Report of Fifteen Years' Study of Case. A. Gesell, H. Thoms, F. B. Hartman and Helen Thompson, New Haven, Conn.—p. 755.
Chronic Progressive Degenerative Encephalopathy: Clinicopathologic Study of Unusual Case of Schilder's Disease. N. W. Winkelman and M. T. Moore, Philadelphia.—p. 773.
Facial Paralysis in Cephalic Tetanus. A. L. Watkins, Boston.—p. 788.
Rapidly Fatal Pontile Hemorrhage: Clinical and Anatomic Report. S. Kornyey, Szeged, Hungary.—p. 793.
Argyll Robertson Pupils in Alcoholism. M. Herman, New York.—p. 800.

Treatment of Disturbed Patients with Sodium Chloride.—By the use of sodium chloride, either by mouth or by intravenous injection of physiologic or hypertonic solutions and by forcing fluids, Bowman and Keiser have been able to decrease the death rate of excited and disturbed patients with mental disease. Patients with both organic and functional disturbances and alcoholic delirium were treated. This method of treatment also shortened the period of excitement. Fever due to dehydration was prevented or successfully treated by this method. In considering how to treat these patients, the authors decided that edema of the brain, which is present at times, should be disregarded and that treatment should be only for acidosis and dehydration. Fluids were forced and the patients were given 1 Gm. capsules of sodium chloride every four hours to help retain the fluids. Fluids were forced in the form of orange juice, with one tablespoonful of sucrose to each glassful. In a period of six months prior to this form of treatment there were ninety-two cases of alcoholic delirium, in sixteen of which death resulted from alcoholism. During the following eight months all alcoholic patients in the ward for disturbed patients were treated with capsules of sodium chloride and orange juice and of thirty-seven cases of delirium there were three deaths due to alcoholism. During the following four months the authors gave the treatment on alternating weeks to the alcoholic patients admitted. During the weeks when patients were not treated with sodium chloride they were subject to ward routine and fluids were forced. Among the treated patients there were no deaths, and of the untreated patients two died. In the untreated patients the average time required for the delirium to clear was six days during the first period of control and four days during the second period of control, whereas the treated patients required an average of 2.5 days. The authors' rationale for treatment with salts and fluids was based on the fact that the patients were suffering from systemic acidosis and dehydration. Patients fed by mouth instead of intravenously do better and there is no danger to the circulatory system; but, if patients remained uncooperative, medication was employed and the fluids were given through a Levine tube. The patients who recovered included those who were admitted with temperatures as high as 105 and 106 F. Of twenty-two patients with dehydration due to schizophrenia, manic-depressive psychosis and dementia paralytica not given the authors' treatment eight died, but of fourteen patients with similar conditions given two capsules of sodium chloride every four hours and physiologic solution of sodium chloride none died. The average duration of fever in these patients, on the basis of one reading a day, was 1.5 days. In another group of thirteen patients who had fever due to dehydration, the average duration of the fever was 1.7 days. Of these patients, eight had fever on admission and three had an elevation of temperature at one reading. Three of these patients died. One, with schizophrenia, had a temperature of 105 F. on admission. Another patient with schizophrenia was admitted with a temperature of 102 F. and died six days later. The third patient had dementia paralytica, with a temperature of 103 F. on the fifth day, and died two days later. Roentgenographic examination revealed extensive pneumonic consolidation of both lungs. Thus, by the use of sodium chloride there has been an abrupt drop in the duration of fever due to dehydration and a marked decrease in mortality due to exhaustion.

Abolition of Tremor by Surgical Means.—The demonstration by Aring and Fulton that intention tremor resulting from cerebellar lesions can be abolished in subhuman primates by the removal of the precentral cortex (areas 4 and 6 of Brodmann) led Bucy and Case to attempt to relieve a similar incapacitating tremor in a man. The much older observation that the tremor at rest in patients with parkinsonism is abolished, at least for the duration of the paralysis, by a temporary hemiplegia gave rise to the hope that the tremor at rest also present in this patient would be abolished by a precentral extirpation. Both the tremor at rest and that appearing on voluntary movement, which developed after severe cerebral trauma, were abolished (and has not returned after fifteen months) by removal of the precentral "arm" area.

Picrotoxin as Convulsant for Mental Illnesses.—In a group of thirty-eight patients (schizophrenia, manic-depressive psychosis and psychopathic personalities) Low and his colleagues produced convulsions by means of intravenous injections of picrotoxin. Because of the interval between the injection and the first convulsion and that between the first and subsequent convulsions the action of both the drug and the convulsions can

be conveniently studied. Picrotoxin does not produce the terror incidental to metrazol. Of the nineteen schizophrenic patients, with a long average duration of the disease, five made a full recovery. As with metrazol medication, the manic-depressive attack in eight cases was cut short with relative promptness and the severe psychoneuroses of seven patients responded satisfactorily. Of the four patients with disturbed behavior requiring commitment, two recovered fully and one had a social recovery. Of the total of eighteen fully or socially recovered patients, three have maintained their health for five months, seven for four months, three for three months and five for less than three months; none have relapsed to date.

Archives of Otolaryngology, Chicago

20: 605-750 (April) 1939

Otitis Media and Mastoiditis Simulating Thrombophlebitis of the Lateral Sinus. M. S. Ersner, Philadelphia.—p. 605.
Hearing Aids. H. Newhart and H. E. Hartig, Minneapolis.—p. 614.
Objective Measurement of Hearing. M. Unger, New York.—p. 621.
Surgical Management of Otogenous Abscess of the Brain. L. J. Adelstein, Los Angeles.—p. 624.
Anatomy of the Opening of the Maxillary Sinus. E. Simon, Albany, N. Y.—p. 640.
Xanthomatosis: IV. Lipoid Proteinosis (Phosphatide Lipoidosis). H. Montgomery and F. Z. Havens, Rochester, Minn.—p. 650.
Technic of Laryngofissure for Cancer of the Larynx. M. C. Myerson, New York.—p. 662.
Thrombosis of the Lateral Sinus. C. C. Cody Jr., Houston, Texas.—p. 674.
Rhinoscleroma: Report of Case. C. F. Gadomski, Elizabeth, N. J.—p. 681.
Supernumerary External Ears. M. J. Costello, New York, and J. H. Shepard, Columbus, Ohio.—p. 695.
Modified Technic of Ivory Implantation for Ozena: Report of Six Cases. J. P. Kasnetz, Brooklyn.—p. 699.
*Controlled Study of "Cold Vaccines." I. J. Hauser and M. J. Hauser, Detroit.—p. 704.
Peroral Endoscopy. L. H. Clerf and F. J. Putney, Philadelphia.—p. 720.

"Cold Vaccines."—In their controlled study of the value of "cold vaccines" the Hausers gave cold vaccine subcutaneously to the first ten persons, intradermally to the next ten and placebos to the following ten. This cycle was repeated until there were 100 persons in each group. After this number was reached the vaccine was given subcutaneously to the next hundred who presented themselves at the clinic for treatment. The first injections were given during the third week in October and the last ones by the middle of December. During the last two weeks in May each student who had received the injections was interviewed, provided he had completed the series. Data were obtained from 188 persons who had received the vaccine subcutaneously, from ninety-five who had received it intradermally and from eighty-six to whom placebos had been given. Of the persons who had received the vaccine subcutaneously, 74 per cent said that they had had fewer colds, 6 per cent that they had no colds at all, 18 per cent that they had the same number as during the preceding year and 2 per cent that they had more colds. Of those who had received the vaccine intradermally, 52.6 per cent reported that they had had fewer colds, 11.6 per cent that they had no colds at all, 32.6 per cent that they had the same number as before and 3.2 per cent that they had more colds. Among those who had received placebos, 60.5 per cent reported that they had had fewer colds, 5.8 per cent that they had no colds at all, 31.4 per cent that they had the same number as the last year and 2.3 per cent that they had more colds. More than 90 per cent of all the subjects expressed a desire to be similarly treated the following year.

California and Western Medicine, San Francisco

50: 249-320 (April) 1939

Urinary Tract Infections: From a General Practice Standpoint. H. C. Bumpus Jr., Pasadena.—p. 254.
Tissue Changes in Chronic Intoxication of Barbitals. T. L. Schulte, San Francisco.—p. 256.
Varicose Veins in Pregnancy. A. M. McCausland, Los Angeles.—p. 258.
Preventorium Child. H. G. Trimble, Oakland.—p. 262.
Scabies: Its Treatment with Benzoyl Benzoate, as Compared with Sodium Thiosulfate Plus Hydrochloric Acid. A. E. Ingels, San Francisco.—p. 265.
Roentgen Diagnosis of Diseases of Ileocecal Region of the Gastrointestinal Tract. J. Jellen, Los Angeles.—p. 267.
Vitamin Deficiency States: Their Recognition and Treatment. D. L. Wilbur, San Francisco.—p. 270.

Canadian Medical Association Journal, Montreal

40: 319-422 (April) 1939

*Comparative Chemotherapy in Experimental Pneumococcic Infections. P. H. Greey, D. B. MacLaren and C. C. Lucas, Toronto.—p. 319.
Treatment of Pneumococcic Pneumonia with Dagenan (Sulfapyridine). D. Graham, W. P. Warner, J. A. Dauphinee and R. C. Dickson, Toronto.—p. 325.
Treatment of Pneumococcic Pneumonia with Sulfapyridine. J. C. Meakins and F. R. Hanson, Montreal.—p. 333.
*Sulfanilamide in Treatment of Cystitis and Pyelitis. D. R. Mitchell, P. H. Greey and C. C. Lucas, Toronto.—p. 336.
Roentgenology of Heart and Great Vessels. J. H. Palmer, Montreal.—p. 343.
Xanthine Calculosis: Case. M. Ratner and A. Strasberg, Montreal.—p. 350.
Single Myeloid Bone Tumor Associated with Blood Picture of Chronic Myelocytic Leukemia. S. R. Townsend, Montreal.—p. 352.
Acute Hemorrhagic Nephritis: Report of Case. L. C. Montgomery, Montreal.—p. 355.
Medical Treatment of Duodenal Ulcer. J. Daly, Toronto.—p. 360.
Lumbar Anesthesia in Obstetrics. R. J. Fraser, Hamilton, Ont.—p. 368.
Unrecognized Hypothyroidism. G. K. Wharton, London, Ont.—p. 371.
Chorionepithelioma Following Ectopic Gestation. W. A. Dafoe, Toronto.—p. 376.
Caution in Arsphenamine Therapy: Report of Case of Purpura Haemorrhagica Following Treatment with Neoarsphenamine. G. B. Sexton, London, Ont.—p. 378.
Ureteral Calculus: Clinical Analysis of 200 Cases. C. A. Chisholm, Kirkland Lake, Ont.—p. 380.
Chronic Prostatitis (Nonspecific). E. R. Hall, Vancouver.—p. 382.

Sulfanilamide in Experimental Pneumococcic Infections.—Greey and his associates found sulfapyridine superior to three other sulfanilamide compounds in experimental type I pneumococcic infections in mice. A high survival rate was obtained in such infections with sulfapyridine when it was administered so as to maintain the blood concentration of the drug above 10 mg. per hundred cubic centimeters. Sulfapyridine is at least as active as sulfanilamide in experimental Streptococcus haemolyticus infections in mice. Signs of toxicity were not observed in the mice treated with sulfapyridine but were seen in those treated with two other sulfanilamide compounds.

Sulfanilamide for Cystitis and Pyelitis.—With sulfanilamide in the treatment of cystitis and pyelitis Mitchell and his colleagues obtained results that were unexcelled by any drug used previously in their clinic. They evolved a method of administration which is particularly suited to infections of the urinary tract. The regimen has proved highly satisfactory in treating pyelitis of pregnancy. Patients are given the following simple instructions: (1) to take one tablet (5 grains) after each meal on the first day, two after each meal on the second, three after each meal on the third day and, if necessary, four after each meal on the fourth day, (2) to limit their total fluid intake to the equivalent of about eight glasses of water a day and (3) to void into a clear glass receptacle, to examine the urine for turbidity and as soon as a clear urine is obtained to notify their physician. To prevent relapse, the drug is withdrawn slowly; after four days on the curative dose the total daily intake of sulfanilamide is decreased by 5 grains (0.3 Gm.) every other day until a daily dose of 10 grains (0.6 Gm.) is reached. This dosage is continued for from seven to ten days. This minimal effective step-dosage regimen, the authors state, nearly always produces a sterile urine within from two to four days, provided the infection is not complicated by malformation, neoplasm or stone in the urinary tract. The organisms which respond most readily to sulfanilamide are Bacillus coli, Bacillus proteus and staphylococci. Fecal streptococci are completely resistant. Toxic effects are less frequent and are usually of milder form on the dosage recommended than on other regimens which have been tried.

Connecticut State Medical Society Journal, Hartford

3: 155-208 (April) 1939

Surgery in Pulmonary Disease. E. D. Churchill, Boston.—p. 155.
Anesthesia for Surgery in the Open Chest. H. K. Beecher, Boston.—p. 158.
Indications for Collapse Therapy in Tuberculosis. H. B. Campbell, Norwich.—p. 160.
Bronchoscopy. N. Canfield, New Haven.—p. 162.
Treatment of Pruritus Ani. E. H. Kirschbaum, Waterbury.—p. 165.
Brenner Tumors. L. L. Walton, Hartford.—p. 166.
Acute Coronary Failure. P. J. Steincrohn, Hartford.—p. 169.

Florida Medical Association Journal, Jacksonville

25: 477-536 (April) 1939

Agranulocytosis and Sulfanilamide. N. L. Marcus, Tampa.—p. 489.
Obstetric Oddities Occurring in a Single Patient: Case Report. W. C. Roberts, Panama City.—p. 497.
Treatment of Traumatisms of Chest. H. Watson and J. W. Annis, Lakeland.—p. 500.
Cardiology in Aviation: The Cardiac Patient and Air Travel. A. J. Bieker, St. Petersburg.—p. 503.

Indiana State Medical Assn. Journal, Indianapolis

32: 165-232 (April) 1939

Cancer of Breast. F. E. Adair, New York.—p. 165.
Modern Concepts in Treatment of Cancer. L. G. Ericksen, South Bend. —p. 167.
Surgical Treatment of Cancer of Pelvic Colon. M. N. Hadley, Indianapolis.—p. 172.
Cancer of Stomach. E. E. Padgett, Indianapolis.—p. 176.
Indianapolis City Hospital Cancer Clinic. J. W. Hofmann, Indianapolis. —p. 178.
*Cyclopropane: Résumé of Personal Experience. C. N. Combs, Terre Haute.—p. 181.
Nontuberculous Urinary Infections in Children. H. O. Mertz, Indianapolis.—p. 185.
Report of Native Case of Infection by the Fish Tapeworm, Diphyllobothrium Latum. W. H. Headlee, J. M. Kmecza and R. M. Cable, Lafayette.—p. 188.
Communicable Diseases. Indiana Pediatric Society.—p. 190.
Some Observations on the Plan for the Establishment of District Health Units by the State Board of Health. J. H. Crowder, Sullivan.—p. 193.
Edward Jenner: A Great Experimenter. W. N. Wishard Jr., Indianapolis.—p. 196.

Cyclopropane.—During 1937 and 1938 Combs gave 700 anesthetics using cyclopropane; 302 were for laparotomies and 398 for extraperitoneal operations. In these 700 anesthesias there was an absence of sweating with a reduction in the loss of water vapor, necessitating fewer subcutaneous injections of fluid. It is superior to nitrous oxide in that it produces no subjective symptoms such as hallucinations or tinnitus aurium.

Journal of Bacteriology, Baltimore

37: 355-472 (April) 1939

Lactase Activity of Escherichia Coli-Mutabile. C. J. Deere, Anna Dean Dulaney and I. D. Michelson, Memphis, Tenn.—p. 355.
Note on Monophasic Nonspecific Salmonella Types. D. W. Bruner and P. R. Edwards, Lexington, Ky.—p. 365.
Productivity of Mediums Containing Milk for Recently Isolated Strains of Coliform Group. M. T. Bartram and L. A. Black, College Park, Md.—p. 371.
Chemical Factors Influencing Growth of Tubercle Bacilli: I. Metal Catalysts. B. C. Sher and H. C. Sweany, Chicago.—p. 377.
Immunologic Relationships of Polysaccharides of Mucoid Organisms of the Typhoid-Salmonella Group. H. R. Morgan and T. D. Beckwith, Los Angeles.—p. 389.
*Meningitis Caused by Atypical Gram-Negative Cocci. H. A. Reimann, Philadelphia, and R. W. Koucky, Minneapolis.—p. 401.
Improved Method for Testing Antiseptic Dusting Powders. J. H. Brewer, Baltimore.—p. 411.
Pattern of Dissociation in Haemophilus Influenzae. Caroline A. Chandler, L. D. Fothergill and J. H. Dingle, with technical assistance of Margaret S. McMillan, Boston.—p. 415.
Nutritional Requirements of Clostridium Parabotulinum, A. S. S. Elberg and K. F. Meyer, San Francisco.—p. 429.
Lethal Action of Short Ultraviolet Rays on Several Common Pathogenic Bacteria. D. G. Sharp, Durham, N. C.—p. 447.
Precipitins for Tuberculin Proteins of Acid-Fast Bacteria. Janet McCarter, Elizabeth M. Kanne and E. G. Hastings, Madison, Wis.—p. 461.

Meningitis Caused by Atypical Gram-Negative Cocci.—Reimann and Koucky studied the atypical bacteria found in two cases of meningitis. From the first patient, a gram-negative diplococcus with characteristics different from other classified strains was isolated. The bacterium gave rise to two interchangeable colony forms. From the second case, two species of cocci were obtained; one was a type I meningococcus which had the unusual ability to grow on plain agar at room temperature and had gram-positive elements; the other was a staphylococcus which was represented by three interchangeable colony forms. These studies suggest that, under ordinary laboratory routine examination, atypical colonies may appear on culture plates. Such colonies, usually ignored or dismissed as contaminants, may actually be part of the pattern of variation of the bacterium concerned. Recognition of the phenomenon of bacterial variation and type transformation would remove much confusion and would probably reduce the varieties of bacteria now believed to exist.

Journal of Infectious Diseases, Chicago

64: 97-192 (March-April) 1939

*The Blood Stream in Experimental Poliomyelitis. F. B. Gordon and E. H. Lennette, Chicago.—p. 97.
Cultivation of Vaccinia Virus in Deep Columns of Maitland Medium. R. L. Thompson and Margaret S. Coates, Cleveland.—p. 105.
O Resistance of Vi Strains. A. W. Pot, Utrecht, Holland.—p. 110.
Experimental Infection in the Mouse Produced by Intratracheal Inoculation with Atypical Pertussis Organism. W. L. Bradford and Mary Wold, Rochester, N. Y.—p. 118.
Resistance of Avian Tubercle Bacilli to Low Temperatures, with Especial Reference to Multiple Changes in Temperature. P. Kyes and T. S. Potter, Chicago.—p. 123.
Studies on Listerella Infection in Sheep. H. E. Biester and L. H. Schwarte, Ames, Iowa.—p. 135.
Nutritive Requirements of Salmonellas: I. Tryptophan and Growth of *Typhoid Bacillus.* W. Burrows, Chicago.—p. 145.
Cellular Reactions in Skin, Lungs and Intestine of Normal and Immune Rats After Infection with Nippostrongylus Muris. W. H. Taliaferro and M. P. Sarles, Chicago.—p. 157.

The Blood in Experimental Poliomyelitis.—Gordon and Lennette tested the blood of monkeys at various stages of experimental poliomyelitis for the presence of virus. This was accomplished by multiple transfusions of blood from inoculated monkeys into normal monkeys, the latter also receiving starch solution intracerebrally. The intracerebral injection of starch has been shown to disrupt the blood-brain barrier and to facilitate infection. Tests for immunity were subsequently done on the recipient monkeys. Virus was not demonstrated in fourteen samples of blood, ranging in volume from 10 to 45 cc., taken from paralyzed monkeys, or in twenty-eight samples, from 8 to 30 cc. in volume, from infected monkeys before paralysis appeared. Repeated intranasal inoculation of seven monkeys after destruction of their olfactory bulbs did not result in a clinical attack of poliomyelitis, in the appearance of virus in the blood or in a detectable immunologic response. No evidence, therefore, was found for the absorption of virus by the blood stream or by other routes from the nasal or alimentary mucosa. The results indicate that poliomyelitis virus either does not enter the blood stream of intranasally inoculated monkeys or it does so in amounts too small to be detected by the methods employed.

Journal of Investigative Dermatology, Baltimore

2: 43-80 (April) 1939

*Photoallergy and Primary Photosensitivity to Sulfanilamide. S. Epstein, Marshfield, Wis.—p. 43.
Cutaneous Hypersensitivity to the Procaine Anesthetics: Correlation of Hypersensitivity with Chemical Structure. M. H. Goodman, Baltimore. —p. 53.
Measurement of *pH* of the Skin Surface: I. Technic. I. H. Blank, Boston.—p. 67.
Id.: II. *pH* of Exposed Surfaces of Adults with No Apparent Skin Lesions. I. H. Blank, Boston.—p. 75.

Photoallergy, Photosensitivity and Sulfanilamide.—Epstein carried out experiments with sulfanilamide, as a photosensitizing drug, on five volunteers and himself. He found that sulfanilamide produces a primary photosensitivity at the site of intracutaneous injection. The injection of sulfanilamide followed by an erythema dose of ultraviolet rays produced in all (twenty-two) an erythematous reaction of from about 0.8 to 1 cm. in diameter, contrasting with the milder erythema of the surrounding skin. This reaction appeared after from one to twenty-four hours, persisted for several days and led eventually to pigmentation. A different type of reaction appeared in two of the test persons on the tenth day. At this time an inflammatory, urticarial reaction with intense pruritus developed spontaneously at the site of the primary reaction. This latter reaction was considerably larger than the original response but of similar configuration. It persisted from ten to fourteen days This reaction was quite obviously entirely different from the primary one. Every subsequent experiment in the two sensitized persons produced a spontaneous inflammatory-urticarial response, but now this appeared not ten days but from ten to twenty-four hours after the test. The experiments demonstrate a true allergic type of photosensitivity (*photoallergy*). The author believes that this is the first report of this particular type of photosensitization and the first experimental proof of the allergic nature of this form of light sensitivity. More experimental work will be necessary to clarify the relationship of this form of response to various forms of clinical hypersensitivity to light. The photoallergic reaction fulfils

the requirements of a true allergic phenomenon; the capacity to react is produced by a previous contact and is manifested, after a definite incubation period, by an altered and accelerated reaction to a subsequent exposure to the same agents, that is, sulfanilamide plus light. The irradiation of sulfanilamide in the skin produces a substance responsible for the appearance of the primary reaction. Following this reaction, the skin of certain predisposed persons becomes sensitized to this substance.

Journal of Lab. and Clinical Medicine, St. Louis

21: 669-778 (April) 1939. Partial Index

Blood Glutathione in Hematologic Diseases. F. V. Kandel and G. V. LeRoy, Chicago.—p. 669

"Average Daily Reticulocyte Response" During Therapy in Pernicious Anemia. A. Friedman, R. Isaacs and Anne Luffman, Ann Arbor, Mich.—p. 677

Pharmacologic Antagonism of Metrazol and Sodium Amytal as Seen in Human Individuals (Schizophrenic Patients). L. H. Cohen, Worcester, Mass.—p. 681

Lipid Changes in Nerve Degeneration in Avitaminosis A. Lipids of Sciatic Nerve in Avitaminosis A. R. Reiser, Durham, N. C.—p. 701

*Metastatic Bone Carcinomatosis Associated with Parathyroid Hyperplasia and with Symptoms of Hyperparathyroidism, with Blood Calcium and Phosphorus Studies Before and After Extirpation of a Hyperplastic Parathyroid Gland. S. Ben-Asher, Jersey City, N. J.—p. 709

The Reversal of Kidney Volume Response Accompanying Abolition of the Central Nervous System. E. C. Mason and P. Hitchcock, Oklahoma City.—p. 717

*Effects of Smoking on Blood Sugar and Peripheral Temperatures of Convalescents. H. B. Cates and J. G. Giovanazzi, Los Angeles.—p. 729

Unreliability of Oxalated Blood in Determination of Erythrocyte Sedimentation Rate. S. Berg, Newark, N. J.—p. 757

Laboratory Methods for Testing Fungicides Used in the Treatment of Epidermophytosis. Ella M. Burlingame and G. F. Reddish, St. Louis.—p. 765

Metastatic Bone Carcinomatosis.—Ben-Asher cites a case with definite bone metastases associated with parathyroid hyperplasia and with symptoms of hyperparathyroidism. Hypercalcemia was associated with metastatic carcinoma of the bones and with parathyroid hyperplasia. Removal of the hyperplastic parathyroid gland did not reduce the serum calcium to normal, but the calcium level was somewhat lower than before the operation. Lowering of the serum calcium was observed ten days after operation and lasted for about ten weeks, after which there was a slight rise. It seems reasonable to assume that both the osseous destruction and the hyperplasia may have been factors in producing the hypercalcemia, and, as Barr and Bulger suggest, *the osseous changes may have stimulated the parathyroid*, which in turn aggravated the condition. Failure to find another pathologic parathyroid at a second operation does not eliminate the possibility of an abnormally situated one, which would account for the persistence of the hypercalcemia. The author states that the hyperplasia in his case was secondary to the osseous changes. Since removal of the gland resulted in a somewhat lower level of the blood calcium, it is reasonable to conclude that the gland showed evidence of hyperfunction. This would support the theory of Erdheim of compensatory hyperplasia. Compensatory hyperplasia has been found in conditions associated with low serum calcium, such as rickets and osteomalacia, and also in conditions in which the serum calcium is high. Further studies of the physiology of the parathyroids might throw more light on the subject.

Effects of Smoking on Blood Sugar and Temperature.—On the basis of their observations (six healthy students, eleven hypertensive patients and eighteen patients from the medical ward with cardiac decompensation or other diseases), Cates and Giovanazzi conclude that smoking affects the peripheral vascular system less in cardiac convalescents than in young healthy men *who have not been confined to bed*. The older the subject, the less susceptible is his vascular tone. Results obtained in subjects in their second and third decades of life may not by inference be applied to the later decades. The hypertensive group of patients, while smoking, showed no greater variation of cutaneous temperature than occurred during the preceding control period of forty-five minutes. In this group, the highest blood pressure rise was 15 mm., the average 8 mm. In the student group the highest was 35 mm. and the average rise was 19 mm. The third group gave a negative temperature response. Of twenty-four studies only four had a temperature decrease of the toes of more than 1.5 C. Two of twelve had depressed finger temperatures. A composite curve representing twenty-six curves of capillary blood sugar determinations on twenty subjects establishes no elevation of the fasting dextrose values after smoking from two to five cigarets. Artificial elevation of the blood sugars by intravenous injection of 50 cc. of a 50 per cent dextrose solution likewise had no effect on the peripheral temperature.

Journal of Nutrition, Philadelphia

17: 199-302 (March) 1939. Partial Index

Calcium Requirements of Five Preschool Girls. Julia Outhouse, Gladys Kinsman, Dorothy Sheldon, Irene Twomey, Janice Smith and H. H. Mitchell, Urbana, Ill.—p. 199

Utilization of Carbohydrate in Human Undernutrition. Margaret Woodwell Johnston, J. M. Sheldon and L. H. Newburgh, Ann Arbor, Mich.—p. 213

Chondroitin Sulfuric Acid as a Growth Factor. H. E. Robinson, R. E. Gray, F. F. Chesley and L. A. Crandall, Chicago.—p. 227

*Calcium Requirement of Adult Man and Utilization of Calcium in Milk and in Calcium Gluconate. F. R. Steggerda and H. H. Mitchell, Urbana, Ill.—p. 253

Distribution of Vitamin B_1 (Thiamin) in Meat and Meat Products. O. Mickelsen, H. A. Waisman and C. A. Elvehjem, Madison, Wis.—p. 269

17: 303-406 (April) 1939

Quantitative Biologic Assay of Vitamin K. S. Ansbacher, New Brunswick, N. J.—p. 303

Experimental Determination of Minimal Vitamin A Requirements of Normal Adults. Lela E. Booher, Elizabeth Crofts Callison and Eliza beth M. Hewston, Washington, D. C.—p. 317

Fluorosis in Rats Due to Contamination with Fluorine of Commercial Casein. Effects of Darkness and of Controlled Radiation on Pathology of Teeth. H. C. Hodge, Ethel M. Luce Clausen and Elizabeth F. Brown, Rochester, N. Y.—p. 333

Effect of Protein and Exercise at Different Ages on Total Energy Metabolism. A. Black and J. R. Murlin, Rochester, N. Y.—p. 347

Effect of Protein and Exercise at Different Ages on Basal Metabolism. A. Black, Rochester, N. Y.—p. 361

Preventive Effect of Wheat Germ Oils and of α Tocopherol in Nutritional Muscular Dystrophy of Young Rats. Marianne Goettsch and Johana Ritzmann, New York.—p. 371

Electrolyte and Nitrogen Metabolism in Pregnancy. H. E. Thompson Jr. and W. T. Pommerenke, Rochester, N. Y.—p. 383

Quantitative Study by Means of Spectrographic Analysis of Aluminum in Nutrition. Florence I. Scoular, Iowa City.—p. 393

Calcium Requirement and Its Utilization.—Steggerda and Mitchell observed the calcium balance of an adult receiving a basal low-calcium diet with varying supplements of calcium in milk solids and in calcium gluconate for forty-three four day *periods. They found that for equilibrium 92 mg. of calcium* per kilogram of body weight was required daily, about three fourths of which was supplied either in milk solids or in calcium gluconate. The calcium in these two forms was equally well utilized, but only to the extent of 20 per cent.

Journal of Pediatrics, St. Louis

14: 417-558 (April) 1939

Use of Sulfapyridine in Primary Pneumococcic Pneumonia and in Pneumococcic Pneumonia Associated with Measles. H. L. Hodes, W. C. Stifler Jr., Ethel Walker, M. McCarty and R. G. Shirley, Baltimore.—p. 417

*Blood Studies of Vitamin C During Pregnancy, Birth and Early Infancy. C. E. Snelling and S. H. Jackson, Toronto.—p. 447

*Treatment of Cryptorchidism with Gonadotropic Substance. C. Zelson, New York.—p. 452

Congenital Familial Steatorrhea with Fibromatosis of Pancreas and Bronchiolectasis. S. Rauch, A. M. Litvak and M. Steiner, Brooklyn.—p. 462

*Treatment of Rickets and Tetany with Single Massive Dose of Vitamin D. Vitamin D Shock Therapy. H. Vollmer, New York.—p. 491

Treatment of Early Measles with Parental Whole Blood. Effect on Clinical Course and Pulmonary Complications in Young Children. J. L. Kohn, A. E. Fischer, New York, and H. U. Resch, Bloomfield, N. J.—p. 502

Waterhouse-Friderichsen Syndrome. Report of Case with Autopsy Findings. S. A. Levinson, Chicago.—p. 506

Saw-Tooth Fever Pneumonia. B. Hamilton, Chicago.—p. 517

Calcified Hematoma. F. Weitz and R. A. Strong, New Orleans.—p. 522

Syndrome of Constricting Double Aortic Arch in Infancy. Report of Case. I. J. Wolman, Philadelphia.—p. 527

Vitamin C in Blood During Pregnancy, Birth and Infancy.—Snelling and Jackson measured the ascorbic acid content of the plasma of pregnant women. There seems to be a slight fall toward the end of pregnancy. Factors incident to labor lower the ascorbic acid in the maternal blood. The fetus acts as a parasite and has higher levels than the antepartum

maternal blood. Totally breast-fed infants are well supplied with vitamin C if the ascorbic acid of the breast milk is greater than 4 mg. per hundred cubic centimeters; if the ascorbic acid is below 2 mg. there is a likelihood of a deficiency in the infant. In artificially fed infants not receiving additional vitamin C, the level of ascorbic acid in the blood is low. It is recommended that artificially fed infants should receive additional vitamin C from the time they are 2 weeks of age. The mothers of breast-fed infants should have adequate vitamin C in the diet, and, if there is any question of lack in her diet, the infant should receive additional vitamin C.

Treatment of Cryptorchidism with Gonadotropic Substance.—Zelson states that his work on the treatment of cryptorchidism with gonadotropic substance gives less favorable results, but he feels that his observations, based on rigid criteria, represent a true figure of the best possible results obtainable in carefully selected cases of true cryptorchidism. Only children more than 4 years of age were treated. Twenty-six boys with thirty-four undescended testicles were given the gonadotropic hormone. In eighteen the condition was unilateral. Following treatment, complete descent occurred in eight boys, 31 per cent. Of these cases five were unilateral and three bilateral. The condition was considered as having successfully responded to treatment only when the testicles descended into the scrotum. In the eight successful cases five of the patients responded to less than 5,000 units; six of them responded to treatment within three months. The penis, testicles and scrotum became larger during the course of treatment in every case. Pubic hair developed in a few. On reexamination of the unsuccessful cases, from three to six months after the cessation of treatment, the testicles that had enlarged during treatment had shrunk back to their original pretreatment size. The penis continued to remain large. During the course of the treatment, seven of the twenty-six boys were reported as being "bad boys" in school. When the injections were discontinued, however, this situation improved. Six of the eight successful results were in boys less than 10 years of age. Therefore it appears that treatment should be seriously considered in the earlier age groups despite the prevailing opinion that it should be deferred until the age of 10 or 11.

Massive Vitamin D for Rickets and Tetany.—According to Vollmer, the curative effect of a single shock dose (600,000 international units) of vitamin D orally is more prompt than that obtained by small daily doses. Tetanic convulsions did not recur in 150 children after vitamin D shock therapy, and all other symptoms of hyperirritability usually disappeared within two days. If hypernormal values of serum phosphorus occur after vitamin D shock therapy, they usually decline to a normal level in from two to four weeks. Vitamin D shock therapy is indicated in neonatal and infantile tetany, severe rickets, rickets associated with pneumonia or pertussis, rickets associated with chronic infections and in a rachitic or tetanic child whose parents are indifferent to his condition. No contraindication seems to exist. No toxicity was manifested in the 150 children treated with massive doses of vitamin D. The possibility of a successful vitamin D prophylaxis over the entire winter period with a single dose is discussed.

Journal of Urology, Baltimore

41: 435-652 (April) 1939. Partial Index

Relations Between Endocrinology and Urology. D. L. Thomson, Montreal.—p. 435.
New Etiology for Certain Types of Dilated Ureters in Children. V. Vermooten, Johannesburg, South Africa.—p. 455.
Transplantation of Ureters in Infants. C. C. Higgins, Cleveland.—p. 464.
New Anatomic Approach in Perineal Prostatectomy. E. Belt, C. E. Ebert and A. C. Surber Jr., Los Angeles.—p. 482.
Associated Pathologic Conditions of Bladder in Cases of Prostatic Obstruction. G. C. Prather and M. Reich, Boston.—p. 498.
Preoperative Prostatic Mortality. W. J. Engel, Cleveland.—p. 505.
Urologic Complications in Malignant Disease of Rectum. C. J. E. Kickham and N. H. Bruce, Boston.—p. 541.
Metastases from Tumors of the Testis. D. W. MacKenzie and M. Ratner, Montreal.—p. 592.
Mandelic Acid Therapy: Action of *Enteric Coated Tablets of Mandelic* Acid (as Monoethanolamine Mandelate) and Ammonium Chloride. E. Rupel and R. C. Travis, Indianapolis.—p. 622.
Pentothal Sodium Intravenous Anesthesia in Urology. C. R. O'Crowley and A. G. Chmelnik, Newark, N. J.—p. 649.

Laryngoscope, St. Louis

49: 135-238 (March) 1939

Progressive Deafness, Otosclerosis and Closely Related Subjects: Abstract of the Available Literature Published During the Year 1938. J. A. Babbitt, Philadelphia.—p. 135.
Applied Biochemistry in Etiology and Treatment of Clinical Conditions of Nasal Accessory Sinuses. D. C. Jarvis, Barre, Vt.—p. 186.
Pharyngeal Bursae (Thornwaldt's Bursae): Report of Sixty-Four Cases. W. W. Eagle, Durham, N. C.—p. 199.
Acute Pseudomembranous Infections Involving the Eye, Mouth, Throat and Urethra. A. F. Laszlo, New York.—p. 208.
Nystagmus: Some Observations Based on Electrical Method for Recording Eye Movements. H. B. Perlman and T. J. Case, Chicago.—p. 217.

Maine Medical Association Journal, Portland

30: 69-90 (April) 1939

Communicable Disease Hospitals. D. L. Richardson, Providence, R. I.—p. 69.
*Syphilitic Epilepsies (Their Frequency and Treatment). L. Babalian, Portland.—p. 75.
May Day as a Child Health Day. R. E. Jewett, Augusta.—p. 77.

Syphilitic Epilepsies.—Babalian states that syphilitic epilepsy is not as rare as the majority of authors believe. Hereditary syphilis seems to be a frequent cause of epilepsy and should be sought by every kind of examination, especially by a complete family inquiry. However, in many cases traces of syphilis cannot be discovered; but its possibility must not be ignored. If one considers the dark future of many epileptic persons, one has the right to try a specific treatment in all these cases, because it is better to sin in this instance by commission than by omission. Specific treatment can be effective only at the outset of the disease before the appearance of neurogliac sclerosis. Epilepsy, then, must be treated not when it is evident clinically but in its prodromic stage. This stage, in child epilepsy, is precisely that of the first convulsions in infancy, after which the convulsions cease and are followed generally by a period of deceiving calm. It is too late to give treatment if after several months or even years the first signs of epilepsy appear. The ideal course would be to give specific treatment as soon as the convulsions of infancy occur. However, specific treatment should not be given all persons with convulsions. The cases due to obstetric cranial injuries and those due to toxic infectious diseases must be eliminated. In a certain number of cases in which the nature of convulsions cannot be determined exactly the author believes that one has the right to and should give specific treatment. The problem takes a different form when epilepsy has become evident because of an irreparable lesion. Specific treatment should, however, be tried, less with the hope to improve the disease than to limit the damages. In that case it seems prudent to use only bismuth or mercury, because arsenic, being a strong vasodilator, could precipitate epileptic seizures or even congestive and hemorrhagic lesions in the central nervous system—lesions which epilepsy already tends to produce.

Mental Hygiene, Albany, N. Y.

23: 177-352 (April) 1939

Relationship of Psychiatry to Internal Medicine. L. Hamman, *Baltimore.*—p. 177.
Mental Hygiene in a General Hospital. G. G. Martin, Buffalo.—p. 190.
The Place of the Mental Hygiene Clinic in the Community. L. Maletz, Hathorne, Mass.—p. 196.
Mental Hygiene for the Blind. G. Farrell, Watertown, Mass.—p. 215.
Understanding the Nonreader. J. Jastak, Farnhurst, Del.—p. 228.
A Summer Camp as Integral Part of Psychiatric Clinic. R. A. Young, Boston.—p. 241.
Mental Hygiene at Senescence. G. Lawton, New York.—p. 257.
Mental Hygiene and Freshman Counseling. C. C. Fry, New Haven, Conn.—p. 268.
Effect of Foster-Home Placement on Intelligence Ratings of Children of Feebleminded Parents: Report of Study Conducted by the Child-Caring Agencies of St. Paul, Minn. Jessie Wells and Grace Arthur, St. Paul.—p. 277.

Minnesota Medicine, St. Paul

22: 217-290 (April) 1939

The "Position-Relief Syndrome" of Hydronephrosis. J. M. Berkman and J. T. Priestley, Rochester.—p. 217.
Treatment of Chronic Suppurative Disease of Lung. T. J. Kinsella, Minneapolis.—p. 223.
Recent Advances in Treatment of Neuropsychiatric Disorders. E. M. *Hammes, St. Paul.—p. 233.*
The Nervous Patient. A. E. Meinert, Winona.—p. 238.
Some Points on Cross Eyes. J. B. Gaida, St. Cloud.—p. 241.
Experiences with Sistosan, Nonirritating Hemostatic. A. *Schwyzer,* St. Paul.—p. 245.

Missouri State Medical Assn. Journal, St. Louis

36: 143-184 (April) 1939

Cancer of the Breast: Surgical Treatment. C. J. Hunt, Kansas City. —p. 143.

Anatomic Cavity Tumors (Especially Cancer of Cervix): Periscopic Localization and Treatment with Deep and Contact Roentgen Ray Therapy. L. G. McCutchen, St. Louis.—p. 147.

Progress in Missouri's Indigent Cancer Problem. D. A. Robnett, Columbia.—p. 150.

Use of Radon in Treatment of Carcinoma. L. H. Jorstad and B. C. Martin, St. Louis.—p. 151.

Measures for Improving Clinical Results in Treatment of Carcinoma of Uterine Cervix. A. N. Arneson, St. Louis.—p. 153.

Treatment of Cancer of the Lip. E. C. Padgett, Kansas City.—p. 154.

Cancer of the Breast. W. E. Leighton, St. Louis.—p. 157.

Progress in the Control of Cancer. F. L. Rector, Evanston, Ill.—p. 160.

How the Indigent Cancer Patient in Missouri Can Secure Treatment. F. T. Hodgdon, F. J. Taussig, P. F. Cole and W. M. Clark, St. Louis. —p. 162.

Cervicitis: New Treatment with Osmos. H. L. Kleine, St. Louis.—p. 163.

Nebraska State Medical Journal, Lincoln

24: 121-160 (April) 1939

Enlarged Thymus. A. F. Tyler and W. E. Holmes, Omaha.—p. 121.

Treatment of Pneumonia. R. W. Bliss, Omaha.—p. 125.

Two Case Reports of Two Types of Pelvic Tumors. E. C. Sage, Omaha. —p. 129.

Hemorrhagic Encephalitis: Report of Case. P. Q. Baker, Scottsbluff.—p. 130.

Scarlet Fever. H. D. Meyers, Howells.—p. 131.

Hysteria: Exposition of the Theory of T. A. Ross. R. F. Richie, Lincoln. —p. 133.

New England Journal of Medicine, Boston

220: 583-616 (April 6) 1939

*Treatment of Gout with a Low-Fat, High-Carbohydrate Diet: Preliminary Report. E. C. Bartels, Boston.—p. 583.

Meningitis Secondary to Subacute Bacterial Endocarditis. W. F. Smith, Hartford, Conn.—p. 587.

Hemorrhoids, with Special Reference to Injection Treatment. R. E. Mabrey and G. S. Speare, Boston.—p. 592.

Endocrinology. J. C. Aub, Boston.—p. 595.

Gout Controlled by Diet.—Bartels shows that gout can apparently be controlled from both the standpoint of symptoms and the level of blood uric acid. His plan of treatment consists in the utilization of a diet high in carbohydrate and low in fat and purine, with the addition of the periodic administration of cinchophen. The diet used is that proposed by Lockie and Hubbard and the cinchophen is given according to the plan of Hench, 7½ grains (0.5 Gm.) three times a day for three days each week. Four cases are reported which illustrate the author's experience with this treatment. The plan prevented further attacks of joint pain and the blood uric acid returned to a normal level. The low-fat, high-carbohydrate diet is not difficult to prepare and its satiety value is satisfactory. The results, he states, warrant further investigation of such a plan in a larger series of patients.

New Jersey Medical Society Journal, Trenton

36: 135-192 (March) 1939

Fetal Morbidity and Mortality in Late Toxemia of Pregnancy. V. Del Duca, Camden.—p. 141.

Thoughts on Disease of the Stomach as Interpreted by the Gastroscope. W. A. Swalm and L. M. Morrison, Philadelphia.—p. 143.

Some Bedside Applications of Circulatory Dynamics. A. M. Fishberg, New York.—p. 147.

Syphilis as an Obstetric Problem: Maternal Welfare Article Number Thirty-Five. H. B. Kessler, Newark.—p. 153.

36: 193-254 (April) 1939

Fractures of Lower End of Humerus. S. C. Yachnin, Passaic.—p. 197.

Clinical Aspects of Tuberculosis in School Children. I. L. Applebaum, Newark.—p. 201.

Lymphogranuloma Venereum: Report of Case, with Observations on Micropathology of Frei Test. I. M. Ariel, Paterson.—p. 204.

Partial and Complete Obstruction of Ureters as Roentgenologic Problem. B. H. Nichols, Cleveland.—p. 207.

Lower Urinary Tract Obstruction in Children: Two Case Reports. S. J. Pearlman, New York.—p. 216.

Pathology and Treatment of Urinary Infections in Children. M. F. Campbell, New York.—p. 222.

Treatment of Uterine Fibroids, Especially Those with Menorrhagia: Maternal Welfare Article Number Thirty-Six. J. H. Underwood, Woodbury.—p. 232.

New York State Journal of Medicine, New York

39: 769-858 (April 15) 1939

Maternal Mortality: Report of 1937 in Buffalo, N. Y. L. A. Siegel, Buffalo.—p. 775.

*Syndrome Simulating Tabes Dorsalis. M. J. Costello, New York.—p. 781.

Epidemic Diarrhea of Newborn: New Disease? S. Frant and H. Abramson, New York.—p. 784.

Spontaneous Pneumothorax in Asthmatic Patient Treated with Iodized Oil. A. M. Fuchs, New York.—p. 791.

Syndrome of Retroperitoneal Pelvic Abscess. A. P. Ingegno and S. Spitz, Brooklyn.—p. 794.

Malignant Manifestations of Bowen's Disease. A. P. Stout, New York. —p. 801.

Vaccination Against Tuberculosis: Comparative Results Obtained with Koch's Bacillen Emulsion, Calmette's BCG and the Caseous Vaccine of the Saranac Laboratory: Fourth Communication. H. M. Kinghorn and M. Dworski, Saranac Lake.—p. 810.

Anesthesia Problems in Small Communities. C. J. Wells, Syracuse.—p. 816.

Diagnosis and Management of Subacute Blood Stream Infections of Kidney. H. Cabot and T. R. Montgomery, Rochester, Minn.—p. 818.

The Patch Test: Evaluation of Its Possible Dangers. P. E. Bechet, New York.—p. 829.

Syndrome Simulating Tabes.—Costello describes a syndrome which although simulating tabes dorsalis with its Argyll Robertson pupil and absent tendon reflexes is essentially different from it. A knowledge of this condition is of importance to the physician who assumes the responsibility of diagnosing and treating syphilis. The pseudo-Argyll Robertson pupil of Adie's syndrome does not react to light either directly or consensually and in this way is identical with the true Argyll Robertson pupil. It contracts slowly during the effort of accommodation convergence for near objects and remains small for thirty seconds or longer. After the effort to converge is relaxed, it regains its original size only after dilating sluggishly. It is unilateral in 80 per cent of the cases and is usually on the left side. The pupils are unequal, the affected one is frequently somewhat dilated, larger and is usually oval in the horizontal or vertical plane. It varies in size from time to time. When markedly enlarged it cannot be used for close work. It dilates readily, rapidly and completely to the mydriatics and to painful stimuli. It contracts in a similar manner to miotics. The condition is benign and is not rare. It is important only because it is to be differentiated from the Argyll Robertson pupil of syphilis. It holds a position analogous to that of pityriasis rosea in dermatology. In this syndrome, that is, pupilotonia with absent tendon reflexes, there is no evidence of syphilis and there are no signs of organic nervous disease. It is seen more frequently in women and in those of neurotic temperament who have undergone some recent emotional upset. There is a familial tendency and many of these patients exhibit dermographism. There are only two points of similarity between this condition and that of tabes dorsalis: the pupils do not react to light or shade directly or consensually and there is almost invariably an associated loss of the deep tendon reflexes.

Pennsylvania Medical Journal, Harrisburg

42: 721-848 (April) 1939

Characteristics of Blood Clot Formation: Significance in Pediatric Practice. C. F. McKhann and G. Edsall, Boston.—p. 731.

Certain Clinical Aspects of Chronic Bright's Disease. H. A. Christian, Boston.—p. 738.

*Analysis of Feeding of Various Foods to Over 1,200 Newborn Infants. F. T. O'Donnell, Wilkes-Barre.—p. 746.

Atypical Manifestations of Hypothyroidism. E. Rose, Philadelphia.—p. 752.

Hypertension in Young Persons. H. L. Tonkin, Williamsport.—p. 755.

Large Twins. J. W. Croft, Waynesboro.—p. 758.

Injuries of Knee Joint. P. R. Sieber, Pittsburgh.—p. 759.

Location of Disease in the Personality. E. B. Edie, Uniontown.—p. 763.

Correction of Remedial Defects Found at Routine Examination. L. J. Laux, Sayre.—p. 767.

Extravasation of Urine. E. A. Mullen, Philadelphia.—p. 769.

Management of Uveitis. D. Marshall, Danville.—p. 775.

Basmeter: New Method of Calculating the Basal Metabolic Rate by Means of Slide Rule. E. R. Janjigian, Danville.—p. 778.

Diagnosis and Treatment of Cystic Tumors of Jaw. N. C. Ochsenhirt, Pittsburgh.—p. 784.

Some Practical Considerations of Cholecystography from the Roentgenologic Aspect. E. P. Pendergrass, Philadelphia.—p. 787.

Analysis of Various Infant Foods.—O'Donnell studied 1,237 newborn infants given seventeen different complemental foods. A comparison of the weight progress shows a difference among the various series, but after close observation the differ-

ence is so slight that none of the foods administered could be considered far superior to the others in value. The author believes that it matters little which food is given as long as it is carefully controlled. The important factors are the caloric content of the food and the fluid intake of the infant. With properly prescribed complemental feedings, infants show a better weight progress, the infants regain their weight more rapidly, there is little if any inanition fever, little if any dehydration, the initial loss of weight can be decreased, the nursery is quieter and the babies are more contented than with breast milk alone.

Philippine Islands Med. Association Journal, Manila

19: 67-120 (Feb.) 1939

Unusual Types of Typhoid Infections: II. P. T. Lantin and J. Silva, Manila.—p. 67.

Bacteriology of Ileocolitis and Diarrheas Among Children. A. Pio de Roda, Manila.—p. 73.

Effects of Therapeutic and Toxic Doses of Atropine Sulfate and Tincture of Belladonna on Filipinos. F. Garcia, Manila.—p. 81.

Maintenance of Fluid Balance in Infants and Children, with Special Reference to Gastrointestinal Infections. J. S. Garcia, Dumaguete.—p. 89.

Physiological Reviews, Baltimore

19: 135-302 (April) 1939

Respiration in Central Nervous System. J. H. Quastel, Cardiff, Wales.—p. 135.

Cellular Oxidation Systems. E. S. G. Barron, Chicago.—p. 184.

Bacterial Chemotherapy: Pharmacology of Sulfanilamide. E. K. Marshall Jr., Baltimore.—p. 240.

Ultrastructure of Protoplasmic Constituents. F. O. Schmitt, St. Louis.—p. 270.

Public Health Reports, Washington, D. C.

54: 561-592 (April 7) 1939

Insects Found on Aircraft at Miami, Fla. in 1938. E. V. Welch.—p. 561.

*Studies on Oxyuriasis: XIX. Examinations of Children in Private Nursery School Over an Eighteen Month Period. Eloise B. Cram and M. O. Nolan.—p. 567.

Simple Device for Sampling Air-Borne Bacteria. A. Hollaender and J. M. DallaValle.—p. 574.

54: 593-628 (April 14) 1939

Antigenic and Synergistic Action of Toxic Serum Extract of Hemolytic Streptococci. M. P. Schultz and Edythe J. Rose.—p. 596.

Two Year Record of Adult Mosquito Trapping in Dade County, Florida. C. T. Carnahan.—p. 608.

Oxyuriasis in Private Nursery School.—In a modern, well-equipped private nursery school in Washington, D. C., Cram and Nolan determined the incidence of infestation with pinworms (Enterobius vermicularis). The pupils (131) consisted of white children from 2 to 9 years of age of both sexes from families of a fairly high social-economic status. The children examined comprised two principal groups—106 who were in the school for varying lengths of time in 1937, some of them continuing in the first half of 1938, and twenty-five who entered in 1938, practically a year after the examinations had begun and control measures of a therapeutic and prophylactic nature had been instituted. None of the twenty-five children were under observation for more than six months. In the group of 106 children examined during the eighteen month period, fifty-eight showed evidence of pinworm infestation at some time during this period. A higher incidence of infestation was found in the boys than in the girls. Distinct from the 106 children who entered the school during 1937 were the twenty-five children who entered the school for the first time in 1938 after control measures were instituted. Of the twenty-five newcomers, seventeen were boys and eight were girls. In this group, two children showed positive results for pinworms, both boys. One of the boys was positive on the first examination, soon after entering the school; the other boy showed negative results on two examinations made during the first month but positive on the third examination made early in the second month. Examinations during the next several months indicated a marked reduction in incidence. The validity of this decline was tested critically by increasing the number of swab examinations; a larger number of swabs was examined in March 1938 than in any other one month, both as to the total number and as to the average number per child. No new cases of pinworm infestation were found during the last five months of the investigation. In addition to the pupils in the school, thirty-four persons associated with the pupils were examined; eight of these persons showed positive results for pinworms. Of these eight cases of oxyuriasis, three were mothers, one was an older brother, one a maid in the home of pupils who gave positive reactions and three were persons associated with the pupils in the school.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

14: 199-388 (March) 1939

Health and Socio-Economic Studies in Puerto Rico: II. Health and Socio-Economic Conditions in the Tobacco, Coffee and Fruit Regions. P. Morales Otero, San Juan; M. A. Pérez, R. Ramírez Santos, Rafaela Espino and M. Marrero.—p. 201.

Rhode Island Medical Journal, Providence

22: 57-70 (April) 1939

Operation for Spina Bifida Forty Years Ago. W. L. Munro, Providence.—p. 57.

Pediatric Significance of Malocclusion. R. M. Smith, Boston.—p. 58.

Do We Consider the Child as a Whole? C. P. Bonin, Boston.—p. 60.

Rocky Mountain Medical Journal, Denver

36: 217-288 (April) 1939

Emergency Treatment at the Scene of the Accident. C. H. Folsom, Julesburg, Colo.—p. 234.

Fundamental Principles, or Do's and Don'ts in the Handling of Fractures. H. I. Barnard, Denver.—p. 235.

Fractures of Facial Bones. G. W. Smith, Denver.—p. 238.

Compression Fractures of Spine. G. B. Packard, Denver.—p. 241.

Fractures of Shaft of Femur. D. B. Shaw, Pueblo.—p. 245.

So-Called Bumper and Cowl Fractures. G. W. Bancroft, Colorado Springs.—p. 247.

Transurethral Resection of Prostate. R. P. Middleton, Salt Lake City.—p. 249.

Drug Charges in the Hospital. Audrey A. Lawson, Denver.—p. 255.

Southern Medical Journal, Birmingham, Ala.

32: 341-450 (April) 1939. Partial Index

The Autonomic Nervous System in Relation to Urology. A. Kuntz, St. Louis.—p. 341.

Experiences with Sleep Treatment. L. Barbato and S. Weisz, Galveston, Texas.—p. 354.

Relation of Certain Gastrointestinal Symptoms to Intracranial Disease. H. Wilkins, Oklahoma City.—p. 362.

Minimal Incidence of Intestinal Protozoa in Representative Sampling of Adult Population in Florida. J. L. Borland, Jacksonville, Fla.—p. 364.

Vegetative Dermatoses in the Negro. T. B. Hall, Kansas City, Mo.—p. 376.

*Relationship of Primary (Childhood) Tuberculosis and Nonspecific Respiratory Infection. H. Hosen, Port Arthur, Texas, and J. Miles, Houston, Texas.—p. 387.

Physiology of Nasal Sinuses. A. Proetz, St. Louis.—p. 408.

Diagnosis and Treatment of Convergent Squint. W. T. Davis, Washington, D. C.—p. 410.

Preconceptional Care. H. P. Hewitt, Chattanooga, Tenn.—p. 417.

Pathology of Carcinoma of the Prostate: Diagnosis of Early Growths. M. L. Boyd, Atlanta, Ga.—p. 422.

Repair of Anterior Cruciate Ligament of the Knee. W. C. Campbell, Memphis, Tenn.—p. 442.

Primary Tuberculosis and Respiratory Infection.—Hosen and Miles state that a primary infection, no matter what the age of the person at the time, may heal completely so that the patient loses his cell sensitization to tuberculoprotein, it may become quiescent with an increased specific resistance, it may extend immediately and produce death of the person or it may extend later and produce clinical disease and even death after a state of specific resistance has been established. One of the fortunate effects of a primary infection is the building up of a specific defense immunity. This immunity in tuberculosis, unfortunately, is not a state of absolute protection but a relative protection. It vacillates, increasing and diminishing according to the condition of the patient. Tuberculous infection and tuberculous disease are distinct and different entities and they must be treated apart. The authors have many cases of so-called activity of primary foci, but they have been hesitant to label these cases as due to the effects of tuberculous toxin, for (1) after preventive treatment for active tuberculous infection many patients fail to show any improvement in their symptoms, (2) the symptoms of cough, instability of the nervous system, tiredness, restless sleep, anorexia, sweating, leukocytosis, rapid heart, anemia or rise of temperature are often associated with nontuberculous disease of the respiratory system even in children

with tuberculous infection and (3) the x-ray evidence of tuberculous infection is similar to the x-ray evidence in chronic bronchitis. Thus it is difficult to say whether the exudative process in the hilus is due to tuberculous infection or to nonspecific infection. Consequently they undertook an investigation of 100 tuberculous infected children. The sinuses were studied, for in their experience the large majority of children with chronic sinus infection have a secondary bronchitis. The reverse is not true, for often a bronchitis is present with negative signs in the sinuses. Sixty-six of the 100 tuberculous children showed definite x-ray evidence of chronic sinusitis. Treatment of the sinusitis was instituted in a representative number of these cases with the result that all symptoms of active disease were completely alleviated. This was ample evidence that the presenting symptoms were due not to open foci of tuberculous infection but to a nonspecific sinusitis. A number of these patients had preventive care without any relief. The authors are not prepared to say whether the sinus infection or the tuberculous infection occurred first but emphasize that the presence of sinusitis in a tuberculous infected child will lower the patient's resistance and thus may lead to an early breakdown of the primary complex with a resultant active tuberculosis. Also the presence of sinusitis in noninfected individuals will lower body resistance and may cause a special susceptibility to infection by the tubercle bacilli. Whenever a tuberculous child shows symptoms of any activity, a concomitant sinusitis should be looked for before he is labeled as suffering from an active primary complex.

Surgery, St. Louis

5: 491-652 (April) 1939

Treatment of Thrombophlebitis by Novocain Block of Sympathetics: Technic of Injection. A. Ochsner and M. DeBakey, New Orleans.—p. 491.
Surgical Knots and Sutures. F. W. Taylor, Indianapolis.—p. 498.
Study of Use of Silk, Catgut and Noble Plication with Reference to Abdominal Adhesions. J. K. Donaldson and R. R. Cameron, Little Rock, Ark.—p. 511.
*Cysts of Omentum, Mesentery and Retroperitoneum: Clinical Study of Eighteen Cases. L. Berger and R. E. Rothenberg, Brooklyn.—p. 522.
Physiologic Indications in Peptic Ulcer Diets. A. F. R. Andresen, Brooklyn.—p. 535.
Perforation of Carcinoma of Stomach: Review of Literature and Report of Case. A. M. Dickinson, Albany, N. Y.—p. 543.
Oblique, Aseptic, End-to-End Intestinal Anastomosis. C. Dennis, Minneapolis.—p. 548.
Utilization of Dogs in Experimental Proctology. L. H. Block, Chicago.—p. 554.
*Method for Determining Efficiency of Preoperative Skin Sterilization. M. Novak and H. Hall, Minneapolis.—p. 560.
Clinical Classification of Cancer of Breast. S. G. Schenck, Brooklyn.—p. 567.
Cervical Sympathetic Ganglioneuroma: Case Report and Review of Literature. H. B. Shumacker Jr. and E. A. Lawrence, New Haven, Conn.—p. 572.
Similar Goiters in Monozygotic Twins. H. B. Neel, Rochester, Minn.—p. 582.
Surgical Treatment of Bilateral Bronchiectasis: Report of Case of Bilateral Lobectomy. H. H. Bradshaw and R. J. Chodoff, Philadelphia. p. 593.
Scalenus Anticus Syndrome: Diagnostic and Confirmatory Test. M. Gage, New Orleans.—p. 599.
Aneurysm of Splenic Artery: Review of Literature and Report of Two Cases. C. C. Guy, Chicago.—p. 602.
Chronic Sciatic Pain Due to Adhesions About Nerve Trunk and Results of Their Removal by Operation. G. Wagoner, Bryn Mawr, Pa.—p. 609.

Cysts of Omentum, Mesentery and Retroperitoneum.—Berger and Rothenberg present an analysis of eighteen cases of cysts of the omentum, mesentery and retroperitoneum operated on from 1915 to 1938. They believe that omental, mesenteric and retroperitoneal cysts should be grouped as one—that is retroperitoneal—since embryologically and pathologically they have a similar origin. Symptoms and signs are acute or chronic. The acute symptoms are often occasioned by hemorrhage into the cyst or rupture of the cystic wall. The chronic symptoms are usually mild, the main complaint being that of a progressively growing abdominal tumor. Albuminuria was observed in nine cases. The exclusion, by x-ray examination, of the gastrointestinal and urinary tracts as the seat of the pathologic changes is helpful in establishing the diagnosis of omental, mesenteric or retroperitoneal cyst. Omental cysts are usually large, thin walled, multiloculated, and contain serosanguineous fluid. They tend to rupture easily, thus causing acute symptoms. Mesenteric cysts are often the size of a grapefruit, are thick walled, do not rupture easily but tend to cause intestinal obstruction. If they arise from the mesentery of the small intestine, they usually contain chylous fluid. Cysts arising from behind the posterior peritoneum grow to huge dimensions, are thin walled, rupture occasionally and most often contain straw-colored or serosanguineous fluid. Microscopically the most common observations are either a cystic wall composed of loose fibrous tissue or a flat endothelial layer surrounded by a fibrous layer of tissue. All eighteen patients recovered following operation. Whenever possible, complete resection should be performed but, if hazardous, then marsupialization or simple incision and drainage of the cyst is sufficient. These cysts show little tendency to recur or to become malignant. Extensive surgical intervention was not necessary, the authors state, since complications did not occur in their patients.

Efficiency of Preoperative Sterilization of Skin.—Novak and Hall found an average of twelve staphylococci and diphtheroids per square centimeter on normally clean skin. Applications of 50 per cent alcohol and 10 per cent acetone solution, a common solvent for antiseptics, destroy 96 per cent of the bacteria on the skin. Only from 2 to 3 per cent more of the cutaneous organisms are killed when any commonly used skin antiseptic is added to this solvent. Tincture of green soap alone is inefficient for sterilizing the skin, killing only 53 per cent of the bacteria on the skin. The authors state that a concentration of 0.07 per cent mercury bichloride and 0.5 per cent tricresol (costing about 5 cents a gallon) in 50 per cent alcohol and 10 per cent acetone solution make an efficient and inexpensive skin antiseptic.

Texas State Journal of Medicine, Fort Worth

34: 809-900. (April) 1939

Relation of Endocrine Glands to Sterility. E. Novak, Baltimore.—p. 814.
Management of Hemorrhage in Third Trimester of Pregnancy. S. F. Moore Jr., San Antonio.—p. 820.
Inflammatory Diseases of Cervix. B. H. Passmore, San Antonio.—p. 823.
Congenital Solitary Kidney: Report of Case. R. W. Pickett, Texarkana.—p. 826.
Urinary Calculi Recurrence: Dietary Treatment. R. E. Van Duzen and R. H. Cantrell, Dallas.—p. 829.
The Nature of the Problem in Peptic Ulcer. C. T. Stone, Galveston.—p. 833.
Bence-Jones Proteinuria. G. M. Decherd Jr., New Orleans.—p. 838.
Mental Hygiene in Childhood. M. A. Davison, Marlin.—p. 842.
Roentgenologic Study of Gallbladder and Bile Ducts. W. M. Barron, San Antonio.—p. 846.
X-Ray Examination of Larynx and Pharynx. R. P. O'Bannon, Fort Worth.—p. 849.
Laryngeal Abscess. B. P. Woodson, Temple.—p. 852.
Calcaneal Spurs. A. E. Winsett, Amarillo.—p. 854.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

47: 169-242 (April) 1939

Contributions of American Gynecologists to Surgery of Female Bladder: Presidential Address. R. E. Watkins, Portland, Ore.—p. 169.
Induction of Labor in Patients with Toxemia or Nephritis. A. W. Holman and A. Mathieu, Portland, Ore.—p. 182.
Hemorrhage in Early Pregnancy. C. W. Page, Berkeley, Calif.—p. 193.
Placenta Praevia and Abruptio Placentae. Alice F. Maxwell, San Francisco.—p. 199.
Immediate Postpartum Hemorrhage. J. W. Sherrick, Oakland, Calif.—p. 210.
Late Postpartum Hemorrhage. N. H. Williams, Beverly Hills, Calif.—p. 223.

Wisconsin Medical Journal, Madison

38: 253-344 (April) 1939

Advances in Treatment of Indigestion. W. C. Alvarez, Rochester, Minn.—p. 269.
Myringotomy: Incision of Ear Drum Membrane. J. J. Shea, Memphis, Tenn.—p. 273.
Management of Occiput Posterior. C. D. Neidhold, Appleton.—p. 275.
Burns. S. J. Seeger, Milwaukee.—p. 279.
Hyperinsulinism. J. Smith, Wausau.—p. 283.
Serum Therapy of Pneumonia. E. A. Birge, Madison.—p. 286.
Consideration of Scars, Stumps and Functional End Results in Treatment of Injuries. R. M. Carter, Green Bay.—p. 289.
Discussion of Secondary Anemias of Infancy. E. C. Hartman, Janesville.—p. 293.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

62: 1-128 (March) 1939

The Cerebellum of Man. G. Holmes.—p. 1.
Some Observations on Nature of Vibratory Sensibility. H. W. Newman, J. Doupe and R. W. Wilkins.—p. 31.
Systemization and Central Connections of Spinal Tract and Nucleus of the Trigeminal Nerve: Clinical and Pathologic Study. G. E. Smyth. —p. 41.
Chemical Study on Fluids Obtained from Cerebral Cysts: Report on Fifty-Six Cases. K. Stern.—p. 88.
Spastic Dysphonia (Inspiratory Speech). M. Critchley.—p. 96.
*Clinical Recognition of Pick's Disease: Report of Three Cases. L. Benedek and T. Lehoczky.—p. 104.

Pick's Disease.—Benedek and Lehoczky cite three cases of Pick's disease diagnosed during life, all of which presented peculiar arteriographic and ventriculo-encephalographic features. In two cases confirmatory evidence was obtained by cerebral puncture. The encephalogram showed opercular cysts in one case in the fifth ventricle, in another on both sides. A progressive increase in the size of these cysts was demonstrated by encephalograms taken at intervals of from four to six weeks. Cerebral angiograms showed changes attributable to atrophy. Cerebral puncture demonstrated a severe degeneration of the frontal cells and axons, an activity of the glia and in case 2 incipient senile plaques. On the ventriculogram in case 3 the projection of the frontal horns of the lateral ventricles became enormously bulging, especially on the left side, thus giving the ventricular system a peculiar dumb bell-like or clublike appearance. On the basis of these three cases the authors assert that the clinical syndrome in itself is sufficient for the differential diagnosis of the disease.

British Medical Journal, London

1: 491-546 (March 11) 1939

Referred Pain from Bone Points. R. Bastianelli.—p. 491.
Two Cases of Hematologic Interest. I. MacKay.—p. 494.
Anatomy of the Bronchial Tree. J. H. Neil, W. Gilmour and F. J. Gwynne.—p. 495.
Pick's Disease Studied with the Aid of Kymography: Two Cases. G. L. S. Konstam and F. G. Wood.—p. 498.
Juvenile Form of Adrenogenital Syndrome. J. S. Richardson and W. R. S. Doll.—p. 501.
Single Large Cyst of the Lung Simulating a High Pressure Pneumothorax. E. H. Hudson.—p. 503.
Enteric Intussusception Due to Invagination of Meckel's Diverticulum. M. Paul.—p. 504.

1: 547-598 (March 18) 1939

Action of Drugs in Muscular Fatigue. J. H. Burn.—p. 547.
*Three-Phase Modified Bendien Reaction. C. H. G. Price.—p. 551.
Transfusion with Conserved Blood. E. Biddle and G. F. Langley.—p. 555.
*Recurring Intracardiac Clotting: Its Association with Acute Bronchial Asthma. J. B. Jessiman.—p. 557.
Acute Psychoses Following Surgical Procedures. H. H. Miller.—p. 558.
*Severe Skin and General Reaction Following Administration of Sulfapyridine and Exposure to Ultraviolet Light. R. Hallam.—p. 559.

Modified Bendien Reaction.—The Bendien technic described by Lowe was closely followed by Price as regards the performance of the test itself in the examination of 427 specimens of blood; the only modification was in the method of estimating the amount of flocculation produced by the action of the vanadic acid standards on the various specimens of serum. Either a nephelometer or a photoelectric absorptiometer was used for all estimations. There was agreement of serologic results with clinical observations in 55.5 per cent of the 427 specimens of blood. Evidence suggests that, the larger the number of cases tested, the nearer to equality becomes the proportion of positive and negative results. In other words, the association of active malignant conditions with a positive result is a matter of chance. Consequent on this, and supported by subsequent history, the test is of no value in the diagnosis, control of treatment or prognosis of the disease. The test has shown itself to be entirely unreliable. There is no quantitative relation between a positive result of the three phase test on a sample of serum and the level of the cholesterol in that particular specimen. Neither was it possible to demonstrate any connection between the serum cholesterol figure and the amount of flocculation in phases B and C of the three phase test.

Recurring Intracardiac Clotting.—Jessiman reports a fatal case of intracardiac clotting precipitated by an attack of acute bronchial asthma and followed by massive embolic infarction of the lung in a young primipara. Evidence was obtained that two years previously the patient survived intracardiac clotting, which also resulted from bronchial asthma. That the patient's previous attacks of acute asthma were of the bronchial type cannot be doubted, as they responded repeatedly to ordinary antiasthmatic remedies, were typically bronchial in appearance and behavior and were relieved by the endocrine readjustment of pregnancy. In the attack of two years ago, which began as acute bronchial asthma, it would appear that the superimposed heart signs and symptoms were due to intracardiac clotting. The heart signs appeared rapidly, the patient all but died within a few hours, the attack was apyrexial, recovery was rapid, and following it there appeared definite and rough valvular murmurs which cleared up with incredible speed. It is probable that the murmurs were due to an organized thrombus either in the right auricle or in the right ventricle—more likely the latter—moored to the chordae tendineae of the tricuspid valve (as found post mortem) and that the rapid disappearance of the murmurs was the result of the rapid organization and absorption of the thrombus. Moreover, the fatal attack started in an exactly similar way, and the postmortem observations gave a positive explanation of the course of events in this final attack. It appears that intracardiac clotting may take place in the absence of endocarditis and may give rise to the signs of a gross valvular lesion. A seriously damaged heart may show no direct physical sign of failure even with the strain of pregnancy and a lengthy labor.

Photosensitization and Sulfapyridine.—Since it does not appear to be generally recognized that a severe cutaneous and general reaction may take place as a sequela to exposure to light during or following the administration of the sulfanilamide group of drugs, Hallam cites such a case. Only a small dose of sulfapyridine was taken by the patient but shortly after an exposure to ultraviolet irradiation a dermatitis, elevation of temperature and raised pulse, that is, a general reaction, took place. Therefore there appear to be grounds for assuming that this man's skin was photosensitized by some chemical reaction following the administration of sulfapyridine and that the exposure to a moderate dose of ultraviolet radiation precipitated the onset of an intense reaction. It is desirable that every prescriber of sulfapyridine should be aware of this potentiality and that every patient be expressly warned of the danger of exposure to strong sunlight or any form of artificial sunlight during the time he is taking the drug.

Edinburgh Medical Journal

46: 153-220 (March) 1939

Alveolar and Bronchopneumonia in Childhood. C. McNeil.—p. 153.
Epidemiologic Aspects of Pulmonary Tuberculosis Due to Bovine Type Tubercle Bacilli. W. T. Munro—p. 165.
Giant Cell Tumor of Bone. J. W. Struthers.—p. 183.
Further Studies on Van den Bergh's Test. A. Chakravarti.—p. 194.
Observations on Virus of Influenza, with View to Elaborating a Simple Diagnostic Test Whereby Its Presence in Respiratory Tract of Man May Be Revealed. W. J. Tulloch.—p. 200.

J. Royal Inst. Public Health and Hygiene, London

2: 137-202 (March) 1939

Results of Treatment of Carcinoma of the Cervix by Radium. M. Donaldson.—p. 161.
Eye Defects in School Children, with Some Special Reference to Orthoptic Treatment. J. M. Dollar.—p. 166.
Public Health Services in Relation to Industrial Hygiene. W. D. Jenkins. —p. 178.
Can Publicity Play a Part in Making a Healthier and Fitter Britain? W. E. Whyte.—p. 187.

Journal of Tropical Medicine and Hygiene, London

42: 65-80 (March 1) 1939

Preliminary Note on Inhibitory Effects of Chronic Poisoning by Foods Containing Cyanic Substances. A. Clark.—p. 65.
Elimination of Certain Dyes by Biliary System: Review of Some Experimental Data with Their Possible Clinical Implications. B. Halpert. —p. 72.

42: 81-96 (March 15) 1939

The Cantharides Blister and Its Application in Microbiologic Research: Review of Literature and Some Suggestions. T. Benedek.—p. 81.
Reactional Increase of Eosinophil Proportion of Blood in Schistosomiasis Subsequent to Antimony Treatment: *Phenomenon in Support of* Recognition of Latent Infection. F. Mainzer.—p. 86.

Lancet, London

1: 553-616 (March 11) 1939

Cancer of Alimentary Tract: Its Pathogenesis and Its Prophylaxis. A. Hurst.—p. 553.
*Lead Poisoning: Lead Content of Blood and of Excreta. S. L. Tompsett and A. B. Anderson.—p. 559.
*Sulfapyridine and Pneumococci. I. H. Maclean, K. B. Rogers and A. Fleming.—p. 562.
New Tiltable Bed: Its Medical Uses. F. C. Eve.—p. 568.
Surgical Experiences with New Tilting Bed. J. R. Blackburne.—p. 570.

Lead Poisoning.—Tompsett and Anderson examined the lead content of the blood and excreta in twenty-nine cases of suspected lead poisoning. Eleven of these were finally diagnosed as plumbism. In ten of the cases of poisoning the content of lead in the blood was greater than 100 micrograms per hundred cubic milliliters of blood and varied from 100 to 400 micrograms. The total daily excretion in the urine and feces varied from 0.22 to 2.82 mg. and did not run parallel to the level of lead in the blood. The remaining patient showed a blood lead content of only 75 micrograms but a daily excretion of 1.27 mg. The authors suggest that more than 100 micrograms of lead per hundred cubic milliliters of blood or a total daily excretion of 1 mg. or more indicates lead poisoning.

Sulfapyridine and Pneumococci.—In order to avoid the extra work generally involved in determining the sensitivity of the different pneumococci to sulfapyridine, Maclean and his colleagues adopted a method in which a fixed amount of sulfapyridine was added to blood infected with various dilutions of a pneumococcus culture. This enabled them to obtain an end point with an unknown culture without any preliminary titration. Experiments were made with various concentrations of sulfapyridine in blood, but usually a strength of 1 in 20,000 was used. By this method they have tested strains of thirty types of pneumococci and in the case of certain types a number of different strains were tested. They found that pneumococci vary enormously in their sensitivity to the drug and that this variation is not associated with the type of pneumococcus but with the individual strain. Experiments in mice confirm the results obtained in vitro. It is suggested that whenever possible such a test should be carried out and according to the result obtained forecasts can be made as to the result likely to be obtained with sulfapyridine treatment. If the infecting organism is sensitive, simple treatment with the drug will probably be effective; if it is only moderately sensitive it is likely that some increase in immunity will be necessary in addition to sulfapyridine treatment; but if the organism is insensitive to sulfapyridine in concentrations which can be attained in the human body there is no justification for embarking on a course of such treatment, which cannot do good and may have serious toxic effects. A single dose of pneumococcus vaccine given to mice or rabbits profoundly affects the course of an experimental infection in these animals when treated with sulfapyridine, indicating the combined use of vaccines and sulfapyridine in all cases of pneumonia in man. Experiments are cited which show that pneumococci can, in an infected animal treated with sulfapyridine, readily establish a tolerance or fastness to the drug. This makes it essential that the initial doses should be large, and also—as sulfapyridine merely interferes with the growth of the bacteria and the body has to do the actual killing—it is essential that the immunity should be raised to as high a degree as possible by any means, active or passive, specific or nonspecific, so that the destruction of the bacteria may be complete before tolerance to the drug has been established.

1: 617-676 (March 18) 1939

*Surgical Revascularization of the Heart: Experimental Basis. L. O'Shaughnessy, D. Slome and F. Watson.—p. 617.
Cancer of Alimentary Tract: Its Pathogenesis and Its Prophylaxis. A. Hurst.—p. 621.
Organic Psychoses in Children. Mildred Creak.—p. 626.
*Herpes Simplex: Studies on Antibody Content of Human Serum. F. M. Burnet and Dora Lush.—p. 629.
*Hemoptysis and Lung Infiltration Caused by Avitaminosis. T. Jersild.—p. 632.
Free and Combined Estrogens in Blood During Pregnancy. O. Mühlbock.—p. 634.

Surgical Revascularization of the Heart.—O'Shaughnessy and his associates summarize the experimental evidence in favor of surgical revascularization of the heart and present the results which have accumulated during the last three years. Microscopic and injection studies show that vascular connections will develop between the vessels of the myocardium and extracardiac vessels (1) when cardiopericardial adhesions are produced with aleuronat, (2) when a pedicled omental graft is introduced into the pericardial sac and adhesion between the omentum and the heart is stimulated with aleuronat and (3) when the omentum is grafted to the outer surface of the pericardium after the production of cardiopericardial adhesions. Collateral communication will develop between the pulmonary and coronary circulations if a lobe of the lung is grafted to the myocardium.

Herpes Simplex.—Burnet and Lush studied the content of human serums in antibodies against herpes virus. The results bring herpes simplex infections much more closely into line with other virus diseases. The position seems to be that primary herpes is an infective disease spread by droplet infection or by salivary contamination, particularly in the age period from 1 to 3 years. The initial lesion is a vesicular stomatitis, often with fever and not uncommonly associated with secondary bacterial infection. In all probability, once infection has occurred in infancy the virus remains present in the body throughout life. In no other way is it possible to account for the fact that, irrespective of the age of the subject, if antibody is present at all it is present in high titer. The site of the persisting infection is still unknown. The two most important possibilities are that the virus remains dormant (1) in the nervous system, with the gasserian ganglion as the most probable site in relation to labial herpes or (2) in the epithelial cells of the buccal cavity, which is the locus favored by Levaditi and his collaborators (1922). The virus is not demonstrable by inoculation methods in the gasserian ganglions of persons with high titer antibody in their serum. Herpes antibody was much more common in serums from hospital patients than in those from a group of fifteen university graduates. There is no relation between susceptibility to clinical poliomyelitis and absence of herpes antibody. Herpes virus could not be demonstrated at necropsy in the gasserian ganglion of persons with high titer herpes antibody. Aphthous stomatitis in infancy is the common manifestation of primary infection with herpes virus.

Hemoptysis and Lung Infiltration Caused by Avitaminosis.—While treating a number of patients with citrin for hemorrhagic diathesis, Jersild encountered a patient whose main symptoms were a pulmonary disorder with hemoptysis and x-ray evidence of infiltration in the lungs. Under this treatment the tendency to hemorrhage and the pulmonary symptoms receded. Presumably the author believes that the only explanation of this case is hemorrhage in the lung tissue with hemoptysis. He previously reported (1938) a case of hemorrhagic diathesis (Schönlein-Henoch purpura) in which there were hemoptysis and x-ray changes in the right lung. In spite of careful examination at various tuberculosis dispensaries no pulmonary tuberculosis was found in this patient either. He states that the present case emphasizes the advisability of always testing the capillary resistance in hemoptysis in which no causal organism can be found. It would be of interest to investigate whether some of the hemoptyses of tuberculous patients are not the result of a deficiency of vitamin P.

Medical Journal of Australia, Sydney

1: 331-370 (March 4) 1939

Dr. Alexander Thomson: A Medical Pioneer and His Period. R. H. Croll.—p. 331.
Treatment of Some Late Results of Perforating Injuries of Joints. H. A. Sweetapple.—p. 342.
Perforating Injuries of Joints. H. R. G. Poate.—p. 339.
Property and Health. E. P. Dark.—p. 345.

South African Medical Journal, Cape Town

13: 147-186 (March 11) 1939

National Health Insurance. C. J. Albertyn.—p. 149.
The Inadequacies of Medical Service in South Africa. L. Wagner.—p. 152.
Some Notes on the Medical and Health Aspects of the Voortrekker Centenary Celebrations at Pretoria. H. S. Gear.—p. 156.
The Troubles of the Country Practitioner. R. Schaffer.—p. 159.
The Health of the Nursing Staff, Pretoria Hospital, 1936 to 1938. H. J. Hugo.—p. 163.

Bull. Asso. Franç. p. l'Etude du Cancer, Paris

28: 1-194 (Jan.) 1939. Partial Index

Study of Nonsystematized Multiple Cancers. P. Desaive, J. Firket, M. Chevremont and A. Dardenne.—p. 6.
Results and Interpretation of Hematologic Investigations on Personnel of Anticancerous Center of Marseille. L. Cornil and A. Rouslacroix.—p. 34.
*Apparent Relations Between Evolution of Cancer of Breast, Pregnancy and Post Partum. J. Verne, R. Huguenin and M. Perrot.—p. 56.
Reaction to Different Cancerigenic Agents of Mice Belonging to Same Cancerous Line. N. Dobrovolskaïa-Zavadskaïa and N. Adamova.—p. 76.
*Inhibiting Action of Male Hormone on Formation of Cancer Produced by Cancerigenous Substances. J. Flaks and A. Ber.—p. 108.
Anatomoclinical Study of Primary Cancer of Ampulla of Vater with Associated Degenerative Hepatitis. G. Giraud, H.-L. Guibert, J.-M. Bert and H. Serre.—p. 144.

Mammary Cancer During Pregnancy and After Delivery.—Verne and his associates report the clinical history of a woman, aged 35, who observed the development of a nodule in the upper portion of her right breast. The nodule was excised and diagnosed as an adenoma, but the microscopic examination revealed that it was an epithelioma. Roentgen therapy was instituted and it counteracted the subcicatricial induration. An examination several months later revealed nothing abnormal; the patient was satisfied and declined another surgical operation. Several months later she became pregnant, and when the pregnancy had advanced to about four and one half months she consulted an obstetrician about the appearance of an abnormal mass in the region of the surgical scar on her right breast. This nodosity had reappeared toward the end of the third month of the pregnancy. The mass increased in size, but resumption of the roentgen therapy was not advised in the course of the pregnancy. At the end of the pregnancy the size of the tumor had nearly doubled. The delivery was normal, but when eighteen days later the woman entered the cancer institute for renewed roentgen treatment of the mammary tumor it was found that the tumor had practically doubled since the day following the delivery. Moreover, in spite of intense roentgen therapy the neoplasm grew further and the woman was urged to undergo an operation, to which she consented. The authors describe and discuss the histologic aspects of the surgical specimen and direct attention to possible connections between tumor growth on the one hand and pregnancy and delivery on the other.

Inhibiting Action of Androgen on Induced Cancers.—Flaks and Ber say that in previous investigations they found that if large doses of androgen are injected into mice that are treated with methylcholanthrene the androgen acts as a prophylactic against this cancerigenic substance. In the work reported here they repeated their tests on mice with some modifications, using methylcholanthrene and benzypyrine as cancerigenic substances. They describe tests on several groups of animals and record the results in tables. It was found that the injection of large doses of testosterone propionate before and after the treatment with benzypyrine exerts an inhibiting action on the formation of cancers of the skin. However, this prophylactic effect persists for only a certain time after the injections. In the group of mice having received the prophylactic treatment with the androgen, cancers appeared two months later than in the control animals; to be sure, they were also fewer in number than was the case in the controls.

Presse Médicale, Paris

47: 393-420 (March 15) 1939

*Dangers in Introduction of Radioactive Substances into Organism. S. Laborde.—p. 393.
Asepsis of Operating Rooms. F. Masmonteil.—p. 394.

Dangers in Introduction of Radioactive Substances.—Laborde points out that the risks involved in the introduction of radioactive substances into the organism are of various forms, but in this report he disregards the affinity for the osseous system as well as for the reticulo-endothelial system and gives his attention to the cutaneous complications. He maintains that such complications are more numerous than the literature on the subject indicates. The majority are provoked by the injection of the salts of mesothorium and are ascribed to the local retention of the substance, which has an extremely long life. It has been said that thorium X is less dangerous by reason of its much shorter life. However, the author maintains that it is an error to believe that thorium X does not provoke harmful biologic effects. He relates the clinical history of a woman who in 1927, on account of vertebral rheumatism, was given a series of injections of thorium X. The injections were given into the gluteal region at weekly intervals and the doses administered were 50, 100, 150, 200, 250 and 300 micrograms; that is, about 1 mg. of active substance. Although this dose is rather high, it is frequently administered in painful disorders. In 1937, that is, ten years after the injections, a deep-seated induration, which had persisted since the end of the treatment, became red and sensitive and opened spontaneously to discharge a white material. Cicatrization was effected gradually, but a fistula remained which still persisted in March 1938, when the author examined the woman for the first time. Roentgenoscopy disclosed a considerable amount of opaque substance in the gluteal region. The patient was pale and complained of extreme fatigue. Examination of the blood disclosed a mild anemia but a considerable leukopenia. Because it was feared that the cutaneous lesion might increase and perhaps become malignant, it was decided to extirpate the damaged skin and a considerable portion of the adipose tissue, which inclosed a hard, white substance. The removed tissue was subjected to chemical, spectrographic and microscopic examination and to radioactive analysis. These studies demonstrated that the soluble radioactive salts, chosen because of their diffusion in the organism and of their rapid elimination, give only an illusory security; the persistence of a certain quantity of the product, no matter how small, suffices to elicit tissular disorders. The anemia observed in the reported case can be explained not only by the probable fixation of radioactive salts in the reticulo-endothelial system but also by the constant liberation (for a period of ten years) of thoron and radon. The radioactive analysis disclosed that the injected product was not pure thorium X but contained mesothorium and radium. It is difficult to obtain a pure preparation of thorium X and the author thinks that the inequality of the results and the fact that the complications vary is due to the fact that it is difficult to obtain uniform products.

47: 453-468 (March 25) 1939

*Human Brucellosis and Abortion: Isolation of Brucella Melitensis in Blood of Mother, in Viscera and Blood of Fetus, in Placenta and Lochia. M. Janbon and J. Caderas de Kerleau.—p. 453.
"Arabian Bronchitis": Manifestation of Sclerous Pulmonary Tuberculosis in Chronic Syphilitic Patients. A. Lévi-Valensi.—p. 455.
True Hermaphroditism. R. Raynaud, F. G. Marill and R. Xicluna.—p. 459.
De Abreu's Method for Diagnosis of Tuberculosis. L. Sayé and N. L. Caubarrère.—p. 462.
Rectosigmoid Tumors and Their Treatment. J. Duval.—p. 465.

Brucellosis in Human Beings.—Janbon and Caderas de Kerleau report what they believe to be the first clinically authenticated case of human miscarriage due to Brucella melitensis. The patient was a woman aged 34, employed in a slaughterhouse, who had had nine previous pregnancies and seven healthy children living. She was admitted to the Pasteur clinic April 5 and suffered a miscarriage April 26 in the third month of her pregnancy. Analysis revealed Brucella melitensis in the blood of the mother and in the viscera, heart blood and stomach contents of the fetus. It is thus proved that Brucella melitensis is capable of inducing miscarriage in human beings. Previous reports of miscarriages due to Brucella turned out to have been caused by Brucella abortus.

Revue Méd.-Chir. des Maladies du Foie, Paris

14: 81-160 (March-April) 1939

Developmental Disorders in Splenic Pathology. M. Sendrail, J. Lasserre and O. Robin-Bourdon.—p. 84.
*Ureagenetic Function of Liver in Diabetes Mellitus. Wassilevsky.—p. 101.
Alkaloids of Phenanthrenic Group: Methylization of Nucleus of Morphine; Action on Biliary Secretion. G. Baltacéano and C. Vasiliu.—p. 123.

Ureagenetic Function of Liver in Diabetes Mellitus.—After pointing out that diabetes mellitus occurs in several forms, Wassilevsky says that, besides the pancreas, the liver plays an important part in the pathogenesis of diabetes mellitus. He cites investigators who studied hepatic involvement in patients with diabetes mellitus and also mentions various tests that have been devised to study the hepatic functions, particularly the urea-

genetic function, and then he describes his own studies on this function. He withdraws a specimen of blood from the cubital vein of the fasting patient and determines the ammonia content of the blood. Then, without removing the needle from the vein, he injects a solution of aminoacetic acid and again takes blood specimens after intervals of fifteen, twenty, forty-five and sixty minutes. In these specimens he determines the urea and the ammonia contents. He describes his experiences with this test and stresses the following characteristics: (1) its absolute specificity with regard to the liver; (2) the existence of close physiologic ties between the ureagenetic reaction and the activity of the hepatic parenchyma; (3) the possibility to make incontestable deductions from the observations on the venous blood; (4) the sufficient stability of the urea as an indicator in the functional test, and (5) the extreme simplicity of the test. In the mild cases of diabetes the ureagenetic reaction is completely preserved, although in some cases it is slightly retarded. In the cases of pure diabetes there is a complete dependence between the condition of the patient, the course of his diabetic disorder and the ureagenetic reaction; that is, as the general condition of the patient improves, the urea content (after its administration) rises, whereas as it becomes worse it decreases. In the cases of diabetes that are complicated or accompanied by other diseases, particularly those of a neurologic nature, a considerable ureagenesis is observed. The explanation of this phenomenon requires intricate studies because of the involvement of the sympathetic nervous system. The employment of the aforementioned test in the clinical study of diabetes will aid in the understanding of the pathogenesis of each individual case and will throw light especially on the role of the liver in the pathogenesis, and thus it will aid in selecting the best method of treatment.

Riforma Medica, Naples

55: 317-356 (March 4) 1939. Partial Index

Modern Conceptions on Pathogenesis and Treatment of So-Called Hypertrophy of Prostate. A. Bergamini.—p. 319.
*Changes and Antigenic Power of Cerebrospinal Fluid in Subacute Venereal Lymphogranuloma. C. Pisacane and R. Lopresti.—p. 332.

Cerebrospinal Fluid in Venereal Lymphogranuloma.—Pisacane and Lopresti examined the cerebrospinal fluid of eight patients suffering from subacute forms of venereal lymphogranuloma. The investigations consisted in making morphologic, serologic and chemical examinations of the fluid and in using the fluid as an antigen in performing the Frei test in another group of patients who were suffering from the disease. Two patients in the group had had sufficient treatment and were considered as recovered. The cerebrospinal fluid of these two patients was normal. The Frei tests which were made with the fluid of these patients gave constantly negative results. The cerebrospinal fluid of the remaining six patients was changed. There was hyperalbuminosis in six cases, lymphocytosis in five and positive results of the Nonne and Pandy test in three and of the flocculation mastic colloidal test in all six. The colloidal response was of the syphilitic paralytic and mixed types in two cases for each type. The Frei test was done in several patients who were suffering from the disease with the cerebrospinal fluid of every one of the patients but one, who had syphilis. The test gave typical strong positive results in all cases in which the fluid of one of three patients was used and negative results when the cerebrospinal fluid used was from either of the other two patients in the group. The different response of fluids which had the same alterations showed that the fluid does not produce good antigens in all cases. The same happens when the pus of poradenitic ganglions is used as an antigen. Therefore the author concludes that the virus of venereal lymphogranuloma has a special affinity for the nervous tissues and that the disease is organic general rather than local.

Rivista di Chirurgia, Naples

5: 1-80 (Jan.-Feb.) 1939. Partial Index

*Testicular Hormone in Hypertrophy of Prostate. P. Bruni.—p. 8.
Fracture of Zygoma Cured by Direct Skeletal Traction with Screw. C. Giorgi.—p. 34.

Androgen in Hypertrophy of Prostate.—Bruni discusses the role of endocrine disorders in the pathogenesis of hypertrophy of the prostate as well as the therapeutic value of androgenic substances. The author resorted to the androgen treatment in a group of fifteen patients who were placed in three different groups according to the evolutional phase (early, chronic and subacute) of the condition. All the patients had intramuscular injections of androgen (synthetic testosterone propionate in doses of from 0.005 to 0.02 Gm. for each injection up to a total dose of from 0.07 to 0.235 Gm. The injections were administered every other day. Patients in whom the disease had lasted for less than one year and had only a moderate residue of urine had the androgen treatment alone, whereas those who were suffering from the chronic and subacute forms of the condition had a combined androgen and local treatment (catheterism and vesical lavages). The treatment induced rapid improvement up to complete disappearance of the subjective symptoms in patients in the early phase of the disease. The amount of residual urine was rapidly reduced. Azotemia and the results of the phenolsulfonphthalein test became normal and the general condition of the patients improved. The size of the adenoma did not change. The satisfactory results have lasted up to the present (four months after discontinuation of the treatment, with the exception that the residual urine slightly increased, never reaching, however, the figures that existed before administration of the treatment). In the second and third groups (those in whom the disease had lasted for more than one year and had considerable retention of urine) the results were of about the same order but much less satisfactory than those of the first group. The author therefore concludes that androgen administered to man is harmless. The general condition of the patients is improved by the treatment, which however does not modify the size of the adenoma. The treatment arrests the development of hypertrophy when it is administered early in the evolution of the disease but does not cure hypertrophy if it is already established. The treatment is indicated early in the development of the disease and as a palliative agent in nonoperable cases, when the operation is refused, in the preparation of the patients for a proper surgical operation and in the prevention of recurrences, after endoscopic resection.

Beiträge zur klinischen Chirurgie, Berlin

169: 177-336 (March 29) 1939

*Failures in Treatment of Melanoma. K. G. Lertas.—p. 177.
*Roentgen Sarcoma. P. Deuticke.—p. 214.
Reasons for Errors in Diagnosis of Bone Tumors. H. Hellner.—p. 240.
Contributions to Knowledge of Echinococcus of Pancreas. M. Paraskevas.—p. 265.
Paget's and Recklinghausen's Bone Disease. J. Husslein.—p. 276.
Blood Stasis in Upper Extremities. K.-E. Herlyn.—p. 299.

Failures in Treatment of Melanoma.—On the basis of eight cases of melanoma, Lertas analyzes the results of the various methods of treatment of this disease and the reasons for failures. The primary tumor may be so small as to escape observation and the clinical symptoms may be due to a metastasis. Serum diagnosis of a malignant condition is not dependable. Neither the clinical picture nor the histologic character of the tumor permits predicting the possible course. The advocates of operative intervention maintain that the operation is capable of radically removing the original lesion and of obtaining at least a temporary cure. Microscopic examination, however, usually demonstrates that the malignant process is deeper and wider than is perceived by the unaided eye. Microscopic study in one of the author's cases revealed the existence of an isolated metastatic tumor not far from the original growth. The analysis of the results of surgical intervention revealed that, while the majority of the cases metastasize early, there are cases with a slow course surviving decades. The results obtained with melanocarcinomas are not better than those obtained with melanosarcomas. Local recurrence is rather rare for both forms. Lymph node recurrence after removal is seen exclusively in cases of melanocarcinoma. The melanocarcinomas are less refractive to irradiation than the sarcomas, giving cures of from three to five years with irradiation, whereas of the seven cases of melanosarcoma treated by irradiation, metastases and death occurred in six. High voltage roentgen therapy appears at times to act as an activator of the growth whether applied as an independent therapeutic measure or following operative removal. The opponents of operative intervention base their argument not so much on the bad postoperative results as on the fact that many melanomas, when untreated, remain station-

ary for a long time. Adherents of surgical intervention point to the removal of the original tumor and some prolongation of life; adherents of roentgen and radium irradiation report that most of the patients obtained from two to three year cures. The author concludes that the failures of the various therapeutic measures depend not so much on the kind of therapy as on the individual character of the tumor. Neither the clinical picture nor the histologic appearance of the melanoma furnishes definite information as to its malignancy or possibility of metastasis. Metastases occur as a rule but not necessarily in every case. The author does not subscribe to the opinion that every form of treatment, particularly surgical, acts as a stimulus for the formation of metastases.

Roentgen Sarcoma.—Deuticke reports three cases of sarcoma apparently developing as the result of excessive irradiation with roentgen rays and radium. One case developed ten years after massive irradiation of a surgically removed dural endothelioma, one after excessive irradiation of a lupus vulgaris lesion, and one sixteen years after intensive radium treatment of a skin damaged by roentgen therapy for lupus. From the study of the literature and of his own cases the author concludes that tuberculosis per se does not give rise to sarcoma. Where sarcoma developed in a tuberculous lesion the latter was almost invariably subjected to excessive irradiation. The incidence of sarcoma developing in a previously tuberculous tissue which was irradiated as contrasted with sarcoma developing in tuberculous tissue that was not irradiated is as 45 : 10. The relationship of irradiation sarcoma on a tuberculous basis to irradiation sarcoma without a tuberculous basis is as 45 : 11. The combination of tuberculosis and radiation seems to favor the development of sarcoma. The fact that sarcoma appears long after the original tuberculous lesion has healed, as well as the fact that tuberculous lesions are no longer found in the vicinity of the tumor, suggests that it is the prolonged irritation of the skin that is the contributing factor rather than the specific effect of tuberculosis. Sarcoma may develop in an unspecific granulomatous tissue or from an ulcer. Chronic lesions other than tuberculosis may lead to development of a sarcoma. In all these cases, however, sarcoma is a late result of irradiation. The latent period varies from five to twenty years. The sarcomatous tumors are malignant and have a bad prognosis. Histologically they are spindle-cell sarcomas, fibrosarcomas or polymorphonuclear cell sarcomas frequently with a myxomatous transformation. The rare occurrence of the lesion does not constitute an argument against radiation therapy in cutaneous tuberculosis; however, it speaks for the necessity of observing certain precautions.

Deutsches Archiv für klinische Medizin, Berlin

183: 475-660 (March 22) 1939. Partial Index

Chronic Course of Benign Lymphocytic Meningitis. H. Vogt.—p. 501.
Blood Perfusion of Kidney in Experimental Diffuse Glomerular Nephritis. H. Sarre.—p. 515.
Question of Pathogenesis of Hemolytic Icterus. G. Lepel.—p. 552.
*New Observations on Action of A. T. 10 (Dihydrotachysterol). J. Jacobi and F. Tigges.—p. 558.
Normal Quantitative and Qualitative Thrombocytic Blood Picture During Senility. J. Arneth.—p. 564.
Investigations on Lipoid Complex in Organisms Under Influence of Digitalis. K. Westphal and Käte Koch.—p. 569.
Familial Elliptocytosis as Inheritable Anomaly of Erythrocytes. S. J. Leitner.—p. 607.

Action of Dihydrotachysterol.—Jacobi and Tigges were able to observe the action of dihydrotachysterol (A. T. 10) in eight patients with various disorders, some of which were accompanied by hypocalcemia. In a patient in whom tetany and hypocalcemia developed following the surgical removal of an exophthalmic goiter, the symptoms of tetany and of hypocalcemia could be permanently counteracted (observation for two and one half years) by treatment with dihydrotachysterol (from 75 to 180 drops) per month. In a case of sprue with severe hypocalcemia but without symptoms of tetany it was possible to normalize the calcium content with relatively small doses of dihydrotachysterol. However, in a patient with excretory pancreatic insufficiency, colitis and megacolon, in whom signs of tetany and hypocalcemia existed simultaneously, even large doses of dihydrotachysterol did not influence the symptoms of tetany. The authors suggest that a defective resorption might be responsible for this failure. In a case of idiopathic tetany with normal calcium content, which had persisted for fourteen years, small doses of dihydrotachysterol made the signs of tetany disappear, while the calcium content remained unchanged. In a patient with idiopathic tetany and hypocalcemia, relatively small doses of dihydrotachysterol were sufficient to counteract the symptoms of tetany and normalize the calcium content. Hypocalcemia in the absence of tetany, in a child with nephrosis, did not yield to comparatively large doses of dihydrotachysterol. An attempt to counteract the symptoms of osteitis fibrosa cystica by medication with dihydrotachysterol was unsuccessful; the normal calcium content was not increased even by large doses. In a woman who had tolerated unusually large doses for a period of two years without signs of intoxication and without increase in the calcium content, the medication with dihydrotachysterol was discontinued without clinical results and without influence on the calcium content. The authors conclude from these observations that contrary to the generally accepted opinion hypocalcemia is not necessarily influenced by dihydrotachysterol. Tetany and hypocalcemia may develop independently and may also react independently to dihydrotachysterol. Not all cases of hypocalcemia respond to dihydrotachysterol, and a normal calcium content remains uninfluenced even by large doses of this preparation.

Fortschritte a. d. Gebiete der Röntgenstrahlen, Leipzig

59: 193-296 (March) 1939

*Short Wave Therapy of Pulmonary Empyema. W. Dieker.—p. 193.
Sequestration of Anthracotic and Calcified Lymphatic Glands of Bifurcation with Fistula of the Bronchus and Esophagus. F. Gagelmann.—p. 217.
Use of Depth Layer X-Rays in Evaluation and Treatment of Silicosis and Silicotuberculosis. W. Silberkuhl and W. Müller.—p. 233.
Critical Observations Regarding Kymography of the Heart. P. Stumpf. p. 242.
Further Roentgenologic Studies of Volume of the Heart. H. Ludwig. —p. 250.
Roentgenologic Investigation of the Larynx. E. Lindgren.—p. 273.
Isolated and Mobile Atelectasis in Bronchial Carcinoma. K. Heckmann. —p. 286.

Short Wave Therapy in Pulmonary Empyema.—Dieker reports the results of short wave treatment in thirty-two unselected cases of empyema of the lung. Five of the thirty-two patients are excluded from final consideration because short wave treatment was employed as the last desperate resort and did not exceed four treatments. Of the remaining twenty-seven, nineteen recovered, three improved, two had to be operated on and recovered, two died and one was still under treatment. The conjectured duration of illness before treatment ranged from five to 110 days; the number of treatments given, exclusive of the five patients who died, from twenty-five to ninety; the duration of illness after the treatment lasted from thirty-four to 197 days. Many of these patients were extremely ill, creating doubt as to whether surgery ought not to be applied. Some patients were past surgical help, but the short wave treatments were so favorable that surgical intervention was no longer considered. Most of the patients felt better after the first treatment and showed progressive increase of appetite and weight and decrease of fever and fetid sputum. Simultaneous pleural empyema rendered short wave treatment of empyema of the lung more difficult. The author used the apparatus of Siemens with a 6 meter wavelength and, preferably, the glass electrodes indicated by Schliephake. On patients who could be treated only in bed, rubber electrodes were used, together with layers of perforated felt pads. Daily treatments lasting from five to fifteen or twenty minutes were administered. The determining factor for release was the actual condition of the lung as revealed by roentgenograms. Long-continued treatments caused no injury. The age of the patients (from 18 to 65) was no obstacle to the treatment; neither was the size or site of the empyema. Empyemas larger than a man's fist were successfully treated. Multiple and bilateral empyemas, those of various etiology (except when secondary to bronchiectasis) were successfully treated. Defective delimitation of the empyema, transition into gangrene, pyrexia or the patient's general condition were not allowed to delay treatment. The author concludes that short wave therapy in pulmonary empyema is the least violent of all treatments and, with proper selection of clinical material,

promises better results. It can be applied to empyemas of any size or site, to multiple and bilateral empyemas, to empyemas no matter what their etiology, to empyemas that show transition to gangrene, to patients with pyrexia, defective circulation and generally poor conditions and to cases of pleural adhesion of recent origin with promise of improvement and recovery, if treatments are continued for a long time. Treatments, the author says, should not be delayed until delimitation of the empyema has formed but begun as early as possible and be continued until the last vestige of infection has disappeared. Simultaneous pleural empyema makes short wave therapy more difficult and should be previously drained (combined treatment). The author's results are amply confirmed by the compilation of the results obtained by others through short wave therapy. Of 106 patients, eighty-eight recovered, seven improved and eleven died. Statistics for purely conservative treatment of empyema of the lung (hospital, medicines, no short waves) show a mortality rate as high as 75 per cent. The more favorable mortality rate in surgical operations still shows the high average of from 16 to 34 per cent in the experience of experts in surgery of the thorax and is higher in the practice of surgeons who are not chest specialists.

Wiener klinische Wochenschrift, Vienna

52: 249-251 (March 17) 1939. Partial Index

Classification and Incidence of Various Forms of Hypertension. E. Baráth.—p. 249.
Significance of Anamnesis for Gynecologic Diagnosis. F. Bernhart.—p. 251.
Peculiar Case of Marie-Bamberger Disease. R. Barta.—p. 254.
*Pneumoroentgenography of Kidney. B. Bibus.—p. 256.

Pneumoroentgenography of Kidney.—Bibus shows that, although it is generally possible to diagnose renal disorders by means of cystoscopy or by ascending or descending pyelography, there are nevertheless cases in which it is either impossible to employ these methods or they do not produce a satisfactory result. This is the case especially when the pathologic process spreads over the convexity of the kidney and does not influence the hollow spaces. This gap in the methods of urologic examination was filled by Rosenstein, who introduced pneumoroentgenography. After oxygen has been introduced into the retroperitoneal space, the surface of the kidney becomes visible in the roentgenogram. Pneumoroentgenography is especially helpful in tumors of the kidney. The anteroposterior exposure should be followed always by a lateral one, so as not to overlook tumors on the anterior and posterior surfaces of the kidney. In many instances it is advisable to combine the pneumoroentgenography with a retrogressive pyelography. Occasionally the benign malignant character of a tumor may be deduced from the pneumoroentgenogram. A sharp, smooth outline suggests a benign tumor, perhaps a cyst or an adenoma. A humpy or an indistinct contour indicates the possibility of a malignant growth. The second group of renal disorders in which pneumoroentgenography is indicated are the renal deformities, such as hypoplasia, horseshoe kidney and cystic kidney. In acquired changes in the position of the kidney, for instance in nephroptosis or floating kidney, pneumoroentgenography is likewise helpful. It can be employed in the visualization of extrarenal processes, especially in pathologic processes of the adrenals. The author advises against pneumoroentgenography in the large group of inflammatory diseases of the kidney, not only because it has become superfluous since the introduction of intravenous pyelography but also because it may lead to dissemination of the infection. Perinephric adhesions, however, are an exception, for reports in the literature indicate that in these cases the method is without danger and provides valuable information. The author emphasizes that he never introduces more than 400 cc. of oxygen and that with this quantity he obtains clear pictures. Finally he discusses the dangers of the method. He thinks that mild complications, such as emphysema of the subcutaneous tissue, involve no great danger. Injuries of the diaphragm and of the pleura are more unpleasant than dangerous, because when the characteristic symptoms appear the insufflation can be interrupted, before damage has been done. Oxygen embolism, however, should not be underestimated; although it rarely causes fatalities, it may lead to severe collapse. The author concludes that, although the method is not as dangerous as has been asserted by some, it nevertheless involves a certain risk and should be employed only in specially selected cases and after other methods have failed. The only method with which pneumoroentgenography might be in competition is exploratory exposure of the kidney; however, the latter intervention probably involves a greater risk and pneumoroentgenography might therefore be preferred to it.

Zeitschrift für Krebsforschung, Berlin

48: 283-390 (Feb. 21) 1939. Partial Index

Experimental Investigations on Causes of Cancer. G. Domagk.—p. 283.
Question of Retrogressive Dissemination of Cancer by Way of Lymph Channels in Case of Closure of Thoracic Duct. R. A. Obiditsch.—p. 298.
Investigations on Primary Tumor and Metastases in Adenocarcinoma. R. Böhmig and W. Schröder.—p. 306.
*Changes of Ovarian Epithelium After Treatment with Tar and Gonadotropic Substance: Hormonal Pathogenesis of Cancer. K. Katz.—p. 318.
Carcinoma of Prostate. L. Stehr.—p. 330.
Sarcoma of Testicular Coverings. H.-W. Helmbold.—p. 384.

Ovarian Epithelium After Treatment with Tar and Gonadotropic Substance.—Katz describes microscopic observations on the ovaries and the uterus of white mice, some of which were made on senile animals and some in the course of prolonged treatment with gonadotropic substance and also with the combination of gonadotropic substance and tar. Summarizing his observations, he says that in senile animals the ovarian epithelium is transformed into an erect cylindric epithelium. The same change can be produced by prolonged treatment with gonadotropic substance. However, the author gained the impression that whereas in senile mice the transformation of the epithelium takes place only after the ovarian function has become completely extinct, in mice that have been treated with gonadotropic substance the change is observed while the sexual cycle still persists. It is of interest that some regions of the surface epithelium, namely those covering the corpus luteum, do not react to the gonadotropic substance in this manner. From the fact that the same epithelial transformations take place in senility and after treatment with gonadotropic substance, the author concludes that the reaction of gonadotropic substance plays a part in the senile changes. If the treatment with gonadotropic substance is continued for a long time, squamocellular metaplasias may develop in the uterus but not in the ovaries. The combined use of gonadotropic substance and tar produces the same changes in the ovary and uterus as does the exclusive administration of gonadotropic substance; however, squamocellular metaplasias are now observed also in the ovarian epithelium. If painting with tar is used exclusively, metaplasia is observed in the ovaries but not in the uterus. From this it is concluded that the tar contains an ovariotropic substance. The biologic action of this substance indicates that it differs from estrogenic-gonadotropic substance as well as from 1,2 benzpyrine.

Acta Medica URSS, Moscow

1: 463-682 (Nos. 3-4) 1938. Partial Index

Mechanism of Therapeutic Action of Blood Transfusion in Infectious Diseases. A. Bogomolets.—p. 463.
Problem of Protein Compatibility in Blood Transfusion. Nina Medvédeva.—p. 467.
Theory and Practice of Transfusing Blood from Animals into Human Beings. J. O. Halpern.—p. 476.
*Transfusion of Heterogenous Blood for Gastroduodenal Ulceration. A. Bagdassarov, C. German, G. Gutson and M. Zoubelevitch.—p. 497.
Effect of Heteroserum and Isoserum on Organism. O. Hartoch and M. Kanevskaja.—p. 508.
*Transplantation of Hypophysis of a Cadaver into Midgets. N. A. Bogoraz.—p. 521.

Goat's Blood Transfusion in Gastroduodenal Ulcer.—Bagdassarov and his associates made repeated transfusions of the whole goat's blood into eighty-two patients with gastroduodenal ulcerative disease. From 3 to 12 cc. of the blood (on an average from 3 to 5 cc.) was introduced first at intervals of from two to four days and later at intervals of from five to seven days. A follow-up of thirty-eight cases for periods of from one and one half to two and one half years demonstrated a permanent cure in eighteen, an improvement in thirteen and recurrences with periodic invalidism in seven. Healing by scar formation was demonstrated in a number of cases of roentgen-

ography. The reactions following the transfusion present three phases: In the first phase, in which the duration is from fifteen to twenty-five minutes, there are noted dyspnea, cough, hyperemia of the face, backache and acute exacerbation of the local pain. The second phase sets in from one and one half to four hours after the transfusion and lasts from fifteen to eighteen hours. It is characterized by chills and high fever. The third phase makes its appearance in the form of hives or herpes several days later. The more severe reactions follow the second infusion. In most of the cases there were mild reactions; 8 per cent exhibited severe shock, at times with vomiting and pain and a sense of constriction in the region of the heart. Among atypical reactions were observed two instances of Quincke's edema lasting seven and twenty-two hours each. One patient developed albuminuria and hematuria. All the patients exhibited a transient leukopenia. In cases of shock reaction the phenomenon of fibrinolysis or liquefaction of the blood clot, as well as the hemophilic phenomenon or retarded clotting, was noted. Alterations in the blood albumin present two phases. In the first there is a diminution of the labile coarsely dispersible fractions, in the second a tendency to the increase in the more stable, finely dispersible fractions. Analysis of the biochemical reactions suggests that the posttransfusion reaction is of the nature of hemoclastic shock in the sense of Widal, resulting from profound alteration in the electrocolloidal balance attending on the interaction of the albuminous micelles of the donor and the recipient. The reason for healing and scar formation of ulcers is to be found in the stimulating effect of colloidoclasis with formation of products of breaking down of the albumin by the intracellular ferments. Nephritis, active tuberculosis, hypertension, febrile states, bronchial asthma, heart lesions and certain allergic states constitute absolute contraindications to the transfusion of heterotransfusion. Among the relative contraindications the authors mention old age, generalized arteriosclerosis and hysteroneurasthenic reactions.

Transplantation of Hypophysis into Midgets.—Bogoraz points out that the failure of the many attempts at transplanting viscera was believed to be due to the necrosis or absorption of the transplant. The question of whether, in a successful attempt, the transplant acted as a substitute for the damaged endocrine gland or merely as an activator of the functions of the remnants of the original gland has not been answered. The author describes his own method of transplanting a hypophysis removed from a cadaver into midgets with a hypoplasia or a lesion of the pituitary. The hypophysis is removed from tall healthy persons between the ages of 15 and 35 years from three to six hours after death from acute trauma. The gland is removed together with the corresponding segments of the two internal carotid arteries. A segment of the brachial artery of the patient is dissected free and is compressed between two clamps. The brachial artery is incised at this point and the transplant is sutured to it. The peripheral end of the internal carotid is thus compressed between the clamps compressing the brachial artery. The incised brachial artery is now sutured to the carotid with fine silk sutures. The peripheral clamp is opened first and blood is permitted to enter the transplanted artery and the hypophysis. The central clamp is next removed, after which the transplant is seen to pulsate and take on a pinkish coloration. The author has performed thirteen transplants with this method in five male and six female subjects. Their statures were between 94.4 and 139 cm., and their ages between 9 and 21 years. The greater number of these exhibited sexual hypoplasia and obesity. The transplants took in all of them and effected an increase in growth of from 2 to 15.6 cm. in the period of observation for from one and one half to twenty-five months. Stimulation of the growth was clearly demonstrated in the cases in which the author had the opportunity of observing the midgets for as long as one and one half years before the operation, during which period they did not grow but three weeks after the operation exhibited an increase in height amounting to several centimeters. This increase in height spoke in favor of the effect of the transplant on the growth. Of the eleven patients, only one attained the size of a man of low stature; the rest, although improved, were still midgets. With the increase in growth there was noted a mild stimulating effect on the sexual organs and the libido.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

83: 1107-1198 (March 11) 1939

Difficulties During Delivery Caused by Congenital Deformities of Fetus. J. C. Beker.—p. 1108.
*Morphologic and Experimental Contribution to Pathogenesis of Hepatic Changes in Exophthalmic Goiter. J. Zeldenrust and C. C. van Beek. —p. 1114.
Falling-Off of Stump of Umbilical Cord. R. T. Meurer Jr.—p. 1125.
Treatment of Schizophrenia with Insulin and Metrazol: Results After Two Years. C. P. J. Stotijn.—p. 1129.
Relations Between Hypertrophy and Cancer of Prostate. I. Boerema. —p. 1136.

Hepatic Changes in Exophthalmic Goiter.—Pathologic investigations in sixteen cases of exophthalmic goiter and the result of animal experiments convinced Zeldenrust and van Beek that thyrotoxicosis causes toxic damage of the liver. This impairment manifests itself in a noticeable decrease in the glycogen content and in an atrophy of the hepatic cells, which may result in a considerable decrease in the size of the liver. Moreover, degenerative changes may be seen in the hepatic cells. Occasionally the toxic action is so severe that necrosis of the hepatic tissues results; this may be so extensive that the picture is that of acute yellow atrophy of the liver. In chronic poisoning with thyroxine, in which bacteriotoxic influences could be excluded, the authors twice obtained extensive necrosis of the liver, which corresponded with the initial stage of acute yellow atrophy. Small foci of necrosis were found regularly. In the marginal zones of these experimental necroses, as in the liver of subjects with thyrotoxicosis, a slight inflammatory reaction could be seen. Congestive induration is also frequently observed in the liver of patients with thyrotoxicosis. The irregular distribution of blood in the livers of these patients may be the result of degenerative swelling of the cells and of atrophy. Moreover, cardiac insufficiency often causes irregular blood perfusion of the liver. No conclusive evidence could be found for the assumption that the hepatic changes in thyrotoxicosis are the result of a serous hepatitis.

Upsala Läkareförenings Förhandlinger, Uppsala

44: 219-318 (Feb. 15) 1939

Method of Examination and Comparative Chemical Analyses of Teeth of Man, Monkey, Dog and Swine. G. Bremer.—p. 219.
Relation of Number of Neurites in Roots of Spinal Nerves During Postfetal Life of Domestic Cat. K. Kjellgren.—p. 247.
Case of Encephalitis After Chickenpox with Ophthalmoplegia Interna as Sequela. B. Walquist.—p. 257.
Determination of p_H of Juice Pressed from Frog Muscle in Rest and After Exhaustion. N. Rundqvist.—p. 263.
Continued Investigations on Effect of Spasms Due to Metrazol on Brain and Heart of Rabbit. P. Nyberg.—p. 267.
Case of Congenital Pneumonia with Empyema. G. Edgren.—p. 277.
*So-Called Spontaneous Perirenal Hematoma. R. Kaijser.—p. 283.
Two Rare Tumors of Sympathetic Nerve. N. Gellerstedt and N. Thyresson.—p. 303.
Method for Preparation of Specimens of Blood Which Afford Equal Distribution of Elements of Blood Corpuscles: Preliminary Report. G. Beander.—317.

Spontaneous Perirenal Hematomas.—Kaijser emphasizes that in all cases of perirenal hematomas originating from the kidney in which something is known about the cause of the bleeding there is either reduced coagulation ability of the blood or there are anatomic changes in the small or moderately large vessels of the kidney. Perirenal hemorrhages in cases with infarcts appear almost exclusively in septic infarcts, in which there is the greatest possibility of a direct lesion of the small or moderately large arteries. This, he says, is evidence that the anatomic changes are present and that hemorrhages do not occur by diapedesis. In many cases in which the cause of the bleeding cannot be established, small aneurysms or other changes may have been overlooked; in others the hemorrhage may, though less probably, depend on vasomotor disturbances. Diagnosis is based on the triad of pain in the renal region, increasing fulness in the region and signs of internal hemorrhage in the form of a considerable anemia. The importance of a specific diagnosis of the cause of the hemorrhage is stressed. A personal case and several cases from the literature are cited which show that perirenal hematomas due to septic infarcts usually appear after an acute infection, are accompanied by fever and are so characteristic that they may be considered as a definite entity which can be diagnosed in typical cases.

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 112, No. 25 — COPYRIGHT, 1939, BY AMERICAN MEDICAL ASSOCIATION CHICAGO, ILLINOIS — JUNE 24, 1939

PSYCHIATRY AND GENERAL PRACTICE

AN ORIENTATION

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NEW YORK

Any specialized branch of medicine which fails to provide for a mutual understanding between itself and other branches will become stifled with its own unpractical theories. Ultimately new ideas are tested at the bedside, and this holds true for psychiatry as well as for other branches. Psychiatry needs help from general physicians, specialists and research workers, and in return it has much to offer. The lack of understanding between psychiatry and the other branches of medicine is due to several factors which will be discussed here. As a general physician who has undertaken the study of neuropsychiatry, I feel that I am in a position to point out the causes for this lack of understanding. Unfortunately there is too much institutional red tape to allow the state hospital psychiatrists to maintain a liaison between their work and those in the active practice of medicine.

Part of the misunderstanding arises from the fact that psychiatry is a new branch, that there are several schools of thought, and that the average physician does not have the time to investigate for himself. The general attitude is well reflected in the words of a capable surgeon of my acquaintance, who said of psychiatry "I have not been able to make up my mind whether there is anything to that stuff or not."

One school stresses behaviorism, another repressed ideas, another dissociation of ideas, another individual psychology or inferiority complexes, another analytic psychology and still another objective psychobiology. Each of these schools has exerted and is now exerting its influence on modern psychiatry. No science was born in a day and each has its history of men, contributions, setbacks and new discoveries. The wise psychiatrist is aware of all these schools of thought and applies them according to the case in hand, just as the internist decides between medicine and surgery in each case of gastric ulcer.

PSYCHIATRIC EDUCATION

The psychiatric slant, insight or approach is knowledge that seems to be born in a few but is learned by most physicians by hard work and study. It gives the physician an advantage which places him above the average. One such physician, a general practitioner without any psychiatric training, recently died in an Eastern city. Almost immediately no less than a half dozen of his patients were seen at a psychiatric clinic. That man, by means of patience, understanding and a self-developed psychiatric insight, was able to keep those patients adjusted. He would have resented being called a psychiatrist, but he certainly had developed a psychiatric approach. Other physicians, without training and without a natural tendency for psychobiology, strive hard in medicine and are experts in the scientific phase of their work but neglectful of what I choose to call the art of practicing medicine. How is this psychiatric point of view to be developed?

The medical student today is being given more adequate courses in psychiatry. The work is begun in the academic schools with general normal psychology and is followed in the medical years with psychobiology and lastly psychiatry. Too many courses of the past plunged the student abruptly into psychiatry with no psychobiologic background. Between the two it seems to me that the latter is more important to the physician than the former. Psychiatry courses teach about the frankly psychotic patients who are usually sent immediately to special institutions. Psychobiology, on the other hand, is the subject that gives one a better understanding of everyday people, neurotic patients and patients on the borderline between normal and abnormal. For those who did not study these illuminating subjects in their medical courses I recommend some of the good works now out on psychobiology. William A. White, G. W. Henry, C. M. Campbell and others have written books that would be a delight to any man in the general practice of medicine. Not only will such knowledge help the physician to understand his patients more completely but he will learn to derive a greater pleasure from his practice. Incidentally, some physicians might also be able to improve on their own personalities.

There should be more cooperative work between medical men in each state and their respective state hospitals. There is an abundance of material there for their psychiatric education. Young men, before graduation, could spend a profitable summer in such an institution as clerk, attendant or nurse. State hospital staffs should arrange annual graduate courses of a few weeks for those who care to widen their medical training. Men who have thus acquired a psychiatric insight could be of help in seeing patients on parole from state hospitals in their part of the state. No physician would find this a waste of time, and his psychoneurotic patients would begin to note in him a new feeling of sympathy and understanding. It has been truthfully stated that a knowledge of psychologic medicine would be the greatest force in the prevention of socialized medicine.

PSYCHONEUROSIS

Today as always one of the most important problems to both the psychiatrist and the general physician is that of psychoneurosis. One does not solve a problem

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by making sarcastic remarks. The physician is rationalizing, says the psychiatrist, when he dismisses a patient by saying "she is just another neurotic." The physician who has been trained in cellular pathology and bacteriology finds it difficult to understand the psychoneurotic patient in the light of this training. He must learn to analyze the neurotic symptom. It is an actual disturbance dependent on changes in three definite and important systems of the human body. I will try to show that the neurotic symptom is a dysfunction, involving to a varying degree the endocrine system, the sympathetic nervous system and the psyche (mind or central nervous system). As an illustration, take an ordinary fear reaction. Through the central nervous system a danger (a fire or a gangster) is perceived; through the sympathetic nervous system the adrenals are stimulated to produce epinephrine, more dextrose is released into the blood and the person is prepared for defense or escape. This is a normal functioning of the three systems mentioned and is one which every one is aware of. Another psyche-sympathetic endocrine reaction, and one which more nearly approaches the neurotic symptom, is that of blushing. Embarrassment, which is outwardly manifested in blushing, is a reaction involving a certain association of ideas in the mind about which the individual is particularly sensitive. As a result of this mental disturbance the sympathetic nervous system is stimulated and, probably with some assistance from the endocrine system, the cutaneous blood vessels are dilated. Blushing is a simple but definite emotional reaction not unlike the neurotic reaction except in its simplicity. Like the neurotic symptom it is instigated by a repressed sensitive thought or idea, and also like the neurotic symptom it is beyond the control of the subject. It is also of concern to the sufferer in some cases, and yet one could not tell him to "forget it." One of my patients, an intelligent person, was able to connect his insomnia and "night sweats" with certain painful and sensitive thoughts which stimulated his abnormally keen sympathetic nervous system.

Such an association of ideas may likewise stimulate the sympathetic system to act on the glands of internal secretion to produce a hyperchlorhydria and thereby produce a typical pain of gastric ulcer. The patient feels the pain; it is a functional but actual symptom and deserves attention. The sufferer cannot be accused of "putting on" any more than one could accuse the blusher of shamming his sympathetic reaction. Some writers have aptly compared the neurotic symptom to a referred pain. Just as the referred epigastric pain is a symptom of appendicitis, so may the neurotic pain be an outward manifestation of a repressed painful thought.

Those who prefer this psychophysiologic explanation of neurotic symptoms will find sufficient evidence to substantiate their views. Wechsler [1] said:

> All the facts thus far accumulated point to a reciprocal relationship between the glands of internal secretion and both the vegetative and cerebrospinal nervous systems. It is not altogether established whether the nervous system controls the internal secretions or the ductless glands primarily influence the nervous system. The latter is relatively older phylogenetically, and its presence can be demonstrated in lower forms before there is any vestige of ductless glands. However, there is an undoubted hormonal as well as neural relation between the two systems. The intimacy of the relationship is attested morphologically, anatomically, physiologically, pharmacologically and clinically. It is a well known fact that psychic impulses, mediated through the nervous system, influence the activity of the glands of internal secretion and may give rise to perverted and diseased function. Intense emotions of rage, terror and anxiety may cause hyperthyroidism or glycosuria.

The frequency with which endocrine disturbance is observed in mental patients must have some significance. It is said that more than one third of the schizophrenic patients show such disorders.[2] Involutional psychosis is beyond doubt closely associated with endocrine changes.

The following case from my general practice illustrates the influence that the endocrine system exerts on mental conditions:

> CASE 1.—W. B., aged 21, was the youngest daughter of a teacher in a small town. She was of a quiet and retiring disposition. She had always shown a tendency to be overweight. Her skin and features were coarse. While taking a nurse's training course away from home she was observed to stare into space, keep to herself and eat food left from patients' trays. Examination revealed a slow pulse, mental depression and a low metabolic rate. Thyroid extract caused the patient to become more animated, show more interest and lose weight. She was advised to stop training. Seven months later she presented herself complaining of overweight. She was observed to be more depressed and retarded than her complaint would justify. But again the patient showed improvement on thyroid extract. At the present time she is adjusting well.

It is difficult to say just what kind of mental reaction this is. Psychoneurosis and reactive depression must be considered. Many hospitals would place her immediately in the schizophrenic group. At any rate the case illustrates the close connection between the endocrine system and the mental dysfunction. Those who see these early mental conditions should view the patient from all angles and as a last resort make a diagnosis of a malignant mental disease.

It is erroneously supposed that the neurotic individual could prevent or forget his symptoms if he only cared to do so. The neurotic symptom is itself a by-product of a sincere attempt to overcome a more serious problem. It is a substitution, a replacement of a formidable difficulty by a simpler one. One cannot accuse the neurotic patient of not trying to overcome his illness. The fact is, he attacks a much more serious, more deeply seated problem and is finally able to effect a compensation, so that when the physician is confronted with a simple neurotic symptom he should visualize the agonizing battle which occurred within that patient before the symptom was evolved. Jastrow [3] said:

> To call them imaginary is a crude and ignorant and, in practice, an unjust misreading of the victim's responsibility. The neurasthenic has to fight for every inch of health and poise and, when he wins, deserves a hero medal, for he is a fighter under the unfairest handicaps that could be imposed; he has the hardest task with the least energies to meet it.

Another reason for impatience with the neurotic individual should be considered: A physician expects his patients to return not with the same story of woe but with a report of improvement. When this report is lacking, visit after visit, he begins to feel inadequate and guilty, and consequently he projects this feeling back on the neurotic patient. This is the cause of the defensive expression "just another neurotic." The phy-

1. Wechsler, I. S.: Clinical Neurology, ed. 3, Philadelphia, W. B. Saunders Company, 1935, p. 661.

2. Wertham, F. I.: The Incidence of Growth Disorders in 923 Cases of Mental Disease, Arch. Neurol. & Psychiat. 21:1128 (May) 1929.

3. Jastrow, Joseph: Clinical Psychology and Psychoneuroses, in Bentley, Madison, and Cowdry, E. V.: The Problem of Mental Disorder, ed. 1, New York, McGraw-Hill Book Company, 1934, p. 322.

sician need not reproach himself if his neurotic patient does not improve in the same way his other patients do. The neurotic patient is not blaming any one but is only looking for a sympathetic, understanding listener.

Physicians who work on the foregoing principles will soon find themselves dropping the word neurotic from their vocabulary and using instead such phrases as menopausal depression, hypothyroidism, mild involutional melancholia and hyperchlorhydria due to psychogenic factors of unknown origin.

PSYCHOANALYSIS

In the first section of the article the various schools of psychology were mentioned. At this point I wish to discuss one particular school that of "repressed ideas" or psychoanalysis, because it has tended to overshadow its mother subject and led many to believe that it dominates the whole field. Still speaking as a general practitioner with a knowledge of psychiatry, I hope to clear up some of the misunderstanding between psychiatry and other branches of medicine. Unfortunately, some psychiatrists and psychoanalysts consider their work too complicated for the average physician and attempt to place themselves on a pedestal by confusing the subject with useless phraseology. Again I maintain that a specialty cannot be built except on the understanding and cooperation of the man at the bedside. Knowledge of psychoanalysis, like other psychiatric methods, has a place in the hands of the general man, and it is for the psychiatrist to effect an understanding.

Sigmund Freud, anatomist of Vienna, in 1888 watched the neurologist Charcot attempt to cure hysteria by hypnotism. Many of the patients returned with their symptoms converted to another part of the body. Freud saw that the underlying cause of the hysteria was not being cured by Charcot's hypnotism. He also tried hypnotism in the treatment of certain neurotic conditions and, as a result of his experiments, was able to prove that human beings possess an unconscious mind. This fundamental discovery had been recognized by philosophers [4] before the time of Freud, but it had a special significance to the medical man. His subsequent work and contributions were built on a more thorough study of the unconscious mind. He found that it used symbolisms, that it paraded in our sleep as dreams and that it had a great deal to do with the lives of neurotic as well as so-called normal persons. It was while studying the unconscious mind that Freud recognized that sexual strivings play an important part in the life of man and that they begin to show their influence not at puberty but at birth. Incidentally, Freud's words on sex are scanty as opposed to the popular belief that his whole school of thought is based on sex. It is to Krafft-Ebing, Havelock Ellis and others that we are indebted for a thorough study of that phase of man.

Having proved the presence of the unconscious mind, Freud evolved the idea on which psychoanalysis is based, that painful ideas and unacceptable wishes, from early childhood, are repressed into the unconscious mind and later make their appearance transformed into outward manifestations which are called neurotic symptoms. Why some people are able to change these painful ideas comfortably into less painful ones, whereas others cannot be so successful, Freud has not been able to explain. Perhaps endocrine and sympathetic dysfunction may have some bearing on this psychophysiologic mechanism. At least Freud stated that his theory was not incompatible with an organic or physiologic explanation. Unfortunately, we have too many enthusiasts who blindly study the freudian mechanisms without trying to find a physiologic explanation for them. It is said that the patient is suffering from an unconscious death wish against the male parent, or, since there was a homosexual arrest in the psychosexual development of another patient, he became neurotic. Going over the same mechanisms day after day, patient after patient, for the last fifty years has been interesting enough for psychiatrists but has tended to separate their work from the rest of medicine.

Besides, these are not fundamental etiologic explanations. They are true observations, and without Freud's ideas we would still be groping in the dark. But are they primary causes? It is as if one discussed the rose spots of typhoid or the night sweats of tuberculosis in a sense that they were fundamental. I maintain that they are interesting phenomena and bear some relation to the disease, but what are rose spots and night sweats compared to the discoveries of Eberth and Koch?

At the present time there is a tendency to develop a physiologic explanation of the neuroses. Even back in 1921 Kempf [5] attempted a beginning in this direction. He said: "Freud's discovery that the [repressed] wish is the dynamic factor in the personality, as one feels it in himself, did as much for psychology and psychopathology as Darwin's theory of evolution did for biology. The next logical development is to account for the physiological nature and origin of the wish. Most freudians do not try to explain it." Kempf gave as the physiology of the wish (which is the dynamic principle of all behavior) the stimulation and counterstimulation of different segments of the autonomic apparatus. Within the latter he included the endocrine system, all smooth musculature and the sympathetic nervous system. He based his ideas on the experiments of Pavlov, Cannon, Watson and Sherrington as well as on his own clinical observations.

Tendencies today are pointing again toward research in chemistry, physiology and endocrinology for an explanation of the neuroses. A recent book, "The Problem of Mental Disorder," [6] gives a relatively small space to psychologic theories. Neurology, biology, physiology, chemistry, neurocytology, neural integration, nutrition and vitamins are the subjects attracting the attention of workers today. No doubt the profession in general will find in modern psychiatry much that can be used in everyday practice.

As Freud [7] returned to Europe from his one trip to America he expressed the belief that Americans were overlooking the real gist of psychoanalysis. Undoubtedly there was misunderstanding concerning his ideas, and apparently Freud was looking into the future. Certain enthusiasts, some of whom were poorly adjusted themselves, immediately connected psychoanalysis with sex perversion and voodooism, causing the scientific medical man to beware of its influence. Today, however, Freud's teachings are becoming settled to their practical application. Our best analysts recognize and speak of its limitations, but all psychiatrists feel indebted to psychoanalysis not only as a method of treatment but as a school of psychology. It is a psychology which

4. Leibnitz, Herbart and Spinoza.

5. Kempf, E. J.: *Psychopathology*, ed. 1, St. Louis, C. V. Mosby Company, 1920, p. 5.

6. Various authors in Bentley and Cowdry.[3]

7. Wittels, Fritz: *Sigmund Freud*, London, George Allen & Unwin, Ltd., 1924.

guides us in our histories, care, treatment and interpretation of patients and their problems. Orthodox psychoanalysis itself is comparable to research in other lines, and as various mental mechanisms are uncovered in the psychologic laboratory the psychiatrist has more with which to work.

For those who do not care to study the unconscious with Freud as their teacher, I recommend the great literary men who were the first psychologists and learn from them indirectly how the unconscious mind directs conscious activities. Follow Becky Sharp with Thackeray or Lord Jim with Conrad for some beautiful psychologic observations. The unconscious death wish was well expressed by Bernard Shaw in the hell scene when Don Juan says "You may remember that on earth—though of course we never confessed it—the death of any one we knew, even those we liked best, was always mingled with a certain satisfaction at being finally done with them." Such lines as Gertrude's in Hamlet "the lady doth protest too much, me thinks" serves to illustrate Shakespeare's intuitive feeling about human behavior.[8]

The general physician will find a study of psychoanalysis to be gratifying to his professional outlook as well as to his everyday enjoyment of life. Psychoanalysis of the family[9] should be of particular interest to the general physician. He is in an ideal position to observe a family over a period of years. The hysterical daughter, though married, still within the shadow of the domineering mother, is an example. The stern grandfather, the sacrificing mother, the neurotic daughter, the drunkard son, the well adjusted cousin—all these parade before the eyes of the family physician. He can watch the little child, as she trudges along to kindergarten, trying to adjust life's problems to the maladjustments of those at the family fireside. And the family physician, who has insight into these important relationships, is in an enviable position to suggest here and there and perhaps save a susceptible child from a miserable life of neuroticism. Knowledge of psychoanalysis can be made a useful ally of every medical man.

As a sailor who does not believe the world is round is obliged to sail his ship, using a round world for his plots and guides, so shall the physician who does not believe in psychoanalysis be obliged to use that school of thought as one of his adjuncts in taking histories, studying patients and their families, as well as in advising treatment.

DEMENTIA PRAECOX

Lastly, I wish to speak of the dementia praecox patient and his relationship with the medical profession. In our medical course we were taught about the well developed case of peritonitis, with boardlike rigidity and shocked facies. But in practice we are not so concerned over such a patient, who is doomed to die anyway, as we are with the early, mild case of localized peritonitis. So it is in psychiatry. The textbook picture of dementia praecox shows a person with a well developed delusion of persecution, hearing voices and receiving messages through a radio carried in his abdominal cavity. But we are told little about the mild cases of dementia praecox, the patient with only one symptom, and that carefully guarded by an evasive personality. The markedly psychotic patient is sent to an institution, but the mild cases are those seen every day by the general physician. The meagerness of psychotic material expressed by some well developed schizophrenic patients is a thing not generally realized. It is said that some paranoid praecox patients are to be recognized as much by what they fail to say as by what they do say. To overlook such a diagnosis might result in serious consequences. The following is a case from my general practice which illustrates the point:

CASE 2.—Mrs. E. C., aged 32, came for antepartum care in the sixth month of her fifth pregnancy. She showed no psychotic symptoms at that time; she was simple in her behavior, but this was discredited because of her lack of education. She always called me by my first name; she had also called her previous physician by his first name. (If this clue had been followed at the time no doubt some delusional idea concerning her physicians could have been uncovered.) The patient's labor was uneventful. One year later the new baby had pneumonia. Hospitalization was not permitted and the baby's progress was unsatisfactory. After the baby's death the mother stated that she had received messages over the radio for the care of the baby. This was the first and only frankly psychotic symptom expressed by the patient. I had difficulty in convincing the husband that his wife was psychotic. A few months later she became disturbed and was committed to a state hospital, where the diagnosis of dementia praecox was made.

The following case is offered as an illustration of what frequently happens to mildly psychotic persons. The records of any state hospital will show that this case is not an exaggeration but rather typical of what occurs when nonpsychiatric internists and surgeons are confronted with mild psychoses.

CASE 3.—C. S., a man aged 25, complained of vomiting attacks of six years' duration. The patient's father had been an epileptic with psychosis and died when the patient was 3 or 4 years old. Our patient was in the eighth grade at 15 when he began to stutter and have difficulties at school. He then quit school and worked at various jobs; he was a clerk in a wholesale drug firm and a laborer in a garage and later played a saxophone in an orchestra. In September 1926, when he was 19, he began to vomit, especially in the presence of other people. He had always been of a quiet, seclusive disposition, and at this time these traits became more pronounced. He lost weight and his hands became "cold and bluish." He was seen by several physicians and given medicine with no relief. The vomiting continued and he frequently withdrew to his own room when there was company in his home. Finally it became an effort for him to eat with his own family, and he would perspire when attempting to do so. A surgeon was consulted, and in January 1927 the patient was operated on for gastric ulcer. A gastro-enterostomy was performed and the patient made an uneventful recovery from the operation. No improvement occurred, but the patient obtained employment, which he was able to keep for about eight months. The vomiting persisted and his condition continued about the same for the next three years. In 1931 he was seen in a city hospital clinic, where a psychiatrist advised him to try living in the country. He lived on a farm practically alone for six months. In February 1932 he returned to the city, reporting to the psychiatrist that there was nothing left for him but suicide. He was committed to a mental institution.

On admission to the Buffalo State Hospital the patient was quiet, shy and seclusive but cooperative. He was depressed; he said that he had been examined by twenty-three doctors and that suicide was apparently the only way out. He stated that he did not have hallucinations but did say that he had been called vile names by his fellow workers, and he had felt that people on the street were talking about him. He requested that he be permitted to eat in his own room but was told to mix with the other patients and attempt to eat with them. He had a feeling of uneasiness when eating in the presence of others and frequently vomited soon after meals. The patient's history and problems were discussed with him in a sympathetic manner. He was told that his vomiting was of nervous origin

8. Jones, Ernest: Essays in Applied Psychoanalysis, London, International Psychoanalytical Press, 1923.
9. Flugel, J. C.: The Psychoanalytic Study of the Family, London, Hogarth Press, 1926. Kempf.[5]

and that he could overcome it by gradually adjusting himself to his environment. On one occasion he requested an interview with the physician and was found to be worrying over masturbation. Other sexual problems were discussed with him, and he seemed much relieved. He liked the hospital and stated that it was the only place where he had found any relief. He exhibited mannerisms and presented a slightly inadequate emotional reaction. Briefly, the patient made a good hospital adjustment. A diagnosis of dementia praecox was made. He has now been in the hospital six years. Whenever parole or discharge is suggested to him he begins to vomit. He is a good worker, pleasant and agreeable, and takes a part in the hospital orchestra.

Several significant points stand out in this case. The underlying personality of this individual was either overlooked or its importance was not recognized by at least a dozen physicians. The definite mental symptoms accompanying his chief complaint were apparently discarded as unimportant. A threat of suicide was necessary before he could obtain sympathetic consideration. A final observation here is the small amount of consultation necessary for this patient to make a fair adjustment.

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PELLAGRA OF KENTUCKY MOUNTAIN FOLK

AMBULATORY TREATMENT WITH NICOTINIC ACID

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CINCINNATI

Since remarkable results of nicotinic acid treament of acute pellagra have been reported from numerous sources [1] it naturally follows that the same treatment should be tried in recurrent and chronic forms of the disease as seen in an ambulatory clinic. The application of dietary measures, even with the aid of yeast, has not been satisfactory with the ambulatory patient. Now, with an inexpensive and easily administered remedy, so-called control of the disease could be attempted. At the invitation of the Frontier Nursing Service, Inc., of Kentucky and the Health Department of Perry County, the treatment of ambulatory cases among mountain folk was started in April 1938 in a public health clinic. The study and methods of treatment were similar to those used by the University of Cincinnati, under the guidance of Dr. Tom D. Spies, at Birmingham, Ala.[2]

Unlike the clinic treatment recently described from Augusta, Ga.,[3] our method of therapy attempted to fit the dosage to individual cases and to the complaints, and therefore much larger amounts were given.[4]

Perry County lies in the southeastern part of Kentucky and in 1930 had a population of 42,186. Its largest town has a population of 7,061. The chief industry of the town and county is coal mining. The coal miners are, in the main, mountain folk who cling to the traditional diet of syrup, corn meal and fat meat. Combined with this is the fact that they are no longer farmers. They usually have the customary miner's cabin, with a small plot of ground, and go as the coal industry goes. The county population otherwise is rural, of the mountain type. Pellagra has been endemic here for a long time. These circumstances of dietary habit and economic isolation were ideal for therapeutic trials, for neither the patient nor the physician could do anything about changing the diet.

The majority of the patients who attended the clinic were referred by local physicians who were interested in the nicotinic acid study. Others were referred by patients who were receiving treatment. Only those patients who gave evidence of active pellagra were selected for treatment.

The material of the study (from May 15 to Nov. 1, 1938) is summarized in table 1. In the main, table 1 is self explanatory except that two patients were from the same family—mother and daughter. There was an uncommonly large proportion of multiparous women. On the first visit to the clinic a definite history of pellagra was obtained. The course of the present attack was recorded in chronologic sequence. The dietary history included the type and amount of food consumed and the source of the food supply. Associated conditions and diseases that might be contributory also were listed. Further notations were made about the patient's physical status. Subsequent visits, at weekly intervals, included general observations about the patient's course, weight, blood pressure, pulse rate, state of dermal lesions and visible mucous membrane lesions. Neurologic examinations were done as indicated by subjective observations. Tendon and muscle reflexes were elicited as well as proprioception, touch, pain and pressure. Further examinations were done as time and facilities permitted.

"Duration of disease" is given in terms of onset of the first symptoms of the current attack in weeks prior to the first visit. In the majority of cases the onset of the dermal lesions and the onset of the disease coincided. In others, general subjective symptoms or diarrhea began from one to eight weeks prior to the onset of other symptoms.

"Previous attacks" show recurrent and initial attacks, twenty-four and seventeen respectively. One notes previous attacks ranging from one to ten, with a child aged 10 years having its fourth recurrent attack.

Under "associated conditions" are listed miscellaneous data such as nursing mothers (six) and those having menopausal symptoms (seven). Several had hypertension in contrast to the expected normal of hypotension.

Only the pellagra-preventing types of food are tabulated under "diet." This is done with the full realiza-

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The Perry County Health Officers and their staff helped in this work as well as the physicians who sent patients to us. We were aided by Miss Marion Ross, statistician of the Frontier Nursing Service, Inc.

1. Reports have been published by:
Fouts, P. J.; Helmer, O. M.; Lepkovsky, Samuel, and Jukes, T. H.: Treatment of Human Pellagra with Nicotinic Acid, Proc. Soc. Exper. Biol. & Med. **37**: 405 (Nov.) 1937.
Harris, Leslie: Nicotinic Acid and the Pellagra-Preventing Vitamin, Nature **140**: 1070 (Dec. 18) 1937.
Smith, D. T.; Ruffin, J. M., and Smith, Susan G.: Pellagra Successfully Treated with Nicotinic Acid, J. A. M. A. **109**: 2054 (Dec. 18) 1937.
Spies, T. D.; Cooper, Clark, and Blankenhorn, M. A.: The Use of Nicotinic Acid in the Treatment of Pellagra, ibid. **110**: 622 (Feb. 26) 1938.
Rachmilewitz, M., and Glueck, Helen I.: Treatment of Pellagra with Nicotinic Acid, Brit. M. J. **2**: 346 (Aug. 13) 1938.

2. Spies, T. D.; Bean, W. B., and Stone, R. E.: The Treatment of Subclinical and Classic Pellagra: Use of Nicotinic Acid, Nicotinic Acid Amide and Sodium Nicotinate, with Special Reference to the Vasodilator Action and the Effect on Mental Symptoms, J. A. M. A. **111**: 584 (Aug. 13) 1938.

3. Schmidt, H. L., and Sydenstricker, V. P.: Nicotinic Acid in the Prevention of Pellagra: A Preliminary Note, J. A. M. A. **110**: 2065 (June 18) 1938.

4. The nicotinic acid used in this study was furnished by Dr. Isaac F. Harris, director, the Harris Laboratories, Inc., Tuckahoe, N. Y.

tion of the many discrepancies that exist between food reported consumed and food actually consumed. As a rule, the tendency was to conceal the facts about the scarcity of adequate fresh foods. Local farms are known to be limited in size and fruitfulness, save in a corn crop. Mining income was markedly limited in this particular season (employment only up to three days a week). The food supply came from the general store or the company store. The chief food articles purchased are dry salt bacon, lard, flour and bolted meal, sugar, coffee and beans (pinto and navy).[5] Miners in mining sections are frequently obliged to purchase from the so-called commissary, which is more expensive and offers a restricted supply of fresh foods. Gardens, chickens and cows furnish further supplies. Thirty patients reported gardens of varying sizes, five as having a cow and eleven as keeping chickens. The mining group had fewer supplements of this nature. In general, the consumption of vegetables seemed to be adequate among most of the patients having a limited intake of milk, eggs and meat.

Table 2 relates the clinical story. There seem to be any number of combinations characterizing the onset. The usual story is one with a slowly progressive group of nondescript complaints which frequently are of weeks' duration, increasingly severe, until the appearance of objective signs. In other individuals the onset is occasionally objective. All the items listed are observations and complaints made on the first clinic visit. A patient was listed as having mental symptoms if he was confused or incoherent or had hallucinations or delusions. We think that such symptoms are more frequent than is usually stated.[6] Tachycardia was noted as such after a persistent pulse rate in excess of 100 a minute.

The last three columns list the patients in terms of severity of their disease as acute (eleven), subacute (twenty-two) and chronic (six). Two cases were considered subclinical (36 and 39). Of the eleven acute cases, seven were recurrent. The dermal lesions were the chief factor in this attempted classification because of their preponderance.

The clinical course of the patients varied markedly. Dermal and mucosal lesions responded to treatment in a dramatic manner. New and severe lesions cleared up

TABLE 1.—*Descriptive Data*

Case	Age	Sex	Gravida	State of Nutrition			Diet Pellagra-Preventing Foods*				Duration of Disease, Weeks	Previous Attacks	Associated Conditions
				Poor	Fair	Good	Milk	Meat	Eggs	Vegetables			
1	45	♀	12	..	..	+	0	+	0	++++	1	0	Climacteric
2	18	♀	1	..	..	+	++++	++++	0	++++	8	0	
3	8	♀	..	..	+	..	+	+	0	++	1	0	
4	36	♀	7	+	..	..	+	+	0	++++	8	10	Nursing mother
5	42	♀	8	..	+	..	0	0	+	++++	9	6	Climacteric; Parkinson's disease
6	30	♀	10	+	..	..	0	+	0	++	16	0	Nursing mother
7	30	♀	8	..	+	..	+++	0	++	+++	8	6	
8	28	♀	8	+	..	..	0	0	+	++++	8	3	Nursing mother
9	35	♀	9	..	+	..	0	+	0	++	6	0	Nursing mother; hypertension
10	18	♀	..	+	..	..	0	+	0	++++	6	0	
11	10	♀	..	..	+	..	+++	+	+	+	4	3	
12	32	♀	6	..	+	..	0	+	ND*	+	16	1	
13	37	♀	10	+	..	..	+	0	ND	+++	3	0	
14	36	♀	6	+	..	..	0	0	+	+	12	1	Hypertension
15	35	♀	3	+	..	..	++	++++	++++	++++	2	5	
16	65	♂	..	..	+	..	++	+	+	++++	8	0	
17	29	♀	5	..	+	..	++	+	ND	++	4	0	
18	16	♀	..	..	..	+	0	+	++	++	16	1	
19	33	♀	4	+	..	..	0	0	+	++++	6	1	
20	42	♀	6	+	..	..	0	0	++	++++	6	4	Heart disease; hypertension
21	44	♀	8	..	+	..	0	0	ND	++++	4	1	Climacteric
22	27	♀	4	+	..	..	0	++	0	+	2	1	
23	30	♀	7	+	..	..	0	++++	++	+++	3	0	
24	34	♀	..	..	..	+	+	0	+	++++	4	1	
25	28	♀	6	..	+	..	0	+	+	+++	16	0	Nursing mother; hypertension
26	38	♀	6	..	+	..	ND	ND	ND	ND	..	0	Climacteric
27	36	♀	5	+	..	..	++	+	+	++++	4	6	
28	41	♀	10	+	..	..	+	0	+	0	..	1	Chronic diarrhea; marked hypertension
29	51	♀	9	..	+	..	++	0	0	++++	3	0	Climacteric
30	44	♀	5	+	..	..	+++	+	++++	++	4	7	Psychosis with a previous attack
31	26	♀	..	..	..	+	++++	++	0	++	4	0	Upper respiratory infection
32	45	♀	8	+	..	..	++	+	+	0	11	0	Climacteric; syphilis
33	25	♀	2	..	+	..	+	0	0	++	3	0	
34	36	♀	5	..	+	..	0	+	0	++	4	4	
35	30	♀	7	..	+	..	+++	0	++	+++	1	1	Hypertension
36	36	♀	6	..	+	..	++	+	++++	++	..	2	Climacteric
37	33	♀	9	..	+	..	ND	ND	ND	ND	3	3	Nursing mother
38	41	♂	..	+	..	..	0	+	0	++	8	3	Alcoholic
39	51	♂	..	+	..	..	0	0	+	+++	4	0	
40	75	♂	..	+	..	..	0	+	0	++	8	3	
41	48	♂	..	+	..	..	0	+	+	++	..	1	
Total.....	5 ♂, 36 ♀		30	19	17	5	..	..	..	..	..	24	

* Pellagra-preventing foods: Milk, +, one glass occasionally a week; ++++, three to four pints a day. Meat, +, occasionally each week; ++, for breakfast regularly; ++++, two or three times a day. Eggs, +, irregularly; ++, once a day; ++++, two or three times a day. ND, no data.

5. Sources of income: mines sixteen, relief agencies thirteen, farms seven and general labor five.

6. Spies, T. D.; Aring, C. D.; Gelperin, Julius, and Bean, W. B.: The Mental Symptoms of Pellagra: Their Relief with Nicotinic Acid, Am. J. M. Sc. *196*: 461 (Oct.) 1938.

more rapidly than old chronic lesions. But despite the inactivation of these lesions, complaints such as itching skin, hot mouth and burning stomach often continued. Most of the patients lost weight for the first two or three weeks. Blood pressure changes were uniform in that they all tended to be lowered. Several were extremely low while others, previously high, approximated normal levels under treatment. In two instances, diarrhea was found to antedate the usual early manifestations from one to three months. Nicotinic acid was not satisfactory in checking the diarrhea of this type of patient, but the presence of the diarrhea did not been our experience that doses of from 150 to 200 mg. a day were adequate, if maintained for two or three weeks, after which time the amount could be decreased until the patient was symptom free. For other individuals the initial dose had to be increased markedly (up to 800 mg.). For still others, further increases in amount of medication were required, the chief index as to dosage being the state of the objective manifestations and the patient's complaints.

The estimation of "results" is given in terms of changes in weight and clinical improvement. Changes in weight are given as gains and losses (first clinic

TABLE 2.—*Clinical Observations*

Case	Constipation	Diarrhea	Vomiting	Loss of Strength	Anorexia	Glossitis	Stomatitis	Vaginitis	Mental Symptoms	Tachycardia	Dermatitis*	Acute	Subacute	Chronic
1	....	....	....	....	Yes	Yes	....	....	....	....	+++	+	..	..
2	....	Yes	....	Yes	Yes	....	....	....	....	Yes	+	..	+	..
3	....	....	....	....	Yes	....	....	....	....	....	+++	+	..	..
4	....	Yes	....	Yes	Yes	Yes	Yes	...	....	....	+	..	+	..
5	....	....	....	Yes	Yes	Yes	....	....	....	....	++	..	..	+
6	....	....	....	Yes	Yes	....	....	Yes	....	....	+	..	+	..
7	....	Yes	....	Yes	Yes	Yes	....	....	....	....	+	..	+	..
8	....	....	....	Yes	....	Yes	Yes	....	....	....	++	..	+	..
9	....	....	....	Yes	....	Yes	Yes	....	....	....	+++	+	..	..
10	....	....	....	Yes	Yes	....	....	....	....	Yes	+	..	+	..
11	....	....	....	Yes	....	....	....	....	....	....	++++	+	..	..
12	....	....	....	Yes	Yes	....	....	....	....	....	++++	+	..	..
13	....	Yes	....	Yes	Yes	Yes	Yes	....	....	....	+++	+	..	..
14	....	Yes	....	Yes	Yes	Yes	Yes	Yes	....	....	+++	+	..	..
15	....	Yes	....	Yes	....	Yes	Yes	....	....	....	+++	+	..	..
16	....	....	....	Yes	....	Yes	....	....	Yes	....	++	..	+	..
17	....	Yes	....	Yes	Yes	....	....	....	....	....	++	..	+	..
18	Yes	....	Yes	Yes	Yes	....	....	Yes	....	....	+	..	+	..
19	....	....	....	Yes	Yes	Yes	....	....	....	....	+	..	+	..
20	Yes	....	....	Yes	Yes	....	....	....	....	Yes	++++	+	..	..
21	Yes	....	....	Yes	Yes	Yes	....	....	....	....	+	..	+	..
22	....	Yes	....	Yes	....	Yes	....	....	....	....	++	..	+	..
23	....	Yes	....	Yes	....	....	....	....	....	Yes	++	..	+	..
24	Yes	....	....	Yes	Yes	....	....	....	...	Yes	++	..	+	..
25	....	....	Yes	Yes	....	Yes	....	....	....	Yes	+	..	..	+
26	Yes	....	....	Yes	Yes	Yes	....	....	Yes	Yes	+	..	..	+
27	....	Yes	....	Yes	Yes	Yes	....	....	Yes	....	++	+	..	..
28	....	Yes	....	Yes	Yes	Yes	Yes	....	Yes	....	0	..	..	+
29	....	Yes	Yes	Yes	....	Yes	....	....	Yes	Yes	+	..	+	..
30	....	....	....	Yes	....	Yes	....	....	Yes	....	+	..	..	+
31	....	Yes	Yes	Yes	....	....	....	....	....	....	++	..	+	..
32	....	....	....	....	Yes	....	....	....	....	....	++	..	+	..
33	....	....	....	Yes	Yes	....	....	....	....	....	++	..	+	..
34	....	....	....	Yes	Yes	....	....	....	Yes	...	+	..	+	..
35	Yes	....	....	Yes	Yes	....	....	....	....	....	+	..	+	..
36†	....	....	....	Yes	Yes	....	....	....	....	....	0	..	..	..
37	....	....	....	Yes	....	....	....	....	....	....	++	..	+	..
38	....	Yes	....	Yes	Yes	Yes	....	....	....	....	+++	+	..	..
39†	....	Yes	....	Yes	Yes	Yes	...	....	....	....	0	..	..	..
40	....	....	....	Yes	Yes	....	....	....	....	....	++	..	+	..
41	....	....	....	Yes	Yes	Yes	Yes	....	Yes	....	+	..	..	+
Total	6	15	4	38	29	22	8	3	8	8		11	22	6

* Classification of dermatitis: +, residual thickening with terminal desquamation; ++, absence of red color with general scaling; +++, dull red color with central scaling; ++++, red color with or without bullae.
† Subclinical.

influence the therapeutic response otherwise. We think that in this circumstance diarrhea was the cause of pellagra and not a necessary part of the disease. Menstrual function was restored in several patients with ensuing pregnancies. The menopausal age group had the most intense subjective reactions. All the patients felt stronger, had less burning, slept better or were less nervous after the first (thirty-one patients), second (six patients) or third week (three patients) of treatment.

Table 3 deals with treatment and results. Nicotinic acid was always given in the form of 50 and 100 mg. tablets. A supply for one week was given, with instructions that the tablets were to be taken at meal time. This method of medication had previously been found to minimize certain reactions to the drug.[2] None of our patients complained of any difficulty in taking the substance. The question of adequate dosage is one on which further study is indicated. In general, it has weight compared with last clinic weight). Improvement is shown as complete, partial or unchanged. Under "complete" are listed twenty-eight patients who are free from objective and subjective signs of pellagra. Under "unchanged" is one patient who was treated for one week only. Under "partial" are listed twelve patients who still have complaints. In analyzing the partial improvement group one finds two complaining of general nervousness, one of itching, one of gastric burning, two of persistent diarrhea, two of weakness, one of faulty memory and one of burning in the extremities. One had a recurrence of skin lesions which responded to increased medication. This group also includes two nursing mothers, three patients in the climacteric period and five patients who had mental symptoms.

Under "notations" are listed miscellaneous items such as complaints which persist, associated conditions and other factors which had clinical significance. It

also includes notations as to early pregnancies, of which there were three, and several instances in which hypertension was greatly reduced.

To assess the results completely requires more detail than can be tabulated, but we are certain that twenty-eight of the forty-one patients were completely relieved of the disease with nicotinic acid and no change in diet. The twelve patients who persisted with complaints are described at greater length and, in the main, loss of weight or insignificant gain is recorded. With one exception, the largest gains in weight occurred among those completely improved.

All of the group remained ambulatory save one (patient 28), who was sent to the Cincinnati General Hospital because of persistent diarrhea, probably due to chronic ulcerative colitis. All of the group can definitely be said to have improved on nicotinic acid alone and to have been cured clinically except for mild subjective complaints and diarrhea, which persisted in two instances (cases 17 and 27) in spite of a gain in weight. In this respect nicotinic acid can be said to cure pellagra so far as the major phases of the disease are concerned. There was one patient who had a relapse while under treatment. This patient (30) perhaps should have had larger doses; because of her mental symptoms we are not sure that she always took her medication.

There was fairly good correlation between gain in weight and other clinical signs of improvement. There was also significant correspondence between the state of nutrition and the result. All of the class who were partially relieved, i. e. persisted with impaired health, were among those described as poorly nourished or only fairly well nourished.

In this we see the disease pellagra well controlled by nicotinic acid but a considerable amount of poor health persisting. It is significant that no person who ate more of his poor diet and gained weight thereby had an exacerbation of pellagra.

CONCLUSIONS

Of forty-one ambulatory pellagrins treated in a clinic with nicotinic acid and without change of diet, twenty-eight were completely cured and remained well; twelve were partially improved, and the condition of one who was inadequately treated was unchanged.

The dosage varied according to complaints and other indications and objective symptoms. The largest average weekly dose was 2.8 Gm. and the smallest 0.24 Gm.

Eight patients showed significant gains in weight (5 or more pounds). Fourteen showed a loss of 1 or more pounds.

Nicotinic acid seems to cure pellagra even when poor diets are continued, but relapses may occur. Nicotinic acid may aid in the restoration of health, but among the pellagrins here described a considerable amount of ill health, such as anemia, underweight, diarrhea and a few subjective symptoms, persisted.

TABLE 3.—*Treatment and Results*

Case	Nicotinic Acid Dosage: Average Weekly, Mg.	Nicotinic Acid Dosage: Total Weeks	Weight, Pounds: Gain	Weight, Pounds: Loss	Number of Clinic Visits	Diet: Adequate	Diet: Inadequate	Diet: No Data	Improvement: Complete	Improvement: Partial	Improvement: Unchanged	Hemoglobin, Gm.*	Notations
1	425	2	2	..	4	..	+	..	+	..	..	....	
2	1,050	1	3½	..	2	+	..	..	+	..	..	....	
3	200	1	1	..	2	..	+	..	+	..	..	....	
4	2,800	1	..	5	2	..	+	..	..	+	..	....	Nervousness; nursing mother
5	700	9	8	..	10	..	+	..	+	..	..	10	
6	700	5	..	8	6	..	+	..	+	..	..	12	Whooping cough
7	480	6	10	..	7	+	..	..	+	..	..	10.4	
8	650	8	..	7	11	..	+	..	+	..	..	....	Upper respiratory infection
9	583	6	..	2	7	..	+	..	+	..	..	11.8	Hypertension decreased
10	350	2	1	..	3	..	+	..	+	..	..	....	
11	320	10	1	..	10	+	..	..	+	..	..	....	
12	240	10	..	3	11	..	+	..	+	..	..	....	Early pregnancy
13	375	10	2	..	12	..	+	..	+	..	..	....	Upper respiratory infection
14	707	7	10	..	8	..	+	..	+	..	..	11	Hypertension decreased
15	543	6	0	0	7	+	..	..	+	..	..	....	
16	1,011	9	1	..	8	+	..	..	..	+	..	9.4	Complains of faulty memory
17	1,830	10	1	..	9	..	+	..	..	+	..	....	Persistent diarrhea
18	962	4	..	1	4	+	..	..	+	..	..	....	
19	846	12	10	..	12	..	+	..	+	..	..	..	
20	718	13	1	..	11	..	+	..	+	..	..	11.6	Hypertension decreased; early pregnancy†
21	875	4	..	4	5	..	+	..	..	+	..	....	Burning in extremities; climacteric
22	747	8	3	..	8	..	+	..	+	..	..	....	Asthma; upper respiratory infection
23	900	9	1	..	7	+	..	..	..	+	..	....	Complains of gastric pain
24	1,050	2	..	1	4	..	+	..	+	..	..	....	
25	872	2	..	5	4	..	+	..	+	..	..	10.4	Upper respiratory infection
26	1,050	5	..	3	7	..	..	+	..	+	..	8.4	Nervousness; climacteric
27	1,724	23	20	..	24	+	..	..	..	+	..	7.8	Persistent diarrhea; early pregnancy
28	1,827	11	49	..	14	..	+	..	+	..	..	....	Interval at Cincinnati General Hospital
29	1,330	5	4	..	5	+	..	..	+	..	..	....	
30	1,178	16	1	..	15	+	..	..	..	+	..	11.6	Exacerbation of dermal lesions
31	883	3	2½	..	3	+	..	..	+	..	..	....	
32	508	6	2	..	6	+	..	..	..	+	..	....	Complains of itching; climacteric
33	466	3	..	1	3	..	+	..	+	..	..	....	
34	700	1	1	..	2	..	+	..	..	..	+	....	Treatment for one week only
35	840	5	..	6	6	+	..	..	+	..	..	....	Recent dysentery
36	350	2	5	..	2	+	..	..	+	..	..	....	Subclinical
37	483	3	3	..	4	..	..	+	..	+	..	....	Complains of weakness; nursing mother
38	1,750	2	2	..	2	..	+	..	..	+	..	....	Died two months later, "heart block"
39	1,400	6	..	4	7	..	+	..	+	..	..	....	Subclinical
40	722	13	..	1	14	..	+	..	+	..	..	10.6	
41	2,730	5	7	..	6	..	+	..	..	+	..	....	Complains of weakness; much more coherent
Total...			26	14		14	25	2	28	12	1		

* Hemoglobin on discharge from clinic (Sahli-Adams) 17 Gm. = 100 per cent.

† Miscarriage at eight weeks

HERPES ZOSTER AND VITAMIN B_1

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Vitamin B_1, because of its antineuritic properties, has been suggested for the treatment of a host of conditions, varying from systemic diseases with neuritic symptoms to diseases of nerve tissues per se. Stevenson [1] tried it in a large group of cases and was very favorably impressed with its efficacy. He treated eighteen cases of sciatica, fourteen of neuritis, mainly of the brachial type, and three cases of general debility with vague and multiple nerve pains. He employed it intramuscularly in doses of 1 or 2 mg., giving an average total dose of 33 mg. In 40 per cent of the cases treated there was cessation of symptoms, in 37 per cent very much improvement and in 23 per cent slight or questionable improvement; and Stevenson concluded that "vitamin B_1 provides a factor often necessary for clearing up efficiently a neuritis, without which the condition would probably remain chronic."

Stern [2] too was no less favorably impressed by his experience with vitamin B_1 in a wider variety of cases. He administered it intraspinally in twenty-eight cases of intractable pain and inflammatory and degenerative diseases of the central nervous system. His series consisted of such conditions as inoperable cancer, von Recklinghausen's disease, multiple sclerosis, duodenal ulcer with pulmonary tuberculosis, Paget's disease, alcoholic neuritis of supra-orbital and sciatic nerves, spondylitis, degeneration of pyramidal tracts, beriberi, pruritus ani and vulvae, and other conditions. Improvement was noted in all of the patients; they felt better and looked better; pain in every case was lessened or abolished; the appetite improved as well as muscular control, speech and gait. The patient with von Recklinghausen's disease responded most favorably.

These and other reports, all in the same optimistic tone, led us to try vitamin B_1 for the pain of herpes zoster. Herpes zoster is generally held to be a ganglionitis produced by a virus. It is likely that there are many etiologic factors in its production, for any type of inflammation of the spinal ganglion may produce a herpetic eruption. It is probable too that the same points emphasized by Wechsler [3] regarding the causes of polyneuritis may be invoked for herpes zoster. Wechsler suggested that in many cases of polyneuritis which have hitherto been regarded as due solely to a specific cause such as alcohol, lead or arsenic (a not infrequent cause of zoster) one may find an additional and perhaps determining factor in avitaminosis. He suggested too that possibly in every case in which there is a deficiency of antineuritic and other vitamins there must be an additional toxin or poison to bring about degenerative changes. Herpes zoster differs from these other neuritides in that the disease is self limited and usually confers an immunity against subsequent attacks; it is an inflammatory disease but its many similarities to conditions which are said to respond favorably to treatment with vitamin B_1 seemed to warrant a therapeutic trial.

We were able to find recorded but two references to herpes having been treated with crystalline thiamin chloride (vitamin B_1 hydrochloride). Nitzulescu and Triandaf,[4] having obtained good results with vitamin B_1 in a case of trigeminal neuralgia, tried it for herpes of the cornea; and for two patients who suffered very severe pain, prompt relief was obtained from the first injection of thiamin chloride, and complete relief after 6 mg. (1,800 units). Neither of these patients had obtained relief from the usual antineuralgic treatment.

Vorhaus [5] treated only cases of postherpetic anesthesia and paresthesia with vitamin B_1 and his results suggested a quicker disappearance of these symptoms than by the usual methods.

For these reasons we tried the use of crystalline thiamin chloride in sixteen cases of herpes zoster. Our cases were from the dermatologic clinics of a large charitable hospital and a medical school. Of twenty-five persons we were able to follow sixteen to the point at which we felt that sufficient amounts of the vitamin had been administered to determine its efficacy.

Crystalline thiamin chloride in doses of 2,000 international units was administered subcutaneously so that there could be no doubt as to cooperation on the part of the patient. The injections were given every second or third day in a group of seven males and nine females. The results with the treatment with thiamin chloride were as follows:

Two children, aged 9 and 13 years, were completely relieved of subjective symptoms after the first injection of 2,000 units. A third child required 4,000 units. The first two children were treated on the third and seventh day of the disease respectively and the third child on the seventh day of the disease, so that one can assume that the treatment did not have a strikingly beneficial effect in these cases, for the disease acted as it usually does in children. One patient, aged 62 years, obtained considerable relief after having received 6,000 units on the fifth day of illness. Another man of 48 years reported only occasional discomfort after 8,000 units (fifth day of illness). There was no relief from the treatment in the remaining eleven cases, including two of severe postherpetic neuralgia.

Reports in the literature had led us to expect prompt beneficial results from the large individual doses and from the average total dose of 5,620 international units which we employed. In the main we were disappointed, however, for the results were neither good nor bad. Several factors may account for the results:

The majority of our patients were not young and age is often a determining factor in herpes zoster, the severity of pain and length of time varying in direct proportion to the age of the individual. Three of our patients were children, the ages ranging from 9 years to 13 years. One was 20 years of age and the remainder, twelve individuals, ranged in age from 40 years to 80 years.

The day of the disease on which the treatment was started varied from the first day in one instance to the sixtieth day in another. This too is a factor which would seem important in any evaluation of results.

The severity of the subjective symptoms also differed considerably. One patient, aged 9 years, complained

The thiamin chloride used in this study was furnished by Abbott Laboratories.

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1. Stevenson, David: Vitamin B_1 in the Treatment of Neuritis, Practitioner **140**: 301-306 (March) 1938.
2. Stern, E. L.: Intraspinal (Subarachnoid) Injection of Vitamin B_1 for Relief from Intractable Pain, and for Inflammatory and Degenerative Diseases of the Central Nervous System, Am. J. Surg. **39**: 495 (March) 1938.
3. Wechsler, I. S.: Etiology of Polyneuritis, Arch. Neurol. & Psychiat. **29**: 813 (April) 1933.
4. Nitzulescu, J., and Triandaf, Ecaterina: Treatment of Herpetic Keratitis with Vitamin B, Brit. J. Ophth. **21**: 654 (Dec.) 1937.
5. Vorhaus, M. G.: Present Evaluation of Vitamin B_1 Therapy, Am. J. Digest Dis. & Nutrition **3**: 915 (Feb.) 1937.

only of itching; another one, aged 42 years, stated that he had "burning, not real pain"; five patients comprising all those 68 years old or over (from 68 to 80) complained of very severe pain, and in two the severe neuralgia persisted long after the herpetic eruption had vanished. In the remaining cases, nine in number, there was moderate to severe pain. In general, however, the group was adequate for test purposes.

CONCLUSION

Our experience with sixteen cases of herpes zoster treated with vitamin B_1 (thiamin chloride) showed that the treatment gave indifferent results. In two cases of postzoster neuralgia in which we had expected and hoped for effective results there were none. Treatment with vitamin B_1 was no more beneficial than with the usual less expensive methods.

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MENINGITIS CAUSED BY STREPTOCOCCUS HAEMOLYTICUS

AND TREATED WITH SULFANILAMIDE

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GROUP 1, 1935-1936

In 1935 and 1936 eleven patients with meningitis caused by hemolytic streptococci were treated in the Division of Contagious Diseases, City Hospital, Cleveland. Ten of these patients died. Seven other patients with streptococcic meningitis who died during this period are not considered in this report because either the streptococci found were nonhemolytic (two cases) or the organisms were not grown on blood agar and hemolysis had not been demonstrated (five cases).

The ages of these patients ranged from 4 weeks to 51 years; two were adults and nine were children from 4 weeks to 6 years of age. Two patients were under 1 year of age; two were 4, two were 5, three were 6, one was 23 and one was 51 years old. In eight cases the meningitis followed acute otitis media lasting from one to seven days; one case followed cellulitis, one erysipelas of the face and another an abscessed tooth. All the patients were acutely ill and toxic on admission, two being unconscious, two delirious and one in convulsions. Their temperatures ranged between 38.5 and 40.5 C. (101.3 and 104.9 F.). All showed signs of meningeal irritation with a positive Kernig sign and so on. Lumbar punctures were done on admission to the hospital. The spinal fluids contained from 290 to 35,000 cells, predominantly polymorphonuclears. In five cases the cell count was under 800 on admission but increased rapidly to several thousand within twenty-four hours.

All kinds of therapy, such as specific antistreptococcus serums, nonspecific serums, blood transfusions, spinal drainage and drugs, were tried. The only patient who recovered was a boy aged 3½ years who had an abscess of the left forearm which was incised and drained. Blood transfusion was employed and the patient's temperature became normal on the fourth hospital day.

Five of the ten patients died in from one to three days, one in five days and the remaining four in from twelve to twenty-two days after admission to the hospital. In eight cases an autopsy was performed; mastoiditis was found in six.

From 1926 to 1934 inclusive, forty-eight of fifty patients with streptococcic meningitis died.

GROUP 2, 1937-1938

Twelve patients with meningitis caused by hemolytic streptococci were admitted to our divisions during 1937 and 1938. In ten cases cultures of hemolytic streptococci were obtained from the spinal fluid. Although streptococci were found and easily demonstrated in the spinal fluid in two cases, they did not grow on blood agar and therefore hemolysis could not be demonstrated. They probably were hemolytic, however, since the meningitis followed otitis media complicating scarlet fever, from which hemolytic streptococci had been recovered.

Eight cases of meningitis followed otitis media, one sinusitis, one an infected laceration, one cellulitis of the scalp and one septicemia with associated sinusitis.

The condition of the patients on admission and the conditions found on physical examination were essentially similar to those found in group 1.

Three patients were given meningococcus antitoxin before the diagnosis was established. All the other patients as well as these three were given sulfanilamide on the first or at least the second day after admission. The amount of sulfanilamide is calculated as maintenance and initial doses. The initial dose is one half the maintenance dose, which is calculated on the basis of the patient's weight, i. e. 1 grain (0.065 Gm.) per pound (453 Gm.) up to 120 pounds (54.4 Kg.) for the first twenty-four hours, given in divided doses every four hours. On the second and subsequent days the maintenance dose is decreased to one-half grain (0.03 Gm.) per pound and is given in divided doses every four hours. One infant received as much as 2 grains (0.13 Gm.) per pound for two days; another received 530 grains (34 Gm.) orally in twenty-four days. Occasionally the drug was given by hypodermoclysis (0.8 per cent in saline solution). It was difficult enough to give the number of tablets needed and almost impossible to give sodium bicarbonate after each dose of the drug. Only in a few cases was this even attempted. The sulfanilamide tablets were ground and swallowed with water. If the patient was unconscious the tablets were ground, water was added and the suspension was given through a Levine tube. The average length of treatment was six days. The sulfanilamide blood level at the height of treatment ranged from 5 mg. to 11.5 mg. per hundred cubic centimeters; the average was 9.5 mg.

TABLE 1.—*Summary of Both Groups of Cases*

	1935-1936	1937-1938
Number of cases	11	12
Otitis media	8	8
Mastoiditis (clinical)	3	7
Mastoiditis (at autopsy)	6	0
Mastoidectomy	1	7
Sinusitis	1	2
Origin: outside ear, nose and throat	2	2
Sulfanilamide	0	12
Recoveries	1	10
Deaths	10	2
Autopsies	7	1

X-ray examination showed either acute or chronic inflammation of the mastoid cells in seven patients. Eight mastoidectomies were done on six patients. Four patients were operated on the first day, one of whom was again operated on the fifteenth subsequent day;

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one patient was operated on the third and another on the fourteenth hospital day. The latter patient had been previously operated on at another hospital. All the patients who were operated on recovered.

In this series two patients died (16⅔ per cent) and ten recovered. All of the latter had normal temperatures within eight days after admission. The number of cells in the spinal fluid was usually nearly normal by that time also. Three patients had relapses and therapy had to be started again. The average stay in the hospital was thirty days. One of the two patients who died had a laceration of the head with subsequent massive infection and a fulminating meningitis, while meningitis developed in the other after a subgaleal abscess. Neither infection was adequately drained.

COMMENT

In the twelve cases of streptococcic meningitis reported in this paper and the majority of those described in the literature of the past few years (ninety

TABLE 2.—*Reported Cases of Streptococcic Meningitis Treated with Sulfanilamide and Prontosil*

Author	Outcome: Cases	Outcome: Died	Outcome: Recovered	Treatment	Type of Streptococcus: Alpha	Type of Streptococcus: Beta	Type of Streptococcus: (?)	Sex: Male	Sex: Female	Source of Infection: Upper Respiratory Tract: Ears	Source of Infection: Upper Respiratory Tract	Source of Infection: Elsewhere	Ages
Caussé, Loiseau and Gisselbrecht: Ann. d'oto-laryng., 1936, p. 194	1	0	1	Prontosil, mastoidectomy	..	1	..	1	..	1	..	..	46 years
Arnold, J. G.: Ann. Int. Med. 10: 1198, 1937	1	0	1	Sulfanilamide, mastoidectomy	..	1	..	..	1	1	..	..	28 years
Schwentker and others [5]	4	1	3	Sulfanilamide, prontosil	..	4	..	3	1	2	1	Cellulitis, scalp	6, 9, 13, 45 years
Arnold, J. G.: Personal communication to P. H. Long [10]	5	0	5	*Sulfanilamide*	..	5	..	*Not reported*					
Weinberg, M. H.; Mellon, R. R., and Shinn, L. E.: J. A. M. A. 108: 1948, 1937	2	0	2	Prontosil, sulfanilamide, mastoidectomy	..	2 (1 questionable)	..	1	1	2	..	..	17, 10 years
Long and Bliss [10]	4	2	2	Prontosil (1), sulfanilamide, transfusion, mastoidectomy (1 case twice)	..	4	..	2	2	4	..	..	7, 9, 47, 3 years
Long and Bliss [10]	9	1	8	Sulfanilamide derivatives; operations not reported	..	9	..	Not reported					
Anderson, E. D.: J. A. M. A. 108: 1591, 1937	1	0	1	Prontosil, sulfanilamide	..	1	..	1	..	1	..	..	9 years
Trachsler and others [4]	7	3	4	Prontosil (2), transfusion, prontosil and sulfanilamide (5), Foshay's streptococcic serum, antistreptococcus serum, mastoidectomy (6)	1 green died	6 (1 with Staph.)	..	5	2	6	..	1 skull fracture	7, 6, 9, 12, 12, 5, 10 years
Millet, J.: New England J. Med. 217: 556, 1937	1	0	1	Prontosil, sulfanilamide, mastoidectomy	..	1	..	1	..	1	..	..	13 years
Albert, G. R., and Forbes, R. P.: Rocky Mountain M. J. 35: 779, 1938	2 (1 questionable	0	2	Sulfanilamide, mastoidectomy, convalescent serum	..	2	..	..	2	1	1	..	7, 7 years
Friedman, M. D., and Lieberman, L.: Ohio State M. J. 33: 1322, 1937	1	0	1	Prontosil, sulfanilamide, mastoidectomy	..	1	..	..	1	1	..	..	40 years
Lewy.[11]	8	3	5	Prontosil (2), transfusion, prontosil and sulfanilamide (6), mastoidectomy (8)	1 died (mixed A & B)	5 (1 died)	2 (1 died)	4	4	8	..	..	5 months; 4, 7, 9, 9, 11, 49, 50 years
Godwin, D. E.: Laryngoscope 48: 59, 1938	2	0	2	Prontosil, sulfanilamide	..	2	..	..	2	1	1	..	16, 37 years
Smith, F. W.; Mayer, K. F.; Horst, A. A.; Fowler, R. H., and Layton, W. C.: J. A. M. A. 110: 887, 1938	1	0	1	Prontosil, transfusion, sulfanilamide, mastoidectomy	..	1 anaerobic	..	..	1	1	..	..	21 years
Silverthorne and Brown [6]	9	4	5	Prontosil, sulfanilamide, mastoidectomy (6)	..	9	..	7	2	8	1	..	12, 19 months; 2, 3, 5, 5, 5, 9, 10 years
Kline [12]	1	0	1	Prontosil, sulfanilamide, mastoidectomy	..	1	..	1	..	1	..	..	15 years
Appelbaum [13]	*Probably the same cases as described by Neal*												
Vitenson, I., and Konstam, G.: Lancet 1: 870, 1937	1	0	1	Prontosil, spinal tap, mastoidectomy	..	1	..	1	..	1	..	..	10½ years
Martin, A. T., and Ellenberg, S. L.: Arch. Pediat. 55: 428, 1938	2	0	2	Prontosil, sulfanilamide, mastoidectomy, transfusion, meningococcus serum	..	2	..	1	1	2	..	..	5½, 7 years
Sacks, P.: Arch. Otolaryng. 28: 364, 1938	1	0	1	Prontosil, sulfanilamide, mastoidectomy	..	1	..	1	..	1	..	..	6 years
Neal [5]	27	5	21 and 1 under observation	Sulfanilamide, *spinal tap*, mastoidectomy (16)	..	27	..	10	16	23	3	..	1 yr., 2; 2 yr., 2; 4 yr., 3; 6 yr., 4; 7 yr., 4; 8 yr., 3; 11 yr., 2; 12 yr., 2; 15 yr., 1; 21 yr., 1; 35 yr., 1; 43 yr., 1
Toomey and Kimball	12	2	10	Sulfanilamide, mastoidectomy	..	12	..	4	8	8	2	2	1 yr., 2; 5 yr., 1; 7 yr., 3; 8 yr., 1; 13 yr., 2; 26 yr., 1; 40 yr., 2
Total	102	21	81		2	98	2	43	44	74	9	4	

landmarks. Resolution of the middle ear may be much delayed, or a recurrence of signs of a middle ear infection with evidence now of mastoid involvement or an otitic complication may rather abruptly follow a longer or shorter period of latency. Otitic complications run an asymptomatic or atypical course, as pointed out in a number of cases that we have reported.

We would suggest to those who are of the opinion that sulfanilamide should be given from the very onset of otitis media that these patients be carefully observed over an extended period despite an apparent improvement in the ear picture and the absence of symptoms; furthermore, as a therapeutic test we would advise the discontinuance of the drug for a few days during the period of observation to note whether a recrudescence of signs or symptoms of postauricular infection occurs. We have made the latter observation in a number of instances in which the drug had been given for a considerable time.

It is not our purpose in the slightest degree to minimize the remarkable effects of this drug in the conditions previously mentioned. We hope only to convey to those who permit untempered enthusiasm for the indiscriminate use of the drug our experience in the recognition of distortion of known entities by sulfanilamide. Conditions that normally run a self-limited course and have a small percentage of complications are subjected to treatment by a drug whose intrinsic potential danger may be greater than that of the disease.

Our experience shows that sulfanilamide used in the presence of a suppurative focus is not as effectual as when used after the focus has been eradicated. This is especially noted in the reports of various observers in the treatment of meningitis. This form of therapy is ineffective if the original focus is not removed. While sulfanilamide will clear body fluids infected by streptococci, its action is apparently less effective on streptococci located in an active bone lesion.

We have demonstrated that sulfanilamide will only partially control suppurative disease and frequently alters the usual clinical picture and tends to prolong its course if proper surgical measures are not employed.

In summing up our point of view regarding the indications for the use of sulfanilamide, we would say that it is inadvisable to give the drug during the period of observation of a patient for suspected mastoiditis, sinus thrombosis, petrositis and the like because of the risk of masking the clinical picture and thus interfering with the diagnosis and proper surgical indications. In the presence of an impending otitic meningitis from whatever cause, the drug should be given immediately. In a case of otitis media before suppuration has taken place, it may be cautiously given. The patient, however, must be under careful observation for a considerable period following its discontinuance.

The following cases illustrate some of our views regarding the administration of sulfanilamide with particular reference to the question of its masking effect:

REPORT OF CASES

CASE 1.—B. B., aged 7 years, during the course of an infection of the upper respiratory tract, had an influenzal otitis media. Two days later a spontaneous rupture of the drum occurred. The patient's temperature ranged between 100 and 101 F. for a few days and the discharge of the middle ear, thin in character, became quite profuse. Sulfanilamide 40 grains (2.6 Gm.) daily was started one week from the onset of the otitis and was continued for six days. The discharge from the middle ear soon stopped and beginning resolution was noted. The temperature returned to normal and the patient's general condition was excellent. It was decided to discontinue sulfanilamide because of the knowledge of a possible masking effect of the drug. Thirty-six hours after sulfanilamide was stopped the middle ear began to discharge profusely and the discharge was thicker than it had been at any time; the drum now had a "boggy" appearance. Increasing mastoid tenderness was elicited and the patient had spontaneous aural pain. The temperature ranged between 99 and 100 F. When the patient had been observed for forty-eight hours, during which the local manifestations increased in severity, it was decided that a mastoidectomy was indicated. Operation disclosed free pus and granulations with areas of softening throughout an usually large mastoid. Hemolytic streptococci were cultured from the mastoid.

A latent or quiescent period during the administration of the drug is shown by this case, which illustrates the importance of careful observation of patients who are given sulfanilamide during the course of otitis media and the diagnostic value of withdrawal of the drug to determine whether the apparent improvement is only a masking effect of the drug.

CASE 2.—B. S., a boy aged 7 years, complained of bilateral acute otitis media March 11 and was given 80 grains (5.3 Gm.) of sulfanilamide by his family physician. A rash developed and the drug was stopped. Suppuration of the middle ear resolved entirely in two weeks. Four weeks later, that is, six weeks from the onset of the otitis, Dr. Morley T. Smith of New Rochelle was consulted. At this time the patient had a temperature of 102 F. and had but little pain in the ear. On examination Dr. Smith reported that the left drum was bulging with very little discharge from an anterior perforation. Culture of the middle ear discharge following paracentesis disclosed a Pneumococcus type III infection. Two days later he was admitted to the New Rochelle Hospital with a temperature of 103 F. and complaining of hemicranial pain. The mastoid was tender; x-ray examination of the left mastoid showed evidence of a destructive process. In conversation over the telephone Dr. Smith reported to one of us (J. L. M.) the finding of an extremely diseased mastoid with a large perisinal abscess (perforated) and a suppurative sinus thrombophlebitis. The sinus was obliterated; there was no bleeding from the jugular bulb. After consultation three days later Dr. Smith decided to ligate the jugular vein. Following this the temperature returned to normal and the patient experienced an uneventful recovery.

Case 2 illustrates the masking effect of sulfanilamide on the course of mastoiditis which had advanced so that there was present a sinus thrombophlebitis recognized only at operation.

CASE 3.—D. Y., with a history of pain in the left ear followed one week later by a myringotomy, with Streptococcus haemolyticus obtained from the ear, had a thin pulsating discharge which continued for the next three weeks. Hearing was impaired and the nasal sinuses were clear. The patient was given 10 grains (0.65 Gm.) of sulfanilamide every four hours. Twenty-two days after the onset of the infection nystagmus developed to the right and left, more marked to the left. This continued unabated, associated with supra-orbital headache. The middle ear showed evidence of resolution up to the day before operation, at which time the ear drum became full and the middle ear began to discharge. On pressure over the mastoid, the patient complained of slight soreness but no actual pain. The sulfanilamide was stopped.

A left mastoidectomy was performed and there was marked destruction of the mastoid; the dura was covered with fine granulations. The possibility of petrositis was entertained because of nocturnal pain, slight postauricular tenderness, thick discharge, subfebrile course and nystagmus directed to the diseased ear. The patient is now on her way to apparent recovery.

The clinical picture was masked by sulfanilamide, presenting a low temperature and absence of pain, evidence of resolution of the middle ear without signs of

mastoid involvement. Petrositis was the first indication of an otitic complication without apparent postauricular disease.

A great deal more pathologic change was found in the mastoid than was clinically suspected.

In the early stages, postauricular tenderness was marked. Following the administration of sulfanilamide, tenderness was definitely absent although there were now evidences of petrositis.

CASE 4.—T. A., aged 10 years, had scarlet fever followed by acute otitis media for which a myringotomy was performed. The ear drained continuously and profusely. The mastoid was not tender. The patient had been given sulfanilamide for thirty days, about 20 to 30 grains (1.3 to 2 Gm.) a day with no cessation of the aural discharge. For one month there was no headache or postauricular pain.

When first seen, the child's temperature was 99.5 F.; the patient was comfortable. There had been a complaint of a vague temporal headache one day before. There was slight postauricular tenderness and a profuse discharge. The sulfanilamide was stopped and the next day the temperature rose to 102 F. The child became restless and headache became marked. Postauricular tenderness was definitely increased.

A simple mastoidectomy revealed extensive disease everywhere in the mastoid with complete destruction of the zygoma and tip. Culture at operation revealed beta Streptococcus haemolyticus.

Sulfanilamide was given early in this case of acute otitis media. There was a definite progression to coalescent mastoiditis despite the use of the drug and absence of headache, fever and other clinical evidence despite marked destruction of the mastoid.

Twenty-four hours after the discontinuance of sulfanilamide there was a reappearance of fever, headache and postauricular tenderness when the masking effect of the drug was removed.

The ineffectuality of the drug in the presence of a suppurative focus and its capacity to attenuate the course of disease without preventing its progression are shown.

CASE 5.—I. C., a child aged 5 years, white, complained of pain in the left ear two days before admission following cough and fever for ten days. On examination the child was acutely ill. The right ear drum was normal and the left was full, red and covered with hemorrhagic blebs and a thin pulsating discharge. Signs of bronchopneumonia were present. The child was given sulfanilamide with onset of the otitis.

Two days after admission the temperature rose to 105 F., the child became irritable and there were meager clinical signs suggestive of meningeal irritation. Lumbar puncture showed an increase of pressure with cloudy fluid containing 230 cells per cubic centimeter, with 92 per cent polymorphonuclear cells. Subsequently fluid was reported to contain beta Streptococcus haemolyticus, as did the culture from the middle ear. Blood culture was sterile.

The child was given sulfanilamide at four hour intervals day and night, 120 grains (8 Gm.) the first twenty-four hours, then reduced to 90 grains (6 Gm.) a day. The concentration in the blood was kept at from 8 to 10 mg. per hundred cubic centimeters. Fever precipitously subsided and the child was comfortable during the next ten days despite the persistence of meningitis as indicated only by examination of the spinal fluid. Within forty-eight hours after the administration of larger doses of sulfanilamide (90 grains a day), all clinical evidence of meningitis disappeared except for the changes in the spinal fluid. The high cell count continued for a few days and the increased polymorphonuclear count was soon replaced by lymphocytes until the day before the mastoidectomy, when the spinal fluid showed a count of 12 lymphocytes. Culture of the spinal fluid was positive for Streptococcus haemolyticus on only one occasion. A few days later, however, slight but increasing postauricular tenderness was noted with persistence of moderate aural discharge.

Twelve days after admission and ten days after the onset of meningitis, a simple mastoidectomy was performed. Complete destruction of the mastoid without involvement of the dura or lateral sinus was found.

In this case meningitis developed two days after the onset of acute otitis media. It was clinically controlled by massive doses of sulfanilamide; the child remained comfortable and playful, with a temperature of from 100 to 100.5 F. despite the meningeal activity as indicated only by lumbar puncture.

There was a definite alteration in our clinical concept of mastoiditis under sulfanilamide.

CASE 6.—J. L., a woman aged 22, had an infection of the upper respiratory tract two weeks before admission. Four days before admission pain developed in the left ear, followed by a myringotomy one day later. For two days before admission she had been dizzy; the type of vertigo was not carefully described. Fever ranged between 100 and 102 F.; she had no chills or convulsions but she did have a marked parietal headache.

Ten days after admission, signs of an acute mastoditis developed and a left simple mastoidectomy was done under general anesthesia. The mastoid was very large with no destruction of the intercellular septums. Each cell contained thin pus, which was shown subsequently to be beta Streptococcus haemolyticus. Following operation the patient had a sustained febrile reaction which could not be accounted for by the local condition of the ear. Fifteen days after operation she began to complain of pain over the left eye, and at this time the possibility of suppuration of the petrous pyramid was thought of. Examination of the nose and paranasal sinuses did not reveal anything at this time. Twenty days after the original mastoidectomy the mastoid was revised and the petrous pyramid was investigated. Granulations were removed from the sinus plate and middle fossa plate. No tract was visible in and around the semicircular canal. The squama was removed and the dura of the middle fossa was elevated from the superior surface of the petrous pyramid. The ease with which this was done was due to the fact that a large amount of fluid was removed by spinal tap prior to operation. A large gush of nonodorous thick creamy pus was obtained from a pit about half an inch anterior to the arcuate eminence. A rubber drain was inserted and the wound closed. Culture of this pus showed Streptococcus haemolyticus. The patient was given repeated transfusions. Lumbar puncture five days later, because of headache and some rigidity of the neck, revealed evidence of a meningitis with 4,500 cells, 80 per cent polymorphonuclears, 20 per cent lymphocytes and no organisms on smear. The possibility at this time, one month after the original mastoidectomy, of a brain abscess was considered but no localizing signs were found. Repeated spinal taps were done. The patient was placed on large doses of sulfanilamide, the hemoglobin was watched and the content of sulfanilamide in the blood and spinal fluid was determined at regular intervals.

About forty days after the original operation it was first noticed that an anomia and a few changes in the deep and superficial reflexes had developed. Blood cultures were repeatedly negative. At this time brain abscess, loculated meningitis and otitic hydrocephalus were all considered but no definite diagnosis could be made. Because of the persistence of the changes in the spinal fluid, reinvestigation of the wound was done. The dura was seen to be covered by a thick yellow exudate, and on elevation of the dura of the middle fossa a gush of thick creamy pus again appeared. No loculated pockets were found. Because of the persistence of fever and the persistent changes in the spinal fluid and repeated attacks of vomiting and a transient anomia, eight days after the reexploration of the petrous pyramid an exploratory craniotomy for an abscess of the left temporal lobe was performed. Aspiration in several directions in the temporal lobe failed to show any pus. The dura was incised and it was noted that the brain had a peculiar yellow discoloration, but no pus was found. Following the craniotomy the patient's condition was just about the same until a dressing was done ten days later and the probe fell into a cavity in the temporal lobe. A few ounces of thick pus escaped. After

drainage of this abscess cavity the patient's condition progressively improved, the neurologic condition gradually subsided and, except for the peculiar mental changes, the patient appeared to be getting well. Slowly thereafter the spinal fluid cleared up, her mental state returned to normal, her temperature was flat and patient went on to an uneventful recovery with no sequelae other than some diminution of hearing.

This patient had an acute mastoiditis complicated by a suppurative petrositis, a streptococcic meningitis and an abscess of the left temporal lobe. There was a masked clinical picture of an otitic meningitis from the use of sulfanilamide. On a number of occasions, except for a moderate rise in temperature, the patient was symptom free. Physical signs were absent and yet a spinal tap gave definite evidence of meningitis; i. e., increased cells and streptococci.

Until the otitic focus was adequately dealt with, sulfanilamide only partially controlled the meningitis.

This report illustrates a prolonged course (two and one-half months) of meningitis under sulfanilamide administration.

SUMMARY AND CONCLUSIONS

The use of sulfanilamide has resulted in a genuine advance in the treatment of certain otogenous infections.

Exenteration of the otitic focus is of paramount importance.

Indiscriminate use of the drug may obscure the diagnosis or result in a masked or latent clinical picture of mastoid involvement.

Under sulfanilamide therapy, the usual clinical course of an otitic complication may be modified.

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NOTE ON THE MANAGEMENT OF HYPOPARATHYROIDISM WITH DIHYDROTACHYSTEROL

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The criticism is frequently made that metabolic diseases such as those related to the parathyroid glands require for their successful treatment laboratory facilities beyond the reach of all but a very few. It is my object in this note to point out that this is no longer true as regards hypoparathyroidism.

It is perhaps of interest that in hypoparathyroidism and diabetes mellitus there is quite close parallelism as regards the evolution of therapeutics. In both conditions there was a time when the treatment required a great deal of scientific knowledge and laboratory equipment and was none too satisfactory; now the treatment is both simple and satisfactory. Insulin and especially protamine zinc insulin made the difference with diabetes; dihydrotachysterol with hypoparathyroidism. From an academic point of view it is perhaps too bad that the practitioner no longer needs to master ketogenic-antiketognic ratios or the interesting detailed knowledge on the treatment of hypoparathyroidism so well summarized in the classic paper by Ellsworth.[1] One can go a step further as regards the hypoparathyroid patient: It is no longer even necessary that a blood calcium determination be done.

The problem can be very simply stated: All the tetany symptoms of hypoparathyroidism are due to the low level of the calcium of the blood. The goal to be sought is to raise the level of calcium to normal without overdoing the process and obtaining hypercalcemia. Thus all that is needed is an agent to raise the blood calcium level readily to any desired degree and a simple method of gaging this level. Dihydrotachysterol fills the first need and the Sulkowitch test for calcium in the urine the second.

Dihydrotachysterol,[2] like vitamin D, is a photochemical derivative of ergosterol. It was developed by Holz in Berlin for the treatment of hypoparathyroidism. That one can easily raise the calcium of the blood to any desired or even an undesired level with this substance requires no further testimony. The literature was reviewed by Albright, Bloomberg, Drake, and Sulkowitch [3] in a paper which contrasted the action of dihydrotachysterol with that of vitamin D. So much for the therapeutic agent.

Before the means of controlling this therapeutic agent are discussed it will be helpful to list some of the important points in the blood calcium scale. The level of calcium in the serum of a normal person is from 9.5 to 11 mg.; that of a completely parathyroidectomized person from 5 to 7 mg. The normal level of calcium in the serum is above the threshold for the excretion of calcium in the urine; this threshold varies between about 7.5 mg. and 9 mg. Above about 11.5 mg. large amounts of calcium are excreted in the urine and may lead to nephrolithiasis or nephrocalcinosis. At levels of about 16 mg. of serum calcium the danger of sudden death due to hypercalcemia is present.

With these points in mind and with the help of a very simple test (described hereafter) for differentiating urine specimens with no calcium, with a small amount of calcum and with a large amount of calcium, the regulation of the dosage of dihydrotachysterol becomes very easy. The patient with parathyroid tetany, if the diagnosis is correct, should have no calcium in the urine. It should be kept in mind that alkalosis tetany due to hyperventilation is very common and may occur in a patient following an operation on the thyroid. Such a patient will continue to excrete calcium in the urine. Once the diagnosis of parathyroid tetany is made, dihydrotachysterol is administered until the urine tests show moderate amounts of calcium. If large amounts of calcium appear in the urine, the dosage is reduced and the danger of hypercalcemia is avoided.

The Sulkowitch reagent [4] is a solution containing oxalate radicals buffered at such a p_H that when equal amounts of the reagent are added to urine the calcium will almost immediately come down as a fine white precipitate of calcium oxalate. If there is no precipitate there is no calcium, and the serum calcium level is probably from 5 to 7.5 mg. per hundred cubic centimeters. If there is a fine white cloud, there is a moderate amount of calcium and the level of calcium

1. Ellsworth, R.: Diagnosis and Treatment of Parathyroid Underfunction, Internat. Clin. 3: 27, 1933.

2. Dihydrotachysterol is distributed in the United States by the Department of Medical Research of the Winthrop Chemical Company. It is marketed in an oily solution, each cubic centimeter containing 5 mg. of dihydrotachysterol. The preparation is [illegible] mouth

3. Albright, Fuller; Bloomberg, Esther [illegible] witch, H. W.: A Comparison of the Effects of [illegible] Metabolism in Hypoparathyroidism, J. Clin. Investigation 17: 317 (May) 1938.

4. Two and five-tenths Gm. of oxalic acid, 2.5 Gm. of ammonium oxalate and 5 cc. of glacial acetic acid are dissolved in distilled water and made up to a volume of 150 cc. (Barney, J. D., and Sulkowitch, H. W.: Progress in the Management of Urinary Calculi, J. Urol. 37: 746 [June] 1937).

in the serum is in the satisfactory range. If the precipitate looks like milk, the danger of hypercalcemia is present.

The patient does his own tests and modifies the dose according to the results. I usually prescribe about 3 cc. of dihydrotachysterol a day until calcium appears in the urine and then I drop the dosage to a maintenance level of about 1 cc. from three to five times a week.

This discussion has been slightly oversimplified. There are a few "ifs" and "buts" that must be added. Occasionally a normal person who happens to be on a very low calcium diet will show in a single specimen of urine practically no calcium. Almost any normal person shortly after drinking a large amount of milk will show an excess of calcium in the urine. Since one keeps one's patients with hypoparathyroidism on a high calcium diet, one would expect them always to show hypercalciuria if their levels of serum calcium are normal. It thus turns out that if the dosage is reduced when a large amount of calcium appears in the urine the blood calcium will be kept at a slightly subnormal level. Such is the case. This is probably all the better, since it further guards against hypercalcemia, and slight hypocalcemia is not deleterious.

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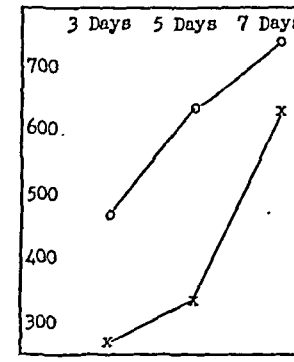
THE INHIBITORY EFFECT OF SULFANILAMIDE ON WOUND HEALING

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The enthusiasm with which sulfanilamide is being used in the treatment of infections of all kinds has tended to minimize a consideration of the possibility of any harmful effects of the drug. Recently the idea has been expressed by many that it might be used prophylactically before certain operations in which the chance of wound infection may be great. It seemed desirable therefore to determine whether or not this drug has any inhibitory effect on wound healing, especially since antiseptics as a group do have such an effect.

The method used was a modification of the technic of Harvey[1] and those working with him[2] in their experiments on wound healing, in which the tensile strength is used as an indicator of fibroblastic growth. Advantage was taken of their finding that there is a "lag phase" of three or four days before fibroblastic growth reaches a maximum velocity and that, in the first three or four days following the making of the wound, determinations of tensile strength are confused somewhat by the effect of suture material. Accordingly, in this experiment the first observations were made seventy-two hours after operation.

Healthy stock dogs were used. Sulfanilamide (para-amino-benzene-sulfonamide, Winthrop) 3 Gm. daily was given for three days prior to operation. This dose ranged between 0.1 and 0.2 Gm. per kilogram of body weight. The drug was given by mouth in 1.5 Gm. doses twice daily. At operation a 2 cm. incision was made into the fundus of the stomach on the anterior surface. The wound was closed with two layers of 000 plain catgut. A blood sample was taken from the treated dogs for sulfanilamide determination. The dogs were killed three, five and seven days after the operation. Blood specimens were taken at this time, and the tensile strength of the wounds was determined. These determinations were made by removing the stomach, clamping off the pylorus and inserting a cannula into the esophageal end. The cannula was connected to a source of compressed air and to a glass U tube. The pressure within the stomach was measured in millimeters of water, and the velocity of air flow was regulated by hand so that the different-sized stomachs would reach their maximum pressure capacity in approximately ten seconds. The level of pressure at which the edges of the wound separated and air escaped from the stomach was observed and recorded. After satisfactory standardization of the procedure, twenty-eight dogs were used for the experiment, fourteen of these being controls.



Tensile strength. The curve plotted with circles represents the control animals; that designated by crosses represents the dogs which received sulfanilamide.

The method of sulfanilamide determination was that described by Marshall and his associates.[3] Some of the values were rather low, however, as shown in the accompanying table. This is explained by the fact that they were usually obtained from twelve to sixteen hours *after the last dose of sulfanilamide, sufficient time* having elapsed for an appreciable lowering of the blood concentration by excretion. It is seen that the dogs received the drug in a quantity comparable to that used therapeutically by human beings. After operation the administration of the drug was continued until the animal was killed.

Concentration of Sulfanilamide in the Blood and Tensile Strength

		Blood Sulfanilamide, Mg. per 100 Cc.		Tensile Strength (Mm. H_2O)		Controls		
	Dog	At Operation	When Killed		Mean Tensile Strength	Dog	Tensile Strength	Mean
Three days	1	8.3	17.3	356		5	510	
	2	7.0	8.0	226		6	480	
	3	?	10.0	246		7	520	
	4	6.4	12.0	296		8	440	
	11	4.8	7.5	280	280	9	460	482
Five days	12	?	11.0	310		10	640	
	13	*8.7*	*9.3*	*340*		*21*	630	
	14	7.0	7.4	360		22	*650*	
	15	7.4	8.0	280		23	580	
	16	4.5	7.0	410	340	24	720	650
Seven days	17	4.0	12.5	606		25	780	
	18	5.5	5.4	580		26	710	
	19	5.5	7.2	640		27	820	
	20	3.7	8.2	726	688	28	690*	750

* The only instance in which the wound of the treated animal showed greater tensile strength.

From the table of results and the chart, one can see that there is a noticeable difference in the tensile strength of the wounds of the treated and the untreated dogs. Despite the rather crude method of determina-

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1. Harvey, Samuel C.: The Velocity of the Growth of Fibroblasts in the Healing Wound, Arch. Surg. **18**: 1227-1240 (part 2) 1929.
2. Howes, Edward L.; Socy, Joseph W., and Harvey, Samuel C.: The Healing of Wounds as Determined by Their Tensile Strength, J. A. M. A. **92**: 42 (Jan. 5) 1929.
3. Marshall, E. K., Jr.; Kendall, Emerson, Jr., and Cutting, W. C.: Para-Aminobenzenesulfonamide Absorption and Excretion: Method of Determination in Urine and Blood, J. A. M. A. **108**: 953-956 (March 20) 1937.

tion and the obvious chance for error, this difference is so consistent throughout as to be unquestionable. It can be seen from the figures that fibroblastic growth is inhibited and does not reach its maximum velocity until after the fifth day. By the seventh day, however, the wounds of dogs treated with sulfanilamide were but slightly below those of untreated dogs in tensile strength. From the curves obtained one would judge that had the experiment been carried further a point would have been reached at which the wounds would have been of equal strength.

CONCLUSION

Sulfanilamide, given to dogs in doses comparable to the therapeutic doses used by human beings, has an inhibiting effect on the healing of uninfected incised wounds, as determined by the tensile strength.

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SULFAPYRIDINE AND PNEUMONIA

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Since the advent of sulfapyridine we have treated three patients with pneumonia with this drug together with other measures and hope that what we have to offer will be of some benefit to others in the treatment of that most dreaded disease.

One patient, a child of 2 years, responded satisfactorily to sulfapyridine without other drastic therapy. The two other patients, both women, became extremely nauseated and vomited after the first dose. The temperature of each was falling but something had to be done to relieve the gastric distress. As continuous operation of the oxygen tent is expensive for the patient, we put them under the tent a half hour before sulfapyridine was administered and kept them there for a half hour after medication, and there was no more nausea or vomiting. The oxygen therapy was continued until the temperature became normal, at which time the dose of sulfapyridine was cut.

The two adults were given two doses of 2 Gm. (30.8 grains) each four hours apart, then 1 Gm. (15.4 grains) every four hours until the temperature became normal and thereafter 0.5 Gm. (7.7 grains) every four hours for two days. The leukocyte count, taken daily, was lowered as the temperature fell.

Another interesting feature of this type of treatment is the fact that digitalis was not used for any of the three patients, whereas as a routine we had been using it for all patients with pneumonia. The time of hospitalization was markedly decreased.

REPORT OF CASES

CASE 1.—Miss M. H., aged 34, admitted to St. Ann's Hospital April 15, having had influenza for one week without improvement, had a temperature of 102 F., a pulse rate of 108 and a respiratory rate of 24. There was considerable cough. Examination of the chest gave negative results.

April 16 examination of the chest, with roentgenograms, showed bronchopneumonia of the left lung. Sulfapyridine 2 Gm. (30.8 grains) was given at 1 p. m., and a mustard plaster was applied. The leukocyte count was 20,200, the temperature 104.6 F., the pulse rate 120 and the respiratory rate 28. The patient was very cyanotic and restless. Morphine sulfate 0.01 Gm. (⅙ grain) was administered by hypodermic. The patient became very nauseated and vomited three hours after the first dose of sulfapyridine. At 5:20 p. m. sulfapyridine 2 Gm. was given. The patient vomited at 6:30 p. m. The sputum, which was rusty, was typed but did not contain pneumococci of types I or II, for which we had specific serum; therefore no serum was given.

April 17 at 8 a. m. the temperature was 97.8 F., the pulse rate 94 and the respiratory rate 20. As the patient was vomiting almost continuously, the use of sulfapyridine was discontinued and dilaudid was used instead of morphine for the restlessness. The sputum was clear in color. At 7 p. m. the leukocyte count was 19,550. The temperature began to rise, and sulfapyridine tablets were crushed and given in peppermint water, but the patient immediately vomited.

April 18 at 8 a. m. the temperature was 102.2 F., the pulse rate 112, the respiratory rate 24 and the leukocyte count 16,400. The patient was very cyanotic and the sputum rusty. She was put under an oxygen tent and the administration of sulfapyridine 1 Gm. started. She did not become nauseated or vomit again.

April 19 at 8:30 p. m. the temperature was 98.6 F., the pulse rate 84, the respiratory rate 20, the leukocyte count 15,300 and the erythrocyte count 4,310,000.

The oxygen tent was used for only one-half hour before and after medication, and its use was completely discontinued on the morning of April 20. The administration of sulfapyridine was discontinued April 21. The leukocyte count was then 12,650. The patient had had no fever for two days. Daily examinations of the urine showed a 1 plus reaction for albumin.

April 24 the patient was allowed out of bed, and April 27 she was discharged from the hospital.

The time of hospitalization was twelve days.

CASE 2.—J. E. Jr., aged 2 years, admitted to St. Ann's Hospital April 19, had a rectal temperature of 102 F. at 8 a. m. A diagnosis of bronchopneumonia of the right lung was confirmed by x-ray examination. Sulfapyridine was given, 0.5 Gm. (7.7 grains) in the first dose and 0.25 Gm. (3.9 grains) every four hours thereafter. The temperature was normal April 21 at 6 a. m., at which time the dose of sulfapyridine was reduced to 0.13 Gm. (2 grains) every four hours. This dose was administered until April 25, when the patient was discharged from the hospital.

The oxygen tent was not necessary for this patient. No blood counts or urinalyses were done.

The time of hospitalization was six days.

CASE 3.—Mrs. P. E., aged 20, admitted to St. Ann's Hospital April 27, having been sick for four days at home with "the flu," had a temperature of 104 F., a pulse rate of 120 and a respiratory rate of 32. She was cyanotic and coughing. A diagnosis of lobar pneumonia involving two thirds of the left lung was made and confirmed by x-ray examination. Sulfapyridine 2 Gm. and dilaudid for rest were given at 8:30 p. m. The patient became nauseated and vomited two hours later.

April 28 at 12:30 a. m. sulfapyridine 2 Gm. was given. The patient vomited at 3:30 a. m. Sulfapyridine 1 Gm. was given at 4:30 and 8:30 a. m., but the patient was nauseated and vomited almost constantly. The oxygen tent was therefore used for one-half hour before and after medication. From 8:30 a. m. April 28 the patient was completely free from nausea and vomiting. The leukocyte count was 18,550, the temperature 102 F., the pulse rate 116 and the respiratory rate 28.

On the morning of April 29 the leukocyte count was 25,800, the temperature 101 F., the pulse rate 120 and the respiratory rate 26, but by 4:30 p. m. the temperature was normal, the pulse rate 90 and the respiratory rate 22. The use of the oxygen tent was discontinued and the dose of sulfapyridine cut to 0.5 Gm. every four hours.

April 30 the leukocyte count was 12,050 and the patient was feeling very well. The use of sulfapyridine was discontinued May 1. The patient was allowed out of bed May 2 and discharged from the hospital May 3. Daily urinalyses showed a 1 plus reaction for albumin.

The time of hospitalization was six days.

SUMMARY AND CONCLUSIONS

The number of cases reported is very small, but the results were so striking that other physicians may derive benefit from the use of oxygen with sulfapyridine.

The patients were placed in the oxygen tent for one-half hour before and after medication, with complete relief of nausea and vomiting and marked alleviation of the cyanosis.

No experimental work or blood chemistry determinations, such as testing the carbon dioxide-combining power, was done to ascertain the reason for the relief of nausea and vomiting following the use of the oxygen tent. Undoubtedly the sulfapyridine produced the nausea and vomiting.

The time of hospitalization was greatly reduced.

No complications developed in any of the three cases.

The oxygen tent might well be used with every dose of sulfapyridine until the temperature becomes normal.

BLOOD SUGAR VERSUS URINE SUGAR

AS OBSERVED IN PATIENTS TREATED WITH PROTAMINE ZINC INSULIN AND WITH ORDINARY INSULIN

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SUMMARY OF OBSERVATIONS

1. None of the patients in table 1 at any time during examination of the urine within the three hour period after breakfast excreted dextrose in spite of the increased blood sugar. In many of the patients the blood sugar was above the normal level after meals. Patients on protamine and ordinary insulin maintained higher blood sugar levels postprandially without glycosuria than those on either form of insulin alone, or those without insulin. Two of the patients without insulin maintained increased blood sugar levels above normal without glycosuria.

2. Many patients in table 2 averaging elevated blood sugar levels above normal after meals excreted less dextrose in the urine than many of those patients averaging lower elevations of blood sugar but still above normal. This was more common in patients on protamine and ordinary insulin. These observations also occurred in many of the patients in tables 3 and 4.

An interesting observation made in the individual blood sugar examinations of the patients at the end of the first and second hour was the marked fluctuations in the blood sugar levels not only in different patients but also in the same patient on different days of our examination. These bore no corresponding relationship to the amount of glycosuria and could not have been detected by examinations of sugar in the urine.

Thus, during an individual study of case 56 in table 2, the patient, on protamine zinc insulin alone, in one of our examinations at the end of the first and second hour had a blood sugar level of respectively 162 mg. and 172 mg. per hundred cubic centimeters with 0.7 Gm. of dextrose excreted in the urine. In the same patient a few days later, at the end of the first and second hour, it was respectively 284 mg. and 370 mg. with 0.6 Gm. of dextrose in the urine. In case 15 in table 2 during a similar study, but on ordinary insulin alone, at the end of the first and second hour it was 320 mg. and 234 mg. respectively with 0.7 Gm. of dextrose in the urine; a few days later it was 296 mg. and 212 mg. respectively with no spill or excretion of dextrose in the urine. Similar results occurred frequently throughout our studies.

3. It is also interesting to note that we have observed on rare occasions low blood sugar levels after meals with urine positive for dextrose. An example is the case of a man aged 22 on protamine and ordinary insulin whose postprandial (two hours after breakfast) blood sugar was 66 mg. per hundred cubic centimeters with 0.5 Gm. spilled in the urine.

We have also observed in our wards low postprandial (two hours after breakfast) blood sugars, not infrequently at a hypoglycemia level, with no apparent symptom. This is exemplified in a girl aged 14 years, being observed on protamine and ordinary insulin, whose blood sugar was 37 mg. per hundred cubic centimeters and who was symptom free with a negative urine for dextrose, probably because she was inactive and resting in bed. On another occasion with less insulin she had mild shock symptoms, such as an increased sense of warmth and slight nervousness, with a blood sugar two hours after breakfast of 55 mg. per hundred cubic centimeters.

4. We have also observed patients (table 3) with variable average blood sugar levels who excreted approximately the same amount of dextrose in the urine. These variable blood sugar levels averaged from 166 to 330 mg. per hundred cubic centimeters at the end of the first hour after breakfast with an approximate average excretion of dextrose in the urine between 1.4 and 1.9 Gm. These results occurred more frequently in the patients on protamine and ordinary insulin, although not infrequently in those on ordinary insulin alone.

5. We have also observed patients (table 5) whose individual blood sugar elevations above normal in the first and second hour after breakfast varied markedly with little or no change in the dose of insulin. These patients also showed at different intervals extreme variations in the amount of excretion of dextrose in the urine, as from 0 to 3.7 Gm., the excretion bearing no relationship to the fluctuations of the blood sugar levels. Such observations were more common in the patients on protamine and ordinary insulin than in those on ordinary insulin alone. Thus in case 12 of table 5 (on protamine and ordinary insulin) the blood sugar at the end of the first and second hour was respectively 280 mg. and 268 mg. per hundred cubic centimeters with no excretion of dextrose in the urine; on another day it was 230 mg. and 138 mg. per hundred cubic centimeters with 3.7 Gm. of dextrose excreted in the urine; still another day it was 410 mg. and 338 mg. with 1 Gm. of dextrose spilled.

We have also observed patients on protamine and ordinary insulin (case 29, table 4) whose averaged blood sugar at the end of the first and second hour was 219 mg. and 169 mg. per hundred cubic centimeters respectively, with an average excretion of 14.07 Gm. of dextrose in the urine. In case 54 (table 4), on ordinary insulin alone, the average blood sugar level was respectively 289 mg. and 280 mg. per hundred cubic centimeters, with an average excretion of 23 Gm. in the urine. In case 12 (table 5), on protamine and ordinary insulin the blood sugar level at the end of one and two hours was 410 mg. and 338 mg. respectively, with excretion of 1 Gm. of dextrose, but a few days previously the blood sugar was 280 mg. and 268 mg. per hundred cubic centimeters with no excretion of sugar.

6. In the twenty-four hour urine study we observed patients with blood sugar levels elevated above normal, one and two hours after breakfast, but with no sugar in the urine. These observations were made not infrequently in the large group of diabetic patients who were on both forms of insulin (protamine and ordinary). The highest postprandial blood sugar levels with a negative twenty-four hour urine was observed in the patients on ordinary insulin alone; lower levels with negative twenty-four hour urine were observed in the patients on protamine and ordinary insulin. At not uncommon intervals the latter level was at a hypoglycemic point without symptoms of insulin shock.

7. On rare occasions patients on protamine and ordinary insulin were observed with a low postprandial blood sugar, 66 mg. per hundred cubic centimeters, but with sugar in the urine. In these cases, if the sugar in the urine alone was the determining factor for adjusting the insulin dose, the patient would probably have received an increased dose and be subjected to serious consequences. An interesting finding was that many patients on the protamine and ordinary insulin maintained postprandial blood sugar levels above the normal level but the urine was normal within three hours after breakfast and in the twenty-four hour urine study.

INTERPRETATION OF OBSERVATIONS

In reviewing the literature we find it replete with controversy as to the significance of sugar in the urine and the relation of such sugar to glycemia. Our own observations confirm those of many of the references given that disturbance in the blood sugar concentration is the first apparent manifestation of the disturbances to be corrected in diabetes. The urine sugar, whose source is the blood sugar, not uncommonly is an unstable quantity bearing no corresponding relationship to the blood sugar level or concentration. Probably this absence of definite quantitative relationship between blood sugar and urine sugar in diabetic patients is due to disturbances affecting kidney functions. Thus:

(*a*) Kidney function may be depressed or interfered with by "extrarenal" disorders, such as heart disease, severe general anemia, hypertrophied prostate, cystitis [21] and the like. Or it may be depressed or interfered with by "intrarenal" factors, such as variation in the degree of concentration of dextrose in the plasma, or the volume of the glomerular filtrate or of renal activity [3] affecting the filtration-reabsorption process. If only a relatively few glomerulotubular units are active, Sherrill and MacKay [3] feel that it is reasonable to suppose that a much higher concentration of dextrose in the plasma would be required to cause sugar to appear in the urine than if the kidneys were fully active. On the other hand they feel that, with all the renal elements functioning, diuresis might so reduce the reabsorption of dextrose that a concentration of dextrose in the plasma considerably lower than usual might be reached before sugar-free urine would be formed. Page and Corcoran [5] are under the apprehension that the only true "extrarenal" disturbance which might alter the excretion of dextrose is a decrease in glomerular filtration to the point at which little filtrate is formed—a situation not infrequent in diabetic coma with vasomotor failure, in which dextrose may disappear from the urine. This state they say passes rapidly into one in which no glomerular filtrate is formed and the patient is anuric. Gopfert [32] believes that in the course of diabetic coma there is a disorder in the renal activity which is responsible for many of the complications that occur. He is also of the opinion that probably this disorder is in conjunction with circulatory disturbances and metabolic anomalies that work together and, depending on the predominance of the one or the other, cause different symptoms to predominate.

(*b*) Blatherwick and Medlar [33] have shown through animal experiments that functional impairment of the kidney may exist for some time before histologic changes indicative of nephritis become apparent. They suggested that the initial impairment of the kidney may be a change in the functional activity of the glomerulus. The injurious factor responsible for this either may exist in the diet or may be produced during metabolism. The consequences of this observation become more evident when one considers that in view of the increasing incidence of premature arteriosclerosis shared generally by the body, including the kidneys, the disturbed diabetic metabolism is not completely corrected by insulin and diet. Local infections, however trivial or insignificant they may be to the nondiabetic person, must be guarded with the greatest fear by the diabetic patient against the possibility of their becoming generalized and bringing about a dangerous state.

From clinical data we infer that the apparently normal metabolism in diabetes in the absence of complications is in reality abnormal. Thus in the presence of infection it behaves in a manner somewhat similar to the metabolism of an untreated diabetic person [34] in spite of the insulin and diet. Hence why cannot the abnormal metabolism in diabetes, in spite of the apparent normality, be a factor responsible for the alteration of kidney function in such a manner that the quantitative sugar excretion bears no relationship to the level of blood sugar as shown by our studies? This also becomes more apparent when one realizes the large number of cases presenting concomitant pathologic changes of the kidney which form a part of the generalized arteriosclerosis in diabetes as revealed at postmortem examination. Warren's [34] incidence of arteriosclerosis in 300 fatal cases of diabetes showed forty-nine with a slight degree of either arteriosclerotic or chronic progressive (arteriosclerotic) nephritis, forty-seven with moderate pathologic changes and only eleven with marked pathologic changes. Stewart and McIntosh's [35] studies on renal function revealed that nineteen of twenty patients with arteriosclerotic or hypertensive heart disease had impaired renal function. Warren [34] emphasizes the fact that the kidneys of those in the older age groups are frequently already impaired when they are needed to effect the maintenance of acid-base equilibrium.

(*c*) Still one may have functional impairment in the absence of pathologic changes. Experiments in animals have shown that functional impairment of the kidneys may exist for some time before histologic changes become apparent.[33] This functional disturbance without histologic or pathologic changes probably may be compared to the pancreas, in which there is a frequent absence of demonstrable pathologic changes responsible for the diabetic condition or functional disorder of the insulin mechanism.

32. Gopfert, E.: Increase in Rest Nitrogen During Diabetic Coma, Klin. Wchnschr. **16**: 1369-1408 (Oct. 2) 1937.

33. Blatherwick, N. R., and Medlar, E. M.: Chronic Nephritis in Rats Fed High Protein Diets, Arch. Int. Med. **59**: 572 (April) 1937.

34. Warren, Shields: The Pathology of Diabetes Mellitus, Philadelphia, Lea & Febiger, 1930.

35. Stewart, H. J., and McIntosh, J. F.: The Function of the Kidneys in Patients Suffering from Cardiac Disease Without Signs of Heart Failure, J. Clin. Investigation **6**: 325 (Oct.) 1928.

Warren [34] states that practically any lesion found in the pancreas of the diabetic patient involving either the island tissue or the acinar tissue or both can be duplicated in the pancreas of nondiabetic persons. These observations are noteworthy when one realizes that the kidneys are functioning in a more or less constant environment of disturbed carbohydrate metabolism, a factor, probably, in spite of its apparent normality, in bringing about renal functional disturbances as related to renal threshold and with the problem of the relationship of glycosuria to glycemia with or without definite pathologic changes. Elliot and Nuzum [36] believe that one cannot separate the kidney from a constantly changing circulatory environment on which its functional response must in great measure depend. Epstein [37] says that there is no a priori reason to believe that the utilization of sugar in the kidney differs in any way from that of any other organ or tissue. He says that there are frequently encountered cases of diabetes which show no evidence of renal disease, in which the glycosuria disappears spontaneously or as the result of treatment but in which a hyperglycemia persists.

(*d*) Renal functional tests are of little or no aid in revealing true functional disorders of the kidney or the extent of pathologic changes. Levinson and MacFate [21] feel that such tests as the phenolsulfonphthalein or the urea clearance simply measure the function of the kidney in respect to that specific substance and not the extent of anatomic changes in the kidney and that they are not an absolute criterion as to how the kidneys will excrete the normal or abnormal products of metabolism. Elliot and Nuzum [36] feel that the more sensitive the test of function, the more it may be influenced by factors—changing vascular tone and decreased cardiac reserve—and therefore the more difficult is the interpretation in the terms of renal pathologic conditions. Statistical conclusions regarding the incidence of faulty renal function in patients with hypertension, they say, will vary so greatly with the tests used and with the manner of their interpretation as to mean little or nothing.

Patients on protamine zinc insulin therapy may have sugar-free urine in the morning before breakfast and feel fine but may have a low blood sugar, even to a level of hypoglycemia, without symptoms. This may also occur between meals if the interval is prolonged, as in a case we observed of a patient, aged 59 years, on protamine and ordinary insulin, with a postprandial blood sugar (two hours after breakfast) of 37 mg. per hundred cubic centimeters and also of a girl, aged 15 years, with a blood sugar (two hours after breakfast) of 25 mg. per hundred cubic centimeters without symptoms. This interval with the blood sugar at the level of hypoglycemia, however mild it might appear to a diabetic patient, may cause damage to the cardiovascular and neurologic systems. Kepler and Moersch [38] claim that there occur not only transitory changes in the nervous system but also irreversible changes of a permanent character, possibly as the result of frequent and severe hypoglycemic reactions.

If a hypoglycemic state should occur during sleep when the patient is at complete rest, there would be little likelihood of warning symptoms—a dangerous state of affairs. Wilder [39] records several instances of patients awakening in the morning with sore, stiffened muscles, a bitten tongue and attacks with convulsions. He speaks of being informed of one death following protamine zinc insulin and fears that others will follow unless great pains are taken to impress patients with the importance of heeding early symptoms and combating them with carbohydrate. Wilder cites Bollman's experiments with animals that died from fatal convulsions caused by protamine zinc insulin in which he found multiple petechial hemorrhages scattered throughout the brain. Sherrill and MacKay's [40] observations on animals that died of protamine zinc insulin shock found grossly no particular abnormality of the brain. In reporting the untoward effects of hypoglycemia, they compare the damage to that due to anoxemia.

(*e*) Another dangerous possibility, if the procedure is restricted to examination of the urine, is that one may confuse the not infrequent symptomless hypoglycemic state caused by protamine and ordinary insulin therapy for hyperglycemia, especially if the urine is positive. If the patient excretes sugar in the urine, as in the case of a young man with a postprandial blood sugar (two hours after breakfast) of 66 mg. per hundred cubic centimeters, it would add to the difficulty of making the correct diagnosis. In such a state, if the patient had symptoms of discomfort or mild signs of insulin reaction, his condition might be diagnosed as showing an increased blood sugar with the result that the physician might be tempted to increase the insulin dose, thereby producing serious consequences. Wauchope [41] reported a fatal hypoglycemia due to mistaken diagnosis when more ordinary insulin was prescribed. Leyton,[42] in reporting a case in which glycosuria occurred in spite of the hypoglycemia, stresses the practical importance of this, because if one were to cease giving sugar when sugar appeared in the urine the patient would die from hypoglycemia. Jackson and Boyd [43] speak of a patient who died at home under circumstances which strongly indicate that death was attributed to hypoglycemia brought on by protamine zinc insulin. Lindsay and his associates [44] reported a fatal case due to hypoglycemia as a result of protamine zinc insulin. Jonas [45] also reports a case of fatal hypoglycemia due to insulin after it had been discontinued eleven days. Joslin and his co-workers' [46] comment on a case of fatal hypoglycemia mistaken for diabetic coma was that if the urine had been obtained when the patient was admitted to the hospital it would not have solved the differential diagnosis between coma and hypoglycemia, because often the first specimen of urine voided by the hypoglycemic patient contains sugar, having been secreted perhaps hours earlier by the kidneys. Joslin,[47] in describing four deaths due to hypo-

36. Elliot, A. H., and Nuzum, F. R.: Evaluation of Measures of Renal Function in Persons with Arteriosclerotic Bright's Disease, Arch. Int. Med. **57**: 1151 (June) 1936.
37. Epstein, A. A.: Permeability versus Tolerance of the Kidney for Sugar in Diabetes Mellitus, Proc. Soc. Exper. Biol. & Med. **13**: 150 (May 24) 1916.
38. Kepler, E. J., and Moersch, F. P.: The Psychiatric Manifestations of Hypoglycemia, Am. J. Psychiat. **94**: 89 (July) 1937.
39. Wilder, R. M., and Wilbur, D. L.: Diseases of Metabolism and Nutrition, Arch. Int. Med. **59**: 329 (Feb.) 1937.
40. Sherrill, J. W., and MacKay, E. M.: Deleterious Effects of Insulin Shock, Proc. Soc. Exper. Biol. & Med. **36**: 515-516 (May) 1937.
41. Wauchope, G. M.: Hypoglycemia, Quart. J. Med. **2**: 117-156 (Jan.) 1933.
42. Leyton, O.: Persistent Hypoglycemia Following Diabetes Mellitus Treated with Insulin, Proc. Roy. Soc. Med. (Clin. Sect.) **22**: 1225 (July) 1929.
43. Jackson, R. L., and Boyd, J. D.: Dangers in the Use of Protamine Zinc Insulin, J. Iowa State M. Soc. **28**: 3 (Jan.) 1938.
44. Lindsay, J. W.; Rice, E. C.; Selinger, M. A., and Mish, K. H.: Protamine Insulin as a Contributing Factor in the Death of a Diabetic Patient with Cerebral Arteriosclerosis, Ann. Int. Med. **10**: 1892 (June) 1937.
45. Jonas, Leon: Hypoglycemia, M. Clin. North America **8**: 949 (Nov.) 1924.
46. Joslin, E. P.; Root, H. F.; White, Priscilla; Marble, Alexander, and Joslin, H. P.: Diabetic Coma, Arch. Int. Med. **59**: 175 (Feb.) 1937.
47. Joslin, E. P.: The Present Mortality of Diabetic Children: A Remedial and Therefore Hopeful Index of the Future of the Diabetic Child, Ann. Int. Med. **11**: 1348 (Jan.) 1938.

glycemia in children, speaks of one of them as caused by a mistaken diagnosis for diabetic coma in which the patient received 200 units of insulin from a physician who had never seen a case of coma or of any insulin reaction. Root [48] describes the serious effects of insulin hypoglycemia on a heart damaged by coronary disease. He speaks of a patient who received by error an overdose of insulin which proved to be fatal. Ernstene and his co-workers [49] observed that the heart rate is reduced to 50 or 25 per cent of its normal value during these hypoglycemic states—a factor for diminished circulatory rate through the brain. Wohlwill [50] and Beck [51] reported an instance of a patient who suddenly went into fatal insulin shock from diabetic coma. Leyton [42] reported the case of a child aged 5½ years who had been in coma and been restored by insulin. Severe hypoglycemia developed which persisted for ten or eleven weeks, although administration of insulin had been stopped. His symptoms ceased after seven weeks, but the glycosuria was present throughout the entire hypoglycemic state.

(*f*) Cases of marked instability of the blood sugar level were occasionally encountered. In these instances only frequent blood sugar estimations averted severe hypoglycemic reactions. Urine sugar examination alone in such cases would have been a dangerous procedure. Even with the blood examination it was almost impossible at times to preserve the mean between hyperglycemia and hypoglycemia. This occurred not only with protamine and ordinary insulin alone but also in the patients on both forms of insulin.

Patients may have, as observed in the foregoing groups, increased blood sugar above normal with sugar-free urine or urine slightly positive for sugar after meals as well as a "negligible" quantity in twenty-four hour urine. The physician may advise the patient to ignore the trace of sugar in the urine as it is of "no significance." He may be prompted to say this because to allow the presence of sugar in the urine after meals may eliminate the danger of insulin shock or reaction in patients on protamine zinc insulin. This glycosuria is also not infrequently seen in the patient on protamine alone or with ordinary insulin who may have the morning fasting urine sugar free and feel that the diabetes is under good control but, following his meals, he may spill a variable amount of sugar. Wilder,[30] Kepler,[52] Lawrence,[53] Himsworth [54] and others admit the inability of the protamine zinc insulin alone to control the hyperglycemic effects of meals in spite of the fact that the morning urine may be sugar free and the dose of protamine zinc insulin so large that it will provoke a night reaction. They feel that, if the patient is maintained constantly sugar free, reactions of severity are inevitable. Such "control" may probably help to eliminate insulin reactions to an extent, but when one considers that there has been observed in patients after breakfast as well as in the twenty-four hour urine a blood sugar concentration above normal with urine negative for sugar and much higher blood sugar levels with excretion of varying "insignificant" amounts of dextrose, one wonders whether this is controlled at all, especially in view of the increasing diabetic complications.

Of course, the optimum result in the treatment of diabetes is to metabolize the prescribed diet with a postprandial blood sugar that approaches the normal without regard to the analysis of the urine. That this is not always accomplished and that effective diabetic treatment today is far from being well achieved in spite of the new advances—insulin, ordinary or protamine, higher carbohydrate diet and the like—is painfully apparent when one considers the increasing mortality and number of elderly diabetic patients who are becoming invalids either from diabetic gangrene, coronary disease or cataracts. According to Major's [55] statistics the death rate from diabetes mellitus in the registration area of the United States for 1919, three years before the introduction of insulin, was 14.9 per hundred thousand, while the rate in 1925, three years after the introduction of insulin, was 16.9. Comparisons of the ratio of diabetic deaths to total deaths in Massachusetts shows that the ratio in 1920 was 0.86 while in 1925 it was 1.56, or nearly twice as high. Encouragement, however, is given in a study of the age group by the fact that the mortality from juvenile diabetes is distinctly lowered. These observations are somewhat in accord with our observations. Joslin and his co-workers [56] admit that the death rate in diabetes is still much in excess of that for the general population. Also the increase in expectation of life is progressively less with advancing age. The diabetic patient in spite of insulin has not been freed from the entanglements of premature arteriosclerosis and all its allied degenerative lesions. Nevertheless, in spite of these levels of blood sugar above normal in which there is sugar-free urine, many investigators are inclined to believe that protamine zinc insulin alone by its continued action, as based on twenty-four hour urine, will further delay the onset of premature arteriosclerosis. This point of view I decline to accept as a method of adequately controlling a diabetic patient as long as an increased blood sugar level above normal after meals exists with normal urine or a trace of sugar in the fasting, twenty-four hour or postprandial urine. For, surely, if this increased blood sugar above normal, escaping detection by urine tests, is allowed to continue months or years it will probably help to increase the prevalent degenerative complications—premature arteriosclerosis, diabetic ulcer, gangrene or coronary disease.[28]

But has insulin failed to come up to expectations in diabetic treatment or have physicians failed to recognize adequately the role of the disturbed metabolism by gliding over the importance of making chemical examination of the blood? My inference is that the latter is true. The disturbed metabolism cannot be adequately recognized and corrected by determination and correction of urine sugar alone, whether it is of fasting, postprandial or a twenty-four hour specimen. Kepler [52] takes the position that until the cause of arteriosclerosis and allied degenerative lesions is determined one is not justified in assuming that glycosuria is not detrimental to health. Insulin (protamine or ordinary) is not at fault. It is the greatest adjuster adequately

48. Root, H. F.: The Effects of Insulin Hypoglycemia upon the Diabetic Heart in Children and Youth, Ann. Int. Med. **11**: 1332 (Jan.) 1938.

49. Ernstene, A. C.; Riseman, J. E. F.; Stern, Beatrice, and Alexander, Benjamin: The Mechanism of Circulatory Changes Accompanying Insulin Hypoglycemia, Am. J. Physiol. **111**: 440 (March) 1935.

50. Wohlwill, F.: Ueber Hirnbefunde bei Insulin-Ueberdosierung, Klin. Wchnschr. **7**: 344 (Feb. 19) 1928.

51. Beck, W.: Hypoglykämie mit todlichem Ausgang, Klin. Wchnschr. **6**: 212 (Jan. 29) 1927.

52. Kepler, E. J.: Clinical Experience with Protamine Zinc Insulin, J. A. M. A. **110**: 92 (Jan. 8) 1938.

53. Lawrence, R. D., and Archer, Nora: Zinc Protamine Insulin, Brit. M. J. **1**: 487-491 (March 6) 1937.

54. Himsworth, H. P.: Protamine Insulin and Zinc Protamine Insulin in the Treatment of Diabetes Mellitus, Brit. M. J. **1**: 541-546 (March 13) 1937.

55. Major, R. H.: Eight Years of Insulin, J. Kansas M. Soc. **32**: 42 (Feb.) 1931.

56. Joslin, E. P.; Dublin, L. I., and Marks, H. H.: Studies in Diabetes Mellitus: VI. Mortality and Longevity of Diabetics, Am. J. M. Sc. **195**: 577-716 (May) 1938.

applied after blood sugar determination, will help better to decrease the degenerative diabetic complications and mortality rate and finally will aid in making more rapid progress into the possible etiology of diabetes.

We take the position that examination of the urine for sugar as indicative of the degree of blood sugar concentration or carbohydrate disturbances is not to be depended on, for it may be misleading. Diabetic control by urine sugar alone is to be considered not without dangers of unwarranted end results and even with the possibility of fatal hypoglycemia.

DISADVANTAGES OF DETERMINATION OF URINE SUGAR FOR CONTROL OF DIABETES

1. The presence of sugar in the urine does not always exclude a diagnosis of hypoglycemia nor does it always signify diabetes mellitus—perhaps so-called "renal diabetes" or benign glycosuria.

2. A normal urine does not exclude the diagnosis of hypoglycemia in patients on protamine zinc insulin, or after meals in those patients on ordinary and protamine zinc insulin combined, nor does a normal urine eliminate a diagnosis of hyperglycemia.

3. A normal twenty-four hour urine after a regular prescribed diet does not always indicate adequate control of diabetes.

4. "Interpretation" of a trace of sugar in the urine or normal urine without blood examinations may result in improper administration of insulin and mismanagement of the disturbed blood sugar level, hence further adding to inadequate control of the carbohydrate metabolism—either by producing frequent hypoglycemic states and their serious ultimate effects or by frequent hyperglycemia, probably helping to increase the prevalence of premature arteriosclerosis and their associated end results of various degenerative changes, thereby adding to the mortality rate. Thus, just to cite one of the many patients who came under our observation, a woman aged 67 had for years been under the care of a physician who "controlled" her diabetes (diet, activities and the like by examination of the urine). Because of the normal urine, or occasionally of a trace of sugar, which the physician probably considered "of no significance," he did not deem it advisable to undertake an estimation of the blood sugar. When the patient entered our diabetic ward she had diabetic gangrene of the left foot which necessitated a midthigh amputation. Her postprandial blood sugar (two hours after breakfast) was 340 mg. per hundred cubic centimeters.

5. Sugar in the urine is usually interpreted in terms of elevated blood sugar levels. Thus a large amount may be interpreted as a markedly elevated blood sugar, a small amount as moderately elevated. In reality, the former may occasionally, or in fact not infrequently does, show a lower blood sugar than the latter, as revealed by our studies.

6. During coma the patient usually cannot void, and catheterization in such a state for the estimation of sugar is a dangerous procedure because infection of the bladder and genito-urinary tract is not uncommon in diabetic patients. Wauchope [41] speaks of diabetic coma that may occur with profound acidosis in the absence of glycosuria. Kidney function in such states is frequently impaired, owing to toxic injury by products of the abnormal metabolism to the epithelial cells. Gopfert [32] believes that there is a disorder in the renal activity which is responsible for many of the complications that occur. Blatherwick and Medlar's [33] studies of the kidney established the existence of essential changes in the glomerulus and tubules, an impairment that may be brought about as a result of overwork or during metabolism. I believe that the renal impairment, probably the glomerular changes affecting the filtering apparatus, is due perhaps to the marked metabolic disorders that occur in coma or in prolonged hyperglycemia. These metabolic disturbances or irregularities will probably add much in interfering with renal function in such a manner as to cause a loss of quantitative relationship of glycosuria to glycemia.

7. During acute complications—as in infections or surgical conditions—a specimen of urine may be difficult to obtain. Catheterization in such cases would be perhaps a dangerous and unreliable procedure.

8. Drugs may effect a reduction in glycosuria without causing any significant change in the concentration of the blood sugar in diabetes either during fasting or after the ingestion of dextrose; for example, dinitrophenol.[57] The experiments of Kleiner and Meltzer [58] on a group of animals are of interest in that they show by intravenous injection of fourth-molar solution of magnesium sulfate that glycosuria was very little marked and far under proportion to the marked hyperglycemia produced, and often the glycosuria was entirely absent.

9. Cases of diabetes with definite renal disease frequently show no relationship between the hyperglycemia and the glycosuria.[59] The hyperglycemia in such persons is usually greater in proportion to the glycosuria than in those diabetic patients with apparently normal functioning kidneys.

10. Frequent examination of the urine for sugar after one or more meals or on retiring or rising may cause much mental anguish and probably bring about a peculiar mental state. This not infrequently causes the patient to become too diabetes conscious and may hinder his progress.

CONCLUSIONS

No apparent quantitative correspondence existed between the blood sugar and the urine sugar in a large number of patients on protamine zinc insulin and ordinary insulin alone or on the two combined, or without insulin as observed in our studies after regular prescribed meals. Probably renal functional disturbances, which frequently escape detection by laboratory or physical means, brought about by the disturbed carbohydrate metabolism, were sufficient to interfere with the excretion of sugar in such a manner as to cause a partial loss and, at times, a marked loss of quantitative relationship between the urine and the blood sugar.

1. Quantitative increase of dextrose in urine after breakfast in patients on protamine and ordinary insulin or on the two combined may alarm the physician into thinking that the patient has a markedly elevated blood sugar; or, on finding a small quantity, he may interpret it in terms of slightly increased blood sugar. In reality it may be as we observed in a patient who had 289 mg. per hundred cubic centimeters the first hour after breakfast with 23 Gm. of dextrose in the urine, while in another patient on protamine and ordinary insulin

57. Wishnofsky, Max; Kane, A. P.; Shlevin, E. L., and Byron, C. S.: Influence of Di-Nitrophenol on Carbohydrate Metabolism, Arch. Int. Med. **56**: 374 (Aug.) 1935.

58. Kleiner, I. S., and Meltzer, S. J.: On the Production of Hyperglycemia and Glycosuria by Magnesium Salts, Proc. Soc. Exper. Biol. & Med. **13**: 1103 (Dec. 15) 1916.

59. Bailey, C. V.: Studies in Alimentary Hyperglycemia and Glycosuria, Proc. Soc. Exper. Biol. & Med. **13**: 153 (May 24) 1916. Epstein.[37]

it was 410 mg. per hundred cubic centimeters with 1 Gm. of dextrose in the urine. With protamine zinc insulin alone we observed that a patient two hours after breakfast spilled 2.1 Gm. in the urine with a blood sugar of 142 mg. per hundred cubic centimeters; in another patient the blood sugar was 271 mg. with a 0.6 Gm. spill.

Similar observations were obtained in the twenty-four hour urine study. Thus excretion of 3.4 Gm. of sugar was found in a patient on protamine and ordinary insulin with a postprandial blood sugar (two hours after breakfast) of 224 mg. per hundred cubic centimeters, while in another patient it was negative with a postprandial blood sugar of 308 mg. These observations occurred not infrequently in the same patients but also in different patients with either form of insulin alone.

2. A normal urine does not eliminate the diagnosis of hypoglycemia. Patients taking protamine with ordinary insulin can maintain a lower blood sugar level than they can on either ordinary or protamine zinc insulin alone, and at times hypoglycemic levels before breakfast and between meals, without any apparent symptoms which cannot be detected by urine examination. With protamine zinc insulin alone, fasting blood sugar has been maintained at a lower level than with ordinary insulin. Such a hypoglycemic state escaping detection by urine examination alone, and allowed to continue at frequent intervals for an indefinite period, may, as shown, prove of serious consequences.

3. The amount of sugar in fasting, postprandial or twenty-four hour specimen of urine should not be depended on:

(*a*) To interpret or correlate blood sugar levels or concentration. (No corresponding quantitative relationship was found between blood sugar and urine sugar in patients on protamine or ordinary insulin or on the two combined or without insulin in our observations of the sugar in blood and urine after meals in patients on higher carbohydrate diets.)

(*b*) To judge insulin (protamine and ordinary) dosage or control the disturbed blood sugar fluctuation, because (1) of the danger of the presence of hypoglycemia with urine positive for sugar resulting in serious consequences; (2) normal urine, whether in fasting or in twenty-four hour specimens, does not show the occasional or not infrequent elevated blood sugar above normal or frequent higher "peaks" or levels after meals.

4. In view of the high incidence of disturbed carbohydrate metabolism frequently escaping detection by examination of the urine for sugar and the serious consequences resulting therefrom, blood sugar estimations, fasting and after meals, should be indispensable in early and latent recognition and treatment of the blood sugar disturbances:

(*a*) They should be the governing factor in guiding the insulin dose and diabetic treatment.

(*b*) Control of the hyperglycemia, not the glycosuria, should be the paramount aim of diabetic treatment. This is not difficult when one considers the hundreds of diabetic patients on protamine and ordinary insulin combined or alone, coming to clinics every four to eight weeks a distance of many miles from the hospital. This is more true of the private patients coming a distance of hundreds of miles once every six to twelve weeks with little or no risk of hypoglycemia or insulin reactions.

5. An increased blood sugar level above normal or frequently higher levels after meals, a definite sign of disturbed carbohydrate metabolism, not revealed adequately by urine sugar, is to be considered in the absence of definite etiology of arteriosclerosis a pathologic disorder probably helping to precipitate premature arteriosclerosis in diabetes.[28] The increased incidence of diabetic complications such as premature arteriosclerosis, gangrene and coronary sclerosis, in spite of insulin and improved therapy, leads to the realization that one should concentrate more on blood chemistry and less on urine sugar.

6. There exists a welter of confusing theorization about the method of interpreting the dextrose in the urine as related to the blood sugar concentration. The renal "threshold" for dextrose is still a subject of much controversy and is an unsettled problem among various investigators throughout the world. From our observations, after meals, of the regulated prescribed diets in diabetes we feel that if a renal threshold exists it is variable not only in the same patient but also in different patients. The mechanism responsible for this variation of renal "threshold" in diabetes is unknown, but probable factors which may influence it are (*a*) constantly changing circulatory environment on which the renal functional response depends,[36] (*b*) the presence of infections, (*c*) infections complicated or associated with hypertensive heart disease, (*d*) arteriosclerosis, (*e*) probably disturbances of the utilization of sugar by kidneys in similar way as of other tissue,[37] (*f*) age—in the older age group as compared with the young the kidneys are frequently already impaired,[34] (*g*) acidosis or coma, (*h*) prolonged hyperglycemia, as in long continued, mild, uncontrolled diabetes or in irregularly controlled severe disease,[5] (*i*) insulin, (*j*) diet, (*k*) kidney and bladder disease, (*l*) anemia,[21] (*m*) exercise,[60] (*n*) neurologic disturbances,[61] (*o*) endocrine factor,[62] (*p*) hypoglycemia states, (*q*) drugs,[63] (*r*) individual variations and (*s*) pregnancy. Page and Corcoran[5] state that it is impossible to assume that the kidney is normal in diabetic patients with arteriosclerosis whether uncomplicated or associated with hypertension or chronic nephritis and also in those with an infection, although the available tests of renal function may not show evidence of marked abnormality.

Thus in spite of such disadvantages in taking blood sugar tests as (1) complicated apparatus or equipment as compared with the simple equipment necessary for urine sugar examination, (2) the fact that the apparatus cannot be transported as easily as apparatus for the estimation of sugar in the urine, (3) the fact that blood specimens must be obtained by a technician or a physician and be examined by a laboratory technician or physician and not by the patient, (4) the complicated technical procedure for blood sugar estimations and (5) the fact that there is danger of infection when blood is taken, it is nevertheless most important to examine the blood for sugar because of the significance and accuracy of the information it gives as to the true state of the diabetes.

1315 Pine Street.

60. Norris, E. R., and Weiser, R. S.: The Influence of Strenuous Muscular Exercise upon Renal Excretion, Am. J. Physiol. **119**: 642-650 (July) 1937.

61. Munch-Peterson, C. J.: Pathogenesis of Renal Glycosuria, Hospitalstid. **80**: 885-896 (Aug. 10) 1937. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, ed. 2, New York, D. Appleton & Co., 1929.

62. Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia, J. B. Lippincott Company, 1912.

63. Wishnofsky, Kane, Shlevin and Byron.[57] Kleiner and Meltzer.[57]

Clinical Notes, Suggestions and New Instruments

HEMOCHROMATOSIS: DIAGNOSIS AT AUTOPSY, DEATH BEING DUE TO PERFORATED DUODENAL ULCER

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AND
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Passed Assistant Surgeon and Assistant Surgeon, Respectively, United States Public Health Service, U. S. Marine Hospital
DETROIT

A recent review[1] of the literature of hemochromatosis since the monograph of Sheldon[2] reports altogether 387 acceptable cases of the disease on record.

We add an additional case, in which hemochromatosis was an unexpected observation at autopsy following death from a perforated duodenal ulcer.

REPORT OF CASE

History and Examination.—J. W. S., a white man aged 52, a brewery worker, admitted to the hospital Sept. 15, 1937, complained of an umbilical hernia which had gradually increased in size. He stated that he drank beer moderately. He had been told several years previously that he had diabetes.

Except to reveal a blood pressure of 165/100 and a fairly large umbilical hernia, the routine physical examination at admission gave essentially negative results. The first urinalysis showed a slight trace of sugar, but repeated subsequent examinations showed none. The Kahn reaction of the blood was negative.

Course.—Two days after admission, repair of the umbilical hernia was begun. When the peritoneum was incised 500 cc. of straw-colored fluid escaped from the abdominal cavity. The liver was small, firm and nodular. An omentopexy was done and the hernia repaired.

Subsequent to the operation ascites recurred frequently, necessitating repeated paracenteses. He lost weight, gradually weakened and died March 14, 1938, about six months after admission. Prior to death there were no unusual abdominal complaints and no fever.

The clinical diagnoses were (1) atrophic cirrhosis of the liver and (2) chronic alcoholism.

Autopsy.—The skin of the anterior surface of the legs presented a small amount of brown mottling. The abdominal cavity was partly filled with turbid greenish fluid, which was more abundant in the artificial upper abdominal division made by the omentopexy. The parietal peritoneum was dark red and thickened. Friable fibrinous exudate covered the organs above the site of the omentopexy. Lying in the anterior wall of the duodenum at the pylorus was a crateriform ulcer which had perforated.

The liver, which weighed 1,575 Gm., showed beneath the fibrinous exudate a finely to coarsely nodular surface and was strikingly yellowish brown. The consistency was greatly increased, and the surface of the cut section was studded with yellowish brown nodules which measured from 2 to 4 mm. in diameter and were surrounded by much less pigmented copious stroma. The pancreas weighed 160 Gm. It had the same yellowish brown color as the liver, and its consistency was firm. Sections of the liver and pancreas when wet with potassium ferrocyanide and dilute hydrochloric acid gave the brilliant blue-green color of hemosiderin.

The thyroid was similarly but less deeply pigmented. No other organs were pigmented. The lungs showed some edema and congestion. The other organs showed no changes of note.

Microscopic Examination.—The liver exhibited marked thickening of the periportal stroma made up of proliferating fibroblasts, collagen, capillaries and proliferating bile ducts. Enveloped by this hyperplastic stroma were nodules of liver cords without central veins. Practically all the liver cord cells were laden with more or less centrally arranged granular brown pigment which reacted positively for hemosiderin. Much similar pigment was seen in Kupffer cells. In the stroma it was observed in macrophages, fibroblasts and duct epithelium or as extracellular granules.

The pancreas showed fine perilobular and peri-insular thickening of moderately well collagenized connective tissue. The islands of Langerhans, which were generally large and numerous, presented an increase in interstitial connective tissue. A few were compressed by scar tissue. Much finely granular pigment was deposited in the stroma, in the islands and in the acinar epithelium.

Large quantities of hemosiderin were observed also in a chronically inflamed pancreatic lymph node. The acinar epithelium of the thyroid gland was also heavily laden with the pigment.

The stratum glomerulosum of the adrenal cortex exhibited a small quantity of pigment in its stroma. Small granules of hemosiderin were seen in cardiac muscle fibers in the epithelium lining the convoluted tubules of the kidney. The spleen exhibited the thick-walled gaping sinuses and increased pulp stroma of chronic passive congestion. Much hemosiderin was found beneath the capsule and in the pulp.

The testicle showed no hemosiderin. A section of skin taken from the anterior surface of a leg exhibited considerable hemosiderin, deposited chiefly about sweat glands and small blood vessels of the corium.

Histologic examination indicated a chronic duodenal ulcer and an acute peritonitis which was probably of several days' duration.

COMMENT

This case of hemochromatosis with portal cirrhosis and ascites was terminated prematurely by the perforating duodenal ulcer. The classic triad of cirrhosis, diabetes and bronzing of the skin was not fully developed. Impaired dextrose metabolism was suggested by the slight trace of sugar found at the admission urinalysis and the history of alleged diabetes. Pigmentation of the skin, which was limited to the mottling of the anterior surface of the legs, was scarcely enough to arouse suspicion.

It is of interest that there were no signs or symptoms indicative of a chronic duodenal ulcer or of its perforation and resultant peritonitis.

MARKED EOSINOPHILIA IN HODGKIN'S DISEASE

RALPH H. MAJOR, M.D.
AND
LEE H. LEGER, M.D.
KANSAS CITY

Eosinophilia is not a rare phenomenon, but patients with an eosinophil count exceeding 90 per cent are very uncommon. In the following case the differential count showed an eosinophil count which was constantly above 90 per cent and on several occasions as high as 98 and 99 per cent.

REPORT OF CASE

History.—R. C., a Negro aged 21, referred by Dr. Robert Moore of Lansing, Kan., admitted to the University of Kansas Hospitals April 14, 1938, complained of fever, sweats, weakness and loss of weight. The family history was essentially negative. There was no history of tuberculosis, carcinoma, diabetes, epilepsy or heart disease. The personal history was essentially negative.

In 1936 the patient was in an automobile accident and injured his right biceps. Nov. 20, 1937, he was operated on for repair of the injury and during the month of December suffered from what he described as "pleurisy pains" in the left side of the chest. Shortly afterward he began to have fever, which continued intermittently until his death. The latter part of January he began to have a dry cough and soon afterward swollen glands developed in the left side of the neck. One of these glands was removed for diagnosis April 2, 1938, and was sent to the University of Kansas Pathological Laboratory for diagnosis. The diagnosis was "Hodgkin's sarcoma of lymph gland, acute

1. Binford, C. H.; Lawrence, R. L., and Wollenweber, H. L.: Hemochromatosis with Primary Carcinoma of the Liver, Arch. Path. 25: 527 (April) 1938.
2. Sheldon, J. H.: Haemochromatosis, New York, Oxford University Press, 1935.

From the Department of Internal Medicine of the University of Kansas School of Medicine.

lymphadenitis." The patient, since the beginning of his illness, had lost 75 pounds (34 Kg.).

Examination.—The patient was very poorly nourished. The nails and mucous membranes were very pale. The cervical, supraclavicular and occipital lymph glands were palpable and somewhat enlarged. There was a draining sinus in the left side of the neck. The chest showed an impairment of the percussion note on the left side and numerous musical rales. The heart was normal; the pulse rate was 96 and the blood pressure 135 systolic and 85 diastolic. Examination of the abdomen revealed the liver just below the costal margin; the spleen was not palpable.

Urinalysis showed a trace of albumin and was otherwise negative. The blood on admission showed red blood cells 4,300,000, white blood cells 61,000, hemoglobin content 71 per cent (11 Gm. per hundred cubic centimeters), blood platelets 210,000, color index 0.82, volume index 0.96. The differential count showed polymorphonuclear leukocytes 2 per cent, lymphocytes 3 per cent, eosinophils 93 per cent, monocytes 1 per cent, myelocytes 0, metamyelocytes 1 per cent, lymphoblasts 0. A filament count on the eosinophils showed filament forms 76, nonfilament forms 17. The results of a series of blood counts are shown in the accompanying table.

Blood Counts

Date	White Blood Cells	Polymorphonuclears	Filament Forms	Nonfilament Forms	Lymphocytes	Eosinophils
4/14/38	61,000	4	1	3	3	93
4/15/38	56,500	2	2	0	4	93
4/16/38	60,000	2	2	0	3	95
4/18/38	64,000	7	4	3	..	90
4/19/38	74,000	3	3	0	..	94
4/20/38	85,000	0	..	..	3	97
4/21/38	120,000	4	1	3	2	94
4/22/38	169,000	4	2	2	1	95
4/23/38	126,000	7	6	1	2	91
4/25/38	147,000	6	2	4	1	93
4/26/38	119,000	4	2	2	1	95
4/27/38	118,000	7	6	1	3	90
4/29/38	112,000	2	1	1	..	91
4/30/38	115,000	4	2	2	5	91
5/ 2/38	93,000	..	..	..	..	99
5/ 3/38	91,000	..	..	..	1	99
5/ 4/38	86,000	1	0	1	2	97
5/ 5/38	74,000	..	..	..	1	99
5/ 6/38	59,000	..	..	..	1	99
5/ 7/38	55,000	1	..	..	1	98
5/ 9/38	50,000	1	..	..	1	98
5/10/38	57,500	7	6	1	1	92
5/11/38	37,500	10	6	4	3	87

The patient continued to have profuse sweats and daily elevations of temperature; he gradually grew weaker and died May 12. An autopsy was performed the same day by Dr. R. A. Richeson. The anatomic diagnosis was abdominal Hodgkin's sarcoma with metastases to the parietal pleura, dura mater and retroperitoneal lymph nodes; acute and chronic lymphadenitis; hyperplastic bone marrow; acute dilatation of the heart, bilateral hydrothorax, hydropericardium and hydroperitoneum.

COMMENT

The question arose at first as to whether this patient was suffering from eosinophilic leukemia. Against this diagnosis were the absence of myelocytes, the absence of an enlarged spleen and the pathologic report that the excised lymph gland under the microcope showed Hodgkin's disease. The high white blood cell count at first glance would seem to be against the diagnosis of Hodgkin's disease, but examination of the literature shows that counts have been recorded in which the white blood count was as high as 75,000, and in one case reported by Stewart [1] the white blood count was 130,000 and the percentage of eosinophils varied from 72 to 90.

1. Stewart, S. G.: Eosinophilic Hyperleukocytosis in Hodgkin's Disease with Familial Eosinophilic Diathesis, Arch. Int. Med. 44: 772-783 (Nov.) 1929.

The high percentage of eosinophils in Hodgkin's disease seems to be, however, the exception. Roth and Watkins [2] in their study of forty cases of Hodgkin's disease found the eosinophil count within normal limits. Sears [3] reports a case in which there was an eosinophil count as high as 57 per cent and has collected from the literature a series of fourteen cases in which the eosinophil counts were 44, 68, 68, 36, 26, from 65 to 80, 68, 33, 16, 85, 60, 40, from 72 to 90 per cent, the last count being that of Stewart, to which reference has been made.

In our case it is noteworthy that there was only one count recorded below 90 per cent, and in four counts the percentage of eosinophils was 99.

2. Roth, Grace M., and Watkins, C. H.: The Leukocyte Picture in Hodgkin's Disease, Ann. Int. Med. 9: 1365-1372 (April) 1936.
3. Sears, W. G.: The Blood in Hodgkin's Disease, with Special Reference to Eosinophilia, Guy's Hosp. Rep. 82: 40-54 (Jan.) 1932.

Council on Physical Therapy

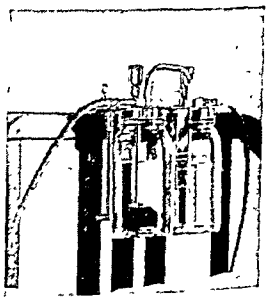
THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

HOWARD A. CARTER, Secretary.

UNIVERSITY OXYGEN HUMIDIFIER ACCEPTABLE

Manufacturer: Scanlon-Morris Company, Madison, Wis.

The University Oxygen Humidifier is designed for use in the nasal catheter method of oxygen therapy. It is similar to the Wisconsin Oxygen Humidifier previously accepted (THE JOURNAL, June 3, 1939, p. 2276) by the Council except that this unit has only two glass jars, the third, a trap jar, being omitted, and that it can be mounted on the back of the bed. One bottle serves to humidify the oxygen and the other to measure the rate of oxygen flow. Both are mounted on a chromium-plated brass frame with carrying handle and rubber-covered adjustable arms for attachment to the head of the bed. Equipment includes rubber tubing to connect the oxygen cylinder and the nasal catheter with the bottles, a glass adapter to connect the catheter with the tubing, and four nasal catheters with perforated tips. Quart size mason jars are used to permit quick replacement in case of breakage.



University Oxygen Humidifier.

A special carbon filter is installed in the humidifier through which oxygen passing from the oxygen cylinder is broken into the fine bubbles for the purpose of saturation with water. The flow-gage chamber indicates approximately the flow of oxygen in liters per minute. Both chambers should be kept partially filled with water by means of filling cups. It is possible to adjust the rate of flow through the humidifier from 1 to 10 liters per minute.

The manufacturer submitted the following data in support of the efficiency and accuracy of the unit: In humidity tests run at a rate of 6 liters flow per minute, the usual rate employed, approximately 93 per cent relative humidity was found in the gas leaving the unit. This was cut down somewhat by air dilution in the pharynx. The advantage of this unit over the three-jar type is solely that of convenience, in that it lends itself to hanging on the head of the bed, is out of the way, and is easily seen by nurses for checking.

The unit was examined by a qualified investigator, who confirmed the claims of the manufacturer and found the apparatus adequate in humidification of oxygen.

From a review of the data, however, the Council concluded that there are faults in the fundamental principles of this type of nasal catheter treatment. Even though the flowmeter may indicate a therapeutic rate of flow, all too frequently more than half of this amount is lost to the patient. The hazard of break-

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age of glass above the patient as well as the decay of rubber gaskets in the presence of oxygen is also to be considered.

In view of the foregoing report, in which the claims of the manufacturer are substantiated, the Council on Physical Therapy voted to include the University Oxygen Humidifier in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

ACCEPTANCE OF BRANDS OF SULFAPYRIDINE

Three brands of sulfapyridine were submitted to the Council, respectively, by the Calco Chemical Co., Inc., Lederle Laboratories, Inc., and Merck & Co., Inc. In the consideration of these brands there arose the question of proprietary names. The firms were advised as follows:

> The Council voted to accept products labeled "Sulfapyridine" with the understanding that a firm may apply for recognition of the right to a proprietary name at a later date. However, until such time as satisfactory evidence has been submitted to warrant the Council's recognition of a proprietary name for sulfapyridine of one of the firms, the name "Sulfapyridine" shall be used; of course it is understood that the proprietary name shall be of an acceptable type.

Merck and Lederle were also advised that they could use the subtitle "Introduced as Dagenan—M & B 693" on labels and in advertising for a period of one year, after which it must be removed unless in the meantime the right to a proprietary name has been established; that the name must not only be acceptable by rights of proprietorship but that the name itself must be of an acceptable type.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

SULFAPYRIDINE (See THE JOURNAL, May 6, 1939, p. 1831).

Sulfapyridine-Calco.—A brand of sulfapyridine-N. N. R.

Manufactured by The Calco Chemical Co., Inc., Bound Brook, N. J. U. S. patent applied for. No U. S. trademark.

Tablets Sulfapyridine-Calco, 0.5 Gm. (7.7 grains).

Sulfapyridine-Lederle.—A brand of sulfapyridine-N. N. R.

Manufactured by Lederle Laboratories, Inc., Pearl River, N. Y., by license of May & Baker, Ltd., Dagenham, England. U. S. patent applied for. No U. S. trademark.

Tablets Sulfapyridine-Lederle, 0.5 Gm. (7.7 grains).

Sulfapyridine-Merck.—A brand of sulfapyridine-N. N. R.

Manufactured by Merck & Co., Inc., Rahway, N. J., by license of May & Baker, Ltd., Dagenham, England. U. S. patent applied for. No U. S. trademark for sulfapyridine.

Tablets Sulfapyridine-Merck, 0.5 Gm. (7.7 grains).

SULFANILAMIDE (See New and Nonofficial Remedies, 1938, p. 450; THE JOURNAL, Feb. 25, 1939, p. 733).

Tablets Sulfanilamide, 5 grains-The Upjohn Company.

Prepared by The Upjohn Company, Kalamazoo, Mich. No U. S. patent or trademark.

Tablets Sulfanilamide, 7½ grains-The Upjohn Company.

Prepared by The Upjohn Company, Kalamazoo, Mich. No U. S. patent or trademark.

CORRECTION

Iodobismitol with Saligenin-Cutter.—In the published description of the product in THE JOURNAL, June 3, page 2279, the phrase "and from 0.318 to 0.258 Gm. of sodium iodide" should read "and from 0.218 to 0.258 Gm. of sodium iodide."

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

CELLU BRAND PEACH JUICE

Distributor.—Chicago Dietetic Supply House, Inc., Chicago.

Description.—Canned peach juice packed without added sugar.

Manufacture.—Choice yellow cling peaches on which no toxic spray material has been used and which are too soft for the regular pack as halves are selected, pitted, peeled, trimmed to remove blemishes, preheated, crushed and pressed through special mesh cloths in a hydraulic press. The juice, containing some of the insoluble solids which are left in to lend color, is filled into cans and heat processed.

Analysis (submitted by distributor).—Moisture 88.7%, total solids 11.3%, ash 0.4%, fat (ether extract) 0.4%, protein (N × 6.25) 0.4%, crude fiber 0.04%, carbohydrates other than crude fiber (by difference) 10.1%, invert sugar 4.58%, sucrose 4.62%.

Calories.—0.5 per gram; 14 per ounce.

V-B-W (VITAMIN B_1 WAFER)

Manufacturer.—Hilker & Bletsch Company, Cincinnati.

Description and Use.—Packaged cookies prepared from wheat flour, sucrose, hydrogenated shortening, eggs, dextrose, powdered skimmed milk, salt, baking powder, flavoring, with added thiamin chloride to furnish about 100 international units of vitamin B_1 per wafer. Intended as a special purpose food providing vitamin B_1 in convenient form.

Manufacture.—Crystalline vitamin B_1 (thiamin chloride) is mixed with a small amount of sugar and in turn is thoroughly mixed (creamed) with definite proportions of sugar, hydrogenated shortening, dextrose, powdered skimmed milk, salt and flavor. The eggs are thoroughly worked in, water is added, and the flour and baking powder are worked in. The wafers are mechanically cut, placed on trays, and baked under conditions designed to maintain a standard vitamin B_1 content.

Analysis (submitted by manufacturer).—Moisture 2.3%, total solids 97.7%, ash 1.0%, sodium chloride 0.58%, fat (ether extract) 11.4%, protein (N × 6.25) 6.6%, crude fiber 0.12%, carbohydrates other than crude fiber (by difference) 78.6%, calcium (Ca) 0.079%, phosphorus (P) 0.039%.

Calories.—4.4 per gram; 125 per ounce; 15 per 3.41 gram wafer. Wafer count to the pound, about 133.

Vitamins.—Reports of biologic and chemical assay submitted by the manufacturer indicate that V-B-W (Vitamin B_1 Wafer) contains not less than 100 international units of vitamin B_1 in each wafer.

CELLU BRAND JUICE-PAK FRUIT COCKTAIL

Distributor.—The Chicago Dietetic Supply House, Inc., Chicago.

Description.—Canned mixture of diced peaches, pears, whole Thompson seedless grapes, diced pineapple and whole Royal Ann cherries packed in mixed juice.

Manufacture.—Canned Royal Ann cherries (packed in juice) are counted into the cans by hand. Fresh peaches, fresh pears and canned pineapple (packed in juice) are mechanically diced and automatically filled into cans along with whole, fresh Thompson seedless grapes. Juice from the cherry and pineapple stock and that pressed from fresh peaches and pears are blended and added. The cans are heated, sealed and heat processed.

Analysis (submitted by manufacturer).—Moisture 89.1%, total solids 10.9%, ash 0.3%, fat (ether extract) 0.3%, protein (N × 6.25) 0.4%, invert sugar 7.4%, sucrose 1.4%, crude fiber 0.4%, carbohydrates other than crude fiber (by difference) 9.5%.

Calories.—0.42 per gram; 12 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 24, 1939

THE INDEX NUMBER

In this issue of THE JOURNAL, which is the Index Number, it has been necessary to abbreviate some departments and to omit others entirely because of the scope of the index. It is recommended particularly that readers consult page 2648 of the index under the heading "American Medical Association." A survey of the material listed will indicate the vast scope of the activities of the Association at this time. It is in a sense a review of the work for the first six months of the year. Few people realize the information to be derived merely from turning the pages of an index one by one. For example, the relative amounts of material on page 2650 concerned with anaphylaxis and allergy and with androgens indicate the extraordinary development of interest in the latter subject during the period covered by this volume. No other medical periodical provides in a six months period the amount of information available through THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. It is with pardonable pride that we assert that the physician who wants to keep abreast of scientific, political, economic, social, literary or any other phases of medicine can do so by consistent, thorough reading of this publication.

THE RELIEF OF PAIN IN CHILDBIRTH

Ideal methods for relieving the pain of childbirth have been the goal of obstetricians since ancient times. Inscriptions and drawings left by early Egyptians [1] indicate that they tried unsuccessfully. Less than a century has elapsed since Sir James Y. Simpson of Edinburgh first used an anesthetic, a few drops of chloroform, for this purpose. In 1880 Klikowitsch introduced the use of nitrous oxide, a method popularized by J. Clarence Webster, Frank Lynch and Carl H. Davis of Chicago, and by Guedel of Indianapolis. Some years before, Steinbuchel, and Gauss of Germany, had suggested the use of scopolamine and morphine for alleviating labor pain, a method which under the name "dammerschlaf," or "twilight sleep," for a time was immensely popular. As originally employed, this method was soon discarded because of uncertain results, with an increase in maternal and fetal mortality. A modification of this method, however, is still widely used. In 1913 Wallace of New York experimented with ether-oil rectal anesthesia, and his results later were applied clinically in the Lying-In Hospital by Davis and by Gwathmey. The barbiturates then came into use for the relief of labor pains. Hirst and his associates reported their results with sodium amytal in thirty cases in 1929, in which year Vogt and Kautz reported on the obstetric use of pernocton. In 1933 Whitfield published his results in 744 cases in which he used several of the foregoing methods. Obviously many different methods are now employed in various parts of this country for the relief of labor pains. In 1936 Insulander [2] came to the United States from Sweden to study the developments. Twenty well known hospitals in widely separated cities were visited and it was found that in every one of these hospitals a different technic was used. If the same drugs were used, the dose or method of application differed. It was difficult to evaluate the numerous methods because the obstetrics observed in America was fundamentally different from that in general use in Sweden. The impression obtained was that in many places here the plan was to favor intervention in labor as much as possible, whereas in Sweden they favor as little intervention in labor as possible. In some hospitals the deliveries were all operative and the physician who could show only 25 per cent operative deliveries was considered too conservative. Insulander found that the obstetricians themselves thought that the drugs used decidedly caused an increase in the number of artificial or operative deliveries. In Germany it was found that analgesics at childbirth were sparsely used, as they are also in Sweden. Indeed, in parts of the United States there is a definite reaction against their widespread use.

Nevertheless, an increasing number of physicians in the United States are using obstetric amnesia or analgesia. To determine the trend as to methods, Bushnell obtained the opinions of seventy-three obstetricians. The concept of polypharmacy permeated the replies. Many obstetricians use not only a hypnotic but also an amnesic and some include an anesthetic. Pentobarbital sodium either alone or in association with other drugs seemed to have the greatest number of advocates in this representative group. Rectal ether-oil is employed either in the usual modified Gwathmey technic or as an inhibitor of the barbiturate excitements. Ethylene and oxygen are used by many for analgesia and anesthesia, as is nitrous oxide and oxygen. Paraldehyde, alone or in combination, has a large number of adherents. Local anesthesia was used by seven of the obstetricians. Cyclopropane was recommended by

1. Bushnell, Lowell F.: The Trend of Obstetrical Amnesia and Analgesia, Surg., Gynec., & Obst. 67: 655 (Aug.) 1938.

2. Insulander, Margit: Relief of Pains in Childbirth, Acta obst. et gynec. Scandinav. 18: 179. 1938.

one, three used spinal anesthesia, one clinic uses heroin and even chloroform is still used.

Though the barbiturates are popular, experience has shown that they are far more than simple hypnotics. Indeed, physicians should not attempt to use any drug for analgesia and amnesia without full understanding of its properties. Irving, Berman and Nelson [3] a few years ago made a clinical evaluation of eight methods in use at that time. Pentobarbital sodium and scopolamine gave them the best results. Among 860 patients, 86 per cent had absolute loss of memory of labor. There were no failures, and no stillbirths due to the effects of the drugs.

Bushnell outlines the routine in use by many advocates of this drug. The patient should eat frequent small meals when labor is imminent and abstain from eating solid food after regular pains have begun. Indications for the initial dose varies with obstetricians. The dose commonly used is between 4½ and 9 grains (0.3 and 0.6 Gm.), depending on the patient's weight. It is accompanied by a single dose of scopolamine ranging from 1/200 to 1/100 grain (0.00032 to 0.00065 Gm.). The barbiturate is usually given by mouth and the scopolamine subcutaneously; in nauseated patients it may be given rectally. The patient should be under the constant care of an experienced attendant who does not disturb or restrain her. Restlessness between pains is the usual indication for additional dosage, usually by rectal insertion of a perforated capsule. Most obstetricians agree that this method is contraindicated in patients who are poor anesthetic risks, who have acute liver damage or heart disease and who show any pulmonary or upper respiratory pathologic conditions. The majority believe that the method is contraindicated in home obstetrics. Whitfield [4] has recently described a method of giving paraldehyde in capsules in combination with pentobarbital sodium and morphine which, he says, is applicable to home as well as to hospital obstetrics.

Certain objections have been offered to the use of obstetric amnesia and analgesia. The objectors condemn the prophylactic use of outlet forceps. All drugs, they say, reduce uterine contractions and interfere with the normal uterine function. The change in the uterine activity predisposes to hemorrhage. All analgesics have a depressing effect on the respiratory center of the fetus. Spontaneous delivery when easy is a preventive of birth trauma. Childbearing is an essential experience to a woman, which should not be changed from its normal course because of the possible danger of her own personality.

The ideal drug or combination of drugs has not yet been discovered. Perhaps in the hands of masters all of the methods mentioned are essentially safe for both mother and baby. The skilled obstetrician, at least, has the opportunity to choose the particular technic best suited to each case. The enthusiasm and great interest in this problem offer hope for the development of still better methods of relieving the pain of childbirth.

3. Irving, Frederick C.; Berman, Saul, and Nelson, H. B.: The Barbiturates and Other Hypnotics in Labor, Surg., Gynec. & Obst. 58: 1 (Jan.) 1934.

4. Whitfield, James M.: Present Day Practice of Painless Obstetrics, Virginia M. Monthly 65: 492 (Aug.) 1938.

THE AGING PROCESS

The life expectancy at birth in such countries as the Netherlands, Switzerland and New Zealand is slightly greater than that in the United States. In several of our Northern states, however, the figures reflect a better experience than that recorded in most foreign countries. The explanation appears to lie in the much lower life expectancy among Negroes, a fact which tends to distort the conclusions which might be drawn from examination of only the comparative gross statistics. There is no doubt, therefore, that the life expectancy of the white population of the continental United States is as long as or longer than that of any other country in the world, although that of Negroes is disturbingly out of proportion.

The control of the communicable diseases has been the most important factor in increasing average longevity; in fact, except for tuberculosis and for pneumonia, all the other infections have been almost eliminated as factors of importance so far as the death rate is concerned. For tuberculosis there has been a decrease in the average death rate since the decade from 1856 to 1865 of more than 90 per cent. With better understanding of the epidemiology and the social and individual factors involved in the spread of this disease, tuberculosis as a cause of death will probably recede still further in importance. If this occurs, as may be reasonably anticipated, ordinary foresight should lead some of the sanatoriums now devoted to the care of the tuberculous to consider their probable functions at some later time when their facilities may not be completely occupied by patients with this disease.

For pneumonia, the record has not been as good as for tuberculosis. From an average death rate of 107 per hundred thousand of population in 1856-1865 the decrease is only to 96 per hundred thousand of population in 1936. Today, however, with increased knowledge of etiology, of epidemiology, of diagnosis and especially of newer forms of treatment, a relatively short span of years should remove pneumonia from its exalted position as third among the causes of death.

Highly unsatisfactory has been the experience with the large number of accidents which maim or destroy human life in the home, on the highway or in the factory. According to insurance statistics, the amazing number of 104,000 persons died accidentally in the United States in 1937. Since accidents rate high among the causes of death, their material reduction would further favorably affect average longevity.

The two metabolic diseases most likely to interfere with aging are obesity and diabetes. These disorders may be partially classed as metabolic and associated

with the aging process but are also influenced by hereditary and nutritional factors. Since this is the case, the fact that the nutritional requirements of older persons are less per kilogram of body weight deserves constant reiteration. Important also are the foods, particularly such proteins as are contained in liver, and the vitamin B complex and iron.

With the decline of the birth rate and the coincidental increase in the number of individuals living to mature and later years, the character of the national population is being slightly modified. As a result, Piersol and Bortz [1] feel that the temper of the people is bound to assert itself in certain important changes which will extend into all the various phases of social, economic, political and professional life. A more mature national mind, they believe, should have a steadying influence on the life of a nation. Already many industries have modified their views on workers in the older years. It is beginning to be appreciated that those over 40 often bring to an industry certain advantages more than compensating for any alleged fault associated with the older years. Since at present 260 of every thousand persons living in the United States are 40 years old or over and since it is estimated that 36 per cent of the population will be between 40 and 65 years old by 1960, the problem of industrial adjustment to this development is already here.

Current Comment

GENESIS OF APPENDICITIS

From sixteen to eighteen thousand persons continue to die each year in the United States from appendicitis. Through the years from ages 5 to 19 the disease ranks as the second to the fifth most frequent cause of death. In the ensuing years, whereas its toll of life remains largely the same for several decades, appendicitis wanes in significance because other more frequent causes of death appear. Incidentally the mortality from appendicitis is higher by occupation among physicians and surgeons than among the population at large. Wangensteen [1] has done much to elucidate the problem of causation. Gerlach's valve, which is a fold overlying the appendical orifice, is believed to interfere with or preclude the filling of the lumen of the appendix. Its absence, as frequently occurs, would facilitate obstruction of the appendix and consequent inflammatory reaction. In a series of ingenious observations on the lumen of the appendix, Wangensteen found that human appendixes which were not obstructed had a luminal capacity at 20 cm. of water pressure of only 0.23 cc.; at 60 cm. pressure the highest luminal capacity was 0.7 cc. When the attempt was made to break the normal appendix by increasing the pressure, it was found that none of three appendixes directly following excision could be ruptured by pressures as high as 2,400 cm. of water. Gangrenous, unruptured appendixes, however, were found to break at extremely low pressures, one at 20 cm. of water and another at 70 cm. Apparently, therefore, the presence of an inflammatory reaction in the appendical wall greatly decreases strength. Further experimental evidence indicated that the vermiform appendage of the rabbit will perforate quite regularly after about ten to fourteen hours of obstruction. All of the varieties of appendicitis recognized by pathologists may be produced by luminal obstruction in animals whose vermiform appendage possesses the capacity to secrete fluid as does that of man. Fecaliths and swelling of lymphoid tissue are probably the most frequent causes of appendical obstruction in man. Kinks, bands, position (retrocecal) and stenoses may also cause obstruction. The matter of "geography, diet and culture" as related to the origins of appendicitis is thus demonstrated to be a myth. Appendicitis may be clearly recognized as a problem of public health. Better understanding of the functional behavior of the vermiform appendix should bring physicians as well as other patients with appendical colic to the operating table much earlier.

1. Piersol, G. M., and Bortz, E. L.: The Aging Process: A Medical-Social Problem, Ann. Int. Med. **12**: 964 (Jan.) 1939.
1. Wangensteen, O. H.: The Genesis of Appendicitis in the Light of the Functional Behavior of the Vermiform Appendix, Proc. Inst. Med. Chicago **12**: 266 (Feb. 15) 1939.

EFFECT OF ACIDIFIED CANDIES ON TEETH

Freshly extracted teeth were used by West and Judy [1] in experiments designed to test the destructive action of solutions made from acidified candies on the dental enamel. The teeth were mounted singly in rubber stoppers by embedding the roots in beeswax followed by a coat of acid proof paint. Only sound enamel was exposed. The teeth were then subjected to solutions of varied strength of acidified candies in water, these solutions showing high acid reactions with p_H values ranging from 2.5 for the strong solutions to 5.4 in some of the 20 per cent solutions in normal saliva. The destruction of enamel was greater the lower the p_H of the solution and the longer the period of exposure. It was pointed out in the discussion that, when a person places a piece of ordinary acidified candy in his mouth and allows it to dissolve slowly against his teeth, the concentration of the solution at the surface of the candy and in contact with the tooth enamel will be high with a probable p_H of from 3 to 4. If repeated at frequent intervals, the experimental data would indicate that serious decalcification is likely to result. Although the buffering action of the saliva in the mouth, where it is being continually secreted, is undoubtedly more efficient against acidified candies than in the experiments reported, the teeth treated in the experiments under conditions that lead to solution of tooth enamel showed a chalky insoluble layer on the surface which could be easily scraped off. The calcium phosphorus ratio in this material was high, owing to the exchange of citrate ion of the solution for the phosphate ion of the enamel. These investigators, therefore, are of the opinion that this phenomenon of ionic exchange between tooth enamel and acidic groups of various foods may be an important factor in the general process of tooth destruction throughout the years of tooth life.

1. West, Edward S., and Judy, Frederick R.: Destruction of Tooth Enamel by Acidified Candies, J. Dent. Res. **17**: 499 (Dec.) 1938.

ORGANIZATION SECTION

ABSTRACT OF HEARINGS ON THE WAGNER HEALTH BILL

(Continued from page 2539)

(Additional hearings before the Subcommittee of the Committee on Education and Labor.)

STATEMENT BY DR. THOMAS PARRAN

Dr. Thomas Parran, Surgeon General of the United States Public Health Service, stated that the Wagner Health Act is a logical outgrowth of the Social Security Act and the most comprehensive approach ever made to the diverse and serious problems of health and medical care for the nation. He felt that the bill very wisely proposes the grant in aid system, saying that "this is such a well established part of our governmental structure that it seems unnecessary for me to defend the principle." He then discussed the health condition of the nation, pointing out that death rates are not a measure of national fitness; neither do death rates give an indication of the economic burden which disability creates among the low income groups in our population. He said that less than one third of the counties and even a smaller proportion of the cities employ full-time professional health officers. Concerning the distribution of physicians in hospitals he said:

We have in this country some 160,000 physicians in active practice—an average of one physician to 807 persons. But in certain of the predominantly rural states—the Dakotas, Mississippi, North and South Carolina—each physician serves an average of 1,300 persons or more. In Kentucky, one physician serves an average of 1,106 persons in the state as a whole, but in nine counties of the state the average population per physician is 3,000 or more. The situation in Kentucky is not an isolated example; internal variation of a similar nature may be observed in the predominantly urban states. New York State is, on the average, well supplied with physicians; yet a few years ago in its largest cities there was an average of one physician to 535 persons, while in its small towns and villages the ratio was one physician to almost 1,000 persons. These figures illustrate a general trend—the tendency of physicians to concentrate in the large urban centers, which, through their hospitals and clinics, offer opportunity for the application of modern medical technic.

Your committee has heard very divergent points of view concerning the hospital situation in the country. It has been stated, for example, that an average of 195,674 beds in existing institutions are empty. I would point out, first, that no hospital can operate at 100 per cent capacity. From 80 to 85 per cent bed occupancy is considered full capacity for general hospitals because of the necessary division of wards and sections by sex, disease, and so on. For example, a temporary surplus of beds in the obstetric ward cannot be used for the care of measles or scarlet fever. Medical and surgical conditions cannot be mixed. In some areas the color division further complicates the problem.

The most determining point, however, is the lack of ability of patients to pay for hospital care. The data show that the public hospitals, which by and large are free, are more than filled to capacity, while private rooms in voluntary and proprietary hospitals remain empty. There is an anomalous situation in the fact that in many areas which have the lowest number of hospital beds per capita there is the highest percentage of unused beds. Lack of money, not lack of patients, keeps them empty.

Even a small subsidy to free care of patients in hospitals is of great assistance in securing medical care for the poor. Some of you may know that in North and South Carolina the Duke Endowment started some years ago to provide a subsidy of $1 a day for each free patient in approved hospitals of those states. When this work was started only nine patients in every hundred being treated in the hospitals of the Carolinas were free patients. As a result of this subsidy of $1, today the percentage of free care has risen to 45, a fivefold increase in the number of needy patients who have been given needed hospital treatment. The fivefold increase in free patients is made up largely of those who previously went without care simply because the hospital could not afford to admit them.

Senator Murray:—How is that subsidy provided that you described there?

Dr. Parran:—It is provided by the Duke Endowment, whereby any hospital which meets standards which they have prescribed, reasonable standards as to records and physical conditions in the hospitals—

Senator Murray (interposing):—I did not catch the word "Duke" at first. I thought it was some other organization.

Dr. Parran:—It is the Duke Endowment.

The bill under consideration proposes to use public monies, federal, state and local, to pay for the care of needy patients in existing public and private hospitals.

Senator Murray:—Was there not an understanding that it would not apply to the private hospitals?

Dr. Parran:—Quite the contrary, Mr. Chairman. The use of public monies is contemplated under this act, and particularly under titles I, III and VI, to pay for the care of needy patients in existing public and private hospitals. Under title XII it was not contemplated that public monies would be used in the construction—to assist in the construction of privately owned hospital facilities. It is perhaps on that point that the misunderstanding has arisen.

Under this bill, every available bed would be utilized before additional hospitals would be built. Even when this is done, however, there still remains a need in many areas for additional beds. There are 1,338 counties containing about 17 million people in which there is no registered hospital. Obviously each of these counties does not need a hospital. We have estimated, however, that we do need about 500 rural hospitals. Many of these would replace present tumble-down shacks. As a matter of fact, the experience of the Commonwealth Fund in aiding the construction of rural hospitals has shown that, of some 1,300 or 1,400 hospitals which they have aided, in every instance but one, one or more existing so-called hospitals has been closed up—fire traps frequently, very inadequate facilities, and totally inadequate to meeting the needs of the community.

Senator Murray:—Doctor, would not a great many of these so-called fire traps that you have mentioned, would the communities not be glad to rebuild their hospitals or build new hospitals if they have the financial aid to do it?

Dr. Parran:—Most of them would, yes, sir, without a doubt, and that has been the experience of the Commonwealth Fund in giving aid to communities which have asked for assistance.

Senator Ellender:—Doctor, with respect to the assistance to be given to needy patients, there has been quite a lot of testimony to the effect that this bill does not make the difference between the indigent and those who could afford to pay. Can you point out in the bill wherein that would apply, that no distinction is made between the needy and the indigent?

Dr. Parran:—Senator Wagner has emphasized that very point, Senator Ellender, on a number of occasions. The bill does use the words "particularly in rural areas and among needy persons." The bill contemplates primarily the giving of aid for the medically needy, but then the question arises How is it possible in any federal legislation to define the medically needy? Very wisely that definition is left to the state. Moreover, under title XIII as now written, it would be possible for a state if it wished to pass appropriate state laws and tax itself, or to provide free insurance contributions, to give medical care to persons who are above what we call the marginal level. The bill does not prohibit it; it does not, however, coerce the states to do it.

A mere statement of the number of hospitals does not indicate the adequacy of hospital facilities. This is well illustrated by the general hospital situation in the states of the South in comparison with those of the Northeast. Each section contains about 30 per cent of the total population of the country and each is served by approximately the same number of local general hospitals, 1,217 in the Northeast, 1,177 in the South. But the bed accommodations in these hospitals of the Northeastern states total some 157,000, in the South only 67,000.

[Dr. Parran then discussed distribution of hospitals for the tuberculous and for the mentally diseased, stating that twenty-six states have less than one bed per annual death from tuberculosis. For the mentally diseased the state with the highest ratio of beds has 6.88 beds in mental institutions per thousand persons, whereas the lowest ranking state has 1.96 beds per thousand of population. He asserted that 130,000 new beds would be required to bring the remaining states up to the standard of 4.8 which one fourth of the states now meet or exceed. He then continued:]

In the case of local general hospitals the number of available beds varies among the states from 1.3 to 5.5 per thousand of

population. Professional judgment indicates that an average of 4.5 beds per thousand must be maintained to provide adequate facilities of this type. It is proposed that the states falling below this average should be aided in building additional hospitals when needed by provision of state and local funds to match the federal assistance. Only three states at present exceed this standard, and it is estimated that 180,000 additional beds in general hospitals will be required to bring all states up to the accepted standard of adequacy. I think it would be well to point out also that these estimates were based on a ten-year program of construction, during which the population inevitably will grow somewhat, and moreover it obviously rests with the Congress from year to year to make such appropriations as are shown to be needed by the actual shortage of facilities in the various states. It may be that there is an excess of hospital beds in some states or some parts of states. The difficulty is, however, that we may not move the beds and it is impracticable to move the patients over long distances.

Two generations ago the only function of a hospital was to serve as a place where the sick poor could go to die. With the development of modern medicine they have become a vital force in health conservation. Decade by decade utilization of hospitals has increased. This trend is apt to continue and it will be intensified by the increasing average age of the population, since older people on the average suffer more sickness.

Senator Taft:—Doctor, may I interrupt you, because I have to go to the Appropriations Committee. On the question, the general question as to whether the bill permits the use of money to pay for beds in private hospitals, you would be in favor of having the bill permit that?

Dr. Parran:—The bill very specifically does permit the payment of a per diem or some other basis for care of patients equally in private voluntary and religious hospitals as it does in public hospitals.

Senator Taft:—We can settle about the provision of the bill later, but you are in favor of that principle?

Dr. Parran:—Yes, I am. But the bill does not provide for public monies to aid in the construction of privately owned facilities.

We have had much discussion of the number of people in the country that need medical care. The statement of the committee has been misinterpreted. There are about 40 million persons in this country who are in families with a total annual family income of less than $800, income derived from earnings and relief. I quote this estimate from the report of the Interdepartmental Committee. It was based on the national distribution of consumer incomes and records of recipients of relief.

The committee has defined this group of 40 million persons as the "medically needy." Even on casual consideration, it is evident that the standard of living permitted an average family of four persons on an annual income of $800 or less allows small margin, or none, to pay for good medical care. A family af this income level may be self sustaining in respect to the basic necessities; it is, however, needy in relation to its requirements for good medical care. The family on relief is also "medically needy"; but its indigence extends also to food, shelter and clothing. The 40 million persons to which the committee refers are in families such as these, receiving relief or supported by marginal incomes.

It is evident that this entire group of 40 million persons will not require medical care during a year. Almost one half of the group will experience no sickness. But the committee has estimated that about 8 million cases of illness disabling for a week or more will occur in these low income families, "and under the conditions prevailing in 1935, about 2 million of these cases will receive no medical care."

The committee's estimate of the proportion of unattended illnesses in this group of the medically needy was based on the results of the National Health Survey. This survey, made by the Public Health Service in the winter of *1936-1937*, employed the method of the house to house canvass, with which the service staff has had long experience. Its findings were analyzed under the direction of able statisticians with an acknowledged position of leadership in the field of morbidity statistics. The results of this survey are in general agreement with those observed in the peak years of prosperity by the committee on the costs of medical care under the chairmanship of former Secretary Wilbur. They are, furthermore, harmonious with the findings of the California Medical Association, which estimated a few years ago that 218,000 persons in the state of California alone were currently in need of medical care but not receiving it.

Medical care of this group differs as between large and small cities, and rural areas. Where relief has not broken down, public funds in the large cities meet some of the costs of medical care of the dependent for illness requiring treatment in hospitals. The ambulatory cases among the sick poor in metropolitan centers receive treatment in outpatient departments, which are, however, greatly overcrowded. But these organized facilities for care of the sick are less widely developed in small cities and rural areas, and governmental funds for their support are meager.

Private physicians provide much free care of the patients who come to them for treatment, but many patients receive no care because they are unwilling to ask for service when they cannot pay for it. This endeavor to balance a marginal budget by neglect of health is in part the cause of the high death and disability rates in this group. We have accepted responsibility in principle for public assistance to those otherwise unable to obtain food, shelter and clothing. We must accept also a community responsibility for medical care of those who cannot provide it out of their own resources.

This bill does not establish any system of compulsory health insurance nor does it require or coerce the states to do so. Very wisely, I think, it leaves a decision as to whether or not health insurance is to be adopted in any state to the state itself. It seems clear that one or another state may wish to adopt such a system, and it would seem quite illogical for the federal government to pass laws which would prevent a state from dealing with its medical problems in the way in which it wishes to do so.

Actual experience in some states will provide a sounder answer as to its usefulness than mere argument. In my opinion group payment of the costs of medical care, through taxation or insurance or both, for those groups of the population unable readily to pay the costs of such care for themselves, would be an important factor in any complete national health program.

Senator Ellender:—You would say that, under the bill, should a state desire to raise its pro rata amount of money so as to match with federal funds, that that could be done?

Dr. Parran:—Yes, sir.

Senator Ellender:—And you would not want that written into the bill that it cannot be done?

Dr. Parran:—I think it would be a very unwise policy for the federal government to interfere to that extent with the medical policies of the state which up to now have been reserved to the states, and which under this bill would still be reserved to the states.

[He then discussed work already done under the Social Security Act and the Venereal Disease Control Act, taking up next the subject of industrial hygiene.]

To reduce disability and premature death in our working population, to discover and correct physical impairments, forms an integral part of the entire health program. As an expression of this function, most of the states have organized industrial hygiene units; in twenty-eight states these units are under the direction of the state health department. In many instances these units are functioning with skeleton organizations. They need great expansion of their services. To accomplish this end is one of the important objectives of title VI of the bill. In those states in which industrial hygiene is administered by a department of labor or industrial commission, funds will be allotted for their use. It seems very unwise to complicate further the administrative provisions of the bill by creating a separate title and separate administration for industrial hygiene as has been suggested by witnesses before this committee.

If industrial hygiene needs a separate administration, why not school hygiene?

Why not dental hygiene? Why not mental hygiene?

I think one should realize that this whole effort to prevent and cure disease should be a unity effort. It is difficult to separate the interrelated parts. Public health is an individual and a family problem in the last analysis, and not a problem of school hygiene or industrial hygiene or mental hygiene or dental hygiene. I anticipate, if recommendations continue to be made before this committee for separate divisions, it may have the bill broken up into various absolutely unworkable sections. Every specialty in medicine might wish to have a separate title and separate administration, with utter chaos.

Senator Ellender:—We had two witnesses who testified, one from New York and one from Illinois, as I recall, and one from Michigan, too. The two from New York stated that industrial hygiene was operated under the labor department, and in Michigan under the health department. Is there any good reason for that? Is there any good reason why the state of New York should operate in that manner?

Dr. Parran:—It is a matter of historical development, Senator, and it would appear to me unwise for the federal government to attempt to dictate the practice in any particular state. It happened that New York was one of the first states to have a well developed department of labor, and the work started there. In the meantime, the—for instance, in Connecticut the labor department did not take up this subject and the health department did.

Senator Ellender:—In distributing funds for that purpose in those two states in contrast to Michigan, where it is under the health department, would you have the federal government or the state department to allocate the particular funds to its department, or would you let it be handled, let us say, under the health department of those states?

Dr. Parran:—I suggest that title VI of the bill stand as written with respect to the industrial hygiene services, because under the provisions as now written the New York State Department of Industrial Hygiene in the Department of Labor would be enabled to secure funds allotted by the federal Public Health Service.

Senator Ellender:—Direct?

Dr. Parran:—Direct, subject only to the requirement that funds allotted to some agency other than a state health agency need to be approved by the state agency.

Senator Ellender:—In other words, it could not be made even then in those states direct but had to be under the supervision, as it were, of the health department of that state?

Dr. Parran:—Supervision only to the extent of the approval of the plan, which I think on analysis you will agree is necessary, to have some balance. In New York State the school hygiene work is handled by the department of education; mental hygiene is handled by a separate department of the state government. If there were no control as to the balance between industrial hygiene, mental hygiene, school hygiene and general public health work, I think it is quite obvious that each of these unrelated problems would put in its budgets and plans, and each one would want all the money that is available and leave nothing for the other fellow.

Senator Ellender:—As a matter of fact, and I would say in any event, the budget would have to come from the state health division, would it not?

Dr. Parran:—It would be approved by the state health division.

Senator Ellender:—And it would have to be passed on finally by it, would it not, because, as I understand it, under this bill the allocation of funds would have to be done by and with the consent of the health officer of a state?

Dr. Parran:—Yes. Well, what is the alternative? Earmark so much money for the industrial hygiene, create a special title, and earmark so much for school hygiene, for milk sanitation, and so forth?

Senator Ellender:—I am just wondering why it is that it could not be more uniform. Why that duplication, because you are bound to have duplication, let us say in the states of New York and Illinois—there may be some others for all I know—wherein money for hygiene purposes is spent by one division under the labor department, and hygiene work under the health department for some other purposes.

Dr. Parran:—You are quite right; and yet we have seen a great diversity in state laws and practice not only in this field but in the tuberculosis. In some states, state tuberculosis hospitals are operated by a separate hospital board or a separate tuberculosis commission or a department of welfare or a department of health.

Senator Murray:—How many states have departments of industrial hygiene?

Dr. Parran:—Some thirty or thirty-one.

Senator Ellender:—Separate?

Dr. Parran:—They have divisions of industrial hygiene. In twenty-eight of them these divisions are operating under the department of health.

Senator Murray:—And in some of the states where they need it most, they have not got that department at all, isn't that true?

Dr. Parran:—If so, it is only a skeleton organization. These twenty-eight states have recently set up divisions of industrial hygiene and they have made a good start; they have gotten at least one or two trained persons in those divisions of industrial hygiene. They could be expanded, and their services could be expanded, and of course there would need to be new arrangements with the state department of labor which have factory inspection and that sort of thing.

Senator Ellender:—How many are there that have it under the jurisdiction of the labor department? I named two—New York and Illinois; do you know of any others?

Dr. Parran:—My best information is that there are three; one additional state besides those two.

The provisions of this bill would give responsibility to the Children's Bureau for medical care of children, to the Public Health Service for medical care of certain high cost illnesses (tuberculosis, cancer, pneumonia, venereal disease) and to the Social Security Board for medical care of persons other than children and for diseases other than those for which the Public Health Service is given responsibility. Rather than complicate further the administrative dispersion of responsibility among several unrelated agencies, I urge that the first objective of the bill be to coordinate federal health service.

We can never attain national health and fitness simply by money grants out of several federal pockets with no correlation between them, no joint planning, no uniform standards, and with diverse budgetary requirements, systems of reports, triplicating field staffs to deal with the states, and audit accounts.

Senator Ellender:—Well, doctor, in that connection, there was a witness, as I recall, who testified that quite a lot of this work was being done here in Washington under the federal government in the various departments of the government. Would you have any views on that? In other words, you talk about coordination; I wonder if we could not begin that at home here?

Dr. Parran:—I urge that as the first objective of the bill. As the head of one of the government bureaus, I feel somewhat reluctant to make a specific recommendation particularly in view of the reorganization act under which the President continues to have authority further to coordinate the health services of the government, and I may say that in my opinion, reorganization plan No. 1 was a fine step in the right direction in bringing health education and the social security board, among others, together.

Senator Ellender:—Have you studied this reorganization to find out whether or not the president could without legislation from the congress coordinate these departments that you have in mind?

Dr. Parran:—That authority does exist in the bill. Public health measures for the prevention of disease—my plea is that this bill should not further create confusion and further disperse the present unrelated and scattered federal health activities, and for these reasons: public health measures for the prevention of disease merge naturally with medical service for the advance in treatment of disease. The Public Health Service has had a background of dealing with the states for almost fifty years. We have had no difficulty in administering title VI with the states; there has been no suggestion of federal domination and federal control. There has been, I think, one of the finest examples of federal and state cooperation in administering title VI, and I may say also title V of the Social Security Act.

Accordingly, I urge specifically with respect to Senate 1620 that the adminstrative agency under title XIII be changed from the Social Security Board to the Public Health Service. To promote coordination and joint planning between the several federal agencies—if it is impossible to bring them entirely together—agencies which are administering services under this bill, I recommend that the bill be amended as follows: (1) To provide reciprocal provisions requiring the Public Health Service and the Children's Bureau to establish systems of uniform budgeting, accounting and reporting by state agencies; (2) to provide that rules and regulations regarding payments to states under Sections 504, 514, 604, 1204 and 1304 shall be harmonious and made after joint consultation by the Public Health Service and the Children's Bureau, with a joint conference of the state and territorial health authorities or with the executive officers of other state agencies charged with the administration of services under this act; (3) to provide for a single Federal Advisory Health Council composed of members of the professions and agencies concerned with the promotion of health and medical services and other persons informed on the need for or provision of health and medical services, in place of the several federal advisory councils provided for in sections 506, 516, 606, 1206 and 1306; a great multiplicity of councils exists.

Senator Ellender:—How would you select them, doctor?

Dr. Parran:—If the Children's Bureau and the Public Health Service are the only two agencies dealing with the health and medical aspects of the bill, it would be very simple to have a council of seven, three, let us say, appointed by the—by each of the agencies, and the seventh the chairman of the state and territorial health organization ex officio.

Senator Ellender:—What would be the jurisdiction of that council?

Dr. Parran:—As provided under these several sections. They are advisory councils supposed to advise with respect to the rules and regulations and with the general policies.

Senator Ellender:—Would you have a separate council for each subdivision?

Dr. Parran:—I would have only one for the titles V, VI, XII and XIII.

Senator Ellender:—And another for what?

Dr. Parran:—That is all.

Senator Ellender:—That would be one council; in other words, the council that you suggest would have jurisdiction over the entire works, as it were?

Dr. Parran:—It would replace an unknown number, certainly five councils which are now required under this bill.

Senator Ellender:—How would that be worked in the states, let us say? Would you recommend the same thing, that, instead of having different councils in the states, there be one council in each state?

Dr. Parran:—I hope that the bill would not require additional councils. One or another state would wish to have more, but I hope that the emphasis in the bill would be toward similar joint planning through one council. I am not prepared at the moment to say that I would go so far as to say that there must be only one. Again I think we should leave the states the greatest of freedom.

Senator Ellender:—Your recommendation would be then that one council would be sufficient?

Dr. Parran:—This is a health problem, and that is a unit problem by and large.

Senator Murray:—And a multiplicity of councils would be sure to promote conflicts and different ideas, would it not?

Dr. Parran:—I do not see how it could be avoided.

Senator Ellender:—You would have quite a lot of jealousies among the councils as to whom the money should be allocated, how it should be allocated and all of that? I think your objection is very good and, by the way, one of the witnesses I think testified that 268 or some such number of councils would be organized throughout the country and I believe if we can limit it to one from each state, that is suggested as it were to the states, and have it obligatory so far as the federal government is concerned, that it would be doing very well.

Senator Murray:—Sometimes it is difficult enough to get cooperation with even one council, like the TVA where we found great difficulty.

Senator Ellender:—Doctor, what would be your suggestion as to how the council should be selected in the states?

Dr. Parran:—The state agencies responsible for the administrating or the administering of the several parts of the program should meet on the makeup of the council or, if there is this agreement among them, it should be possible for the governor to straighten out any interdepartmental bickering as to relative jurisdiction.

Senator Ellender:—What if we suggested— it is only a suggestion and we do not want to make the states do it—but as far as we could—there was a witness here who testified that in the state of Kentucky the medical association selected members for certain positions in the boards, and so forth, created under the state law. What would be your view on that?

Dr. Parran:—As I have observed its workings in Kentucky and Alabama, and I think South Carolina, there are three states in which that is the pattern. No other states saw fit to establish the same pattern when their boards were started many years ago.

Senator Ellender:—How has the plan worked in the three states that you have just mentioned?

Dr. Parran:—It seems to have worked well.

Senator Ellender:—Do you know what caused a change in those three states?

Dr. Parran:—There was no change; it was a matter of the original setup back in the days when there were yellow fever epidemics, and these boards of health were organized to meet them. The medical associations were turned specifically to organize the boards in these states and given certain authority under the law. No other state has seen fit, however, to invest responsibility for the health of all the people in one professional group.

Senator Ellender:—You say that so far as the council is concerned here in Washington you would suggest that each division make its own selection or each department?

Dr. Parran:—Joint action.

Senator Ellender:—What if you put them all under one, as we have just been talking about?

Dr. Parran:—As the head of one federal bureau having very harmonious relations with the Children's Bureau, which under the laws going back to 1912 give it certain responsibility for the public health, I think it would be most inappropriate for me to make any suggestions on that score, especially in view of the fact that the Congress has never seen fit to change that setup.

Senator Ellender:—I won't put you on the spot. (Laughter.)

Dr. Parran:—I may say, Mr. Chairman, that in my own experience as Surgeon General we have had nothing but the finest cooperation with the Children's Bureau, and on many occasions we have seen to it that duplication is minimized and that we do work together in the most efficient possible way.

Senator Ellender:—While you are on the subject, how have your relations been with the states?

Dr. Parran:—With the state health departments?

Senator Ellender:—Yes; the various states of the Union.

Dr. Parran:—Dr. McCormick, the state health officer of Kentucky, gave some testimony on that subject speaking for all of the state officers. I subscribe fully to what he said in emphasizing that it has been possible to expend the funds, $8,000,000 a year under title VI, and now another $5,000,000 a year under the venereal disease act and $600,000 under the national cancer act, without any suggestion or complaint from any responsible source concerning unreasonable federal dictation or domination or coercion of the states.

Senator Ellender:—Under the Social Security Act as it is now drafted, most of the plans are really submitted by the states, are they not?

Dr. Parran:—All of them are.

Senator Ellender:—Have you ever actually turned them down and said "We don't want it this way; you must do it that way"?

Dr. Parran:—We have never turned down any whole state plan. As a matter of fact, they are worked out usually in consultation with our representatives, representatives of the Children's Bureau and their own people.

Senator Ellender:—Did you ever attempt to try and have them the same in one state as they have in another, as has been charged?

Dr. Parran:—Quite the contrary. And one of the criticisms so often repeated about this bill is that its provisions are indefinite. That statement has come up time and again in these hearings.

Senator Ellender:—Yesterday on four occasions.

Dr. Parran:—What is the alternative of that? A plan under which the federal government would regiment every township and county health officer and city council into a uniform pattern? I hope not. Another criticism has been made that this bill gives to the federal government unlimited authority and unlimited discretion. If there are ways in which this committee can limit the discretion and the authority in the allotting of money to the states in order to put those allotments on a more objective basis, I should welcome very much such restriction. I should like to point out, however, that the language of this bill restricts my authority much more than the language of the present title VI or the venereal disease control act.

Senator Ellender:—Yesterday or the day before—last week I think it was—one witness said "The first year you are going to spend so much; the second year you are going to spend so much; the third year you are going to spend so much, and the fourth year it is unlimited; think of such a statute as that." They forget that we have to go to the Congress, to some of these hard-boiled senators and congressmen, and have got to show them the necessity for it before they appropriate.

Dr. Parran:—I am sure, Senator, that those people have no concept of the amount of factual data, the extent to which actual need must be demonstrated before the appropriations committees of these two bodies before any monies are appropriated, and especially before any increased monies are given.

Senator Ellender:—If they were to appear before those committees once or twice, they would be convincted of that.

Senator Murray:—Those in favor of balancing the budget laugh away such a thing as that when it is suggested. They think that the opportunities for getting appropriations are unlimited and that all we have to do is to go in and ask for it and that we get it.

Dr. Parran:—In connection with balancing the budget, Mr. Chairman, I hope that this congress will give more attention to balancing our health budget. It is cheaper to keep a woman from dying in childbirth than to take care of the orphans in an orphan asylumn or to give aid to the dependent children. It is cheaper to aid in building tuberculosis sanatoriums than it is to pay for the deaths from tuberculosis and the widows and children who are left. The state health officer of Tennessee made a statement the other day which impressed me very much. He estimates that it costs on the average $150 to bury a person in Tennessee, and on that basis it is costing that state more to bury people dying from tuberculosis than it spends for its entire health program including tuberculosis and all the other diseases.

Senator Murray:—So that money invested in this manner would be wisely invested and would tend to an ultimate balancing of the budget?

Dr. Parran:—It would be a direct economy. I don't know of any more economical expenditure of public funds than those spent wisely for health protection and health promotion.

The provisions of the bill regarding variable grants in aid are believed to be well conceived. They should insure allotments of money only to meet demonstrated health needs. If the poorer states are to have adequate health programs, it is essential that the federal government contribute a larger share of each dollar expended in these states than in the states having greater

economic resources. Under title VI of the present Social Security Act, the Public Health Service has been enabled to allocate funds in part from the financial and special health needs of the states. For example, the per capita allotments budgeted by the states from federal funds under this title for the present fiscal year vary from 5 cents to 41 cents.

Finally, may I say, Mr. Chairman, that this is not a measure to socialize medicine in the country. Quite the contrary; it is a measure which will free medicine to render better service to all the people. It proposes to share, to socialize more of the costs of medicine, but not to socialize medicine. The objectives of the bill can be attained without any basic change in the practice of medicine in this country.

Senator Ellender:—Doctor, how would the passage of this bill, let us say, and making it effective, affect the pocketbooks of the doctors?

Dr. Parran:—Obviously the $50,000,000 proposed to be allotted the first year under title XIII for the care of needy patients would go in large part to the physicians as well as to existing hospitals. Some of this great load of charity which the doctors carry and under which many of them are staggering would be lessened.

Senator Murray:—Doctor, during the serious conditions under the depression, is it not a fact that in many sections of the country many of the doctors were kept in practice by the moneys that they received through grants from the relief organizations?

Dr. Parran:—It is quite true, and it is still true, Mr. Chairman, that in many rural sections the only thing that enables the doctor to buy his gasoline or pay his office rent is the little money that he gets from current relief funds for the care of indigent patients.

Dr. Parran then discussed dental hygiene and the effects of the Wagner Health Act on the drugless healer. He also described the work of the United States Public Health Service and the manner in which the United States Public Health Service has cooperated with various state and county medical societies, with the American Medical Association and the medical schools. Special attention was also given to the problems of silicosis and malaria.

Senator Murray:—Well, doctor, we appreciate your testimony and hope that we may continue in contact with you during the further study of the problem. I am satisfied from your statement that we are going along the right lines, and all we need to do is to make the necessary amendments and corrections to the bill to carry out the purposes that we have in mind that you have so well expressed this morning.

Dr. Parran:—Thank you very much, Senator.

May I say just another word and thank you for the opportunity to be here? I was told this morning that the chairman of the subcommittee made a statement yesterday to the effect that he did not expect any final action of Congress on this whole bill at this session of the Congress. May I urge that at least the next step or two will be taken in regard to these matters, which are not controversial, and in regard to which there is great and obvious need? By so doing, we can begin to build up toward the whole program of public health if it is not possible to proceed on all fronts at this time.

Senator Ellender:—The great difficulty in separating it is that you separate the easy ones from the hard ones and leave the hard ones out, and if you do that you may never get the hard ones through.

Dr. Parran:—I had not thought of that.

Senator Murray:—They are talking about adjourning by the 15th of July, doctor, and there are so many other bills ahead of this that it seems to me impossible to get this bill reported, because it will take time, considerable time, to transcribe this testimony and have it printed and then act on all of the amendments that are going to be considered; and then we want to give full consideration and study to every proposal that has been made, every criticism that has been made against the bill, and it would seem to me that it would be utterly impossible to give the proper consideration to the bill and get it up on the floor at this session.

Dr. Parran:—I can realize those very great difficulties.

Senator Murray:—I would like to see it done, if it is possible. If we had started earlier it might have been possible, but when we are in the present situation that we are now, and the testimony not yet concluded, I do not see how it is going to be possible.

Dr. Parran:—Thank you very much.

STATEMENT BY ARTHUR J. ALTMEYER

Mr. Arthur J. Altmeyer, chairman of the Social Security Board, described the work of the Social Security Board and the Interdepartmental Committee to Coordinate Health and Welfare Activities, stating that the Social Security Board has already endorsed the principal objectives proposed in S. 1620. He considered particularly the new functions given to the Social Security Board under titles 13 and 14 in the Wagner Health Act. Mr. Altmeyer again cited the 40,000,000 persons in the United States with incomes of less than $800 a year and stated that there were 21,000,000 persons with families dependent in whole or in part on local, state and federal governments for food and shelter and likewise dependent on private aid or philanthropy for medical care in sickness. An additional 20,000,000 he included in a marginal group which can purchase medical care only at the risk of curtailing food, clothing and shelter. He also stated that this is left only to local responsibility now and that medical care for this marginal group was inadequate. Mr. Altmeyer again made the statement so frequently used by Miss Josephine Roche that no one at the National Health Conference took exception to or raised a question concerning the picture of unmet needs. He felt that under title 13 states can develop plans to level the economic barrier by distributing costs among large groups of persons and over periods of time, saying "whether the states choose to do this through tax supported service, through social insurance or through a combination of the two, is a matter for them to decide." He also said that he did not think this would interfere in any manner with the medical profession as it operates now and that such changes would benefit the medical profession financially. Quoting:

Mr. Altmeyer:—Yes, financially, and I think professionally. I see no reason why the introduction of a systematic provision for spreading the cost of medical care not only should protect the services that we have now, the quality of the services that we have now, but would advance it. It all depends on how the thing is worked out. That is the job of an administration always, to bring in the technical groups and to bring in the groups who are interested in the effect. Not only the consumers, but the producers. That is the only way that we can get proper administration, but all parties in interest have a right to express themselves and to help in the development of the administrative machinery and its working.

Senator Murray:—Many of us would hesitate to do anything or approve of any bill that would in any manner break down the medical profession, and I think that the testimony that you are giving is important from the standpoint of wanting to protect the medical profession in every way from having their profession broken down. If this could be done without necessarily interfering with the medical profession, but on the contrary benefiting it, I do not see any reason why it should not be done.

He then further analyzed the various sections of titles 13 and 14 of the proposed act.

Afternoon Session

STATEMENT OF DR. LESLIE R. BURDETTE

Dr. Leslie R. Burdette, president of the American Optometric Association, presented a statement on deficiencies of eyesight, pointing out that an urgent need exists that is not due to a lack of qualified ophthalmologists and optometrists but to a low economic status of a great portion of our population. He recommended that projects be approved for the purposes of providing an annual examination for all school children and that the service of optometrists can be utilized in industrial hygiene activities. Under title 13 of the act he recommended that a periodic eye examination should be part and parcel of the program to be inaugurated. He said that telescopic spectacles, pinhole spectacles, microscopic spectacles and cataract lenses have proved their value in rehabilitation of the adult and that children have been rehabilitated by the use of telescopic spectacles. He told how optometrists cooperate with ophthalmologists, saying "we cooperated with ophthalmologists by securing and referring to them for treatment the cases of pathology." He said that under the proposed bill the optometrists of the country should rightly be allotted that portion of the work which is particularly within their field.

STATEMENT BY MR. M. LUTHER DICUS

Mr. M. Luther Dicus, third vice president and chairman of the Committee on National Affairs of the American Optometric Association, said "The specific purposes of the suggestions with which I shall close this statement is to guarantee that the people of this country on the enactment of S. 1620 shall have a continuation of the professional services rendered by optometrists and that optometry shall not be excluded from the operation of the act, directly or by implication."

He reviewed the history of social security legislation and of optometry and suggested some amendments which would include optometry in various sections of the act.

He also filed a statement by William B. Needles, president of the Northern Illinois College of Optometry, discussing educational standards of optometry.

STATEMENT OF MR. HAROLD KOHN

Mr. Harold Kohn, national counsel, American Optometric Association, stated that the legislative body of the American Optometric Association will meet on June 25 and will make further suggestions relative to the act.

Senator Murray:—That would be very satisfactory. You may do that. As far as I understand it, there is no conflict between ophthalmology and optometry? Ophthalmology deals with the organic diseases, those which the ophthalmologist may find in the eye, and the optometrist does the mechanical work?

Mr. Kohn:—Determining the refractive error.

Senator Murray:—And some of the finest people in the country patronize the optometrist without ever going to the ophthalmologist at all, is that not so?

Mr. Kohn:—That is; 72 per cent of them, by actual statistics. If the examination discloses a condition requiring the attention of an ophthalmologist, they are immediately sent to them.

Senator Murray:—So that there is no lack of harmony between the two professions?

Mr. Kohn:—Generally speaking, absolutely not. Once in a while there is a little professional jealousy in small communities. That sometimes happens but that is very rapidly being overcome through interprofessional relationship committees of the Ophthalmological Association and of our association.

STATEMENT OF MISS KATHARINE LENROOT

Miss Katharine Lenroot, chief, Children's Bureau, Department of Labor, described the development of the Children's Bureau and stated that the amendments proposed in S. 1620 would build on the foundation previously laid.

With the exception of increased amounts authorized, and a broadening of the maternity care program and extension of medical care to other classes of children than those now covered, the only changes in the proposed bill relate to methods of allotting and paying funds, matching provisions, conditions of approval of state plans, provision for a federal advisory council or councils, and authority to make rules and regulations. Though the provision for medical care of children is included in part 2 of title V for certain administrative reasons, it would appear that similarity of the conditions of allotment, payment and approval of plans under parts 1 and 2 would make it possible for a state to submit a single plan for maternal and child health, including maternity care and medical care of children, provided that under state law the state health agency has jurisdiction in these fields or can develop working agreements with other state agencies now charged with such responsibilities under state law.

There are now twenty-six states that administer the crippled children's program through the health departments, and the others administer that program through other departments of the state government at the present time. In many states responsibility for medical care of children is in some state agency other than the state health agency.

It would appear to be of utmost importance that medical, nursing and hospital care, provided for women at childbirth and for children when sick, be under the same state and local agencies as those providing preventive services. Under part 1 of title V as amended in the pending bill the state health agency is given full administrative authority, as under the present provisions of title V, part 1 of the Social Security Act. Under part 2, though, for a period of five years other state agencies may administer medical services for children or services for crippled and other physically handicapped children, at the end of that time responsibility would be given to the state health agency and a single plan of service could be developed for all maternity and child health work within the state. Such a plan to coordinate these services under the state health agency seems to be highly desirable and entirely feasible from an administrative point of view.

She then presented a statement by Dr. Eliot showing the present provisions of title V, parts 1, 2 and 5, and the proposed amendments; also a statement from the Secretary of Labor, indicating the desire of the Labor Department to retain the Children's Bureau.

STATEMENT OF DR. MARTHA M. ELIOT

Dr. Martha M. Eliot, assistant chief, Children's Bureau, favors the bill as a means of expanding the work of the Children's Bureau. She gave a record of the work thus far accomplished.

STATEMENT OF MR. V. A. ZIMMER

Mr. V. A. Zimmer, representing the United States Department of Labor, stated that he is director of the Division of Labor Standards of the United States Department of Labor. He said that the Secretary of Labor and the department feel that it is very important that allotments for industrial hygiene activities belong in the state agency charged with the responsibility of regulating conditions of employment in industry. They objected specifically to the placing of such work under the state health agency. He stated that industry and hygiene is not a medical question but essentially an engineering proposition.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 1021 has been reported to the Senate, proposing to extend the benefits of the United States Employees' Compensation Act to members of the Officers' Reserve Corps and of the Enlisted Reserve Corps of the Army who are physically injured while performing active duty or engaged in authorized training. S. 2353 has passed the Senate, proposing to authorize an appropriation not to exceed $375,000 for the construction, rehabilitation and installation at Carlisle Barracks, Pennsylvania, of a medical field service school and such utilities and appurtenances thereto as may be necessary.

Bills Introduced.—S. 2575, introduced by Senator Hill, Alabama, proposes that all reserve officers of the army of the United States who were called or ordered into active military service by the federal government for extended military service in excess of thirty days on or subsequent to July 1, 1928, and who suffered disability or death in line of duty shall be entitled to receive the same pensions, compensation, retirement pay and hospital benefits as are now or may hereafter be provided by law or regulation for officers of corresponding grades and length of service of the Regular Army. H. R. 6576, introduced by Representative Gross, Pennsylvania, proposes to authorize the Secretary of Agriculture, in the interests of the public health and as a relief to the dairy industry of the country, to prepare and cause to be published a series of articles and advertisements promoting the consumption of milk and derivative dairy products. H. R. 6723, introduced by Representative Mundt, South Dakota, proposes to enact a "Navigable Waters Anti-Pollution Act" to be administered under the direction of the Chief of Engineers of the United States Army under the supervision of the Secretary of War.

DISTRICT OF COLUMBIA

Change in Status.—S. 1805 has passed the Senate, proposing to establish a lien for moneys due hospitals for services rendered in cases caused by negligence or fault of others. The bill contains no provision for a lien in favor of a physician who renders services under similar circumstances.

SICKNESS UNDER INSURANCE

It is generally agreed that the average worker in the United States loses about nine days annually from sickness. W. D. Jenkins, chief medical officer of the South Metropolitan Gas Company, London, in a recent address said,[1] concerning insured British workers:

> In this country there are about 15,000,000 insured workers who, it is stated, in an average year lose 30,000,000 working weeks through sickness annually. This is equivalent to the year's work of some 600,000 people, or an average annual absenteeism of ten days for men and twelve for women. It is true that these figures cover all grades of insured workers and do not represent illness arising solely among those engaged in industry. On the other hand, they do not cover absences of three days or less.

1. J. Roy. Inst. Pub. Health & Hyg. 2: 178 (March) 1939.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Outbreak of Gonococcic Ophthalmia.—A gonococcic infection was said to be the cause of a recent outbreak of thirty-nine cases of ophthalmia in a rural school having an enrolment of 140. Some of the patients were convalescent when first seen, but nine of the cases were proved to be due to the gonococcus. The disease was introduced into the school by a boy who had acquired the infection from an adult similarly infected. When all the pupils were examined for genital infection, none of the boys was found infected but seven small girls were found to have gonorrheal vaginitis.

ARKANSAS

Appropriation to Medical School Increased.—The Arkansas legislature recently granted to the University of Arkansas School of Medicine, Little Rock, an increase in its annual appropriation from $70,000 to $300,000. The increase was granted chiefly to enable the school to take over the Little Rock City Hospital, with a capacity of 200 beds, adjoining the medical school.

CALIFORNIA

Hospital News.—A contract has been let for a new wing, costing $225,000, at the Palo Alto Hospital; construction is to begin immediately.

Plague Infection.—Plague infection was proved in three ground squirrels, Citellus beecheyi, submitted to the laboratory of the state department of health April 18, from a ranch on Casitas Pass Road, Ventura County, 2 miles east of the Santa Barbara County line, according to *Public Health Reports*.

Society News.—Dr. Albert H. Rowe, Oakland, addressed the Butte County Medical Society in Chico on "Allergy and Its Manifestations" recently.——Dr. George Joyce Hall, Sacramento, discussed "Clinical Evaluation of Endocrine Therapy in Menstrual Disorders" before the Hollywood Academy of Medicine June 8.——The section on medicine and pediatrics of the San Francisco County Medical Society held a special meeting June 6 with Drs. Garnett Cheney and Jesse L. Carr speaking on "Clinical Application of Vitamin K" and "Laboratory Methods of Vitamin Determination (A, B, C, Nicotinic Acid, and Their Clinical Application" respectively.

CONNECTICUT

Personal.—Dr. Ross G. Harrison, Sterling professor of biology, emeritus, Yale University, New Haven, delivered the Linacre Lecture at St. John's College, Cambridge, England, May 16, on development of the internal ear, a study in experimental embryology.——A testimonial dinner was recently held in Bridgeport in honor of Drs. James D. Gold, chairman of the council of the state medical society, and Daniel C. Patterson, a recent president of the state board of medical examiners. ——Dr. Perry T. Hough has been appointed medical examiner in Hartford, succeeding Dr. Henry N. Costello.

Grant Supports Work in Biology.—Yale University has received from the Rockefeller Foundation a grant-in-aid of $189,000 toward the continued support of the Yale Laboratories of Primate Biology for the five year period July 1, 1939, to June 30, 1944, and also $35,000 for the construction of an additional laboratory building at the Anthropoid Station at Orange Park, Fla. According to *Science*, under the reorganization of the laboratories, following the ten year period for which the project was originally financed, the director, Robert M. Yerkes, Sc.D., will be responsible to an administrative committee, serving as a board of control. Members of this committee include Carl G. Hartman, Ph.D., research associate in embryology, Carnegie Institution, Johns Hopkins University School of Medicine, chairman; Edgar Allen, Sc.D., professor of anatomy at Yale; Leonard Carmichael, Ph.D., president of Tufts College, Boston; William H. Taliaferro, Ph.D., dean of the Division of Biological Sciences, University of Chicago; Dr. Yerkes, professor of psychobiology at Yale, secretary, and Dr. Stanhope Bayne-Jones, dean of the Yale school of medicine, member ex officio.

GEORGIA

Personal.—Dr. Charles L. Ridley, superintendent of the Macon Hospital, Macon, has been appointed a member of the state board of health, succeeding Dr. Allen R. Rozar, whose six year term expired some months ago, according to the *Modern Hospital*. Dr. William P. Harbin, Rome, has also been appointed a member.

Annual Clinic Week.—Emory University held its annual clinic week at Grady Hospital, Atlanta, May 30-June 2. The program included lectures, clinics and symposiums. One session was a joint meeting with the Fulton County Medical Society. At the annual banquet at the Henry Grady Hotel, Dr. Frank K. Boland Sr. was the guest speaker.

ILLINOIS

Hospital News.—The Commonwealth Fund has offered to contribute not less than $225,000 to build and equip a community hospital in Pittsfield, provided that the people of the area to be served raise an additional $60,000 by July 1, according to *Hospitals*.

Mosquito Abatement Campaign.—A survey to determine the cheapest way to destroy mosquitoes was decided on May 19 by the Tri-County Mosquito Abatement Committee, made up of representatives from Lake, DuPage and Cook counties, newspapers reported recently. When the plans have been completed they will be made the basis of a proposal for a WPA project, it was stated.

Chicago

Wanted—Patients with Essential Thrombocytopenic Purpura.—Members of the department of medicine of the University of Illinois College of Medicine are interested in the study of essential thrombocytopenic purpura. Patients with this disease will be accepted in the Research and Educational Hospitals without charge provided they are referred by their family physician. Letters should be addressed to the head of the department of medicine of the university.

Society News.—At a meeting of the Chicago Society of Allergy June 10, Drs. Isidor Harrison Tumpeer spoke on "A Dramatic Asthmatic" and Rudolph Hecht on "Sensitization to Simple Chemicals: Reactions to Commercial and Purified Lipstick Dye."——Dr. Leon Unger addressed the Chicago chapter of the American Physiotherapy Association June 7 on "Allergy in General."——Dr. Disraeli W. Kobak discussed "Advances in Short Wave Therapy" before the McDonagh Society for Clinical Research May 31.

INDIANA

Veteran Teacher Honored.—Dr. Alois B. Graham, professor of surgery (proctology), Indiana University School of Medicine, Indianapolis, was honored at a meeting in the James Whitcomb Riley Memorial Hospital May 8, marking his retirement from the medical school faculty after forty years' service. Dr. Graham was presented with a portable radio and a gold medal. He was president of the Marion County Medical Society in 1916, of the Indiana State Medical Association in 1929, of the American Proctologic Society in 1919, and chairman of the Section on Gastro-Enterology and Proctology of the American Medical Association in 1928. During the World War he served as chief surgeon of base hospital number 32 in France.

IOWA

Personal.—Dr. William O. Smouse, Des Moines, was elected a life member of the Iowa State Medical Society at its recent annual session.——Dr. John C. Dennison, Bellevue, recently completed fifty years in the practice of medicine.

Society News.—At a meeting of the Des Moines Academy of Medicine and the Polk County Medical Society May 23 Drs. Floyd A. Springer discussed "Treatment of Carcinoma of the Breast" and John W. G. Caldwell, "Diagnosis and Treatment of Coma."——Dr. Verl A. Ruth, Des Moines, addressed the Henry County Medical Society in Mount Pleasant recently on back injuries.——The Woodbury County Medical Society was addressed recently in Sioux City by Dr. Archibald F. O'Donoghue on "Injuries to the Spine and Pelvis."

Spotted Fever.—From May 20 to 27 six cases of Rocky Mountain spotted fever with two deaths were reported to the state department of health, according to the state medical journal. The youngest patient was a farm boy, aged 5, in Davis County, while the oldest was a farmer and trucker,

aged 57, in Van Buren County. Other cases were: Farm girl, aged 12, in Clarke County; carpenter, aged 52, Woodbury County; carpenter, aged 49, Boone County, and housewife, aged 25, Tama County. One of the deaths occurred in an Indian woman at the Sac and Fox Reservation in Tama County, from which locality six cases (with two deaths) were reported in the summer of 1937. According to the state medical journal, it is as yet uncertain whether the second fatality was caused by Rocky Mountain spotted fever or by overwhelming infection associated with a fulminating type of purpura.

KANSAS

Society News.—The Sedgwick County Medical Society was addressed recently by Drs. Frederick W. Matassarin on "Rose Operation: for Repair of Trigonal Muscle (Incontinence in the Female)" and James S. Hibbard Jr., "Surgical Treatment of Hypertension."

LOUISIANA

Committee on Industrial Health.—The Louisiana State Medical Society has organized a committee on industrial health composed of the following: Drs. Shirley C. Lyons, New Orleans, chairman; Edward P. A. Ficklen and William H. Perkins, both of New Orleans; William V. Garnier, Bastrop, and Isaac L. George, Baton Rouge.

Society News.—At a special scientific meeting of the Orleans Parish Medical Society with the Tuberculosis and Public Health Association of Louisiana May 22, Drs. Julius L. Wilson discussed "Tuberculin Testing in Public Schools"; Leon J. Menville, "X-Ray in the Early Diagnosis of Pulmonary Tuberculosis," and Edgar Hull, "Clinical Value of the Early Diagnosis of Pulmonary Tuberculosis." The society was addressed May 8 by Drs. Manuel Gardberg on "Treatment of Diabetes Mellitus"; Joseph O. Weilbaecher Jr., "Acute Spinal Epidural Abscess with Report of Four Cases," and Frederick F. Boyce, "Mortality of Thyroid Disease in a Nonendemic Area: An Analysis of 102 Consecutive Deaths, with a Special Note on the Liver Factor."

MASSACHUSETTS

Personal.—Leroy M. S. Miner, M.D., D.D.S., dean, Harvard Dental School, Boston, and former president of the American Dental Association, was recently awarded the Jarvie Fellowship Medal by the Dental Society of the State of New York; this medal is presented each year in recognition of outstanding contributions to the dental profession, according to the *New England Journal of Medicine.*

MICHIGAN

Hospital News.—A new $350,000 hospital at Petoskey, to be called the Little Traverse Hospital, was recently opened; Dr. Dean C. Burns is director.

Institutes on Tuberculosis.—The state department of health is sponsoring a series of institutes on tuberculosis control for public health personnel throughout the state, according to the state medical journal. The institutes opened May 15 and feature the medical aspects of tuberculosis control and the part played by the public health nurses. The diagnosis and treatment of the disease from the point of view of the sanatorium specialist is also being considered.

Changes in Health Officers.—Dr. Willard G. Beattie, Ferndale, has resigned as city health officer, effective May 15, to devote his time to private practice, it is reported.—Dr. Edwin H. Place, Midland, who has been attending the University of Michigan School of Public Health on a leave of absence, has resigned as health officer of Midland County. According to the newspapers, Dr. Place has accepted a fellowship for study in public health with the Kellogg Foundation of Battle Creek.

New County Medical Society.—The Van Buren County Medical Society, formerly affiliated with the Kalamazoo Academy of Medicine, has been organized as a separate entity with the following officers: Drs. William P. Bope, Decatur, president; Ronald W. Spalding, Gobles, president-elect; Charles Ten Houten, Paw Paw, secretary, and Arthur H. Steele, Paw Paw, treasurer. The speakers at the new society's initial meeting included Drs. Paul R. Urmston and L. Fernald Foster, Bay City, and William A. Hyland, Grand Rapids. A charter was granted to the woman's auxiliary at the same time.

MINNESOTA

Society News.—At a meeting of the Scott-Carver County Medical Society recently Dr. Edgar W. Bedford, Minneapolis, discussed "The Clinical Aspects of Gallbladder Disease" and Dr. Ames W. Naslund, St. Paul, "X-Ray Diagnosis in Gallbladder Pathology."—Dr. William de B. MacNider, Chapel Hill, N. C., gave a Mayo Foundation Lecture at the Mayo Clinic, Rochester, recently entitled "Concerning Tissue Resistance and Tissue Adaptations."

Special Lectures at University.—Dr. August Krogh and his wife, Dr. Marie Krogh, of the University of Copenhagen, were guests of the University of Minnesota Medical School, Minneapolis, for ten days recently. During their visit Dr. Krogh presented lectures and seminars on the following subjects: "Osmotic and Ionic Regulation in Animals," "Circulatory Adjustment to Posture in Man," and "Comparative Physiology of Respiration." Dr. Marie Krogh lectured on "Nutritional Problems in Denmark."

MONTANA

Railway Surgeons' Meeting.—The Great Northern Railway Surgeons' Association will hold its annual meeting at Glacier Park Hotel, Glacier Park, June 30-July 1. The tentative program includes the following speakers:

Dr. Cyril J. Glaspel, Grafton, N. D., Management of Traumatic Wounds.
Dr. Hiram E. Cleveland, Burlington, Wash., Repair of Tendons.
Dr. Howard J. Knott, Seattle, Wash., Rupture and Repair of an Ossified Tendon of Achilles.
Dr. James E. Reeder, Sioux City, Iowa, *Emergency Ophthalmology.*
Dr. Frederick A. Kiehle, Portland, Ore., Management of Opacities of the Cornea.
Dr. Charles B. Wright, Minneapolis, Coronary Disease Among Railroad Employees.
Dr. Herbert E. Wheeler, Spokane, Wash., Tetanus: Report of a Case Complicated by Lordosis.
Dr. Axcel C. Baker, Fergus Falls., Minn., Osteomyelitis.
Dr. George N. Pease, Portland, Traumatic Appendicitis.
Dr. Arthur N. Collins, Duluth, Minn., Traumatic Rupture of the Kidney.
Dr. Roscoe C. Webb, Minneapolis, Traumatic Rupture of the Normal Spleen with Delayed Hemorrhage.
Dr. Otto W. Scholpp, Hutchinson, Minn., Disability of the Knee Joint Following Injury.
Dr. Otto W. Yoerg, Minneapolis, Fractures of the Os Calcis.
Dr. Berton J. Branton, Willmar, Minn., Fractures of the Metatarsal Bones.

NEW YORK

Annual Conference of Health Workers.—The Annual Conference of Health Officers and Public Health Nurses will be held at Saratoga Springs June 27-29 and the New York State Association of School Physicians will meet June 26. Governor Lehman, Surgeon General Thomas Parran of the U. S. Public Health Service, Washington, D. C., and Abel Wolman, Dr. Eng., Baltimore, president of the American Public Health Association, will be among the speakers. At one session three men who have been members of the state Public Health Council for twenty-five years will review the council's work: Dr. Simon Flexner and Mr. Homer Folks, New York, and Prof. Henry N. Ogden, Ithaca. Other speakers will include:

Dr. Karl F. Meyer, San Francisco, Equine Encephalomyelitis.
Dr. John E. Gordon, Boston, Epidemic Problems in Virus Disease.
Earle W. McHenry, Ph.D., Toronto, Results of a Dietary Survey in Toronto.
Dr. Maxwell Finland, Boston, The Use of Sulfapyridine in Pneumonia.

Among those who will address the school physicians are:

Dr. Herbert W. Schmitz, Yonkers, The School and the Cardiac Child.
Helen M. Manzer, Ph.D., New York, Recent Trends in Health Education.
Dr. Charles H. Keene, Buffalo, The Physician Considers "Physical Fitness Tests."
Dr. Rudolph Ruedemann Jr., Albany, Combating Skin Infections of School Children.

New York City

Unlicensed Practitioner Convicted.—Frederick C. Zinke, a chiropractor, was convicted May 24 in the court of special sessions of practicing medicine without a license. He received a sentence of three months in the workhouse, with execution suspended.

Course on Eye Conditions for Lay Workers.—New York University announces that a course entitled "Survey of Eye Conditions" will be given during the summer session in cooperation with the bureau of service for the blind, New York State Department of Social Welfare. It is designed for workers

in education, social welfare, public health nursing and allied fields to present a background of the conservation of vision. Inquiries may be addressed to Mr. James Meyers, director of the course, School of Education, New York University, Washington Square.

County Library Report.—The library of the Medical Society of the County of Kings and the Academy of Medicine of Brooklyn recently reported that greater use was made of the library in 1938 than in the previous year. The number of readers increased from 16,570 to 17,055. The library received support from the general funds of the society, from numerous local societies that hold meetings in the county society's building and from other organizations. The library purchased 245 books and 855 volumes of periodical publications or back files. It received regularly 1,545 current serial publications.

The WPA Reports.—Included in the WPA projects in New York in 1938 were many concerned with health and medical services. Of a total expenditure of $157,659,628 of WPA funds for all purposes, $7,648,629 was used for projects sponsored by the department of health and $6,666,348 for projects sponsored by the department of hospitals. To the total WPA funds the city added $28,408,354 for materials, the state $409,306 and various federal departments $460,878. Among new buildings constructed was one hospital; seventy-seven hospitals were enlarged and improved. Included in health projects was the tuberculosis service, under which 162,984 visits were made to homes and 63,753 persons had x-ray examinations. More than 20,000 children from 1 to 6 years old are under care at the five centers of the Children's Health Service. The housekeeping service for chronically ill persons in their homes has a total of 3,200 cases under its care. Three thousand children monthly receive lip reading instruction. Workers have made 53,000 visits to follow-up patients with syphilis and gonorrhea who fail to return to health department clinics for treatment. Other workers are rendering aid to the sick in twenty-six municipal hospitals. The New York Tuberculosis and Health Association has sponsored a study making an analysis of the course of rheumatic heart disease from complete records of persons who have died. At Memorial Hospital studies in atomic physics and the biologic effects of radiation are being aided.

NORTH CAROLINA

Poliomyelitis Is Not Epidemic in North Carolina.—Dr. Carl V. Reynolds, state health officer, issued a statement June 12 denying rumors that poliomyelitis is epidemic in North Carolina. Actually the incidence of the disease in the state has been below normal for the year, Dr. Reynolds said. There have been eight cases in the period January to June 10 and five of those occurred between January and April. One was reported May 1 and another May 11. None of these is in an infectious stage. Only one case could be considered infectious, one that developed in Greene County June 1. North Carolina had an epidemic with 675 cases in 1935 and it is believed that that epidemic affords protection for the present. Dr. Reynolds advised that persons should not come out of infected regions into uninfected areas, but there is no reason for travelers to avoid North Carolina, he declared.

NORTH DAKOTA

Personal.—Dr. Alfred R. Sorenson, Minot, has been appointed city health officer succeeding Dr. John L. Devine, according to the *Journal-Lancet*.——Dr. Harvey J. Skarshaug, Fargo, has resigned as city health officer to engage in private practice in Colorado.

OHIO

Plan Museum of Health and Hygiene.—Plans for a museum of health and hygiene have recently been launched in Cleveland. A building at 8811 Euclid Avenue has been donated for the museum by Mrs. Francis F. Prentiss and a campaign for supporting memberships has been started. Dr. Jacob E. Tuckerman is chairman of a committee of the Cleveland Academy of Medicine for the campaign.

Alumni Reunion.—The annual reunion at the University of Cincinnati College of Medicine was held June 10. The morning was devoted to grand rounds at the Cincinnati General Hospital with Dr. Mont R. Reid on the surgical service, Dr. Albert Graeme Mitchell on the pediatric service and Dr. Marion A. Blankenhorn on the medical service. A banquet was held at the Netherland-Plaza Hotel in the evening with Dr. Carl A. Wilzbach, health commissioner of Cincinnati, as the speaker.

OKLAHOMA

New Health Officers.—Dr. Daniel E. Little, Eufaula, has been appointed health superintendent of McIntosh County and Dr. John W. Francis, Perry, of Noble County.——Dr. Waldo B. Newell Jr., Enid, has been appointed superintendent of health of Garfield County, effective April 1, succeeding the late Dr. William W. Gill, Enid.——Dr. Joseph Fulcher was placed in charge of the new clinic for the treatment of venereal diseases opened April 20 by the Tulsa department of health.

Society News.—Dr. George S. Baxter, Shawnee, discussed "Acute Appendicitis in Children" before the Pottawatomie County Medical Society, Shawnee, May 13.——The Garfield County Medical Society met with the Kay County society in Ponca City May 25 for a program on office gynecology presented by the following Garfield County physicians: Drs. J. Wendell Mercer, Julian Feild, Marion E. Sheets, Glenn Francisco, George O. Miles, Francis M. Duffy, Bruce R. Hinson and Frederick A. Hudson. All are from Enid.

PENNSYLVANIA

Society News.—Dr. Julia Faith S. Fetterman, Philadelphia, addressed the Delaware County Medical Society, Chester, May 11 on "The Effects of Cancer of the Uterus and Its Treatment on the Urinary Tract."——Dr. James Alexander Miller, New York, addressed the Northampton County Medical Society May 19 on "The Modern Approach to Diagnosis."——Dr. Joseph H. Barach, Pittsburgh, addressed the Mercer County Medical Society, West Middlesex, May 10 on "Newer Aspects in the Treatment of Diabetes." Dr. Barach addressed the Blair County Medical Society, Altoona, May 23 on "Newer Insulins and the Modern Treatment of Diabetes."

Philadelphia

Birthday Dinner for Dr. Coates.—A dinner in honor of Dr. George M. Coates, professor of otolaryngology, University of Pennsylvania School of Medicine, was held at the Warwick Hotel May 27 to celebrate his sixty-fifth birthday. Dr. James A. Babbitt was toastmaster and the speakers included Drs. Benjamin H. Shuster; Chevalier Jackson; Isadore Friesner, New York; Ralph A. Fenton, Portland, Ore.; Burt R. Shurly, Detroit; Joseph C. Beck, Chicago, and Harris P. Mosher, Boston.

Pittsburgh

Alumni Meeting.—The annual homecoming of the Medical Alumni Association of the University of Pittsburgh was held June 10. A portrait of the late Dean Raleigh R. Huggins was presented to the university by Dr. James D. Heard on behalf of the alumni and accepted by Dr. William S. McEllroy, the present dean of the medical school. Dr. McEllroy and Dr. Thomas B. McCollough were the speakers at a luncheon at the Pittsburgh Athletic Club.

RHODE ISLAND

Society News.—Drs. Jacob E. Greenstein, Providence, and Raymond E. Stevens, Rumford, addressed the Pawtucket Medical Association April 20 on "Treatment of a Series of Twenty-Five Cases of Pneumonia at the Memorial Hospital with Sulfapyridine."——At a recent meeting of the Rhode Island Society for Neurology and Psychiatry in Providence Drs. Hiram Houston Merritt, Boston, and Frances Cottington, now of Memphis, Mich., spoke on "The Diagnosis and Treatment of Epilepsy" and "The Present Status of Metrazol in the Treatment of Mental Disease" respectively.

SOUTH CAROLINA

Personal.—A silver service was presented to Dr. Leonidas M. Stokes, Walterboro, by the alumni association of the Medical College of the State of South Carolina during a meeting of the First District Medical Society in Walterboro in May. The presentation was made by Dr. James R. Des Portes, Fort Mill, immediate past president of the South Carolina Medical Association and president of the alumni association. Dr. Des Portes reviewed Dr. Stokes' contributions to the advancement of the college and the medical profession and other speakers were Drs. Douglas Jennings, Bennettsville, president of the state association, Charles R. May, Bennettsville, a former president, and Dr. Edgar A. Hines, Seneca, secretary-editor.

TENNESSEE

Regional Meetings.—The Middle Tennessee Medical Association met in Columbia May 25-26. Among the speakers were Drs. William R. Cate, Nashville, on "Auricular Fibrillation: Its Significance and Management"; Barney Brooks, Nashville, "Surgery of the Gallbladder"; Thayer S. Wilson, Gordonville, "Sulfanilamide and Sulfapyridine and Report of Its Use in Smith County"; Hollis E. Johnson, Nashville, "Diagnosis of Pulmonary Tuberculosis," and Eustace C. Mason, Quebeck, "Serum Treatment of Pneumonia."——The West Tennessee Medical and Surgical Association met in Huntington May 25.——The Tennessee Valley Postgraduate Medical Assembly will hold its fifth annual meeting in Knoxville June 28-30.

TEXAS

Society News.—Dr. Howard K. Gray, Rochester, Minn., was guest speaker before the Texas Surgical Society in Fort Worth at its semiannual meeting recently on "Problems Encountered in Surgery of the Biliary Tract."——Dr. Lester W. Baird, Temple, among others, addressed the Bell County Medical Society in Temple recently on regional enteritis.——Dr. Alfred L. Ridings, Sherman, addressed the Grayson County Medical Society recently on "Danger Points of Thyroid Surgery."——Drs. Felix P. Miller and Francis C. Goodwin, El Paso, addressed the Tom Green Eight Counties Medical Society, San Angelo, in April on "Chest Surgery in Tuberculosis" and "Lateral Bone Traction in the Treatment of Scoliosis" respectively.

WASHINGTON

Hospital News.—A full length oil portrait of the late Dr. James Tate Mason, Seattle, who died shortly after he was made President of the American Medical Association in 1936, was presented to the Virginia Mason Hospital by the alumnae of the nursing school. The presentation was made at a banquet at the hospital May 27.

Society News.—Dr. Jay Arthur Myers, Minneapolis, was the guest speaker at the annual meeting of the Washington Tuberculosis Association June 1-3 in Spokane.——A symposium on tuberculosis was presented at the annual meeting of the Kings County Medical Society, Seattle, June 5 by Drs. Byron F. Francis and John F. LeCocq, Seattle, and John W. Skinner, Kirkland. Dr. Alexander H. Peacock has recently presented to the society a portrait of the late Dr. James B. Eagleson, who was active in the establishment of the society's library and of *Northwest Medicine*.

Outbreak of Typhoid.—Eighty-two school children and one teacher in the town and area surrounding Sequim have typhoid, the Associated Press reported June 10. State and county health officials and the Red Cross began mass immunization. Investigation of possible sources of the disease revealed that 200 buns left over from a traveling carnival had been donated to the school. Health officials said that the buns, which were buttered, had apparently been left for some time at room temperature. Another possible source was a salad for which potatoes had been peeled some hours before use and which might have been handled by a carrier, according to the newspaper report.

WEST VIRGINIA

Society News.—Dr. Walter E. Vest, Huntington, addressed the Boone County Medical Society, April 20, on "Socialized Medicine and Medical Aid to the Indigent."——Drs. Lawrence B. Gang and Isidore I. Hirschman, Huntington, addressed the Logan County Medical Society April 12 on "Familial Hemolytic Jaundice" and "The Incidence and Diagnosis of Carcinoma of the Lung" respectively.——Dr. Charles J. Barone, Pittsburgh, addressed the Monongalia County Medical Society, Morgantown, in April on "Prenatal Care and Common Complications of Pregnancy."——At a meeting of the Parkersburg Academy of Medicine in April Dr. Oscar Swineford Jr., Charlottesville, Va., gave an address on "Diagnostic and Therapeutic Problems of Allergy."

WISCONSIN

Personal.—Dr. Edwin H. Federman, Montello, has been appointed health officer of Eau Claire County.——Citizens of Kimberly gave a banquet April 16 in honor of Dr. Charles G. Maes, who has practiced in the village for thirty-two years, and changed the name of the street on which he lives to Maes Avenue.

GENERAL

Division of Venereal Diseases Issues New Folder.—The division of venereal diseases of the United States Public Health Service has just issued the third in a series of educational folders dealing with syphilis which are generally available at $1 per one hundred copies. The present folder is entitled "You Can End This Sorrow," and is concerned with the prevention of syphilis in prospective mothers and in newborn babies. It is well written, concise, suitably illustrated and certainly should be in the hands of every prospective mother.

Bequests and Donations.—Gifts and bequests of more than $20,000 to the James Whitcomb Riley Memorial Association have been reported, including $16,000 from the estate of Mrs. Atta R. Linthicum, Evansville, Ind.; about $1,000 from the estate of Mrs. Emma Herpick, Indianapolis, half of a $3,500 bequest left jointly to the memorial association and the General Protestant Orphans' Association by John G. Lehr, Indianapolis, and a bequest of $8,000 from the estate of Ira Williams, Anderson, subject to the settlement of litigation brought to construe the will. It was also announced that John W. Bradford of Morgan County had given his $75,000 home and 900 acres of land to be used as a convalescent unit of Riley Hospital or for some similar purpose; the gift was made to Riley Hospital and Indiana University.

CANADA

Rural Health Conservation Awards.—The St. Jean-Iberville-Laprairie-Napierville county health unit received the first award in the second rural health conservation contest conducted by the Canadian Public Health Association in cooperation with the American Public Health Association. This four-county unit also won the award in the 1937 contest. Nine awards of merit were conferred on other units.

Government Services

Medical Phases of Social Security Administration

The Social Security Board in its report for the fiscal year ended June 30, 1938, states that the Children's Bureau of the U. S. Department of Labor made grants of $3,728,930.58 from funds provided by the Social Security Act to state and territorial agencies for maternal and child health services and $2,694,676.33 for services for crippled children.

Fifty-one plans were submitted by states and territories for maternal and child health services. More than half the funds in the fiscal year 1936-1937 were used to provide public health nurses; about 1,000 new ones have been placed in the field. Reports of state health officers for the calendar year 1937 showed that physicians made 1,405,807 health examinations of school children. Office and home visits by public health nurses included 880,691 for maternity nursing, 1,092,188 for infants, 945,616 for preschool children and 2,975,790 for school children. Reports showed 898,506 diphtheria immunizations and 1,078,779 smallpox vaccinations.

Fifty jurisdictions are now receiving funds through the Children's Bureau for services for crippled children. The total number of children on the state registers of forty-six states, Alaska and Hawaii as of June 30, 1938, was 151,909.

The U. S. Public Health Service with an appropriation of $8,000,000 for grants-in-aid has enabled states to strengthen their health organizations along the following lines: promotion and supervision of local health services, public health engineering, control of preventable diseases, laboratory facilities, dental hygiene, vital statistics and public health nursing. Thirty-three states now have special units for control of venereal disease; twenty-five have instituted measures for control of tuberculosis; eight have active programs to decrease pneumonia mortality; six others have organized an attack on cancer. More than 3,000 persons have received special graduate training in public health work.

The third agency concerned with welfare services under the social security program is the Office of Education, which administers the program for rehabilitation of the physically disabled. The roll of cases receiving rehabilitation services as of June 30, 1938, was about 45,000. The largest number of persons rehabilitated in any single year was 11,091 in the fiscal year 1936-1937.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 30, 1939.

Dust Diseases of the Lung

In a lecture to the Industrial Welfare Society Dr. Philip Ellman pointed out that in the woolen, cotton, leather and tobacco industries catarrhal infections of the lungs were observed and "cotton bronchitis" had recently received attention in Lancashire, but that there was no evidence of any serious fibrosis of the lungs resulting from exposure to such dusts. On the other hand, the inhalation of certain inorganic dusts might prove very damaging to the lung, producing progressive fibrosis. Inhalation of dust containing silica produced silicosis. In hematite miners, ferric oxide and silica produced a modified form of silicosis, termed siderosis or siderosilicosis. In contrast to the nodular fibrosis of silicosis, asbestos produced diffuse pulmonary fibrosis (asbestosis). Silicate dusts other than asbestos had not been shown to be particularly harmful. In certain cases modified forms of pneumoconiosis resulted from exposure to a mixture of free silica and silicate dusts, and metallic dusts were harmful in proportion to their percentage of free silica. Exposure to ordinary coal dust was not harmful to the lung, but the hazard depended on whether anthracite was present. Apart from anthracosilicosis, so-called miners' asthma, in which free silica dust was present, there was no evidence that ordinary coal dust rendered the miner liable to pulmonary tuberculosis. In trades in which tuberculosis was common and there was some volume of dust apart from silica and asbestos, tuberculosis was probably due to social and economic conditions.

In the discussion which followed, Prof. E. L. Collis stated that he had investigated two conditions due to cotton dust. One occurred in epidemic form among weavers, was almost certainly a mycosis and closely resembled open and early tuberculosis with pyrexia; but in all cases the condition cleared up in a month or so. The other was the chronic asthma of cotton strippers, due to dust from raw cotton. It developed after years of work and was incapacitating but did not predispose to tuberculosis.

Closure of the Ductus Arteriosus

It is usually taught that closure of the ductus arteriosus, which in the fetus carries blood from the pulmonary artery to the aorta, thus by-passing the lungs, is due to the inception of respiration, with expansion of the lungs, causing blood to pass through them from the pulmonary artery. This explanation is now challenged by an x-ray study of the ductus arteriosus in lambs made by A. E. Barclay, Sir Joseph Barcroft, D. H. Barron and K. J. Franklin and recorded in the *British Journal of Radiology*. The fetal lamb was delivered by cesarean section performed on the ewe near term. Colloidal thorium dioxide was injected into a vein, and serial pictures were taken at short intervals by x-ray cinematography over a period of half an hour. The time between delivery and the first exposure was as short as twenty-five seconds in some experiments. The ductus arteriosus was clearly shown in some of the roentgenograms, but a patent vessel was not indicated after about a minute from the time of delivery. After this it appeared as a kinked and beaded structure, and its course and caliber were seen to be continuously changing. It is suggested that these appearances are due to strong localized muscular contractions of the wall of the duct, which produce occlusion. Thus the closure could not be related to the onset of respiration or the arrest of circulation through the umbilical cord, for it took place before any air was seen in the trachea and before the cord was clamped. The origin of the stimulus to closure remains obscure. The only obvious source is alteration in the external environment.

Food Plans for Wartime

Government plans for the control and distribution of food in time of war are announced. A ministry of food would be set up and be the sole importer of all foodstuffs as well as of all home supplies as they left the farm or factory. The wholesaler would buy from the ministry at prescribed prices and the retailer from the wholesaler. It is thought that this would prevent profiteering and speculation and minimize the risks of damage and delay. Immediately on the outbreak of war about 1,400 local food control committees would be set up. Their work would be to register and license retailers and certify their requirements in regard to supplies. Committees of traders have also been set up. Their work would be to make alternative arrangements if local sources of supply should fail owing to an attack or other causes. The government already holds reserves of wheat, sugar and whale oil which can be used to tide over difficulties. For persons evacuated from their homes a forty-eight hour emergency supply would be available in the reception area.

Extensive arrangements have been made for rationing meat, butter, margarine and sugar, but a general rationing of food is thought unlikely. The necessary documents have been prepared, household application forms by which would be obtained cards to enable purchases of prescribed quantities to be made. Nineteen million application forms and sixty million ration cards have been prepared as a temporary scheme. It is expected that an improved scheme will be introduced after six months by which 20,000,000 persons would be entitled to additional rations in consequence of the class of work in which they were engaged.

PARIS

(From Our Regular Correspondent)

May 14, 1939.

Claude Bernard

A new series of publications gives selections from the works of great scientists. Jean Rostand has been entrusted with the task of presenting to the public these selections from the works of the physiologist Claude Bernard, borrowed mostly from his "Introduction to Experimental Medicine" and partly from his lectures at the Collège de France and the Muséum.

Claude Bernard was not only a just and rigorous soul; he was one of the greatest writers of the French language. His style was characterized by Renan as a "true, sober, proportioned style in whatever he has to express," simple language always clear, thought that is vigorous. Such are some of the qualities of Claude Bernard. His literary value was so adequate for his scientific will that he must always remain a great thinker, a great writer and a great scientist. He began by doing menial work in a pharmacy in Lyons and would have never revived physiology if he had not written a tragedy which he took to Paris. Nobody cared for it; he was advised to continue medicine and entered one of the laboratories of the Collège de France, where he was to occupy, later on, the chair of physiology.

It is unnecessary to summarize his discoveries. It is more to the point to consider the struggle he had to carry on against the reigning doctrine of vitalism. The "vital properties" (propriétés vitales) were considered antagonistic to or at any rate different from the natural forces (forces naturelles); living beings were not subjected to the laws governing raw bodies (corps bruts). Claude Bernard proclaimed the contrary and affirmed unity presiding over all phenomena. He demonstrated it by experimentation. Claude Bernard did not explain everything through physics and chemistry. He admitted that science has its limits.

The History of Medicine

The latest meeting of the Société internationale d'histoire de médecine was held in Paris. Medical folklore was the principal object discussed; then the program of the next meeting was adopted, to be held in Berlin in 1940 to consider the evolution of medicine from Harvey to Haller and the history of exanthematous typhus. In addition to studies on medicine and French physicians, the Société française d'histoire de la médecine and its branches have devoted much attention to the ancient Greeks and Arabs, from whom so much knowledge and tradition come. Mr. Souques, for instance, studied at length "Pain in the Writings of Hippocrates." The abundance of hippocratic documentation enabled him to group the observations of the master of Cos according to organs and functions, which makes this study most interesting.

Prevention of Epidemics

One of the most essential tasks confronting the department of organization of hygiene of the League of Nations is to prevent epidemics and their dissemination. Asia, the cradle of civilizations, is the cradle of many diseases as well: for this reason a new office has been set up at Singapore destined to centralize all useful information about epidemics and inform, as quickly as possible, the ports of the Far East about their sudden appearance. A powerful radio station at Malabar, on the Island of Java, broadcasts daily the communications of the main office in Singapore, which is rebroadcast weekly by nine secondary stations. These communications can be received in the ports of the Indian Ocean, of the Pacific and even of the Mediterranean, but for various reasons certain broadcasting stations discontinued their communications and thus several receiving stations remained without information. The Geneva office then decided to centralize these broadcasts; they will be made from Geneva weekly, on wavelengths of 16, 23 and 20, 64 meters, through the station "Radio-Nations" at 8:40 Greenwich mean time and they will be able to reach the remotest receiving sets.

Lister Medal Awarded to René Leriche

The Lister committee awards the Lister medal to a surgeon every three years. The medal displays the portrait of Joseph Lister on one side and a rising sun on the other, as though to symbolize the splendor the great Englishman has cast on his art. A reward of £500 is added to this and the sole obligation connected with receiving it is to give a lecture. Leriche is the sixth beneficiary of the Lister medal, which has been awarded up to the present to only two foreigners, von Eiselsberg and Harvey Cushing. Unquestionably the awarding committee wanted to reward in René Leriche the constant concern to raise surgery, with the aid of the sciences which are at the basis of all the branches of medicine, above a manual function and show that, although specialization is a practical necessity of our profession, it becomes dangerous if it confines the physician to a single branch of medicine.

Professor Leriche received the medal in the main assembly hall of the Royal College of Surgeons in London, where he gave a lecture entitled "The Listerian Conception in 1939."

The Bone Marrow in Recent Syphilis

Benda and Orinstein reported at the Société médicale des hôpitaux de Paris the results of investigations on thirty-five patients, of whom twenty-eight had primary and eight secondary syphilis. In addition there was one case of old syphilis. Sternal puncture was the process used. A drop of liquid bone marrow taken by puncture and mixed with an equal amount of distilled water was examined. The examination was made either after staining with fontana Tribondeau or with the ultramicroscope. On account of rigorous standards in interpretation the results obtained are rather discordant. The authors recognized the incontestable presence of the spirochetes in four cases of primary and one case of secondary syphilis; they report on the other hand six results which they qualify as "partial" and which are just as valid to them as the others. While sternal puncture is simple, it may be difficult to interpret the results. The presence of spirochetes in bone marrow was quite unexpected.

This observation may find therapeutic applications and it is of great doctrinal interest. It joins the already numerous symptoms that indicate the rapid diffusion of syphilis in the organism. Judging by the statistics of Benda and Orinstein, sternal puncture is more conclusive than ganglionic puncture: in twenty cases in which the two tests were applied, the puncture of the ganglion gave four and the puncture of the sternum six positive results.

This session of the Société médicale des hôpitaux de Paris was presided over by Pierre Lereboullet, successor to Georges Guillain in this office.

BERLIN

(From Our Regular Correspondent)

April 24, 1939.

Regulations for the Use of Narcotics

In 1930 there was issued a governmental order regulating the medical prescription of narcotics (The Journal, Feb. 28, 1931, p. 706; July 1, 1933, p. 61). According to the order, physicians are prohibited from issuing narcotic prescriptions except when they are "medically justified." What was meant by the restrictive words was not explained. However, the basis of the decree of 1930 was the so-called guiding principles set up by the physicians themselves in their convention in Danzig in 1928. These principles have now been expanded and expounded by the national medical leader, Dr. Wagner, in conjunction with the department of public health. The publication of these "Regulations for the Use of Narcotics in Medical Practice" has just taken place. Medical practice will henceforth have to govern itself according to them. The physician should always bear in mind that the first morphine injection may be habit forming. The same is true of every opiate in tablet form. Special precautions are necessary in the case of weak willed or neurasthenic persons, of psychopaths and of those who can easily acquire narcotic drugs, such as physicians, nurses, druggists and their relatives. Wherever feasible the first use should be postponed as long as possible and the narcotic given in small doses. The hypodermic syringe may be intrusted to others only in exceptional cases and that to trustworthy persons acting under medical instructions. The possibility must also be considered that relatives of the patient and other persons may help themselves to the drug. Narcotic prescriptions are to be given only to those who can identify themselves.

Prescription of opiates is medically justified only if after a rigorous examination of the peculiar features of the individual disease the physician arrives at the conclusion that their use is imperative. Recurrent prescriptions are medically justified only if all other possibilities have been exhausted and if the patient is in great pain that will not yield to the usual alleviating remedies. Opiates are indispensable in assuaging exceedingly severe pains, for example in serious accidents and in painful incurable diseases. The use of opiates, the decree continues, generally is not warranted in locomotor ataxia, especially the initial stages; in bronchial asthma, only in exceptional cases; in bronchitis, almost never. Narcotics and soporifics are two different things. In heart disease, generally speaking, only individual doses of opiates are necessary; for example, in angina pectoris and cardiac asthma, after other measures have proved unsuccessful. Psychoses make the use of opiates unavoidable only in serious cases. The prescription of opiates may be necessary after careful diagnosis in grave

cases of renal and biliary calculus. The danger that the physician may be imposed on is particularly great; to furnish recurrent prescriptions simply means supporting a habit induced by previous prescriptions. Complaints of pain in amputated stumps, the extent of which is often difficult to estimate, demand a careful examination of the whole personality of the patient and his trustworthiness, especially when prescription of opiates is a standing order.

The regular prescription of opiates for addicts, in the absence of evidence that the original disease persists, is medically justifiable only if withdrawal would endanger the patient's life. Social reasons, e. g. the assertion that the patient cannot afford to interrupt his work to undergo treatment, do not justify continuance of the drug. The physician's underlying purpose in the treatment of addicts must be to plan a scientifically sound and progressive withdrawal and to supplement it with psychiatric measures. The minimal quantity of morphine indispensable in preventing serious conditions secondary to abstinence must be ascertained individually in the addict himself but independently of his statements. It is always considerably less than the quantity actually last taken by him: about one half or one third of what he alleges. The use of cocaine has already been restricted to the practice of specialists. Even here it can be replaced by one of the more recent local anesthetics which are not habit forming.

Epidemic Keratoconjunctivitis

About the middle of July 1938 there appeared in Berlin an ocular disease affecting the conjunctivae and the uppermost layers of the cornea. It was diagnosed by the university clinic as keratoconjunctivitis epidemica. The presence of the same disease was also reported from Bonn and Munich. Other parts of Germany seemed to have been unaffected. About 150 patients were clinically observed after the middle of the year. Primary indication was that resembling general influenza, followed by edematous catarrhal conjunctivitis. The bulbar conjunctiva in many cases showed vesiculation. Occasionally, small petechial hemorrhages were found. Secretion was almost never suppurative. Though the cornea and iris were not involved, patients complained of photophobia and the presence of a foreign body. Frequently there occurred a swelling of the regional lymphatic glands. After from eight to twelve days the severity of the inflammation relaxed. At this time, usually, opacity of the cornea set in, affecting mostly the center of the cornea but in evidence also in the regional portions. Dr. Smitmans connected with the clinic reported the visibility, even under weak magnification, of globular and oval, indistinctly defined, centers, which often were somewhat prominent, preponderantly intra-epithelial, without, however, penetrating to an extensive degree. In individual cases the centers appeared circular and linear and a certain connection seemed to exist between them and the epidermal nerves. The centers would then remain for a long time completely unchanged. Neither vascular proliferation of the cornea nor a severe irritation of the iris was observed. The conjunctivae were usually affected on both sides. Corneal infection was almost always noticeable, even though only a slight one. Visual acuity was generally considerably reduced at the height of the disease and in individual cases as much as 5/35 but improved after the subsidence of the acute inflammation. A slighter deterioration in visual power from 5/7 to 6/10, depending on the condition of the cornea, persisted. Generally patients of middle and advanced age were affected, sometimes also children. This outbreak was extremely infectious, spreading not only to members of the family but also to ophthalmologists, probably by exogenic transmission. Penetration to the deeper parts of the eye did not seem to occur. The incubation period apparently extended from five to seven days. Attempts to transfer conjunctival secretions to rabbits as well as intracorneal and intracerebral injections gave negative results. Treatment consisted of daily application of a 1 per cent solution of silver nitrate. This seemed to heal conjunctivitis more rapidly and to reduce corneal infection. The iris was treated with atropine; the cornea, however, could not be cleared up.

A Berlin ophthalmologist who had observed about 700 patients within this period found corneal complications in about half of them. He found opacities under Bowman's membrane and exceedingly numerous ones in the pupillary region. These hindered vision exceedingly, were exceptionably stubborn and did not begin to clear up until six or eight days after. Toward the end a more severe corneal infection in herpes form made its appearance and extended in some cases to the edges of the cornea. Singularly enough, corneal infections never appeared at the beginning of the disease but only after the acute stage had passed and the worst was believed to be over. The appearance of the disease in different sections of the business center of Berlin with its many offices and vitiated air was to be expected, in view of the many cases of chronic conjunctivitis generally found there. The infection often remained unilateral, even in serious cases.

Results of Shock Therapy in Schizophrenia

In 1933 Sakel introduced insulin and in 1934 Meduna introduced metrazol in the treatment of schizophrenia. A numerical evaluation based on a questionnaire sent by the governmental department of public health to the psychiatry clinics of the German universities yields the following figures:

Therapy	No. of Patients Treated	No. of Reporting Clinics	Symptom Free	Improved	Not Improved
Insulin	560	10	211 (37.7 per cent)	162 (28.9 per cent)	187 (33.4 per cent)
Metrazol	132	7	25 (18.9 per cent)	49 (37.1 per cent)	58 (44 per cent)
Metrazol and insulin	67	5	27 (40.3 per cent)	18 (26.9 per cent)	22 (32.8 per cent)

The official conclusions are that both of these therapies are of extraordinary value. About sixty-seven patients, equal to 56 per cent of the total number, could be regarded as favorably influenced.

The department of labor, charged with the management of the sick fund, has now ordered that metrazol therapy may be given to schizophrenic patients at the expense of the sick fund. Official permission to employ insulin therapy was granted in May 1938.

Studies on Poliomyelitis

Like other studies on the epidemic of poliomyelitis of 1937 and 1938, the pathologic studies of 1938 have now been made public. Dr. Heinlein was able to examine thirty-eight of the forty-eight cases involved. The age of the patients ranged from 6 months to 56 years. The inner organs, including the endocrine glands, showed no specific changes. The occasionally observed inflammations of the throat and tonsils were probably not sequelae but either subsequent to it or perhaps precursors of it. There were edema in the gray and white matter, hyperemia and in many cases microscopic hemorrhages, which perhaps are to be regarded as directly toxic impairments of the wall of the vessels. Frequently Clarke's columns were diseased; the lateral horns less so. The white matter, likewise, showed specific changes; only the dorsal portions of the medulla oblongata and pons were diseased. The base of the pons was always free from disease. In the cerebellum regularly changes were found, especially in the region of the dentate nucleus. These might explain appearances of ataxia, unless

the injury of Clarke's column was responsible for them. In two patients clinically spastic phenomena were most prominent, with negligible anatomic changes in the myelon but serious ones in the medulla oblongata, pons and telencephalon. In a few cases a predominantly cerebral form of poliomyelitis seems to have existed.

POLAND

(From Our Regular Correspondent)

Warsaw, May 1, 1939.

Action of Mercurial Diuretics

Dr. J. Fliederbaum has reported his research performed at the university clinic of Warsaw on the action of mercurial diuretics. Among fifty patients there were thirty with cardiac edema and nine with edema of extracardiac origin. He studied the effect of mercurial diuretics on the protein and carbohydrate metabolism and acid-base equilibrium of the blood, and the influence on excretion of water, salt, phosphates and nitrogen by the kidneys. Simultaneously the influence on the blood volume and on the functions of the reticulo-endothelial system was examined. On the basis of these examinations the author divided the action of the mercurial diuretics into three periods.

In the first period the water balance is not yet influenced by the drug and no diuretic action is observed. There appear however important changes in the distribution of blood and of tissue fluid and in the chemical composition of the blood. The absorption of saline solution injected into the skin diminishes. The return of the tissue fluid into the blood vessels increases, causing a marked rise in the circulating blood volume. In this period there is also observed an increase in the acid secretion by the stomach, in lung ventilation, in carbon dioxide excretion and in oxygen consumption; also the respiratory quotient and the level of the blood sugar undergo noticeable changes. Injected dye is to a less extent absorbed by the reticulo-endothelial system.

The second period begins with the onset of diuresis. This period the author divides into two parts. In the first the kidney threshold for water and salt excretion drops, and these substances are excreted in great amounts by urine, while the threshold for excretion of other substances, especially phosphates and nonproteinic nitrogen, increases in spite of the rise in their blood level.

In the second part of the second period the mercurial diuretics provoke a destruction of the tissue proteins. The level of nonprotein nitrogen in blood increases sometimes very much. This is accompanied by an increased excretion of water by extrarenal ways, chiefly by the lungs and the skin. Such increase in extrarenal water secretion occurs also in other conditions in which there is a toxic destruction of tissues, e. g. animals after experimental extirpation of the adrenal glands. In the toxic period of action of the mercurial diuretics many patients, especially those who for a long time have received the drug, complain of uremia-like symptoms due to intoxication with the products of destruction of tissue proteins: weakness, headache, nausea and psychic depression.

In the third period all the foregoing changes recede. However, the sensitiveness of the organism to repeated administration of diuretics remains diminished.

In patients with chronic circulatory failure the mercurial diuretics produce a deacidifying influence on the organism: there is increase in the stomach acid secretion, the carbon dioxide excretion by the lungs, the urinary acidity and the basic reserves of the plasm.

Genesis of Reticulocytes

Drs. F. Goebel and S. Marczewski reported before the Warsaw Medical Society their results of research on the genesis of reticulocytes performed in the Institute of Experimental Pathology of Warsaw University. They noticed that the erythrocyte and reticulocyte counts increase in dogs which are exposed to a low atmospheric pressure for a short time (sixty seconds). This phenomenon does not occur in splenectomized dogs. Other factors which induce a contraction of the spleen, such as intravenous injection of epinephrine or bleeding, also cause a prompt increase in the reticulocyte count of the blood. This rise after the administration of the same agents does not occur in splenectomized dogs. From these facts it can be assumed that reticulocytes as well as old erythrocytes are retained in the spleen. Thus the authors say that the reticulocytes are not young red cells, as has been commonly thought. This view is also confirmed by some clinical observations. So the reticulocytosis encountered in hemolytic jaundice can be regarded as a result not of blood regeneration but of increased erythrocyte destruction in the spleen. The reticulocytosis observed after blood transfusions can also be caused by an increased destruction of the introduced foreign red cells.

Bactericidal Action of Saliva

In the State Institute of Hygiene at Warsaw, research was performed by Dr. A. Lande concerning the germicidal action of human saliva. The results to some extent confirm the formerly known fact that saliva contains a bactericidal body, called inhibin, which hampers the growth of micro-organisms. This factor cannot be passed through the Chamberland filter. It is nonspecific, for it is active against many species of microbes. Nor is it identical with the lysozyme found in saliva by Flemming, for it does not resist heating to 56 C.

The author performed further research on the immunologic importance of inhibin. He examined the saliva of 152 subjects, among whom were 100 children from an orphanage, all of whom since their birth have lived together and have been about equally exposed to infections. There was a close relation between the morbidity from infectious diseases due to micro-organisms in the mouth and pharynx, and the frequency of the presence of inhibins in saliva. Inhibin was present in only 5.33 per cent of the subjects who gave a history of repeated anginas, diphtheria or scarlet fever or had chronic tonsillitis, while in subjects who had never been ill with these diseases the percentage of having inhibin in saliva was 38 46.

The epidemiologic importance of inhibins is more obvious as far as the morbidity with diphtheria alone is concerned. They were found neither in diphtheria carriers nor in any subject who had ever had diphtheria. It was also found that the presence or absence of inhibin in saliva is independent of serologic immunity.

The author says that the bactericidal factors of saliva are the first barrier set against infection. Besides inhibin the human saliva contains also other germicidal bodies, such as yeast.

Marriages

JOHN HAMPTON MILLER, Thomas, W. Va., to Miss Frances Taylor of Bridgewater, Mass., March 19.

RANDALL G. SPRAGUE, Rochester, Minn., to Miss Anne Whitcomb of Grand Forks, N. D., April 8.

GEORGE WILLIAM LAWSON, Star, N. C., to Miss Edna Ann Thomas of Jonesboro, April 29.

HOWARD LEE SMITH to Miss Jean Harriett Goss, both of Washington, D. C., March 4.

DONALD R. BRUMLEY, Macomb, Ohio, to Miss Helen Huntley of Davenport, Iowa, May 13.

WILLIAM GARBE to Miss Lorna Levey, both of Toronto, Ont., Canada, May 7.

WARREN W. YOUNG to Miss Dorothy Johnson, both of Chicago, May 6.

JOSE M. FERRER JR., to Miss Mary Schumacher, both of New York, June 6.

Deaths

Lee Harrison Mettler, Hubbard Woods, Ill.; Jefferson Medical College of Philadelphia, 1886; professor of neurology, emeritus, at the University of Illinois College of Medicine, Chicago; prosector and assistant to the chair of anatomy, 1886-1887, chief of the medical clinic, 1887-1891, lecturer and clinical instructor of mental and nervous diseases and electrotherapeutics, 1888-1891, Medico-Chirurgical College of Philadelphia; formerly secretary of the Chicago Neurological Society; attending neurologist to the Cook County Hospital, Chicago, 1904-1906, and Norwegian Lutheran Deaconess Home and Hospital, Chicago; author of "Treatise on Diseases of the Nervous System," published in 1905; aged 75; died, March 20, in the Highland Park (Ill.) Hospital.

Menzies John MacFarlane ⊕ Cedar City, Utah; Jefferson Medical College of Philadelphia, 1913; past president of the Utah State Medical Association; past president of the county board of education and member of the state board of education; on the courtesy staff of the Iron County Hospital; aged 57; died, March 24, at the Dr. W. H. Groves Latter-Day Saints Hospital, Salt Lake City, of a streptococcic infection of the throat with complications.

Levin H. A. Nickerson, Quincy, Ill.; University of Pennsylvania Department of Medicine, Philadelphia, 1874; member and past president of the Illinois State Medical Society; past president and secretary of the Adams County Medical Society; member of the House of Delegates of the American Medical Association, 1908-1909; aged 88; died, March 13, in St. Mary's Hospital.

Victor H. Marchand ⊕ Haubstadt, Ind.; University of Louisville (Ky.) Medical Department, 1883; Jefferson Medical College of Philadelphia, 1884; past president of the Gibson County Medical Society; bank president; aged 76; died, March 19, in the Welborn-Walker Hospital, Evansville, of injuries received in an automobile accident.

Edward Vincent Murphy ⊕ Newport, R. I.; College of Physicians and Surgeons, Baltimore, 1899; township health officer; past president of the Newport County Medical Society; formerly connected with the United States Public Health Service; on the staff of the Newport Hospital; aged 68; died, March 9, of cerebral hemorrhage.

Charles Higgins Cole, Binghamton, N. Y.; Albany (N. Y.) Medical College, 1894; member of the Medical Society of the State of New York; for many years superintendent of the Tuberculosis Hospital of the County of Broome, Chenango Bridge; aged 68; died, March 24, of diabetes mellitus and mesenteric thrombosis.

Leo Alexander Newcomb, Montpelier, Vt.; University of Vermont College of Medicine, Burlington, 1901; member of the Vermont State Medical Society; past president of the Washington County Medical Society; served during the World War; aged 62; on the staff of the Heaton Hospital, where he died, March 3.

Charles Alexander Martin, Amherstdale, W. Va.; University of Louisville (Ky.) Medical Department, 1908; member of the West Virginia State Medical Association; past president of the Logan County Medical Society; aged 59; died, March 25, of hypertensive heart disease with myocardial insufficiency.

W. H. Post, Masontown, W. Va.; Baltimore Medical College, 1901; member of the West Virginia State Medical Association; at one time superintendent of the Hopemont (W. Va.) Sanitarium; formerly member of the school board; aged 61; died, March 18, in the Monongalia County Hospital, Morgantown.

Harold Oliver Lund, Middletown, Ohio; University of Minnesota Medical School, Minneapolis, 1922; member of the Ohio State Medical Association and the American Academy of Pediatrics; served during the World War; on the staff of the Middletown Hospital; aged 41; died, March 6, of heart disease.

John Franklin Dunseith, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; member of the Medical Society of the State of New York; formerly member of the health department; aged 63; died, March 6, at New Rochelle of angina pectoris.

Wilbur Thomas Myers, Uniontown, Pa.; University of Louisville (Ky.) Medical Department, 1909; member of the Medical Society of the State of Pennsylvania; also a pharmacist; aged 55; died, March 2, of diabetes mellitus, rupture of the femoral artery and colon and septicemia.

John Isaac Becker, Poughkeepsie, N. Y.; Syracuse University College of Medicine, 1905; member of the Medical Society of the State of New York; aged 68; died, March 13, in the Vassar Brothers Hospital of carcinoma of the mediastinum and obstruction of the esophagus.

John Howard McCulloch ⊕ Beckley, W. Va.; University College of Medicine, Richmond, 1908; medical superintendent of the Beckley Hospital; fellow of the American College of Surgeons; aged 53; died, March 18, of a skull fracture received in a fall down the stairs.

Jasper Victor Howard ⊕ Medical Inspector, Commander, U. S. Navy, San Francisco; University of Pennsylvania School of Medicine, Philadelphia, 1909; fellow of the American College of Surgeons; entered the navy in 1910; aged 56; died, March 12, of heart disease.

Gerald James A. Dolan, Brooklyn; Georgetown University School of Medicine, Washington, D. C., 1938; aged 26; intern at St. Mary's Hospital, where he died, March 2, of embryogenic carcinoma of the right testicle with metastasis to the abdomen, lung and brain.

Hugh Herald Miltimore ⊕ St. Johnsbury, Vt.; University of Vermont College of Medicine, Burlington, 1907; past president and secretary of the Caledonia County Medical Society; on the staff of the Brightlook Hospital; aged 55; died, March 1, of angina pectoris.

Charles H. W. Auel, Buffalo; University of Buffalo School of Medicine, 1886; member of the Medical Society of the State of New York; for many years on the staff of the Memorial Hospital; aged 75; died, March 16, of chronic myocarditis and cerebral hemorrhage.

James Carl Minor, Long Beach, Calif.; University Medical College of Kansas City, Mo., 1891; member of the Missouri State Medical Association; fellow of the American College of Surgeons; aged 69; died, March 24, of heart disease.

Lewis De Witt Hews, Rockwell City, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; aged 62; died, March 25, in Des Moines of carcinoma of the sigmoid colon and peritonitis.

Robert Eugene Miller, Lansing, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1890; member of the Michigan State Medical Society; aged 70; died, March 1, of cardiovascular renal disease.

Francis Cicero McDowell ⊕ Siler City, N. C.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; aged 65; died, March 14, in the Piedmont Memorial Hospital, Greensboro, of influenza and pneumonia.

Alvah Smith McClain, Kansas City, Mo.; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1898; served during the World War; aged 72; died, March 10, of coronary thrombosis.

Laurence Joseph Murphy, Evanston, Ill.; University of Illinois College of Medicine, Chicago, 1931; member of the Illinois State Medical Society; aged 31; died, March 17, in St. Petersburg, Fla., of chronic nephritis.

William Preiss, Buffalo; Niagara University Medical Department, Buffalo, 1895; member of the Medical Society of the State of New York; aged 68; died, March 3, of coronary thrombosis and arteriosclerosis.

Harold Lewis Bollig ⊕ Los Angeles; University of Nebraska College of Medicine, Omaha, 1929; on the staff of the Methodist Hospital of Southern California; aged 36; died, March 21, of lobar pneumonia.

Charles De Forest Lucas, Charlotte, N. C.; University of Virginia Department of Medicine, Charlottesville, 1926; member of the American Radium Society; aged 40; died, March 13, of lymphosarcoma.

Earl Victor Bobb, Alhambra, Calif.; Northwestern University Medical School, Chicago, 1899; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 64; died, March 4.

Henry West Hughes, Los Angeles; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885; aged 80; died, March 15, in the Hospital of the Good Samaritan.

John Dane, Boston; Harvard University Medical School, Boston, 1892; member of the Massachusetts Medical Society; formerly instructor in orthopedics at his alma mater; aged 72; died, March 27.

John Wesley Mullin, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1886; on the staff of the Homeopathic Hospital; aged 73; died, March 2, of pneumonia.

William E. Miller ⊕ Chicago; College of Physicians and Surgeons of Chicago, 1887; on the staff of the Hospital of St. Anthony de Padua; aged 81; died, March 25, of uremia and nephritis.

Luther Francis Kepler, Cedar Rapids, Iowa; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1904; aged 58; died, March 1, of uremia, nephritis and hypertension.

Jasper Eugene Neighbors ⊕ Hobbs, N. M.; University of Arkansas School of Medicine, Little Rock, 1918; formerly on the staff of the Hobbs General Hospital; aged 52; died, March 22.

Frederick Randolph Abbe ⊕ Boston; Harvard University Medical School, Boston, 1895; medical director of the Loyal Protective Life Insurance Company; aged 70; died, March 2.

Archie Schuyler Brown, Indianapolis; Medical College of Indiana, Indianapolis, 1904; served during the World War; on the staff of the Methodist Hospital; aged 62; died, March 12.

Thomas P. McCullough, Detroit; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1888; aged 78; died, March 2, of chronic endocarditis and bronchial asthma.

Norman Henry McCrummin, Montgomery, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1884; aged 85; died, March 26, of hypostatic pneumonia.

Harry Mandel ⊕ Chicago; General Medical College, Chicago, 1923; aged 41; on the staff of the Englewood Hospital, where he died, March 15, of coronary thrombosis.

Charles Lafleur, Montreal, Que., Canada; Laval University Medical Faculty, Montreal, 1908; for many years physician for the fire department of Montreal; died, March 31.

James Johnston Fraser, Hamilton, Ont., Canada; University of Toronto Faculty of Medicine, 1902; on the staff of the Ontario Hospital; aged 62; died, March 30.

Everett Rexford Myles, Windsor, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1924; aged 49; died, February 26, in the Grace Hospital.

George Lewis Megargee, Larchmont, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; aged 65; died, March 4, in Altamonte, Fla.

Harriet S. MacBeth, Fort Wayne, Ind.; Fort Wayne College of Medicine, 1893; aged 66; died, March 18, of diabetes mellitus, arteriosclerosis and heart disease.

Luther Edwards, Finley, Tenn.; Memphis Hospital Medical College, 1906; member of the Tennessee State Medical Association; aged 59; died, March 31.

Howard P. Johnson, Cortland, N. Y.; Hahnemann Medical College of Philadelphia, 1881; aged 83; died, March 4, of arteriosclerosis and cerebral edema.

Elizabeth Rabb Beatty, Lansdowne, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1884; formerly a medical missionary; died in March.

James Alvin Cannon, Pickens, S. C.; Southern Medical College, Atlanta, Ga., 1881; county physician; aged 85; died, March 24, of cerebral hemorrhage.

George Ernest Myers, Cheshire, Conn.; University of Vermont College of Medicine, Burlington, 1896; aged 71; died, March 25, of coronary thrombosis.

William Albert Harvey, Berryville, Ark.; St. Louis University School of Medicine, 1909; aged 55; died, March 15, of arteriosclerosis and myocarditis.

Walter N. Boyer, Culver City, Calif.; Hahnemann Medical College and Hospital, Chicago, 1881; aged 80; died, March 2, in a hospital at Los Angeles.

Samuel John MacLennan, Windsor, N. S., Canada; Bellevue Hospital Medical College, New York, 1894; served during the World War; died recently.

Fanny Searls Gradle, Santa Barbara, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1877; aged 87; died, May 24.

William Stanley Hill, Pelham, Ga.; Atlanta Medical College, 1892; aged 72; died, March 7, of cerebral hemorrhage, nephritis and arteriosclerosis.

Carlos M. Garza, *Lampazos, Nuevo Leon, Mexico;* Universidad Nacional Facultad de Medicina, Mexico, D. F., 1888; aged 79; died, March 5.

Robert De Vean Gilman, Beverly Hills, Calif.; New York Homeopathic Medical College and Hospital, New York, 1915; aged 45; died, March 20.

John L. Stephenson, Santa Ana, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1895; aged 81; died, March 20.

James Clarke McClester, Harrisville, Ohio; Ohio Medical University, Columbus, 1894; served during the World War; aged 70; died, March 23.

Christopher W. Stoll, Dover Center, Ohio; Western Reserve University Medical Department, Cleveland, 1893; aged 70; died, February 17.

Joseph Graeme Foster, Ottawa, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1923; aged 40; died, February 22.

Frank R. Farrell, Milwaukee; Milwaukee Medical College, 1905; aged 68; died, March 16, in St. Anthony's Hospital of angina pectoris.

Holly W. Casto, Ravenswood, W. Va.; Starling Medical College, Columbus, 1896; aged 66; died, March 22, of cardiorenal insufficiency.

Willis Benton Cauble, Murphysboro, Ill.; Rush Medical *College, Chicago, 1888; aged 72; died, March 10, in San Francisco* of uremia.

Joseph E. Beck, Carmel, Calif.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1887; aged 76; died, March 2.

Charles T. Gustin, Denver; Detroit College of Medicine, 1897; also a pharmacist; aged 67; died, March 23, of myocarditis and influenza.

John Proudfoot, Monkton, Ont., Canada; Western University Faculty of Medicine, London, 1888; aged 75; died, February 28.

York Patchen, Westfield, N. Y.; Western Reserve University Medical Department, Cleveland, 1886; aged 77; died, February 21.

Harry L. Vradenburg, Plattsmouth, Neb.; Hahnemann Medical College and Hospital, Chicago, 1886; aged 85; died, February 19.

Wardlaw Ewell, Crawfordsville, Ind.; Kentucky School of Medicine, Louisville, 1891; aged 72; died, March 12, of cerebral hemorrhage.

John Patrick Matthews, Leesburg, Ala.; University of Tennessee Medical Department, Nashville, 1879; aged 85; died, March 10.

Tillman Brooks Bradford, Toone, Tenn.; Vanderbilt University School of Medicine, Nashville, 1892; aged 73; died, March 15.

Henry Herbert Baker, Cairo, Ill.; University of Louisville (Ky.) Medical Department, 1907; aged 58; died, March 22, of influenza.

Hector Roy, Montreal, Que., Canada; Victoria University Medical Department, Coburg, Ont., 1890; aged 75; died, February 21.

John Breckinridge Woodville, Lansing, W. Va.; Medical College of Virginia, Richmond, 1897; aged 69; died, February 14.

Russell James Smith, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1892; aged 69; died, February 12.

Brenton Johnson Hazlewood, Oshawa, Ont., Canada; Trinity Medical College, Toronto, 1899; aged 64; died, February 17.

John C. Cunningham, Hixson, Tenn.; Chattanooga Medical College, 1898; aged 71; died, March 28, of cerebral hemorrhage.

Ira Albert Freel, Stouffville, Ont., Canada; University of Toronto Faculty of Medicine, 1882; aged 78; died, February 20.

Alvah D. Decker, Staten Island, N. Y.; Long Island College Hospital, Brooklyn, 1876; aged 90; died, February 15.

Thomas Arthur Ellis, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1920; aged 59; died, March 21.

James Piner Bartley, Duncan, Okla.; Kentucky School of Medicine, Louisville, 1898; aged 72; died in February.

Charles W. Tufts, Wyoming, Ohio; Medical College of Ohio, Cincinnati, 1884; aged 83; died, February 15.

Morris Barrett, Maidens, Va. (licensed in Virginia in 1885); aged 76; died, March 10.

Levi S. Correll, Jacksonville, Fla. (licensed in Illinois in 1878); aged 93; died, March 3.

Bureau of Investigation

THE VITA COMPANY FRAUD

A Chicago Mail-Order Quackery Debarred from the Mails

A small but dangerous medical mail-order fraud was debarred from the mails on Sept. 2, 1938. It was conducted from Chicago and, according to a memorandum of the Acting Solicitor for the Post Office Department to the Postmaster General, was carried on by one Chester A. Cremin and his wife. These persons advertised and sold through the mails a preparation called "Vita Vaginal Suppositories," which they claimed were a treatment for suppressed or excessive menstruation, "whites," vaginitis, inflammation and tumors of the uterus, as well as for displacements and prolapse of that organ.

The business was said to have been started about forty-three years ago by Mr. Cremin's mother. While Cremin was said to have declared that he was the sole owner of the business, the federal authorities charged that Cremin's wife actually conducted the business. The files of the Bureau of Investigation of the American Medical Association contain an advertising leaflet issued in 1929 and entitled "Vita Means Life for Ladies."



It was put out by The Vita Company (Not Inc.) at 8237 Maryland Avenue and 1039 East Eightieth Street, Chicago, "Mrs. C. A. Cremin, Mgr." At that time the Vita Company listed some sixteen diffent preparations, of which Vita Vaginal Suppositories seemed to be the major opus, although there was also a "Vita Catarrah [sic] Ointment" on the list.

The Cremins are said to have told the Post Office inspectors that the vaginal suppositories contained lanolin, vaseline, cocoa butter, ichthyol, alum and borax. The government chemists found that they actually consisted of boric acid, Glauber's salt, petrolatum and lycopodium. As neither combination could by any stretch of the imagination cure the conditions set forth in the advertising, and moreover, as sole reliance on this "patent medicine" might in certain cases lead to serious illness or even death, the scheme was declared a fraud and on Sept. 7, 1938, the mails were closed to the Vita Company and to Mrs. C. A. Cremin, Mgr.

AN OBESITY CURE FRAUD

The Gessner-Laun Swindle Barred from the Mails

The United States mails have been closed to a mail-order fake known as "Dr. Laun Sales Co.," doing business from 207 North Michigan Avenue, Chicago. The information that follows is based on a memorandum by the Hon. W. E. Kelly, Acting Solicitor for the Post Office Department, to the Postmaster General, and also on material in the files of the Bureau of Investigation of the American Medical Association.

The business was conducted by one Joseph E. Gessner, who sold through the mails a preparation called "Dr. Laun's Stimulating and Reducing Balm." This preparation, according to Gessner, would, when rubbed on the body by obese persons, make fat "melt away like magic." The name of Gessner appears previously in the files of the Bureau of Investigation of the American Medical Association. In July 1937 J. E. Gessner of 207 North Michigan Avenue, Chicago, was reported



by the Federal Trade Commission to have agreed "to discontinue false and misleading advertising" in connection with the sale of an alleged treatment for piles.

When the government chemists analyzed Dr. Laun's Reducing and Stimulating Balm they found the nostrum to consist essentially of alcohol, water, camphor, tragacanth and epsom salt. Of course, rubbing such a mixture on the skin of a stylish stout would not reduce her weight—especially if she followed Gessner's suggestion that she "eat 3 square meals daily."

On Sept. 1, 1938, a fraud order was issued, closing the mails to Dr. Laun Sales Co. and its officers and agents as such.

On June 15, 1939, the Federal Trade Commission released stipulation No. 2480:

Joseph E. Gessner, trading as Dr. Laun Sales Company, 207 North Michigan Ave., Chicago, agrees to cease disseminating advertisements representing that "Dr. Laun's Reducing and Stimulating Balm," either with or without the application of massage, will remove fat from the body or any part thereof or that the preparation or any of its ingredients has any value as a reducing agent.

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Glandeen Tablets.—Lucky Heart Laboratories, Inc., Memphis. Composition: Extracts of plant drugs including damiana and nux vomica, with iron carbonate, coated with chalk and sugar. Fraudulently represented as a "powerful strength invigorator," to restore lost vitality or "lost manhood," etc.—[*N. J. 28311; September 1938.*]

Preacher's No-Ru Kidney Bladder Rheumatism Backache Remedy.—Lucky Heart Laboratories, Inc., Memphis. Composition: Essentially small amounts of potassium acetate, methenamine and extracts of plant drugs, with sugar and water. Fraudulent therapeutic claims.—[*N. J. 28311; September 1938.*]

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

POSTOPERATIVE PULMONARY COLLAPSE

To the Editor:—What is the best method of treating the following postoperative complication in the chest: A day or two after operation the chest fills up with bubbling rales, which may be audible at the foot of the bed. The respirations are accelerated and there is some peripheral cyanosis. The temperature is elevated (from 101 to 102 F.). A rasping wheeze is audible and a cough, which may be productive of a thick, tenacious, greenish yellow sputum, is present. Examination of the chest reveals only large bubbling rales (the appearance is similar to that seen in pulmonary edema). There is no evidence of consolidation. This complication has frequently occurred in my cases postoperatively. The last one was in a man aged 74 who had had a suprapubic cystotomy done under local anesthesia. He showed no evidence of any latent or evident cardiac condition or respiratory disorder prior to operation.

M.D., New York.

ANSWER.—The condition described suggests postoperative pulmonary collapse followed by temporary failure of the circulation, or perhaps the latter condition alone. The large bubbling rales may be caused by secretions in the larger bronchi or may indicate the presence of pulmonary edema.

If atelectasis is the cause, prevention is more important than treatment. After operation the patient should not be deeply narcotized; cough, unless excessive, should not be too greatly suppressed, and tight binders should not be placed about the chest or abdomen. The patient's position in bed should be changed frequently. Collections of secretion in the pharynx or larynx should be aspirated with a suction apparatus. It is important to keep the patient warm and well but not excessively supplied with fluids.

If atelectasis has already occurred, the patient should be rolled from side to side occasionally or should lie with the affected side up to facilitate drainage of secretion. Bronchoscopy and aspiration may be tried. A mixture of oxygen and 5 per cent carbon dioxide should be given by inhalation if the patient will not or cannot voluntarily breathe deeply. Oxygen therapy by nasal catheter or tent may relieve the tachypnea and cyanosis. If pulmonary edema is present, fluids should be restricted. Digitalis and so-called cardiac stimulants such as camphor or strychnine have no place in the treatment of this condition. Hypodermic injection of atropine sulfate 1.3 mg. (1/50 grain) and solution of epinephrine hydrochloride U. S. P. 0.5 cc. (8 minims) may aid in clearing the lungs of bubbling rales but may increase the tachycardia.

ASTHMA IN SMALL BOY

To the Editor:—A boy aged 3 years 4 months, has severe asthma. He is sensitive to a few foods as shown by skin tests, but avoidance of these foods does not eliminate the wheezing. He is not sensitive to any of the epidermals or pollens. However, his asthma is worse at night and when the wind is from the west. I would appreciate any help you could give me on further diagnosis or treatment. M.D., Illinois.

ANSWER.—The information given is insufficient for making even a tentative conjecture regarding the diagnosis. In general it may be said that infection seldom plays an important part as a primary cause of asthma in this age group. The important causes are the inhalants and the foods. A careful history is of utmost importance in the diagnosis. Such a history is more valuable if it is based on the attempt of interpretation of the various attacks over a period of months or longer.

Among the important factors to be studied are the seasonal or perennial nature of the complaint or exacerbations during any particular period of the year, the environmental contacts, as the furnishings of the bedroom, feathers, cottonseed (mattress), wool, toys and animal contacts, the environmental contacts in the rest of the house, occupational contacts of the parents, and environmental contacts about the house: factories, stables, barns. If it is confirmed by repeated observation that perennially the patient is worse when the wind blows from the west, what is located at a reasonable distance west of the home? If this effect is seasonal, pollen should be suspected.

The question of foods as a possible cause of the condition should be studied by means of a diet diary or elimination diet, as described in any of the current textbooks on allergy (Rowe, Tuft, Rackemann or Coca).

Regarding the negative skin reactions obtained, it is not indicated in the inquiry whether the tests were done by cutaneous or intracutaneous technic. The skin reactions at this age are, next to the history, of greatest importance. They are usually positive at this age but may require the intracutaneous technic for demonstration. Unless they have been performed in this manner, with materials known to be active, it cannot be said that the reactions were negative to the inhalants or pollens.

In cases in which these suggestions have been carried out without results, the room should be furnished in a manner to eliminate all environmental substances known to produce atopy. This may be done by encasing the pillows and mattress with rubberized material, sealing all seams. The furniture should not be upholstered but should consist of wood or cane, with no pads. Such substances as orris root, animal danders and wool (carpets, blankets) must be eliminated. Draperies and other accessories likely to gather dust should be removed. The child may then be kept in this room and clinical studies made by introducing the various suspected substances into the room one at a time during asthma free periods and the effects observed.

These are but a few suggestions for such study. Some of these problems are sufficiently difficult to defeat the efforts of the most carefully trained physician. However, the more one studies the history, the more likely will the result be successful.

POSSIBLE ARSENICAL HEPATITIS

To the Editor:—A white man aged 42, examined April 24, 1937, showed Kahn, Wassermann, Hecht-Gradwohl Wassermann and Laughlen tests positive 4 plus. A series of seventeen neoarsphenamine and seventeen bismuth injections were given, with severe reactions to the neoarsphenamine developing. These were followed by ten thio-bismol, six mapharsen, six bismuth and three tryparsamide injections. Because of severe reactions all arsenicals were discontinued in November 1937. Between that date and March 1939, forty-six injections of 0.2 Gm. of thio-bismol were given. Sept. 22, 1937, the Wassermann reaction was 4 plus and December 1 the Kahn reaction was 3 plus. Jan. 9, 1938, spinal puncture showed the colloidal gold curve negative, the Kahn reaction 2 plus, the Kline reaction 2 plus and the Rytz reaction negative. In September 1938 the blood Kolmer reaction was 3 plus. November 8, urinalysis was negative. The red blood count was 4,200,000, white blood count 10,400, hemoglobin 85 per cent, polymorphonuclears 75 per cent, lymphocytes 24 per cent. The Kahn reaction was 1 plus, cholesterol antigen 4 plus; Wassermann reaction weakly positive. Blood sugar was 94, blood urea 11, the icterus index 23, cholesterol 246, esters 132, 54 per cent. Total protein was 6.6, albumin 5.8, globulin 0.8, A/G 7.2. Spinal puncture gave a cell count of 0, globulin trace. The Levinson reaction was negative, colloidal gold curve 0000000000, cholesterol antigen and Wassermann reaction negative. Feb. 11, 1939, the bromsulphalein test resulted in less than 1 per cent retained in thirty minutes. With the galactose tolerance test, 0.5 Gm. was recovered in five hours. The icterus index was 6 as measured by extracting the serum with three volumes of absolute alcohol, refrigerating two hours, centrifuging and comparing with the dichromate standard. The physical examination at this time is entirely negative, with the exception of the slight jaundice. Is this jaundice, remaining fifteen months after the last dose of arsenic, due to arsenical hepatitis? What treatment is advisable at this time? HENRY G. HADLEY, M.D., Washington, D. C.

ANSWER.—The data supplied in this inquiry do not permit a definite answer of the questions asked. The reported tests of liver function are all within normal limits, so that it would seem advisable to have a serum bilirubin estimation made and at the same time determine the amount of carotene in the blood. It might be that the patient's color is not due to jaundice.

If the serum bilirubin estimation is within normal limits, further treatment for the syphilis should be limited to two courses of bismuth compounds during the coming twelve months, ten injections to the course, and after that further treatment for syphilis would seem inadvisable irrespective of the blood serologic reports. Special examination for evidence of syphilitic disease of the aorta and periodic reexaminations each six months should be made.

If the serum bilirubin indicates the presence of jaundice, the inference is then possible that the patient has had some liver damage, probably from the arsenic, in which case all treatment for syphilis should be stopped. A high sugar and a low protein diet with reexamination every month or six weeks would be advisable. Most of the patients with postarsphenamine jaundice recover completely; if, however, the continued use of heavy metal such as bismuth does not help the involution, treatment for syphilis in such cases should be discontinued.

CEREBROSPINAL VASCULAR SCLEROSIS OR THE TABETIC FORM OF DEMENTIA PARALYTICA

To the Editor:—A white man aged 79 complains of incontinence and inability to walk. He has had some weakness during the past year. Two months ago he suddenly lost the ability to get up from a sitting position and was unable to walk unassisted. In bed at that time he became incontinent. After about a month he regained some control of the bladder and could walk without assistance. At no time has he been paralyzed. Muscle power seemed normal. He got along fairly well for several weeks, only to become bedridden again with the same complaints. The patient is unable to stand unassisted; his speech is disoriented occasionally and the family reports an antagonistic accusation attitude. All arm and leg muscles have normal power and there is no paralysis of the facial or any other muscles. There are no tremors. The radial reflex is the only positive reflex. Abdominal, biceps, patellar and plantar reflexes are normal. There is no clonus. Pressure, pain and temperature sense are intact. He is blind in the left eye. The right eye has a purulent discharge and remains closed for the most part, with only slight vision. He has had chronic ulceration in the nasal corner of the right eye for sixteen years. The fundi cannot be examined owing to lack of cooperation; the disks cannot be seen; the entire fundus seems red; the vessels are hard to discern. The patient complains of pain in the epigastrium and over the precordium. The blood pressure is 160 systolic, 80 diastolic; the pulse is 72, heart sounds are faint, only the aortic sounds being audible, and are normal, and there is no evidence of arteriosclerosis in the palpable arteries. There is tenderness in the epigastrium. The patient has no desire for food. I have not yet received an answer as to his Wassermann reaction. Would you discuss this case with the probable diagnosis or further aids to a proper diagnosis?

M.D., Maryland.

ANSWER.—From the history, which has a number of variable and unusual combinations of signs and symptoms, two conditions are suggested: One is cerebrospinal vascular sclerosis and the other is the tabetic form of dementia paralytica. If there is normal muscle power, there must be some evidence of defects of deep sensibility such as sensory ataxia and abnormality of bone and joint position and vibration sense. If the latter is present the patient has cerebrospinal syphilis of the tabetic type. It is possible and probable that the patient also has cerebral and spinal arteriosclerosis. This may result in a picture of pseudobulbar palsy. It is suggested that the following be done: reexamine the patient for sensory defects such as bone and joint position, vibration, touch, pain and temperature functions; dilate the pupils and examine the optic nerve heads. If there is a primary optic atrophy one can be fairly confident that one is dealing with the tabetic form of dementia paralytica. However, if retinal sclerosis is found with secondary atrophy the patient has arteriosclerotic atrophy causing the blindness. A cystoscopic examination should be done to determine the presence of a cord bladder. What is meant by disorientation in speech? Does the man have motor or sensory aphasia or both? The latter usually occurs in arteriosclerotic and hypertensive diseases of the brain and rarely if ever in the tabetic form of dementia paralytica.

ABSENT TEETH

To the Editor:—I was interested in a query headed "Absent Teeth and Delayed Dentition in Baby" in THE JOURNAL, February 25, page 766, because of the patient I saw at my office about this age. The child was brought in with the same complaint. Physical examination was negative in every way except for the absence of eyelashes and teeth. Because of the unusually narrow gingival margin, I took roentgenograms of the jaws and found the presence of only four tooth buds. That was five years ago, and since then the child has shown the presence of only four teeth. I am wondering whether the case presented to you by the doctor from Virginia is similar in character. In looking up the literature I found no case in which the absence of teeth has been diagnosed before the appearance of some of the teeth, but in the English literature there are a few cases reported which were discovered after the eruption of some of the teeth.

ABBOTT L. WINOGRAD, M.D., Nashua, N. H.

ANSWER.—The child mentioned in this query who as an infant showed only four tooth buds in the roentgenogram of the jaws and five years later has only four teeth, and in whom the absence of eyelashes is also noted, probably belongs to the group of cases collected under the title "hereditary ectodermal dysplasia." In the February 25 query it is noted that "x-ray examination of the skull shows unerupted teeth present. The film was not a good one." This information was rather indefinite, but by inference it was supposed that the tooth buds were present and that actual dentition was simply tardy. In the "hereditary ectodermal dysplasia" group there is frequently seen, along with the lack of development of most all of the teeth, other ectodermal defects, particularly of the skin, hair and nails, and there may even be absence of sweat glands. The absence of the eyelashes as noted in this query would make one suspect that this case belonged in that group. Kerley has recently reported such a case in which there was complete absence of all teeth. Several references related to this group are here listed:

Weech, A. A.: Hereditary Ectodermal Dysplasia, *Am. J. Dis. Child.* **37**: 766 (April) 1929.
Kerley, C. G.: Hereditary Ectodermal Dysplasia, *Arch. Pediat.* **55**: 211 (April) 1938.
Stein, J. L., and Gerber, Alexander: Congenital Absence of Teeth, *J. Pediat.* **13**: 547 (Oct.) 1938.

DISINFECTION OF THE SKIN

To the Editor:—Is it safe, after thorough scrubbing of the hands and arms and rinsing in sterile water, to immerse the hands and arms in compound solution of cresol? If so, what strength should be employed in preparation for an abdominal operation? The person in question is sensitized to both mercury bichloride and alcohol and seeks another safe means for preparation of the hands and arms.

M.D., Pa.

ANSWER.—Compound solution of cresol has strict limitations as a germicidal agent. With pure cultures of bacteria in vitro it may give good results but it cannot be relied on to disinfect the skin. On the skin it destroys "transient" bacteria readily but is much less effective against the "resident" bacteria. For discussion of these terms see the article by Philip B. Price (THE JOURNAL, Nov. 26, 1938, p. 1993).

Seventy per cent by weight alcohol is probably the most effective of available reagents for disinfecting the hands and arms. It is noted that in the inquiry the person in question is sensitive to alcohol. Most persons who regard themselves sensitive to alcohol base this opinion either on the use of 95 per cent alcohol or on the use of alcohol denatured by some irritating substance. It is suggested that the inquirer try 70 per cent by weight alcohol made with pure ethyl alcohol or alcohol denatured by the addition of boric acid only.

REFRIGERATOR GASES AND EYES

To the Editor:—Could you give me any information concerning antidotes used in the eyes against the various chemicals employed in electric refrigerators?

E. O. ALVIS, M.D., Indianapolis.

ANSWER.—Two chemical refrigerants, namely ammonia and sulfur dioxide, stand out as the chief sources of injury to the eyes. In addition to chemical action, actual freezing of a portion of the eye may result from a tiny jet of the chemical spurting into the eye. Ulceration may ensue in which chemical action may have a part. For the usual inflammatory injury to the eyes from ammonia, sulfur dioxide or conceivably the decomposition products of organic refrigerants, the immediate treatment is essentially the same. It is highly desirable that the injured eye be immediately and copiously laved with water. This may be followed by the introduction of saturated solution of boric acid. If pain is severe, the use of a local anesthetic such as 0.5 per cent solution of pontocaine hydrochloride is indicated. Thereafter, application of olive oil or some similar oil is desirable. Carbon dioxide is not known to produce injuries to the eyes except those resulting from freezing. A report by the Committee on Poisonous Gases was published in THE JOURNAL **94**:1832-1838 (June 7) 1930.

CHRONIC GONORRHEA AND SPERMATORRHEA

To the Editor:—A patient who had gonorrhea seven months ago seems cured so far as the urethra goes. In the last two months he has urinated a little too frequently in the daytime but rarely gets up nights to pass urine. There is a little burning. After having a stool he has developed the habit of pressing down as if to press more from the rectum but no stool passes; instead, a fluid passes from the urethra which looks a little like semen but shows no pus cells and few spermatozoa. I recognize nothing wrong in the prostate or in the seminal vesicles and analysis of the urine is negative. There are no strictures. I am wondering whether this is vesiculitis or a habit brought on by introspection. Can you suggest something that might help me clear the diagnosis—possibly a textbook.

M.D., Illinois.

ANSWER.—With the presence of frequency of urination and burning, it might be well to check the patient's prostate and seminal vesicles again by massage to make sure that the strippings are free of pus under the microscope. It is possible that the patient has a latent prostatitis or seminal vesiculitis—the remnants of the gonorrheal infection. Rectal examination is not sufficient in cases of this kind; therefore the prostate and vesicles should be stripped and the strippings examined. If the first examination is negative, two or three examinations should be made. If pus is found, the usual treatment such as massage, sitz baths and hot rectal irrigations is indicated. It might be

well to subject the patient to cystoscopy to rule out a lesion in the bladder, although this condition probably is remote.

It is possible that the patient has spermatorrhea. According to the statement made, he has developed the habit of "pressing down"; this pressure might act like massage and express the fluid from the seminal vesicles. The thing for the patient to do is to stop this habit of "pressing."

This subject is amply discussed in any of the standard textbooks on urology, such as those by Hinman, Keyes, Hermann, Hugh Cabot or Hugh Young.

SEROSANGUINEOUS DISCHARGE FROM UMBILICUS

To the Editor:—A girl aged 17 began last October having a serosanguineous discharge from the umbilicus four days after a regular menstrual period. The duration of the discharge is usually about fourteen days and it has occurred after every menstruation since the onset. The umbilicus has been examined repeatedly by myself and others, but no external opening can be found. The dressing has been sealed down over the umbilicus both with adhesive tape and with collodion, and always there is the same discharge on the dressing when it is changed. She states that on one occasion while this was going on she passed some blood in the urine. She was given methylene blue tablets and about forty-eight hours later a definite bluish tinge was found on the dressings on the umbilicus. She was roentgenographed after the bladder was filled with about 450 cc. of sodium iodide and the roentgenogram revealed a perfectly normal bladder without any connection with the umbilicus. Cystoscopic examination was also negative. No masses or swellings can ever be found about the umbilicus, and the pads, which are sometimes heavy with the discharge, do not have any odor. The patient has normal bleeding and clotting times and her blood picture is perfectly normal. In view of the fact that the bladder has been roentgenographed to rule out any connection with the umbilicus, that is, a patent urachus; that methylene blue stain was found on the pad after having been given by mouth; that there is no swelling around the umbilicus which would possibly signify an endometrial tumor; that there is no external opening for this discharge to come through, and since it has been sealed up to my satisfaction that the bloody discharge is not being put there from some other source, I would appreciate some help on this case. Am I dealing with some form of neurosis? Is it possible for this discharge to get through the skin without an external opening? Is methylene blue found in bloody discharges without any connection with the bladder? What else can I do to arrive at a diagnosis of this puzzling condition? Thank you for any help that you may be able to give me as to literature on similar conditions or as to suggestions on the best methods in handling this condition. W. C. MITCHELL, M.D., Smyrna, Ga.

ANSWER.—This is indeed a puzzling case. There appear to be two separate conditions. In spite of the absence of a palpable tumor at the umbilicus there is most likely an area of endometriosis on the peritoneal surface of the umbilicus or near it. Even though no opening is visible in the umbilicus, there is almost certainly a tiny opening present, if not at all times then only at the time when the serosanguineous discharge appears at the umbilicus. Otherwise it is impossible to explain a blood-tinged discharge after each menstrual period. Since no mention is made of any abdominal operation or any adhesion between the uterus and the abdominal wall, there is almost certainly no direct connection betwen the uterus and the umbilicus.

The presence of methylene blue at the umbilicus after the ingestion of this substance by mouth signifies that there is a connection betwen the urinary tract and the umbilicus. This may be a patent urachus.

The patient should have a complete study made of the urinary tract, including an intravenous pyelogram, and perhaps also instillation of methylene blue in the bladder to see whether any will appear at the umbilicus.

The entire case is puzzling, and the physician should make certain that the patient is not malingering. The greatest authority on the umbilicus is T. S. Cullen, whose monumental book "The Umbilicus" should be studied for additional information.

TISSUE CHEMISTRY AND AGE

To the Editor:—Osler has been quoted to the effect that aging is a process of increasing tissue acidosis. Is there any chemical proof of this? Have any comparative studies been made of the *p*H of tissue and blood, calcium phosphorus ratio, alkali reserve, and the like in childhood, youth, maturity and old age? B. A. FEDDE, M.D., Brooklyn.

ANSWER.—There is no good evidence that increased tissue acidosis goes hand in hand with increased age. Extensive comparative studies on tissues and blood at different ages do not appear to have been made. In general, with increased age there is a tendency to a lower content of water in nerve tissue and probably also in other tissues. The serum of adults contains higher concentrations of proteins than that of infants. The blood volume also increases per square meter of body surface area, with an increase up to adult age. However, the blood volume per kilogram of body weight decreases as adulthood is reached. None of these changes would lead to a decrease in alkali reserve.

LATE CLOSURE OF FONTANELS

To the Editor:—Will you kindly answer the following questions: 1. Is it true that the poet Dryden's fontanel did not close until he was 27 years old? 2. Are there other such examples of the late closing of the fontanel? 3. Does it indicate anything other than a probable case of rickets? 4. Could late closure of the fontanel be associated with some other condition—congenital syphilis, for example—which would impair mentality or distort personality? 5. What would be the present day treatment for such a condition? 6. Is there any one who makes a hobby of seventeenth century medicine?

CLARENCE W. LIEB, M.D., Tucson, Ariz.

ANSWER.—1. After considerable search in various libraries no information could be obtained as to the failure of the poet Dryden's fontanel to close until he was 27 years old. 2. In a cretin the fontanel may remain open beyond the usual time of closing, which is eighteen months; however, failure of closing of the fontanel after the twenty-fifth year must be an extremely rare condition. 3. Rickets delays ossification of normally formed cartilage. In severe renal rickets the fontanel does not remain open for any considerable length of time beyond that of normal closure. 4. Congenital syphilis is not usually associated with the late closing of the fontanel; this could, however, impair mentality or distort personality, as there are well authenticated cases of juvenile dementia praecox reported. 5. Present day treatment would depend on correct diagnosis. 6. There are probably some men who have made a hobby of seventeenth century medicine.

ASTHMA AND HERNIOTOMY

To the Editor:—A patient with chronic asthma (chronic allergic bronchitis) has developed an indirect inguinal hernia. Can you give me data on herniorrhaphy in asthmatic patients with regard to mortality and end results? WALTER I. WERNER, M.D., Albuquerque, N. M.

ANSWER.—There are two factors to be considered in reply to this query. One is the effect of a hernia operation on the asthmatic state and the other is the effect of the asthma on the herniotomy. In the majority of patients with asthma the asthmatic condition adds but little hazard to the surgical operation. There is a possibility, of course, of pulmonary complications, particularly massive pulmonary atelectasis. This can be minimized by the avoidance of preoperative and postoperative use of morphine and by hyperventilation of the lungs immediately after the operation. Local anesthesia also diminishes that possibility. On the other hand, operative procedures frequently have a beneficial effect on the asthmatic state for a period varying from a few weeks to a few months. The asthma itself with the chronic cough, of course, will add some increased possibility of a recurrence of the hernia. No statistical data with special reference to end results and mortality rate of herniorrhaphy in asthmatic individuals have been found.

SMALLPOX VACCINATION TECHNIC

To the Editor:—One of our best medicos here, who enjoys being different, is advising his patients to return six or seven days after being vaccinated to have the "blister" picked and dressed. It looks surgically sound to me. I would appreciate a discussion of this question in Queries and Minor Notes. M.D., Texas.

ANSWER.—The practice of treating the vesicle formed after vaccination for smallpox by surgical manipulation and dressing is not recommended by the various authors contributing authoritative essays on the subject. This procedure is not included in the manual of the United States Public Health Service under the description given for the technic and directions for vaccination against smallpox.

PETIT MAL

To the Editor:—In your issue of April 29, page 1752, there is a letter on petit mal I would like to express my disagreement with the statement that "petit mal epilepsy does not respond to any drug treatment." I have seen a number of patients who were much benefited by phenobarbital and recently I have seen very gratifying results from the use of diphenylhydantoin. In some cases in which neither drug worked alone, the use of three small doses of diphenylhydantoin during the day and one dose of phenobarbital at night had a conspicuously beneficial effect. I agree that in children the ketogenic diet is often better than drugs.

The term "pyknolepsy" is in my opinion overrated as an entity. I do not believe that it is anything more than a subvariety of epilepsy. One cannot divide these clinical types of seizures into anything like as simple a classification as grand mal, petit mal, pyknolepsy and equivalents. There are all sorts of intergradations between these four, and the arbitrary division obscures the biologic significance of the interrelationships.

Incidentally, there has recently been a tendency to use the term "petit mal epilepsy." I might point out that petit mal is always epilepsy, so the latter word is redundant. STANLEY COBB, M.D., Boston.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, June 17, page 2557.

STATE AND TERRITORIAL BOARDS

ARIZONA: Phoenix, July 5-6. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: *Written examinations.* San Francisco, July 10-13, Los Angeles, Aug. 7-10, and Sacramento, Oct. 16-19. *Oral examinations* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, August 7, and San Francisco, Nov. 15. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO. Denver, July 10-12. Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Medical (Regular).* Hartford, July 11-12. *Endorsement.* Hartford, July 25. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, July 11-12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, July 11-13. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 26-27. *Medical.* Washington, July 10-11. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

HAWAII: Honolulu, July 10-13. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

IDAHO: Boise, Oct. 3-4. Dir., Bureau of Occupational License, Mr. H. B. Whittlesey, State Capitol Bldg., Boise.

ILLINOIS: Chicago, Oct. 17-19. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

IOWA: *Basic Science.* Des Moines, July 11. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, State Department of Health, Capitol Bldg., Des Moines.

MAINE: Augusta, July 11-12. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, July 11-13. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MONTANA: *Reciprocity.* Helena, Oct. 2. *Examination.* Helena, Oct. 3-4. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: *Basic Science.* Lincoln, Oct. 3-4. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, 1009 State Capitol Bldg., Lincoln.

NEVADA: *Reciprocity and oral examination.* Carson City, August 7. Sec., Dr. John E. Worden, 311 W. Robinson St., Carson City.

NEW HAMPSHIRE: Concord, Sept. 14-15. Sec., Board of Registration in Medicine, Dr. T. P. Burroughs, State House, Concord.

NEW MEXICO: Santa Fe, Oct. 9-10. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York, and Syracuse, June 26-29. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, State Education Department, Albany.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OKLAHOMA: Oklahoma City, Dec. 13. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Corvallis, July 8, and Portland, Oct. 28. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: *Written.* Philadelphia and Pittsburgh, beginning July 5. *Bedside.* Philadelphia, July 7-8. Dir., Bureau of Professional Licensing, Dr. James A. Newpher, 358 Education Bldg., Harrisburg.

PUERTO RICO: Santurce, Sept. 5. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

RHODE ISLAND: Providence, July 6-7. Sec., Dr. Robert M. Lord, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 27. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 18-19. Director, Medical Licensure, Dr. G. J. Van Heuvelen, State Board of Health, Pierre.

UTAH: Salt Lake City, June 26-28. Dir., Department of Registration, Mr. G. V. Billings, 326 State Capitol Bldg., Salt Lake City.

WEST VIRGINIA: Bluefield, July 5. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: Milwaukee, June 27-30. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

Illinois April Examinations

Mr. Homer J. Byrd, superintendent of registration, Illinois Department of Registration and Education, reports the written examination (graduates of foreign schools given also a practical test) held in Chicago, April 11-13, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Thirty-nine candidates were examined, thirty-four of whom passed and five failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1938)	78, 87,* (1939) 80, 82, 82, 83, 83, 84, 85, 87
Rush Medical College		(1937)	80, 84, (1938) 83, 85
University of Illinois College of Medicine		(1937)	81, 85, (1938) 83
Harvard Medical School		(1932)	80
University of Minnesota Medical School		(1937)	83
Jefferson Medical College of Philadelphia		(1937)	86
University of Pennsylvania School of Medicine		(1937)	84
Marquette University School of Medicine		(1936)	79
University of Toronto Faculty of Medicine		(1928) (1936)	82, 89
University of Western Ontario Medical School		(1937)	84
Medizinische Fakultät der Universität Wien		(1923)	78
Friedrich-Wilhelms-Universität Berlin		(1922)	75
Ludwig-Maximilians-Universität Medizinische Fakultät, München		(1924) (1936)	78, 81
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn.		(1938)	81
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1933)	76
Universität Bern Medizinische Fakultät		(1937)	76,* 82

School	FAILED	Year Grad.
Medizinische Fakultät der Universität Wien		(1936)
Univerzita Komenského Fakulta Lekárska, Bratislava		(1934)
[illegible] Medizinische Fakultät, Freiburg		(1922)
[illegible] Fakultät		(1922)
[illegible] Roma. Facoltà di Medicina e Chirurgia		(1937)

Eighteen physicians were successful in the practical examination for reciprocity and endorsement applicants held in Chicago, April 13. The following schools were represented:

School	PASSED	Year Grad.	Reciprocity with
Rush Medical College		(1937)	Louisiana
Indiana University School of Medicine		(1933)*	Indiana
State University of Iowa College of Medicine		(1931)	Iowa
University of Kansas School of Medicine		(1927)*	Kansas
Harvard Medical School		(1934)	Penna.
Wayne University College of Medicine		(1935)	Michigan
University of Minnesota Medical School		(1934), (1937)	Minnesota
St. Louis University School of Medicine		(1933), (1936)	Missouri
Washington University School of Medicine		(1932)	Missouri
Western Reserve University School of Medicine		(1937)	Ohio
Meharry Medical College		(1937)	Tennessee
University of Tennessee College of Medicine		(1937)	Tennessee

School	PASSED	Year Grad.	Endorsement of
College of Medical Evangelists		(1935)	N. B. M. Ex.
Northwestern University Medical School		(1938)	N. B. M. Ex.
Rush Medical College		(1937)	N. B. M. Ex.
Medical College of the State of South Carolina		(1936)*	N.B.M.Ex.

*License has not been issued.

Maine March Examination

Dr. Adam P. Leighton, secretary, State of Maine Board of Registration of Medicine, reports the written examination held at Portland, March 14-15, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Twelve candidates were examined, ten of whom passed and two failed. Two physicians were licensed by reciprocity and one physician was licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Boston University School of Medicine		(1937)	81
Harvard Medical School		(1936)	82
Tufts College Medical School		(1922) (1938)	79, 78
University of Michigan Medical School		(1937)	83
University of Minnesota Medical School		(1937)	85
University of Rochester School of Medicine		(1937)	82
Hahnemann Medical College and Hospital of Philadelphia		(1938)	81
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1935)	78
Universität Basel Medizinische Fakultät		(1937)	81

School	FAILED	Year Grad.	Per Cent
Georg August-Universität Medizinische Fakultät, Göttingen		(1919)	74
National University of Athens School of Medicine		(1935)	53

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Tufts College Medical School		(1936)	New Hamp.
Regia Università degli Studi di Roma. Facoltà di Medicina e Chirurgia		(1936)	Maryland

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Pennsylvania School of Medicine		(1934)	N. B. M. Ex.

Missouri Reciprocity and Endorsement Report

Dr. Harry F. Parker, secretary, State Board of Health of Missouri, reports seven physicians licensed by reciprocity and one physician licensed by endorsement at the meeting held in Excelsior Springs, April 10, 1939. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1930), (1937)	Arkansas
Rush Medical College		(1934)	W. Virginia
Tulane University of Louisiana School of Medicine		(1937)	Louisiana
University of Tennessee College of Medicine		(1936), (1937), (1938)	Tennessee

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
St. Louis University School of Medicine		(1935)	N. B. M. Ex.

Book Notices

English, German, French, Italian, Spanish Medical Vocabulary and Phrases. By Joseph S. F. Marie. Foreword by Chevalier Jackson, M.D., Sc.D., LL.D., Honorary Professor of Broncho-Esophagology and Consultant in Broncho-Esophagologic Research, Temple University School of Medicine, Philadelphia. Cloth. Price, $3. Pp. 358. Philadelphia: P. Blakiston's Son & Co., Inc., 1939.

Here is the kind of book that has been wanted by many physicians, namely an English, German, French, Italian and Spanish medical vocabulary with useful phrases. Dr. Chevalier Jackson says that it makes him sad to think of the thousands of weary hours that he might have saved had he had a book of this type available. In alphabetical form the book lists some thousands of terms in English with German, French, Italian and Spanish equivalents. At the end, as supplements, there are sections on pronunciation and also a series of phrases such as might be needed by the physician in making an examination or in giving directions.

Valutazione biologica dei medicamenti. Dal Dott. Prof. Giulio Buccardi del *Laboratorio Farmacologico Dr. Recordati, Correggio.* Cloth. Price, 120 lire. Pp. 561, with 70 illustrations. Florence: G. C. Sansoni, 1938.

It is perfectly correct, as stated by Dr. Recordati in his introducation to this book, that "We need not only in Italy but elsewhere a manual which contains practical descriptions in detail of the methods for the bio-assay of medicinal preparations." This is especially true of a book on the subject so thoroughly abreast of the times as this one. It is most interesting to note that the bio-assay of drugs, which until recent years was the chief concern of books on this subject, occupies merely one fourth of this book. The rest is taken up with the bio-assay of hormones, vitamins and antiserums. Very valuable also is the "general part," which includes a discussion of equipment for bio-assay, general directions for it, and a brief exposition of statistical methods as applied to it. Our Italian confrères are to be congratulated on the possession of this book, the acquisition of which can be unreservedly recommended to bio-assay laboratories in other parts of the world, even if they need to engage a translator.

Report of the Medical Research Council for the Year 1937-1938. Presented by the Lord President of the Council to Parliament by Command of His Majesty February 1939. Paper. Price, $1.05. Pp. 221. New York: British Library of Information; London: His Majesty's Stationery Office, 1939.

It is impossible to do justice in the space available to the extensive field of investigation covered by this report. Actual promotion of specific research by the Medical Research Council is usually done by appointment of individuals to the permanent staff. Such appointments depend on the subject which seems to require special attention and on the merits of the persons chosen. When once appointed, an individual has wide liberty of action in planning investigation. The council seldom chooses particular diseases for investigation but it designed to include the study of etiologic factors common to a group of diseases, a type of treatment of wide application or a system of physiologic or biochemical control. Examples now under investigation are virus diseases, endocrinology and chemotherapy. Another part of the work of the council consists of personal and expense grants, the initiative in choice of subject and method of investigation lying with the head of a laboratory or hospital or with the worker himself. An important duty of the Medical Research Council since its beginning has been to help government departments confronted with immediate problems of health and disease. The National Institute for Medical Research has a large staff at work on important investigations related to virus diseases, transmissible tumors, lung cancer and dust, chemotherapy, endocrinology and other broad problems. The Institute for Medical Research also carries out extensive work on the standardization of biologic products in a manner in some respects similar to that of the U. S. Bureau of Standards. There are a number of clinical research units staffed and supported by the council in several recognized institutions. All these have been producing important investigation for a considerable period and include such well known units as the Clinical Research Unit, Guy's Hospital and the Department of Clinical Research at the University College Hospital, London, under the direction of Sir Thomas Lewis. The council has also made an important contribution by grants-in-aid for medical research and is active in research in tropical medicine and in industrial health. In all, the report reflects many of the advantages of centralized direction without dictation of actual research problems. It may be recommended to the careful perusal of all those interested in the advance of scientific medicine.

Thus We Are Men. By Sir Walter Langdon-Brown, M.A., M.D., LL.D., Consulting Physician to St. Bartholomew's Hospital, London. Cloth. Price, $3.50. Pp. 344. New York: Longmans, Green & Co., 1939.

Among the most erudite and clever of British writers in the field of medicine today is Sir Walter Langdon-Brown, emeritus professor of physic and fellow of the Corpus Christi College in the University of Cambridge. This series of lectures comprises such important addresses as the Maudsley, the Cavendish and the Sir Charles Hastings memorial lecture. There are also the contributions to the Harveian Society, the Abernethian Society and the Osler Club. Every one of the essays is thought provoking and mentally stimulating. There are many quotable paragraphs. For example, "In disease of the body the higher levels which develop last suffer first, for they have not had time to acquire such a firm hold on the instincts of the organism as the lower. In the same way the body politic evolves its higher levels later than the individuals composing it. A committee is always more ready to perpetrate an injustice than its individual members would be."

The first lecture, on "The Biology of Social Life," reveals a penetrating analysis of present international relationships from the biologist's point of view. In the essay entitled "The Return to Aesculapius" there are some profound thoughts on the basis for quackery. Here are some interesting concepts regarding Christian science and osteopathy. The author's reading has been wide and he seems familiar with the important notes from here and there throughout the world.

The biographic essays which concern Osler and Robert Bridges are inspiring, and there is a chapter on "The Psychology of Authorship" which reveals an erudition far beyond that of most physicians. Unusual is the essay on "The Evolution of Death," and the final essay, "Retrospect," ends with the following philosophy: "It is sometimes well to realize, as life goes on, that we must leave things to younger men to accomplish. We may see a new truth but be too set in our ways to ensue it. It is well to be able to say 'The life to which I belong uses me and will pass beyond me, and I am content.'"

The Evolution of Obstetric Analgesia. By Andrew M. Claye, M.D., F.R.C.S., F.C.O.G., Professor of Obstetrics and Gynaecology, University of Leeds. With a chapter by W. Stanley Sykes, M.A., M.B., B.Ch., Honorary Anaesthetist, General Infirmary at Leeds. Cloth. Price, $2. Pp. 103, with 5 illustrations. New York, Toronto & London: Oxford University Press, 1939.

The author wrote this book because "no English volume solely on the subject has stressed its historical aspect." He discusses the two main landmarks, the introduction of ether and chloroform into obstetrics by Simpson and the elaboration of twilight sleep by Gauss. Likewise he expresses his own ideas concerning the scopolamine-morphine technic, which he learned from Gauss in Würzburg in 1931. There are also chapters on scopolamine amnesia, the barbiturates and more inhalation anesthetics, nitrous oxide and ethylene, the last written by W. Stanley Sykes. Claye says "We have on my suggestion aimed at giving some form of analgesia to every patient in labor. . . . This, as regards inhalation anesthetics, is carried out almost entirely by medical students and . . . the work has been in the great majority of cases conscientiously and efficiently done." In the United States, medical students are rarely permitted to give inhalation anesthetics. Claye further remarks "I think . . . it is much safer for the doctor to give the anesthetic, which he should be competent to do, and for the nurse to take the delivery, which she should be competent to do. The reverse process is not uncommon." Of course the author refers to nurses who have had good training in obstetrics and who are nurse midwives. In this country inhalation anesthetics are nearly always administered by doctors or nurses who are especially trained in inducing anesthesia. This small book contains nothing new.

Apparently the author regards Gauss as of equal importance with Simpson in the field of obstetric analgesia and anesthesia (he uses these terms interchangeably). He includes photographs of both men. The chapter on twilight sleep, which contains Gauss's name innumerable times, is longer than the chapter devoted to Simpson.

Out of the Running. By G. Gertrude Hoopes. With a foreword by Edgar A. Doll, Ph.D., Director of the Department of Research, The Training School at Vineland, New Jersey, and with clinical notes by Winthrop M. Phelps, M.D., Director of the Children's Rehabilitation Institute, Inc., Baltimore. Cloth. Price, $2. Pp. 158, with 4 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1939.

Gertrude Hoopes is in many ways far from being "out of the running," though she is severely handicapped by infantile cerebral palsy. Practically unable to walk, she gets about on a specially constructed tricycle; unable to talk, she has evolved a shorthand sign language and joins conversations by pointing to letters of the alphabet. Despite her handicaps, she has lived a very active life and has enjoyed the friendship of many cultured and prominent persons. Throughout the book one is continually reminded that through her religious faith she was able to conquer feelings of depression and morbidity which would assail her when she contemplated how different her life was from that of the normal person. So strong were these feelings that on two occasions she attempted suicide, but so strong has her belief in religion become that never since has the thought of suicide troubled her. Infantile cerebral palsy is the most neglected of all crippling conditions, and the goal in working with handicapped persons is to educate and train them so that they may return to society and find a place in life. It evidently has not been necessary for Miss Hoopes to earn her own living, but if it were she could probably develop her writing ability to the extent of becoming financially independent. It is regrettable that Miss Hoopes has not included a purely objective chapter in her book. It is partially the objective treatment of Helen Keller's life that makes her biography remarkable, since it shows definitely how the blind and deaf may overcome their handicaps and become useful citizens. When medicine and surgery fail to aid the blind and the deaf, special education steps in to help them cross the physical barriers. Neither surgery nor medicine has contributed a great deal to Miss Hoopes's happiness. Her physical barriers have been crossed by her determination and refusal to become discouraged and by her ingenious devices, such as the tricycle and her clever method of carrying on a conversation. Her story therefore should arouse a greater interest in promoting special education in cases of infantile cerebral palsy.

The Chemistry of the Carbon Compounds. By Victor von Richter. Edited by the late Prof. Richard Anschütz. Volume II: The Alicyclic Compounds and Natural Products. Translated from the XIIth German edition and revised by T. W. J. Taylor, M.A., Fellow and Tutor of Brasenose College, Oxford, and A. F. Millidge, Ph.D., B.Sc. Third edition. Cloth. Price, $15. Pp. 656. New York: Nordemann Publishing Company, Inc.; Amsterdam: "Elsevier," 1939.

This volume will be welcomed not only by the investigator in chemistry but also by many others, particularly as a source of information on chemistry. It is a companion to volume I and, like it, needs no introduction to the chemist. The scope of the volume is broad, correlating an enormous amount of organic material, including the alicyclic series and natural products, such as glucosides, natural coloring substances, vitamins and hormones.

Registro e interpretación de la actividad cardíaca. Por Oscar Orías, professor de fisiología y director del Instituto de fisiología de la Facultad de ciencias médicas de Córdoba (República Argentina). Third edition. Paper. Pp. 199, with 81 illustrations. Buenos Aires: Librería y editorial "El Ateneo," 1939.

This excellent short, beautifully illustrated monograph on the graphic methods of recording the heartbeat has had a deserved popularity, as evidenced by a third edition in a few years. The material is based in part on the work of Wiggers and his school, which includes the author, and in part on the further work which the author did on his return to South America. The material is presented in its application to clinical conditions. It is encouraging to know that such fundamental work is being disseminated among the Spanish speaking members of the medical profession.

Clinical Bacteriology. By F. A. Knott, M.D., M.R.C.P., D.P.H., Director, Bacteriological Department, Guy's Hospital. Cloth. Price, $4.50. Pp. 426, with 60 illustrations, including 12 plates. Philadelphia: P. Blakiston's Son & Co., Inc., 1939.

This small book was written for the purpose of impressing the reader with the clinical significance of bacteriologic phenomena. There are no references to the literature in the text, and the public health aspects represent the practices in Great Britain rather than those in this country. There are many inaccuracies in the book. For example, in the discussion on tularemia the author states that "the disease has so far been met with only in America." Tularemia was reported in Japan in 1925, Russia in 1928, Norway in 1929, Sweden in 1931 and Austria in 1935. The last chapter deals with normal flora of the body. An appendix includes material on bacteriologic culturing, staining and serologic methods and the preparation of bacterial vaccines and two pages on fungous infections. The illustrations and plates are excellent. This book can be recommended for the physician's library but is inadequate for the medical student.

Die Arzneikombinationen. Von Professor Dr. Emil Bürgi. Paper. Price, 12 marks. Pp. 169, with 28 illustrations. Berlin: Julius Springer, 1938.

The author quotes an ancient Babylonian inscription, "To give a medicine the desired quality, it must be combined of at least two active substances that through suitable quantitative relations antagonize each other's harmful effects while they mutually increase their desired action." It remained for Bürgi, the author of this book, to codify this 4,000 year old proposition and to publish it in 1909 in the form of his well known "law" or, better, rule, which may be formulated thus: Substances that have the same final effect have, when combined, additive action if they have the same point of attack and a superadditive effect when they have a different pharmacologic mode of action. This rule is true not only of drugs but also of nonmedicinal measures and of combinations of these two, e. g. mountain climate and iron in the treatment of anemia. In the present book the author discusses under the various therapeutic headings the facts and the literature that have accumulated proving the validity of his "law." To all who are interested in efficient therapy this book can be highly recommended. It is indispensable for teachers of pharmacology and therapeutics.

***Olla Podrida*: Piquant Spanish Dishes from the Old Clay Pot.** By Elinor Burt. Cloth. Price, $3. Pp. 277. Caldwell, Idaho: Caxton Printers, Ltd., 1938.

With many Americans, enjoyment of Spanish cooking is more of a novelty than a fad. The author of this volume has had cooperation from many leading experts in the development of the book, including Spanish students, and has had also a year of work in the Bureau of Home Economics in Washington, D. C. The book contains not only brief essays discussing the nature of the special cooking of Spanish, Mexican, Creole and Latin-American types but also a number of interesting recipes.

Chemical Analysis for Medical Students: Qualitative and Volumetric. By R. E. Illingworth, Ph.D., B.Sc., Lecturer in Chemistry, School of Medicine of the Royal College, Edinburgh. With a foreword by G. Barger, ScD., LL.D., F.R.S., Regius Professor of Chemistry, University of Glasgow, Glasgow. Cloth. Price, $1.50. Pp. 152, with one illustration. Baltimore: William Wood & Company, 1938.

For this textbook, primarily intended for first year medical students, the subject matter was selected at Edinburgh medical schools with the hope that it might be of value in other similar institutions. The volume will be of value to those interested in qualitative analysis and will prove useful.

Personality Development and Social Control in Terms of Constitution and Culture. By Ira S. Wile, M.S., M.D. Three Lectures at The Tavistock Clinic, July 1937. Paper. Price, $1.25. Pp. 57. New York & London: Oxford University Press, 1939.

This is a collection of three lectures given by the author at the Tavistock Clinic in July 1937 entitled "Personality in Terms of Constitution," "Personality in Relation to Culture" and "Social Control and the Prevention of Personality Disorders." As might be expected, they reflect the broad culture and philosophical and medical background of the author.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Accident Insurance: Scarlet Blotch on Skin as "Visible Contusion or Wound."—The defendant issued an insurance policy providing double indemnity if "the death of the insured occurred . . . as a result, directly and independently of all other causes, of bodily injuries, effected solely through external, violent and accidental means, of which, except in case of drowning or of internal injuries revealed by an autopsy, there is a visible contusion or wound on the exterior of the body." The insured was found dead on the floor of a garage about 2 feet from the exhaust pipe of an automobile. There were scarlet blotches on his face, trunk and extremities, indicative that death was due to carbon monoxide poisoning. From a judgment allowing recovery under the policy, the defendant insurance company appealed to the United States circuit court of appeals, seventh circuit.

The insurance company denied liability, contending that the scarlet blotches were not a "contusion or wound" within the meaning of the policy. It is true, answered the court, that, etymologically, "contusion" suggests an injury which is the result of the impact of a blow on the exterior of the body. The purpose of the policy, however, in conditioning liability on the presence of a "visible contusion or wound on the exterior of the body" was to have visible, physical evidence of the operation of the "external, violent and accidental means," which are alleged to have effected the bodily injuries. "Visible contusion," as used in the policy, included, the court thought, any morbid change in or injury to either the subcutaneous tissue or the skin which produces markings or discolorations visible on the exterior of the body. It is not material whether the "visible contusion" results directly from the operation of the "means" on the exterior of the body or indirectly from the internal injuries which are effected by the action of the "means." The accidental operation of external means may be wholly internal, and yet the internal injuries may extend to the subcutaneous tissue or into the layers of the skin. The visibility of the "contusion" may be due to the discoloration either of the injured tissue under the skin or of the injured skin itself, or of both. The scarlet blotches on the exterior of the body of the insured were caused by the action of the carbon monoxide and were connected with the "internal injuries" which resulted in the death of the insured. When carbon monoxide is inhaled into the lungs it passes into the blood and combines with the hemoglobin contained in the red blood cells. As a result, tissue cells are deprived of an adequate supply of oxygen. This, in turn, causes the death and decomposition of tissue cells, which results in the appearance of scarlet blotches on the exterior of the body. The court held, therefore, that the scarlet blotches were visible contusions or wounds within the meaning of the policy and the judgment against the insurance company was affirmed.—*Warbende v. Prudential Ins. Co. of America, 97 F. (2d) 749.*

Accident Insurance: Amebic Dysentery Not a Bodily Injury Sustained Through Accidental Means.—The defendant insurance company insured Burns "against bodily injuries sustained . . . solely and independently of all other causes through accidental means." A sewer pipe broke in a hotel in which Burns was registered and contaminated the drinking water with amebae. Burns contracted amebic dysentery as a result of drinking the water and eventually died. In a suit which Burns' beneficiary subsequently instituted on the policy the trial court entered a judgment for the insurance company on the pleadings. The beneficiary appealed to the court of appeals of Ohio, which reversed the cause and remanded it to the trial court, but a motion to certify the record to the Supreme Court of Ohio was allowed.

The question to be determined, said the Supreme Court, is whether a death from amebic dysentery contracted from drinking contaminated water is the result of a bodily injury sustained by accidental means. Generally an accident is considered as an event proceeding from an unexpected happening or unknown cause without design and not in the usual course of things. The court found no difficulty in holding that Burns' death was due to amebic dysentery which was accidentally contracted. The amebae contaminated the water by an accident, the breaking of the sewer pipe. It was likewise accidental that they entered Burns' system. A more difficult question was whether or not the contraction of amebic dysentery was a bodily injury. There was, said the court, no violence, vis major, or other casualty which operated directly on Burns. Many courts have held that deaths or disabilities resulting from the mechanical action of food or drink, ptomaine poisoning, alcoholic poisoning, infections of the eye by gonococci, blood poisoning, carbon monoxide poisoning, typhoid and from "drinking milk of cows which had eaten golden rod" were due to a bodily injury within the terms of insurance policies containing provisions somewhat similar to the policy involved in this case. The Supreme Court, however, was not impressed with these decisions. Those cases, said the court, proceeded on the theory that the policy under question must be construed most strongly against the insurer, whose duty it was to exclude specifically the risks if there was doubt. But a court should not resort to a construction never conceivably intended by the parties.

To uphold the theory of recovery in this case, continued the court, would be to hold that all diseases are bodily injuries. There would thus be no difference between an accident policy and a health policy, except insofar as it would be necessary, to recover on an accident policy, to trace the cause to some mischance. In the present case, the policy was not a general health policy but a limited accident policy, and the premium collected was for a limited coverage. Bodily injury should be considered as limited to bodily injuries resulting from physical or external forces known as accidents. Pneumonia, typhoid, scarlet fever and the like are diseases due solely to germs. To call them bodily injuries is to establish a new nomenclature and classification not generally used in ordinary conversation. The words "bodily injury" are commonly and ordinarily used to designate an injury caused by external violence, and they are not used to indicate disease. The court believed that the words "bodily injury" as used in this policy were used in their common and accepted meaning and that to create liability there must be evidence of some external or violent and accidental force or cause. No such evidence was present in this case. The court accordingly affirmed the judgment of the trial court directing a verdict in favor of the insurer.—*Burns v. Employers' Liability Assur. Corporation, Limited, of London, England (Ohio), 16 N. E. (2d) 316.*

Society Proceedings

COMING MEETINGS

American Association for Thoracic Surgery, Los Angeles, July 5-7. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Physiotherapy Association, Denver, June 25-30. Mrs. Eloise T. Landis, 2065 Adelbert Road, Cleveland, Secretary.

American Proctologic Society, Brooklyn, N. Y., June 25-27. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

Maine Medical Association, Poland Springs, June 25-27. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.

Medical Library Association, Newark, N. J., June 27-29. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Montana, Medical Association of, Butte, June 28-30. Dr. Thomas L. Hawkins, 50 North Main St., Helena, Secretary.

National Medical Association, New York, Aug. 15-19. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.

National Tuberculosis Association, Boston, June 26-29. Dr. Charles J. Hatfield, 50 West 50th Street, New York, Secretary.

Pacific Coast Oto-Ophthalmological Society, San Francisco, June 19 22. Dr. C. Allen Dickey, 450 Sutter St., San Francisco, Secretary.

West Virginia State Medical Association, White Sulphur Springs, July 10-12. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

17: 387-514 (April) 1939

Coronary Sclerosis: Analysis of 928 Cases. B. J. Clawson, Minneapolis.—p. 387.
Blood Oxygen Changes Following Intermittent Venous Occlusion. J. R. Veal, Washington, D. C., and W. M. McCord, New Orleans.—p. 401.
Normal Heart Volume in Man. G. Liljestrand, E. Lysholm, G. Nylin and C. G. Zachrisson, Stockholm, Sweden.—p. 406.
Follow-Up Study of Systolic Murmurs. M. J. Shapiro, Minneapolis.—p. 416.
Transient Bundle Branch Block and Other Electrocardiographic Changes in Pulmonary Embolism. T. M. Durant, I. W. Ginsburg and H. Roesler, Philadelphia.—p. 423.
Tumors of Heart and Pericardium. R. W. Scott and C. F. Garvin, Cleveland.—p. 431.
Premature Closure of Foramen Ovale: Report of Two Cases. Miriam Crowell Benner, Denver.—p. 437.
Coarctation of Aorta, Nonclinical Type, Associated with Congenitally Bicuspid Aortic Valve: Method for Its Recognition, with Report of Case. P. Hallock and R. Hebbel, Minneapolis.—p. 444.
*Nonrheumatic Calcific Aortic Stenosis. C. K. Friedberg and A. R. Sohval, New York.—p. 452.
Development of Electrocardiogram of Embryonic Heart. E. C. Hoff, New Haven, Conn.; T. C. Kramer, Ann Arbor, Mich.; D. DuBois, New Haven, Conn., and B. M. Patten, Ann Arbor, Mich.—p. 470.

Nonrheumatic Calcific Aortic Stenosis.—Friedberg and Sohval review the clinical features of fifteen necropsy cases of calcific aortic stenosis in which the possibility of a rheumatic etiology had been previously excluded. As a corollary they attempted to determine whether it was clinically possible to differentiate the rheumatic from the nonrheumatic cases. The differentiation of calcific aortic stenosis from coronary artery disease may be extremely difficult because the symptoms of both are due essentially to myocardial ischemia. Attacks of dizziness and syncope, when present, favor a diagnosis of calcific aortic stenosis rather than arteriosclerotic heart disease. If, in addition, there is a distinctive murmur or a systolic thrill, the differentiation from coronary artery disease is clear. Calcific aortic stenosis should be considered as a diagnostic possibility in any patient with cardiac failure of obscure etiology. The differentiation of rheumatic from nonrheumatic calcific aortic stenosis usually cannot be made from the symptoms and physical signs alone. If the patient is less than 50 years of age, the aortic stenosis is usually due to rheumatic fever. When the physical signs of mitral stenosis are uncertain, x-ray evidence of unusual left auricular or right ventricular enlargement suggests associated rheumatic mitral disease. Similarly, if the electrocardiogram shows right ventricular preponderance, due apparently to mitral disease, the calcific aortic stenosis is probably rheumatic.

American Journal of Cancer, New York

35: 491-656 (April) 1939

Morphologic Resemblance of Pulmonary Adenomatosis (Jaagsiekte) in Sheep and Certain Cases of Cancer of Lung in Man. C. Bonne, Batavia, Java, Netherlands Indies.—p. 491.
Effect of Freezing in Vitro on Some Transplantable Mammalian Tumors and on Normal Rat Skin. G. B. Mider and J. J. Morton, Rochester, N. Y.—p. 502.
Contributions to Tissue Culture Technic. J. P. M. Vogelaar and Eleanor Erlichman, New York.—p. 510.
Primary Liver Cell Carcinoma with Splenic Metastases. A. F. Liber and C. R. Brown, New York.—p. 521.
Reticulum Cell Sarcoma of Spleen. M. Gerundo and M. B. Miller, Topeka, Kan.—p. 528.
Carcinoma of Kidney in Rats Treated with Beta-Anthraquinoline. A. Sempronj and E. Morelli.—p. 534.
Production of Lung Tumors in Mice by Intratracheal Administration of Carcinogenic Hydrocarbons. M. B. Shimkin, Cambridge, Mass.—p. 538.
Effect of 1,2,5,6-Dibenzanthracene on Growth and Respiration of Yeast. E. S. Cook Sr., Mary Jane Hart and R. A. Joly, Cincinnati.—p. 543.
Vitamin E and Experimental Tumors. C. Carruthers, Iowa City.—p. 546.
*Statistical Relation Between Goiter and Cancer. J. F. McClendon, Minneapolis.—p. 554.

Goiter and Cancer.—McClendon discusses the possibility of some causal relation between goiter and cancer. It seems possible that a single thyroid cell might break loose and traveling in the blood stream either disintegrate, or, finding a favorable environment in the wall of the alimentary tract, undergo a metamorphosis and become the starting point of a supposedly primary cancer of the alimentary tract. Another possible causal relationship between goiter and cancer is that the thyroid hormone causes differentiation of cells. Deficiency of this hormone might permit some cells to remain undifferentiated and therefore potentially precancerous. The author presents statistics and states that, although they may not be regarded as entirely sufficient to establish a relation between goiter and cancer, the evidence is quite conclusive that thyroid adenoma may predispose to cancer of the thyroid and is an ample warning that goiter may constitute a danger of increasing the cancer rate. Therefore goiter prophylaxis with iodine in the young and desiccated thyroid in the aged may be a precaution worth taking to prevent an increase in the incidence of cancer.

Annals of Internal Medicine, Lancaster, Pa.

12: 1555-1738 (April) 1939

Observations on Treatment of Lipoid Nephrosis. R. H. Major, Kansas City, Kan.—p. 1555.
Renal Threshold for Glucose; Clinical Observations on Case of Non-diabetic (Renal) Glycosuria. H. M. Thomas Jr. and H. Southworth, Baltimore.—p. 1560.
Importance to the Internist of Latent Paranasal Sinusitis. G. H. Lathrope, L. A. Peer and R. Paddock, Newark, N. J.—p. 1576.
Acute Insufficiency of Adrenal Glands: Report of Two Cases. A. L. Burger and H. Fink, Brooklyn.—p. 1583.
Studies of Iron Metabolism in Case of Hemochromatosis. A. Marble and Rachel M. Smith, Boston.—p. 1592.
Nature of Arterial Hypertension, with Special Reference to the Role of the Kidney. M. Prinzmetal, Los Angeles; B. Friedman, New York, and D. I. Abramson, Brooklyn.—p. 1604.
Vasomotor Effects of Blood in Patients with Hypertension and Animals with Experimental Hypertension. B. Friedman, New York, and M. Prinzmetal, Los Angeles.—p. 1617.
*Tropical and Nontropical Sprue (Chronic Idiopathic Steatorrhea): Their Probable Interrelationship. A. M. Snell, Rochester, Minn.—p. 1632.
Gold Therapy in Arthritis: Observations on 100 Cases Treated with Gold Sodium Thiosulfate and Aurocein. R. G. Snyder, C. Traeger and L. Kelly, New York.—p. 1672.
Rightward Deviation of Axis of the T Wave as Index of Myocardial Disease. R. Ashman and Eleanor H. Hidden, New Orleans.—p. 1682.

Tropical and Nontropical Sprue.—Snell reports thirty-two cases of "nontropical" sprue or "idiopathic steatorrhea" affecting residents of the Central and North Central states. Also fourteen cases of sprue contracted in the tropics are reviewed. The cases of nontropical sprue differ from tropical sprue chiefly by virtue of their extreme chronicity and an associated tendency to disturbed calcium metabolism and skeletal deformities. The common features of the thirty-two cases of nontropical sprue were glossitis and stomatitis, emaciation, fatty diarrhea, various types of anemia, disturbances of the metabolism of calcium and of protein, and a group of symptoms related to various vitamin deficiencies. There are no definite prodromal symptoms of nontropical sprue, although certain patients who later had the classic disease gave a history of chronic remittent gastrointestinal disturbances, nausea, vomiting, anorexia, intolerance to food and intestinal irritability. Physical examination revealed a most striking degree of malnutrition with muscular wasting and cachexia. Twenty patients presented symptoms and signs which were virtually identical with those seen in tropical sprue; in these patients there was a definite beneficial response to liver extract. The remaining twelve patients presented various metabolic and nutritional disturbances, including tetany, osteoporosis, hypoproteinemia and various vitamin deficiencies. The condition in these cases was identical in all respects to that described in the English and Scandinavian literature as "idiopathic steatorrhea." The response to liver extract in these cases was often unsatisfactory but, in certain cases in which the patients were adequately treated, good results were obtained. Since the sprue syndrome is not uncommon in temperate climates its earlier recognition and treatment would largely eliminate the late "complicated" cases.

Archives of Neurology and Psychiatry, Chicago

41: 871-1086 (May) 1939

Histopathologic Changes in Nervous System in Cases of Peptic Ulcer. A. R. Vonderahe, Cincinnati.—p. 871.
*Remissions in Multiple Sclerosis. Madelaine R. Brown and T. J. Putnam, Boston.—p. 913.
Symmetric Cerebral Calcification, Particularly of Basal Ganglions, Demonstrable Roentgenographically: Calcification of Finer Cerebral Blood Vessels. L. M. Eaton, J. D. Camp and J. G. Love, Rochester, Minn.—p. 921.
*Sequelae of Postmeasles Encephalomyelitis: Clinicopathologic Study. N. Malamud, Ann Arbor, Mich.—p. 943.
Encephalopathy Following Anesthesia: Histologic Study of Four Cases. A. T. Steegmann, Cleveland.—p. 955.
Korsakoff's Syndrome: Clinical Study of Alcoholic Form, with Special Regard to Prognosis. M. Rosenbaum and H. H. Merritt, Boston.—p. 978.
Extrapyramidal System: Experimental Demonstration of Function. F. A. Mettler, H. W. Ades, E. Lipman and E. A. Culler, Augusta, Ga.—p. 984.
Experimental and Clinical Study of Effects of Metrazol Convulsions. E. A. Strecker, B. J. Alpers, J. A. Flaherty and J. Hughes, Philadelphia.—p. 996.
Occurrence of Pick's Disease in Early Adult Years. K. Löwenberg, D. A. Boyd Jr. and D. D. Salon, Ann Arbor, Mich.—p. 1004.
Easily Made Apparatus for Use in "Closed System" Pneumo-Encephalography, with Notes on Technic for Its Use. W. L. Holt Jr. and R. S. Schwab, Boston.—p. 1021.

Remissions in Multiple Sclerosis.—Brown and Putnam present their observations in 133 cases of multiple sclerosis, ninety-five of which were observed in the wards of the neurologic unit and thirty-eight were seen in office practice. There was a striking difference between the course of the illness in the two groups. Periods of improvement were reported in thirty-three of the thirty-eight and in only fifty-nine of the ninety-five. In all, 550 separate symptoms were recorded in the 133 cases. The report covers 1,095 "patient years" of the disease. During the period under consideration, 239 instances of improvement were reported by ninety-two of the 133 patients. In the others the disease was uninterruptedly progressive or stationary after a single attack. Ambulatory patients seen in "office" practice were found to have a significantly longer and milder course with more remissions than those seen in "hospital" practice. In general, symptoms evidently due to small lesions, such as diplopia, central scotoma or sensory disturbances of one extremity, tend to regress within a few months. Symptoms apparently due to large lesions, such as paraplegia, ataxia and mental deterioration, are usually permanent. As a rule, isolated symptoms disappear in a far higher proportion of instances than do the same symptoms occurring in conjunction with others. Symptoms tend to grow more severe as the disease progresses. Most lesions of multiple sclerosis go through an acute stage, after which a variable number of fibers regain the ability to conduct impulses. Certainly in most large lesions, and probably in all lesions, there is permanent destruction of the conductivity of some or many fibers.

Sequelae of Postmeasles Encephalomyelitis.—Malamud reports two cases which illustrate the sequelae of postmeasles encephalomyelitis and he traces the manner in which this terminal condition develops from the preceding acute and subacute stages. Such an investigation, he states, may also be of value in differentiating disseminated encephalomyelitis from multiple and diffuse sclerosis, concerning which there is considerable confusion in the literature. The permanent sequelae of postmeasles encephalomyelitis were characterized in one case by predominantly hemiplegic manifestations and in the other case by hyperkinesis, personality change, mental enfeeblement and ataxia. Such symptoms, according to Ford, are frequent complications of this disorder. In the first case the development of the neurologic disturbance during the prodromal period of measles does not contradict the diagnosis. In the second case the hyperkinetic syndrome closely resembled the disturbances following epidemic encephalitis in childhood. The clinical course was not progressive; the symptoms remained stationary and in the first case they even partially receded. The lesions in the two cases were localized exclusively in the white matter and occurred in three predilective sites: (1) perivascularly (perivenously) within the white substance of the cerebrum and cerebellum, (2) subependymally in the vicinity of the ventricles and (3) marginally in the spinal cord. Histologically, the lesions were poorly outlined coalescing foci of demyelination, in which myelin sheaths and axis cylinders were equally destroyed. They were uniformly replaced by dense glial scars devoid of any signs of inflammation. Fundamental differences between disseminated encephalomyelitis and multiple and diffuse sclerosis are outlined.

Archives of Ophthalmology, Chicago

21: 731-912 (May) 1939

Bilateral Endophthalmitis Complicating Pneumococcic Septicemia: Report of Case. J. Reber and H. G. Scheie, Philadelphia.—p. 731.
Rickettsia Question in Trachoma: I. Microscopic Observations on Virus. A. E. Braley, Iowa City.—p. 735.
Naevus Flammeus Associated with Glaucoma: Report of Case. M. H. Pincus, Brooklyn.—p. 741.
Angioid Streaks. A. Hagedoorn, Amsterdam, Netherlands.—p. 746.
Circulatory Disturbances in Retina in Arteriosclerosis and in Essential Arterial Hypertension. H. Elwyn, New York.—p. 775.
Primary Glioma of Optic Nerve: Report of Case. C. W. Rand, R. Irvine and D. L. Reeves, Los Angeles.—p. 799.
Production of Corneal Ulcers in the Rabbit. R. McDonald and H. Pettit, Philadelphia.—p. 817.
*Congenital Familial External Ophthalmoplegia Without Ptosis, with Lesion of Pyramidal Tract. M. Helfand, New York.—p. 823.
Bilateral Iritis Complicating Serum Sickness. F. H. Theodore and A. C. Lewson, New York.—p. 828.
Streak Retinoscopy. W. Z. Rundles, Flint, Mich.—p. 833.
Hodgkin's Disease of Lid: Report of Case. D. Kravitz, Brooklyn.—p. 844.
Unilateral Papilledema: Its Significance and Pathologic Physiology. E. G. Smith, Lancaster, Pa.—p. 856.

Congenital Familial Ophthalmoplegia.—Helfand reports a case of congenital familial external ophthalmoplegia without ptosis associated with involvement of the right side of the pyramidal tract. He believes that the most important contribution to the etiology of this condition has been derived from studies in embryology. The embryopathophysiologic theory explains the ocular disturbances in these cases. It not only is supported by clinical data but can be verified by experimental procedures (Bagg and Little). The involvement of the right side of the pyramidal tract in the case reported, the author states, becomes intelligible in the light of the experiments of Bagg and Little. These authors constantly found the occurrence of ocular anomalies together with deformities of the extremities, for the abnormal bleb was usually retained on the dorsal side of the organism and nearly always around the anlage of the eyes and the extremities. It is also plausible that a mechanical hindrance in the form of an abnormal bleb situated at the cephalic flexure might injure the anlage of the motor tract and spare the sensory system. These interferences usually occur in embryos of about 7 or 8 mm., or at the fourth or fifth week of embryonic life, at which time the sensory anlage is already ripened and is therefore more resistant to pressure.

Delaware State Medical Journal, Wilmington

11: 51-70 (April) 1939

Control of Venereal Disease from a State and National Point of View. R. A. Vonderlehr and Josephine Hinrichsen, Washington, D. C.—p. 51.
Evolutionary Perspective of Syphilis. R. C. Holcomb, Upper Darby, Pa.—p. 59.

Georgia Medical Association Journal, Atlanta

28: 143-182 (April) 1939

Infectious Mononucleosis: Report of Case. A. H. Bunce and M. S. Dougherty Jr., Atlanta.—p. 143.
Amnesia in Obstetric Practice: Study of Sodium Pentobarbital (Nembutal) Scopolamine and Sodium Propyl-Methyl-Carbinyl-Allyl Barbiturate (Seconal) Scopolamine. H. C. Frech Jr., Savannah; P. P. Volpitto and R. Torpin, Augusta.—p. 147.
*Use of Cevitamic and Nicotinic Acid in Edema of Nephrosis: Preliminary Report of Cases. J. W. Daniel, Savannah.—p. 154.
Angina Pectoris and the Coronary Arteries. H. C. Atkinson, Macon.—p. 157.
Pneumoperitoneum: Adjunct to Treatment of Pulmonary Tuberculosis: Report of Nineteen Cases. A. W. Hobby, Atlanta.—p. 159.
Quackery in Georgia 100 Years Ago. J. Krafka Jr., Augusta.—p. 163.
Postsulfanilamide Agranulocytosis: Report of Case with Recovery. B. J. Hoffman, Atlanta.—p. 166.
Modern Concepts in Industrial Medicine. C. W. Roberts, Atlanta.—p. 167.

Ascorbic and Nicotinic Acid for Edema of Nephrosis.—Daniel reports the rapid correction of the edema of nephrosis of two patients following the administration of ascorbic and nicotinic acids. This leads him to believe that the disappearance of albuminuria and the increase of plasma proteins is not a period of remission which sometimes occurs in nephrosis but is brought about by the administration of the vitamins. He thinks that it is possible that the renal lesion may have a basic

vitamin shortage instead of being entirely the result of infection. In applying this treatment of edema in these cases he based the prognosis on laboratory and physical observations: normal nonprotein nitrogen, normal renal function test, the absence of erythrocytes in the urine, normal blood pressure and normal cardiac action.

Indiana State Medical Assn. Journal, Indianapolis

32: 233-298 (May) 1939

Pitfalls in the Diagnosis and Treatment of Clinical Allergy. B. Kraft, Indianapolis.—p. 233.
Prophylactic Program for Treatment of Allergic Diseases. C. B. Bohner, Indianapolis.—p. 236.
Allergy in Relation to Eczema. W. W. Duemling, Fort Wayne.—p. 237.
Allergy in Ear, Nose and Throat Practice. H. A. Kuhn, Hammond.—p. 241.
Emotional Factors in Skin Diseases. F. Gastineau, Indianapolis.—p. 244.
Nasal and Ocular Allergy. C. E. Savery, South Bend.—p. 247.
Obstetrics in General Practice: Consideration of Causes of Maternal and Fetal Mortality. C. P. Huber, Indianapolis.—p. 249.
Blood Banks and Blood Preservation. M. Bizer, Lafayette.—p. 261.
Tuberculosis in Childhood. Indiana Pediatric Society.—p. 264.

Journal of Immunology, Baltimore

36: 255-338 (April) 1939

Second Stage of Agglutinative Reaction. A. S. Wiener and M. Herman, Brooklyn.—p. 255.
Studies on Fibrinolysin Produced by Hemolytic Streptococcus. J. M. Jablonowitz, New York.—p. 261.
Sensitization of Guinea Pigs to Amidopyrine. A. Golden and H. W. Gierson, St. Louis.—p. 277.
Preparation and Properties of Aqueous Suspensions of Oil-Coated Tubercle Bacilli. E. Hehre, New York.—p. 285.
*Immunologic Studies in Active Vaccination Against Scarlet Fever. M. M. Strumia, with technical cooperation of Linden Crawford, Betty Bergh and Regina N. Neher, Bryn Mawr, Pa.—p. 301.
Effect of Volume of Antigen Solution on Its Rate of Absorption. T. B. Bernstein, S. S. Rubin and S. M. Feinberg, Chicago.—p. 309.
Endotoxin from Aspergillus Fumigatus. A. T. Henrici, Minneapolis.—p. 319.

Vaccination Against Scarlet Fever.—Strumia investigated the benefits to be expected from vaccination against scarlet fever, employing the scarlet fever streptococcus toxin. He finds that vaccination with scarlet fever streptococcus toxin sufficient to change a Dick-positive reaction to a negative one does not influence in any definite way the content in immune bodies of the serum as far as the fibrinolysins, agglutinins and streptolysins are concerned. Of the thirty-six cases in which determinations of antifibrinolysin and antistreptolysin were carried out before and after vaccination, there was agreement in twenty-five cases. In the other cases the variations before and after vaccination did not agree. A brother and sister in whom toxic hemolytic streptococci were cultured from the throat before the vaccination was begun showed high titer with both antifibrinolysin and hemolysin, which did not change with the vaccination. One of these children was Dick positive and the other Dick negative. In a control group of eight healthy adults studied over a similar period the antifibrinolysin titer showed no change in five, was decreased in one and was increased in two. In the same adult group the antistreptolysin showed no change during the period of observation, all but one being in the normal group. Since the observations were conducted during the late winter and early spring, when streptococcic infections of the upper respiratory passages are common, certain variations in the antistreptococcus properties are to be expected.

Journal Industrial Hygiene & Toxicology, Baltimore

21: 155-204 (May) 1939

Further Observations on Possible Systemic Toxicity of Certain Chlorinated Hydrocarbons with Suggestions for Permissible Concentrations in Air of Workrooms. C. K. Drinker, Boston.—p. 155.
Toxic Effects on Rabbits of Pentachlorphenol and Sodium Pentachlorphenate. R. A. Kehoe, W. Deichmann-Gruebler and K. V. Kitzmiller, Cincinnati.—p. 160.
*Toxicology of Some Glycols and Derivatives. E. P. Laug, H. O. Calvery, H. J. Morris and G. Woodard, Washington, D. C.—p. 173.
Note on Improved Cell for Dust Counting. K. L. Dunn, Corning, N. Y.—p. 202.

Toxicology of Some Glycols.—Laug and his co-workers determined the relative acute toxicities of some glycols and their derivatives and they found that the order of increasing toxicities is as follows: propylene glycol, diethylene glycol, ethylene glycol, diethylene glycol mono-ethyl ether, dioxan and ethylene glycol mono-ethyl ether. Rats, mice and guinea pigs were used for the tests. The rabbits, in comparison with other species, were found to have the lowest lethal dose for diethylene glycol, 50 per cent of them being killed. In fact, the lowest dose that killed some rabbits was the same as the estimated average dose that killed 105 persons. The lethal dose killing 50 per cent of animals in cubic centimeters per kilogram for mice is as follows: propylene glycol 23.9, diethylene glycol 23.7, ethylene glycol 13.1, diethylene glycol mono-ethyl ether 6.58, dioxan 5.66, ethylene glycol mono-ethyl ether 4.31 (concentrated) and 5.2 (diluted); for rats, propylene glycol 21, diethylene glycol 14.8, ethylene glycol 5.5, diethylene glycol mono-ethyl ether 5.54, dioxan 5.17, ethylene glycol mono-ethyl ether 3.46, and for guinea pigs, propylene glycol 18.9, diethylene glycol 7.76, ethylene glycol 7.35, diethylene glycol mono-ethyl ether 3.87, dioxan 3.9 and ethylene glycol mono-ethyl ether 2.79. It seems that small doses of propylene glycol can be safely tolerated by the animal body since it can be oxidized and probably converted to a normal body constituent. In this respect it resembles ethyl alcohol and glycerin. In larger quantities all these substances are toxic and, with the exception of propylene glycol, produce definitely demonstrable tissue injury. After correlating the information in the literature with the results of these experiments, the authors conclude that ethylene glycol, diethylene glycol, ethylene glycol mono-ethyl ether, diethylene glycol mono-ethyl ether and dioxan should be entirely omitted from food and drug preparations and that propylene glycol should be avoided except in minute concentrations.

Journal of Nervous and Mental Disease, New York

89: 625-756 (May) 1939

Treatment of Schizophrenia with Cardiazol in Convulsant Doses. H. Delgado, Lima, Peru.—p. 625.
Experiences in Use of Encephalography. R. Wartenberg, San Francisco.—p. 640.
Intracranial Chondroma: Case Report. M. I. Green and J. H. Childrey, San Francisco.—p. 650.
Hemiatrophy of the Brain. B. J. Alpers and R. B. Dear, Philadelphia.—p. 653.
Attitude of the Psychoneurotic Toward Scientific Contraceptive Advice. J. H. Friedman, New York.—p. 672.
Genoscopolamine: Its Use in Parkinsonism. J. H. Scharf, New York; assisted by Stephane T. Manong.—p. 682.

Journal of Thoracic Surgery, St. Louis

8: 351-468 (April) 1939

Lobectomy and Pneumonectomy in Pulmonary Tuberculosis. J. C. Jones and F. S. Dolley, Los Angeles.—p. 351.
Formation and Development of Primary Tubercle in Lung. W. S. Lemon, Rochester, Minn.—p. 371.
*Bronchopleural Fistulas Complicating Pulmonary Tuberculosis: Clinical Pathologic Study. O. Auerbach and S. Lipstein, New York.—p. 384.
Late Results of Lobectomy for Bronchiectasis in Children. J. V. Bohrer and C. W. Lester, New York.—p. 412.
Mechanics of Pulmonary Abscess, Pulmonary Gangrene and Bronchiectasis, with Suggested Method of Treatment. M. Joannides, Chicago.—p. 427.
Aspiration Biopsy of Tumors of Lung. L. F. Craver and J. S. Binkley, New York.—p. 436.

Bronchopleural Fistulas and Tuberculosis.—Auerbach and Lipstein state that in 1,000 consecutive necropsies in chronic ulcerative pulmonary tuberculosis seventy-eight cases of bronchopleural fistulas were found. Fifteen of the bronchopleural fistulas occurred in previously uncollapsed lungs, fifty-six in the presence of an artificial pneumothorax and seven as a direct result of closed pneumonolyses. The size of the fistula at necropsy varied from 1 mm. to 4 cm. and 73 per cent were present in the upper lobes of the lung. The fistulas were diagnosed clinically in fifty-two cases. Bronchopleural fistulas occurring within six months after the induction of artificial pneumothorax usually ended in a fulminating caseous pneumonia. The underlying pulmonary pathologic condition in cases of bronchopleural fistulas occurring after from one to four years of pneumothorax therapy was that of a chronic pulmonary tuberculosis. Empyemas were present in all but five instances. In these the fistulas developed too soon before death for fluid to collect. Mixed infection empyemas were recorded in twenty-seven instances, tuberculous empyemas occurred in seventeen and the remaining patients either had no aspirations or the reports were inadequate. Healing of bronchopleural fistulas may be temporary or permanent. It may occur because the visceral pleura becomes adherent to the parietal pleura in the region of the perforation or a fibrinous exudate, which later is organized into fibrous tissue, may seal off the opening.

Kentucky Medical Journal, Bowling Green

37: 129 176 (April) 1939

Cancer of Breast H H Hagan, Louisville —p 129
*Analysis of 6,872 Admissions to the Louisville City Hospital Having Positive Syphilis Serologic Reports, 1928 1937 Inclusive E C Humphrey, J R Hendon and F M Melton, Louisville —p 135
Syphilis Control, the Medical Problem F W Caudill, Louisville —p 138
Modern Anesthesia E W Northcutt, Covington —p 144
Peritonitis Recent Advances and Treatment G Y Graves, Bowling Green —p 148
Waldeyer's Ring M C Baker Louisville —p 152
Now and Then in Ophthalmology A O Pfingst, Louisville —p 157
Enucleation with Glass Ball Implantation E C Ellett, Memphis, Tenn —p 161
Postpartum Care S S Parks, Lexington —p 163

Syphilis.—Humphrey and his associates state that of 6,872 hospital admissions between 1928 and 1937 in which there were positive Wassermann or Kahn reactions, representing 4,517 patients, there were 6,881 syphilitic diagnoses This is not a study of a syphilis clinic or dispensary but of persons admitted to a general hospital in the majority of whom syphilis was an incidental finding and had nothing to do with admission to the hospital From this analysis the incidence of syphilis among the general admissions to the Louisville City Hospital was found to be 13 1 per cent in the Negro patients and 4 1 per cent in the white patients The proportion of men who have positive Kahn reactions in both races is about the same as that of women The greatest incidence of syphilis occurred in early adult life There was a much higher incidence of neurosyphilis and cardiovascular syphilis in men than in women in both races There was a high relative incidence of cardiovascular syphilis in Negro men and of neurosyphilis in white men More than 60 per cent of the patients had no record of being treated for venereal disease Only a small percentage of those treated have had adequate treatment A system has been instituted which provides for persons with incidental positive Kahn reactions They are incorporated into the regular venereal clinic and followed just as though they had come in because of syphilis

Laryngoscope, St. Louis

49. 239 322 (April) 1939

Physiology of Larynx Resume and Discussion of Literature for 1938 J J Pressman, Los Angeles —p 239
Operative Procedure for Relief of Stenosis in Double Abductor Paralysis of Larynx A G Rawlins San Francisco —p 260
Melanocarcinoma of Hard Palate I Arons, New York —p 271
Clinical Significance and Treatment of Otogenous Facial Paralysis H Brunner, Chicago —p 276
Plastic Surgery in Prague, Czechoslovakia Recent Experiences M R Guttman, Chicago —p 291
Infection, Arthritis and Allergy L C Boemer, St Louis —p 297

Medical Annals of District of Columbia, Washington

8: 97 126 (April) 1939

Some Thoughts on the Theories and Treatment of Drug Addiction L Kolb, Washington —p 97
Office Routine for Treatment of Early Toxemias of Pregnancy and Borderline Cases L L Cockerille, Washington —p 103
Chorio-Angioma of Placenta Review and Report of Case J Kotz and M S Kaufman, Washington —p 106
*Routine Treatment of Gonorrhea in Females—Nonantiseptic Method Supplementary Report B Notes, Washington —p 111
Problems Confronted in Treatment of Oxyuriasis H A Monat, Washington —p 112

Treatment of Gonorrhea in Women.—Notes states that in August 1933 treatment of gonorrhea in women was begun by creating a local reaction and drainage with the omission of antiseptics 1 All cervices with functioning cervical glands were cauterized one or more times with the electrocautery at intervals of two or more months in order to cause local reaction and to elicit better drainage of the active focus 2 The urethral meatus and cervix were treated weekly with applicators saturated with 25 per cent silver nitrate in order to cause local reaction and to favor better drainage 3 Douches of 1 5 per cent acetic acid (vinegar or physiologic) were taken by the patient at home twice daily with a fountain syringe until the cervix was healed and with a pressure syringe (bulb type) after the cervix was healed Of 3,394 women with gonorrhea admitted as new cases to the gynecologic section of the Social Hygiene Clinic of the District of Columbia 705 were discharged as cured by the foregoing method The author concludes that antiseptics should be abandoned in the treatment of gonorrhea in women and that every patient who cooperates can be cured

Michigan State Medical Society Journal, Lansing

38: 273 364 (April) 1939

Geriatrics C D Camp, Ann Arbor —p 289
Thyroid Gland and Function of Reproduction R D Mussey, Rochester, Minn —p 295
Herpes Zoster Ophthalmicus Case A D Beam and V L Lindberg, Detroit —p 301
Sulfanilamide G B Myers, Detroit —p 302
Etiologic Factors in Noninstitutional Patients with Epilepsy L E Himler, Ann Arbor —p 315
*Epilepsy as a Prison Problem Its Treatment with Sodium Diphenyl hydantoinate D P Philips, Jackson —p 317
Diverticulitis with Spontaneous Internal Evacuation of Abscess Report of Case L S Fallis and C S Martin, Detroit —p 320
Cervicitis as Cause of Sterility, Abnormal Bleeding and Pelvic Pain R S Siddall, Detroit —p 323
Examining the Intoxicated Driver P W Kniskern, Grand Rapids —p 325
Spectacular Response of Acute Gonorrhea to Large Doses of Sulfanilamide W S Martin, Ludington —p 328
Medical Economic Problems W P Woodworth, Detroit —p 331

Sodium Diphenylhydantoinate for Epilepsy.—About a year ago Philips states that fourteen epileptic prisoners at the State Prison of Southern Michigan were given sodium diphenyl hydantoinate as an anticonvulsant The drug, 0 1 Gm, was given three times a day before meals The seizures of all but one patient were controlled by this regimen This one patient continued to have infrequent grand mal attacks at night and his dose was increased to 0 4 Gm daily, that is he also received 0 1 Gm of the drug at 11 at night With the additional dose of the drug there have been no further convulsions None of the patients had previously obtained any benefit from phenobarbital in large doses On sodium diphenylhydantoinate therapy the convulsive seizures have ceased and behavior and attitudes have improved As yet there is no indication that the effectiveness of sodium diphenylhydantoinate is lost or diminishes with time The depression which characterizes patients taking large doses of phenobarbital is noticeably absent with the use of sodium diphenylhydantoinate The drug appears to offer a new hope of assistance in rehabilitation because of its ability to control epileptic seizures without a hypnotic effect

New England Journal of Medicine, Boston

220. 617 650 (April 13) 1939

Bronchoscopic Dilation of Bronchial Stenosis Following Thoracoplasty for Tuberculosis E B Benedict, Boston —p 617
Arachnodactyly Its Occurrence in Several Members of One Family J Harrison and M J Klainer, Boston —p 621
*Determination of Serum Phosphatase and Its Clinical Significance J M Looney, Worcester, Mass —p 623
Pulmonary Moniliasis J J Decker Boston —p 626
Tumors of Bone C C Simmons Boston —p 629

220: 651 690 (April 20) 1939

Malignant Melanomas Clinical Study E M Daland and J A Holmes, Boston —p 651
Treatment of Chronic Pruritus Vulvae with Local Applications of Estrogen A Y Kevorkian, Boston —p 661
Outbreak of Infectious Diarrhea Among Newborn Infants A M Kimberly, Worcester, Mass —p 664
General Anesthesia L F Sise Boston —p 667

Clinical Significance of Serum Phosphatase.—High concentrations of phosphatase, according to Looney, are found in ossifying cartilage, while only traces are found in the nonossifying type In healing fractures no significant change in the serum levels of phosphatase occurs In conditions affecting bone, the highest values are obtained when there is marked activity either in the formation of new bone or the destruction of old bone Thus in osteitis deformans (Paget's disease), hyperparathyroidism (osteitis fibrosa cystica) and rickets the phosphatase levels may be from ten to twenty times above the normal values However, in osteitis deformans the calcium and phosphorus values are normal, while in hyperparathyroidism the calcium is elevated and the phosphorus is low, and in rickets both calcium and phosphorus are low The severity of the condition in all three diseases is indicated by the extent to which the serum phosphatase is elevated The level of the serum phosphatase gives the most reliable single index for evaluating early and doubtful cases of rickets In hyperparathyroidism the elevated values drop to normal after successful operation Failure of the serum phosphatase to return to normal after operation is therefore an indication that some hyperfunctioning parathyroid tissue was not removed In primary or metastatic osseous cancer the values are usually increased from two to five times the normal Osteogenic sarcomas give rise to

increased phosphatase values if of the osteoblastic type, but not in the osteolytic type. Normal or but slightly elevated values are obtained in chondrosarcoma, giant cell tumor and multiple myeloma. The phosphatase values are normal in bone infections, senile osteoporosis, osteogenesis imperfecta and chronic osteitis. Although the serum phosphatase level does not give a clearcut differentiation in jaundice when the values are moderately increased, one can expect that jaundice in the presence of low values rules out the possibility of obstruction and that extremely high values favor this diagnosis. A fall in phosphatase values during the course of pulmonary tuberculosis indicates a grave prognosis, while an elevation is regarded as a favorable sign.

New Orleans Medical and Surgical Journal

91: 463-520 (March) 1939

Some Observations on Influence and Effects of Toxemias on Menstruation. L. A. LeDoux, New Orleans.—p. 463.
Burns, an Unsolved Problem. I. Cohn, New Orleans.—p. 465.
Care of Compound Injuries of Face. J. B. Brown, St. Louis.—p. 474.
Pitfalls in X-Ray Diagnosis of Intestinal Obstruction. L. A. Fortier and T. T. Gately, New Orleans.—p. 481.
Congenital Cystic Disease of Lungs: Two Case Reports, with Note on the Dynamic Phase. R. H. Bayley and D. E. Fader, New Orleans.—p. 483.
Pulmonary Atelectasis: Case Report. C. Jamison and R. G. Holcombe Jr., New Orleans.—p. 488.
Treatment of Headache with Theelin. R. S. Crichlow, New Orleans.—p. 490.
Of Psychoanalysis. J. K. Hall, Richmond, Va.—p. 491.

New York State Journal of Medicine, New York

39: 859-962 (May 1) 1939

*Rapid Bedside Test for Measuring Sedimentation Rate. E. Goldberger, New York.—p. 867.
Treatment of Tumors of Eyelids by Surgery. J. M. Wheeler, New York.—p. 870.
Social and Asocial Accompaniments of Intense Hormone Medication. E. Liss, New York.—p. 875.
Typhoid Osteomyelitis and Chondritis: Presentation of Two Cases in the Same Family. H. H. Ritter and S. J. Bochner, New York.—p. 877.
Laughlen Test for Syphilis. S. Price, New York.—p. 880.
Constitution and Situations. I. S. Wile, New York.—p. 884.
Compression Fracture of Spine: Treatment by Spinal Fusion. M. B. Howorth, New York.—p. 891.
Relationship of Industrial Medicine to Private Practice. C. D. Selby, Detroit.—p. 896.
Roentgen Therapy in Toxic Thyroid Disease. J. R. Freid and H. Goldberg, New York.—p. 900.
Physical Measures in Treatment of Neurologic Conditions. R. Kovács, New York.—p. 917.

Rapid Sedimentation Test.—Goldberger states that if drops of blood obtained by pricking the fingertips of different individuals are placed on inverted glass slides, the slides righted and the drops allowed to clot and dry spontaneously, the films, when examined macroscopically by holding them to the light, will show an interesting phenomenon. Some films will give the appearance of a uniform, coarse meshwork. In others, the detail will be fine and there will be a concentration of erythrocytes in the center. The character of the film depends on the degree to which the erythrocytes settle (sedimentation rate) before clotting occurs, coagulation time, degree of agglutination of the erythrocytes (rouleau formation) and rate of drying of the film. Under ordinary conditions the rapidity of drying is unimportant. The rate at which the erythrocytes settle is directly proportional to the degree of their rouleau formation. A slow rate will produce a film fine in detail and uniform in the distribution of the cells, whereas with a rapid rate the rouleaux will be large and the general appearance of the film that of a coarse meshwork. If the coagulation time is rapid compared to the sedimentation rate of the cells there will be a tendency for the cells to be drawn to the center of the film. A very slow coagulation time will merely cause a more uniform distribution of the cells. Fineness or coarseness of general detail, character of the meshwork (if present), presence or absence of central agglutination and presence or absence of a peripheral ring are the criteria for reading the films. With this in mind four groups may be described: + normal, fine detail, no meshwork and gradual transition from periphery to dark central agglutinated mass; + + moderately rapid, the detail being somewhat coarse but uniform throughout, meshwork not noticeable particularly and possibly the beginning of a central agglutinated mass; + + + rapid, coarse detail, the meshwork fine but easily observed and absence of a central agglutinated mass; + + + + very rapid, very coarse detail, definite meshwork and no central agglutinated mass. The test should not supersede regular methods of sedimentation rate, but in the office and at the bedside it is of distinct value. Not only is the test of diagnostic value, the author states, but the slides can be filed and the results checked week by week in cases such as coronary thrombosis, rheumatoid arthritis and salpingitis.

Public Health Reports, Washington, D. C.

54: 629-672 (April 21) 1939

Frequency of Dental Services Among 9,000 Families, Based on Nationwide Periodic Canvasses, 1928-1931. S. D. Collins.—p. 629.
Evolution of Disseminated Bacterial Infection in Guinea Pigs: Influence of Treatment with Insulin and Phlorhizin. M. P. Schultz and Edythe J. Rose.—p. 657.

Southwestern Medicine, El Paso, Texas

23: 107-138 (April) 1939

Looking Forward. C. S. Smith, Nogales, Ariz.—p. 107.
Addison's Disease: Report of Case Successfully Treated Through Three Critical Periods. M. M. Green, El Paso, Texas.—p. 110.
Collapse Therapy in Tuberculosis. V. S. Randolph, Phoenix, Ariz.—p. 114.
Effect of Phrenicectomy on Digestion. R. E. Lyons, Lordsburg, N. M.—p. 116.
Peroral Endoscopy as Aid in General Diagnosis and Treatment. M. P. Spearman and W. E. Vandevere, El Paso, Texas.—p. 118.
Retinal Glioma. O. W. Thoeny, Phoenix, Ariz.—p. 119.
*Effect and Treatment of Arizona Scorpion Stings. M. L. Kent and H. L. Stahnke, Mesa, Ariz.—p. 120.

Treatment of Scorpion Stings.—Kent and Stahnke state that at the Southside Hospital, between April 1930 and May 1937, seventy-five cases of scorpion stings were treated. Symptoms are invariably more pronounced in children. Stings by Centruroides sculpturatus, unless treated at once, are almost always fatal to infants less than 1 year of age. They are extremely dangerous to older children and may cause serious inconvenience to adults. A child stung will cry out with pain. Most generally there is little sign of the sting, in the form either of inflammation or of swelling. The victim soon becomes restless. The restlessness increases to a degree that the child becomes entirely unable to cooperate with attendants. It turns and frets; if placed on its back in bed it does not remain quiet an instant. Frequently it crawls across the bed and attempts to grab its mother or other attendant. The abdominal muscles may become rigid. There may be tonic contractions of the arms and legs. Drooling of saliva begins and the heart rate increases. The temperature may rise to 103 or 104 F. in a patient who will subsequently recover. Cyanosis gradually appears and respiration becomes increasingly difficult, causing a reaction not unlike that observed in a severe attack of bronchial asthma. There may be wheezing, especially on inspiration. Involuntary urination and defecation may occur. In fatal cases the same symptoms become so marked that the child apparently dies from exhaustion. In patients who recover, the acute symptoms subside in twelve hours or less. The foregoing symptoms may be encountered in the adult, but as a rule they are less severe. Numbness is usually experienced at the site of the sting. If one of the extremities has been stung, that member may become temporarily useless. Two cases of temporary blindness have been encountered. Some patients complain of malaise for many days following the sting. A tachycardia lasting two weeks developed in one patient. Morphine if used at all should be used with extreme caution. It has not been found effective in the usual dosage. Barbiturates are more effective and are less dangerous. Bromides in large doses are apparently of value. In cases characterized by severe pulmonary edema, atropine is indicated along with general supportive measures. Compresses of a fairly concentrated ammonium hydroxide solution have been found quite helpful if applied within a few minutes, but if they are applied as late as ten minutes after the sting no apparent benefit is attained. The author states that during the last eighteen months several of the more severe cases have been treated with scorpion serum with results that are encouraging. Symptoms were controlled more rapidly, and when the serum was used death has not occurred.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

23: 225-288 (April) 1939

Foville's Syndrome: Record of Case. J. R. Mutch.—p. 225.
Projection Scotometer. F. A. Juler.—p. 239.
Theories on Formation of Aqueous Humor. J. D. Robertson.—p. 243.
Description of a Monster, Diprosopus Tetrophthalmus; with Notes on Histology of Median Eyes by J. Maude. I. Brodsky.—p. 250.
School Ophthalmic Service. A. Furniss.—p. 256.

British Medical Journal, London

1: 599-656 (March 25) 1939

Analeptics and Sympathomimetic Substances. J. H. Burn.—p. 599.
*Weil's Disease in Coal Miners. W. E. Rees.—p. 603.
*Weil's Disease in South Wales: Clinical Pathology. A. F. Sladden.—p. 605.
Early Diagnosis of Congenital Dislocation of the Hip. H. A. T. Fairbank.—p. 607.
*Pneumococcic Pneumonia, Complicating Pulmonary Tuberculosis, Treated with Sulfapyridine. J. H. Crawford.—p. 608.
Prognostic Significance of Ophthalmoscopic Findings in Cases of High Systolic Blood Pressure: Review of Eighty-Three Cases. R. U. Gillan.—p. 609.
Clinicopathologic Classification of Cancer of the Breast. R. W. Raven.—p. 611.

Weil's Disease in Coal Miners.—Six cases of Weil's disease in South Wales coal miners are reported by Rees, which he believes is the first record of this disease from that area. In each instance it was found that the men worked in wet places, and it was known that the pits concerned were infested with rats. In all six cases the clinical diagnosis was confirmed by positive serologic results. It is important to know that the organism flourishes only in fresh water. If the disease is becoming more common it seems possible that transmission by fresh water bathing may well become a matter for serious consideration. The possibility of spread of infection here is obvious. Again, as pointed out by Alston and Brown, workers exposed to infection may harbor what may be termed a "subclinical" form of the disease. In a series of apparently healthy sewer workers investigated it was found that 20 per cent showed positive serum agglutination reactions for Leptospira icterohaemorrhagiae. These writers suggest that prophylactic inoculation of workers exposed to the risk of infection would seem to be indicated. The disease does not always show itself in its well recognized characteristic form. Meningitis may be the presenting picture, as in the case described by Murgatroyd, who believes that it would be wise to consider a possible diagnosis of Weil's disease in many cases of so-called aseptic meningitis. In half of the cases there may be no jaundice. This being so, in all cases of pyrexia of unknown origin the possibility of spirochetal infection should be considered. In the author's present series of cases the symptoms were fairly typical. One observation of interest was that in three cases the blood pressure was definitely low. This seemed significant in view of the general complaint of weakness. All but one patient recovered, no serum, in effective dose, having been administered to any of the patients. However, to be effective serum must be given early and this series of patients were not seen before jaundice had appeared and the disease was well established.

Weil's Disease in South Wales.—Sladden states that, since the appearance and recognition of the cases of Weil's disease observed by Rees and three others in one locality, active measures have been taken by the colliery owners to rid the mines of rats. No further cases of Weil's disease have appeared in the mines concerned.

Pneumonia with Tuberculosis Treated with Sulfapyridine.—Crawford obtained no improvement from routine treatment of a case of pneumococcic pneumonia superimposed on a pulmonary tuberculous lesion until he gave the patient sulfapyridine on the sixth day of the patient's illness. The initial dosage (1 Gm. every four hours) was not high and as no toxic effects were observed higher doses could probably have been given with safety. The drug was discontinued after five days, which was apparently a little premature in this case, as slight relapse followed. It was easily controlled by further administration of sulfapyridine in the same dosage as before. There was no increase in activity of the tuberculosis as a result of the infection, and subsequent x-ray investigation of the chest revealed a definite improvement in the nature and extent of the lesion.

Irish Journal of Medical Science, Dublin

No. 159: 97-144 (March) 1939

Prophylaxis in Practice. J. Mowbray.—p. 97.
Recent Advances in Therapy of Diseases of Muscle. E. L. Murphy.—p. 115.
Tuberculosis in Adolescents. Dorothy Price.—p. 124.
Sympathectomy in Treatment of Achalasia of Cardia: Case. H. S. Meade.—p. 130.

Medical Journal of Australia, Sydney

1: 371-410 (March 11) 1939

Some Aspects of Operations for Internal Derangements of Knee Joint. E. F. West.—p. 380.
"Pentothal Sodium" Anesthesia: Review, with Analysis of 333 Cases. S. V. Marshall.—p. 382.
Nonunion of Carpal Navicular Bone. F. H. M. Callow.—p. 391.

1: 411-450 (March 18) 1939

Control of Disordered Metabolism in Hypertrophic Pyloric Stenosis of Infancy. H. Williams.—p. 414.
Mycotic Flora of "Surfers' Foot" in Sydney. H. L. Kesteven.—p. 420.
Fractures of the Os Calcis. L. Teece.—p. 428.
Cause and Prevention of Blindness in Tasmania: Supplementary Report. J. B. Hamilton and W. D. Counsell.—p. 430.

1: 451-490 (March 25) 1939

Occurrence of the Rarer Demyelinating Diseases (*Neuromyelitis Optica*, Schilder's Encephalitis et Cetera) in South Australia. E. W. Hurst, C. T. C. de Crespigny and H. K. Fry.—p. 451.
Perforation of Stomach and Duodenum Due to Simple Ulcer and Carcinoma. M. P. Susman.—p. 456.
*Investigation of the Visscher-Bowman Test for Pregnancy. Vera I. Krieger.—p. 463.
Clinical Dietetics. A. R. Southwood.—p. 467.
Vascular Conditions of Muscular Exercise. N. D. Royle.—p. 472.

Visscher-Bowman Test for Pregnancy.—Krieger subjected the urine from 276 pregnant and nonpregnant women to the Visscher-Bowman test. The test was found exceedingly difficult to interpret, since it was frequently difficult to distinguish "powdery" and "flocculent" precipitates in such small volumes of liquid. The results obtained may be divided into the following types: (1) clear solution, (2) hazy solution, (3) slight, fine, dark brown precipitate, (4) heavy, fine, dark brown precipitate, (5) slight brown gelatinous precipitate, (6) dark brown gelatinous precipitate and (7) heavy, dark brown gelatinous precipitate. The last three types, the author states, are the only types in which a definite reaction could be specified, and under such restrictions there were 36 per cent positive reactions among fifty-eight nonpregnant women, 59 per cent positive results among ninety-one women pregnant no longer than three months, 67 per cent positive results among eighty-three women pregnant longer than three months and 55 per cent positive results among forty-four puerperal patients. The incidence of positive results in the pregnant groups is lower than reported by other workers and the number of positive results in the nonpregnant group is much higher. Five specimens of urine from male persons were examined. Two gave negative results, two gave slight precipitates, and a pronounced reaction was obtained with the fifth specimen. The Visscher-Bowman reaction is not an indication of the presence of the hormone of the anterior lobe of the pituitary in urine of pregnant women. The reaction may be due to (1) the presence of reducing carbohydrates, (2) marked concentrations of urinary pigment, with greater possibility of positive reaction in the presence of albumin and (3) the presence of other reducing substances in urine.

South African Medical Journal, Cape Town

13: 187-222 (March 25) 1939

Therapy and Paratherapy. R. D. G. P. Simons.—p. 189.
Predisposing Causes in Allergic Disease: Notes of a Personal Experience. C. D. Brink.—p. 199.
Hydatid Choleperitoneum. F. D. du T. van Zyl.—p. 203.
Value of Renal Function Tests. V. Vermooten.—p. 208.

Gynécologie et Obstétrique, Paris

39: 161-240 (March) 1939. Partial Index

Strabismus in Relation to Obstetrical Stigmas of Heredosyphilitic Origin. A. Fruhinsholz and J. Louyot.—p. 161.
Subumbilical Hysterotomy: Personal Statistics of Two Hundred Cases. L. Digonnet.—p. 169.
Sympathetic Nervous System and Contractibility of Uterus: Problem of Uterine Innervation. R. Mahon.—p. 177.
*Antepartum and Postpartum Azotemia. J. Chosson and P. Dor.—p. 189.
Comparative Study of Some Abortifacients: Their Effects on Pregnant Animals. A. Patoir, G. Patoir and H. Bédrine.—p. 201.

Antepartum and Postpartum Azotemia.—Chosson and Dor present the results of a clinical study of azotemia in twenty patients between the ages of 17 and 48, including primiparas and multiparas. The selection made at random was refined by retaining only those who were diagnostically proved to be free from defects of the kidneys and liver. The authors divide their study into two phases: (1) those (eight) in whom azotemia was observed before childbirth with the aid of hypobromite; (2) those (twelve) in whom azotemia was observed after childbirth, to which group those in group 1 were added. The observations indicated an average of 29 per cent, with extremes fluctuating between 20 and 45 per cent (the last a special case), are in accord with generally accepted conclusions and support the view that a lowered azotemia is found in pregnant women. In the second phase of their study, the authors test Estienny's alleged variations in postpuerperal azotemia indicating a high average of 43 per cent during two weeks after childbirth. Blood samples were taken by them on the second, fourth and sixth day post partum and before food ingestion. Their conclusions are that frequently a heightened postpuerperal azotemia occurs, with few individual differences. The apparent discrepancies between their and his observations are explained by the fact that they limited themselves to an observation of six days, while Estienny's extended over two weeks. In evaluating the results, the authors believe that one ought not to underestimate the fact that azotemia post partum is perceptibly close to that of normal physiologic conditions and that urea in the blood reduced during pregnancy because of hydremia tends naturally to normalize itself after childbirth.

Revue Neurologique, Paris

71: 257-368 (March) 1939

Electrophysiologic Study of Postural Regulation. P. Mollaret.—p. 257.
Induced Hyperglycemia as Test in Tumors of Hypophysis. Cossa, Augier and Rivoire.—p. 267.
*Peculiar Anatomoclinical Form of Chronic Alcoholism: Alcoholic Laminar Cortical Sclerosis. F. Morel.—p. 280.
Radiologic Symptom of Tumors of Posterior Fossa. J. Rossier.—p. 289.

Alcoholic Laminar Cortical Sclerosis.—Morel says that the neurogliar architecture may undergo profound transformations. For a number of years he has made systematic studies on the macroglia of the brains from patients with oligophrenia, with dementia praecox, with epilepsy, with dementia paralytica, with alcoholism, with cerebral arteriosclerosis and finally with senile degeneration. In all, the author studied more than 400 brains. The technic that he used for fixation and which he prefers to Cajal's gold chloride-mercuric chloride stain is a modification of the method of Globus. By means of this method he was able to obtain clear pictures of the macroglia in the majority of disorders enumerated. In this report he describes observations on four patients with chronic alcoholism. At the time of death their ages were 37, 51, 52 and 58 respectively. All had been greatly addicted to alcohol and presented signs of grave alcoholic gastritis. In their last years all had signs of alcoholic impregnation with prolonged atypical delirium tremens. Spasticity of the legs rendered walking difficult; there was severe tremor of the hands with mild carphology; also quivering of the face and stuttering. The Wassermann reaction of the blood as well as of the cerebrospinal fluid was negative in all four patients. The examination of the brains revealed that their weights were relatively high. There was subarachnoid edema but no fibrous leptomeningitis typical of dementia paralytica and no granular ependymitis. On the other hand, there was considerable cerebral arteriosclerosis. On microscopic examination, none of the four brains presented senile plaques, nor cellular changes of the Alzheimer type. There were no changes characteristic of dementia paralytica. All four cases presented proliferations of the neuroglia. These are not neurogliar islands or discontinued nests, which in places may have a laminar aspect but which in fact are pseudolaminar; on the contrary, these neurogliar proliferations form a continuous stratum limited to the third layer. Symmetric regions of the brain always show a remarkable similarity with respect to the extension and the intensity of this proliferation. To be sure, not all cerebral regions show it with the same clarity. It is especially pronounced in the frontal lobe, but in the ascending frontal convolution it is not as noticeable as in the other frontal convolutions. It is again more pronounced in the parietal region but toward the occipital lobe it tends to disappear. As regards the condition of the neuroglia in this third layer, the author says that the astrocytes in the third layer have numerous thickened vascular pedicles and they are stretched out. Thus it may be said that there is hyperplasia, hypertrophy and alteration of the astrocytes in the third layer. The microglia of the third layer likewise has undergone changes. Although in other parts of the cortex it is relatively fine and delicate, in the third layer it is coarse. The alterations presented by the nervous cells of the third layer are not particularly characteristic. The author suggests for the described cerebral modification the term "alcoholic laminar cortical sclerosis."

Sang, Paris

13: 225-351 (No. 3) 1939. Partial Index

Physiologic and Pharmacodynamic Studies on Spontaneous Hemostasis. J. Roskam.—p. 225.
"Agastric" Anemias. R. Leroux and E. Vermes.—p. 241.
*Hemopathies Caused by Benzene. F. Mignolet.—p. 268.

Hemopathies Caused by Benzene.—Mignolet was able to observe for many months a number of cases of benzene intoxication that occurred in a heliogravure workshop where benzene was used as a solvent for the ink. The benzene used is not chemically pure but is a mixture containing variable quantities of xylene and toluene and some impurities. The solvent that caused the accidents described here contained 80 per cent of benzene and nearly 20 per cent of toluene. The onset of the poisoning is not characteristic. The patients complain first of disorders of a nervous type, such as vertigo, headaches and abnormal excitation. Soon anorexia and somnolence develop, then asthenia and fatigability and often muscular cramps. Frequently the patients appear emaciated and pale. Cardiac involvement is indicated by rapid pulse, palpitations and arterial hypotension; respiratory symptoms are dryness of the throat, cough, dyspnea, suffocation and sensations of thoracic constriction; disorders of the digestive tract are anorexia, hypoacidity, nausea, vomiting, constipation and hepatic congestion; hemorrhagic symptoms are petechiae, ecchymoses, epistaxis, gingival bleeding, hemoptysis and menorrhagia. Moreover, many patients have attacks of fever, particularly at the time of relapse. The author observed twenty-six cases of benzene intoxication; fourteen were grave and necessitated prolonged inactivity (eighteen months and more). One patient, a man aged 29, died with symptoms of severe anemia and agranulocytosis in spite of repeated blood transfusions. In the second part of this report, the author shows that benzene is a poison of the blood, describing its effects on the various hematic elements. Regarding the therapy, he says that he obtained favorable results with the injection of liver extracts. Extracts administered by mouth only improved the appetite but were without action on the hemogram. However, the transfusion of citrated blood proved to be the most effective of all therapeutic procedures. Ephedrine and strychnine proved helpful against the asthenia. The author thinks that, in order to prevent poisoning with benzene, workers who have to use it must be carefully examined. Persons with cardiac, anemic, hepatic, renal and thoracic disorders or with a predisposition for them should be rigidly excluded from occupations that necessitate contact with benzene. Persons who do work with the substance should be examined at regular intervals (every two or three months), the examination to include a complete hemogram. Strict hygienic measures should be enforced in the shop (washing of hands, wearing of masks, proper ventilation and so on). In the conclusion, the author emphasizes that thrombopenia and prolongation of the time of coagulation are signs of alarm, but granulopenia is already a sign of intoxication. The anemias of benzene intoxications are usually hyperchromic aplastic anemias.

Schweizerische medizinische Wochenschrift, Basel

69: 261-284 (March 25) 1939

Chronic Gastric Ulcer and Its Pathogenesis. L. Aschoff.—p. 261.
Uniovular Twins with Multiple Sclerosis. R. Isenschmid and M. Olloz.—p. 267.
Familial Occurrence of Besnier-Boeck's Disease. M. Dressler.—p. 269.
*Scarlet Fever Streptococci. W. Wyler.—p. 272.
Two Observations of Posterior Hernia of an Intervertebral Disk. E. Jéquier and J. Rossier.—p. 273.

Scarlet Fever Streptococci.—Wyler says that although it seems definitely established that streptococci play a part in the pathogenesis of scarlet fever, it is as yet not certain whether scarlet fever is caused by a special type of streptococcus or whether it represents an especial reaction of the organism to the streptococcic infection. He reports a case in which it proved impossible to differentiate between streptococcic sepsis and scarlet fever. A boy aged 10 sustained lacerations and contusions below the left knee when he fell into a pit filled with liquid manure. In spite of excision of the wound and of the administration of tetanus serum, fever and symptoms developed on the basis of which meningitis and tetanus were thought of. Later, the diagnosis wavered between tetanus and sepsis, but tetanus could be excluded on the basis of the blood picture. There was no typical scarlet fever, no redness of the throat, no angina and no exanthem. A blood transfusion that was given to overcome a serious circulatory impairment effected a rapid improvement in the circulation and it was followed by the appearance of the circumoral pallor and the strawberry tongue; that is, by symptoms typical of scarlet fever. The questions raised by this case are: 1. Was the causal organism in this case a specific scarlatinal streptococcus; that is, did the boy have a fulminant traumatic scarlatina? 2. Was the reactivity of the organism such that it reacted to the streptococcus in the wound with scarlet fever? 3. Was the disorder simply a streptococcic sepsis which was modified by the transfusion into a scarlatina-like process? These questions are undecided, but the author is inclined to accept the latter version, namely that a severe septic process, caused by streptococci, took on a scarlatina-like course after a blood transfusion.

Dermosifilografo, Turin

14: 141-200 (March) 1939. Partial Index

*Urethritis from Enterococcus: Clinical and Bacteriologic Study. G. Rivelloni and A. Spanedda.—p. 141.
Induratio Penis Plastica and Nicolas-Favre's Disease. A. Midana.—p. 163.
Etiology of Annular Granuloma and Case of Rare Location. U. Cavallucci.—p. 173.
Value of Chediak Test in Diagnosis of Syphilis. L. Gabriele.—p. 192.

Urethritis from Enterococcus.—Rivelloni and Spanedda point out the importance of nongonococcic urethritis. They made observations on a group of fifty-six patients (forty-eight men and eight women) who were suffering from enterococcic urethritis. The condition may be either primary, which follows sexual intercourse, or secondary, which follows a controlled gonococcic infection. In either form the period of incubation lasts for ten or twelve days, the symptoms are mild and the urethral secretion is scanty, mucous, thick and yellow. The urogenital apparatus is not involved. In urethritis in men the only urethroscopic observation consists in the presence of moderate diffuse hyperemia at the anterior urethra, which is milder in the primary form than in the secondary form. The posterior urethra in men and the female urethra do not show urethroscopic changes. The bacteria isolated from the urethral secretions belong to type C of Koch's bacteria and dissociate into the S and R phases. The infection does not heal spontaneously. The authors reproduced, experimentally, enterococcic urethritis in various groups of volunteers. They succeeded by injecting 3 cc. of a pure culture of Enterococcus in the normal urethra and also by making passes of the experimental infection. In women the condition, either clinical or experimental, develops in association with enterococcic cervicitis. The authors found that Enterococcus in vitro is resistant to sulfanilamide preparations and that the latter preparations, when they are administered alone, whether by mouth, in intramuscular injections or in local applications, fail to control the clinical and experimental infections. Autovaccines administered to the patients also fail. The author obtained satisfactory results from a combined treatment which consisted in administration of sulfanilamide by mouth, local instillations of a 0.25 or 1 per cent silver nitrate solution every day, for the duration of three or five minutes and lavages, every other day also, with a 1:5,000 potassium permanganate solution or a 0.1:1,000 mercury oxycyanide solution. Patients in poor general condition were given preparations of arsenic or phosphorus. The treatment must be given over a long period of time in order to prevent possible recurrences.

Oto-Rino-Laringologia Italiana, Bologna

9: 1-104 (Jan.) 1939. Partial Index

*Cancer and Tuberculosis of Larynx. G. Rossi.—p. 1.
Otomastoiditis and Mastoidectomy in Infants. L. Padoin.—p. 33.
Action of Basal Anesthesia with Barbital Preparations on Vasomotor Reflexes. R. Abbate.—p. 65.

Cancer and Tuberculosis of Larynx.—In a group of seventy patients suffering from primary cancer of the larynx and seen at the Clinica Oto-Rino-Laringologica of the University of Bologna, Rossi observed four who had cancer of the larynx associated with laryngeal tuberculosis. The four patients ranged in age from 45 to 57. Only one patient was under 30. The diagnosis of the diseases was made by microscopic study of the tissues, which were removed by biopsy, and in two cases also by study of the larynx, which was removed by laryngectomy. Metastases were not present in any of the cases. According to the author there is no antagonism between cancer and tuberculosis in the same organ. The larynx is a structure which may be the seat of either tuberculosis or cancer in the presence of or preceding the other disease. The most frequent forms of laryngeal cancer in tuberculosis are (1) cancer of the normal larynx complicating pulmonary tuberculosis, (2) cancer of the tuberculous larynx and (3) primary laryngeal cancer with secondary development of laryngeal tuberculosis. A clinical diagnosis is difficult. The diagnosis is made by biopsy. When the patients are in good general condition and the disease is in its early phase of development a laryngectomy may give satisfactory results. However, the author calls attention to the fact that either tuberculosis or cancer of the larynx alone is grave. Consequently the association of the two conditions is still more grave. Moreover the evolution of the two conditions in association will depend on several factors, such as for instance the individual resistances, the phase of evolution and the more or less malignant type of the disease and the administration of early treatment.

Rivista di Clinica Medica, Florence

39: 623-666 (Oct. 30-Nov. 15) 1938. Partial Index

*Variations of Chloremia from Administration of Ascorbic Acid. C. Pegoraro and G. Comi.—p. 623.
Participation of Nervous System in Diseases of Reticulo-Endothelial System. L. Greco.—p. 641.

Chloremia from Ascorbic Acid.—Pegoraro and Comi made determinations of chloremia in a group of thirty-six persons including normal persons and patients who were suffering from different diseases. The determinations were made on fasting persons before and after the administration of an intravenous injection of 0.5 Gm. of ascorbic acid. They were performed at intervals of one hour. The authors found that chloremia diminishes after the administration of ascorbic acid. The lowest figures of the curve of chloremia correspond to the third hour in the course of the test, after which chloremia slowly returns to high figures, which however are lower than those which existed before administration of the acid. If the test is repeated one week later during which the patients receive daily intravenous injections of 0.5 Gm. of ascorbic acid, the figures of chloremia during fasting and before administration of the acid on the day are lower than those which were observed in persons in the same condition in the test previously made. The authors carried on determinations of diuresis and of the elimination of chlorides through the urine in a group of eight patients who were suffering from different diseases. The determinations were made on the total amount of urine which was eliminated in the course of three days before and after the administration of ascorbic acid in daily doses of 0.5 Gm. The authors found that both diuresis and the elimination of chlorides through the urine increase from the treatment. Therefore they conclude that the administration of ascorbic acid in doses of 0.5 Gm. induces diminution of chloremia and increase of diuresis and chloruria.

Chirurg, Berlin

11: 217-256 (April 1) 1939

Hormonal Therapy of the Prostate. O. Orth and O. Hasslocher.—p. 217.
*Bilateral Carotid Tumor: Case. G. Marangos.—p. 222.
Cranial Injury and Aphasia of Polyglotts. O. Winterstein and E. J. Meier.—p. 229.
Heller's Extension Apparatus. Matthaes.—p. 232.
Treatment of Sciatica with Periarticular Intervertebral Procaine Hydrochloride Infiltration. S. Teneff.—p. 237.

Bilateral Carotid Tumors.—The relatively recent knowledge of tumors of the carotid gland, according to Marangos, dates from their description by Marchand and Paltauf. The rarity of the lesion may be judged from the fact that MacCarthy and Bevan were able to collect from the literature up to 1929 not more than 131 cases. Rankin and Wellbrock collected 196 cases in world literature up to 1932, while sixteen more cases are to be found in recent contributions. Bilateral occurrence of the tumor was reported twice, once by Rankin and Wellbrock and once by Lund. The author reports a successful operative removal by Makkas of bilateral carotid tumors in a girl aged 23 at the Red Cross Hospital in Athens. The tumor on the right side was noticed by the patient five months after the removal of the tumor on the left side and was operated on three months later. Both tumors were removed without damaging or ligating the common carotid artery, either of its two main branches or the vagus nerve. Both tumors presented on a microscopic examination identical structure, that of a paraganglioma or struma of the carotid gland. The paragangliomas represent hypertrophy of the cellular structure of the carotid. They develop at the site of bifurcation of the common carotid artery, grow slowly and seldom undergo malignant transformation. The far more rarely occurring neurofibromas develop from the nervous elements of the carotid plexus and are, as a rule, malignant. The surgical removal of the tumor, while theoretically most desirable, is hazardous and technically difficult. It carries with it the dangers of postoperative bleeding, paralysis of the hypoglossus nerve, Horner's syndrome and syncope or sudden death due to the irritation of the carotid plexus. In a considerable proportion of the cases there arises the necessity of ligating the common carotid artery. The latter procedure is associated with an immediate mortality of 32 per cent, according to Hartmann. The author is of the opinion that removal of a small tumor without ligation of the common carotid artery is possible in not more than one third of the cases and that in this group the mortality is about 5 per cent. The postoperative complications following ligation of the artery are hemiplegia and paralysis of the vagus, the sympathetic and the hypoglossus. Roentgen therapy is not successful because of the lack of radiosensitivity on the part of the mature cells of the paraganglioma. Barbier and Hartmann suggest exposure of the tumor and an immediate biopsy. If the tumor is benign, as much of it as is possible is removed, and the remaining tissue is subjected to later roentgen irradiation. Only in the case of a malignant growth do they feel that ligation of the common carotid artery is justified.

Klinische Wochenschrift, Berlin

18: 337-368 (March 11) 1939. Partial Index

Modifications of Vitamin C, of Inhibin and Lipase in Raw and Heated Human Milk. W. Catel.—p. 342.
Effect of Nicotinic Acid on Different Anemias. D. Ackermann, H. G. Fuchs and E. Brandes.—p. 348.
*Regulation of the Calcium Content of the Blood. F. Linneweh.—p. 350.
Pancreatitis in Infectious Diseases. M. Gülzow.—p. 353.
Micro-Analytic Demonstration of Presence of Lead in Fluids of the Body. G. Straube and H. Beck.—p. 356.

Calcium Content of Blood.—Linneweh reports his observations of hypocalcemia secondary to hypalbuminosis and indicates a new regulatory blood mechanism. The diseases studied are etiologically unrelated, show no spasmophilia (except for a sporadic case) and are characterized by an albumin deficiency with a tendency to edema and by hypocalcemia. Clinical experiences, the author says, clearly prove that certain diseases accompanied with tetany are caused by a calcium deficiency but have yielded only meager information on the regulatory process of the calcium content. By means of dialysis and ultrafiltration, the total calcium content of the blood can be determined in its component parts: diffusible (the larger part positive, the smaller electrically neutral) and nondiffusible. Normally, the diffusible portion is said to amount to from 5 to 6 mg. per hundred cubic centimeters. This proportion is lowered when the parathyroid glands are removed. Reduction is also observable in cases of pure tetanus. According to the author, probably other regulatory mechanisms of a hormonic and nervous nature besides the parathyroid glands exist and affect the total calcium content, but their effects do not seem to be important. Hypocalcemia is found in other diseases that do not show tetanus and spasmophilia, but there is still much doubt as to what extent the changes in the calcium content are really characteristic of these diseases and what the true cause is. In only a few cases were the diffusible and nondiffusible portions of the reduced calcium content studied separately or was a satisfactory explanation of the calcium reduction given. Among the diseases studied by the author showing hypalbuminosis are war edema, pancreas deficiency, nephrosis, pericarditis and ascites. In all these diseases a regular relationship is observable between the calcium level and the albumin level. Because of the practical absence of tetany, the author does not regard dysfunction of the parathyroid glands as causative of hypocalcemia secondary to hypalbuminosis but of physiochemical relationships, a portion of the calcium being combined with and dependent on albumin in the blood. It may be accepted as scientifically demonstrated that the nondiffusible portion of the calcium is dependent on the albumin. Often the percentages obtained by ultrafiltration, he says, for the dependency of calcium on albumin were found to be higher than those obtained by dialysis. The clinically ascertained parallelism of fluctuation between the calcium content and the albumin content indicates a close connection between the two substances. This connection is so close that not only the ultrafiltrable but also the nonultrafiltrable portion of the calcium shows a decrease when the albumin content decreases. The author, therefore, regards the designation of diseases as "hypocalcemias secondary to albuminosis" as terminologically justified. He sees a twofold value in recognizing this class of disease: 1. One need not at once infer increased spasmophilia from decreased calcium content. 2. The reduction of the calcium reserve that is dependent on the albumin content limits the efficiency of the regulatory mechanism. The appropriate therapy is to restore the normal calcium reserve. Removal of hypalbuminosis increases the ability of the calcium to combine. Normalizing of the diffusible and nondiffusible portions of the calcium is best attained by a diet rich in albumin.

18: 401-452 (March 25) 1939. Partial Index

*Vitamin C Content of Human Brain with Special Reference to Vegetative Centers. F. Diehl and H. Neumann.—p. 418.
Modifications in Cholesterol Content of the Blood After Sea and Sun Baths. H. Curschmann.—p. 434.
Changes in Wavelength of Electrocardiogram Accompanying Changes in Dilatation of the Heart. W. Weitz and H. Warnecke.—p. 441.
Heparin in the Blood. W. Grunke.—p. 443.
A New Vasodilator. H. Zothe.—p. 443.

Vitamin C Content of Human Brain.—Diehl and Neumann report the use of methylene blue (as applied by Bonsignore and Martini) to determine the vitamin C content of the various portions of the brain in nineteen adults between the ages of 21 and 84 and one infant aged 7 weeks. Clinical research emphasized the difference between the vegetative and nonvegetative brain centers. The anatomic procedure is indicated for the portions of the brain studied. The greatest vitamin C content was found in the tuber cinereum, medulla oblongata and hypophysis in the order given, the lowest in the cerebellum, corpus callosum and cerebrum, ascorbic acid being represented in the extremes of 1.2 mg. and 30.5 mg. per hundred cubic centimeters in the adult brains and of 48 mg. per hundred cubic centimeters in the hypophysis of the infant brain. The authors suggest that the difference in vitamin C content between the high and low group is due to the difference in vegetative centers, Bodechtel's investigations having already established the vegetative significance of the brain portions rich in vitamin C. On the other hand, according to the authors, the brain portions with lowest content have clearly little to do with vegetative functions. Results relative to the hypophysis invite the conjecture that the hypophysis of healthy persons contains the highest proportion of vitamin C but that, whenever a deficiency of this vitamin occurs in a person, the hypophysis suffers a much earlier and more

incisive curtailment of its functions. The interpretation of the results follows the conclusions of Tonutti that a high vitamin C content of an organ is indicative not of a process of "storing" vitamin energy but of the immediate active demands made by the system on it. The more active an organ is, the more vitamin C it contains. The portions of the brain that are the last to cease functioning are connected with the vegetative centers and as the most active are richly supplied with vitamin C. This interpretation, the authors believe, also accounts for the fact that the brain portions intermediate between the high and low groups show so great a fluctuation. Manifestly, shortly before life becomes extinct and varying according to the person and the pathophysiologic picture, some of the intermediate brain portions flicker into a final intensity of function at one time or another. On the other hand, the lowest of these portions in the authors' rating scale, the cerebrum, reduces its functioning to a minimum long before death. The conclusions of others pertaining to the relations existing between age level and vitamin C content have been confirmed in this investigation.

Medizinische Klinik, Berlin

35: 337-368 (March 17) 1939. Partial Index

Treatment of Uterine Retroflexion. F. A. Wahl.—p. 337.
Therapy of Malignant Ovarian Tumors. W. Benthin.—p. 339.
Pregnancy and Cholelithiasis. H. Rupp.—p. 341.
Use of Roentgen Rays in Obstetrics and Gynecology. P. Werner.—p. 344.
*Value of Prophylactic Administration of Prontosil in Manual Detachment of Placenta. A. Pohl.—p. 346.

Prontosil Prophylactically in Manual Detachment of Placenta.—A review of the literature on the prophylactic administration of sulfanilamide preparations in septic complications of the puerperium discloses favorable results, but Pohl admits that it is unnecessary to administer sulfanilamide to every puerperal woman. Manual detachment of the placenta, which is one of the most dangerous obstetric operations, justifies the prophylactic use of sulfanilamide. The prophylactic treatment employed by the author consisted in the intragluteal administration of 0.25 Gm. of prontosil. This prophylaxis was used in forty-six cases of manual detachment of the placenta. Comparing the cases of manual detachment of the placenta in which prontosil prophylaxis was used with those of previous years in which this form of prophylaxis was not used, it was found that the women who were given this treatment could be discharged from the clinic as early as after spontaneous delivery except in the cases in which severe anemia necessitated a longer stay. None of the thirty-six women in whom manual detachment was the only operation developed endometritis or thrombophlebitis when prontosil prophylaxis was employed, whereas in the same number of cases in which prontosil prophylaxis was not employed each of these complications developed twice. In the remaining ten of the aforementioned forty-six cases, the manual detachment was performed following other vaginal operations. A comparison with the same type of cases in which prontosil prophylaxis was not employed again proved the efficacy of the prontosil prophylaxis. In general, it can be said that manual detachment of the placenta as the only operation is less dangerous than when it is combined with other operations. The author thinks that all puerperal women who are threatened with septic infections should be given immediately an intragluteal injection of 0.25 Gm. of prontosil. Following this, they should be given three times daily, for four days, one tablet of prontosil. The author thinks that this prophylaxis will reduce not only the mortality but also the puerperal diseases likely to result in sterility.

Zeitschrift für Immunitätsforschung, Jena

95: 169-344 (March 10) 1939. Partial Index

Modification of Phagocytosis by Bacterial Capsule and Bacterial Polysaccharides. S. Mielnik-Kosmiderski.—p. 203.
Comparative Investigations on Local Anaphylaxis of Gastrointestinal Tract. Tao Shen Kiang.—p. 227.
Aspects of Some Types of Hemolytic Streptococci of Group A. R. Haas.—p. 238.
*Determination of Blood Group as Sedimentation Reaction. F. Sander and Meta Sander.—p. 268.

Blood Group Sedimentation Reaction.—The blood group sedimentation reaction described by the Sanders has the aim to measure differences in the intensity and in the time factor of the isohemagglutination better than was possible with the former methods. The authors point out that it has been investigated repeatedly whether connections exist between the sedimentation speed of the erythrocytes and the blood group to which the erythrocytes belong. With the ordinary technic of blood sedimentation, the authors were unable to detect group specific differences in the sedimentation. However, the conditions become quite different when the erythrocytes are brought in contact with serums that are antagonistic to the group; that is, when the erythrocytes of groups A and AB are combined with anti A (beta) or O (alpha, beta) serum or when B or AB erythrocytes are combined with B (alpha) or O (alpha, beta) serums. In these cases, the sedimentation speed is enormously increased; within a few minutes, the erythrocytes may drop from 200 mm. (Westergren) to 10 per cent of the height of the column, a drop of 180 mm. This rapid sedimentation is preceded by a more or less coarse conglobation of the erythrocytes, which is similar to that observed in the determination of the blood groups. This conglobation of erythrocytes is the result of an agglutinin fixation by the erythrocytic receptors. The authors suggest the following method for the determination of the blood groups by means of sedimentation: Several cubic centimeters of venous blood is withdrawn and the serum is separated from the erythrocytes by centrifugation. Then 0.6 cc. of the serum to be examined is placed into each of two small test tubes and is mixed with an equal amount, that is, 0.6 cc. each of a suspension of test erythrocytes, of A or B erythrocytes in physiologic solution of sodium chloride (dilution 1:10), and this mixture is immediately drawn up into a Westergren pipet. Then, frequently after a few seconds, the strong conglobation of erythrocytes is observable and this is followed by a rapid sedimentation. The results are then read in the manner customary for the blood group test. That is, if sedimentation has taken place in both serum specimens, with A as well as with B test erythrocytes, it is an O (alpha, beta) serum; if sedimentation is produced only with A test erythrocytes, it is in the first case a B (alpha) serum and in the second case an A (beta) serum, and if there is no sedimentation at all the serum in question is of the AB type. The authors further describe a number of factors that may eventually be of influence on the course of the reaction and direct attention to two entirely different types of sedimentation, the rapid and the slow type. Finally they suggest the possibility of an "analysis" of the sedimentation of the erythrocytes by means of the sedimentation method.

Zeitschrift f. menschliche Vererbungslehre, Berlin

23: 1-168 (March 6) 1939. Partial Index

Studies on Family Groups with Harelip and Clefts of Hard and Soft Palate. J. Mengele.—p. 17.
Anomalies and Complexes of Anomalies in Region of First Pharyngeal Arch. H. Günther.—p. 43.
*Hereditary Origin of Thrombo-Angiitis Obliterans: Contribution to Problem of Heredity in Rheumatism. O. Reichert.—p. 53.
Formation of Human Hand as Expression of Habitus: Anatomic-Photographic Serial Investigations on Constitutional Pathology. Ilse Zenneck.—p. 67.
Chondrodystrophy and Acanthosis Nigricans: Question of Personality of Persons with Chondrodystrophia and Degree of Manifestation of Chondrodystrophic Characteristics. H. Lange-Cosack.—p. 94.
Involvement of Hereditary Factors in Pathogenesis of Eclampsia. W. Bickenbach and F. Kröning.—p. 113.

Heredity of Thrombo-Angiitis Obliterans.—On the basis of the assumption that the mechanisms of the pathogenesis of rheumatism and of thrombo-angiitis obliterans are related, Reichert decided to investigate whether in families of patients with thrombo-angiitis obliterans there is an increased incidence of rheumatic diseases. Moreover, since thrombo-angiitis obliterans is a vascular disease with a tendency to the formation of thrombi, he gave his attention to the occurrence of other vascular disorders such as atherosclerosis, apoplexy, thrombosis, embolism and infarct. Starting with patients who had thrombo-angiitis obliterans, he made studies on three extensive family groups. He noticed a high incidence of diseases of the rheumatic type in general and of articular rheumatism in particular. He stresses that the observations on these family groups provided new proofs for the hereditary origin of the hyperergic mode of reaction and of rheumatism. Observations on two of the families indicated that, besides the inferiority of the connective tissue system, the susceptibility of the vascular apparatus is a decisive factor in the pathogenesis.

Orvosi Hetilap, Budapest

83: 329-356 (April 8) 1939. Partial Index

Experiments with Synthetic Estrogen. C. Fátyol.—p. 336.
Common Factor in Treatment of Schizophrenia. B. Mezei.—p. 339.
Delirium Due to Pellagra: Case. I. Kulcsár.—p. 341.
*Narrowing of Arteries of Lung Due to Shale-like Incrustation of the Lung Hilus. F. Orsós.—p. 345.

Narrowing of the Lung Arteries Due to Incrustation of Lung Hilus.—Two cases of interest in forensic medicine are reported by Orsós in which circulatory trouble was found to be the sole cause of death, leading to degeneration of an overburdened right heart. Both patients were over 60 years old at the time of death. Careful observation of the lungs revealed an obstruction at the lung hilus at the secondary branches of the lung arteries or somewhat below. The obstruction, in the shape of a funnel or hourglass, was caused by the shale-like incrustation of the enlarged hilus lymph nodes and their surroundings. As a result of the incrustation, the interstitial tissue of the hilus, together with the lymph nodes, changed into a hard tissue-plaster, in which the blood vessels were embedded. Microscopic examination of one of the cases revealed that the wall of the narrowed secondary branch of the lung artery was of varying thickness. It was even missing on one side, granulation tissue taking its place, narrowing in its turn the already narrowed passage.

Vestnik Khirurgii, Leningrad

57: 1-230 (Jan.) 1939. Partial Index

Fortieth Anniversary of Discovery of Radium. N. N. Petrov.—p. 5.
Treatment of Cancer of Mouth and Its Late Results. A. A. Epshteyn.—p. 21.
Trauma Caused by Teeth as Etiologic Factor in Leukoplakia of Oral Mucosa and Tongue. A. S. Olshanetskiy.—p. 40.
*Tumors of Upper and Lower Lips Treated at the Oncologic Institute of Leningrad in Last Ten Years. A. P. Shanin.—p. 43.
Malignant Tumors of Lateral Regions of the Neck. N. D. Perumova.—p. 63.
Symptomatology and Pathology of Carotid Tumors. M. M. Lyakhovitskiy.—p. 78.
*So-Called Metastasizing Adenomas. S. A. Kholdin.—p. 153.

Tumors of Lips.—According to Shanin, fifty-six cases of tumors of the upper lip and 681 of the lower lip were treated at the Oncologic Institute of Leningrad between 1926 and 1936. Tumors of the upper lip were encountered more frequently in women than in men. About one third of the tumors of the upper lip were either benign or precancerous lesions. The greater variation in their histologic structure, as compared with that of the tumors of the lower lip, is to be explained on the basis of a derivation from a greater number of embryonic elements. The duration of the lesion at the time of admission was essentially the same for the second five year period as for the first. The author advocates radical removal of the precancerous lesion extending 0.5 cm. into healthy tissue. In the surgical removal of tumors of the upper and the lower lips inclusion of 1 cm. of healthy tissue for the early lesions and of 1.5 cm. for the more advanced lesions is advocated. The follow-up cases thus treated showed 80 per cent of cures for a considerable time. Experience with irradiation showed the necessity of increasing the dosage to 1.5 millicuries for each square centimeter of irradiated surface when radium implantation was used, and to 2 or 3 millicuries for each square centimeter of irradiated surface when radium was applied at a distance of from 1 to 2 cm. The dose was likewise increased to 3,000 or 4,000 roentgens when the fractional method was applied. The surgical removal of tumors of both lips is applicable to cases in which the operation can be easily carried out and in which it will not be followed by a disfiguring scar. Electrosurgery is indicated for lesions developing on the basis of leukoplasia or leukokeratosis. Recurrences involving complicated plastic procedures for their removal were treated instead with radiation. Radium implantation therapy resulted in 70 per cent of cures and radium application in 61 per cent. The difference in all probability was due to the fact that the implantation method was applied to the earlier cases. The implantation method gave best results in tumors in the second or third stage, while radium at a distance gave best results with tumors in the first stage. Radium implantation proved to be the best method in recurrences. Regional metastases were treated by operative removal in 266 cases and by roentgen therapy in fifty-two. Preoperative roentgen irradiation increased the effectiveness of the operative removal. The operation for regional metastases involved the removal of all submaxillary connective tissue along with the salivary glands and lymph nodes from both sides. Complications of inflammatory nature exerted an unfavorable influence on the malignant process.

So-Called Metastasizing Adenomas.—The formulation of a satisfactory classification of tumors of the thyroid, according to Kholdin, is difficult because of a number of tumors of a transitory type and because of lack of correspondence in some cases between the microscopic structure of the neoplasm and its clinical course. To this group belong the rather infrequent but interesting variety of so-called metastasizing adenoma first described by Cohnheim in 1876. Simpson has collected seventy-seven cases up to 1926. Only those adenomas the microscopic structure of which as well as the microscopic structure of their metastases do not contain carcinoma cells are to be included in this group. The microscopic structure of the metastatic nodules resembles almost entirely those of the primary tumor. The predominating type is one made up of small follicles lined with high cuboidal or cylindric epithelium and containing colloid. Among the microscopic characteristics which differentiate this tumor from ordinary benign adenomatous colloid goiter, the author stresses the invasion of the capsule of the adenoma by the epithelial elements and more particularly their invasion of the blood vessels. The author suggests that the term "angiophilic" more accurately describes this adenoma than the term "metastasizing" or "malignant." These tumors, in the opinion of the author, occupy an intermediary position between benign and malignant neoplasms of the thyroid but are to be considered, because of the tendency to invasion of the blood vessels, as potentially malignant. The author feels that all new growths of the thyroid not associated with sexual maturation or endocrine disturbances should be removed and examined microscopically. Invasion of the blood vessels may be observed by the naked eye in the course of a thyroidectomy. Such vessels should be ligated and resected; if necessary the internal jugular vein should be similarly treated.

Vrachebnoe Delo, Kharkov

20: 801-1028 (No. 11-12). 1938. Partial Index

Problems of Experimental Medicine in Combating Premature Senescence. A. A. Bogomolets.—p. 809.
*Therapeutic Transplantation of Tissues. V. P. Filatov.—p. 813.
Reflex Trophic Disturbances Following Injury to Arterial Trunks. V. N. Shamov.—p. 821.
*Pulmonary Cancer and Tuberculosis. I. I. Faynshmidt and M. Ya. Karliner.—p. 827.
Stages of Croupous Pneumonia. L. F. Dmitrenko.—p. 833.
Ahemoblastosis. A. L. Myasnikov.—p. 837.

Transplantation of Tissue for Therapeutic Purposes.—According to Filatov, partial superficial corneal transplants taken from a cadaver and conserved for from two to seven days at a temperature of from 2 to 4 C. gave better results than when fresh corneal tissue was used. Excellent results were obtained in the last two years in seventeen cases in which the original corneal transplant began to turn opaque. Partial corneal transplants from a cadaver placed at the margin of the opaque transplant rendered it once more translucent. The author treated a variety of inflammatory processes of the cornea with this method and obtained striking therapeutic effects. In eight cases of parenchymatous keratitis of syphilitic origin, the process was arrested in from eight to ten days and the regressive period was considerably shortened. Striking results were likewise obtained in cases of herpetic keratitis, tuberculous keratitis, keratoconus, trachomatous pannus, tuberculous choroiditis and pigmented choroiditis. The method was applied in cases of lupus vulgaris of the face, in tuberculous ulcers, burn scars, scleroderma, psoriasis and duodenal ulcers. In cases other than those involving the eye, the author used various tissues removed from a cadaver, such as skin, labial mucous membrane or blood vessel wall. These were kept for from five to seven days at a temperature of from 2 to 4 C. The

therapeutic effect manifested itself either in rendering the tissue translucent and elastic (cornea), in absorbing a scar, or in stimulating regenerative processes (ulcers). This effect was obtained with autoplastic as well as with homoplastic transplants. The author does not possess as yet sufficient material to determine the relative value of the autotransplant. He attempts to explain the therapeutic effect of skin taken from cadavers and kept refrigerated for several days by assuming that the tissue thus kept is still alive but that in the early stages of its mortification it contains certain products of decomposition capable of acting as catalyzers. They are probably related to the stimulating substances in traumatized tissues, as pointed out by Haberland, and to the "necrohormones" of Caspari appearing during the early stages of decomposition of dead tissue.

Pulmonary Cancer and Tuberculosis.—Faynshmidt and Karliner personally observed 115 cases of primary bronchogenic carcinoma in an attempt to establish the possible etiologic relationship of pulmonary tuberculosis to pulmonary cancer, the effect of one on the other and their differential diagnosis. Hunter's as well as Rokitansky's theory of antagonism of the two processes and their incompatibility in the same organism is refuted by the more recent observations, according to which the coexistence of the two was observed in from 2 to 30 per cent. Most observers emphasize that it is the inactive, fibrous type that is seen in these cases. In the authors' material the coexistence of primary bronchial carcinoma with tuberculosis was observed in 25.9 per cent of the cases. The tuberculous process was represented by more or less healed fibrous foci. There apparently existed no etiologic relationship between the two. They have observed in 10.4 per cent of their cases a combination of bronchial cancer with active open forms of tuberculosis. These lesions represented either a flaring up of old reinfections with a breaking down and the appearance of tubercle bacilli in the sputum as a result of the direct effect on it of a new growth, or an activation of an old process as the result of weakening of the organism by the malignant process. The two processes develop most frequently in the same lung but not in the same localization.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

83: 1199-1316 (March 18) 1939. Partial Index

Use of Papain, a Fibrin-Splitting Ferment, to Prevent Formation of Peritoneal Adhesions. J. P. Kellerman Slotemaker.—p. 1207.
Survival Time of Transfused Erythrocytes. H. J. N. Dekkers.—p. 1212.
*Boron as Antiepileptic. A. Verjaal.—p. 1226.
Treatment of Multiple Sclerosis. A. Biemond.—p. 1234.

Boron as Antiepileptic.—In order to determine the value of boron as an antiepileptic, Verjaal employed it in 100 adults with epilepsy who reacted inadequately to large doses of bromine and phenobarbital or similar substances. He substituted boron preparations for a part of the other medicaments. He always gave the boron preparation in combination with phenobarbital, at first in a combination suggested by Willemse, later in the following combination, which caused less complications: phenobarbital 0.075 Gm., sodium borate 0.500 Gm. and boric acid 0.500 Gm. Powders made up of this combination were given from one to three times a day and in exceptional cases four times. Boron preparations may be given in fluid as well as in powder form, but when given in combination with phenobarbital the powder form is to be preferred. The epileptic patients who were treated with this combination previously had had several epileptic seizures weekly, in spite of the regular use of large doses of phenobarbital. The combined administration of phenobarbital and boron preparation arrested the seizures completely in thirteen patients, and in twenty-seven patients the number of seizures was reduced to less than one third. Among the undesirable complications that may result from medication with boron preparations the author mentions exanthem, gastrointestinal disturbances, increase in temperature, albuminuria, alopecia areata and emaciation. Discussing these complications and their causes, the author points out that, since boron preparations are a constituent of some popular reducing remedies, the physician should consider the possibility of boron poisoning when patients exhibit some of the aforementioned toxic symptoms. The diagnosis of boron poisoning can be based on the presence of boron in the urine. Studies on the metabolism of boron preparations suggested that their favorable effect on epilepsy can be ascribed to their action on the biologic condition of the organism.

83: 1317-1442 (March 25) 1939. Partial Index

Histologic "Grading According to Martzloff" of Squamous-Cell Cancers of Cervix Uteri in Connection with Prognosis and Irradiation. P. J. van Gulik.—p. 1333.
Gastrorrhexis Caused by Fermentation of Gastric Contents. J. H. Lichtenbelt.—p. 1340.
*Serum from Convalescents in Combating Mortality from Measles. W. A. Timmerman.—p. 1346.
Prophylaxis of Measles. H. I. de Ruiter.—p. 1356.

Convalescent Serum in Measles.—Timmerman says that, although the mortality from measles has somewhat decreased in recent years, measles is still comparatively dangerous. A table which indicates the mortality per hundred thousand of population for measles, scarlet fever, whooping cough and diphtheria shows that the mortality from measles comes right after that of whooping cough and is much higher than the mortality from scarlet fever and diphtheria. The mortality is greatest among children less than 5 years of age and it is therefore important that these children be given protection. As a rule it is an older child of a family, one going to school, who first comes in contact with measles, but fortunately these older children are not so much in need of protection. On the day on which the exanthem appears in the first child, that is, when the definite diagnosis is made, the other children should be subjected to prophylactic serotherapy. The author emphasizes that protection is especially important for children less than 3 years old and for all children of any age who have another disorder. He reports the efficacy of convalescent serum in ninety-eight children, some of whom lived in home surroundings and some in various institutions (children's hospitals, sanatoriums and so on). In twenty-three cases partial protection was aimed at and it was accomplished in twenty-two cases; in one case the resulting protection was complete. In seventy-five cases complete protection was the purpose, which was successful in fifty; in twenty cases a slight morbilloid resulted, in five no influence of the serum on the course of the disease was seen. A table which lists the dosages employed reveals that for complete protection from 3 to 12 cc. is given, the larger doses being administered to older children and in the later stages of incubation. In remarks about the possibility of substituting placental extract for convalescent serum the author says that the placental extracts are likely to cause undesirable complications and that, until they have been further improved, convalescent serum is to be preferred.

Acta Obstet. et Gynec. Scandinavica, Stockholm

18: 245-358 (No. 3) 1938. Partial Index

*Treatment of Abortion. F. Holtz.—p. 245.
*Roentgenologic Diagnosis of Placenta Praevia. E. Petersen.—p. 275.
Experiences with Method for Lessening Pains of Labor with Nitrous Oxide. S. Karlson.—p. 285.
Traumatic Diabetes Insipidus and Pregnancy: Case. E. Brattström.—p. 320.
Primary Sarcoma of Fallopian Tube: Case. B. Jörgensen.—p. 326.
Insertio Furcata Funiculi Umbilicalis. O. Herberz.—p. 336.

Treatment of Abortion.—Holtz collected and analyzed 2,718 cases of abortion, 1,372 of which were reexamined at the end of four years of observation. Regarding the early abortions, that is, those developing during the first three months, the author says that in the uncomplicated cases without severe hemorrhage the immediate as well as the late results were better after active treatment: infection spread less frequently, the mortality was lower, the patients were bedfast for a shorter period and sterility followed less often than was the case after conservative treatment. The better results of the active treatment were especially noticeable in febrile cases. The evacuation after a prolonged course was followed comparatively often by a spreading infection, development of secondary anemia, prolonged rest in bed and sterility. Evacuation at the feverish stage did not seem to impair the results of active treatment, but to a certain extent abundant bleeding had an aggravating effect. Summarizing his observations on late abortions, that is, on those occurring between the fourth and seventh month of gestation, the author says that the result of expectant treatment was good both in feverish and in nonfeverish cases. In the majority of cases fetus as well as placenta passed spon-

taneously and completely In the cases in which placental retention occurred, the result of active treatment was more satisfactory (lower morbidity and shorter period in bed) than that of conservative treatment In these cases likewise the result of evacuation after a prolonged course was less satisfactory These observations show that in cases of early abortion without complications the treatment should be active, in cases of late abortion, on the other hand, it should be expectant, except in placental retention, in which case evacuation should be induced

Roentgenologic Diagnosis of Placenta Praevia—Petersen reviews the method of the roentgenologic diagnosis of placenta praevia, which was described by Ude and Urner in the *American Journal of Obstetrics and Gynecology* **29**:667 (May) 1935 The method is a cystography, that is, 40 cc of a 12.5 per cent solution of sodium iodide is instilled into the bladder after it has been emptied Petersen says that he used this method with satisfactory results in several cases In the presence of placenta praevia a free space appears in the roentgenogram between the fetal head and the bladder The method permits the diagnosis of placenta praevia centralis and partialis and it confirms the absence of placenta praevia in the cases in which there is no space between the fetal head and the maternal bladder

19: 1 111 (No 1) 1939

Case of Thrombosis of Umbilical Vein in One of Uniovular Twins A Ingelman Sundberg —p 1
*Menstrual Disturbances Treated with Follicular Hormones H Anker —p 9
Prognosis of Manual Removal of Placenta and Possible Predisposing Factors of Retained Placenta E Schie —p 28
Justification of Rupture of Bag of Waters and Their Relations to Opening of Cervix J Kreis —p 52
Studies on Duration of Birth in Finland Rapidity of Opening of Uterine Os, Time of Rupture of Bag of Waters and Rapidity of Passage of Head Through Birth Canal A M Ritala —p 63

Estrogen in Treatment of Menstrual Disturbances.—Anker treated seven cases of menorrhagia, including six of the juvenile type, with large doses of estrogen In two cases the cycle became regular after the treatment, the loss of blood being of normal strength and duration In three others the treatment was followed by a decrease in the strength and the duration of the hemorrhages, but the cycle did not become regular, on the contrary, amenorrhea of several months' duration developed before menstruation set in again In two cases the menorrhagia persisted after the treatment but the severity was lessened One of the latter cases was not of the juvenile type Curettage in three of the cases of juvenile menorrhagia showed the usual histologic picture of that disease, namely glandular hypoplasia of the endometrium with twisted glandular tubes of increased number, depth and width The author concludes from this that the mucosa is influenced by the corpus luteum hormone rather than, as is usually assumed, that the function of the corpus luteum is deficient in these cases Consequently the disorder should be treated with estrogen rather than with progesterone In five cases of secondary amenorrhea or oligomenorrhea the author gave estrogen either alone or in combination with progesterone Three patients responded to the treatment with menstrual bleeding, in two cases the infantile symptoms were improved and one woman, who had been sterile for a year, became pregnant

Bibliotek for Læger, Copenhagen

131: 51 100 (Feb) 1939

*Uratic Arthritis K Brøchner Mortensen —p 51

131: 101 172 (March) 1939

*Uratic Arthritis K Brøchner Mortensen —p 101

Uratic Arthritis—On the basis of the literature and on his observations in the twenty-six cases reported, Brøchner-Mortensen discusses the diagnosis of uratic arthritis A typical history and acute attacks, he says, are the most certain aids in diagnosis Subcutaneous uratic tophi, verified by the murexide test, while pathognomonic for uratic arthritis, are inconstant and are usually a late symptom, roentgenologically demonstrable defects in the bones are of more frequent occurrence and appear earlier but they are not pathognomonic Hyperuricemia, which occurs in about two thirds of the cases and is almost always present when the condition has lasted for some years, also appears in other disorders The amount of endogenic uric acid eliminated is the same as in normal persons The renal function measured by the creatinine and urea clearance is normal in most cases After intravenous or oral purine loading, an increase of at least 50 per cent, usually considerably more, is seen in the urea clearance in normal persons, in patients with uratic arthritis the increase is on the whole less marked There is apparently a renal threshold for uric acid, corresponding to 4 or 5 mg per hundred cubic centimeters of uric acid in the serum on the average in normal persons, somewhat higher in patients with uratic arthritis Attempts at inducing acute attacks by the administration of foods containing purine or by a ketogenic diet maintained for a longer time as a rule gave negative results Signs of a slight reduction of the liver function or injury of the liver parenchyma were found in twelve of the twenty-six patients There was polycythemia in three patients and anemia in two In acute attacks of uratic arthritis the sedimentation speed of the erythrocytes was generally increased In six cases with a picture reminding one of the "atypical uratic arthritis" described in the literature, the history failed to support the diagnosis, and until the theoretical possibility of such cases without acute attacks is supported further by definite observations and until the knowledge of the etiology and pathogenesis of true rheumatism is more complete the author advises conservatism in diagnosing "atypical uratic arthritis"

Finska Läkaresallskapets Handlingar, Helsingfors

81: 1053 1176 (Nov) 1938

*Occurrence and Significance of Stasis Albuminuria M C Ehrström —p 1149

Stasis Albuminuria—Ehrstrom says that stasis albuminuria, usually slight, occurs in about half of all cases of cardiac insufficiency When severe, hypoproteinemia and nephrotic edemas may develop It is more frequent and more severe in cases with hypertension and valvular defects of the aorta than in other cardiac insufficiencies In hypertension the condition may perhaps depend on latent renal injury, in those with defects of the aortic valves, on the great frequency of syphilis

Nordisk Medicin, Helsingfors

1: 207 269 (Jan 28) 1939

Duodecim

Lumbar Sympathectomy M Hamalainen —p 219
Bovine Type as Cause of Tuberculosis in Man J Pikkarainen —p 224
Patho Anatomic Research and Nature of Tumors A Saxen —p 227.
*Renal Complications Due to Gonorrhea Lauri Kalaja —p 230

Renal Complications Due to Gonorrhea.—Kalaja says that according to Uhle only thirteen of the cases of renal complications due to gonorrhea reported up to 1934 are certain and a lesion of the infected kidney had already occurred in nearly all the cases He reports a case of pararenal abscess in connection with gonorrheal renal infection The patient, a man aged 25, had had a slight purulent discharge from the urethra, which ceased spontaneously A month later chills and fever set in, with increasing abdominal pain A large pararenal abscess was discovered on the left side By repeated puncture more than 750 cc of pus was removed Conservative treatment was followed by recovery The urine and smears of the pus from the abscess contained gram-negative diplococci, and gonococci were established in culture from the urine, there was also a definite complement binding reaction

1: 415 486 (Feb 18) 1939

*Ovarian Tumors with Inner Secretory Action H Bergstrand —p 415
Features of Pathology of Musical Functions H J Ustvedt —p 420

Ovarian Tumors with Inner Secretory Action—Bergstrand says that the granulosa tumors are usually unilateral and occur at all ages, though rarely in children Often three histologically different forms appear in the same tumor The tumors have cancer-like and sarcoma-like formations but are generally benign Large amounts of estrogen are secreted and demonstrable both in the serum and in the urine Before the climacteric the tumors are associated with irregularities in menstruation and uterine hemorrhages, after the climacteric hemorrhages dominate The musculature of the uterus is

hypertrophic, the mucous membrane is hyperplastic and the glands of the mucous membrane become cystically distended. In rare cases virilism or hirsutism is seen. The Brenner tumors, although they cause no inner secretory phenomena, are probably a variant of the granulosa tumors. They are benign, are as a rule unilateral, and occur after the climacteric. The theca cell tumors, also probably a variant of the granulosa tumors, are macroscopically fibroma-like, with the configuration of the ovary and yellow softer parts; microscopically they resemble the diffuse form of the granulosa tumors. Hemorrhages occur after longer or shorter peiods of amenorrhea. Sometimes there is virilism. Luteinomas are unilateral, have a characteristic yellow appearance because of the fat-filled cells, and both macroscopically and microscopically suggest a large corpus luteum. With these tumors virilism and amenorrhea are more regular symptoms. Pathogenically the four tumor types named belong to a common group. Disgerminomas, usually bilateral, occur at puberty and a large percentage cause metastases. Histologically their structure is identical with that of seminomas of the testis. In rare cases symptoms belonging to the adrenogenital syndrome are connected with them. Many of the tumors described as arrhenoblastomas are believed to be granulosa tumors. In their most differentiated form they are said to consist of tubuli; in other cases the structure is complicated with alternating sarcomatous and carcinomatous parts which merge into one another; the first type is benign, the second malignant.

Norsk Magasin for Lægevidenskapen

1: 487-566 (Feb. 25) 1939

*Pulmonary Metastases: 148 Cases. T. J. Olsen.—p. 499.
Investigations on Prognosis of Schizophreniform Psychoses with Special Regard to Question of Shock Treatment. G. Langfeldt.—p. 507.
Medicolegal Evaluation of Fracture of Neck Found in Drowned Man. F. Harbitz.—p. 513.
Encephalitis with Acute Parkinsonism. F. Lorentzen.—p. 518.
Treatment of Acute Poliomyelitis. K. Zeiner-Henriksen.—p. 521.
Investigations on Vitamin C Balance in Asylum Patients. O. J. Broch. —p. 525.

Pulmonary Metastases.—Olsen reports 119 cases of carcinoma and twenty-nine of sarcoma in which pulmonary metastases were diagnosed from 1932 to 1936. Excluding the cases of cancer of the breast and of the genitals there was a slight preponderance in men. About 4 per cent of the patients were under 40. Most of the patients died within a year, ten lived more than a year and two lived about two years. Of the forty patients with physical abnormalities over the lungs, thirty-three had cancer of the breast, in which involvement of the pleura is more common. The author says that in seminoma testis there seems to be a special type of metastasis, in many sarcomas there is a ball-like metastasis, and nearly half of the cases of cancer of the breast have a characteristic x-ray appearance; otherwise neither the histology of the primary tumor nor its localization determines the type of metastasis seen in the x-ray examination of the lung. With regard to lymphatic permeation, there was no case of pulmonary metastasis in cancer of the breast in which the patient had been operated on radically and given postoperative radium treatment as soon as possible. The results of roentgen treatment in thirteen cases of pulmonary metastasis are reported. A conformity seems to exist between the radiosensitivity of the primary tumor and the pulmonary metastasis. The radiosensitivity was marked in a case of malignant melanoma, one of osteogenic sarcoma and especially two cases of metastasis from seminomas. The treatment was well borne and temporary benefit followed.

Svenska Läkaresällskapets Handlingar, Stockholm

64: 1-122, 1938

*Periodic Fever. E. Ask-Upmark.—p. 1.
Gullstrand's Farbenmischung Apparatus. G. F. Olsson.—p. 94.

Periodic Fever.—By periodicity Ask-Upmark means the occurrence of fairly regular pyrexial cycles, usually lasting several days. Among 346 patients with tumors of the skeletal system, diseases of the blood, lymphogranulomatosis, hyperparathyroidism and renal tumors, there were thirty-eight positive and forty-six probably positive instances of periodic fever. The period of fever as a rule averaged from eight to twelve days. Periodicity was especially noticeable in Ewing's sarcoma and in the severe anemias, particularly in the more or less aplastic cases. When the anemias improved, the fever gradually disappeared. Puncture of the bone marrow and a reticulocyte count pointed to a stimulation of hemopoietic activities during the attacks of fever, and the author concludes that periodic fever in tumors of the bone and diseases of the blood is connected with involvement of the bone marrow. He says that the periodic fever present in undulant fever, rat-bite fever, relapsing fever, trench fever, kala-azar, dengue and some other conditions may also be explained by involvement of the pathologic process of the reticulo-endothelial system in general and the bone marrow in particular and that these structures may presumably be affected in other infectious disorders. The periodic fever in malignant lymphogranulomatosis (Pel-Ebstein phenomenon) can be accounted for by the theory that periodicity is inherent in the functional activity of the reticulo-endothelial system. Enlargement of the affected spleen or lymph nodes may correspond to periods of fever. The fever after splenectomy is not infrequently typically periodic and may be ascribed to compensatory adjustments taking place in other parts of the reticulo-endothelial system. The stimulation of blood regeneration connected with splenectomy may be understood from the same point of view. The fever, often periodic, which occurs in hyperparathyroidism and disappears following removal of the parathyroid adenoma, may depend on the pathologic processes in the bone marrow. In pernicious anemia the degree of fever was found to be definitely related to the severity of the anemia, and often periodic. Involvement of the reticulo-endothelial system is also suggested in cases of fever in certain intoxications. With regard to malignant tumors in general, fever as a rule occurs especially in tumors of the hemopoietic system, which, the author asserts, seems to corroborate his general conception that periodic fever is to be encountered mainly in diseases affecting the bone marrow or the reticulo-endothelial system.

Ugeskrift for Læger, Copenhagen

101: 231-258 (Feb. 23) 1939

Clinical Investigations on Diabetes Diet Containing More Abundant Carbohydrates With and Without Insulin: Third Report. M. Lauritzen. —p. 231.
Orthopedic Treatment of Poliomyelitis. A. Berntsen.—p. 236.
New Application of Sedimentation Reaction in Differential Diagnosis of Liver Diseases. S. Toft.—p. 240.
*Fatal Epinephrine Intoxication. H. Gormsen.—p. 242.
Child Psychiatry: II. Infantile and Juvenile Paralytic Dementia. G. K. Stürup.—p. 245

Fatal Epinephrine Intoxication.—Gormsen reports that a man, aged 42, with a history of bronchial asthma, treated earlier with injections of epinephrine and later with inhalation of a 10 per cent epinephrine solution in spray, used 0.6 cc. of this preparation (60 mg. of epinephrine) in subcutaneous injection through a misunderstanding. Death resulted in a few minutes. Necropsy showed hyperemia of all organs. Microscopic examination disclosed capillary and venous stasis in nearly all the organs, while the arteries in many places were empty. In the lungs there were edema and extensive hemorrhages. Small interstitial hemorrhages appeared in the kidneys. The author says that of the twenty-eight cases previously reported which are ascribed to acute epinephrine intoxication, the only certain cases are the five he cites, all due to overdosage by mistake. In two of these cases a 1 per cent solution of epinephrine was injected instead of a procaine-epinephrine solution; in the others procaine hydrochloride dissolved in a 1 per cent solution of epinephrine was used instead of the commonly applied small amount of epinephrine in a 1 per cent procaine solution. The symptoms were immediate pain in the neck, anxiety, pallor, vomiting, dyspnea, increased pulse rate and collapse, which, in connection with marked rise in the blood pressure, are like the phenomena of hyperadrenalemia paroxysms in chronic chromaffin tumors. The minimum lethal dose for subcutaneous injection seems to be about 10 mg. of epinephrine. While the histologic picture in fatal epinephrine intoxication is apparently fairly characteristic, neither the macroscopic nor the microscopic changes are specific, and since epinephrine because of rapid destruction in the blood cannot be established in the organs or blood, analyses of eventual remains of the solution used must be the decisive factor in medicolegal examination of cases attributed to epinephrine overdosage.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JANUARY-JUNE 1939

Titles have been listed or Abstracts made of important articles in the following journals in the Current Literature Department of THE JOURNAL during the past six months. Any of the journals, except those starred, will be lent by THE JOURNAL to subscribers in continental United States and Canada and to members of the American Medical Association for a period not exceeding three days. Three journals may be borrowed at a time. No journals are available prior to 1929. Requests for periodicals should be addressed to the Library of the American Medical Association and should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Thus most of these journals are accessible to the general practitioner.

Acta Chirurgica Scandinavica. Stockholm.
Acta Medica Scandinavica. Stockholm.
Acta Medica URSS. Moscow.
Acta Obstetricia et Gynecologica Scandinavica. Stockholm.
Acta Orthopaedica Scandinavica. Copenhagen.
Acta Pædiatrica. Stockholm.
Acta Radiologica. Stockholm.
Acta Tuberculosea Scandinavica. Copenhagen.
American Heart Journal. St. Louis.
American Journal of Cancer. New York.
American Journal of Clinical Pathology. Baltimore.
American Journal of Digestive Diseases. Huntington, Ind.
*American Journal of Diseases of Children. A. M. A., Chicago.
American Journal of Hygiene. Baltimore.
American Journal of Medical Jurisprudence. Boston.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. St. Louis.
American Journal of Orthopsychiatry. Menasha, Wis.
American Journal of Pathology. Boston.
American Journal of Physiology. Baltimore.
American Journal of Psychiatry. New York.
American Journal of Public Health. New York.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Journal of Syphilis, Gonor. and Venereal Diseases. St. Louis.
American Journal of Tropical Medicine. Baltimore.
American Review of Tuberculosis. New York.
Anales del Instituto Modelo de Clinica Médica. Buenos Aires.
Annales de Médecine. Paris.
Annales Pædiatrici. Basel.
Annali Italiani di Chirurgia. Bologna.
Annals of Internal Medicine. Lancaster, Pa.
Annals of Medical History. New York.
Annals of Otology, Rhinology and Laryngology. St. Louis.
Annals of Surgery. Philadelphia.
Archiv für Dermatologie und Syphilis. Berlin.
Archiv für Gewerbepathologie und Gewerbehygiene. Berlin.
Archiv für Gynäkologie. Berlin.
Archiv für Kinderheilkunde. Stuttgart.
Archiv für klinische Chirurgie. Berlin.
Archiv für orthopädische und Unfall-Chirurgie. Berlin.
Archiv für Verdauungs-Krankheiten. Basel.
*Archives of Dermatology and Syphilology. A. M. A., Chicago.
Archives of Disease in Childhood. London.
*Archives of Internal Medicine. A. M. A., Chicago.
Archives des Maladies de l'Appareil Digestif. Paris.
Archives des Maladies du Cœur. Paris.
Archives Médico-Chirurgicales de l'Appareil Respiratoire. Paris.
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SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "OS," Organization Section; "SS," Student Section; "ab," abstracts; the star (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." State board examinations are entered under the general heading State Board Reports, and not under the names of the individual states. Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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SOCIETIES

Acad—*Academy*
Am—*American*
A—*Association*
Coll—*College*
Conf—*Conference*
Cong—*Congress*
Conv—*Convention*
Dist—*District*
Hosp—*Hospital*
Internat—*International*
M—*Medical*
Med—*Medicine*
Nat—*National*
Phys—*Physicians*
Phar—*Pharmaceutical*
Rev—*Revision*
Ry—*Railway*
Soc—*Society*
Surg—*Surgery*
Surgs—*Surgeons*
S—*Surgical*

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